

SPECIFIC GUIDELINES

GENTAMICIN DOSING AND MONITORING

PRACTICE POINTS

A discussion document regarding gentamicin use at KEMH and changes to gentamicin policies at KEMH can be accessed [here](#).

- Use of aminoglycosides should be avoided if possible in patients with pre-existing chronic or deteriorating renal impairment, conductive hearing and vestibular problems, neuromuscular disorders and chronic liver disease .
- Once daily aminoglycosides may be used in pregnancy, especially beyond 24 weeks gestation. Maximum daily dose at KEMH is 480 mg. Gentamicin is classified as category “D” in pregnancy, based on adverse outcomes when other aminoglycosides have been used in pregnancy. However, gentamicin is extensively used in mainstream practice in both obstetrics and neonatology.
- Therapeutic Guidelines 14th Ed discourages use of gentamicin longer than 48h if alternative agents are suitable for ongoing therapy. After 48 h of use clinicians should decide whether to institute monitoring of gentamicin levels or to change the antimicrobial regimen.
- Once daily aminoglycosides are not recommended for infective endocarditis. Consult the Clinical Microbiologist re dosing frequency for this indication.
- For amikacin dosing consult the Clinical Pharmacist or Therapeutic Guidelines 14th edition.

DOSING: GENTAMICIN

1. Calculate creatinine clearance (CrCl)

$$\text{CrCl (mL/min)} = \frac{(140 - \text{age in years}) \times \text{ideal weight (kg)}}{\text{Serum creatinine } (\mu\text{mol/L})}$$

If creatinine clearance is < 60 mL/min use of an alternative agent to gentamicin is preferred. Please contact the on call microbiologist to discuss gentamicin use/ dosing if gentamicin is to be used in a patient with renal impairment

2. Use ideal body weight to calculate dosing if actual body weight is 20% more than [ideal body weight](#) The calculation can be based on height in cm as per Therapeutic Guidelines 14thEd.

Height (cm)	Ideal Body Weight - females (kg)
155	48
160	53
165	57
170	62
175	66
180	71
185	75
190	80
195	84
200	89

- Calculate initial dose according to table and round to multiple of 40mg.

Normal Renal Function (CRCL >60ML/MIN)

Age (years)	Starting Dose mg/kg/day	Maximum Daily Dose
10 to 60	5 *	480mg
>60	4	400mg

A dose of 5mg/kg /day is recommended at KEMH on the basis of published recommendations for treatment of obstetric and gynaecology patients (*Clin Obstet Gynecol.* 2008 September ; 51(3): 498–506)

- Give as a ONCE daily dose. Dilute to 50-200mL with sodium chloride 0.9% or glucose 5%. Infuse over 30 minutes.

Administer penicillins and cephalosporins separately as these agents are physically incompatible.

MONITORING

Monitoring of levels is required if use extends beyond 48h.

Individualised AUC monitoring of gentamicin levels is not available at present for adult patients at KEMH. Dosing and monitoring of gentamicin for neonates is discussed in the neonatal guidelines.

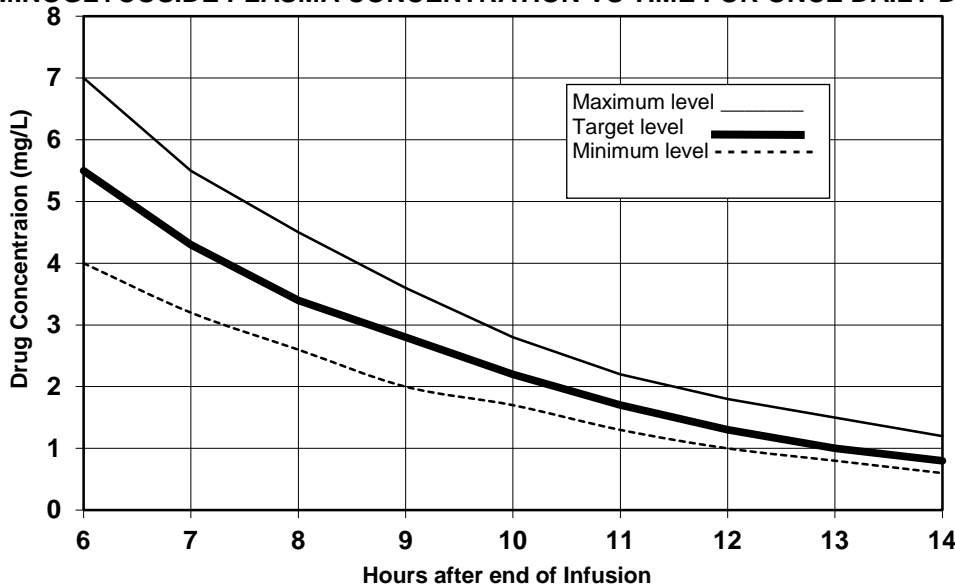
- Measure drug level 6 to 14 hours AFTER END OF FIRST DOSE INFUSION if more than 48 hours therapy is indicated.
- Repeat drug level every 3 to 5 days if renal function is stable.
- Accurately record dosage given, time of dose and time of sample collection on laboratory request form.

MODIFYING

- If measured plasma concentration is above the maximum level line or below minimum level line, decrease or increase the dose as appropriate based on the following calculation.

$$\text{New dose (mg/kg)} = \text{old dose (mg/kg)} \times \frac{\text{Target concentration}}{\text{Actual concentration}}$$

AMINOGLYCOSIDE PLASMA CONCENTRATION VS TIME FOR ONCE DAILY DOSING



For further information see Therapeutic Guidelines Antibiotic 14th Edition, 2010 or contact the on call Clinical Microbiologist or Clinical Pharmacist.

REFERENCES / STANDARDS	
National Standards – 4- Medication Safety Legislation - Related Policies - Other related documents –	
RESPONSIBILITY	
Policy Sponsor	AMS / HoD Pharmacy
Initial Endorsement	December 2003
Last Reviewed	September 2014
Last Amended	October 2014
Review date	September 2017

**Do not keep printed versions of guidelines as currency of information cannot be guaranteed.
Access the current version from the WNHS website.**