

Benzylpenicillin

Newborn use only

2020

Alert	High risk medicine. The Antimicrobial Stewardship Team has listed this drug under the following categories: Unrestricted. 60 mg = 100 000 Units of penicillin.																																																									
Indication	Empiric treatment of early onset sepsis in combination with an aminoglycoside. Directed treatment of infection due to a susceptible bacterium. Treatment of meningitis due to a susceptible bacterium, including Group B <i>Streptococcus</i> (GBS). Treatment of congenital syphilis.																																																									
Action	Bactericidal agent which inhibits cell wall synthesis.																																																									
Drug type	Antibacterial - Penicillin																																																									
Trade name	BenPen																																																									
Presentation	600 mg, 1.2 g and 3 g vial. Each 600 mf dose contains 41.4 mg (1.8 mmol) sodium.																																																									
Dose	<p>Sepsis: (excluding meningitis and congenital syphilis): 60 mg/kg/dose. Dosing interval as per table below</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Corrected Gestational Age/Postmenstrual Age</th> <th>Postnatal Age</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>< 30⁺⁰ weeks</td> <td>0–28 days</td> <td>12 hourly</td> </tr> <tr> <td>< 30⁺⁰ weeks</td> <td>29+ days</td> <td>8 hourly</td> </tr> <tr> <td>30⁺⁰–36⁺⁶ weeks</td> <td>0–14 days</td> <td>12 hourly</td> </tr> <tr> <td>30⁺⁰–36⁺⁶ weeks</td> <td>15+ days</td> <td>8 hourly</td> </tr> <tr> <td>37⁺⁰–44⁺⁶ weeks</td> <td>0–7 days</td> <td>12 hourly</td> </tr> <tr> <td>37⁺⁰–44⁺⁶ weeks</td> <td>8+ days</td> <td>8 hourly</td> </tr> <tr> <td>≥45 weeks</td> <td></td> <td>6 hourly</td> </tr> </tbody> </table> <p>Meningitis: 90 mg/kg/dose. Dosing interval as per table below</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Corrected Gestational Age/Postmenstrual Age</th> <th>Postnatal Age</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>< 37⁺⁰ weeks</td> <td>0–7 days</td> <td>12 hourly</td> </tr> <tr> <td>< 37⁺⁰ weeks</td> <td>8+ days</td> <td>8 hourly</td> </tr> <tr> <td>≥ 37⁺⁰ weeks</td> <td>0+ days</td> <td>8 hourly</td> </tr> </tbody> </table> <p>Congenital syphilis: 30 mg/kg/dose. Dosing interval as per table below</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Corrected Gestational Age/Postmenstrual Age</th> <th>Postnatal Age</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>< 30⁺⁰ weeks</td> <td>0–28 days</td> <td>12 hourly</td> </tr> <tr> <td>< 30⁺⁰ weeks</td> <td>29+ days</td> <td>8 hourly</td> </tr> <tr> <td>30⁺⁰–36⁺⁶ weeks</td> <td>0–14 days</td> <td>12 hourly</td> </tr> <tr> <td>30⁺⁰–36⁺⁶ weeks</td> <td>15+ days</td> <td>8 hourly</td> </tr> <tr> <td>37⁺⁰–44⁺⁶ weeks</td> <td>0–7 days</td> <td>12 hourly</td> </tr> <tr> <td>37⁺⁰–44⁺⁶ weeks</td> <td>8+ days</td> <td>8 hourly</td> </tr> </tbody> </table>	Corrected Gestational Age/Postmenstrual Age	Postnatal Age	Interval	< 30 ⁺⁰ weeks	0–28 days	12 hourly	< 30 ⁺⁰ weeks	29+ days	8 hourly	30 ⁺⁰ –36 ⁺⁶ weeks	0–14 days	12 hourly	30 ⁺⁰ –36 ⁺⁶ weeks	15+ days	8 hourly	37 ⁺⁰ –44 ⁺⁶ weeks	0–7 days	12 hourly	37 ⁺⁰ –44 ⁺⁶ weeks	8+ days	8 hourly	≥45 weeks		6 hourly	Corrected Gestational Age/Postmenstrual Age	Postnatal Age	Interval	< 37 ⁺⁰ weeks	0–7 days	12 hourly	< 37 ⁺⁰ weeks	8+ days	8 hourly	≥ 37 ⁺⁰ weeks	0+ days	8 hourly	Corrected Gestational Age/Postmenstrual Age	Postnatal Age	Interval	< 30 ⁺⁰ weeks	0–28 days	12 hourly	< 30 ⁺⁰ weeks	29+ days	8 hourly	30 ⁺⁰ –36 ⁺⁶ weeks	0–14 days	12 hourly	30 ⁺⁰ –36 ⁺⁶ weeks	15+ days	8 hourly	37 ⁺⁰ –44 ⁺⁶ weeks	0–7 days	12 hourly	37 ⁺⁰ –44 ⁺⁶ weeks	8+ days	8 hourly
Corrected Gestational Age/Postmenstrual Age	Postnatal Age	Interval																																																								
< 30 ⁺⁰ weeks	0–28 days	12 hourly																																																								
< 30 ⁺⁰ weeks	29+ days	8 hourly																																																								
30 ⁺⁰ –36 ⁺⁶ weeks	0–14 days	12 hourly																																																								
30 ⁺⁰ –36 ⁺⁶ weeks	15+ days	8 hourly																																																								
37 ⁺⁰ –44 ⁺⁶ weeks	0–7 days	12 hourly																																																								
37 ⁺⁰ –44 ⁺⁶ weeks	8+ days	8 hourly																																																								
≥45 weeks		6 hourly																																																								
Corrected Gestational Age/Postmenstrual Age	Postnatal Age	Interval																																																								
< 37 ⁺⁰ weeks	0–7 days	12 hourly																																																								
< 37 ⁺⁰ weeks	8+ days	8 hourly																																																								
≥ 37 ⁺⁰ weeks	0+ days	8 hourly																																																								
Corrected Gestational Age/Postmenstrual Age	Postnatal Age	Interval																																																								
< 30 ⁺⁰ weeks	0–28 days	12 hourly																																																								
< 30 ⁺⁰ weeks	29+ days	8 hourly																																																								
30 ⁺⁰ –36 ⁺⁶ weeks	0–14 days	12 hourly																																																								
30 ⁺⁰ –36 ⁺⁶ weeks	15+ days	8 hourly																																																								
37 ⁺⁰ –44 ⁺⁶ weeks	0–7 days	12 hourly																																																								
37 ⁺⁰ –44 ⁺⁶ weeks	8+ days	8 hourly																																																								
Dose adjustment																																																										
Maximum dose	300 mg/kg/day																																																									
Total cumulative dose																																																										
Route	IV IM (only if IV route not available).																																																									
Preparation	<p>IV</p> <p>Add 3.6 mL of water for injection to the 600 mg vial to make a 150 mg/mL solution. Add 3,2 mL of water for injection to the 1.2 g vial to make a 300mg/mL solution Add 8 mL of water for injection to the 3 g vial to make 300mg/mL</p> <p>FURTHER DILUTE</p> <p>From the 600mg vial draw up 1 mL (150 mg of penicillin) of solution and add 4 mL of sodium chloride 0.9% to make a final volume of 5mL with a final concentration of 30 mg/mL.</p> <p>From the 1.2g and 3g vial draw up 1mL (300mg of penicillin) and add 9 mL of sodium chloride 0.9% to make a final volume of 10 mL with a final concentration of 30mg/mL.</p>																																																									

	IM Add 1.6 mL water for injection to the 600 mg vial to make a 300 mg/mL solution.
Administration	IV infusion over 15–30 minutes. Longer infusion time (30–60 minutes) is recommended for large doses Separate from aminoglycoside administration by clearing the line with a flush as penicillins inactivate aminoglycosides. IM injection.
Monitoring	Not routinely required Plasma concentrations may be useful for infections with a high Minimum Inhibitory Concentration (MIC).
Contraindications	Hypersensitivity to penicillin.
Precautions	Hypersensitivity to cephalosporins. Significant CNS toxicity including seizures may occur with high doses and rapid infusions. Consider sodium load, especially in renal failure – a dose of 300 mg/kg/day provides 0.90 mmol/kg/day of sodium. Dose reduction is recommended in significant renal insufficiency.
Drug interactions	Aminoglycosides including gentamicin should not be mixed with penicillin when both drugs are given parenterally as inactivation occurs. Ensure line is adequately flushed between antibiotics.
Adverse reactions	Allergy. Note hypersensitivity to penicillin has not been reported in neonates. Bone marrow suppression, granulocytopenia and hepatitis are rare. Significant CNS toxicity including seizures may occur with high doses and rapid infusions.
Compatibility	Fluids: Glucose 5%, Glucose 10% and sodium chloride 0.9% Y site: Amino acid solutions and fat emulsions.
Incompatibility	Y-site: Aminoglycosides – amikacin, gentamicin, tobramycin; aminophylline, dobutamine, erythromycin, ganciclovir, haloperidol lactate, heparin sodium, labetalol, metaraminol, noradrenaline, pentamidine, phenobarbitone, phentolamine, prochlorperazine, potassium chloride, promethazine, protamine sulfate, suxamethonium, thiopentone, tranexamic acid.
Stability	Administer immediately. Discard unused portion of reconstituted solution.
Storage	Store at room temperature. Protect from light.
Excipients	
Special comments	CSF penetration is poor even when meninges are inflamed, hence the larger dose in meningitis. Prescribe in terms of mg rather than units. 60 mg = 100 000 Units of penicillin.
Evidence	Refer to full version.
Practice points	Refer to full version.
References	Refer to full version.

VERSION/NUMBER	DATE
Original 1.2	08/08/2015
Version 2.0	12/11/2019
Version 3.0	16/12/2020
Review	16/12/2025

Authors Contribution

Original author/s	Tejasvi Chaudhari, Jacky Dobson
Evidence Review	David Osborn, Srinivas Bolisetty
Expert review	David Osborn
Nursing Review	Brendan McMullan, Tony Lai
Pharmacy Review	Eszter Jozsa, Kirsty Minter
ANMF Group contributors	Rajesh Maheshwari, Jing Xiao, Mariella De Rosa, Ushma Trivedi, Cindy Chen
Final editing and review of the original	Himanshu Popat, Nilkant Phad, Elizabeth Oliphant
Electronic version	Ian Whyte
Facilitator	Mariella De Rosa, Cindy Chen, Ian Callander
	Srinivas Bolisetty