



Monographs for Commonly Administered Intravenous Medications in Home and Community Care

Ceftriaxone

Drug Class¹	Antibiotic – Third Generation Cephalosporin	
Spectrum^{1,2}	Refer to product monograph for complete spectrum <i>Staphylococcus aureus</i> , Coagulase negative <i>Staphylococcus</i> , <i>Streptococcus</i> species, <i>Haemophilus influenza</i> , <i>Moraxella catarrhalis</i> , <i>Neisseria meningitidis</i> , <i>Neisseria gonorrhoeae</i> , <i>Enterobacteriaceae</i> , <i>Escherichia coli</i> . Resistance is common with <i>Enterococci</i> species.	
Cross Sensitivities / Allergies¹	Other cephalosporin or beta-lactam antibiotics (e.g., penicillins)	
Indications¹ (based on susceptible organisms)	<ul style="list-style-type: none"> • Lower respiratory tract • Septicemia • Bone and joint • Urinary tract • Endocarditis 	<ul style="list-style-type: none"> • Skin and skin structures • Intra-abdominal • Gonorrhea • Gynecological • Central nervous system (meningitis) • Other conditions based on culture and sensitivity results
Outpatient Considerations¹	<ul style="list-style-type: none"> • For patients with a documented serious allergy to penicillin or other cephalosporins, the first dose should be administered in a hospital or clinic setting. • Must be able to access laboratory monitoring (either at outpatient laboratory or by arranging in-home lab) if using an interacting oral medication (see Potential Drug Interactions section) • Can also be administered intramuscularly. 	
Prescribing Considerations and Dosage in Adults^{1,3}	<ul style="list-style-type: none"> • Usual dose is 1-2 grams once or twice daily • Meningitis dose is 2 grams every 12 hours • Maximum dose is 4 grams per day <p>No renal dose adjustment is necessary</p>	
Administration³	<ul style="list-style-type: none"> • Dispensed as a single dose in 50-100 ml NS or D5W (or dextrose-saline combinations) and infused over 15-30 minutes during nursing visit via gravity or pole pump. • If ordered every 12 hours, ceftriaxone may be dispensed in an ambulatory cassette/multi-dose bag intended for an infusion pump, programmed to deliver the total daily dose via preprogrammed boluses over 24 hours. • Prior to connecting the patient to therapy, double check the pump programming versus the order. Recheck after each order change. • Contact pharmacy infusion provider for specific questions pertaining to 	

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administration.		
Stability / Compatibilities^{1,3}	<p><i>Compatible with:</i></p> <ul style="list-style-type: none"> • 0.9% Sodium Chloride (NS) • Dextrose 5% in Water (D5W) • Other dextrose-saline combinations <p>Incompatible with Ringer’s Lactate or any solution containing calcium – forms a precipitate.</p>	Follow the stability as specified by the infusion provider (as it is based on the dilution). Ensure appropriate storage conditions as specified are being met.
Monitoring Parameters^{1,2}	<p>Laboratory:</p> <ul style="list-style-type: none"> • Complete blood count² • BUN, serum creatinine² • Liver function tests² • International Normalized Ratio (INR) every 2 to 3 days if also taking warfarin • If taking cyclosporine, serum creatinine and cyclosporine levels should be checked within 3 days and monitored up to 2 weeks after treatment is completed.⁴ 	<p>Clinical by Nurse:</p> <ul style="list-style-type: none"> • Validate that patient does not have a penicillin or cephalosporin allergy • Ask about any onset of diarrhea daily – if present, MD should be contacted to reassess therapy, possibly order stool cultures to rule out <i>C. difficile</i>, and implement treatment if required. • Signs of bleeding, if taking warfarin. • Review home medications and compare against the selected drug interactions listed below. Report to prescriber if patient is using an interacting drug and obtain further orders. For more comprehensive drug interaction screening, contact the patient’s community pharmacist(s).
Selected Clinically Significant Drug Interactions	<p>Cyclosporine^{2,4} – case reports have noted an increase in cyclosporine levels; vigilant monitoring is required as high cyclosporine levels can lead to nephrotoxicity.</p> <p>Warfarin^{2,5,6} – ceftriaxone can increase the effect of warfarin and increase the INR, resulting in an increased risk for bleeding. Increased monitoring at the beginning and ending of antibiotic therapy is recommended. Infections in general can also affect how warfarin works in the body.</p>	
Patient Education	<p><i>Advise patient to report to their doctor or nurse if they have:</i></p> <ul style="list-style-type: none"> • New onset watery, foul smelling diarrhea and abdominal cramping. Ceftriaxone can cause <i>C. difficile</i> diarrhea. • Any signs of bleeding (if taking an anticoagulant). 	
Other	For information on pregnancy and nursing please contact the Motherisk Helpline found at http://www.motherisk.org/women/contactUs.jsp	



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References:

1. Ceftriaxone product monograph. Richmond Hill (ON): Fresenius Kabi Canada Ltd.; 2015 Mar 19 [cited 2016 Feb 16]. Obtained through Health Canada Drug Product Database; search term “ceftriaxone” as active ingredient, available from: <http://webprod5.hc-sc.gc.ca/dpd-bdpp/index-eng.jsp>
2. Ceftriaxone [monograph]. Pittsburgh (PA): Antimicrobe.org. [cited 2016 Feb 16]. Available from: <http://www.antimicrobe.org/new/drugpopup/ceftriaxone.pdf>
3. Ceftriaxone [monograph]. In: Bedard M, Gergoure N, Massicotte A, Editors. Parenteral Drug Therapy Manual. Ottawa (ON); 2015.
4. Soto Alvarez JS, Sacristán Del Castillo JA, Alsar Ortiz MJ. Interaction between ciclosporin and ceftriaxone. Nephron. 1991;59:681-682.
5. Clark TR, Burns S. Elevated international normalized ratio values associated with concomitant use of warfarin and ceftriaxone. Am J Health Syst Pharm. 2011;68(17):1603–1605.
6. Saum LM, Balmat RP. Ceftriaxone potentiates warfarin activity greater than other antibiotics in the treatment of urinary tract infections. J Pharm Pract. 2016;29(2):121-4.

Disclaimer: This monograph is intended to be used as a reference to support healthcare professionals in the home and community setting. It supplements, but does not replace: clinical judgement, the information provided by the product manufacturers, and the need to consult with the prescriber.

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