

## Antibiotics Summary

### 1. Definition

Antibiotics are drugs that inhibit or kill bacteria. They do **not** work against viruses (e.g., colds, flu).

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### 2. Main Classes of Antibiotics

#### ◆ Beta-lactams

- **Examples:** Penicillins, Cephalosporins, Carbapenems, Monobactams
  - **Mechanism:** Inhibit bacterial cell wall synthesis.
  - **Uses:** Pneumonia, UTIs, skin infections, meningitis.
  - **Notes:** Allergic reactions are common.
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#### ◆ Macrolides

- **Examples:** Azithromycin, Clarithromycin, Erythromycin
  - **Mechanism:** Inhibit protein synthesis (50S ribosome).
  - **Uses:** Respiratory infections, atypical pneumonia, STIs.
  - **Notes:** Alternative in penicillin allergy.
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#### ◆ Tetracyclines

- **Examples:** Doxycycline, Tetracycline, Minocycline
  - **Mechanism:** Inhibit protein synthesis (30S ribosome).
  - **Uses:** Acne, respiratory infections, tick-borne diseases.
  - **Notes:** Avoid in children <8 yrs and pregnancy (tooth discoloration).
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#### ◆ Aminoglycosides

- **Examples:** Gentamicin, Amikacin, Tobramycin

- **Mechanism:** Inhibit protein synthesis (30S ribosome).
  - **Uses:** Severe gram-negative infections, sepsis.
  - **Notes:** Can cause nephrotoxicity & ototoxicity.
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#### ◆ Fluoroquinolones

- **Examples:** Ciprofloxacin, Levofloxacin, Moxifloxacin
  - **Mechanism:** Inhibit DNA gyrase/topoisomerase.
  - **Uses:** UTIs, respiratory infections, GI infections.
  - **Notes:** Risk of tendon rupture, avoid in pregnancy/children.
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#### ◆ Sulfonamides & Trimethoprim

- **Examples:** Co-trimoxazole (TMP-SMX)
  - **Mechanism:** Block folate synthesis.
  - **Uses:** UTIs, Pneumocystis jirovecii pneumonia.
  - **Notes:** Can cause Stevens-Johnson syndrome, bone marrow suppression.
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#### ◆ Glycopeptides

- **Examples:** Vancomycin, Teicoplanin
  - **Mechanism:** Inhibit cell wall synthesis.
  - **Uses:** MRSA, C. difficile (oral vancomycin).
  - **Notes:** “Red man syndrome” if infused rapidly.
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#### ◆ Others

- **Metronidazole** → Anaerobic infections, protozoa.
- **Linezolid** → MRSA, VRE.
- **Clindamycin** → Anaerobic infections, skin infections.

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### 3. Key Points

- Use antibiotics only when bacterial infection is confirmed/suspected.
- Overuse → antibiotic resistance (e.g., MRSA, ESBL, CRE).
- Complete the full prescribed course.

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⚠ Do you want me to make this into a **table format** (easy for app integration) or keep it as a **detailed notes style**?

**You said:**

give more details . indication caution, side effects

**ChatGPT said:**

Perfect 👍 You want a **detailed antibiotic summary** with **indications, cautions, and side effects**.

Here's a comprehensive version (structured for quick reference like BNF style):

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## 🌿 Antibiotics Detailed Summary

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### 1. Beta-lactams

📌 **Examples: Penicillins (Amoxicillin, Flucloxacillin), Cephalosporins (Ceftriaxone, Cefuroxime), Carbapenems, Monobactams**

- **Indications:**
  - Respiratory tract infections (pneumonia, bronchitis)
  - Meningitis
  - Skin/soft tissue infections
  - Urinary tract infections (UTI)
  - Sepsis
- **Cautions:**

- Hypersensitivity (cross-reactivity between penicillin & cephalosporins ~10%)
  - Renal impairment (dose adjustment needed)
  - **Side effects:**
    - Rash, urticaria, anaphylaxis
    - Diarrhoea, C. difficile infection (esp. broad-spectrum)
    - Neurotoxicity at high doses
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## 2. Macrolides

✚ **Examples: Azithromycin, Clarithromycin, Erythromycin**

- **Indications:**
    - Respiratory infections (atypical pneumonia – Mycoplasma, Chlamydia, Legionella)
    - Skin/soft tissue infections
    - STIs (chlamydia, gonorrhoea alternative)
    - Whooping cough
  - **Cautions:**
    - Liver impairment
    - QT prolongation (avoid with other QT-prolonging drugs)
  - **Side effects:**
    - GI upset (nausea, diarrhoea, abdominal pain)
    - Cholestatic jaundice (erythromycin)
    - QT prolongation → arrhythmias
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## 3. Tetracyclines

✚ **Examples: Doxycycline, Minocycline, Tetracycline**

- **Indications:**

- Acne vulgaris
  - Respiratory infections (esp. atypical pneumonia)
  - Tick-borne diseases (Lyme, Rickettsia)
  - Malaria prophylaxis
  - **Cautions:**
    - Avoid in pregnancy & children <8 yrs (tooth/bone effects)
    - Esophageal irritation (take with water, remain upright)
  - **Side effects:**
    - GI upset, photosensitivity
    - Teeth discoloration, bone growth retardation (children)
    - Rare hepatotoxicity
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#### 4. Aminoglycosides

✚ **Examples: Gentamicin, Amikacin, Tobramycin**

- **Indications:**
    - Severe gram-negative infections (sepsis, pyelonephritis)
    - Endocarditis (with other antibiotics)
    - Hospital-acquired pneumonia
  - **Cautions:**
    - Narrow therapeutic index → monitor drug levels
    - Renal impairment (dose adjust)
  - **Side effects:**
    - Nephrotoxicity
    - Ototoxicity (hearing loss, vertigo)
    - Neuromuscular blockade (rare)
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## 5. Fluoroquinolones

✚ **Examples: Ciprofloxacin, Levofloxacin, Moxifloxacin**

- **Indications:**

- UTI (complicated)
- Gastrointestinal infections (Shigella, Salmonella, Traveller's diarrhoea)
- Respiratory infections (esp. levo/moxi)
- Bone & joint infections

- **Cautions:**

- Avoid in pregnancy & children (affects cartilage)
- Risk of tendon rupture (esp. elderly, steroid use)
- QT prolongation

- **Side effects:**

- GI upset, dizziness, headache
  - Tendonitis/tendon rupture
  - CNS effects (confusion, seizures)
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## 6. Sulfonamides & Trimethoprim

✚ **Example: Co-trimoxazole (TMP-SMX)**

- **Indications:**

- UTI
- Pneumocystis jirovecii pneumonia (PCP) treatment & prophylaxis
- Toxoplasmosis

- **Cautions:**

- Folate deficiency
- Elderly → higher risk of blood dyscrasias
- Avoid in late pregnancy

- **Side effects:**
    - Rash, Stevens-Johnson syndrome
    - Bone marrow suppression (anaemia, leukopenia)
    - Hyperkalaemia
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## 7. Glycopeptides

### Examples: Vancomycin, Teicoplanin

- **Indications:**
    - MRSA infections
    - C. difficile colitis (oral vancomycin)
    - Severe gram-positive infections
  - **Cautions:**
    - Monitor renal function & drug levels
    - Infusion-related reactions
  - **Side effects:**
    - “Red man syndrome” (histamine release, flushing)
    - Nephrotoxicity
    - Ototoxicity
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## 8. Other Important Antibiotics

- **Metronidazole**
  - Indications: Anaerobic infections, bacterial vaginosis, C. difficile, protozoal infections
  - Side effects: Metallic taste, GI upset, peripheral neuropathy, disulfiram-like reaction with alcohol
- **Clindamycin**

- Indications: Anaerobic infections, skin/soft tissue infections, dental infections
- Side effects: Severe *C. difficile* colitis, GI upset
- **Linezolid**
  - Indications: MRSA, VRE infections
  - Side effects: Bone marrow suppression (thrombocytopenia), optic neuropathy, serotonin syndrome with SSRIs