Educational Module
2006 MicroScan® Microbiology ASM Presentations

Answers to Questions for Accreditation

Using Current CLSI Standards to Guide Antimicrobial Testing and Reporting of Multi-Drug Resistant Bacteria. ***Janet Hindler, MCLS MT(ASCP) F(AAM)***

1. A positive D-zone test provides what information?
Bacteria has (*erm*-mediated) induced resistance to clindamycin

2. True/False: Colistin and Polymyxin can be reliably tested by disk diffusion or MIC methods
False – testing reliable only by MIC

3. When should the laboratory consider testing agents that have no current CLSI interpretive guidance?
At request of infectious disease or other physician in severe infections where the isolate is resistant to standard agents tested.

Antimicrobial Susceptibility Testing of Pseudomonas aeruginosa Isolates from Cystic Fibrosis Patients. ***Joseph M. Campos, Ph.D., D(ABMM):***

1. Which is more appropriate for optimal detection of resistance: testing a mixture of morphotypes or testing each morphotype individually?
Test morphotypes separately – testing together may lead to results that underestimate resistance

2. What inoculum method should be used for testing mucoid isolates of *Pseudomonas aeruginosa?*
Turbidity method

3. True/False: Mucoid variants are generally less susceptible then those with a rough morphotype.
True

Impact of *Acinetobacter* Infections in the Clinical Microbiology Laboratory. ***Paul Schreckenberger, Ph.D., D(ABMM):***

1. What species of Acinetobacter is involved in about 80% of all Acinetobacter-related infections?
A. calcoaceticus-baumanii complex

2. True/False: Acinetobacter is the most common cause of wound infections in Iraqi war veterans.
True

3. MDR Acinetobacter is defined as:
Any isolate that is sensitive to no more than one class of antibiotic (excluding colistin)

Vancomycin and Staphylococci: Laboratory Considerations. ***Barbara Zimmer, Ph.D.***

1. True/False: VISAs are typically recovered in patients who have been on prolonged or intermittent vancomycin therapy.
True

2. What is heteroresistance and how does it appear?
Variability of susceptibilities among subpopulations of a single isolate; VISA colonies appear as smaller, slower growing colonies than other S. aureus isolates on the same plate.

3. True/False: VRSA can be detected by the disk diffusion method.
False – may see some subtle growth only by disk diffusion

The Dynamic ESBL Landscape – CLSI and Beyond. ***Audrey Wanger, Ph.D.***

1. Why is detection of ESBL-producing organisms important?
If undetected, clinical failure may result if patient treated with beta-lactam antibiotic

2. Name two risk factors for colonization or infection with ESBL-producing organisms.
Increased hospital stay; presence of artificial devices; increased use of antimicrobial agents; previous stay in long term facility.

3. True/False: Cephamycins are the most effective antimicrobial agents against ESBLs.
False – carbapenems are the most effective agents.

Importance of Focused Reporting and Surveillance. ***James Snyder, Ph.D. D(ABMM)***

1. Name three purposes for developing and maintaining a current antibiogram.
Provides guidance to physicians for selection of empiric therapy; data is reflective of agents available on formulary; use promotes "switch therapy" options; focused antibiograms highlight locations (e.g., ICU) where organisms are more resistant; reflects institutional trends

2. True/False: Duplicate culture results can make a drug-bug combination appear more susceptible in the antibiogram.
True – generally speaking.

3. Why do focused antibiograms improve physician compliance in antimicrobial selection?
They are more apt to select a more appropriate drug initially / empirically based on susceptibility of organisms typically isolated in that unit or for that source.

AmpC β-lactamases: Diagnostic and Therapeutic Challenges. ***Ken Thomson***

1. Name 3 bacterial species which can possess inducible ampC enzymes.
Enterobacter, Serratia, Citrobacter, Providencia, Morganella morganii, Hafnia alvei, Pseudomonas aeruginosa, Aeromonas

2. True/False: Aztreonam is a good inducer of ampC beta lactamase.
False

3. Currently there are two classes of antimicrobials with activity against ampC's. Name one.
Carbapenems (imipenem, Ertapenem, meropenem) or 4th generation cephalosporins (cefepime)

Susceptibility Case Studies: Impact on Antimicrobial Selection. ***Richard Thomson, Jr., Ph.D.***

1. What sputum gram stain observation(s), even in the presence of multiple squamous epithelial cells, would support culture work-up and susceptibility testing?
Intracellular bacteria, Curshmann's spirals

2. True/False: Use of an infectious disease pharmacist can decrease the time to appropriate antimicrobial use in cases of MRSA infection.
True

3. What are typical gram stain morphologies seen with aspiration pneumonia?
PMN's, squamous epithelial cells; lots of bacteria and mixed bacterial morphotypes; more intracellular bacteria than extracellular

Maximize Your Antibiogram Data. ***Stephen Moser***

1. Why might it be useful to evaluate patterns of resistance across multiple drugs or classes vs. single agents?

To supply comprehensive information about most appropriate antibiotic choices based on specific organism; to enhance epidemiological trend analysis.

2. True/False: Data mining is a process of identifying useful patterns in stored data.

True

3. What types of data might be removed when cleaning up data for data mining activities and why?

Non-patient results and duplicates – makes data more relevant as reference for empiric therapy selection.

Community-Associated MRSA: An Update for Clinical Laboratories. ***Linda Mann***

1. Which resistance gene is associated with MRSA?

mecA

2. True/False: Oxacillin can be reliably tested by the disk diffusion method

False

3. Community-acquired MRSA frequently are more susceptible than hospital-acquired strains to what groups of antimicrobial agents?

Non-beta-lactam agents, e.g., clindamycin, trimethroprim/sulfamethoxazole, fluoroquinolones