

GENTAMICIN

Trade Name	Gentamicin sulphate (DBL)														
Class	Aminoglycoside antibiotic														
Mechanism of Action	Inhibits translation of bacterial DNA by interfering with bacterial mRNA at ribosomal level														
Indications	Proven or assumed Gram negative bacterial sepsis Used in combination with β -lactam antibiotics, eg amoxicillin Pseudomonal infections.														
Contraindications	Hypersensitivity to gentamicin or its components. Caution in renal impairment, and in combination with other nephrotoxic, ototoxic drugs (indomethacin, frusemide, vancomycin, amphotericin)														
Supplied As	80 mg / 2 mL (40 mg /mL) (Dec 2020. usual strength 10 mg /mL out of stock due to Covid 19)														
Dilution	Take ONE mL (=40mg) and make up to 4 mL 0.9% sodium chloride to give final concentration of 10 mg / mL .														
	<table border="1"> <thead> <tr> <th>Drug</th> <th>Sodium Chloride 0.9% Added</th> <th>Final Volume</th> <th>Final Concentration</th> </tr> </thead> <tbody> <tr> <td>40mg (1mL)</td> <td>3 mL</td> <td>4 mL</td> <td>10mg/mL</td> </tr> </tbody> </table>			Drug	Sodium Chloride 0.9% Added	Final Volume	Final Concentration	40mg (1mL)	3 mL	4 mL	10mg/mL				
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	<ul style="list-style-type: none"> Use prescribing sticker on medication chart 														
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	<p>First dose to be given as shown in table. Subsequent doses to be advised by Pharmacy</p>														
Administration	IV by infusion pump over 30 minutes Do not give IM (see Neonatal Handbook)														

Monitoring and Further Doses....		Levels required – Gentamicin week 1 of life
	≤ 48hrs ie: 1 dose	No levels in most instances but see below for exceptions*
	≥ 5 days	<p style="text-align: center;">Dose 1</p> <p>1st Level – When decision is made to give >1 dose:</p> <ul style="list-style-type: none"> ▪ Call lab to retrospectively analyse a level on the CRP blood test taken after gentamicin was given ▪ If there is no blood in the lab to do this then take a level immediately <p>2nd Level - At 24-36hrs</p> <p style="text-align: center;">Further Doses</p> <ul style="list-style-type: none"> ▪ No levels required if it is a 5 day course ▪ Pharmacist advises if more levels are required if ≥7 day course and if they are take: <p>1st Level – At 1hr after completion of the dose</p> <p>2nd Level – At 24-36hrs</p>
....Monitoring and Further Doses	See Neonatal Handbook for more info	<p>* Closer monitoring required with levels taken from <u>Dose 1</u> wherever possible:</p> <ul style="list-style-type: none"> ▪ Decision for 5-7 days Ab made before starting gentamicin ▪ Gentamicin after week 1 of life ▪ HIE / renal impairment / oliguria ▪ Significant oedema / hydrops ▪ Gram negative positive blood cultures ▪ Concomittant nephrotoxic drugs ▪ Concern about clinical response <p style="text-align: center;">Dose 1</p> <p>1st Level – At 1hr after completion of the dose</p> <p>2nd Level – At 24-36 hrs</p> <p style="text-align: center;">Further Doses</p> <p>Pharmacist advises if more levels are required</p>
Compatible With	In solution: Dextrose and saline solutions only Terminal injection site: acyclovir, caffeine, dopamine fluconazole, insulin, metronidazole, midazolam morphine, ranitidine, TPN, lipid	
Incompatible With	Amoxycillin, calcium cephalosporins, frusemide, heparin, lipid (see above), penicillins, phenytoin. Flush between these meds	
Stability	Single use only	
Storage	Store below 25°C. Protect from light.	
Adverse Reactions	Nephrotoxic, ototoxic – related to total dose, treatment duration and high area under the curve (AUC). Ototoxicity is not usually seen with single doses. Neuromuscular blockade and respiratory paralysis has occurred in adults with iv boluses so infuse 30min	

Metabolism	Excreted unchanged in urine by glomerular filtration
Comments	<p>When the 30min infusion finishes, this is “completion of the dose”. To ensure the entire dose reaches the baby (and none is left in the line) follow the gentamicin infusion by a 30min flush.</p> <p>Acts synergistically with penicillins for Gp B Strep sepsis. Toxicity is potentiated by diuretics (esp. frusemide). Adequate peak and non-toxic AUC's are difficult to achieve in babies <0.75kg therefore we prefer to use cefotaxime for these infants unless treating pseudomonas.</p>
References	<ol style="list-style-type: none"> 1. Stickland M.D. et al: An extended interval dosing method for Gentamicin in neonates. <i>JAC</i> (2001) 48, 887 – 893 2. Trissel LA, Handbook on Injectable Drugs, 11th Ed, 2001 3. Begg EJ et al: Eight years' experience of an extended- interval dosing protocol for gentamicin in neonates. <i>JAC</i> 2009;63:1043-9.
Updated By	<p>A Lynn, B Robertshawe Mar 2008, May 2009, Nov 2009, Oct 2012</p> <p>A Lynn, B Robertshawe, P Buffery Nov 2015 (dose/interval/level changes)</p> <p>A Lynn, B Robertshawe Dec 2020 (outage of 10 mg /mL stock due to COVID 19)</p>