

BENZYL PENICILLIN

Trade Name	Penicillin G Sodium Injection® (Sandoz distributed by Novartis)																			
Class	Beta-lactam antibiotic																			
Mechanism of Action	Inhibits bacterial cell wall synthesis through interaction with penicillin-binding-proteins.																			
Indications	Treatment of Group B Strep infection Congenital syphilis For treatment of other infections - consult the Pharmacist for organism specific dosing as dosing regimens vary																			
Contraindications	Hypersensitivity to penicillins. Large doses may cause hypokalaemia and hypernatraemia.																			
Supplied As	600mg vial (1 Mega Unit)																			
Dilution	IV: <table border="1"> <thead> <tr> <th>Drug</th> <th>Water Added</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>600mg</td> <td>5.6mL</td> <td>6mL*</td> <td>100mg/mL</td> </tr> </tbody> </table> IM: <table border="1"> <thead> <tr> <th>Drug</th> <th>Water Added</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>600mg</td> <td>1.6mL</td> <td>2mL*</td> <td>300mg/mL</td> </tr> </tbody> </table> No data available on stability of drawing up with lidocaine *600mg of Penicillin G Sodium powder displaces 0.4mL of diluent.			Drug	Water Added	Final Volume	Concentration	600mg	5.6mL	6mL*	100mg/mL	Drug	Water Added	Final Volume	Concentration	600mg	1.6mL	2mL*	300mg/mL	
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Dosage	GBS bacteraemia or congenital syphilis: 30 mg/kg/dose GBS meningitis or severe sepsis: 90 mg/kg/dose																			
Interval	GBS bacteraemia or congenital syphilis: <table border="1"> <thead> <tr> <th>Day of life</th> <th>Interval (hourly)</th> </tr> </thead> <tbody> <tr> <td>0-7</td> <td>12</td> </tr> <tr> <td>>7 days</td> <td>8</td> </tr> </tbody> </table> GBS meningitis or severe sepsis: <table border="1"> <thead> <tr> <th>Corrected GA</th> <th>Day of life</th> <th>Interval (hourly)</th> </tr> </thead> <tbody> <tr> <td rowspan="2"><37 wks</td> <td>0-7</td> <td>12</td> </tr> <tr> <td>>7</td> <td>8</td> </tr> <tr> <td>≥ 37 wks</td> <td>Any</td> <td>8</td> </tr> </tbody> </table> NOTE: On the rare occasion of treating a baby ≥6 weeks corrected then dose 6 hourly			Day of life	Interval (hourly)	0-7	12	>7 days	8	Corrected GA	Day of life	Interval (hourly)	<37 wks	0-7	12	>7	8	≥ 37 wks	Any	8
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Administration	<p>IV: Slow push or 15-30 minute infusion in sodium chloride 0.9%</p> <p>IM: Inject into a large muscle (buttock, thigh) immediately after being prepared to decrease risk of hypersensitivity from degradation products.</p> <p>IM dose volume should be kept between 0.5-1mL if possible to decrease the pain for the baby.</p> <p>See IM drug guideline in Drugs folder and Handbook</p>
Compatible With	<p>Solution: Dextrose 5% & 10%, sodium chloride 0.9%, water for injection</p> <p>Y site: Acyclovir, adrenaline, alprostadil, amikacin, amiodarone, aminophylline, atropine, aztreonam, caffeine citrate, calcium chloride, calcium gluconate, cefotaxime, cefoxitin, ceftazidime, cefuroxime, chloramphenicol, cimetidine, clarithromycin, clindamycin, dexamethasone, digoxin, dopamine, enalaprilat, ephedrine, epoetin alpha, erythromycin lactobionate, esmolol, fentanyl, fluconazole, furosemide, gentamicin, heparin, hydrocortisone succinate, imipenem/cilistatin, indometacin, insulin, lidocaine, magnesium sulfate, meropenem, methylprednisolone, metronidazole, , midazolam, morphine sulphate, nicardipine, noradrenaline, pantoprazole, phenylephrine, potassium chloride, pyridoxine, ranitidine, sodium bicarbonate, thiamine, tobramycin, TPN, vasopressin.</p> <p>Note: Compatibility with SMOF Lipid has not been tested and benzyl penicillin is not compatible with other lipids, please use a separate line</p>
Incompatible With	Aminophylline, amphotericin B, diazoxide, dobutamine, ganciclovir heparin, lipid, methylprednisolone, metoclopramide, netilmicin, phenobarbital, phenytoin, sulphamethoxazole + trimethoprim, tobramycin, vancomycin
Interactions	<p>Concurrent use of aspirin with benzylpenicillin can reduce the clearance and increase the half life of benzylpenicillin</p> <p>Simultaneous administration of benzylpenicillin with aminoglycosides eg: gentamicin, may reduce aminoglycoside concentrations, ensure the line is well flushed between antibiotics.</p>
Monitoring	Weekly urea, creatinine and electrolytes
Stability	Freshly prepared solutions of benzylpenicillin should be used immediately because even at refrigeration temperatures aqueous solutions of benzylpenicillin rapidly disintegrate
Storage	<p>Powder – maintain at room temperature; protect from light and moisture.</p> <p>Reconstituted solution – discard immediately after use.</p>
Adverse Reactions	Anaphylaxis and both immediate and delayed hypersensitivity reactions. High doses can cause CNS toxicity and seizures.
Metabolism	Renal excretion.

Comments	<p>Each 600mg dose of benzylpenicillin contains 1.68 mmol of sodium</p> <p>Benzylpenicillin can cause false positive urinary glucose tests.</p> <p>Neofax states compatibility with IV dextrose 5% and 10% but this information is not included in the NZ Penicillin G data sheet.</p>												
References	<ol style="list-style-type: none"> 1. Medicines for Children (1999) 2. Penicillin G Sodium product information sheet 3. Neofax 2009 4. Neonatal Formulary for the Northern Network 11th Edition 2000 5. NZHPA Notes on Injectable Drugs 6th edition. 2010 6. Red Book 2018, American Academy of Pediatrics 7. Starship Neonatal Guidelines www.starship.org.nz/guidelines/ 												
Updated By	<table border="0"> <tr> <td>A Turnbull</td> <td>November 2001</td> </tr> <tr> <td>P Schmidt, B Robertshawe</td> <td>September 2006</td> </tr> <tr> <td>A Lynn, B Robertshawe, F Robertson</td> <td>May 2009 (new pumps)</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>June 2012 (re-order profile)</td> </tr> <tr> <td>A Lynn, M Wallenstein, B Robertshawe</td> <td>Aug 2020</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>May 2023 (routine review)</td> </tr> </table>	A Turnbull	November 2001	P Schmidt, B Robertshawe	September 2006	A Lynn, B Robertshawe, F Robertson	May 2009 (new pumps)	A Lynn, B Robertshawe	June 2012 (re-order profile)	A Lynn, M Wallenstein, B Robertshawe	Aug 2020	A Lynn, B Robertshawe	May 2023 (routine review)
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