

Just-In-Time Learning Series: MANAGEMENT OF THE PATIENT EXPOSED TO YERSINIA PESTIS IN THE SETTING OF A BIOTERROR ATTACK



REGION 8
MOUNTAIN PLAINS
Regional Disaster
Health Response System

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Pharyngeal or Bubonic Plague

Treatment of Adults with Bubonic or Pharyngeal Plague			
	Class	Antimicrobial	Dosage
First-Line	Fluoroquinolone	Ciprofloxacin	400 mg every 8 hrs IV or 750 mg every 12 hrs PO
		Levofloxacin	750 mg every 24 hrs IV or PO
		Moxifloxacin	400 mg every 24 hrs IV or PO
Tetracycline	Doxycycline	200 mg loading dose, then 100 mg every 12 hrs IV or PO	
		Aminoglycoside	Gentamicin
Adults aged ≥ 18 yrs Alternatives	Amphenicol	Streptomycin	1 g every 12 hrs IV or IM
		Chloramphenicol	12.5-25 mg/kg every 6 hrs IV (maximum 1 g/dose)
	Fluoroquinolone	Ofloxacin	400 mg every 12 hrs PO
		Gemifloxacin	320 mg every 24 hrs PO
	Aminoglycoside	Amikacin	15-20 mg/kg every 24 hrs IV or IM
		Tobramycin	5-7 mg/kg every 24 hrs IV or IM
	Tetracycline	Plazomicin	15 mg/kg every 24 hrs IV
		Tetracycline	500 mg every 6 hrs PO
		Omacycline	200 mg loading dose on day 1, then 100 mg every 24 hrs IV or 450 mg loading dose every 24 hrs on days 1 and 2, then 300 mg every 24 hrs PO
	Sulfonamide	Minocycline	200 mg loading dose, then 100 mg every 12 hrs IV or PO
Eravacycline		1 mg/kg every 12 hrs IV	
		Trimethoprim-sulfamethoxazole	5 mg/kg (trimethoprim component) every 8 hrs IV or PO

Treatment of Children with Bubonic or Pharyngeal Plague			
	Class	Antimicrobial	Dosage
First-Line	Fluoroquinolone	Ciprofloxacin	10 mg/kg every 8 or 12 hrs IV or 15 mg/kg every 8 or 12 hrs PO (maximum 400 mg/dose IV, 500 mg/dose every 8 hrs PO or 750 mg/dose every 12 hrs PO)
		Levofloxacin	Body weight <50 kg: 8 mg/kg every 12 hrs IV or PO (maximum 250 mg/dose) Body weight ≥50 kg: 500-750 mg every 24 hrs IV or PO
		Tetracycline	Doxycycline
Children aged ≥ 1 mos to ≤ 17 yrs Alternatives	Aminoglycoside	Gentamicin	4.5-7.5 mg/kg every 24 hrs IV or IM
		Streptomycin	15 mg/kg every 12 hrs IV or IM (maximum 1 g/dose)
	Amphenicol	Chloramphenicol	12.5-25 mg/kg every 6 hrs IV (maximum 1 g/dose)
		Moxifloxacin	Infants and children aged ≥3 mos to ≤23 mos: 6 mg/kg every 12 hrs IV or PO Children aged 2-5 yrs: 5 mg/kg every 12 hrs IV or PO Children aged 6-11 yrs: 4 mg/kg every 12 hrs IV or PO Children and adolescents aged 12 to ≤17 yrs: Body weight <45 kg: 4 mg/kg every 12 hrs IV or PO Maximum dose for all children <45 kg: 200 mg/dose Body weight ≥45 kg: 400 mg every 24 hrs IV or PO
	Fluoroquinolone	Ofloxacin	7.5 mg/kg every 12 hrs PO (maximum 400 mg/dose)
		Amikacin	15-20 mg/kg every 24 hrs IV or IM
	Aminoglycoside	Tobramycin	4.5-7.5 mg/kg every 24 hrs IV or IM
		Tetracycline	10 mg/kg every 6 hrs PO (maximum 500 mg/dose)
	Sulfonamide	Minocycline	4 mg/kg loading dose (maximum dose 200 mg), then 2 mg/kg every 12 hrs IV or PO (maximum 100 mg/dose)
		Trimethoprim-sulfamethoxazole	Infants and children aged ≥2 mos to ≤17 yrs: 5 mg/kg (trimethoprim component) every 8 hrs IV or PO

Treatment of Neonates Aged ≤28 Days with Bubonic or Pharyngeal Plague				
	Class	Antimicrobial	Dosage	
First-Line	Aminoglycoside	Gentamicin	Neonates aged ≤7 days: 4 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 5 mg/kg every 24 hrs IM or IV	
		Fluoroquinolone	Ciprofloxacin	10 mg/kg every 8 or 12 hrs IV
		Levofloxacin	10 mg/kg every 12 hrs IV	
Alternatives	Aminoglycoside	Streptomycin	15 mg/kg every 12 hrs IV or IM	
		Tobramycin	Neonates aged ≤7 days: 4 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 5 mg/kg every 24 hrs IM or IV	
	Amphenicol	Amikacin	Neonates aged ≤7 days: 15 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 17.5 mg/kg every 24 hrs IM or IV	
		Chloramphenicol	Neonates aged ≤14 days: 6.25 mg/kg every 6 hrs IM or IV Neonates aged 15-28 days: 12.5 mg/kg every 6 hrs IM or IV	
	Tetracycline	Doxycycline	4.4 mg/kg loading dose, then 2.2 mg/kg every 12 hrs IV	

Pneumonic or Septicemic Plague

Treatment of Adults with Pneumonic or Septicemic Plague			
	Class	Antimicrobial	Dosage
First-Line	Fluoroquinolone	Ciprofloxacin	400 mg every 8 hrs IV or 750 mg every 12 hrs PO
		Levofloxacin	750 mg every 24 hrs IV or PO
		Moxifloxacin	400 mg every 24 hrs IV or PO
Tetracycline	Doxycycline	200 mg loading dose, then 100 mg every 12 hrs IV or PO	
		Aminoglycoside	Gentamicin
Adults aged ≥ 18 yrs Alternatives	Amphenicol	Streptomycin	1 g every 12 hrs IV or IM
		Chloramphenicol	12.5-25 mg/kg every 6 hrs IV (maximum 1 g/dose)
	Fluoroquinolone	Ofloxacin	400 mg every 12 hrs PO
		Gemifloxacin	320 mg every 24 hrs PO
	Aminoglycoside	Amikacin	15-20 mg/kg every 24 hrs IV or IM
		Tobramycin	5-7 mg/kg every 24 hrs IV or IM
	Sulfonamide	Plazomicin	15 mg/kg every 24 hrs IV
		Trimethoprim-sulfamethoxazole	5 mg/kg (trimethoprim component) every 8 hrs IV or PO

Treatment of Children with Pneumonic or Septicemic Plague			
	Class	Antimicrobial	Dosage
First-Line	Fluoroquinolone	Ciprofloxacin	10 mg/kg every 8 or 12 hrs IV or 15 mg/kg every 8 or 12 hrs PO (maximum 400 mg/dose IV, 500 mg/dose every 8 hrs PO or 750 mg/dose every 12 hrs PO)
		Levofloxacin	Body weight <50 kg: 8 mg/kg every 12 hrs IV or PO (maximum 250 mg/dose) Body weight ≥50 kg: 500-750 mg every 24 hrs IV or PO
		Tetracycline	Doxycycline
Children aged ≥ 1 mos to ≤ 17 yrs Alternatives	Aminoglycoside	Gentamicin	4.5-7.5 mg/kg every 24 hrs IV or IM
		Streptomycin	15 mg/kg every 12 hrs IV or IM (maximum 1 g/dose)
	Amphenicol	Chloramphenicol	12.5-25 mg/kg every 6 hrs IV (maximum 1 g/dose)
		Moxifloxacin	Infants and children aged ≥3 mos to ≤23 mos: 6 mg/kg every 12 hrs IV or PO Children aged 2-5 yrs: 5 mg/kg every 12 hrs IV or PO Children aged 6-11 yrs: 4 mg/kg every 12 hrs IV or PO Children and adolescents aged 12 to ≤17 yrs: Body weight <45 kg: 4 mg/kg every 12 hrs IV or PO Maximum dose for all children <45 kg: 200 mg/dose Body weight ≥45 kg: 400 mg every 24 hrs IV or PO
	Fluoroquinolone	Ofloxacin	7.5 mg/kg every 12 hrs PO (maximum 400 mg/dose)
		Amikacin	15-20 mg/kg every 24 hrs IV or IM
	Aminoglycoside	Tobramycin	4.5-7.5 mg/kg every 24 hrs IV or IM
		Sulfonamide	Trimethoprim-sulfamethoxazole

Treatment of Neonates Aged ≤28 Days with Pneumonic or Septicemic Plague				
	Class	Antimicrobial	Dosage	
First-Line	Aminoglycoside	Gentamicin	Neonates aged ≤7 days: 4 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 5 mg/kg every 24 hrs IM or IV	
		Fluoroquinolone	Ciprofloxacin	10 mg/kg every 8 or 12 hrs IV
		Levofloxacin	10 mg/kg every 12 hrs IV	
Alternatives	Aminoglycoside	Streptomycin	15 mg/kg every 12 hrs IV or IM	
		Tobramycin	Neonates aged ≤7 days: 4 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 5 mg/kg every 24 hrs IM or IV	
	Amphenicol	Amikacin	Neonates aged ≤7 days: 15 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 17.5 mg/kg every 24 hrs IM or IV	
		Chloramphenicol	Neonates aged ≤14 days: 6.25 mg/kg every 6 hrs IM or IV Neonates aged 15-28 days: 12.5 mg/kg every 6 hrs IM or IV	
	Tetracycline	Doxycycline	4.4 mg/kg loading dose, then 2.2 mg/kg every 12 hrs IV	

Full details and special circumstances can be found: Nelson CA, Meaney-Delman D, Fleck-Derderian S, Cooley KM, Yu PA, Mead PS. Antimicrobial Treatment and Prophylaxis of Plague: Recommendations for Naturally Acquired Infections and Bioterrorism Response. MMWR Recomm Rep 2021;70(No. RR-3):1-27. DOI: <http://dx.doi.org/10.15585/mmwr.r7003a1>

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Pre- and Post- Exposure Prophylaxis

Pre- and Post-Exposure Prophylaxis for Adults Potentially Exposed to *Yersinia pestis*

	Class	Antimicrobial	Dosage
Adults aged ≥ 18 yrs	First-Line	Fluoroquinolone	Ciprofloxacin 500-750 mg every 12 hrs PO
		Levofloxacin	500-750 mg every 24 hrs PO
		Moxifloxacin	400 mg every 24 hrs PO
	Alternatives	Tetracycline	Doxycycline 100 mg every 12 hrs PO
		Fluoroquinolone	Ofloxacin 400 mg every 12 hrs PO
		Gemifloxacin	320 mg every 24 hrs PO
	Alternatives	Tetracycline	Tetracycline 500 mg every 6 hrs PO
		Omadacycline	300 mg every 24 hrs PO
		Minocycline	100 mg every 12 hrs PO
Sulfonamide	Trimethoprim-sulfamethoxazole	5 mg/kg (trimethoprim component) every 12 hrs PO	

Pre- and Post-Exposure Prophylaxis for Children Potentially Exposed to *Yersinia pestis*

	Class	Antimicrobial	Dosage	
Children aged ≥ 1 mos to ≤ 17 yrs (unless otherwise noted)	First-Line	Fluoroquinolone	Ciprofloxacin 15 mg/kg every 12 hrs PO (maximum 750 mg/dose)	
		Levofloxacin	Body weight <50 kg: 8 mg/kg every 12 hrs PO (maximum 250 mg/dose)	
		Tetracycline	Doxycycline Body weight ≥50 kg: 500-750 mg every 24 hrs PO Body weight <45 kg: 2.2 mg/kg every 12 hrs PO	
	Alternatives	Fluoroquinolone	Moxifloxacin	Body weight ≥45 kg: 100 mg every 12 hrs PO Infants and children aged ≥3 mos to ≤23 mos: 6 mg/kg every 12 hrs PO Children aged 2-5 yrs: 5 mg/kg every 12 hrs PO Children aged 6-11 yrs: 4 mg/kg every 12 hrs PO
			Ofloxacin	Children and adolescents aged 12 to ≤17 yrs: Body weight <45 kg: 4 mg/kg every 12 hrs PO (Maximum dose for all children <45 kg: 200 mg/dose)
			Tetracycline	Body weight ≥45 kg: 400 mg every 24 hrs PO 7.5 mg/kg every 12 hrs PO (maximum 400 mg/dose)
		Tetracycline	10 mg/kg every 6 hrs PO (maximum 500 mg/dose)	
		Minocycline	2 mg/kg every 12 hrs PO (maximum 100 mg/dose)	
		Sulfonamide	Trimethoprim-sulfamethoxazole	Infants and children aged ≥2 mos to ≤17 yrs: 5 mg/kg (trimethoprim component) every 12 hrs PO

Postexposure Prophylaxis for Neonates Aged ≤28 Days Potentially Exposed to *Yersinia pestis*

	Class	Antimicrobial	Dosage
First-Line	Fluoroquinolone	Ciprofloxacin	15 mg/kg every 12 hrs PO
		Levofloxacin	10 mg/kg every 12 hrs PO
	Tetracycline	Doxycycline	2.2 mg/kg every 12 hrs PO
Alternatives	Aminoglycoside	Gentamicin	Neonates aged ≤7 days: 4 mg/kg every 24 hrs IM or IV Neonates aged 8-28 days: 5 mg/kg every 24 hrs IM or IV
	Fluoroquinolone	Ofloxacin	7.5 mg/kg every 12 hrs PO

Full details and special circumstances can be found: Nelson CA, Meaney-Delman D, Fleck-Derderian S, Cooley KM, Yu PA, Mead PS. Antimicrobial Treatment and Prophylaxis of Plague: Recommendations for Naturally Acquired Infections and Bioterrorism Response. MMWR Recomm Rep 2021;70(No. RR-3):1-27. DOI: <http://dx.doi.org/10.15585/mmwr.rr7003a1>

Plague Meningitis

Treatment of Adults with Plague Meningitis

	Class	Antimicrobial	Dosage
Adults aged ≥ 18 yrs	First-Line	Amphenicol	Chloramphenicol 25 mg/kg every 6 hrs IV (maximum 1 g/dose)
		Fluoroquinolone	Levofloxacin 750 mg every 24 hrs IV or PO
	Alternatives	Fluoroquinolone	Moxifloxacin 400 mg every 24 hrs IV or PO

Treatment of Children with Plague Meningitis

	Class	Antimicrobial	Dosage			
Neonates, infants, and children aged ≤17 yrs	First-Line	Amphenicol	Chloramphenicol	Neonates aged ≤7 days: 25 mg/kg/dose every 24 hrs IV Neonates aged 8-28 days: 25 mg/kg/dose every 12 hrs IV Infants/children aged ≥29 days to ≤17 yrs: 25 mg/kg every 6 hrs IV (maximum 1 g/dose)		
			Fluoroquinolone	Levofloxacin	Neonates aged ≤28 days: 10 mg/kg/dose every 12 hrs IV Infants and children aged ≥29 days to ≤17 yrs: Body weight <50 kg: 8 mg/kg every 12 hrs IV or PO (maximum 250 mg/dose)	
				Moxifloxacin	Body weight ≥50 kg: 500-750 mg every 24 hrs IV or PO Infants and children aged ≥3 mos to ≤23 mos: 6 mg/kg every 12 hrs IV or PO	
	Alternatives	Fluoroquinolone	Moxifloxacin	Children aged 2-5 yrs: 5 mg/kg every 12 hrs IV or PO Children aged 6-11 yrs: 4 mg/kg every 12 hrs IV or PO		
				Sulfonamide	Trimethoprim-sulfamethoxazole	Children and adolescents aged 12 to ≤17 yrs: Body weight <45 kg: 4 mg/kg every 12 hrs IV or PO (maximum dose for all children <45 kg: 200 mg/dose)
				Tetracycline	Doxycycline	Body weight ≥45 kg: 400 mg every 24 hrs IV or PO

Treatment and Prophylaxis in Pregnancy

Treatment of Pregnant Women with Pneumonic, Septicemic, Bubonic, or Pharyngeal Plague

	Class	Antimicrobial	Dosage	
First-Line: Use Combination	First-Line	Fluoroquinolone	Ciprofloxacin 400 mg every 8 hrs IV or 500 mg every 8 hrs PO	
		Aminoglycoside	Levofloxacin 750 mg every 24 hrs IV or PO	
		Fluoroquinolone	Gentamicin 5 mg/kg every 24 hrs IV or IM	
	Alternatives	Fluoroquinolone	Moxifloxacin	400 mg every 24 hrs IV or PO
			Aminoglycoside	Ofloxacin 400 mg every 12 hrs PO
			Streptomycin	1 g every 12 hrs IV or IM
		Tetracycline	Amikacin	15-20 mg/kg every 24 hrs IV or IM
			Tobramycin	5-7 mg/kg every 24 hrs IV or IM
			Plazomicin	15 mg/kg every 24 hrs IV
		Sulfonamide	Trimethoprim-sulfamethoxazole	200 mg loading dose IV, then 100 mg every 12 hrs IV or PO Or 200 mg every 24 hrs IV
		Amphenicol	Chloramphenicol	12.5-25 mg/kg every 6 hrs (maximum 1 g/dose)

Pre- and postexposure prophylaxis for pregnant women potentially exposed to *Yersinia pestis*

	Class	Antimicrobial	Dosage	
First-Line	First-Line	Fluoroquinolone	Ciprofloxacin 500 mg every 8 hrs PO or 750 mg every 12 hrs PO	
		Levofloxacin	750 mg every 24 hrs PO	
		Moxifloxacin	400 mg every 24 hrs PO	
	Alternatives	Tetracycline	Ofloxacin	400 mg every 12 hrs PO
			Doxycycline	500 mg every 6 hrs PO
			Minocycline	100 mg every 12 hrs PO 200 mg loading dose, then 100 mg every 12 hrs PO

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