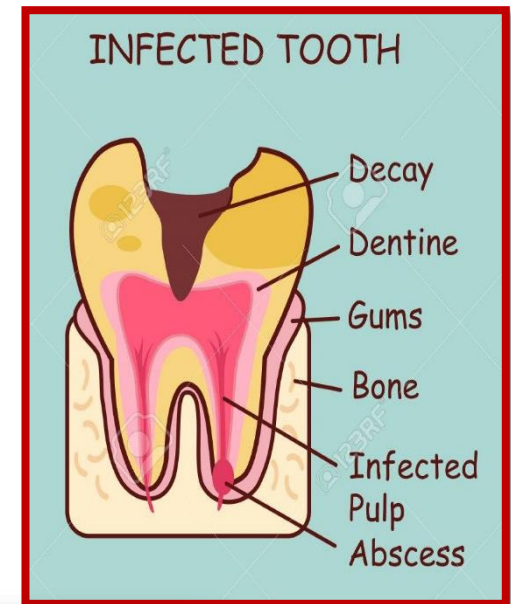




DENTAL PYOGENIC INFECTIONS : TREATMENT OVERVIEW



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PYOGENIC INFECTIONS

- Are characterized by **local inflammation of skin, soft tissue and bodily parts** which are mainly caused by **invasion and multiplication of pathogenic microorganism.**

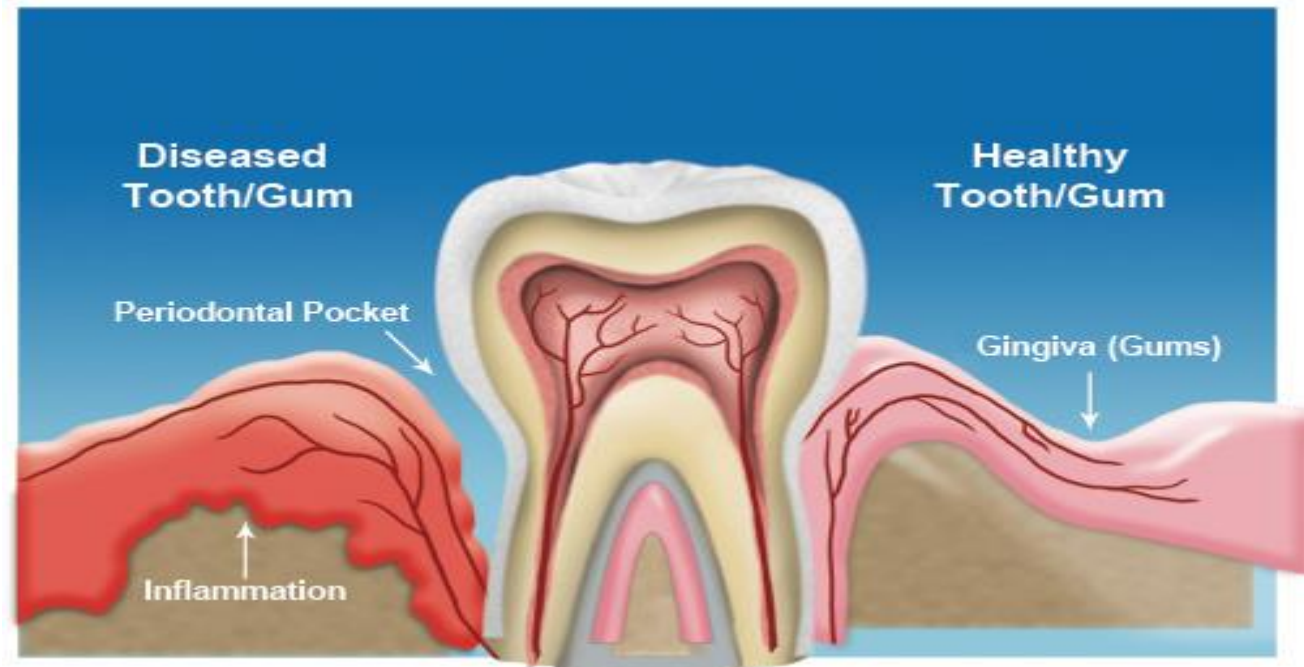
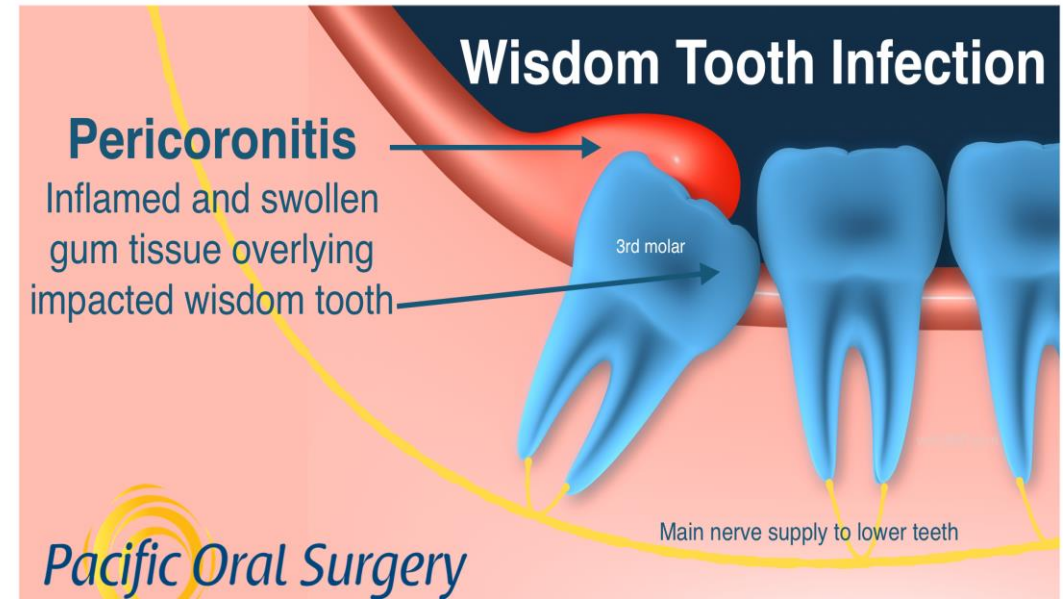


- **ODONTOGENIC INFECTION (OI)** is defined as those infections that originate from pulpal or periodontal pathology that affect the alveolar bone and can extended to structures distant from the oral cavity.





Causes



Incision and drainage (ID)



ANTIBIOTIC THERAPY



ANTIBIOTIC THERAPY



S. Mutans

Staphylococcus aureus



Bacteroides

Actinomyces

A predominantly facultative anaerobic
microflora *Streptococcus milleri*

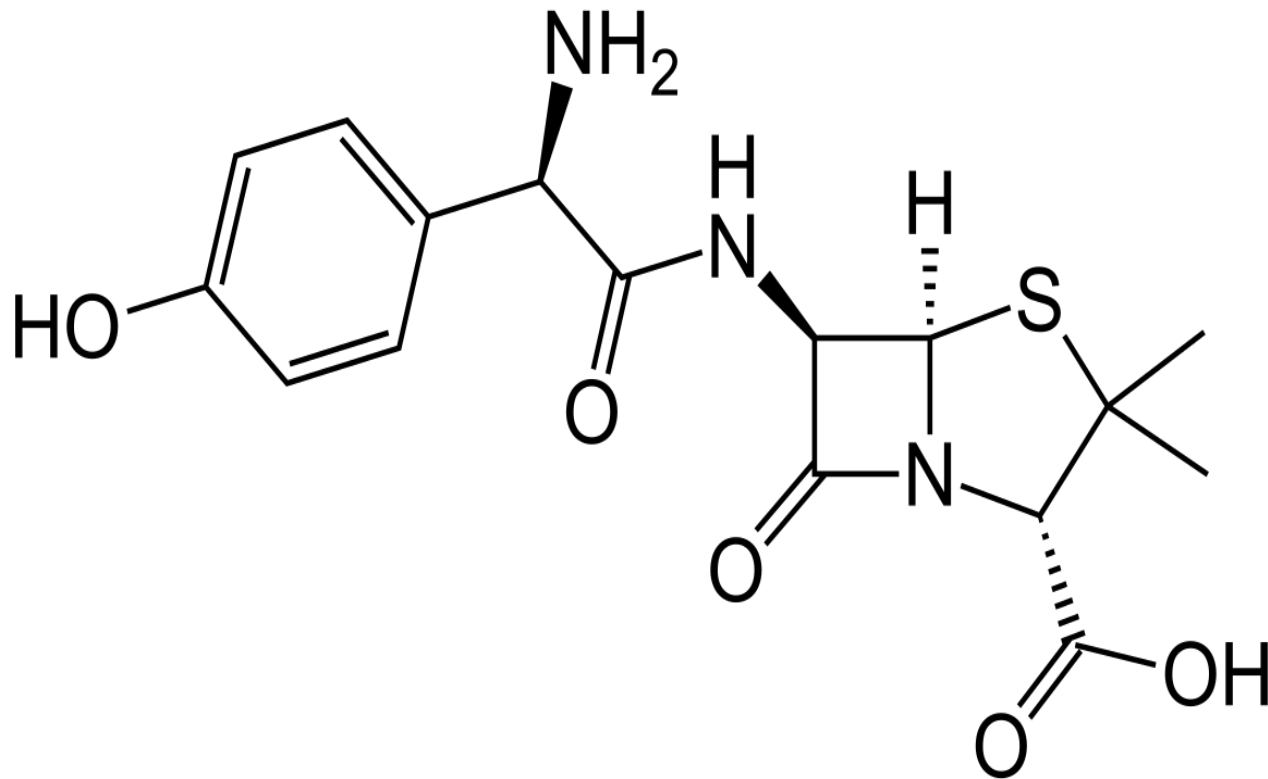
Abscess (periapical or periodontal)

- Public Health England advises antibacterial use only if there are signs of severe infection, systemic symptoms, or a high risk of complications.
- Amoxicillin OR clarithromycin (Alternative in penicillin allergy)
- If signs of spreading infection (e.g. lymph node involvement, systemic signs), add metronidazole

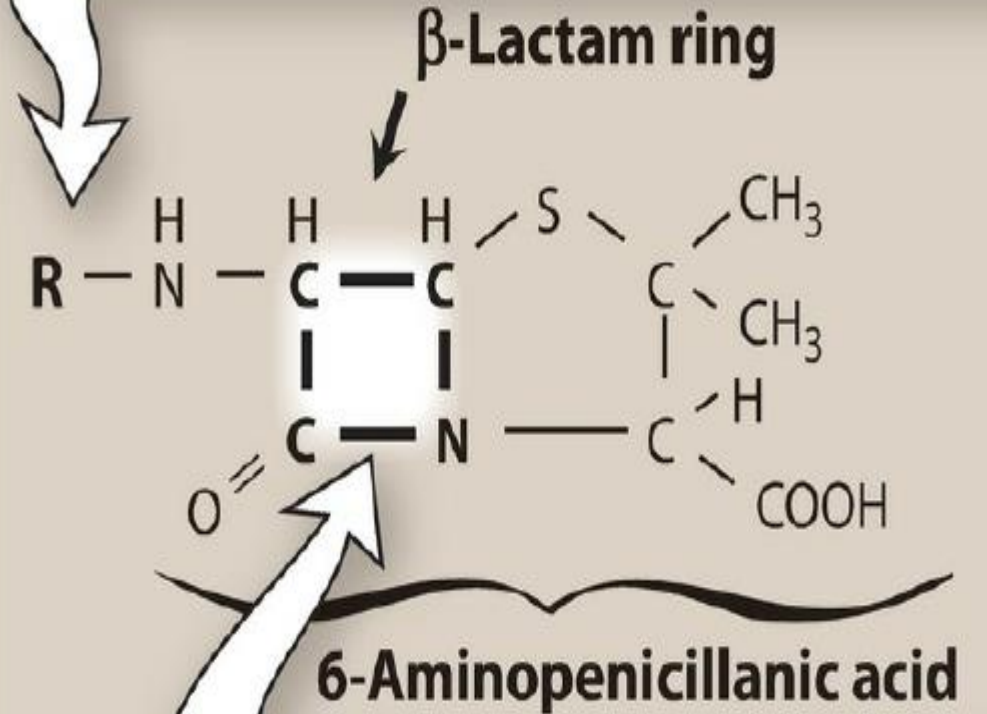
• Pericoronitis

Metronidazole, or *alternatively*, amoxicillin

Amoxicillin STRUCTURE

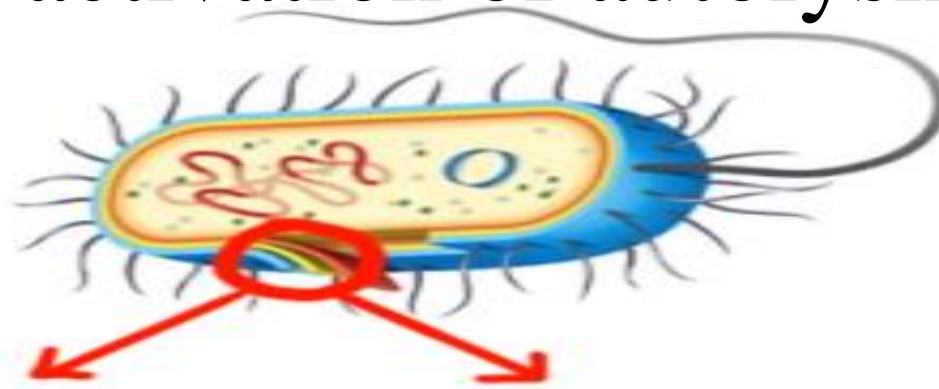


Nature of the R group determines the drug's stability to enzymatic or acidic hydrolysis and affects its antibacterial spectrum.



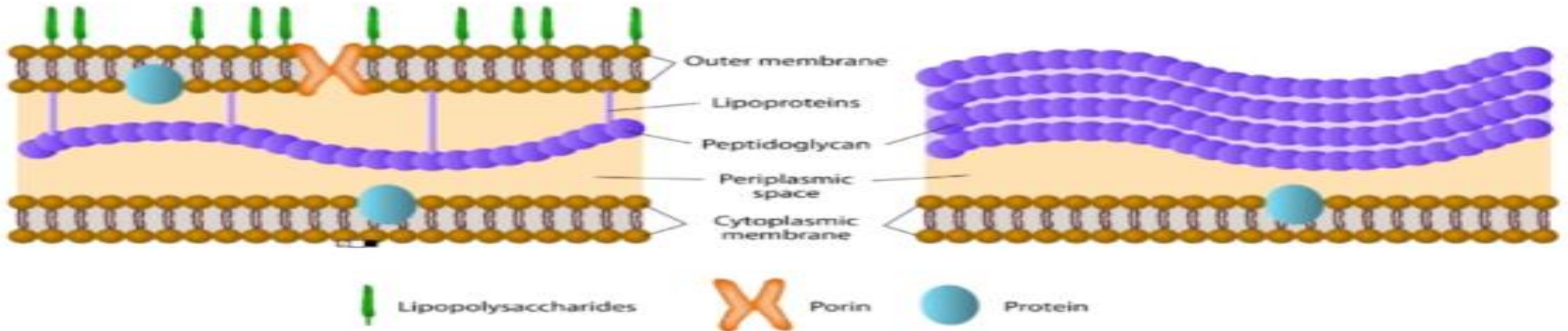
Site of hydrolysis by bacterial penicillinase or by acid.

MOA: Cell lysis can occur either through osmotic pressure or through the activation of autolysins.



GRAM-NEGATIVE

GRAM-POSITIVE



- Peptidoglycan of gram positive is more thicker
- PBP = penicillin binding protein
 - essential for peptidoglycan synthesis... **transpeptidase activity**

Dosage forms (Amoxicillin)

- Tablet/Capsule: 250 mg, 500 mg, 875 mg
- Chewable tablets: 125 mg, 250 mg
- Liquid: 125 mg/5 mL, 200 mg/5 mL, 250 mg/5 mL, 400 mg/5 mL



Indications

- Acute oral infection
- Sinusitis
- Prophylaxis

Usual adult dose

- Take 1 tablet (500 mg) 3 times a day for 5 to 7 days (15-21 tablets)
- For prophylaxis, take 4 tablets (4x 500 mg) 1 hour before dental procedure (4 tablets)

Age	Normal dose	Maximum dose	Maximum dose check (average weight for age) Based on 90mg/kg/day
1-11 months	125mg per dose to be given every 8 hours	30mg/kg per dose to be given every 8 hours	1 month (4.3kg): 129mg every 8 hours 11 months (8kg): 240mg every 8 hours
1-4 years	250mg per dose to be given every 8 hours	30mg/kg per dose to be given every 8 hours	1 yr (9kg): 270mg every 8 hours 4 yrs (16kg): 480mg every 8 hours
5-11 years	500mg per dose to be given every 8 hours	30mg/kg* per dose to be given every 8 hours *Maximum of 1g/dose	5 yrs (18kg): 540mg every 8 hours 11 yrs (35kg): 1g every 8 hours
12-17 years	500mg per dose to be given every 8 hours	1g every 8 hours	1g every 8 hours

Contraindication and precaution

- Hypersensitivity to penicillin
- Hypersensitivity to cephalosporins, carbapenem, imipenem
- Superinfection may occur with prolonged use
- Previously confirmed *C. difficile*-assoc. diarrhea



- This drug ↑ the concentration of methotrexate
- The following medications may ↓ the therapeutic effects of this drug: -
- Tetracycline such as minocycline, doxycycline, demeclocycline
- Gastroesophageal drugs such as esomeprazole and omeprazole,
- Aminoglycosides such as amikacin, gentamicin, streptomycin, tobramycin ↑ the concentration, efficacy and bactericidal effects of this drug



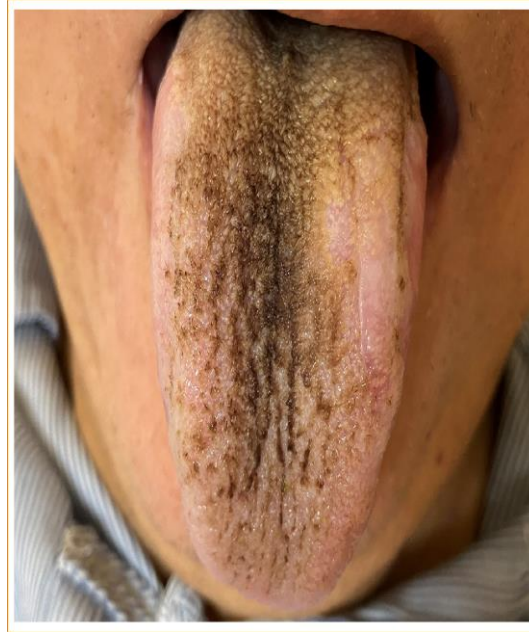
Side effects

Nausea,
vomiting,
diarrhea

Urticaria, rash

Black hairy
tongue

Oral or vaginal
candidiasis



Pregnancy: Not known to be harmful

Lactation: Trace amount in milk, but appropriate to use.

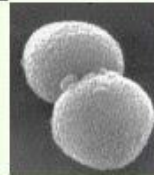
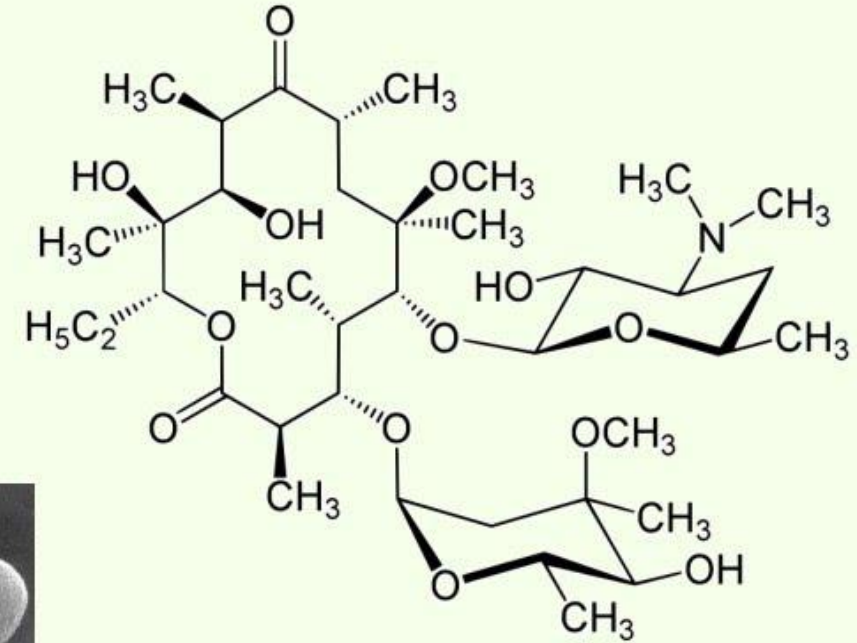
Adjust dose and frequency of drug to twice a day or daily based on severity of renal impairment

No hepatic dose adjustment needed

Combination Drug (Amoxicillin – Clavulanate)*

Tablet: 250 mg/125 mg, 500 mg/125 mg, 875 mg/125 mg Chewable tablets:
200 mg/28.5 mg, 400 mg/57 mg Liquid: (125 mg/31.25 mg)/5 mL, (200
mg/28.5 mg)/5 mL, (250 mg/62.5 mg)/5 mL, (400 mg/57 mg)/5 mL, (600
mg/42.9 mg)/5 mL

- Take 1 tablet (500 mg/125 mg) 3 times a day for 5 to 7 days (15-21 tablets)



Clarithromycin

Clarithromycin

- It is active against many oral anaerobes like *Bact. melaninogenicus*, *Peptococcus* as well as *Cl. perfringens* (but not *Bact. fragilis*), *Moraxella*,
However, bacteria that have developed resistance to erythromycin are resistant to clarithromycin as well.
- Food may delay its absorption.

- **Pregnancy**

- Use during pregnancy is not advised without carefully weighing the benefits against risks.

- **Breast-feeding**

- The safety of clarithromycin for use during breast feeding of infants has not been established..

- No dose modification is needed in liver disease or in mild-to-moderate kidney failure.
- Clarithromycin is indicated in upper and lower respiratory tract infections, *orodental infections*, sinusitis and otitis media
- *Dose:* 250 mg BD for 7 days; severe cases 500 mg BD up to 14 days.

Side effects



Metronidazole

- Indications
- Periodontal disease
- Acute dental infection (anaerobes)
- **Adult dose**
400 mg every 8 hours, alternatively 500 mg every 8 hours usually treated for 7 days.



Acute oral infections

- By mouth for children

- Child 1–2 years

50 mg every 8 hours for 3–7 days.

- Child 3–6 years

100 mg every 12 hours for 3–7 days.

- Child 7–9 years

100 mg every 8 hours for 3–7 days.

- Child 10–17 years

200–250 mg every 8 hours for 3–7 days.

Pregnancy and lactation

- With systemic use:

Manufacturer advises avoidance of high-dose regimens; use only if potential benefit outweighs risk.

- **Breast feeding**

- With systemic use:
- Significant amount in milk; manufacturer advises avoid large single doses though otherwise compatible; may give milk a bitter taste.
- Alcohol consumption up to 3 days after end of therapy
- Patients being treated with disulfiram in the past two weeks

Common Side Effects of Flagyl (Metronidazole)



Headache



**Dizziness or
lightheadedness**



Diarrhea



Loss of appetite



**Nausea or
vomiting**



**Stomach pain
or cramps**

- This drug ↑ the concentration of the following drugs:
- Blood thinners like warfarin
- Cholesterol lowering drugs such as lomitapide
- This drug ↑ the effect of alcohol intoxication of Medication containing alcohol.
- The following family of medication ↑ the levels of this drug:
- Antiseizure drugs such as phentobarbital, phenytoin,
- Drugs to treat alcoholism such as disulfiram



Don't drink alcohol or take alcohol containing cough syrup while on medication

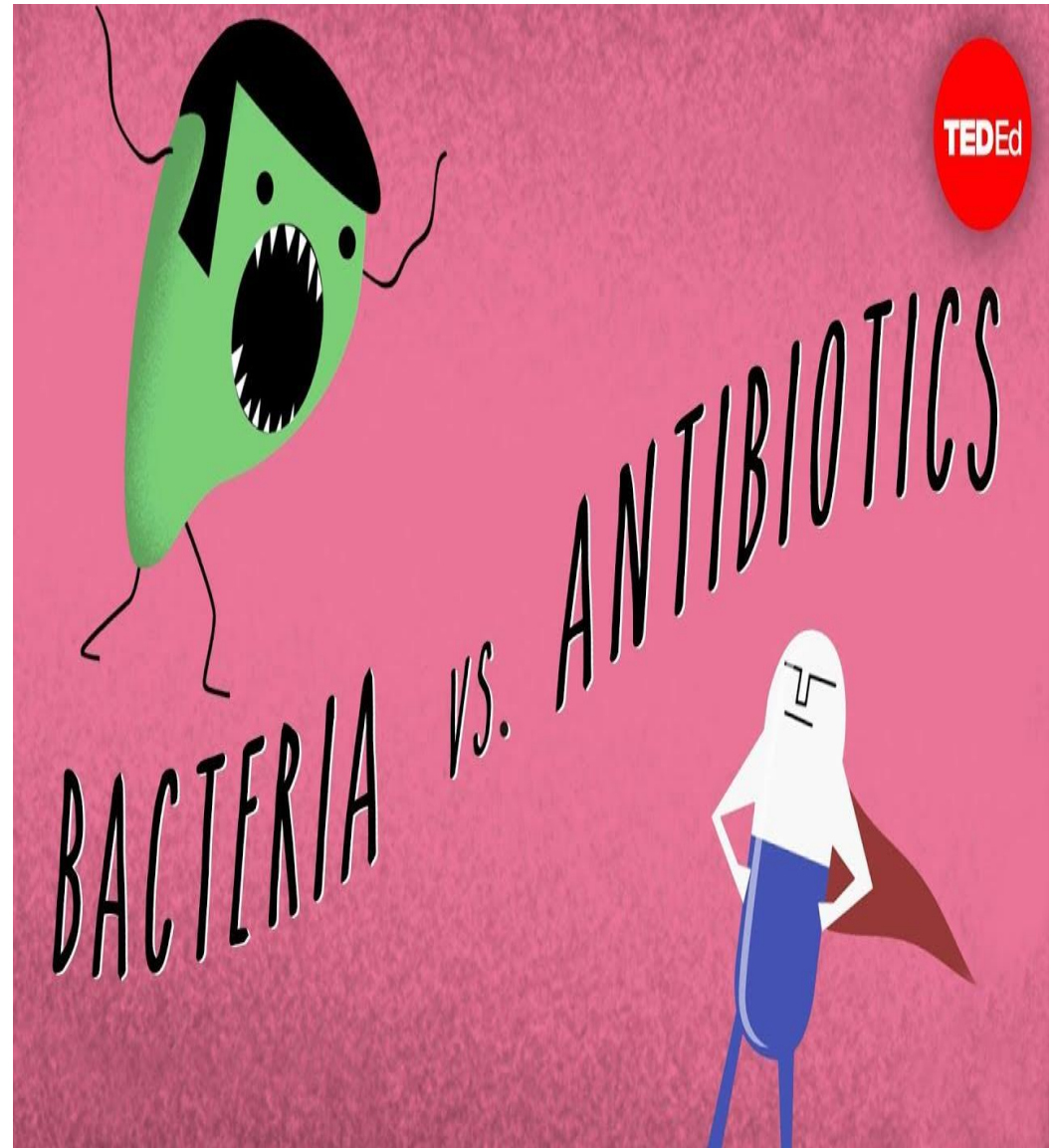
Hepatic impairment

- **With oral use or rectal use:**
 - Manufacturer advises caution in hepatic encephalopathy (risk of decreased clearance).
 - Manufacturer advises dose reduction to one-third of the daily dose in hepatic encephalopathy (dose may be given once daily).
- **With intravenous use:**
 - Manufacturer advises caution in severe impairment (risk of decreased clearance).
 - Manufacturer advises consider dose reduction in severe impairment.

**Choose
wisely.**



**Antibiotics aren't always
the right tool for the job.**



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THANK

YOU

FOR

YOUR

ATTENTION