

# Pneumonia & Empyema

## Pneumonia

### Diagnosis

**Symptoms:** dyspnea, cough, hemoptysis  
**Vitals:** hypoxia, tachypnea, fever  
**Findings:** leukocytosis, opacity, pleuritic pain

### Treatments

CAP – Azithromycin/Ceftriaxone or Levaquin  
HCAP – Vanc/Cefepime or Levaquin  
Ventilator – Vanc/Zosyn

## Causes

- Strep Pneumoniae
- Staph Aureus
- Haemophilus influenza
- Aspiration (GNR or anaerobes)
- Alcohol – Klebsiella
- HCAP – MRSA, pseudomonas
- Atypical
  - Mycoplasma
  - Legionella
  - Chlamydia

## Complications

### Pulmonary

- Organizing PNA (BOOP)
- Lung abscess
- ARDS

### Treatment

- BOOP – biopsy – stop antibiotics - give steroids.
- Abscess – drain
- ARDS – ventilator support

### Pleural

- Parapneumonic effusion
- Empyema

### Thoracentesis

- **Light's criteria** will show exudate
  - Total Protein, LDH
- Parapneumonic effusion = no bacteria
- Empyema

### Empyema

- Gross pus during drainage
- +gram stain/culture
- pH < 7.2, glucose < 60
- CT finding - Loculated

### Treatment

- Parapneumonic effusion → Observe.
- Empyema
  - Drain with Chest tube
  - CT surgery (VATS, decortication)

### Systemic

- Bacteremia
- Dissemination
- Septic Shock

### Light's Criteria (exudate)

- Fluid:serum TP > 0.5
- Fluid:serum LDH > 0.6
- Fluid LDH > 2/3 upper limit normal

*Garg's  
Simple Medicine*

8/25/2018