

Recommended antibiotic treatment for plague

Begin appropriate IV therapy as soon as plague is suspected. Gentamicin and fluoroquinolones are typically first-line treatments in the United States. Duration of treatment is 10 to 14 days, or until 2 days after fever subsides. Oral therapy may be substituted once the patient improves.

The regimens listed below are guidelines only and may need to be adjusted depending on a patient's age, medical history, underlying health conditions, or allergies. Please use clinical judgment.

	Antibiotic	Dose	Route of administration	Notes
Adults	Streptomycin	1 g twice daily	IM	Not widely available in the US
	Gentamicin	5 mg/kg once daily, or 2 mg/kg loading dose followed by 1.7 mg/kg every 8 hours	IM or IV	Not FDA approved but considered an effective alternative to streptomycin. ¹ Due to poor abscess penetration, consider alternative or dual therapy for patients with bubonic disease.
	Levofloxacin	500 mg once daily	IV or po	Bactericidal. FDA approved based on animal studies but limited clinical experience treating human plague. A higher dose (750 mg) may be used if clinically indicated.
	Ciprofloxacin	400 mg every 8-12 hours	IV	Bactericidal. FDA approved based on animal studies but limited clinical experience treating human plague.
		500-750 mg twice daily	po	
	Doxycycline	100 mg twice daily or 200 mg once daily	IV or po	Bacteriostatic, but effective in a randomized trial when compared to gentamicin. ²
	Moxifloxacin	400 mg once daily	IV or po	
	Chloramphenicol	25 mg/kg every 6 hours	IV	Not widely available in the United States

¹ Boulanger LL, Ettestad P, Fogarty JD, Dennis DT, Romig D, Mertz G. Gentamicin and tetracyclines for the treatment of human plague: Review of 75 cases in New Mexico, 1985–1999. *Clin Infect Dis*. 2004 38(5):663-669.

² Mwenge W, Butler T, Mgema S, Mhina G, Almasi Y, Bradley C, Formanik JB, Rochester CG.

Treatment of plague with gentamicin or doxycycline in a randomized clinical trial in Tanzania. *Clin Infect Dis*. 2006 42(5):614-21.

Additional information:

- Inglesby TV, Dennis DT, Henderson DA, et al. Plague as a biological weapon: medical and public health management. Working Group on Civilian Biodefense. *JAMA*. 2000 May 3;283(17):2281-90.
- Koirala J. Plague: disease, management, and recognition of act of terrorism. *Infect Dis Clin North Am*. 2006 Jun;20(2):273-87, viii.

Recommended antibiotic treatment for plague, continued

	Antibiotic	Dose	Route of administration	Notes
Children ³	Streptomycin	15 mg/kg twice daily (maximum 2 g/day)	IM	Not widely available in the United States
	Gentamicin	2.5 mg/kg/dose every 8 hours	IM or IV	Not FDA approved but considered an effective alternative to streptomycin. ¹ Due to poor abscess penetration, consider alternative or dual therapy for patients with bubonic disease.
	Levofloxacin	8 mg/kg/dose every 12 hours (maximum 250 mg/dose)	IV or po	Bactericidal. This dosing regimen is based on the levofloxacin package insert and is recommended for pediatric patients <50 kg and ≥6 months of age. FDA approved based on animal studies but limited clinical experience treating human plague.
	Ciprofloxacin	15 mg/kg/dose every 12 hours (maximum 400 mg/dose)	IV	Bactericidal. FDA approved based on animal studies but limited clinical experience treating human plague.
		20 mg/kg/dose every 12 hours (maximum 500 mg/dose)	po	
	Doxycycline	Weight < 45 kg: 2.2 mg/kg twice daily (maximum 100 mg/dose) Weight ≥ 45 kg: same as adult dose	IV or po	Bacteriostatic, but FDA approved and effective in a randomized trial when compared to gentamicin. ² No tooth staining after multiple short courses. ⁴
	Chloramphenicol (for children > 2 years)	25 mg/kg every 6 h (maximum daily dose, 4 g)	IV	Not widely available in the United States
Pregnant women ³	Gentamicin	Same as adult dose	IM or IV	See notes above
	Doxycycline	Same as adult dose	IV	See notes above
	Ciprofloxacin	Same as adult dose	IV	See notes above

³ All recommended antibiotics for plague have relative contraindications for use in children and pregnant women; however, use is justified in life-threatening situations.

Bactericidal. This dosing regimen is based on the levofloxacin package insert and is recommended for pediatric patients <50 kg and ≥6 months of age. FDA approved based on animal studies but limited clinical experience treating human plague.

⁴ Todd SR, Dahlgren FS, Traeger MS, Beltrán-Aguilar ED, Marianos DW, Hamilton C, McQuiston JH, Regan JJ. No visible dental staining in children treated with doxycycline for suspected Rocky Mountain spotted fever. *J Pediatr*. 2015 May;166(5):1246-51.

For more information, please contact:

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