

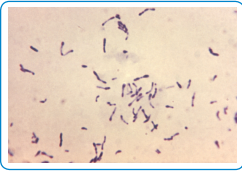
TOPIC: DIPHTHERIA



Diphtheria

Bacterial

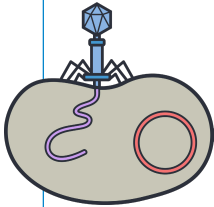
GRAM ____
SHAPE: Non-endospore forming rod.



(Smith, 1973)

CAUSE

Corynebacterium diphtheriae (*C. diphtheriae*).
◆ Produces an _____ when lysogenized by a phage.
 ▸ Toxin inhibits _____ synthesis → heart, kidney, and nerve damage.
◆ Can also cause _____ infections.

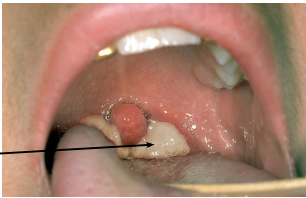


SPREAD

Direct transmission → respiratory droplets.

SYMPTOMS

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



Pseudomembrane

(Mediscan)

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 _____.

References:

- Smith, P.B. (1973) [Photomicrograph of *Corynebacterium diphtheriae*]. Centers for Disease Control and Prevention. <https://wwwn.cdc.gov/phil/details.aspx?pid=7323>
- Mediscan (n.d.). [Photo of pseudomembrane seen on a patient with diphtheria]. Alamy Stock Photo
- [Photomicrograph of *Corynebacterium diphtheriae*]. (1979) Centers for Disease Control and Prevention. <https://wwwn.cdc.gov/phil/Details.aspx?pid=1943>
- Schmale, J. D. (1968) [Photomicrograph of *Treponema pallidum* bacteria]. Centers for Disease Control and Prevention. <https://wwwn.cdc.gov/phil/Details.aspx?pid=21117>
- Cherry, W. B. (1964). [Photomicrograph of *Haemophilus influenzae coccobacilli*]. Centers for Disease Control and Prevention. <https://wwwn.cdc.gov/phil/Details.aspx?pid=23029>
- Kaufman, A. (n.d.) [Photomicrograph of *Streptococcus pneumoniae* diplococcal bacteria]. Centers for Disease Control and Prevention. <https://wwwn.cdc.gov/phil/Details.aspx?pid=21340>

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. _____

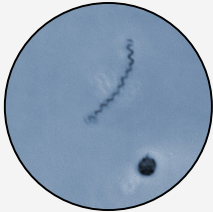
3. There are multiple ways diphtheria can be fatal: either because the pseudomembrane blocks the airway or because the exotoxin causes nerve, heart, or other cellular damage. _____

4. The vaccine for diphtheria protects the patient against *Corynebacterium diphtheriae* infection. _____

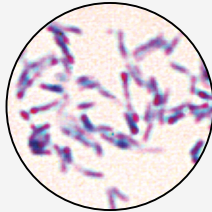
PRACTICE

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

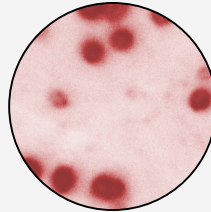
a) Slide 1



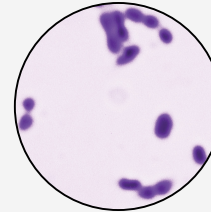
b) Slide 2



c) Slide 3



d) Slide 4



PRACTICE

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

- 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?

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