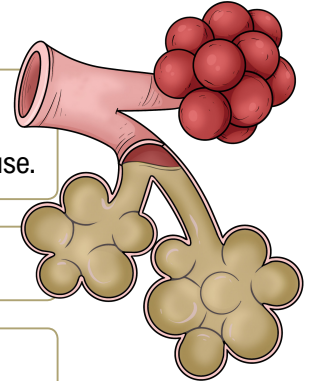


TOPIC: MICROBIAL INFECTIONS – RESPIRATORY SYSTEM

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.

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: MICROBIAL INFECTIONS – RESPIRATORY SYSTEM

Pneumococcal Pneumonia

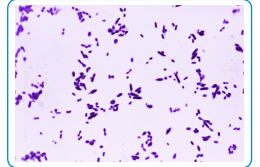


Pneumococcal Pneumonia

Bacterial

GRAM ____

SHAPE: Pairs of ____ (diplococci).



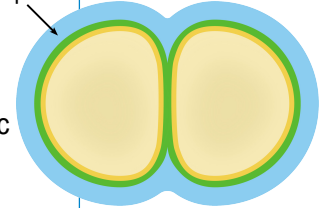
(Arnold Kaufman/ CDC)

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.

Capsule



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.

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.