

GENTAMICIN

Trade Name	Gentamicin sulphate (DBL) ; Gentamicin Sulphate USP (Teligent)													
Class	Aminoglycoside antibiotic													
Mechanism of Action	Inhibits translation of bacterial DNA by interfering with bacterial mRNA at ribosomal level													
Indications	<ol style="list-style-type: none"> 1. Proven or assumed Gram negative bacterial sepsis Used in combination with β-lactam antibiotics, eg amoxicillin 2. Pseudomonal infections. 3. Gut bacterial overgrowth 													
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	Either 10 mg in 1 mL. (DBL brand) or 20 mg in 2mL (Teligent Brand) (Note: 80mg/2mL also available but not our preferred choice)													
Dilution	No dilution usually required													
Dosage/Interval	<p>Indication 1 and 2:</p> <table border="1"> <thead> <tr> <th>Weight (kg)</th> <th>First Dose</th> <th>Interval</th> </tr> </thead> <tbody> <tr> <td>> 1500g</td> <td>10mg/kg</td> <td>60hrs</td> </tr> <tr> <td>750 - 1500g</td> <td>7.5mg/kg</td> <td>60hrs</td> </tr> <tr> <td><750g</td> <td colspan="2">Use cefotaxime unless treating pseudomonas or an organism sensitive only to gentamicin. If need to use gentamicin give 6mg/kg/dose</td> </tr> </tbody> </table> <p>Indication 2:</p> <p>5mg/kg/dose orally every 12 hours for 2 weeks Alternating with 2 weeks or oral metronidazole</p>		Weight (kg)	First Dose	Interval	> 1500g	10mg/kg	60hrs	750 - 1500g	7.5mg/kg	60hrs	<750g	Use cefotaxime unless treating pseudomonas or an organism sensitive only to gentamicin. If need to use gentamicin give 6mg/kg/dose	
Weight (kg)	First Dose	Interval												
> 1500g	10mg/kg	60hrs												
750 - 1500g	7.5mg/kg	60hrs												
<750g	Use cefotaxime unless treating pseudomonas or an organism sensitive only to gentamicin. If need to use gentamicin give 6mg/kg/dose													
Administration	<p>IV by infusion pump over 30 minutes Do not give IM (see Neonatal Handbook)</p> <p>Oral for indication 5 (gut bacterial overgrowth)</p>													

<p>Monitoring and Further Doses</p>	<p style="text-align: center;">Levels required – Gentamicin week 1 of life</p> <hr/> <p>≤ 48hrs ie: 1 dose No levels in most instances but see below for exceptions*</p> <hr/> <p>≥ 5 days 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> <hr/> <p>See Neonatal Handbook for more info * Closer monitoring required with levels taken from <u>Dose 1</u> wherever possible:</p> <ul style="list-style-type: none"> ▪ Ab started >6hrs age and so no blood in the lab to analyse a level retrospectively ▪ 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> <p>NOTE: Monitoring is not required for oral administration of gentamicin as it is not absorbed orally</p>
<p>Compatible With</p>	<p>In solution: Dextrose and saline solutions only</p> <p>Terminal injection site: adrenaline, acyclovir, alprostadil, amikacin, amiodarone, caffeine, calcium chloride, calcium gluconate, ciprofloxacin, dexmedetomidine, dobutamine, dopamine, doxapram, epoetin alpha, erythromycin, famotidine, fentanyl, fluconazole, insulin, lidocaine, magnesium sulphate, meropenem, metronidazole, methylprednisolone, midazolam, milrinone, morphine, noradrenaline, octreotide, ondansetron, pancuronium, paracetamol, phenylephrine, phentolamine, pyridoxine, ranitidine, sodium acetate, sodium bicarbonate, tobramycin, TPN, vasopressin , voriconazole, zidovudine.</p>

Incompatible With	Amoxicillin, amphotericin, cephalosporins, dexamethasone, diazoxide, folic acid, furosemide, ganciclovir, heparin*, indometacin, lipid*, penicillins, phenobarbital, phenytoin, propofol, sulfamethoxazole, trimethoprim.
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> <p>Feb 2024: Pharmacy are currently reviewing the possibility of repackaging gentamicin injection for oral use – please check for an update</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> <p>A Lynn, B Robertshawe Oct 2022 (re-introduction of 10mg/mL solution)</p> <p>A Lynn, A Day, B Robertshawe Feb 2024 (bacterial overgrowth indication)</p>