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To earn credit, you must answer at least 70 percent of the questions correctly. Correct answers will be published on-line March 15, 2005

Continuing Medical Education

1203 Waterborne Disease, Water Pollution and Water Terrorism (6)

EXAMINATION

Patricia L. Meinhardt, MD, MPH, MA

1. Early recognition, accurate diagnosis and conscientious reporting by community healthcare providers of suspected waterborne disease cases resulting from covert terrorism are essential. Which of the following statements supports this concept?
 - a. healthcare providers play no role in maintaining water security and safety
 - b. local community physicians are likely to provide the first warning to health authorities of the possibility of waterborne acts of terrorism
 - c. emergency preparedness responses to acts of water terrorism do not include healthcare practitioners
 - d. physicians are very unlikely to act as "front-line responders" in detecting water-related disease
2. Healthcare providers must embrace their role as active participants in the public health challenge of protecting the nation's water reserves from covert terrorism. This responsibility is particularly important based upon which of the following facts?
 - a. healthcare providers are among the most trusted sources of information for the general public regarding drinking water quality and safety in the US
 - b. patients rarely ask their healthcare providers for advice regarding the safety of their drinking water
 - c. risk reduction education is very unlikely to result in preventive behaviors by patients if a healthcare practitioner provides the information
 - d. if a waterborne act of terrorism occurred in the US, communication with the public would play a minor role
3. Most healthcare providers need additional training in the recognition and management of water-related disease resulting from intentional contamination of water supplies. Which of the following trends supports this statement?
 - a. most physicians have already received advance training in the detection and management of waterborne disease and the health effects of water pollution during their postgraduate education
 - b. the majority of practicing physicians in the US can easily distinguish between waterborne diseases resulting from natural versus intentional contamination of water.
 - c. generally the signs and symptoms of water-related disease are very specific and rarely mimic more common medical disorders
 - d. even in the best of circumstances, the diagnosis of water-related disease is a diagnostic challenge for most healthcare providers.

Richard J. Thomas, MD, MPH

1. The case fatality rate in hospitalized patients exposed to legionella pneumophila is higher than the case fatality rate in the general population.
 - a. True
 - b. False
2. Risk factors for poor outcomes after being exposed to legionella pneumophila include all of the following except:
 - a. underlying disease such as chronic lung disease
 - b. previous organ transplant
 - c. HIV infection
 - d. Aspiration exposure
 - e. Corticosteroid medications

3. If detected, current (1997) CDC guidelines call for eradication of legionella pneumophila through any of the following except:
 - a. vigorous boiling at 100 degrees Fahrenheit for 10 minutes
 - b. thermal eradication to 65 degrees centigrade
 - c. hyperchlorination to 1-2 PPM

Robert K. McLellan, MD, MPH

1. Which statement below regarding water use and water quality is INCORRECT?
 - a. some industrial processes require high quality water
 - b. the average US citizen consumes 2 quarts of water per day, but uses a total of about 170 gallons for all purposes
 - c. contact with water can make people sick
 - d. potable water is required for all household uses of water
2. Which statement below regarding regulation and treatment of drinking water in the US is INCORRECT?
 - a. filtration is a more effective tool for removing Giardia and Cryptosporidium from water than disinfection
 - b. The Safe Drinking Water Act provides equal protection to all consumers of drinking water in the US
 - c. The first federal law directly addressing drinking water and health was not passed until 1974.
 - d. Chlorine residual in water distributed to consumers serves an important public health purpose.
3. The best approach to private water treatment is:
 - a. point of entry activated charcoal
 - b. reverse osmosis at point of use
 - c. cation exchange
 - d. depends on the specific water contaminants and the goal of the treatment

William N. Yang, MD, MPH

1. The multiple-barrier system is a carefully designed set of processes that work together to treat raw water for beverage production. Which of the following are parts of a multiple-barrier system?
 1. disinfection
 2. carbon purification
 3. polishing filtration
 4. syndromic surveillance (Trend Alert/Manufacturing Follow up Process)
 - a. 1,2 and 3
 - b. 1 and 3
 - c. 2 and 4
 - d. 4 only
2. Which of the following organization have drinking water standards?
 1. International Bottled Water Association
 2. FDA
 3. EPA
 4. OSHA
 - a. 1, 2, and 3
 - b. 1 and 3
 - c. 2 and 4
 - d. 4 only
3. In terms of ensuring microbiological quality of water, which of the following statements is true?
 1. the best disinfectant today is chlorine
 2. ultraviolet light is an excellent choice for the primary disinfection of water
 3. ozone can quickly inactivate most microorganisms but it is a poor choice as a disinfectant
 4. granular media filtration is superior to membrane filtration
 - a. 1,2, and 3
 - b. 1 and 3
 - c. 2 and 4
 - d. 4 only

Colonel Edward Eitzen, MD, MPH

1. Which statement below regarding the threat of introduction of biological agents into water supplies is **CORRECT**?
 - a. all biological agents pose a risk to consumers when introduced into pre-treatment water supplies in large reservoirs
 - b. the primary reason that biological agents introduced in a large reservoir used as a water supply would be less of a threat is dilution.
 - c. normal chlorine treatment of residential water supplies inactivates all biological agents including anthrax
 - d. chlorine does not inactivate botulinum toxins

2. Which statement below regarding treatment of human botulinum intoxication is **INCORRECT**?
 - a. early treatment of botulinum intoxication with antitoxin is important
 - b. botulinum toxins are intracellular neurotoxins which prevent pre-synaptic release of acetylcholine into neuromuscular synapse
 - c. botulinum toxins can cause symptoms by both the oral and inhalation routes of exposure
 - d. after respiratory paralysis occurs, currently available Botulinum antitoxins will reverse paralysis and ventilator dependence

3. Measures that are important in protecting humans from waterborne bioterrorism include:
 - a. security to protect both large and small water supplies
 - b. treatment of water with disinfection and filtration
 - c. intelligence regarding potential terrorist activities
 - d. rapid epidemiologic investigation of potential cases of waterborne disease or intoxication

EXAMINATION ANSWERS
2004 AOHC Session 1203

**Waterborne Disease, Water Pollution and
Water Terrorism**

(Submission deadline – March 15, 2005)

Dr. Patricia Meinhardt

Question 1:

A B C D

Question 2:

A B C D

Question 3:

A B C D

Richard J. Thomas, MD, MPH

Question 1:

A B

Question 2:

A B C D E

Question 3:

A B C

Robert K. McLellan, MD, MPH

A B C D

Question 2:

A B C D

Question 3:

A B C D

**Please submit two pages of the answer sheet
for credit.**

ACTIVITY EVALUATION

1. Were the stated program objectives successfully met?

Yes No

Partially (please explain) _____

2. Was the selected session and related questions relevant to your practice?

Yes No

(If no, please explain) _____

3. Do you anticipate that your participation in this program will result in any change in your practice of occupational and environmental medicine?

Yes No

(If no, please explain) _____

I certify my actual time spent to complete this educational activity to be ___ hour(s).

Signature: _____

Date: _____

Please print your name: _____

This is page 2 of this form. Please submit both pages for credit.

William N. Yang MD, MPH

Question 1:

A B C D

Question 2:

A B C D

Question 3:

A B C D

Colonel Edward Eitzen, MD, MPH

Question 1:

A B C D

Question 2:

A B C D

Question 3:

A B C D

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