Not for use in Renal units or patients receiving haemodialysis or haemofiltration

NON-PREGNANT ADULT ≥16 years old PARENTERAL SYNERGISTIC (usually in endocarditis) GENTAMICIN: MONITORING CHART
Use for patients prescribed intravenous gentamicin as per dosing guidance below.
Refer to full guidance for information on EXCLUSIONS and Cautions / Contra-indications to gentamicin.

NHS Ayrshire & Arran

Patient name: ……

Date of birth: ……

CHI no.: ……

Affix patient label

Age: …… Sex: M / F

Weight: …… Height: ……

Creatinine: …… on: ……. /……. /…….

SIGNS OF GENTAMICIN TOXICITY

RENAL: ↓ urine output/oliguria or ↑ creatinine

OTO/ VESTIBULAR: NEW tinnitus, dizziness, poor balance, hearing loss, oscillating vision

Toxicities may occur irrespective of gentamicin concentration

Gentamicin Patient Information Leaflet* issued to:
Patient ❑ on ……./……./…….
Other ❑ _____ on ……./……./…….
Issued by

Step 1: Calculate the initial dose of gentamicin from the dosage table below (the dose amount and dosage interval are based on estimated creatinine clearance (***DO NOT use eGFR***) and **actual** body weight). **Doses should be administered by IV bolus injection over 3 – 5 minutes.**

Gentamicin: Synergistic Dosage Guidelines

	Patient Actual Body Weight				
Creatinine Clearance* (DO NOT use eGFR)	**<45 kg**	**45-65 kg**	**66-85 kg**	**86-110 kg**	**>110 kg**
<25 ml/min	40 mg	60 mg	80 mg	100 mg	120 mg
	Take a sample after 24 hours. Do not give a further dose until the concentration is <1 mg/L				
25-44 ml/min	40 mg 24 hourly	60 mg 24 hourly	80 mg 24 hourly	100 mg 24 hourly	120 mg 24 hourly
>44 ml/min	40 mg 12 hourly	60 mg 12 hourly	80 mg 12 hourly	100 mg 12 hourly	120 mg 12 hourly

**If creatinine is not known: give 1 mg/kg gentamicin (maximum 120 mg) and seek advice from pharmacy.*
***DO NOT use eGFR:** creatinine clearance **must** be calculated.*

Step 2: Prescribe the initial dose and frequency of gentamicin on the patient's medicine chart (HEPMA)

- Record the indication and intended duration in the patient's medical notes.

Step 3: Monitoring of gentamicin levels (record using the chart overleaf)

- Take a 'peak' level 1 hour after the first gentamicin bolus dose. The recommended target peak level is 3-5 mg/L. Record the exact time of ALL gentamicin samples on the sample request form and overleaf on this chart.
- Take a 'trough' level before the second gentamicin dose (i.e. at the end of the dosage interval) but **DO NOT** await the result before re-dosing unless there are concerns about deteriorating renal function. The recommended target trough level is <1 mg/L.
- Thereafter repeat a gentamicin peak and trough concentration at least every 2 days or daily if renal function deteriorates or if measured concentrations are not within target ranges.
- Seek advice from pharmacy if you are unsure how to interpret the result or if the concentrations measured are not within the recommended ranges above.
- If the prescribed dose or dose frequency is altered ensure this is updated and prescribed on HEPMA.

Step 4: Assess daily: the ongoing need for gentamicin and for signs of toxicity

- Issue the NHS Ayrshire and Arran 'Information about intravenous gentamicin' leaflet to the patient and record this in the relevant section above*.
- Gentamicin can cause renal toxicity (see above). Monitor & record creatinine daily on the monitoring chart. Discuss with microbiology/ID if renal function is worsening.
- Gentamicin can cause ototoxicity (see above). Patients should be asked about signs of ototoxicity regularly and this should be documented in the case notes. Patients should be referred to audiology for assessment if gentamicin continues for >7 days and re-discussed with microbiology/ID if it continues for >14 days.

Synergistic Gentamicin Monitoring - Record ALL sample dates/times accurately below:

(Course length for endocarditis is usually advised by infection specialist/microbiology. The definitive treatment regimen depends on the causative organism, its minimum inhibitory concentration (MIC) to the chosen antimicrobial(s) and the nature of the infected valve (native/prosthetic).

This chart is NOT a prescription it is for the recording of gentamicin levels only

(Gentamicin doses must be prescribed and charted on electronic prescribing (HEPMA))

TOXICITY Before prescribing each dose check: **Renal** & **Oto-vestibular function should be reviewed daily.**	**Date**	**Gentamicin dose and administration time levels are being interpreted against**	**Time + date of peak sample** (Take 1 hour after gentamicin dose)	**Peak level** (Target 3 – 5mg/L)	**Time + date of trough sample** (Take 5 minutes before administration i.e. at the end of the dosage interval)	**Trough level** (Target < 1mg/L)	**Action/ Comments**
Cr = 70 micromol /L (EXAMPLE)	09/03/21	60mg given at 08.00 on 9/3/21	09.00 on 9/3/21	4.5	07.55 on 9/3/21	<1mg/L	Continue current dose and interval
Cr = micromol /L							
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A quick guide to interpreting synergistic gentamicin levels and suggested dose/frequency adjustments (Following a dose change please recheck levels after 24 – 48 hours)

Trough (target =<1mg/L)	**Peak** (Target= 3 – 5mg/L)	**Action to be taken**
OK	OK	Continue at current dose
High	OK	Increase dosage interval (e.g. give 24 hourly instead of 12hourly), it may also be necessary to increase the dose to ensure the peak remains therapeutic.
OK	High	Reduce dose, keep the same dose frequency
OK	Low	Increase dose, keep the same dose frequency
High	Low	Increase the dose but reduce the dose frequency
High	High	Reduce dose. This may be sufficient to reduce the trough level as well as the peak, however it may also be necessary to reduce the dose frequency as well if the trough remains high.