ERYTHROMYCIN
(eh-rith-roe-my-e-sin)
erythromycin base
erythromycin ethylsuccinate
erythromycin lactobionate
erythromycin stearate
erithromycin (topical)

Classification
Therapeutic: anti-infectives
Pharmacologic: macrolides

Pregnancy Category B

Indications
IV, PO:
- Infections caused by susceptible organisms including: Upper and lower respiratory tract infections, Otitis media, Skin and skin structure infections, Pertussis, Diphtheria, Erythrasma, Intestinal amebiasis, Pelvic inflammatory disease, Nongonococcal urethritis, Syphilis, Legionnaires’ disease, Rheumatic fever.
- Useful when penicillin is the most appropriate drug but cannot be used because of hypersensitivity, including: Streptococcal infections, Treatment of syphilis or gonorrhea.

Topical:
- Treatment of acne.

Action
Suppresses protein synthesis at the level of the 50S bacterial ribosome.

Therapeutic Effects:
- Bacteriostatic action against susceptible bacteria.
- Spectrum: Active against many gram-positive cocci, including: Streptococci, Staphylococci. Several gram-negative pathogens, notably: Neisseria, Legionella pneumophila. Mycoplasma and Chlamydia are also usually susceptible.

Pharmacokinetics
Absorption: Variable absorption from the duodenum after oral administration (dependent on salt form). Absorption of enteric-coated products is delayed. Minimal absorption may follow topical or ophthalmic use.


Protein Binding: 70–80%.

Metabolism and Excretion: Partially metabolized by the liver, excreted mainly unchanged in the bile, small amounts excreted unchanged in the urine.

Half-Life: Neonates: 2.1 hr; Adults: 1.4–2 hr.

Contraindications/Precautions
Contraindicated in:
- Hypersensitivity; Concurrent use of pimozide, ergotamine, dihydroergotamine, procainamide, quinidine, dofetilide, amiodarone, or sotalol; Long QT syndrome; Hypokalemia; Hypomagnesemia; 50 bpm; Known alcohol intolerance (most topicals); Tartrazine sensitivity (some products contain tartrazine—FDC yellow dye #5); Products containing benzyl alcohol should be avoided in neonates.

Use Cautiously in:
- Liver/renal disease;
- OB: May be used in pregnancy to treat chlamydial infections or syphilis; Myasthenia gravis (may worsen symptoms);
- Geri: q risk of ototoxicity if parenteral dose / risk of QTc interval prolongation.

Adverse Reactions/Side Effects
CNS:
- CNS: seizures (rare).

EENT:
- EENT: ototoxicity.

CV:
- TORSADE DE POINTES, VENTRICULAR ARRHYTHMIAS, QT interval prolongation.

GI:
- PSEUDOMEMBRANOUS COLITIS, nausea, vomiting, abdominal pain, cramping, diarrhea, hepatitis, infantile hypertrophic pyloric stenosis, pancreatitis (rare).

GU:
- Interstitial nephritis.

Derm:
- Rash.

Local:
- Phlebitis at IV site.

Misc:
- Allergic reactions, superinfection.

Interactions:
- Color vision disturbances indicate most frequent; Benzyl alcohol = Discontinued.
Interactions
Drug-Drug: Concurrent use with pimozide may lead to the risk for seri- nal effects (such as hypotension, bradycardia, and lactic acidosis. May avoid concurrent use. May levels of ergotamine and dicy- dose inhibitors; avoid concurrent use. May levels of ergotamine and dicy- dose inhibitors; avoid concurrent use. May levels of ergotamine and dicy- 

Most Infections
PO: (Adults): doses: immediate—250 mg q 6 hr, or 555 mg q 6 hr, or 500 mg q 12 hr. Erythromycin base—400 mg q 6 hr or 800 mg q 12 hr. Erythromycin ethylsuccinate—20–50 mg/kg/day divided q 6–8 hr (maximum: 2 g in 24 hr or 1.25 g as erythromycin base). Erythromycin stearate—30–50 mg/kg/day divided q 6 hr (maximum: 2 g/day).

Acne
Topical (Adults and Children ≥12 yr): 2% ointment, gel, or solution, or pledgets twice daily.

NURSING IMPLICATIONS
Assessment:
● Assess for infection (vital signs, appearance of wound, sputum, urine, and stool; WBC at beginning of and during therapy.
● Obtain specimens for culture and sensitivity before initiating therapy. First dose may be given before obtaining results.
● Monitor bowel function. Diarrhea, abdominal cramping, fever, and bloody stools should be reported to health care professional promptly as a sign of pseudomembranous colitis. May begin up to several weeks following cessation of therapy.

Lab Test Considerations: Monitor liver function tests periodically on patients receiving high doses, long-term therapy.
● Monitor for bleeding.

Potential Nursing Diagnoses
● Risk for infection (Indications) (Side Effects) Noncompliance (Patient/Family Teaching)

Implementation:
● PO: administer around the clock. Erythromycin film-coated tablets (base and stearate) are absorbed better on an empty stomach, at least 1 hr before or 2 hr after meals, may be taken with food if GI irritation occurs. Antacids (e.g., erythromycin) are absorbed when taken with meals. Take each dose with a full glass of water.
● Use calibrated measuring device for liquid preparations. Shake well before using.
● Swallow tablets should be cracked or chewed and not swallowed whole.

Dosing:
Do not crush or chew delayed-release capsules or tablets; swallow whole.
Chewable tablets should be crushed or chewed and not swallowed whole.
Use calibrated measuring device for liquid preparations. Shake well before using.

RIFABUTIN* DURING PREGNANCY: RIFABUTIN SHOULD BE CONSIDERED A CATEGORY C DRUG DURING PREGNANCY.* If used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus.

RIFABUTIN† IN PREMENOPAUSAL WOMEN: THE EFFECT OF RIFABUTIN ON THE HORMONAL BALANCE OF PREMENOPAUSAL WOMEN HAS NOT BEEN STUDIED. THERAPEUTIC USE DURING PREGNANCY, INFANCY, OR CHILDHOOD SHOULD BE CONSIDERED A CATEGORY C DRUG. RIFABUTIN SHOULD NOT BE GIVEN TO INFANTS OR CHILDREN UNLESS THE POTENTIAL BENEFIT JUSTIFIES THE POTENTIAL RISK.

RIFABUTIN* IN CHILDREN: CONSIDERATION OF USE DURING RIFABUTIN IN CHILDREN IS RECOMMENDED ONLY FOR LIFE-THREATENING INFECTIONS WITH VIRUS. INFECTIONS MIGHT BE PREVENTED BY OTHER MORE EFFECTIVE OR LESS TOXIC AGENTS. IN THE EVENT OF USE IN CHILDREN, RIFABUTIN SHOULD BE ADMINISTERED AT THE LOWEST POSSIBLE DOSE AND WITH CLOSE MEDICAL SUPERVISION.

RIFABUTIN* FOR THE TREATMENT OF INFANTILE ACUTE MYELOBLASTIC LEUKEMIA: THE USE OF RIFABUTIN IN INFANTILE ACUTE MYELOBLASTIC LEUKEMIA IS CONSIDERED A CATEGORY C DRUG. RIFABUTIN SHOULD BE ADMINISTERED AT THE LOWEST POSSIBLE DOSE AND WITH CLOSE MEDICAL SUPERVISION.

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ERYTHROMYCIN

- **Intermittent Infusion:** Dose: 0.9% NaCl or D5W. **Concentration:** 1–5 mg/mL. **Rate:** Administer slowly over 20–60 min to avoid phlebitis. Assess for pain along vein; slow rate if pain occurs; apply ice and notify health care professional if unable to relieve pain.

- **Continuous Infusion:** May also be administered as an infusion over 6 hr. **Concentration:** 3 mg/mL.

**ERYTHROMYCIN Lactobionate**

- **Y-Site Compatibility:** acetaminophen, albuterol, amikacin, amoxicillin, amoxicillin/clavulanate, ampicillin, aprотinin, aztreonam, chloramphenicol, cefazolin, cefepime, cefotaxime, ceftriaxone, cefuroxime, ciprofloxacin, clindamycin, colistin, cyclosporine, dobutamine, dopamine, doxycycline, enoxaparin, fentanyl, gentamicin, heparin, indomethacin, insulin, ivabradine, linezolid, lidocaine, levofloxacin, methylprednisolone, metoclopramide, methotrexate, milrinone, nitroprusside, ondansetron, oxacillin, oxaliplatin, piperacillin/tazobactam, potassium chloride, potassium phosphate, prochlorperazine, promethazine, propofol, respiratory syncytial virus vaccine, streptokinase, succinylcholine, sulbactam, sul Stamycin, tacrolimus, telavancin, tigecycline, trimethoprim/sulfamethoxazole, vancomycin, vancomycin liposome, voriconazole, zidovudine.

- **Y-Site Incompatibility:** amphotericin B colloidal, amphotericin B lipid complex, amphotericin B liposome, aztreonam, cefepime, cefotetan, cefoxitin, chloramphenicol, colistin, colistin sulfate, desloratadine, diphenhydramine, doxycycline, enoxaparin, fentanyl, gentamicin, heparin, indomethacin, insulin, ivabradine, linezolid, lidocaine, levofloxacin, methylprednisolone, metoclopramide, methotrexate, milrinone, nitroprusside, ondansetron, oxacillin, oxaliplatin, piperacillin/tazobactam, potassium chloride, potassium phosphate, prochlorperazine, promethazine, propofol, respiratory syncytial virus vaccine, streptokinase, succinylcholine, sulbactam, sul Stamycin, tacrolimus, telavancin, tigecycline, trimethoprim/sulfamethoxazole, vancomycin, vancomycin liposome, voriconazole, zidovudine.

- **Topical:** Cleanse area before application. Wear gloves during application.

**Patient/Family Teaching**

- Instruct patient to take medication around the clock and to finish the drug completely as directed, even if feeling better. Take missed doses as soon as remembered, with remaining doses evenly spaced throughout day. Advise patient that sharing of this medication may be dangerous.

- May cause nausea, vomiting, diarrhea, or stomach cramps; notify health care professional if these effects persist or if severe abdominal pain, yellow discoloration of the skin or eyes, darkened urine, pale stools, or unusual tiredness develops. May cause infantile hypertrophic pyloric stenosis in infants; notify health care professional if vomiting and irritability occur.

- Caution patient to notify health care professional if fever and diarrhea occur, especially if stool contains blood, pus, or mucus. Advise patient not to treat diarrhea without consulting health care professional. May occur up to several weeks after discontinuation of medication.

- Instruct patient to report signs of superinfection (black, furry overgrowth on the tongue; vaginal itching or discharge; loose or foul-smelling stools).

**Evaluation/Desired Outcomes**

- Resolution of the signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.

- Improvement of acne lesions.