

TOPIC: INTRODUCTION TO PNEUMONIA

◆ Pneumonia: inflammation of lungs with _____ in the alveoli and bronchioles.

CAUSE

Bacteria, _____, fungi, protozoa.

- _____ are bacterial; pneumococcal pneumonia most common bacterial cause.

SYMPTOMS

Shortness of breath, _____, fever, chest pain, fatigue.

AT RISK

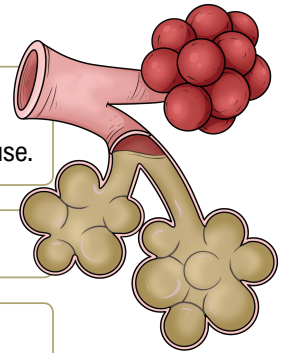
One of leading causes of _____ in the US.: esp. children, _____, immune compromised.

- Alveoli usually well protected: ciliary escalator; _____ macrophages.
- Pneumonia often follows _____ disease.
 - Weakened _____ system, inflamed lungs, etc.

DIAGNOSIS

Can be diagnosed using a chest _____.

- Specific type requires _____ testing.



(jolei).

References:

jolei. (n.d.). [Chest X-ray of a patient with pneumonia]. Shutterstock.

PRACTICE

What do all pneumonias have in common?

- Presence of tubercles in the lungs.
- Blood in the sputum.
- Infection leading to inflammation and fluid in the alveoli.
- Presence of cord factor in the cell wall.

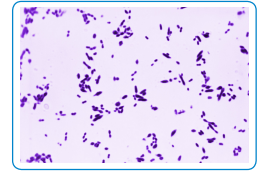
TOPIC: PNEUMONIA



Pneumococcal Pneumonia

Bacterial

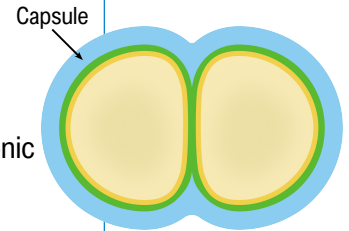
GRAM ____
SHAPE: Pairs of ____ (diplococci).



(Kaufman)

CAUSE

Streptococcus pneumoniae (*S. pneumoniae*).
◆ Polysaccharide capsule → prevents phagocytosis & ____ virulence.
◆ Bacteria are relatively common in ____ carriers.
▸ Disease is most common in children, ____, & people with chronic disease.



SPREAD

Direct or indirect transmission → ____ droplets.

SYMPTOMS

____ progression:
◆ **Consolidation:** fluid accumulation in the ____.
◆ Fever.
◆ Difficulty breathing.
◆ Chest pain.
◆ ____-colored sputum.

DIAGNOSIS

◆ Sputum ____ with staining plus culture, or urine ____ test.
◆ Chest ____ diagnoses pneumonia more generally.

TREATMENT

Penicillin or cephalosporins initially; ____ is now common.
▸ Beta-lactams, macrolides, & fluoroquinolone.

IMMUNITY

Pneumococcal vaccines recommended for ____ and elderly.

References:

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>.

PRACTICE

A sputum smear can often correctly diagnose pneumococcal pneumonia on its own. What characteristic would a technician look for in the sputum to diagnose pneumococcal pneumonia?

- a) Blood in the sputum.
- b) Small tubercles with cheese-like interior.
- c) Chains of rod-shaped bacteria.
- d) Ovoid bacteria that often occur in chains of 2 cocci.

PRACTICE

Which feature of *S. pneumoniae* is required for the increased virulence of certain strains?

- a) Presence of cord factor.
- b) Polysaccharide capsule.
- c) Presence of hemagglutinin spikes.
- d) Lancefield group A carbohydrate.