

# Paediatric ONCE DAILY Gentamicin

Patients  $\geq$  44 weeks post conceptional age

Patient Name:		Ward:		DOB:		Hospital Number:	
Height (cm)		Actual weight (kg)		Dosing weight (kg) (see dose calculation and prescribing)			
estimated GFR (ml/min/1.73m <sup>2</sup> ) = k x height (cm) / serum creatinine (micromol/L) k = 40				Serum creatinine: micromol/L			
				eGFR:			

**Exclusion Criteria:** Do NOT use this regime in neonates, pregnancy, any child with ascites, burns, endocarditis, meningitis, acute kidney injury, oliguria, myasthenia gravis and cystic fibrosis.

**Cautions:** Use with extreme caution in renal transplant patients, patients with chronic renal impairment or eGFR <20ml/min/1.73m<sup>2</sup> and in patients receiving additional nephrotoxic drugs. Renal function and gentamicin levels should be closely monitored. Patients with significant renal impairment will require alternative dosing. Please contact pharmacy to discuss.

## Dose calculation and prescribing

1. Check U&Es and creatinine are in normal range and calculate estimated GFR (see above). A normal eGFR is over 90ml/min/1.73m<sup>2</sup>. An eGFR <90 ml/min/1.73m<sup>2</sup> requires further clinical evaluation
2. Obtain accurate recent weight in kilograms (total body weight (TBW)) and height (cm)
3. Calculate BMI and BMI centile (NHS Choices BMI healthy weight calculator can be used [www.nhs.uk/live-well/healthy-weight/bmi-calculator/](http://www.nhs.uk/live-well/healthy-weight/bmi-calculator/))
4. If BMI <98<sup>th</sup> centile use actual weight (TBW), however:
5. To avoid excessive dosage in obese patients (BMI  $\geq$  98<sup>th</sup> centile) use reverse BMI method to work out ideal body weight (IBW). IBW = BMI<sub>50</sub> x (height in m)<sup>2</sup> where BMI<sub>50</sub> represents the 50<sup>th</sup> centile of a BMI chart, which is the ideal BMI for their height, age and gender. Then calculate adjusted body weight (ABW): ABW = IBW + [0.4 x (TBW – IBW)] and use this as dosing weight.
6. Dose at 7mg/kg – dose may need to be rounded for measurability.
  - The dose should not usually exceed 500mg.
  - Speak to the pharmacist if the dose calculated using either TBW or ABW is higher than this.
7. Ensure prescribed both on paper chart and Lorenzo

## Administration:

- Infusion bags will be supplied by pharmacy. Infuse over 30 minutes.

## Monitoring and dose adjustments:

- **Take a level 18 hours after the infusion is finished (pre dose level) and wait for the result.**
- Prescribe next dose if level <1mg/L. If not, then do not give a further dose until level <1mg/L (recheck level every 6-12 hours).
- Repeat same pre dose level at 18 hours after the 2<sup>nd</sup> dose.
- If U&Es and the pre dose level are stable then subsequent levels can be taken every 3<sup>rd</sup> dose.
- U&Es and creatinine should be checked daily and eGFR calculated. If this is abnormal ( ie < 90 ml/min/1.73m<sup>2</sup>) then do not prescribe and discuss with Pharmacy.
- Target level is <1mg/L, however always monitor response to treatment (a level <1mg/L does not necessarily mean that the dose is appropriate).
- If dosing interval is 36 hours or more then the level should be taken around 6 hours before the next dose is due e.g 30 hours post dose for 36 hourly dosing
- See table below for guidance on dose adjustments after 2<sup>nd</sup> dose. If in doubt discuss with Pharmacy.

Level (mg/L)	Action (discuss with pharmacy if necessary)
<1	If renal function stable continue at same dosing interval and check level <b>every 3 doses.</b>
1 - 2	Extend dosing interval: - if currently 24hrly change to 36hrly - if currently 36hrly change to 48hrly Repeat level pre next dose (giving dose)
>2	Review need for gentamicin. Withhold further doses until levels within target range.

Duration of treatment is the biggest risk factor for toxicity, review the need for gentamicin daily.

Treatment is not normally required for over 7 days.

- Avoid using with other nephrotoxic or ototoxic drugs where possible.
- Ototoxicity and vestibular toxicity is irreversible. Patients should be warned of these potential side effects where possible and asked to report any symptoms. Auditory and vestibular function should be monitored.

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Patient Name:	Ward:	DOB:	Hospital Number:
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Date and day	Prescription						Administration			Blood levels		Advice
	Time dose due <small>(24 hour clock)</small>	Dose (in mg)	Signature of prescriber & print name	Pharmacist check	Level required	Next dose	Given by	Checked by	Time given	Time serum level taken	Serum level (mg/L)	
						Give	Hold					

Record all doses, times and frequency given in order to ensure the next dose is timed correctly. Levels need to be taken 18 hours post dose for the first 2 doses and wait until levels back before next dose is given. If levels and U&E's are stable, levels can then be taken every 3<sup>rd</sup> dose.

					Yes		hold					