

GENTAMICIN GUIDELINE FOR USE IN ADULTS (HARTFORD Guidance)

- Aminoglycoside antibiotic – bactericidal against many gram-negative and some gram-positive organisms. NO anaerobic activity. See [MicroGuidance](#).
- Gentamicin is monitored using the Hartford nomogram which relates observed concentration to the time post dose within a given concentration range.
- Follow separate guidance when using gentamicin for [Surgical Prophylaxis](#) or in [Endocarditis](#), [Pregnancy](#), [Cystic Fibrosis](#). Renal Unit inpatients or patients on dialysis
- The dose is calculated as detailed below and repeated at 24 hour intervals or longer.

STEP 1: ASSESS PATIENT SUITABILITY

Does the patient have any of the following exclusion criteria?

Children < 16 years old Ascites > 20% body weight Major burns > 20% body surface Decompensated Liver Disease Myasthenia Gravis
Renal Transplant Acute Kidney Injury (AKI 3) on dialysis or eGFR <20ml/min End stage renal failure on dialysis with residual kidney function

Seek Advice

Contact ID/Micro about alternative

YES

NO

Does the patient have?

Chronic Kidney Disease (eGFR 20-29ml/min) OR Acute Kidney Injury (AKI 1 or 2) in previous 48 hours (≥50% increase in baseline serum creatinine or oliguria (<0.5ml/kg/hr > 6 hours))

YES

NO

Maximum gentamicin course length is 96hours.

Review IV antibiotics daily. If IV therapy is still indicated after 96 hours seek advice from Pharmacy, ID or Microbiology

Give first dose then refer to ID or Microbiology to continue gentamicin therapy or for advice on alternative

STEP 2: CALCULATE DOSE – seek advice on calculation for patients at extremes of age/height/weight or if amputee

PREFERRED METHOD: Use online calculator (available on NHST antibiotic website or Right Decision Health & Care App- ensure NHST Antimicrobial toolkit is selected) when creatinine is known. In patients with low creatinine (<60micromol/L) use 60 micromol/L. See NHST antibiotic website for gentamicin chart and calculator guidance for [prescribers](#) and [nursing staff](#)

ALTERNATIVE METHOD: If creatinine is **NOT** known **OR** online calculator not available, calculate dose based on equations below:

- Determine [ideal body weight](#) of patient using national online table.
- Is actual weight >20% above their ideal body weight (IBW)?
- If **NO** → eGFR ≥ 20ml/min Dose = **Actual Body Weight x 7mg** (**Maximum 600mg** – Round to nearest 40mg)
ID/Micro approved in eGFR <20ml/min Dose = **Actual Body Weight x 2.5mg** (**Maximum dose: 180mg**- Round to nearest 10mg)
- If **YES** → calculate dosing weight (DW) and dose from equations below:
DW = IBW + 0.4 (ABW – IBW)
eGFR ≥ 20ml/min Dose = **7mg x DW** (**Maximum 600mg** – Round to nearest 40mg)
ID/Micro approved in eGFR <20ml/min Dose = **DW x 2.5mg** (**Maximum dose: 180mg**- Round to nearest 10mg)
- Document dose calculation on the gentamicin prescription chart and tick which source of first dose was used.
- Prescribe initial dose on the gentamicin chart specifying the date and time the dose should be given.
- Prescribe gentamicin 'as per chart' on HEPMA or regular section of medicine chart

STEP 3: MONITOR RENAL FUNCTION, GENTAMICIN LEVELS AND DETERMINE DOSING INTERVAL

Administer in 100ml sodium chloride 0.9% or glucose 5% over 60 minutes.

eGFR <20ml/min

eGFR ≥20ml/min

Ensure start time of infusion and dose is documented on gentamicin chart and ICE request. Take blood sample prior to printing off label at **24 hours** from the **BEGINNING** of the IV infusion.

Ensure start time of infusion and dose is documented on gentamicin chart and ICE request. Take blood sample prior to printing off label **6-14 hours** from the **BEGINNING** of the IV infusion.

Do **NOT** use nomogram if eGFR <20ml/min. If therapy is to continue give a further dose once gentamicin level is <1mg/L.

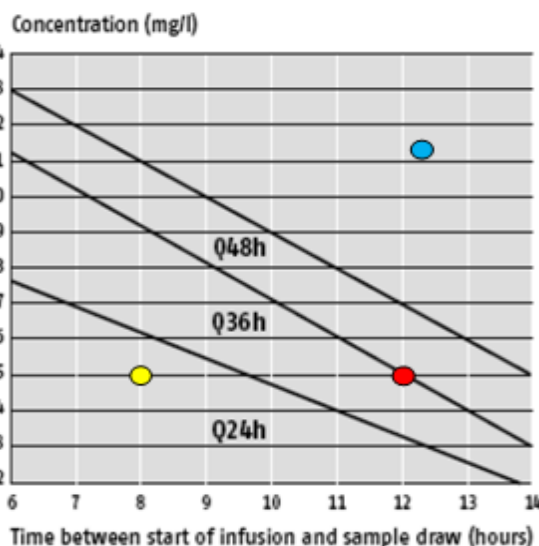
Evaluate on the nomogram. If the level falls in the area designated 24 hourly, 36 hourly or 48 hourly the dosing interval should be every 24, 36, 48 hours respectively. If the point is on the line, choose the longer interval. Record **ALL** sample dates/times accurately overleaf and prescribe subsequent doses.

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If a 6–14-hour blood sample is not taken or if blood level falls above the maximum dosing line on the nomogram: take blood sample minimum 24 hours post dose and wait for level. Only give dose if <1mg/L. If ≥1mg/L withhold dose and recheck in 12-24 hrs.

Assess daily the ongoing need for gentamicin and monitor for renal /oto toxicity. If renal function stable – further gentamicin levels not required for doses within 96hr duration. Seek advice if renal function unstable or deteriorates.

If patient receiving ID/Micro approved prolonged therapy seek advice on monitoring from clinical pharmacist or antimicrobial pharmacist - Bleep 4732. If >7days consider referral to audiology.



NB. If level is below 2, assume 24 hrly dosing

NB. Q means dosing interval on graph above

● Showing a concentration of 5mg/L measured 8 hours after dose administered – therefore further dosing would be 24 hrly

● Showing a concentration of 5mg/L measured 12 hours after dose administered – therefore further dosing would be 48 hrly

● Stop gentamicin therapy and re-check level