cefTAZIDIME

Indication	• Treatment of sepsis and meningitis caused by susceptible gram-negative organisms[1-3] o Many aminoglycoside-resistant strains are susceptible to its anti-pseudomonal activity[1]

INTRAVENOUS

Presentation	• Vial (powder): 1 g | 2 g
Dosage	• 50 mg/kg (frequency according to *current gestational age and day of life)

*Current gest age (weeks)	Day of life	Frequency
29+6 or less	0–28	every 12 hours
	29 or more	every 8 hours
30+0 to 36+6	0–14	every 12 hours
	15 or more	every 8 hours
37+0 to 44+6	0–7	every 12 hours
	8 or more	every 8 hours
45 or more	all	every 8 hours

**Current gestational age is the same as postmenstrual age (PMA)*

IV INFUSION *(40 mg/mL concentration) *preferred route of administration*

Reconstitution (step 1)	**1 g and 2 g vial** • Add 5 mL of water for injection to vial • Shake vial—resulting fizz becomes clear in 1 to 2 minutes • If required, insert airway needle into vial[4]
Dilution (step 2)	**1 g vial** • Draw up entire solution and make up to 25 mL total volume with compatible fluid o *Concentration now equal to 40 mg/mL* **2 g vial** • Draw up entire solution and make up to 50 mL total volume with compatible fluid o *Concentration now equal to 40 mg/mL*
Administration	• Draw up the prescribed dose PLUS sufficient to prime the infusion line • Prime the infusion line and reduce total syringe volume to the prescribed dose o On completion, disconnect syringe and infusion line o Flush access port at same rate as infusion *If CNS infection* • IV infusion via syringe driver pump over 30 minutes[4-6] *If non-CNS infection* • IV infusion via syringe driver pump over 3 hours[4,6]

IV INJECTION *(100 mg/mL concentration)*

Reconstitution (step 1)	**1 g and 2 g vial** • Add 5 mL of water for injection to vial • Shake vial—resulting fizz becomes clear in 1 to 2 minutes • If required, insert airway needle into vial[4]
Dilution (step 2)	**1 g vial** • Draw up entire solution and make up to 10 mL total volume with compatible fluid • Concentration now equal to 100 mg/mL **2 g vial** • Draw up entire solution and make up to 20 mL total volume with compatible fluid Concentration now equal to 100 mg/mL
Administration	• Draw up the prescribed dose • IV injection over 3–5 minutes[4]

INTRAMUSCULAR

Presentation

- Vial (powder) 1 g

Dosage[1]

- 50 mg/kg (frequency according to *current gestational age and days of life)

*Current gest age (weeks)	Days of life	Frequency
29+6 or less	0–28	every 12 hours
	29 or more	every 8 hours
30+0 to 36+6	0–14	every 12 hours
	15 or more	every 8 hours
37+0 to 44+6	0–7	every 12 hours
	8 or more	every 8 hours
45 or more	all	every 8 hours

**Current gestational age is the same as postmenstrual age (PMA)*

Reconstitution[4]

- Add 3 mL lidocaine 1% to vial
- Shake vial—resulting fizz becomes clear in 1 to 2 minutes
  - o If required insert airway needle into vial
  - o *Concentration now equal to 260 mg/mL*

Administration

- Draw up prescribed dose
- Intramuscular injection into thickest part of the vastus lateralis in the anterolateral thigh (maximum 0.5 mL per site)

Contraindication Caution

- Contraindication
  - o Previous hypersensitivity reaction[3]
- Caution
  - o If renal dysfunction: dose adjustment is recommended, consult with pharmacist[2,7]

Special considerations

- Third generation cephalosporins are associated with a significantly increased risk of candidiasis in ELBW[1]
- *CNS gram negative infection
  - o Infusion time of 30 minutes improves CNS penetration due to high plasma concentrations[5,6]
- *Non-CNS infections
  - o Infusion time of 3 hours improves time above MIC
- IM route
  - o Only if IV route not available (painful injection)
- UAC route
  - o Consult with neonatologist/paediatrician prior to use

Monitoring

- Renal function[2]
- Extravasation risk

Compatibility

- Fluids
  - o 5% glucose[4], 10% glucose[2], 0.9% sodium chloride[4]
- Y-site
  - o Aciclovir[4], calcium gluconate[4], clindamycin[4], ciprofloxacin[4], dexamethasone[4], digoxin[4], ephedrine sulfate[4], esmolol[4], fentany[4], filgrastim[4], foscarnet[4], furosemide[4], heparin sodium[4], hydrocortisone sodium succinate[4], hydromorphone[4], insulin[4], lidocaine[4], magnesium sulfate[4], methylprednisolone sodium succinate[4], morphine sulfate[4], sodium bicarbonate[4], sodium valproate[4], zidovudine[4].

Incompatibility

- Fluids
  - o Sodium bicarbonate[4]
- Drugs
  - o Acetylcysteine, aminoglycosides: (amikacin, gentamicin, tobramycin) [4], amiodarone[4], atracurium[4], calcium chloride[4], caspofungin[4], cefotaxime[4], ganciclovir[4], hydralazine[4], midazolam[4], protamine[4], thiamine[4], verapamil[4]

Interactions	• Cephalosporins are inactivated by aminoglycoside antibiotics (amikacin, gentamicin, tobramycin (flush before and after administration) • Aminoglycosides: increased risk of nephrotoxicity[2] • Furosemide: increased risk of nephrotoxicity[2] • Indomethacin: increased risk of nephrotoxicity[2]
Stability	• Vial: store below 25 °C. Protect from light during storage[3] • Reconstituted solution: brand specific[4], consult pharmacist • Infusion solution o 40 mg/mL: stable for 24 hours below 25 °C or 2 to 8 °C[4] o 100 mg/mL: limited data; consult pharmacist • IM solution with lidocaine**:** use immediately and discard remaining product[4] • For multiple dose-single connection procedure (to reduce occasions of central access) o Stable for 24 hours below 25 °C or 2 to 8 °C o Refrigerate doses not due to for immediate administration
Side effects	• Blood pathology: eosinophilia[1], thrombocytosis[8] • Digestive: elevated transaminases[1] • Integumentary/skin: rash[1], phlebitis or thrombophlebitis • Hypersensitivity reaction[3,7]
Actions	• Bactericidal exerting its effect on target cell wall proteins and causing inhibition of cell wall synthesis[7]
Abbreviations	• Current gestational age is the same as *postmenstrual age* (PMA) CNS: central nervous system, ELBW: extremely low birth weight, IM: intramuscular, IV: intravenous, MIC: minimum inhibitory concentration, UAC: umbilical artery catheter
Keywords	sepsis, neonatal medicine, neonatal monograph, cephalosporin, antibiotic

The Queensland Clinical Guideline *Neonatal medicines*[9] 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.

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Document history

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