

Infectious Disease Drugs

Common Infectious Diseases and Their Treatments

1. Bacterial Infections

a. Community-Acquired Pneumonia (CAP)

Common Pathogens:

- *Streptococcus pneumoniae* (most common)
- *Haemophilus influenzae*
- Atypical bacteria: *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Legionella* spp.
- Respiratory viruses: Influenza, SARS-CoV-2, RSV

First-Line Treatment:

- **Outpatient (No Comorbidities):**
 - **Amoxicillin OR Doxycycline OR Macrolide (Azithromycin, Clarithromycin)** (if resistance is low)
- **Outpatient (With Comorbidities, e.g., COPD, diabetes, alcoholism):**
 - **Amoxicillin-Clavulanate + Macrolide OR Respiratory Fluoroquinolone (Levofloxacin, Moxifloxacin)**
- **Hospitalized (Non-ICU):**
 - **Ceftriaxone + Azithromycin OR Respiratory Fluoroquinolone**
- **ICU:**
 - **Piperacillin-Tazobactam + Azithromycin OR Levofloxacin**
 - Consider **MRSA coverage (Vancomycin or Linezolid)** if suspected

b. Hospital-Acquired Pneumonia (HAP) & Ventilator-Associated Pneumonia (VAP)

- **Common Pathogens:**
 - **Gram-Negative Bacteria:** *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Escherichia coli*
 - **Gram-Positive Bacteria:** *Staphylococcus aureus* (including MRSA)
- **First-Line Treatment:**
 - **No risk factors for MDR (Multidrug-Resistant) pathogens:**
 - **Piperacillin-Tazobactam OR Cefepime OR Levofloxacin**
 - **Risk factors for MDR pathogens (e.g., prior IV antibiotics, recent hospitalization, prolonged ventilation):**
 - **Anti-Pseudomonal Beta-Lactam (Piperacillin-Tazobactam, Cefepime, Meropenem) PLUS Anti-Pseudomonal Fluoroquinolone (Levofloxacin, Ciprofloxacin) OR Aminoglycoside (Gentamicin, Amikacin)**
 - **If MRSA is suspected: Add Vancomycin or Linezolid**

c. Urinary Tract Infection (UTI)

- **Common Pathogens:** *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus spp.*, *Staphylococcus saprophyticus*, *Enterococcus spp.*
- **First-Line Treatment:**
 - **Uncomplicated UTI (Cystitis):**
 - **Nitrofurantoin (First-line for women, avoid in pyelonephritis)**
 - **Trimethoprim-Sulfamethoxazole (If local resistance <20%)**
 - **Fosfomycin (Single-dose therapy for uncomplicated cystitis)**

- **Complicated UTI/Pyelonephritis:**
 - **Ceftriaxone (Hospitalized patients)**
 - **Ciprofloxacin (Outpatient, if resistance is low)**
 - **Piperacillin-Tazobactam (If hospital-acquired or complicated case)**
- **Recurrent UTIs:**
 - **Low-dose Nitrofurantoin or TMP-SMX prophylaxis**
 - **Post-coital antibiotics for women with UTI related to sexual activity**

d. Meningitis

- **Common Pathogens:** *Neisseria meningitidis*, *Streptococcus pneumoniae*, *Haemophilus influenzae*
- **First-Line Treatment:**
 - Adults: **Ceftriaxone + Vancomycin ± Dexamethasone**
 - Neonates: **Ampicillin + Gentamicin**

e. Skin and Soft Tissue Infections (SSTIs)

- **Common Pathogens:** *Staphylococcus aureus*, *Streptococcus pyogenes*
- **First-Line Treatment:**
 - Mild: **Cephalexin** or **Doxycycline** (if MRSA suspected)
 - Severe: **Vancomycin** or **Daptomycin**

2. Viral Infections

a. Influenza

- **Common Pathogen:** Influenza A and B
- **First-Line Treatment:** **Oseltamivir** (Best if started within 48 hours)

b. Herpes Simplex Virus (HSV)

- **Common Pathogen:** HSV-1 and HSV-2
- **First-Line Treatment:** Acyclovir or Valacyclovir

c. HIV/AIDS

- **Common Pathogen:** Human Immunodeficiency Virus (HIV)
- **First-Line Treatment:**
 - Combination ART: **Dolutegravir + Tenofovir + Emtricitabine**

3. Fungal Infections

a. Candidiasis (Oral/Vaginal/Esophageal)

- **Common Pathogen:** Candida albicans
- **First-Line Treatment:**
 - Oral/Vaginal: **Fluconazole**
 - Esophageal/Systemic: **Echinocandins (Caspofungin)**

b. Cryptococcal Meningitis

- **Common Pathogen:** Cryptococcus neoformans
- **First-Line Treatment:** Amphotericin B + Flucytosine, followed by Fluconazole maintenance

4. Parasitic Infections

a. Malaria

- **Common Pathogen:** Plasmodium falciparum, Plasmodium vivax
- **First-Line Treatment:**
 - Uncomplicated: **Artemether-Lumefantrine**
 - Severe: **IV Artesunate**

b. Giardiasis

- **Common Pathogen:** Giardia lamblia
- **First-Line Treatment:** Metronidazole

c. Helminthic Infections (Roundworms, Tapeworms, Hookworms)

- **Common Pathogens:** *Ascaris lumbricoides*, *Taenia* spp.
 - **First-Line Treatment:** **Albendazole** or **Mebendazole**
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