Doxycycline:

Class: Antibiotic.

Indications: Principally in the treatment of infections caused by susceptible *Rickettsia*, *Chlamydia*, *Chlamydophila*, and *Mycoplasma*; malaria prophylaxis (areas with chloroquine- or pyrimethamine-sulfadoxine resistant strains) for short-term travel (<4 months); treatment for syphilis, uncomplicated *Neisseria gonorrhoeae* (alternative agent), *Listeria*, *Actinomyces israelii*, and *Clostridium* infections in penicillin-allergic patients; used for community-acquired pneumonia and other common infections due to susceptible organisms; anthrax due to *Bacillus anthracis*, including inhalational anthrax (postexposure); treatment of infections caused by uncommon susceptible gram-negative and gram-positive organisms including *Borrelia recurrentis*, *Ureaplasma urealyticum*, *Haemophilus ducreyi*, *Yersinia pestis*, *Francisella tularensis*, *Vibrio cholerae*,*Campylobacter fetus*, *Brucella* spp, *Bartonella bacilliformis*, and *Klebsiella granulomatis*, Q fever, Lyme disease; intestinal amebiasis; severe acne.

Available dosage form in the hospital: 100MG CAP

Trade Names:

Dosage:

-Usual dosage range: Oral, I.V.: 100-200 mg/day in 1-2 divided doses

-Acute bacterial rhinosinusitis (unlabeled use): Oral: 200 mg/day in 1-2 divided doses for 5-7 days (Chow, 2012)

-Anthrax:

-*Inhalational (postexposure prophylaxis):* Oral, I.V. (use oral route when possible): 100 mg every 12 hours for 60 days (ACIP, 2010)

-*Cutaneous (treatment):* Oral: 100 mg every 12 hours for 60 days. **Note:** In the presence of systemic involvement, extensive edema, lesions on head/neck, refer to I.V. dosing for treatment of inhalational/gastrointestinal/oropharyngeal anthrax

-*Inhalational/gastrointestinal/oropharyngeal (treatment):* I.V.: Initial: 100 mg every 12 hours; switch to oral therapy when clinically appropriate; some recommend initial loading dose of 200 mg, followed by 100 mg every 8-12 hours (Franz, 1997). **Note:** Initial treatment should include two or more agents predicted to be effective (CDC, 2001). Agents suggested for use in conjunction with doxycycline or ciprofloxacin include rifampin, vancomycin, imipenem, penicillin, ampicillin, chloramphenicol, clindamycin, and clarithromycin. May switch to oral

antimicrobial therapy when clinically appropriate. Continue combined therapy for 60 days

-Brucellosis: Oral: 100 mg twice daily for 6 weeks with rifampin or streptomycin

-Cellulitis (purulent) due to community-acquired MRSA (unlabeled use): Oral: 100 mg twice daily for 5-10 days (Liu, 2011)

-Chlamydial infections, uncomplicated: Oral: 100 mg twice daily for ≥7 days

-Community-acquired pneumonia, bronchitis: Oral, I.V.: 100 mg twice daily (Ailani, 1999; Mandell, 2007)

-Epididymitis: Oral: 100 mg twice daily for 10 days (in combination with ceftriaxone) (CDC, 2010)

-Gonococcal infection, uncomplicated: Oral: **Note:** Azithromycin is preferred over doxycycline as the second antimicrobial in combination with ceftriaxone in uncomplicated infections due to a high prevalence of tetracycline resistance in isolates (CDC, 2012).

-*Cervix, rectum (unlabeled use), urethra:* 100 mg twice daily for 7 days in combination with ceftriaxone (preferred) or cefixime (only if ceftriaxone is not available and test-of-cure follow up in 7 days) (CDC, 2010; CDC, 2012).

-*Pharynx:* 100 mg twice daily for 7 days in combination with ceftriaxone (CDC, 2012).

-Alternatively, the manufacturer recommends a single-visit dose in nonanorectal infections in men: 300 mg initially, repeat dose in 1 hour (total dose: 600 mg)

-Granuloma inguinale (donovanosis): Oral: 100 mg twice daily for at least 3 weeks (and until lesions have healed) (CDC, 2010)

-Lyme disease**:** Oral (Halperin, 2007; Wormser, 2006):

-*Prevention:* Initiate within 72 hours of tick removal: 200 mg administered as a single dose

-*Treatment (early Lyme disease without neurologic manifestations):* 100 mg twice daily for 10-21 days

-*Treatment (meningitis or other early neurologic manifestations):* 100-200 mg twice daily for 14 days (range: 10-28 days)

-Lymphogranuloma venereum: Oral: 100 mg twice daily for 21 days (CDC, 2010)

-Malaria chemoprophylaxis: Oral: 100 mg/day. Start 1-2 days prior to travel to endemic area; continue daily during travel and for 4 weeks after leaving endemic area

-Malaria, severe, treatment (unlabeled use): Oral, I.V.: 100 mg every 12 hours for 7 days with quinidine gluconate. Note: Quinidine gluconate duration is region specific; consult CDC for current recommendations (CDC, 2011).

-Malaria, uncomplicated, treatment (unlabeled use): Oral: 100 mg twice daily for 7 days with quinine sulfate. Note: Quinine sulfate duration is region specific; consult CDC for current recommendations (CDC, 2011).

-Nongonococcal urethritis: Oral: 100 mg twice daily for 7 days (CDC, 2010)

-Pelvic inflammatory disease:

-*Treatment, inpatient:* Oral, I.V.: 100 mg twice daily (in combination with cefoxitin or cefotetan); may transition to oral doxycycline (add clindamycin or metronidazole if tubo-ovarian abscess present) to complete 14 days of treatment (CDC, 2010)

-*Treatment, outpatient:* Oral: 100 mg twice daily for 14 days (with or without metronidazole); preceded by a single I.M. dose of cefoxitin (plus oral probenecid) or ceftriaxone (CDC, 2010)

-Periodontitis: Oral (Periostat® [Canadian availability; not available in the U.S.]): 20 mg twice daily as an adjunct following scaling and root planing; may treat for up to 9 months

-Periodontitis, refractory (unlabeled use): Oral: 100-200 mg daily (Jolkovsky, 2006)

-Proctitis: Oral: 100 mg twice daily for 7 days (in combination with ceftriaxone) (CDC, 2010)

-Q fever: Oral:

-*Acute:* 100 mg every 12 hours for 14 days (CDC, 2013); **Note:** In patients who have valvular heart disease, consider increasing the duration of therapy to 1 year and adding hydroxychloroquine to the regimen to prevent endocarditis; consultation with an infectious disease expert is recommended (CDC, 2002; Fenollar, 2001).

-*Chronic (CDC, 2013):*

-Endocarditis or vascular infection: 100 mg every 12 hours in combination with hydroxychloroquine for ≥18 months

-Noncardiac organ disease: 100 mg every 12 hours in combination with hydroxychloroquine (duration based on serologic response; ID consult recommended)

-Postpartum with serologic evidence present >12 months after delivery: 100 mg every 12 hours in combination with hydroxychloroquine for 12 months

-Rosacea Oral (Oracea® [U.S. labeling], Apprilon™ [Canadian labeling]): 40 mg once daily in the morning

-Sclerosing agent for pleural effusion (unlabeled use): Intrapleural: 500 mg as a single dose in 100 mL NS (Porcel, 2006); may require a repeat dose (Kvale, 2007)

-Syphilis:

-*Primary/secondary syphilis:* Oral: 100 mg twice daily for 14 days (CDC, 2010)

-*Latent syphilis:* Oral: 100 mg twice daily for 28 days (CDC, 2010)

-Tickborne rickettsial disease: Oral, I.V.: 100 mg twice daily for 5-7 days; severe or complicated disease may require longer treatment; human granulocytotropic anaplasmosis (HGA) should be treated for 10-14 days.

-Tularemia: I.V. (may transition to oral if clinically appropriate): Initial: 100 mg every 12 hours for 14-21 days (Dennis, 2001)

-*Vibrio cholerae:* Oral: 300 mg as a single dose (WHO, 2004)

-*Yersinia pestis* (plague): Oral, I.V.: 200 mg initially then 100 mg twice daily **or** 200 mg once daily for 10 days (Daya, 2005; Inglesby, 2000

Renal Impairment :

No dosage adjustment necessary in renal impairment.

Poorly dialyzed; no supplemental dose or dosage adjustment necessary, including patients on intermittent hemodialysis, peritoneal dialysis, or continuous renal replacement therapy (eg, CVVHD).

Common side effect: Headache , erythematous rash, Hypoglycemia, Nausea ,vomiting,dental discoloration (children), dysphagia, esophageal ulcer, esophagitis,

Pregnancy Risk Factor: D