

<b>Alert</b>	The Antimicrobial Stewardship Team recommends this drug is listed under the following category: Restricted.																										
<b>Indication</b>	Treatment of meningitis and sepsis caused by susceptible gram-negative organisms (especially <i>Pseudomonas aeruginosa</i> ) and susceptible gram-positive organisms.																										
<b>Action</b>	Bactericidal agent which inhibits cell wall synthesis in susceptible bacteria.																										
<b>Drug Type</b>	Cephalosporin antibiotic.																										
<b>Trade Name</b>	Ceftazidime Alphapharm, Ceftazidime Aspen, Ceftazidime Sandoz, Fortum, Hospira Ceftazidime.																										
<b>Presentation</b>	Ceftazidime 1 g vial Ceftazidime 2 g vial																										
<b>Dosage / Interval</b>	<p><b>50 mg/kg/dose. Dosing interval as per table below</b></p> <table border="1"> <thead> <tr> <th colspan="2">Method</th> <th rowspan="2">Interval</th> </tr> <tr> <th>Corrected Gestational Age/Postmenstrual Age</th> <th>Postnatal Age</th> </tr> </thead> <tbody> <tr> <td>&lt; 30<sup>+0</sup> weeks</td> <td>0–28 days</td> <td>12 hourly</td> </tr> <tr> <td>&lt; 30<sup>+0</sup> weeks</td> <td>29+ days</td> <td>8 hourly</td> </tr> <tr> <td>30<sup>+0</sup>–36<sup>+6</sup> weeks</td> <td>0–14 days</td> <td>12 hourly</td> </tr> <tr> <td>30<sup>+0</sup>–36<sup>+6</sup> weeks</td> <td>15+ days</td> <td>8 hourly</td> </tr> <tr> <td>37<sup>+0</sup>–44<sup>+6</sup> weeks</td> <td>0–7 days</td> <td>12 hourly</td> </tr> <tr> <td>37<sup>+0</sup>–44<sup>+6</sup> weeks</td> <td>8+ days</td> <td>8 hourly</td> </tr> <tr> <td>≥ 45 weeks</td> <td>0+</td> <td>8 hourly</td> </tr> </tbody> </table>	Method		Interval	Corrected Gestational Age/Postmenstrual Age	Postnatal Age	< 30 <sup>+0</sup> weeks	0–28 days	12 hourly	< 30 <sup>+0</sup> weeks	29+ days	8 hourly	30 <sup>+0</sup> –36 <sup>+6</sup> weeks	0–14 days	12 hourly	30 <sup>+0</sup> –36 <sup>+6</sup> weeks	15+ days	8 hourly	37 <sup>+0</sup> –44 <sup>+6</sup> weeks	0–7 days	12 hourly	37 <sup>+0</sup> –44 <sup>+6</sup> weeks	8+ days	8 hourly	≥ 45 weeks	0+	8 hourly
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<b>Route</b>	IV IM																										
<b>Maximum Daily Dose</b>	150mg/kg/day																										
<b>Preparation/Dilution</b>	<p><b>IV injection</b> Add 8.9 mL of water for injection to the 1 g powder for reconstitution to make a 100 mg/mL solution.</p> <p><b>IM injection</b> Add 3 mL water for injection to the 1 g powder for reconstitution to make a 260 mg/mL solution.</p>																										
<b>Administration</b>	<p><b>IV injection:</b> Give over at least 3 to 5 minutes. <b>IV infusion:</b> Over 15–30 minutes via syringe driver.</p> <p><b>IM injection:</b> Not recommended. If IM administration is necessary, ceftazidime may be reconstituted with lignocaine 1%.</p> <p>NOTE: Vials are carbonated, shake well after reconstitution and wait 1–2 minutes for the solution to clear before withdrawing the appropriate dose. Use a vented needle to reduce spraying and leaking.</p>																										
<b>Monitoring</b>	Not required.																										
<b>Contraindications</b>	Hypersensitivity to penicillins or cephalosporins.																										
<b>Precautions</b>	Sodium restriction (each gram contains 52 mg [2.3 mmol] of sodium). Renal impairment: Consider increasing dosage interval in those with significant renal impairment. Hepatic impairment.																										
<b>Drug Interactions</b>	Concurrent use of high doses with nephrotoxic drugs may adversely affect renal function.																										
<b>Adverse Reactions</b>	Rash Diarrhoea Elevated hepatic transaminases Eosinophilia, thrombocytopenia, haemolytic anaemia Positive Coombs test Superinfection following prolonged use (esp. <i>Candida</i> )																										

<b>Compatibility</b>	Fluids: Sodium chloride 0.9%, glucose 5%, glucose 10%, Hartmann's.  Y-site: Amino acid solutions, aciclovir, amifostine, anidulafungin, aztreonam, , bivalirudin, cimetidine ciprofloxacin, dexmedetomidine, esmolol, filgrastim, foscarnet, granisetron, hydromorphone, ibuprofen lysine ketamine, labetalol, linezolid, morphine sulfate, pethidine, sodium valproate, tacrolimus, tigecycline, tobramycin , zidovudine.
<b>Incompatibility</b>	Fluids: Sodium bicarbonate.  Y-site: Acetylcysteine, aminoglycosides – amikacin, gentamicin, tobramycin; amiodarone, atracurium, azathioprine, azithromycin, calcium chloride, caspofungin, chloramphenicol, chlorpromazine, dobutamine, erythromycin, fluconazole, ganciclovir, haloperidol lactate, hydralazine, midazolam, mycophenolate mofetil, pentamidine, phenytoin, promethazine, protamine, sodium ascorbate, sodium nitroprusside, vancomycin, verapamil.
<b>Stability</b>	Reconstitution with water for injection: Solution stable for 12 hours below 25°C and 24 hours at 2 to 8°C.  Reconstitution with lignocaine: Stable for 6 hours below 25°C and 24 hours at 2 to 8°C.
<b>Storage</b>	Store below 25°C. Protect from light.
<b>Special Comments</b>	
<b>Evidence summary</b>	Refer to full version.
<b>References</b>	<ol style="list-style-type: none"> <li>Hey E. (Ed) [2003]. Neonatal Formulary 4th Edition. BMJ Publishing Group, London.</li> <li>Neofax accessed on <a href="http://www.neofax.micromedex.solutions.com">www.neofax.micromedex.solutions.com</a> on 29<sup>th</sup> July 2015.</li> <li>MIMS Online Accessed 7<sup>th</sup> July 2015.</li> <li>Australian Injectable Drugs Handbook, 6th Edition, Society of Hospital Pharmacists of Australia 2015.</li> <li>Micromedex® 2.0, (electronic version). Truven Health Analytics, Greenwood Village, Colorado, USA. Available at: <a href="http://www.micromedexsolutions.com.acs.hcn.com.au">http://www.micromedexsolutions.com.acs.hcn.com.au</a>. Accessed 7<sup>th</sup> July 2015.</li> <li>Cotten CM, McDonald S, Stoll B, Goldberg RN, Poole K, Benjamin DK Jr, National Institute for Child Health and Human Development Neonatal Research Network. The association of third-generation cephalosporin use and invasive candidiasis in extremely low birth-weight infants. <i>Pediatrics</i> 2006;118(2):717–22.</li> <li>Calil R, Marba ST, von Nowakowski A, Tresoldi AT. Reduction in colonization and nosocomial infection by multiresistant bacteria in a neonatal unit after institution of educational measures and restriction in the use of cephalosporins. <i>Am J Infect Control</i> 2001;29(3):133–8.</li> <li>Dellagrammaticas HD, Christodoulou C, Megaloyanni E, Papadimitriou M, Kapetanakis J, Kourakis G. Treatment of gram-negative bacterial meningitis in term neonates with third generation cephalosporins plus amikacin. <i>Biol Neonate</i> 2000;77(3):139–46.</li> <li>Harvey D, Holt DE, Bedford H. Bacterial meningitis in the newborn: a prospective study of mortality and morbidity. <i>Semin Perinatol</i> 1999;23(3):218–25.</li> </ol>

<b>Original version Date: 08/08/2015</b>	<b>Author: Neonatal Medicines Formulary Consensus Group</b>
<b>Current Version number: 1</b>	<b>Version Date: 26/03/2019</b>
<b>Risk Rating: Medium</b>	<b>Due for Review: 26/03/2021</b>
<b>Approval by: JHCHCQ&amp;PCC</b>	<b>Approval Date: 26/03/2019</b>