

# cefTRIAZONE

<b>Indication</b>	<ul style="list-style-type: none"> <li>Treatment of susceptible gram-positive and gram-negative infections<sup>1</sup></li> </ul>
<b>INTRAVENOUS</b>	<b>Presentation</b> <ul style="list-style-type: none"> <li>Vial: 1 g</li> </ul>
	<b>Dosage</b> <ul style="list-style-type: none"> <li>50 mg/kg every 24 hours<sup>2</sup></li> </ul>
	<b>Dosage</b> (meningitis or severe infection) <ul style="list-style-type: none"> <li>Only on SMO advice</li> <li>Loading dose of 100 mg/kg once, then 80 mg/kg every 24 hours<sup>2</sup></li> </ul>
	<b>Preparation</b> <ul style="list-style-type: none"> <li>Vial 1 g <ul style="list-style-type: none"> <li>Add 3 mL of water for injection to 1 g vial</li> <li>Withdraw contents and make up to 25 mL total volume with water for injection</li> <li>Concentration now equal to 40 mg/mL</li> </ul> </li> </ul>
	<b>Administration</b> (Refer to special warning below) <ul style="list-style-type: none"> <li>IV infusion <ul style="list-style-type: none"> <li>Prime the infusion line and reduce total syringe volume (40 mg/mL) to the prescribed dose</li> <li>IV infusion via syringe driver pump over 30 minutes<sup>3</sup></li> <li>On completion, disconnect syringe and infusion line</li> <li>Flush access port at same rate as infusion</li> </ul> </li> <li>IV injection (for meningitis/severe infection) <ul style="list-style-type: none"> <li>IV injection (40 mg/mL) over 5 minutes<sup>3</sup></li> </ul> </li> </ul>
<b>IM</b>	<b>Presentation</b> <ul style="list-style-type: none"> <li>Vial: 1 g</li> </ul>
	<b>Dosage</b> <ul style="list-style-type: none"> <li>50 mg/kg every 24 hours<sup>2</sup></li> </ul>
	<b>Preparation for 250 mg/mL final concentration</b> <ul style="list-style-type: none"> <li>Vial 1 g <ul style="list-style-type: none"> <li>Add 2 mL of water for injection (or lidocaine (lignocaine<sup>1</sup>) 1%) to 1 g vial</li> <li>Withdraw contents and make up to 4 mL total volume with water for injection (or lidocaine (lignocaine 1%))</li> <li>Concentration now equal to 250 mg/mL</li> </ul> </li> </ul>
	<b>Preparation for 350 mg/mL final concentration</b> <ul style="list-style-type: none"> <li>Vial 1 g <ul style="list-style-type: none"> <li>Add 2 mL of water for injection (or lidocaine (lignocaine<sup>1</sup>) 1%) to 1 g vial</li> <li>Withdraw contents and make up to 2.9 mL total volume with water for injection (or lidocaine (lignocaine 1%))<sup>3</sup></li> <li>Concentration now equal to 350 mg/mL</li> </ul> </li> </ul>
	<b>Administration</b> <ul style="list-style-type: none"> <li>Draw up prescribed dose</li> <li>Intramuscular injection into thickest part of the vastus lateralis in the anterolateral thigh (maximum 0.5 mL per site)<sup>4</sup></li> </ul>
<b>Special considerations</b>	<ul style="list-style-type: none"> <li>Cases of fatal reactions with calcium-ceftriaxone have occurred in term and preterm babies<sup>1</sup> (refer to special warning below)</li> <li>Contraindication <ul style="list-style-type: none"> <li>Hyperbilirubinaemic or preterm babies as can displace bilirubin from serum albumin<sup>1</sup></li> </ul> </li> <li>IM route only if IV route not available (painful injection) <ul style="list-style-type: none"> <li>250 mg/mL OR 350 mg/mL final concentration may be used for IM route. Consider final volume for administration relative to size of baby in determining concentration required</li> </ul> </li> <li>UAC route: consult with neonatologist/paediatrician prior to use and refer to Queensland Clinical Guideline: <i>Neonatal medicines</i><sup>5</sup></li> <li>If co-prescribed with aminoglycoside, give the antibiotic with shortest duration of administration first (so antibiotic cover commences asap) <ul style="list-style-type: none"> <li>Do not mix in the same injection or infusion solution; flush before and after</li> </ul> </li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>If prolonged therapy (more than 10 days) renal function and FBC</li> </ul>

<b>Compatibility</b>	<ul style="list-style-type: none"> <li>• Fluids <ul style="list-style-type: none"> <li>○ 5% glucose<sup>3</sup>, 10% glucose<sup>3</sup>, 0.9% sodium chloride<sup>3</sup></li> </ul> </li> <li>• Drugs <ul style="list-style-type: none"> <li>○ Aciclovir<sup>3</sup>, atracurium<sup>3</sup>, aztreonam<sup>3</sup>, cisatracurium<sup>3</sup>, dexamethasone<sup>3</sup>, dexmedetomidine<sup>3</sup>, digoxin<sup>3</sup>, dopamine<sup>3</sup>, erythromycin<sup>3</sup>, esmolol<sup>3</sup>, fentanyl<sup>3</sup>, foscarnet<sup>3</sup>, furosemide<sup>3</sup>, glyceryl trinitrate<sup>3</sup>, granisetron<sup>3</sup>, heparin sodium<sup>3</sup>, hydrocortisone<sup>3</sup>, insulin, lidocaine<sup>3</sup>, midazolam<sup>3</sup>, morphine sulfate<sup>3</sup>, noradrenaline<sup>3</sup>, paracetamol<sup>3</sup>, ranitidine<sup>3</sup>, sodium bicarbonate<sup>3</sup>, sodium nitroprusside<sup>3</sup>, suxamethonium<sup>3</sup>, verapamil<sup>3</sup>, zidovudine<sup>3</sup></li> </ul> </li> </ul>
<b>Incompatibility</b>	<ul style="list-style-type: none"> <li>• Fluids <ul style="list-style-type: none"> <li>○ Calcium containing solutions (e.g. Hartmann's, Ringers Lactate, PN)</li> </ul> </li> <li>• Drugs <ul style="list-style-type: none"> <li>○ Aminoglycosides<sup>3</sup>, azathioprine<sup>3</sup>, azithromycin<sup>3</sup>, calcium chloride<sup>3</sup>, calcium gluconate<sup>3</sup>, clindamycin<sup>3</sup>, dobutamine<sup>3</sup>, filgrastim<sup>3</sup>, fluconazole<sup>3</sup>, gentamicin<sup>3</sup>, haloperidol lactate<sup>3</sup>, hydralazine<sup>3</sup>, imipenem-cilastatin<sup>3</sup>, linezolid<sup>3</sup>, magnesium sulfate<sup>3</sup>, mycophenolate mofetil<sup>3</sup>, protamine<sup>3</sup>, vancomycin<sup>1</sup></li> </ul> </li> </ul>
<b>Interactions</b>	<ul style="list-style-type: none"> <li>• <b>Ceftriaxone-calcium precipitates in lung and kidneys<sup>1</sup> (refer to special warning below)</b></li> <li>• False positive Coombs test<sup>6</sup></li> <li>• False positive urinary glucose (if tested for reducing substances)<sup>6</sup></li> <li>• IV aminoglycosides are inactivated by IV cephalosporins, penicillins and teicoplanin<sup>8</sup></li> </ul>
<b>Stability</b>	<ul style="list-style-type: none"> <li>• Store vial below 25 °C. Protect from light<sup>1</sup></li> </ul>
<b>Side effects</b>	<ul style="list-style-type: none"> <li>• Blood pathology: elevated bilirubin<sup>7</sup>, thrombocytosis, leucopenia<sup>2</sup>, increase in bleeding time<sup>2</sup>, elevated AST and ALT<sup>2</sup></li> <li>• Digestive: diarrhoea<sup>7</sup>, pseudomembranous colitis<sup>7</sup></li> <li>• Hypersensitivity: rash<sup>7</sup>, dermatitis<sup>7</sup>, local injection site reaction<sup>7</sup></li> <li>• Pulmonary and renal: calcium-ceftriaxone precipitates in lungs and kidneys<sup>7</sup></li> </ul>
<b>Actions</b>	<ul style="list-style-type: none"> <li>• Third generation cephalosporin that inhibits cell wall synthesis</li> <li>• Enters cerebrospinal fluid</li> <li>• High degree of stability in the presence of penicillins and cephalosporins</li> </ul>
<b>Abbreviations</b>	ALT: alanine aminotransferase, AST: aspartate aminotransferase, FBC: full blood count, IM: intramuscular, IV: intravenous, PN: parenteral nutrition, SMO: most senior medical officer, TGA: Therapeutic Goods Administration, UAC: umbilical artery catheter,
<b>Keywords</b>	Sepsis, infection, cephalosporin, ceftriaxone, rocephin

**SPECIAL WARNING<sup>1,8</sup>**

- Do not reconstitute or mix ceftriaxone with a calcium-containing product (e.g. Ringers Lactate or Hartmann's)
- Do not administer ceftriaxone concurrently with intravenous calcium-containing solutions or injections (including PN)
- Do not administer calcium containing solutions within 48 hours of administering ceftriaxone
- Risk is not ameliorated by separate administration at different times, via different infusion lines or different sites
- No data about interactions between intravenous ceftriaxone and oral calcium containing products
- No data about interactions between intramuscular ceftriaxone and intravenous or oral calcium-containing products
- Refer to TGA product information for further details

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

**References**

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3. Australian Injectable Drugs Handbook. Nicolette Burridge, Keli Symons, editors. Ceftriaxone. 8th ed. [Internet]. New South Wales: Society of Hospital Pharmacists of Australia (SHPA); March 2021 [cited 2021 April 08]. Available from: <https://aidh.hcn.com.au>.
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6. British National Formulary for Children (BNFC) online. Ceftriaxone. [Internet]: Royal Pharmaceutical Society; March 2021 [cited 2021 May 21]. Available from: <https://www.medicinescomplete.com>.

7. MIMS Online. Ceftriaxone. [Internet]; MIMS Australia; May 2020 [cited 2021 April 09]. Available from: <https://www.mimsonline.com.au>.
8. U.S. Food and Drug Administration (FDA). Information for Healthcare Professionals: Ceftriaxone (marketed as Rocephin and generics): archived content. [Internet]. 2009 April 04 [cited 2021 April 09]. Available from: <https://www.fda.gov>.

## Document history

ID number	Effective	Review	Summary of updates
NMedQ21.068-V1-R26	20/07/2021	20/07/2026	Endorsed by Queensland Neonatal Services Advisory Group (QNSAG)
NMedQ21.068-V2-R26	13/08/2021	20/07/2026	<ul style="list-style-type: none"> <li>Added instructions for co-prescription with aminoglycosides to clarify order of administration</li> </ul>
NMedQ21.068-V3-R26	06/09/2021	20/07/2026	<ul style="list-style-type: none"> <li>Added preparation for 1 g vial to IM route</li> </ul>
NMedQ21.068-V4-R26	08/10/2021	20/07/2026	<ul style="list-style-type: none"> <li>Removed 500 mg vial (as not available)</li> <li>Amended 1g IM preparation. Final concentration changed FROM 350 mg/mL TO 250 mg/mL</li> <li>Amended 1g IV preparation. Final concentration 40 mg/mL unchanged</li> </ul>
NMedQ21.068-V5-R26	16/02/2022	20/07/2022	<ul style="list-style-type: none"> <li>Added preparation instructions for 350 mg/mL final concentration (now includes both 250 mg/mL and 350 mg/mL final concentration)</li> </ul>

## QR code

