

MEDICAL LABORATORY OBSERVER



## REDUCING HAIs AND ARIs and REAL-TIME PCR TESTING FOR CDI

*MLO* and Northern Illinois University (NIU), DeKalb, IL, are co-sponsors in offering continuing education units (CEUs) for this issue's article on "REDUCING HAIs AND ARIs" and "REAL-TIME PCR TESTING FOR CDI." CEUs or contact hours are granted by the College of Health and Human Sciences at NIU, which has been approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® program (Provider No. 0001) and by the American Medical Technologists Institute for Education (Provider No. 121019; Registry No. 0061). Approval as a provider of continuing education programs has been granted by the state of Florida (Provider No. JP0000496), and for licensed clinical laboratory scientists and personnel in the state of California (Provider No. 351). Continuing education credits awarded for successful completion of this test are acceptable for the ASCP Board of Registry Continuing Competence Recognition Program. After reading the articles, answer the following test questions and send your completed test form to NIU along with the nominal fee of \$20. Readers who pass the test successfully (scoring 70% or higher) will receive a certificate for 1 contact hour of P.A.C.E.® credit. Participants should allow four to six weeks for receipt of certificates.

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The Cover Story, Clinical Issues, and Lab Management published in this month's *MLO* are peer-reviewed.

**Note:** This CE test includes questions from two articles featured in the cover story section: "Reducing HAIs and ARIs" and "Real-time PCR testing for CDI."

Objectives and Continuing education questions prepared by Gail S. Williams, PhD, MT(ASCP) SBB, CLS(NCA), Clinical Laboratory Sciences Program, College of Health and Human Sciences, Northern Illinois University, DeKalb, IL.

### CE QUESTIONS

- Currently, the primary cause of HAIs and ARIs is**
  - MRSA.
  - VRE.
  - Both a and b (tied for No. 1).
  - Neither a nor b.
- CDI causes**
  - mild diarrhea.
  - toxic megacolon.
  - sepsis.
  - death.
  - all of the above.
- What enzyme is produced by *Klebsiella pneumoniae*, *Escherichia coli*, and *Salmonella*, leaving the infected patient with no antibiotic treatment options?**
  - Methicillinase.
  - Beta*-lactamase.
  - Carbapenemase.
  - None of the above.
- MRSA has become an increasing problem in hospitals and communities because of**
  - inadequate hand-washing.
  - inappropriate use of antibiotics.
  - patients with underlying health problems.
  - all of the above.
- Influenza H1N1 infections become deadly 50% of the time when the patient is co-infected with**
  - Klebsiella pneumoniae*.
  - E coli*.
  - Salmonella*.
  - MRSA.
- What estimated percent of HAIs are resistant to commonly used antibiotics?**
  - 30%
  - 50%
  - 70%
  - 90%
- How should Carbapenems be used?**
  - They should be saved for the most severe infections where other antibiotics would be ineffective.
  - They should be used for all serious infections.
  - They should be used for Carbapenem-resistant organisms.
  - They should be widely used for all organisms.
- What estimated percent of patients with respiratory infections who are treated with antibiotics actually need them for recovery?**
  - 45%
  - 55%
  - 80%
  - 20%
- A new method to reduce the use of antibiotics is**
  - testing for Calcitonin levels.
  - testing for Procalcitonin levels.
  - sputum culture.
  - real-time PCR.
- 0.05 nG/mL of PCT indicates**
  - nothing; PCT is not related to infections.
  - normal levels; no antibiotic need.
  - bacterial infection likely.
  - start antibiotic therapy immediately.
- Declining levels of PCT helps to determine that the appropriate antibiotic therapy is being used.**
  - TRUE
  - FALSE
- Ventilator-associated pneumonia, or VAP, is best diagnosed by culturing fluid collected by a standard bronchial-washing technique.**
  - TRUE
  - FALSE
- Quantitative cultures of lung specimens help to determine if the patient has a significant infection rather than a specimen contaminated with normal respiratory flora.**
  - TRUE
  - FALSE

14. Which of the following tests for CDI has a rapid turnaround time?

- a. Stool culture
- b. Cytotoxicity assay for Toxin B
- c. Real-time PCR
- d. All of the above

15. Which test for CDI has the best combination of sensitivity and specificity?

- a. EIA for Toxin A and B
- b. Real-time PCR for Toxin B gene
- c. Glutamate dehydrogenase
- d. Stool culture

16. CDI with only Toxin A produced causes the most severe infection.

- a. TRUE
- b. FALSE

17. According to the APIC, approximately how many patients in hospitals die each year from CDI?

- a. 13,000
- b. 28,000
- c. 109,000
- d. 386,000

18. *C. difficile* is a spore-forming

- a. Gram-positive aerobic coccus.
- b. Gram-positive aerobic bacillus.
- c. Gram-positive anaerobic bacillus.
- d. Gram-negative anaerobic bacillus.

19. Handwashing with alcohol based cleansers is sufficient to prevent the spread of CDI.

- a. TRUE
- b. FALSE

20. CDI usually occurs after antibiotic treatment for something else.

- a. TRUE
- b. FALSE

21. One practical way to reduce incidence of CDI is to

- a. give normal intestinal flora to patients.
- b. discontinue antibiotic use.
- c. bleach the patient's colon.
- d. use repeated EIAs to detect CDI.

## TEST ANSWER FORM

### CE Test on REDUCING HAIs AND ARIs and REAL-TIME PCR TESTING FOR CDI October 2009

(This form may be photocopied; it is no longer valid for CEUs after April 30, 2011.)

Circles must be filled in, or test will not be graded.

Shade circles like this: ● Not like this: ⊗

P=Poor; E=Excellent

1. To what extent did the article focus on or clarify the objectives?

P ① ② ③ ④ ⑤ E

2. To what extent was the article well-organized and readable?

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3. How will you use the CE units?

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