GENTAMICIN GUIDELINE FOR USE IN ADULTS (HARTFORD Guidance)

- Aminoglycoside antibiotic – bactericidal against many gram-negative and some gram-positive organisms, NO anionic activity. See Micro Man.
- 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**

<table>
<thead>
<tr>
<th>Does the patient have any of the following exclusion criteria?</th>
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<tr>
<td>Children &lt; 16 years old</td>
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<tr>
<td>Renal Transplant</td>
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**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 Antimicrobial Companion App) when creatinine is known. In patients with low creatinine (<60 micromol/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.
- Stick the gentamicin chart to the ‘as required’ page on the TPAR so the red band is clearly visible when TPAR closed.
- Prescribe gentamicin ‘as per chart’ on the regular section of the TPAR.

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

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

  **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.
  - Do NOT use nomogram if eGFR <20ml/min. If therapy is to continue give a further dose once gentamicin level is <1mg/L.
  - Record ALL sample dates/times accurately or refer and prescribe subsequent doses.

  **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 6-14 hours from the **BEGINNING** of the IV infusion.
  - Evaluate on the nomogram. If the level falls in the area designated 24 hourly, 36 hourly or 48 hour 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 or refer and prescribe subsequent doses.
  - If a 6-14 hour blood sample is not taken or if the 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 72hr duration. Seek advice if renal function unstable or deteriorates.

- If patient receiving ID/Micro approved prolonged therapy (i.e. >72 hours) seek advice on monitoring from clinical pharmacist or antimicrobial pharmacist - Bleep 4792. If >7days consider referral to audiology.