CefTAZidime

Brand names	Fortaz
Medication error potential	ISMP reports that cefTAZidime has been confused with ceFAZolin, cefoTEtan, cefTRIAXone, and cefOXitin.[1]
Contraindications and warnings	**Contraindications:** Should not be used in those with a known allergy to ceftazidime or another cephalosporin antibiotics.[2] **Warnings:** Individuals who have a type I reaction to penicillin may have cross-sensitivity to cephalosporins. Ceftazidime should be given cautiously to these patients.[2] (See Appendix C for specific information.) Prolonged use may cause superinfection and/or *Clostridium difficile*-associated diarrhea (CDAD), which has been reported and may range in severity from mild diarrhea to fatal colitis.[2] If CDAD is suspected or confirmed, appropriate fluid and electrolyte management, protein supplementation, antibiotic treatment of *C. difficile,* and surgical evaluation should be instituted as clinically indicated.[2]
Infusion-related cautions	If a decision is made to give this medication to a patient with known penicillin hypersensitivity, the patient should be closely observed for allergenicity. Although rare, anaphylactoid reactions may require immediate emergency treatment with epinephrine, oxygen, IV steroids, antihistamines, pressor amines, and airway management.[2] Accidental intra-arterial administration has resulted in distal necrosis.[2]
Dosage	**Neonates*** **PNA** / **≤2000 g** / **>2000 g** ≤7 days / 50–100 mg/kg/day divided q 12–18 hr[3,6] / 100–150 mg/kg/day divided q 8–12 hr[3,5-7] >7 days / 100–150 mg/kg/day divided q 8–12 hr[3] / 150 mg/kg/day divided q 8 hr[3,7] *Until 4 weeks of age The manufacturer recommends 60 mg/kg/day divided q 12 hr for those 0–4 weeks of age.[2] 25 mg/kg q 24 hr has also been recommended for those <32 weeks gestational age during the first few days of life.[8] **Infants and children** **Mild-to-moderate infections:** 90–150 mg/kg/day divided q 8 hr up to 3 g/day[2,3] **Severe infections (including meningitis):** 125–200 mg/kg/day divided q 8 hr up to 6 g/day[2,3,7,9,10,13] **Adolescents and *adults*:** 2–3 g/day divided q 8–12 hr up to 6 g/day.[2,3] Dose is dependent on type and severity of infection.[2] The larger doses should be reserved for patients with cystic fibrosis (CF), meningitis, severe intra-abdominal infection, or those who are immunocompromised.[2] **CF:** Although the manufacturer recommends 90–150 mg/kg/day divided q 8 hr,[2] other references and studies have used up to 400 mg/kg/day divided q 6–12 hr in this population.[3,14,18,19] **Neutropenia and fever (empiric therapy):** 100–150 mg/kg/day divided q 6–12 hr.[11,20]
Dosage adjustment in organ dysfunction	The manufacturer recommends the following in *adults:* if CrCl is 31–50 mL/min, give 1 g q 12 hr; if CrCl is 16–30 mL/min, give 1 g q 24 hr; if CrCl is 6–15 mL/min, give 500 mg q 24 hr[2]; and if CrCl is <5 mL/min, give 500 mg q 48 hr.[2] Another reference recommends a dose of 50 mg/kg q 12 hr if GFR is 30–50 mL/min/1.73 m^2, a dose of 50 mg/kg q 24 hr if GFR is 10–29 mL/min/1.73 m^2, and a dose of 50 mg/kg q 48 hr if GFR is <10 mL/min/1.73 m^2. Supplement for intermittent hemodialysis and peritoneal dialysis: 50 mg/kg q 48 hr. Supplement for continuous renal replacement therapy: 50 mg/kg q 12 hr.[22] No dosage adjustment is necessary in hepatic dysfunction.[2]

Maximum dosage	320 mg/kg/day in patients with CF[16] not to exceed 6 g/day[2,7]
Additives	Contains 2.3 mEq sodium/g of ceftazidime.[2,24]
Suitable diluents	D5W, R, D10W, LR, NS, D5NS, D5¼NS, D5½NS,[2,24] 1/6 molar sodium lactate injection, or Normosol-M in D5W[2]
Maximum concentration	170 mg/mL.[2] 126 mg/mL in SW results in a maximum recommended osmolality for peripheral infusion in fluid-restricted patients.[24]
Preparation and delivery	**Delivery system issues:** The mixing of ceftazidime with an aminoglycoside is not recommended[2] (See Appendix C for more specific information.) When ceftazidime is reconstituted, carbon dioxide is produced, resulting in bubbles and positive pressure in the vial.[2,24] The pressure is reduced by removing air from the vial with a syringe.[2,24] Bubbles remaining in the solution must be expelled prior to infusion.[2] **Stability:** When diluted with compatible infusion fluids, ceftazidime can be stored for 12 hours at room temperature and 3 days refrigerated. See manufacturer information for more specific details.[2] Once thawed, solutions should not be refrozen.[2] **Compatibility:** See Appendix D for PN compatibility information.[26]
IV push	100–170 mg/mL in SW over 3–5 minutes[2,24]
Intermittent infusion	1–40 mg/mL[2] infused over 15–30 minutes[24]
Continuous infusion	Although concentration and solution type are usually not specified, ceftazidime has been given by this method.[27,28] 200 mg/kg in 100 mL D5W has been given over 24 hours to febrile neutropenic children.[28] 100 mg/kg/day has been given by continuous infusion to CF patients.[29]
Other routes of administration	280 mg/mL may be given IM in SW, BW, 0.5% and 1% lidocaine hydrochloride.[2]
Comments	**Rare adverse effects:** Although nephrotoxicity has been reported following concomitant administration of aminoglycoside antibiotics, the literature is conflicted on this adverse effect.[30] Biliary sludging has been reported in a neonate.[31] Many cephalosporins may decrease in prothrombin activity.[2,32] Patients with renal or hepatic impairment or poor nutritional status, and those receiving long durations of antibiotics have an increased risk for this adverse effect.[2] Prothrombin time should be monitored in patients at risk, and exogenous vitamin K administered as indicated.[2] Ceftazidime has been implicated in triggering seizures, encephalopathy, and coma, particularly in patients with renal impairment when the dosage was not reduced.[2] **Monitoring:** CBC, prothrombin time (especially if on warfarin); signs and symptoms of *Clostridium difficile*-associated diarrhea. Because of the potential for nephrotoxicity, renal function should be carefully monitored, especially if large doses of the aminoglycosides are administered or if therapy is prolonged.[2] **Drug interactions:** May need to adjust dosage in premature neonates exposed to indomethacin[33,34] Concomitant administration of cephalosporins with an aminoglycoside or potent diuretics (e.g., furosemide) may increase the likelihood of nephrotoxicity.[2] Nephrotoxicity and ototoxicity were not noted when ceftazidime was given alone.[2] Other interactions may occur; consult appropriate resources for dosing recommendations before combining any drug with ceftazidime. **Laboratory interference:** False-positive urinary glucose results when cupric sulfate solution-based tests (Clinitest, Benedict's solution, Fehling's solution) are used.[2] It is recommended that glucose tests based on enzymatic glucose oxidase reactions be used.[2] Positive direct Coombs tests have been reported during treatment with ceftazidime.[2]