

## Continuing Education Questions

FALL 2012

- The two patients in the first example experienced similar morbidity except
  - patient 1 was treated with amikacin.
  - patient 2 had end-stage renal disease.
  - patient 2 developed bullae on the leg.
  - patient 1 required debridement of 40% of his body.
- The two cases of necrotizing fasciitis required
  - empiric therapy with vancomycin for MRSA.
  - surgery of the abdomen, thighs and buttock.
  - ampicillin-sulbactam for infection with *A. baumannii*.
  - empiric therapy with imipenem and colistin.
- In the second example, the younger of two sisters with *E. coli* ST131 was treated
  - successfully for an ESBL-producing GNB.
  - with antibiotics based on a hospital antibiogram.
  - after blood cultures grew an MDR *E. coli*.
  - with vancomycin and amikacin before she died.
- The transmission of UTI infection to the younger sister resulted from
  - exposure to community-acquired infections.
  - an MDR GNB resistant to ciprofloxacin.
  - a case of alpha-1-anti-trypsin disease.
  - admission to a long-term care facility.
- The hospital formulary of antibiotic agents is determined by
  - regularly updated hospital antibiograms.
  - CLSI and FDA approved agents for bacteria.
  - infectious disease specialists and pharmacologists.
  - the AST method used at the individual institution.
- MIC breakpoints are required to determine
  - the *in vivo* effects of an antibiotic agent.
  - resistance mechanisms of a bacterial agent.
  - the interpretive criteria for AST.
  - virulence or toxin-producing bacterial effects.
- The disk diffusion method differs from quantitative methods in
  - use of the 0.5 McFarland preparation standard.
  - concentration of antimicrobials impregnated in a disk.
  - the final inoculum preparation of  $5 \times 10^5$  CFU/ml.
  - the interpretive values derived from zone diameters.
- A quantitative AST method should be chosen
  - according to cost effectiveness and lab space.
  - by institutional need and technical staff availability.
  - by CLSI guidelines for testing aerobic bacteria.
  - according to the ATCC reference strains available.
- In the United States, the most reliable quantitative method
  - continues to be the broth dilution method.
  - has always been the agar dilution reference method.
  - uses the lowest drug concentration to inhibit growth.
  - is recorded as the gradient antimicrobial E-test strip.
- Genotypic testing is not superior to phenotypic methods except
  - for routine use by the clinical laboratory.
  - in accuracy for epidemiologic monitoring.
  - in CLSI, FDA and EUCAST standardization.
  - when valid quality controls are measured.

## FOCUS: UPDATING ANTIMICROBIAL SUSCEPTIBILITY TESTING

11. Real-time PCR assays have an advantage over AST
  - a. when agarose gel is used for product amplification.
  - b. when used for DNA probe tests for resistant genes.
  - c. in the rapid detection of resistant determinants.
  - d. in determining isolation and treatment of carriers.
12. PCR-based tests are considered revolutionary in the
  - a. detection of enzymes in gram-positive organisms.
  - b. replacement of disk diffusion and broth dilution testing.
  - c. prevention of false positive results of non-specific products.
  - d. ability to detect carbapenemases identifying KPC.
13. AST “state of the art” considerations should focus on
  - a. hospital and laboratory cost effectiveness.
  - b. educational web sites and teleconferences.
  - c. publishing antibiograms and CLSI standardization.
  - d. attention to the CDC’s CD-ROM learning materials.
14. What critical factors predominate in disk diffusion versus broth dilution testing?
  - a. incubation time of 16-24 hours and 35°C temperature
  - b. pH, cation content and preparation of the media
  - c. media for testing anaerobes and fastidious bacteria
  - d. hospital/laboratory size and cost effectiveness
15. Sources of serious error when performing AST include
  - a. bacterial inoculum purity and dilution density
  - b. choice of reference strains of bacteria
  - c. antimicrobial agent storage requirements
  - d. choice of disk diffusion versus broth dilution
16. Which parameter(s) best describe breakpoint determination?
  - a. frequency distribution, PK/PD analysis, etc.
  - b. multiple antibiotic versus single antibiotic therapy
  - c. CLSI exclusion of cefazolin dosage information
  - d. “personalized” antibiotic reports for specific body sites
17. Predicting clinical outcome from an AST report
  - a. varies with serum peak and trough concentrations.
  - b. may depend on the diversity of host response factors.
  - c. may require further *in vitro* susceptibility tests.
  - d. is not reliable when molecular methods are utilized.
18. Direct detection of resistant determinants with PCR assays
  - a. will resolve the problem of unusual patterns in some drugs.
  - b. may not distinguish variations in ESBL phenotypes.
  - c. eliminates problems caused by false positive results.
  - d. predicts successful patient outcomes 35% of the time.

# Continuing Education Registration Form

To earn continuing education (PACE) credit, (1) complete the form below, (2) record your answers, and (3) mail a photocopy with a check or money order (\$18 for ASCLS members, \$28 for non-members) to:

American Society for Clinical Laboratory Science  
P.O. Box 15330, Wilmington DE 19886-5330

A certificate of completion will be awarded to participants who achieve a passing grade of 70% or better. Participants should allow eight weeks for notification of scores and receipt of certificates.

Alternately the Focus exam can be completed online. To register as a participant and receive a username and password to access the online quiz, go to the ASCLS Online Store at <http://www.ascls.org/publications/edconn.asp>; follow the links to the member or non-member store. Once in the store, click on the Online Quizzes category, and select the title of the FOCUS series to receive access to the correct quiz. Allow 1-2 business days to receive username, password and instructions.

**Focus: Updating Antimicrobial Susceptibility Testing** carries 2.0 hours of Basic level P.A.C.E.<sup>®</sup> credit. This form can be submitted for credit for up to two years from the date of issue.

Print or type carefully.

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Check all that apply:

- Send my certificate of completion via email
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- I would like information on other continuing education sources

## Participant Information

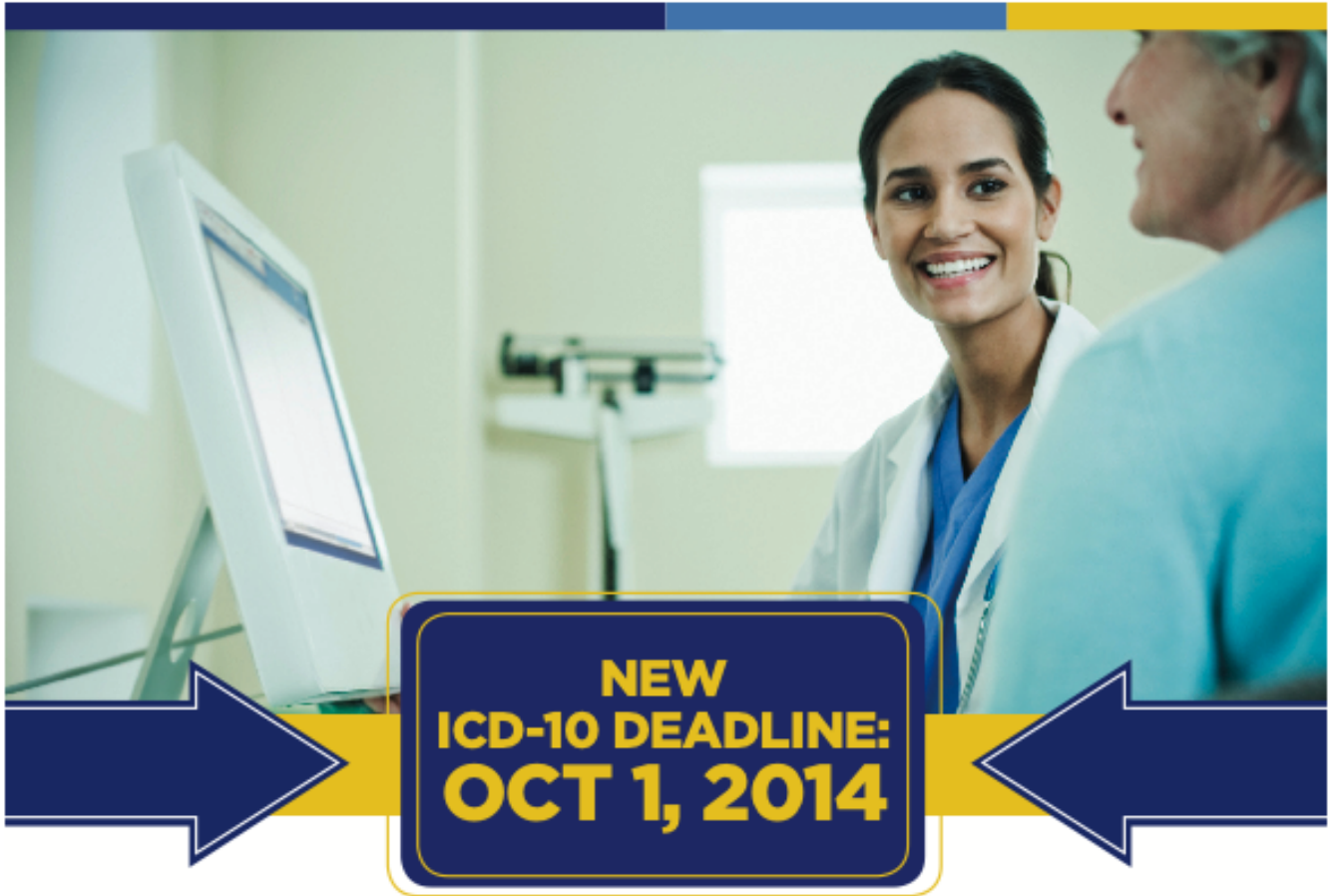
Please circle the most appropriate answers.

1. Is this program used to meet your CE requirements for:  
(a) state license (b) BOC (c) employment (d) other
2. Did these articles achieve their stated objectives?
3. How long did it take you to complete both the reading and the quiz? \_\_\_\_\_ minutes
4. What subjects would you like to see addressed in the future Focus articles?

## Answers

Circle correct answer.

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|-------------|-------------|
| 1. a b c d  | 12. a b c d |
| 2. a b c d  | 13. a b c d |
| 3. a b c d  | 14. a b c d |
| 4. a b c d  | 15. a b c d |
| 5. a b c d  | 16. a b c d |
| 6. a b c d  | 17. a b c d |
| 7. a b c d  | 18. a b c d |
| 8. a b c d  |             |
| 9. a b c d  |             |
| 10. a b c d |             |
| 11. a b c d |             |



## 2014 COMPLIANCE DEADLINE FOR ICD-10

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The ICD-10 transition is coming October 1, 2014. The ICD-10 transition will change every part of how you provide care, from software upgrades, to patient registration and referrals, to clinical documentation, and billing. Work with your software vendor, clearinghouse, and billing service now to ensure you are ready when the time comes. ICD-10 is closer than it seems.

CMS can help. Visit the CMS website at [www.cms.gov/ICD10](http://www.cms.gov/ICD10) for resources to get your practice ready.

