

# Treatment of Respiratory Bacterial Infections

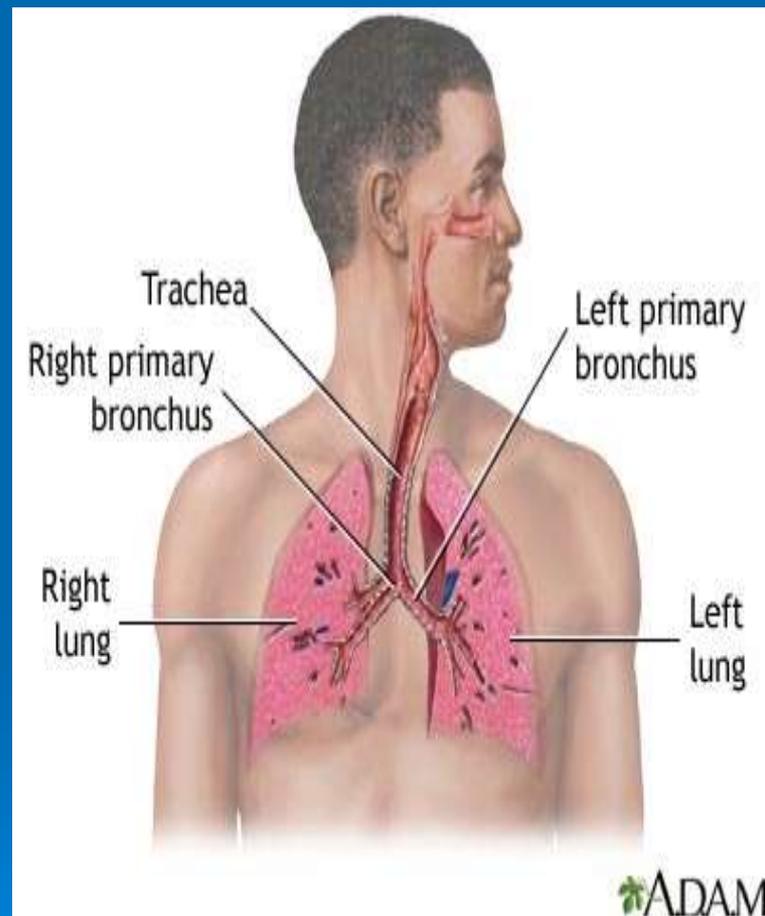


# Introduction

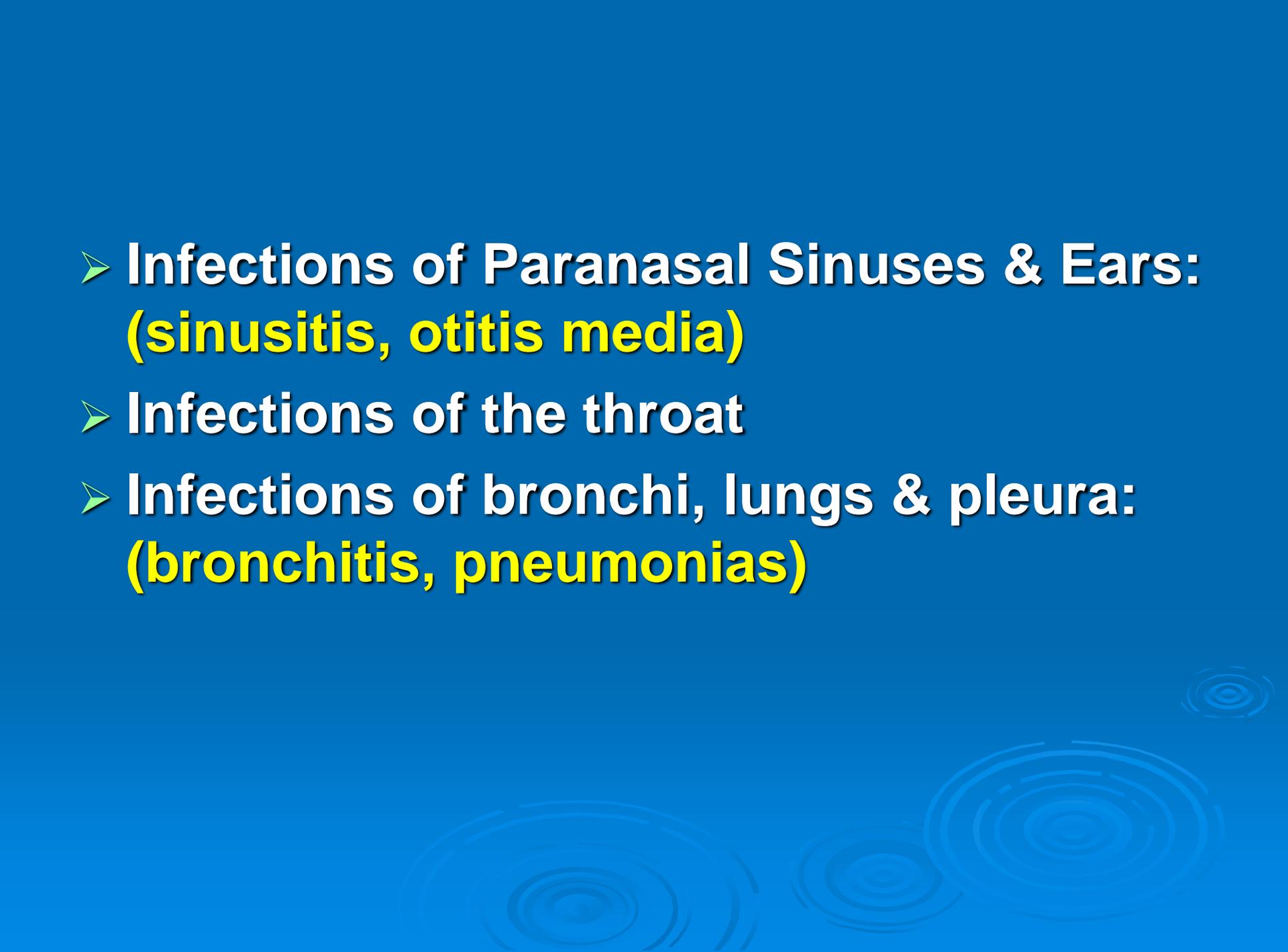
- Infections of upper & lower RT are major cause of morbidity & mortality

## Patients at risk:

- at extremes of age
- with pre-existing lung diseases
- with immune suppression



- Viruses are most frequent causes of URTIs (common cold, sore throat, influenza)
- Bacterial infection is the usual cause of (acute tonsillitis, otitis media, community- and hospital-acquired pneumonia)

- Infections of Paranasal Sinuses & Ears:  
**(sinusitis, otitis media)**
  - Infections of the throat
  - Infections of bronchi, lungs & pleura:  
**(bronchitis, pneumonias)**
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# Infections of Paranasal Sinuses & Ears

- Common infecting organisms:

**Streptococcus pneumonia**

**Streptococcus pyogenes**

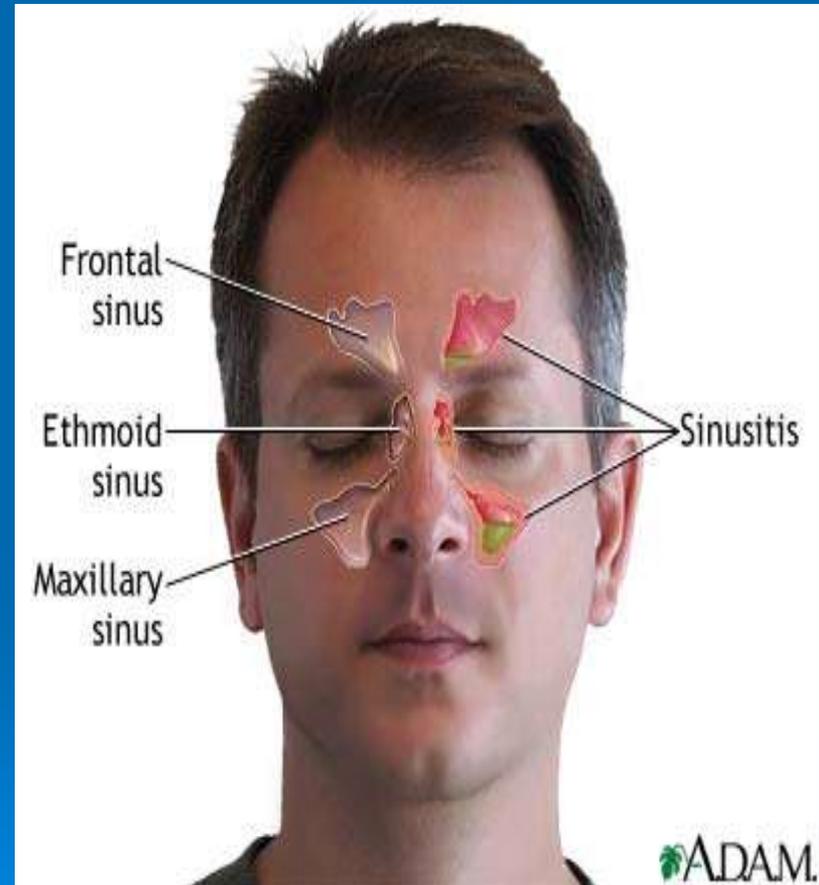
**Haemophilus influenza**

**Manifestations:**

- **Acute sinusitis**

- **Chronic sinusitis**

- **Otitis media**





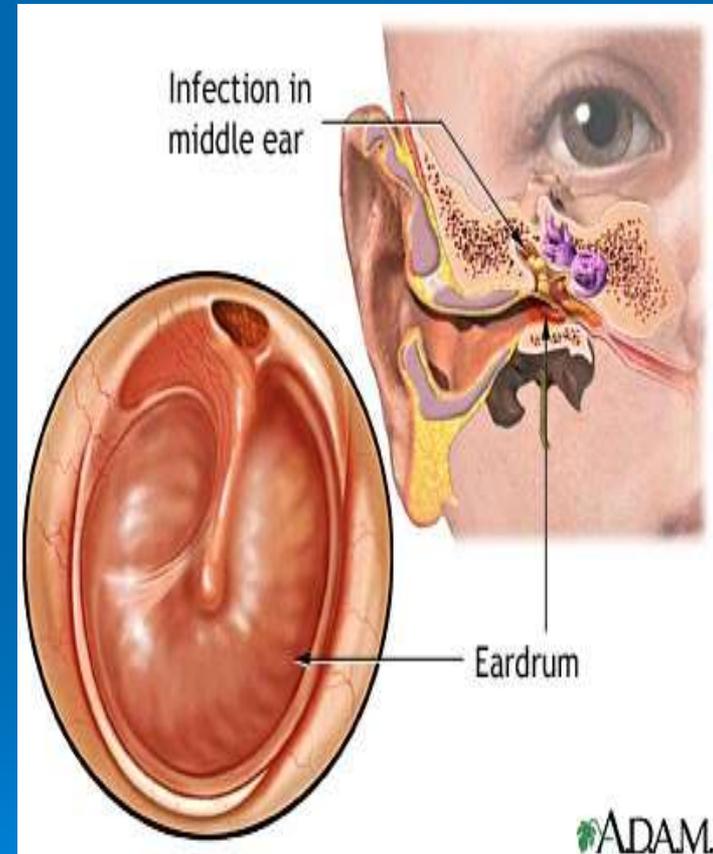
Left-sided maxillary sinusitis

# Treatment of sinusitis

- Use nasal decongestants to open edematous obstructed passages (**ephedrine, xylometazoline**)
- Choice of antibiotic therapy includes oral amoxicillin or co-amoxiclav or doxycycline when antibiotic therapy is indicated & necessary
- **In chronic sinusitis**, any anatomical abnormalities (polyp, nasal septum deviation) should be corrected & antibiotics are given according to results of culture & sensitivity

# Otitis Media (OM)

- Mild cases **normally viral**, resolve spontaneously, only, analgesia
- Bulging, inflamed tympanic membrane (eardrum) indicates **bacterial OM**
- Treatment: **amoxicillin or Co-amoxiclav**



# Infections of the Throat

- Pharyngitis is usually viral
- More serious cases due to Streptococcus pyogenes (group A beta-haemolytic), which is usually sensitive to benzylpenicillin
- Bacterial pharyngitis & tonsillitis present with fever, sore throat & difficulty of swallowing

- Useful drugs include benzylbenicillin, phenoxymethylpenicillin, erythromycin or clarithromycin, or cephalexin

# Follicular Tonsillitis



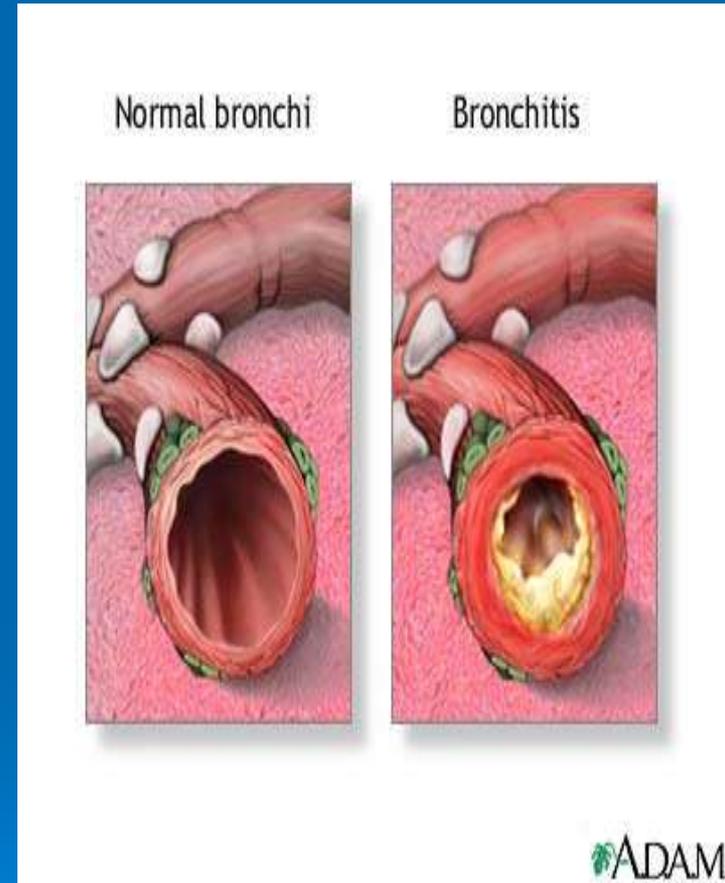
# Infections of the throat

- Treatment is to be continued for 10 days to prevent late complications as rheumatic fever

# Infections of bronchi, lungs

## Acute bronchitis

- Most cases are viral
- Bacterial: Causative organisms include *S. pneumoniae* & *H. influenzae*
- Manifestations fever, pain, irritation in throat & trachea, cough & expectorations
- Amoxicillin, tetracycline or co-trimoxazole is used if it is necessary



# Chronic bronchitis

- Usually occurs in chronic smokers & presents with chronic cough & expectoration
- Suppressive chemotherapy is needed during colder months for patients with **recurrent acute exacerbations**
- Antibiotics must be taken at the first sign of a chest infection. Choice of drugs is similar to that used in acute bronchitis

# Pneumonias (lung infection)

- Clinical context in which a pneumonia develops is highly suggestive of the likely organism(s) involved and hence the choice of antibiotics

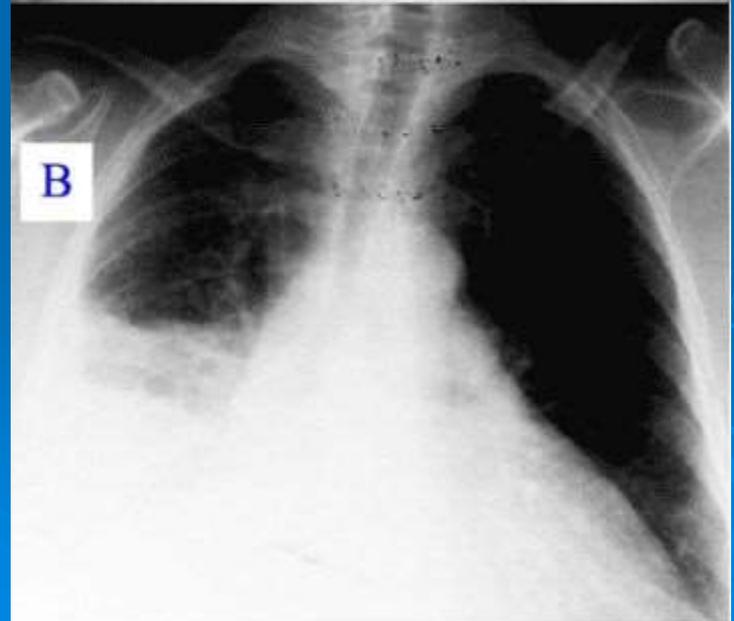
- Community-acquired pneumonia (CAP)
- Atypical pneumonia
- Hospital-acquired Pneumonia
- Pneumonia following influenza
- Pneumonia in patients with chronic lung disease
- Pneumonia in Immunocompromised Patients

# Community-Acquired Pneumonia (CAP)

- Is usually caused by **Streptococcus pneumoniae** (pneumococcus)
- presents with high fever, pleuritic chest pain & cough
- **Benzylpenicillin IV** or **amoxicillin** orally are drugs of choice
- In penicillin allergic patients, **erythromycin** or **clarithromycin, azithromycin**
- In seriously ill patients use **benzylpenicillin** with **ciprofloxacin** (H.influenzae & atypical pathogens)
- In penicillin-resistant pneumococci infections, **cefotaxime (claforan) IV (3d G)**

A : Normal chest x-r

B : Abnormal chest  
x-ray with shadowing  
from pneumonia in  
right lung (white area)



# Atypical pneumonia

- Usually presents with high fever & respiratory manifestations
- Common in young adults
- Caused by atypical pathogens  
**Mycoplasma pneumoniae**, rarely **chlamydia**, **psittacosis**, **legionella**
- Choices include tetracycline, erythromycin or clarithromycin given orally may be for 3 weeks

# Hospital-acquired Pneumonia (nosocomial)

- Refers to pneumonia occurs after 2 days of hospital admission, postoperatively, on mechanic ventilators
- Causative organisms include **staph. aureus**, **pseudomonas aeruginosa** & **H. influenzae**
- 3ed generation CS e.g. **cefotaxime** plus **aminoglycoside** e.g. **gentamicin**
- **Ciprofloxacin** or **vancomycin** may be necessary (in Methicillin resistant *S. aureus*; **MRSA**)

# Hospital-acquired pneumonia

## Predisposing factors:

- Reduced host defenses against bacteria: diabetes, corticosteroid treatment
- Bacteria introduced into lower RT: endotracheal intubation, tracheostomy, infected ventilators, nebulizers

# Pneumonia following influenza

- Is usually caused by Staph.aureus
- Best guess therapy should include flucloxacillin

# Pneumonia in Patients with Chronic Lung Disease

- Mixed infection with **H. influenzae** & **S. pneumoniae** is common
- **Amoxicillin** or **trimethoprim** or **ciprofloxacin** are reasonable choices

# Pneumonia in Immunocompromised Patients

- Pneumonia is common in **AIDS patients** or following **immunosuppressive therapy**
- **S. aureus** & **S. pneumoniae** are common pathogens but others like **fungi**, **pneumocystis carinii** should be kept in mind
- Choice of therapy includes an **aminoglycoside** with **cefotaxime**

# Pneumonia in Immunocompromised Patients

- In **P. aeruginosa** give an anti-pseudomonal penicillin like **piperacillin**
- For **Pneumocystis carinii pneumonia** in AIDS give **co-trimoxazole** orally or IV

# General Remarks

- Antimicrobials are prescribed only if there is high suspicion of bacterial RTI e.g. purulent sputum
- A reasonable “best guess” choice is started with according to possible organism & diagnosis
- When results of specimen e.g. sputum (culture & sensitivity) are known, then treatment is adjusted accordingly