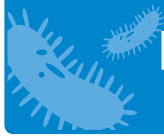


## TOPIC: MICROBIAL INFECTIONS – RESPIRATORY SYSTEM

### Diphtheria

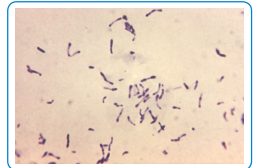


## Diphtheria

### Bacterial

GRAM \_\_\_\_

SHAPE: Non-endospore forming rod.

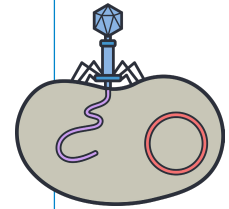


(CDC)

### CAUSE

*Corynebacterium diphtheriae* (*C. diphtheriae*).

- ◆ Produces an \_\_\_\_\_ when lysogenized by a phage.
  - Toxin inhibits \_\_\_\_\_ synthesis → heart, kidney, and nerve damage.
- ◆ Can also cause \_\_\_\_\_ infections.



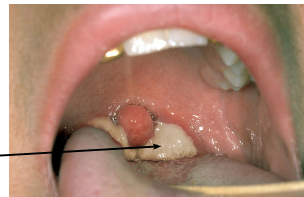
### SPREAD

Direct transmission → respiratory droplets.

### SYMPTOMS

- ◆ \_\_\_\_\_ membrane: layer of fibrin & dead cells that may block airway.
- ◆ Swollen \_\_\_\_\_.
- ◆ Sore throat.
- ◆ Fever.
- ◆ Weakness.

Pseudomembrane



### DIAGNOSIS

Bacterial culture on \_\_\_\_\_ & differential media; Elek test (immunoassay).

### TREATMENT

Erythromycin, penicillin, \_\_\_\_\_ an antitoxin.

### IMMUNITY

Vaccination:

- ◆ \_\_\_\_ TaP: \_\_\_\_\_ vaccine given to \_\_\_\_\_.
- ◆ Tdap or Td: \_\_\_\_\_ – same diseases, different formulations and \_\_\_\_\_.

## EXAMPLE

For each statement below, write “**T**” if the statement is **true** and “**F**” if the statement is **false**.

Correct each false statement on the line below.

1. Antibiotics and antiviral medication are required to properly treat diphtheria. \_\_\_\_\_  
\_\_\_\_\_
2. Diphtheria can also present as a skin infection, but those infections are typically less serious than respiratory diphtheria. \_\_\_\_\_  
\_\_\_\_\_
3. There are multiple ways diphtheria can be fatal: either because the pseudomembrane blocks the airway or because the exotoxin causes nerve, heart, or other cellular damage. \_\_\_\_\_  
\_\_\_\_\_
4. The vaccine for diphtheria protects the patient against *Corynebacterium diphtheriae* infection. \_\_\_\_\_  
\_\_\_\_\_

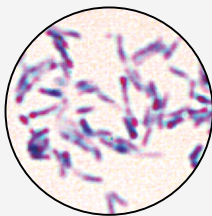
## PRACTICE

Which of the following microscope slides shows *C. diphtheriae*?

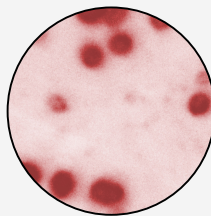
a) Slide 1



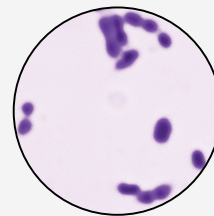
b) Slide 2



c) Slide 3



d) Slide 4



## PRACTICE

Not all *Corynebacterium diphtheriae* cause diphtheria. What is different about the bacteria that do?

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- a) They contain cord factor as part of the mycolic acid component of their cell wall.
- b) They have been infected with a phage that codes for an exotoxin.
- c) They infect the alveoli rather than being sequestered to the upper respiratory tract.
- d) They are part of a pseudomembrane, which allows them to become established in the airway more easily.

## PRACTICE

To prevent the spread of diphtheria, which vaccination is given to children starting at 2 months old?

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- a) BCG vaccine.
- b) MMR vaccine.
- c) Tdap vaccine.
- d) DTaP vaccine.