

PIPERACILLIN and TAZOBACTAM

Indication	<ul style="list-style-type: none"> Suspected or confirmed infection <ul style="list-style-type: none"> Bacteria (gram-positive, gram-negative, anaerobic)¹, including β-lactamase producing organisms (susceptible strains)^{1,2} 															
INTRAVENOUS	Presentation	<ul style="list-style-type: none"> Vial (powder): 4.5 g (4 g piperacillin and 0.5 g tazobactam) 														
	Dosage ³⁻⁵	<ul style="list-style-type: none"> 100 mg/kg (frequency according to *current gestational age and day of life) <ul style="list-style-type: none"> All doses presented as <i>piperacillin</i> <table border="1"> <thead> <tr> <th>*Current gest age (weeks)</th> <th>Current day of life (days)</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>29+6 or less</td> <td>0 or more</td> <td>every 8 hours</td> </tr> <tr> <td rowspan="2">30+0–36+6</td> <td>0–7</td> <td>every 8 hours</td> </tr> <tr> <td>8 or more</td> <td>every 6 hours</td> </tr> <tr> <td>37+0 or more</td> <td>0 or more</td> <td>every 6 hours</td> </tr> </tbody> </table> <p><i>*Current gestational age is the same as postmenstrual age (PMA)</i></p>	*Current gest age (weeks)	Current day of life (days)	Frequency	29+6 or less	0 or more	every 8 hours	30+0–36+6	0–7	every 8 hours	8 or more	every 6 hours	37+0 or more	0 or more	every 6 hours
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Reconstitution	<ul style="list-style-type: none"> Add 17 mL water for injection to vial and shake until dissolved <ul style="list-style-type: none"> Concentration now equal to 200 mg/mL 															
Dilution	<ul style="list-style-type: none"> Draw up 1000 mg (5 mL) of the 200 mg/mL reconstituted solution and make up to 20 mL total volume with compatible fluid <ul style="list-style-type: none"> Concentration now equal to 50 mg/mL 															
Administration	<ul style="list-style-type: none"> Draw up the prescribed dose volume PLUS sufficient to prime the line Prime the line and reduce syringe to prescribed dose volume IV infusion via syringe driver pump over 30 minutes^{1,5} On completion, disconnect syringe and infusion line Flush access port at same rate as infusion 															
Contraindication Caution	<ul style="list-style-type: none"> Contraindication <ul style="list-style-type: none"> Previous hypersensitivity reaction to penicillins or other beta-lactam antibiotics^{1,5} Caution <ul style="list-style-type: none"> Preexisting renal impairment—consider dose reduction^{1,5}, seek pharmacist advice 															
Special considerations	<ul style="list-style-type: none"> Increased risk of nephrotoxicity in critically ill patients⁵ 															
Monitoring	<ul style="list-style-type: none"> Electrolytes⁵ Hypersensitivity reactions⁵ Urine output⁵ FBC (haematopoietic function)^{1,5}, LFT¹, renal function^{1,5} Extravasation risk¹ 															
Compatibility	<ul style="list-style-type: none"> Fluids <ul style="list-style-type: none"> 0.9% sodium chloride^{1,6}, 5% glucose^{1,6} Y-site <ul style="list-style-type: none"> Calcium folinate, calcium gluconate⁶, clindamycin⁶, dexamethasone⁶, dexmedetomidine⁷, dopamine⁷, fluconazole⁶, furosemide⁶, heparin sodium⁶, hydrocortisone sodium succinate⁶, magnesium sulphate⁶, methylprednisolone sodium succinate⁶, metronidazole⁶, morphine sulfate⁶, paracetamol⁶, trimethoprim-sulfamethoxazole⁶, vancomycin (5 mg/mL in 0.9% sodium chloride)⁶, zidovudine⁶ 															
Incompatibility	<ul style="list-style-type: none"> Fluids <ul style="list-style-type: none"> Albumin^{1,6}, blood products^{1,6} Drugs <ul style="list-style-type: none"> Aciclovir⁶, aminoglycosides⁶ (amikacin⁶, gentamicin⁶, tobramycin⁶), albumin, amiodarone⁶, azithromycin⁶, caspofungin⁶, ciprofloxacin⁶, dobutamine⁶, ganciclovir⁶, glycopyrronium bromide⁶, hydralazine⁶, insulin (short-acting)⁶, midazolam⁶, nifedipine⁶, rocuronium⁶, tobramycin, tranexamic acid⁶, vecuronium⁶ 															



Interactions	<ul style="list-style-type: none"> • Aminoglycosides (e.g. gentamicin, tobramycin, amikacin)—potential loss of efficacy of aminoglycosides, therefore administer separately¹ • Vancomycin—increased risk of acute renal injury¹ <ul style="list-style-type: none"> ◦ Vecuronium—increased risk of enhanced/prolonged neuromuscular blockade¹
Stability	<ul style="list-style-type: none"> • Vial <ul style="list-style-type: none"> ◦ Store below 25 °C • For multiple dose-single connection procedure (to reduce occasions of CVL access) <ul style="list-style-type: none"> ◦ Stable below 25 °C for 24 hours or at 2–8 °C
Side effects	<ul style="list-style-type: none"> • Blood pathology: anaemia^{1,8}, thrombocytopenia¹, leucopaenia^{1,5,8}, neutropenia^{1,5}, hypokalaemia^{1,5,8}, hypernatremia^{5,8} • Digestive: diarrhoea^{1,5,8}, constipation^{1,8}, GI upset^{1,8}, vomiting^{1,8} • Integumentary: hypersensitivity reaction^{1,8}, skin rash^{1,8}, SCARs (e.g. SJS)^{1,5,8}, candidiasis⁸
Actions	<ul style="list-style-type: none"> • Broad-spectrum antibiotic and broad-spectrum beta-lactamase inhibitor^{1,9} • Piperacillin <ul style="list-style-type: none"> ◦ Broad-spectrum semisynthetic penicillin¹ ◦ Active against many gram-positive and gram-negative aerobic and anaerobic bacteria¹ ◦ Exerts bactericidal activity by inhibiting both septum and cell wall synthesis^{1,8} • Tazobactam <ul style="list-style-type: none"> ◦ Potent inhibitor of many beta-lactamases, including plasmid and chromosomally mediated enzymes that cause resistance to penicillins¹
Abbreviations	<ul style="list-style-type: none"> • Current gestational age is the same as <i>postmenstrual age</i> (PMA) <p>CVL: central venous line, IV: intravenous, FBC: full blood count, GI: gastrointestinal, LFT: liver function test, NEC: necrotising enterocolitis, SCARs: severe cutaneous adverse reactions, SJS: Stevens-Johnson syndrome</p>
Keywords	antibiotic, broad-spectrum antibiotic, broad spectrum beta-lactamase inhibitor, neonatal medicine, neonatal monograph, piperacillin, piptaz, tazobactam, tazocin neonatal medicine, neonatal monograph,

The Queensland Clinical Guideline [Neonatal medicines](#)¹⁰ 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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