

# The Q-Net™ Monthly

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March-April 2006

## What's News

This month's newsletter provides a **challenging quiz** that addresses the topics discussed in this newsletter during **2005**. • Q-Net welcomes new subscribers from Canada and Egypt. • Remember to read last month's issue of this newsletter, which includes an article that questions a recent **FDA-CDC public health advisory**. • Remember that recent **media reports** and **all of the back issues of this newsletter** can be searched by topic and read at:

<http://www.myendosite.com>

## Editor-in-Chief

All of the articles published in this newsletter are written by: **Lawrence F. Muscarella, Ph.D., Chief, Infection Control** at: **Custom Ultrasonics, Inc.** Ivyland, PA

## What is 'Q-Net'?

**Q-Net** is an internet-based technology-assessment network of questions and answers. Its newsletter is: *The Q-Net™ Monthly*.

The main goal of **Q-Net** is to encourage the infection control, endoscopy, and OR communities to not only ask good questions but also to demand well referenced responses.

**Q-Net** addresses the needs of both the health care provider, whose goal is to provide the best care possible, and the patient, who deserves affordable quality health care.

# Annual quiz

Presented is a challenging quiz that teaches the topics discussed in this newsletter during **2005**. It is divided into 6 sections, and its answers are on page 8.

Several of the quiz's questions focus on **true and pseudo outbreaks of mycobacteria**. A review of all of this newsletter's 2005 issues will likely be necessary to complete this quiz. Each question has only **one answer**.

This quiz may be used for **annual competency testing** and for continuing education units (CEUs).

**PART 1. Contaminated respiratory specimens, true and pseudo outbreaks.**  
Topics discussed in the January-February, 2005, issue:

1. The identification of contaminated respiratory specimens can indicate which of the following: (A) a true outbreak; (B) a pseudo outbreak; (C) disease transmission; (D) environmental contamination; (E) all of the above.

2. The topics discussed in the Janu-

ary-February, 2005, issue include each of the following, **except**: (A) bronchoscopy; (B) "push" enteroscopy; (C) atypical mycobacteria; (D) tuberculocidal mycobacteria; (E) true and pseudo infections and outbreaks.

3. Each of the following is a type of respiratory specimen, **except**: (A) BAL (bronchoalveolar lavage); (B) sputum; (C) colonic polyp; (D) lung tissue; (E) nasopharyngeal swab.

4. Mycobacteria are divided into which of the following two groups: (A) typical and tuberculocidal; (B) gram-negative and gram-positive; (C) acid fast and slow bacilli; (D) tuberculocidal and atypical; (E) aerobic and anaerobic.

5. Which of the following describes mycobacteria: (A) aerobic; (B) gram-negative; (C) spore-forming; (D) acid fast bacilli; (E) non-motile; (F) anaerobic; (G) A, D and E; (H) B, C and F; (I) all of the above.

6. All of the following are examples of atypical mycobacteria, **except**: (A) *M. chelonae*; (B) *M. bovis*; (C) *M. fortuitum*; (D) *M. avium-intracellulare* (MAI); (E) *M. kansasii*.

7. The primary mode of transmission of *M. tuberculosis*, which causes tuberculosis, is: (A) person-to-person via airborne droplets; (B) person-to-person via

(Continued on page 6)

## ANSWER KEY

The answers to this quiz are provided on page 8.

blood; (C) environment-to-patient via drinking water; (D) environment-to-patient via a bronchoscope.

8. The primary mode of transmission of *M. avium-intracellulare* (MAI), a member of the 'atypical' group of mycobacteria, is: (A) person-to-person via blood; (B) person-to-person via airborne droplets; (C) environment-to-patient via water, soil, or another contaminated environmental surface; (D) person-to-person via feces; (E) all of the above.

9. Which of the following statements is true? (A) Contaminated respiratory specimens necessarily indicate a true infection; (B) A pseudo infection is sometimes associated with clinical symptoms of infection; (C) Pseudo outbreaks usually do not indicate environmental contamination; (D) True infection of *M. tuberculosis* associated with contaminated bronchoscopes have not been reported; (E) *M. tuberculosis* is contagious, does not ordinarily colonize environmental surfaces, and is transmitted from person-to-person.

10. Patients infected with tuberculosis may be treated with any or all of the following antibiotics, except: (A) pyrazinamide; (B) propofol; (C) isoniazid; (D) rifampin.



**PART 2. Factors responsible for contaminated ('positive') respiratory specimens due to true, pseudo outbreaks. Topics discussed in the March-April, 2005, issue:**

1. Which of the following statements is true: (A) Patient colonization describes a condition in which a patient displays clinical symptoms of infection; (B) Patient colonization always presages a pseudo infection; (C) Failure to distinguish

**1. Endoscopic shuffling, push enteroscopy:**

- ✓ November-December 2005
- ✓ January-February 2006

**2. True, pseudo outbreaks of tuberculocidal, atypical mycobacteria:**

- ✓ January-February 2005
- ✓ March-April 2005
- ✓ May-June 2005
- ✓ July-August 2005
- ✓ September-October 2005

**3. Reprocessing of flexible, rigid laryngoscopes:**

- ✓ March-April 2004
- ✓ May-June 2004
- ✓ July-August 2004
- ✓ September-October 2004

**Table 1. Topics recently addressed in this newsletter.**

a true outbreak from a pseudo outbreak may result in the inappropriate treatment of 'un-infected' patients with aggressive chemotherapy; (D) All of the above (are true).

2. Which of the following statements is true: (A) Contaminated respiratory specimens may indicate a true or pseudo outbreak; (B) Many infection control measures that prevent outbreaks linked to bronchoscopes also apply to GI endoscopes; (C) High-level disinfection not only prevents transmission of mycobacteria during bronchoscopy, but it also prevents transmission of *Clostridium difficile* during GI endoscopy; (D) All of the above (are true).

3. Which of the following statements is false: (A) Ineffective cleaning and high-level disinfection of bronchoscopes have been linked to contamination of respiratory specimens with *M. tuberculosis*, but not *M. avium-intracellulare* (MAI); (B) The environment is often the source of nosocomial transmission of *M. tuberculosis*; (C) Water used to rinse bronchoscopes has been linked to contamination of respiratory specimens with MAI, but not *M. tuberculosis*; (D) Atypical mycobacteria are environmental and generally are not contagious (i.e., their transmission from patient-to-patient is rare).

4. Which of the following is true: (A) True outbreaks of atypical mycobacteria due to patient-to-patient transmission via a contaminated bronchoscope are rarely reported; (B) Pseudo outbreaks of *M. tuberculosis* have not been reported; (C) A marked increase in the number of respiratory specimens contaminated with *M. tuberculosis* typically indicates a true outbreak due to environmental contamination; (D) A marked increase in the number of respiratory specimens contaminated with atypical mycobacteria usually suggests a true outbreak due to cross-infection; (E) All of the above (are true); (F) None of the above (i.e., all are false).



**PART 3. Recommendations that prevent contamination of respiratory specimens associated with true outbreaks of mycobacteria. Topics discussed in the May-June, 2005, issue:**

1. Each of the following has been associated with respiratory specimens contaminated with tuberculocidal and atypical mycobacteria, except: (A) contaminated rinse water; (B) damage to the bronchoscope's internal sheath; (C) inadequate drying of the bronchoscope; (D) improper collection and processing of respiratory specimens.

2. Which of the following has not been associated with contamination of respiratory specimens due to a true outbreak of mycobacteria: (A) improper reprocessing of lidocaine sprayers; (B) improper processing and analysis of respiratory specimens; (C) a damaged, torn sheath of the bronchoscope's working channel; (D) none of the above.

(Continued on page 7)

**3. Which of the following statements is false:** (A) Pseudo outbreaks of *M. tuberculosis* and MAI due to a torn or damaged bronchoscope sheath are lacking; (B) Contaminated water used to rinse bronchoscopes has been linked to pseudo outbreaks of MAI; (C) Inadequate drying of bronchoscopes has been linked to true and pseudo outbreaks of both tuberculocidal and atypical mycobacteria; (D) Improper reprocessing of atomizers has not been linked to pseudo outbreaks of MAI.

**4. Which of the following statements is true:** (A) Bronchoscope drying is recommended only before storage and not between-patient-procedures; (B) Storing the bronchoscope in a carrying case is acceptable; (C) Store the bronchoscope in a dry, clean and well-ventilated area hanging freely with its valve and biopsy cap removed; (D) Bronchoscope drying is important to prevent true outbreaks of mycobacteria, but plays a negligible role in the prevention of pseudo outbreaks.

**PART 4. Recommendations that prevent contamination of respiratory specimens associated with pseudo outbreaks of mycobacteria.** Topics discussed in the July-August, 2005, issue:

**1. Which of the following statements is true:** (A) Identification of the type of outbreak and the species of mycobacteria provides little insight into the outbreak's source and cause; (B) Pseudo outbreaks of tuberculocidal mycobacteria have been linked to contaminated rinse water; (C) Improper reprocessing of atomizers and lidocaine sprayers has been linked to true outbreaks of tuberculocidal mycobacteria; (D) True outbreaks linked to colonization of automated endoscope reprocessors (AERs) with tuberculocidal mycobacteria have been reported; (E) All of the above (are true).

**2. The recommendations provided in the July-August, 2005, issue include all of the following, except:** (A) Tap water may be acceptable for rinsing the bronchoscope after chemical immersion provided the bronchoscope is thoroughly dried after reprocessing; (B) Leak testing, while important for GI endoscopes, is not necessary prior to reprocessing a bronchoscope; (C) Do not use a bronchoscope immediately after reprocessing unless it is first dried; (D) Consider using single-use, sterile aliquots of water, buffers, and reagents during the collection and processing of respiratory specimens.

**3. Which of the following is false:** (A) The normal flora of the respiratory tract do not ordinarily include atypical mycobacteria; (B) Several recalled models of bronchoscopes have been linked to true outbreaks of gram-negative bacteria, but reports linking these recalled models to true outbreaks of atypical mycobacteria are lacking; (C) Atypical mycobacteria are ubiquitous in the environment, opportunistic, and often infect AIDS patients; (D) Use of an inadequately dried (wet) bronchoscope to collect respiratory specimens is not a risk factor for true and pseudo outbreaks of MAI and other types

of atypical mycobacteria; (E) All of the above (are false).

**PART 5. Measures that prevent contamination of respiratory specimens associated with pseudo outbreaks of mycobacteria.** Topics discussed in the September-October, 2005, issue:

**1. Which of the following statements is false:** (A) *Quality* describes the extent to which a task meets or exceeds expectations; (B) *Quality assurance* is a managerial program of actions designed to ensure staff have all of the resources required to comply with the facility's policies and procedures; (C) *Quality control* is a managerial program of activities that monitors and controls staff activities to prevent the execution of practices that are flawed or in error; (D) None of the above (i.e., all of the above are true).

**2. The recommendations provided in the September-October, 2005, issue include all of the following, except:** (A) Prions may not be destroyed by standard sterilization processes; (B) Document and record all important reprocessing parameters; (C) Monitor and document the use, service, maintenance, and repair of each endoscope and automated endoscope reprocessor (AER) in inventory; (D) Before its purchase, review the AER's internal schematics, to ensure its design is not susceptible to bacterial colonization.

**3. For reprocessing staff using an automated endoscope reprocessor (AER), all of the following apply and are valid, except:** (A) Ensure staff have reviewed the operator's manuals and reprocessing instructions for every endoscope model in inventory; (B) Monitor staff to ensure the proper "kit" or set of channel adapters is used to connect each endoscope to the AER; (C) Clinical microbiology (or pathology) staff do not usually require supervision; (D) In general, during *automated* reprocessing, use the adapters, fittings, and connectors provided by the manufacturer of the AER (not necessarily the endoscope manufacturer).

**4. All of the following are components of a quality control program, except:** (A) Flushing the endoscope's channels with 70% alcohol, followed by forced air; (B) Training and supervising bronchoscope reprocessing staff; (C) Conducting annual competency tests; (D) Documenting the patient's name, the bronchoscope's serial number, and all other important reprocessing parameters;

(Continued on page 8)

This comprehensive quiz, as well as all of the articles published in this newsletter—*The Q-Net™ Monthly*—are written by: **Lawrence F. Muscarella, Ph.D., Chief, Infection Control** at: **Custom Ultrasonics, Inc.** Ivyland, PA 18974

(E) Monitoring and documenting the service and repair of every bronchoscope model in inventory; (F) Monitoring the concentration of the liquid disinfectant/sterilant.



**PART 6. A discussion of "endoscopic shuffling" and push enteroscopy.** Topics discussed in the November-December, 2005, issue:

**1. Which of the following statements is true:** (A) Patients on whom esophagogastroduodenoscopy (EGD) and colonoscopy fail to diagnose the cause of bleeding may be indicated for push enteroscopy; (B) During push enteroscopy, a push enteroscope is advanced into the lower GI tract to examine and evaluate the first one third of the colon; (C) Use of a lower GI endoscope to perform colonoscopy is an example of 'endoscopic shuffling'; (D) All of the above (are true); (E) None of the above (i.e., all of the above are false).

**2. Which of the following statements is false:** (A) Some GI endoscopy units may use a colonoscope twice on the same patient to perform push enteroscopy promptly followed by colonoscopy; (B) Use of a colonoscope to perform push enteroscopy may result in a reduced diagnostic yield, increasing the risk of misdiagnosis; (C) A push enteroscope may be used to prevent incomplete or unsuccessful colonoscopy; (D) The insertion tube of a push enteroscope is wider and shorter than a colonoscope.

**3. Each of the following issues associated with the use of a colonoscope twice on the same patient to perform push enteroscopy promptly followed by colonoscopy is discussed in the November-December, 2005, issue, except:** (A) hygienic and infection control concerns, due to the potential for fecal-oral disease transmission; (B) a double standard of care dilemma; (C) the 'off-label' use of an endoscope; (D) the potential for a conflict of interest; (E) a step-by-step set of instructions for reprocessing push enteroscopes.

The End ■ LFM

Thank you for your interest in this newsletter. *I have addressed each issue to the best of my ability.*  
Respectfully, the Publisher: *Lawrence F. Muscarella, Ph.D.* Please direct all correspondence to:

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~ ANSWER KEY ~

Use the provided markings (left) as a guide to tear off and remove this answer key before quizzing staff.

- Question 3: E.
- Question 2: D.
- Question 1: A.
- Part 6. A discussion of "endoscopic shuffling" and push enteroscopy:
- Question 4: A.
- Question 3: C.
- Question 2: A.
- Question 1: D.
- Part 5. Measures that prevent contamination of respiratory specimens associated with pseudo outbreaks of mycobacteria:
- Question 3: D.
- Question 2: B.
- Question 1: C.
- Part 4. Recommendations that prevent contamination of respiratory specimens associated with pseudo outbreaks of mycobacteria:
- Question 4: C.
- Question 3: D.
- Question 2: B.
- Question 1: A.
- Part 3. Recommendations that prevent contamination of respiratory specimens associated with true outbreaks of mycobacteria:
- Question 4: A.
- Question 3: B.
- Question 2: D.
- Question 1: C.
- Part 2. Factors responsible for contaminated ('positive') respiratory specimens due to true, pseudo outbreaks:
- Question 10: B.
- Question 9: E.
- Question 8: C.
- Question 7: A.
- Question 6: B.
- Question 5: G.
- Question 4: D.
- Question 3: C.
- Question 2: B.
- Question 1: E.
- Part 1. Contaminated respiratory specimens, true and pseudo outbreaks:

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