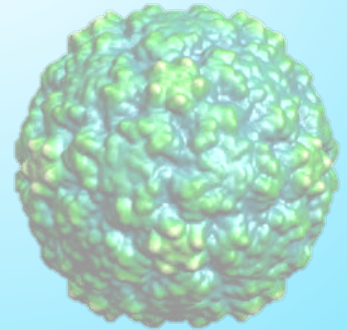
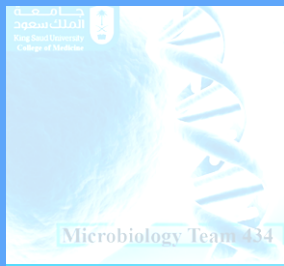


# *Community Acquired Pneumonia*



Red: important



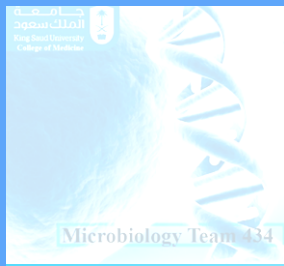
## *CAP*

### *Definition:*

Pneumonia is acute infection leads to inflammation of the parenchyma of the lung (the alveoli) (consolidation and exudation).

### *Histologically:*

1. **Fibrinopurulent** alveolar exudate seen in acute bacterial pneumonias.
2. **Mononuclear interstitial infiltrates** in viral and other atypical pneumonias
3. **Granulomas and cavitation** seen in chronic pneumonias



# Pneumonia

## Etiology:

### **Pneumonia can be:**

- ❑ Bacterial
- ❑ Fungal
- ❑ Viral
- ❑ Parasitic
- ❑ Other non-infectious factors like:
  1. Chemical
  2. Allergen

## Pathogenesis:

Factors involved in the formation of pneumonia (TWO):

- ❑ Pathogens
- ❑ Host defenses

## Pathophysiology:


1. Inhalation or aspiration.
2. Results from secondary bacteraemia from a distant source.
3. Aspiration of Oropharyngeal contents (multiple pathogens).

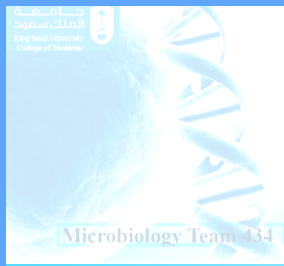


# Typical

# Atypical

Etiology	<p>usually is caused by <b>bacteria</b>:</p> <ul style="list-style-type: none"> <li>• <b>Strept. Pneumonia (lobar pneumonia)</b></li> <li>• Haemophilus influenzae      • Gram-negative organisms</li> <li>• Moraxella catarrhalis      • S. aureus</li> </ul>	<ul style="list-style-type: none"> <li>• Chlamydia pneumoniae      • <b>Mycoplasma pneumonia</b></li> <li>• Legionella spp      • Psittacosis (parrots)</li> <li>• Q fever (Coxiella burnetii)      • Viral (Influenza, Adenovirus)</li> </ul>
Diagnosis	<ul style="list-style-type: none"> <li>• Clinical : History &amp; physical</li> <li>• X-ray : examination</li> <li>• Lab test : 1) CBC      2) leukocytosis</li> <li>3) Sputum Gram stain 15%      4) Blood culture 5-14%</li> <li>5) Pleural effusion culture</li> </ul>	<ul style="list-style-type: none"> <li>- Not detectable on gram stain</li> <li>- Won't grow on standard media</li> <li>- serology test</li> <li>- x-ray</li> </ul>
Symptoms	<p>(the onset is acute)</p> <ul style="list-style-type: none"> <li>- Fever      - Shaking chills      - Shortness of breath</li> <li>- Cough with sputum production (rusty-sputum)      - Chest pain or pleurisy</li> </ul>	<ul style="list-style-type: none"> <li>• Often extrapulmonary manifestations:</li> <li>- <i>Mycoplasma</i>: otitis, nonexudative pharyngitis, watery diarrhea, erythema multiforme, increased cold agglutinin titre</li> <li>- Chlamydoiphila: laryngitis</li> </ul>
Treatment	<ul style="list-style-type: none"> <li>- Penicillin - Cephalosporin for <math>\beta</math>-lactam resistance we increase the dose(except in meningitis)</li> <li>for MDR we use - Quinolone-linezolid -vancomycin</li> </ul>	<p>doesn't have a cell wall =&gt; Don't respond to <math>\beta</math>-lactams so we use :</p> <p>macrolides, tetracyclines, quinolones</p>

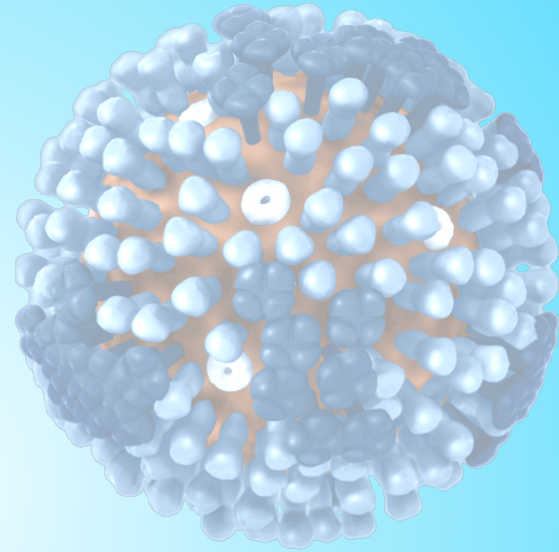
<i>1-Mycoplasma pneumonia</i> 	<i>2-chlamydia pneumonia</i>	<i>3-Psittacosis</i>	<i>4-Q fever</i>
<ul style="list-style-type: none"> <li>•Eaton agent (1944)</li> <li>•No cell wall</li> <li>•Common</li> <li>•Rare in children and in &gt; 65</li> <li>•People younger than 40. Crowded places like schools, homeless shelters, prisons.</li> <li>•Usually mild and responds well to antibiotics.</li> <li>•Can be very serious</li> <li>•May be associated with a skin rash, hemolysis, myocarditis or pancreatitis</li> </ul>	<ul style="list-style-type: none"> <li>•Obligate intracellular organism</li> <li>•50% of adults sero-positive</li> <li>•Mild disease</li> <li>•Sub clinical infections common</li> <li>•5-10% of community acquired pneumonia</li> </ul>	<ul style="list-style-type: none"> <li>•Chlamydophila psittaci</li> <li>•Exposure to birds</li> <li>•Bird owners, pet shop employees, vets</li> <li>•Parrots, pigeons and poultry</li> <li>•Birds often asymptomatic</li> <li>•1st: Tetracycline</li> <li>•Alt: Macrolide</li> </ul>	<ul style="list-style-type: none"> <li>•Coxiella burnetti</li> <li>•Exposure to farm animals mainly sheep</li> <li>•1st: Tetracycline, 2nd: Macrolide</li> </ul>
<p>Not on the exam</p>			



# *Legionella Pneumophila*

- They grow on water pipes and cooling airways.
- susceptible individuals are smokers, elderly, and cancer patients.
- it will lead to ICU admission and/or death.
- it is characterized by high fever ( $>40$  C) and **hyponatremia** (low Na levels).
- treated by fluoroquinolones.

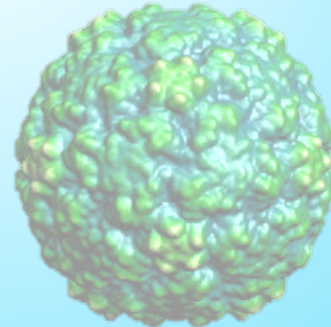
		Macrolides	Doxycycline	Levofloxacin	B-lactam And Macrolide	B-lactam And Levo
<b>Outpatient, healthy patient with no exposure to antibiotics in the last 3 months</b>	<i>S pneumoniae</i> , <i>M pneumoniae</i> , Viral					
<b>Outpatient, patient with comorbidity or exposure to antibiotics in the last 3 months</b>	<i>S pneumoniae</i> , <i>M pneumoniae</i> , <i>C. pneumoniae</i> , <i>H influenzae</i> <i>M. catarrhalis</i> <i>anaerobes</i> <i>S aureus</i>					
<b>Inpatient : Not ICU</b>	Same as above +legionella					
<b>Inpatient : ICU</b>	Same as above + <i>Pseudomonas</i>					



# *Good Luck*

Done by :

Microbiology Team



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