

1

What component of the Enterobacteriaceae cell wall is responsible for triggering a strong immune response?
(1 Point)

- ☐ A. Lipid A of lipopolysaccharide (LPS)
- ☐ B. Peptidoglycan layer
- ☐ C. Outer membrane proteins
- ☐ D. Teichoic acids

Ans: A

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Which of the following is NOT a characteristic feature of Enterobacteriaceae? (1 Point)

- ☐ A. Gram-negative rods
- ☐ B. Ferment glucose
- ☐ C. Oxidase-positive
- ☐ D. Facultative anaerobes

Ans: C

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..... is used as the indicator organism for the determination of the microbial quality of water, beverages, dairy, and other food products (1 Point)

- ☐ Escherichia coli
- ☐ Listeria monocytogenes
- ☐ Corynebacterium diphtheriae
- ☐ Bacillus cereus

Ans: A

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Which of the following media is selective and differential for Enterobacteriaceae?
(1 Point)

- ☐ A. Blood agar
- ☐ B. MacConkey agar
- ☐ C. Chocolate agar
- ☐ D. Sabouraud agar

Ans: B

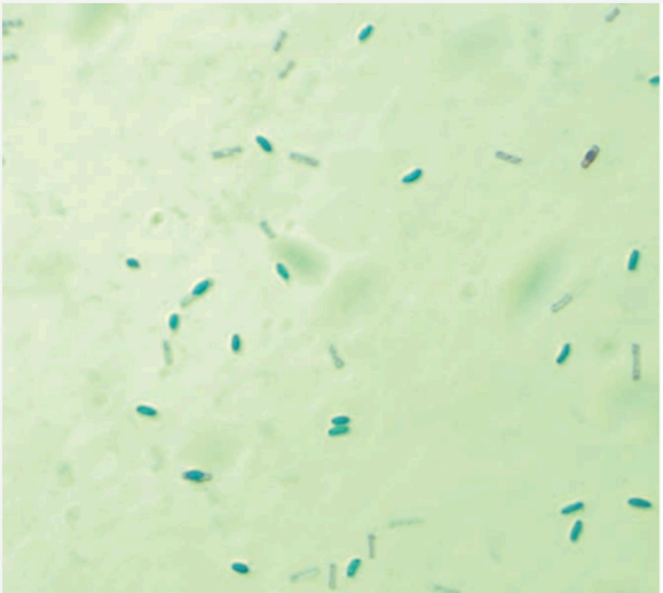
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Clostridium difficile is a spore-forming Gram-positive rod primarily associated with which condition? (1 Point)

- ☐ A. Foodborne botulism
- ☐ B. Necrotizing fasciitis
- ☐ C. Antibiotic-associated diarrhea
- ☐ D. Wound infections

Ans: C

This microscopy image shows *malachite green dye staining* of colonies isolated from suspected spoiled food. The food in question was consumed by a 20-year-old patient who experienced severe vomiting and abdominal pain within an hour of ingestion, indicating possible foodborne intoxication. The pathogen is most likely:
(1 Point)



- ☐ A. *Lactobacillus acidophilus*
- ☐ B. *Listeria monocytogenes*
- ☐ C. *Cutibacterium acnes*
- ☐ **D. *Bacillus cereus***

Ans: D

7

A 45-year-old male presents with a hard, painless swelling on the lower jaw that has been slowly growing over the past few months. He reports a history of recent dental extractions. Physical examination reveals a draining sinus tract with yellowish granules.

What is the most likely causative agent of his condition?

(1 Point)



- ☐ A. *Clostridium tetani*
- ☐ B. *Listeria monocytogenes*
- ☐ C. *Actinomyces israelii*
- ☐ D. *Bacillus anthracis*

Ans: C

8

Which of the following is considered a neurotoxin? (1 Point)

- ☐ A. Alpha toxin
- ☐ B. Botulinum toxin
- ☐ C. Lethal toxin
- ☐ D. Enterotoxin

Ans: B

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What is the main mechanism of action of diphtheria toxin? (1 Point)

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- ☐ A. Inhibition of protein synthesis by ADP-ribosylating elongation factor 2 (EF-2)
- ☐ B. Damage to cell membranes by pore formation
- ☐ C. Activation of macrophages to release cytokines
- ☐ D. Destruction of DNA by nuclease activity

Ans: A

A 25-year-old female presents with a urinary tract infection. The causative organism is found to be lactose-fermenting and indole-positive. What is the most likely organism? (1 Point)

- ☐ A. Escherichia coli
- ☐ B. Klebsiella pneumoniae
- ☐ C. Proteus mirabilis
- ☐ D. Salmonella Typhi

Ans: A

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Which toxin produced by enterohemorrhagic Escherichia coli (EHEC) is responsible for hemolytic uremic syndrome (HUS)? (1 Point)

- ☐ A. Heat-labile toxin (LT)
- ☐ B. Heat-stable toxin (ST)
- ☐ C. Shiga-like toxin
- ☐ D. Endotoxin

Ans: C

12

Growth of one of the following is stimulated in the presence of bile:
(1 Point)

- ☐ Bacteroides
- ☐ Mycoplasma
- ☐ Escherichia
- ☐ Campylobacter

Ans: A

13

What is the primary mode of transmission for non-typhoidal *Salmonella* species?

(1 Point)

- ☐ A. Contaminated water
- ☐ B. Respiratory droplets
- ☐ C. Contaminated food, particularly poultry and eggs
- ☐ D. Insect vectors

Ans: C

14

Case Scenario: A 34-year-old patient presents with recurrent epigastric pain and burning sensation, which worsens at night and improves after eating. Endoscopy reveals gastric ulcers. Which of the following is the most likely causative pathogen in this case?
(1 Point)

- ☐ • A. *Vibrio cholerae*
- ☐ • B. *Helicobacter pylori*
- ☐ • C. *Campylobacter jejuni*
- ☐ • D. *Escherichia coli*

Ans: B

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Case Scenario: A patient develops profuse, watery "rice-water" stools after consuming contaminated water during a flood. What is the most likely causative agent? (1 Point)

- ☐ A. *Campylobacter jejuni*
- ☐ B. *Vibrio cholerae*
- ☐ C. *Helicobacter pylori*
- ☐ D. *Salmonella Enteritidis*

Ans: B