YORKSHIRE HARTFORD GENTAMICIN REGIMEN (Adults)

This regimen gives a standard dose of gentamicin of 7mg/kg calculated from ideal body weight. A serum level is measured 6-14 hours after the first dose to determine the dosage interval (1).

### STEP 1: IS THE PATIENT SUITABLE?

- Calculate creatinine clearance (mL/minute):
  - Men: $1.23 \times (140 - \text{age}) \times \text{weight in kg} / \text{serum creatinine (micromol/L)}$
  - Women: $1.04 \times (140 - \text{age}) \times \text{weight in kg} / \text{serum creatinine (micromol/L)}$

Do NOT use this regimen for:
- Pregnant women
- Children < 16 years
- Urology surgery prophylaxis
- Any patient who has:
  - Ascites
  - A limb amputation
  - Cystic fibrosis
  - Endocarditis
  - Major burns
  - Renal transplant
  - Renal impairment – creatinine clearance <30mL/min

### Do NOT use eGFR

Find out the patient's sex, height, weight in kg.

Read off the patient's ideal body weight (IBW) for their sex and their height from the appropriate chart below.

Compare the patient's actual body weight (ABW) with their ideal body weight (IBW).

If the patient's ABW is less than their IBW (i.e. they are underweight), use their ABW to estimate the gentamicin dose from the charts below.

If the patient's ABW is more than, or the same as, their IBW, use their IBW to estimate the gentamicin dose from the charts below.

(To convert from imperial weight measurements to metric 1 stone = 6.35kg 1 lb = 0.45kg)

<table>
<thead>
<tr>
<th>ADULT MALES (&gt;16 yrs)</th>
<th>ADULT FEMALES (&gt; 16 yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Height</strong></td>
<td><strong>IBW (kg)</strong></td>
</tr>
<tr>
<td>5’1” or under (1.55m or under)</td>
<td>Under 52.3</td>
</tr>
<tr>
<td>5’2” - 5’4” (1.57 - 1.63m)</td>
<td>54.6 - 59.2</td>
</tr>
<tr>
<td>5’5” - 5’6” (1.65 - 1.68m)</td>
<td>61.5 - 63.8</td>
</tr>
<tr>
<td>5’7” - 5’9” (1.7 - 1.75m)</td>
<td>66.1 - 70.7</td>
</tr>
<tr>
<td>5’10” - 5’11” (1.77 - 1.8m)</td>
<td>72.6 - 77.2</td>
</tr>
<tr>
<td>5’1” - 6’ (1.85m or over)</td>
<td>Over 79.9</td>
</tr>
<tr>
<td>5’10” - 6’2” (1.82 - 1.88m)</td>
<td>72.6 - 77.2</td>
</tr>
<tr>
<td>6’ - 6’3” (1.9m) or over</td>
<td>79.5</td>
</tr>
</tbody>
</table>
STEP 3 : HOW TO GIVE THE GENTAMICIN

- Dilute the gentamicin dose in 100mL sodium chloride 0.9% and give by intravenous infusion over 1 hour.
- Record on the drug chart the exact start time of the infusion.

STEP 4 : HOW TO MEASURE GENTAMICIN LEVELS

- Most laboratories are able to do assays daily but not out of hours. Take a blood sample at the right time and the sample will be analysed in hours and the result should be available before the next dose is due.
- Do not take the blood sample from the IV line used for gentamicin administration.
- Take one blood sample (ideally 10mL) between 6 and 14 hours after the start of the first infusion.
- Place sample in a plain tube (i.e. clotted blood).
- Document on the microbiology request form the **EXACT** time and date the infusion was set up (see prescription chart) and the **EXACT time and date the sample was taken** in addition to the patient details and Hartford Gentamicin Regimen.
- The specimen bottle must show the
  - patients name
  - date of birth
  - ward
  - date and time the sample was taken

STEP 5 : SELECTING DOSE INTERVAL

When the gentamicin level is available:

- Plot the level on the nomogram.
- If the level falls in the area designated 24 hours, 36 hours or 48 hours the dosing interval is 24, 36 or 48 hourly respectively.
- If the level falls on a line between dosing intervals choose the longer interval.
- If the level is above the 48 hour line STOP the treatment. If the gentamicin is to be continued take daily levels but do not give any more gentamicin until the level falls below 2mg/L.

STEP 6 : REPEATED MONITORING

- U & Es and creatinine need to be checked daily in all patients on the Hartford Gentamicin Regimen.
- Repeat gentamicin levels as shown in the table.
- If the serum creatinine is rising significantly (20% or more), and it is still within 6-14 hours of the start of this gentamicin infusion measure the gentamicin level as soon as possible. If more than 14 hours contact microbiology or pharmacy for advice.

![Hartford Gentamicin Nomogram](image)

<table>
<thead>
<tr>
<th>Dosage Interval</th>
<th>Repeat levels after</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 hours</td>
<td>3 days</td>
</tr>
<tr>
<td>36 hours</td>
<td>3 days</td>
</tr>
<tr>
<td>48 hours</td>
<td>2 days</td>
</tr>
</tbody>
</table>

Box for local information – lab opening times / out of hours arrangements etc

OBTAIN FURTHER ADVICE FROM THE CONSULTANT MICROBIOLOGIST (EXT …) OR THE ANTIBIOTIC PHARMACIST (EXT …)

 Produced by the Yorkshire Antibiotic Pharmacists Group in conjunction with the Yorkshire Consultant Microbiologists

August 2009  Review date August 2010

Reference

(1) Antimicrobial Agents and Chemotherapy March 1995; 39: 650-655

IBW calculations

Female IBW = 45kg + (2.3kg x no. of inches over 5 feet) Male IBW = 50kg + (2.3kg x no. of inches over 5 feet)

If patient is < 5 feet tall, use IBW = 45kg (females) or 50kg (males)