# NHS Grampian Staff Guidance for the Administration of Intravenous Vancomycin in Adults via Intermittent (pulsed) Infusion

<table>
<thead>
<tr>
<th>Co-ordinators:</th>
<th>Reviewer:</th>
<th>Approver:</th>
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<tbody>
<tr>
<td>Specialist Antibiotic Pharmacists</td>
<td>Chair; Antimicrobial Management Team</td>
<td>Medicine Guidelines and Policies Group</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Signature:</th>
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<tbody>
<tr>
<td>Rose McDonald</td>
<td></td>
<td></td>
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<tr>
<td>S. Burren</td>
<td></td>
<td></td>
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</tbody>
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<tr>
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Version 5

Executive Sign-Off

This document has been endorsed by the Director of Pharmacy and Medicines Management

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<th>Organisation Wide</th>
<th>Directorate</th>
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<td>Acute Sector</td>
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Lead Author/Co-ordinator: Specialist Antibiotic Pharmacists

Subject (as per document registration categories): Prescribing Policy

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Process Document: Policy, Protocol, Procedure or Guideline

Document application: NHS Grampian

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Responsibilities for implementation:

Organisational: Chief Executive and Management Teams
Corporate: Senior Managers
Departmental: Heads of Service/Clinical Leads
Area: Line Managers
Hospital/Interface services: Assistant General Managers and Group Clinical Directors
Operational Management Unit: Unit Operational Managers

Policy statement: It is the responsibility of all staff to ensure that they are working to the most up to date and relevant policies, protocols procedures.

Review: This policy will be reviewed in two years or sooner if current treatment recommendations change.
### Responsibilities for review of this document:
Specialist Antibiotic Pharmacists

### Responsibilities for ensuring registration of this document on the NHS Grampian Information/Document Silo:
Development Pharmacist – Medicines Management

### Physical location of the original of this document:
Pharmacy and Medicines Directorate

### Job/group title of those who have control over this document:
Antimicrobial Management Team

### Responsibilities for disseminating document as per distribution list:
Specialist Antibiotic Pharmacists

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<tr>
<td>Feb 2017</td>
<td>Mar 2014</td>
<td>Review of exclusions/cautions Rate of infusion – units amended in line with PAR Added reference to the antimicrobial calculator and app and printing off the results. New note added regarding loading dose. Note re usual maximum dose added Added new prescription chart. Added new screenshot of calculator Added maintain body weight table Added info sheet for nurses and prescribers.</td>
<td>p2  p3  p4  p5  p8  Appendix 1  Appendix 2  Appendix 3  Appendix 4</td>
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* Changes marked should detail the section(s) of the document that have been amended, i.e. page number and section heading.
NHS Grampian Staff Guidance for the Administration of Intravenous Vancomycin in Adults via Intermittent (pulsed) Infusion

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Glossary of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABW</td>
<td>Actual body weight</td>
</tr>
<tr>
<td>CrCl</td>
<td>Creatinine Clearance</td>
</tr>
<tr>
<td>eGFR</td>
<td>estimated Glomerular Filtration Rate</td>
</tr>
<tr>
<td>IBW</td>
<td>Ideal body weight</td>
</tr>
<tr>
<td>MBW</td>
<td>Maximum Body Weight</td>
</tr>
<tr>
<td>MIC</td>
<td>Minimum Inhibitory Concentration</td>
</tr>
<tr>
<td>MRSA</td>
<td>Meticillin-resistant <em>Staphylococcus aureus</em></td>
</tr>
<tr>
<td>NSAIDs</td>
<td>Non-steroidal anti-inflammatory drugs</td>
</tr>
</tbody>
</table>
Introduction and Rationale

This protocol details the dosing, prescribing, monitoring and administration of intravenous vancomycin as an intermittent (pulsed) infusion.

Vancomycin can also be administered as a continuous infusion, when practical, for patients with severe or deep-seated infections (e.g. pneumonia, endocarditis, bone and joint infections). In NHS Grampian only Intensive Care use continuous infusion which is not covered in this guidance—refer to ICU protocol.

Vancomycin is a glycopeptide antibacterial used in the treatment of serious staphylococcal or other gram-positive infections when other drugs such as the penicillins cannot be used because of resistance or patient intolerance. It is used particularly in the treatment of meticillin-resistant staphylococcal infections (MRSA). Refer to NHSG Infection Management Guidelines: Empirical Antibiotic Therapy for indications.

Vancomycin works most effectively when the levels of the drug remain above the minimum inhibitory concentration (MIC) for the target organism at all times. Trough levels of vancomycin therefore require to be monitored throughout treatment and these should be 10-15mg/L in standard infections. On the basis of the potential to improve penetration, to increase the probability of optimal target serum concentrations, and to improve the clinical outcomes of complicated infections, such as bacteraemia, endocarditis, osteomyelitis, meningitis and hospital-acquired pneumonia caused by Staphylococcus aureus (S.aureus), trough serum vancomycin concentrations of 15-20mg/L are recommended. This range is also recommended for less sensitive strains of S. aureus.

Exclusions:

- Children <16 years of age.
- Patients who are allergic/hypersensitive to vancomycin
- Treatment of Clostridium difficile Infection (vancomycin should be given orally)
- Patients in intensive care who require a continuous vancomycin infusion

Cautions:

Advice should be sought from Microbiology or an Infection Specialist on treatment options if any of the following apply:

- Patients with previous hearing loss
- Patients treated in renal units or receiving haemodialysis or haemofiltration (contact the Renal unit for advice and follow the local unit protocol)
- Treatment of ventriculitis or ventriculoperitoneal shunt infections (contact neurology specialist for advice).
• Use with caution in patients with sensitivity to other glycopeptides (eg teicoplanin, dalbavancin) due to possibility of cross-sensitivity.
• Where possible, avoid co-administration with:
  o Gentamicin (aminoglycosides)
  o Nonsteroidal anti-inflammatory drugs (NSAIDs)
  o Amphotericin
  o Potent diuretics
  o Angiotensin converting enzyme inhibitors (ACE inhibitors).

This list is not exhaustive – consult the Summary of Product Characteristics (SmPC) for a full list (www.medicines.org.uk).

**Vancomycin Administration**

Vancomycin is very irritating to tissue, and should not be given intramuscularly as this causes injection site necrosis. It must be given by slow intravenous infusion using a dilute solution to reduce the risk of tissue necrosis if extravasation occurs. Vancomycin should not be given rapidly due to the risk of infusion reactions.

The intravenous use of vancomycin may be associated with the so-called 'red-neck' or 'red-man' syndrome, characterised by erythema, flushing, or rash over the face and upper torso, and sometimes by hypotension and shock-like symptoms. The effect appears to be due in part to the release of histamine and is usually related to rapid infusion\(^1\). It may also cause pain or muscle spasm.

In order to avoid these risks:

• Vancomycin must **ALWAYS** be administered by intravenous **INFUSION** in either 0.9% Sodium Chloride or 5% Glucose
• Final concentration: **NOT MORE THAN** 5mg/mL for peripheral administration
• Rate of infusion: **NO FASTER THAN** 500mg/hour\(^6\).
Prescribing and documentation

Vancomycin should be prescribed on the Adult Intravenous Vancomycin Intermittent Infusion (Pulsed) Prescription, Administration & Monitoring Record (PAMR) (Appendix 1), and reference to this should be made on the patient's main prescription chart as shown below:

An online calculator and/or Antimicrobial Companion app is available and should be used to calculate the initial dose requirements. It is recommended practice to print off the calculator result (Appendix 2 sample), add the patient's name and CHI and file with the prescription chart (this allows a double check to ensure the dosing is correct).
STEP 1: Calculate and prescribe the loading dose and maintenance dose of vancomycin

- To reduce the risk of mortality, commence vancomycin administration **within 1 hour** of recognising sepsis

- *If creatinine is known* – use the [online calculator](#) (preferred method). The guidance in Table 1 (Initial LOADING dose) and Table 2 (MAINTENANCE dose) can be used if the online calculator is not available. The dose amount and dosage interval are based on estimated creatinine clearance (Box 1) and **actual** body weight.

- *If creatinine is not known* – calculate and prescribe a loading dose based on actual body weight (Table 1). Calculate the maintenance dose once the creatinine is available.

**Box 1: Estimation of creatinine clearance (CrCl)**

The following ‘Cockcroft Gault’ equation can be used to estimate creatinine clearance (CrCl):

\[
\text{CrCl} = \left(\frac{140 - \text{age (years)}}{\text{weight}^* \text{ (kg)}}\right) \times 1.23 \text{ (male)} \text{ or } 1.04 \text{ (female)} \times \text{serum creatinine}^{\Delta} \text{ (micromol / L)}
\]

Cautions:

- *Use actual body weight or maximum body weight for patient’s height, whichever is lower. For maximum body weight see Appendix 3 - Body Weight Table.

- \(\Delta\) In patients with low creatinine (<60micromol/L), use 60 micromol/L to avoid overestimating creatinine clearance due to low muscle mass.

- Note: Use of estimated glomerular filtration rate (eGFR) from labs is **not** recommended for calculation of vancomycin doses.
Loading Infusion

N.B. The loading dose is based on weight only, so does not take renal function into account. When using the online calculator, on rare occasions a patient’s clearance of vancomycin may be so high that the maintenance dose is higher than the loading dose. In these circumstances, the loading dose given should be the higher of the calculated loading and maintenance doses i.e. if loading dose is calculated as lower than maintenance dose then give the calculated maintenance dose as a loading dose instead.

Table 1: Initial Vancomycin LOADING Dose

<table>
<thead>
<tr>
<th>Actual Body Weight (ABW)</th>
<th>Dose</th>
<th>Volume (0.9% Sodium Chloride)</th>
<th>Duration of infusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40kg</td>
<td>750mg</td>
<td>250mL</td>
<td>1.5 hours</td>
</tr>
<tr>
<td>40-59kg</td>
<td>1000mg</td>
<td>250mL</td>
<td>2 hours</td>
</tr>
<tr>
<td>60-90kg</td>
<td>1500mg</td>
<td>500mL</td>
<td>3 hours</td>
</tr>
<tr>
<td>&gt;90kg</td>
<td>2000mg</td>
<td>500mL</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

†Glucose 5% can be used in patients with sodium restriction.

Maintenance Dosage Regimen

- Give the first maintenance infusion 12, 24 or 48 hours after the loading infusion according to dose interval provided by the online calculator or Table 2 (below).

Table 2: Vancomycin MAINTENANCE dosage regimen

<table>
<thead>
<tr>
<th>VANCOMYCIN PULSED INFUSION – INITIAL MAINTENANCE DOSAGE GUIDELINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CrCl (mL/min)</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>&lt; 20</td>
</tr>
<tr>
<td>20-29</td>
</tr>
<tr>
<td>30-39</td>
</tr>
<tr>
<td>40-54</td>
</tr>
<tr>
<td>55-74</td>
</tr>
<tr>
<td>75-89</td>
</tr>
<tr>
<td>90-110</td>
</tr>
<tr>
<td>&gt;110</td>
</tr>
</tbody>
</table>

‡ Glucose 5% may be used in patients with sodium restriction.

- Doses up to 2000mg can be diluted in 500mL fluid.
- The daily dose can be split into 3 equal doses and given 8 hourly. This approach is especially useful for patients who require high doses as it produces higher trough concentrations, and reduces the time of each individual infusion. For example, 1500mg 12 hourly (3000mg per day) could be prescribed as 1000mg 8 hourly, and 750mg 12 hourly (1500mg per day) as 500mg 8 hourly. For further advice discuss with pharmacist or microbiology.
STEP 2: Monitor the vancomycin concentration and reassess the dose

Concentrations are meaningless unless the dose and sample times are recorded accurately.

- Due to wide variability in the handling of vancomycin, early analysis of a vancomycin concentration is required to ensure that the dosage regimen is appropriate.
- Take a trough sample (pre-dose) within 24-48 hours of starting therapy then every 2-3 days, or daily if the patient has unstable renal function.
- Monitor creatinine daily.
- Record the exact time of all vancomycin samples on the Adult Intravenous Vancomycin Intermittent Infusion (pulsed) PAMR AND on the sample request form along with the last time of administration.
- If the renal function is stable, give the next dose before the trough result is available. If renal function is deteriorating, withhold until the result is available then follow the advice in Table 3.

Target trough vancomycin concentrations

- Target trough concentration range: 10 – 20mg/L
- If the patient is seriously ill (severe or deep-seated infection), the target trough concentration range is 15 - 20mg/L. If the measured concentration is <15mg/L, consider increasing the dose amount or reducing the dosage interval (see comment on 8 hourly dosing under table 2 above).
- If the patient is failing to respond, seek advice from microbiology or an infection specialist.

Adjustment of the vancomycin dosage regimen

- Always check that the dosage history and sampling time are appropriate before interpreting the result.
- Seek advice from pharmacy or microbiology if you need help to interpret the result.

If the measured concentration is unexpectedly HIGH or LOW

If the measured concentration is unexpectedly HIGH or LOW, consider the following:
- Were the dose and sample times recorded accurately?
- Was the correct dose administered?
- Was the sample taken from the line used to administer the drug?
- Was the sample taken during drug administration?
- Has renal function declined or improved?
- Does the patient have oedema or ascites?
Table 3: Adjustment of Vancomycin dosage regimen

<table>
<thead>
<tr>
<th>Vancomycin Concentration</th>
<th>Suggested Dose Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10mg/L</td>
<td>Increase dose by 50% and consider reducing the dosage interval or seek advice*</td>
</tr>
<tr>
<td>10-15mg/L</td>
<td>If the patient is responding, maintain the present dosage regimen</td>
</tr>
<tr>
<td></td>
<td>If the patient is seriously ill, consider increasing the dose amount or reducing the dosage interval to achieve a trough level of 15-20mg/L</td>
</tr>
<tr>
<td>15 - 20mg/L</td>
<td>Maintain the present dosage regimen</td>
</tr>
<tr>
<td>&gt;20mg/L</td>
<td>Stop until &lt;20mg/L and seek advice</td>
</tr>
</tbody>
</table>

*Usual maximum daily dose is 3g; discuss with senior medical staff/pharmacy before increasing above this.

If in doubt, take another sample before modifying the dosage regimen and / or contact pharmacy for advice.

General points

- Record the exact times of all measured concentrations on the Adult Intravenous Vancomycin Intermittent Infusion (pulsed) PAMR.
- Reassess the dose and continue or prescribe a dosage change.
- Assess daily for ongoing need for vancomycin and for signs of toxicity
- Document the action taken in the medical notes and on the Adult Intravenous Vancomycin Intermittent Infusion (pulsed) PAMR.
- Review the need for vancomycin daily.

Box 2: Toxicity

- Monitor creatinine daily. Seek advice if renal function is unstable (e.g. a change in creatinine of >15-20%)
- Signs of renal toxicity include increase in creatinine or decrease in urine output / oliguria.
- Consider an alternative agent if creatinine is rising or the patient becomes oliguric.
- Vancomycin may increase the risk of aminoglycoside induced ototoxicity – use caution if co-prescribing.

STEP 3: Assess daily the ongoing need for vancomycin and for signs of toxicity

- Review the need for vancomycin daily.
- Consider adjusting the dose regimen or using an alternative agent if renal function changes. See Box 2 above for signs of renal toxicity Consider changing to an oral alternative – refer to the IV to Oral Switch (IVOST policy).
Information Sheet:

See information sheet (Appendix 4) for nurses and prescribers, highlighting key safety checks to ensure that all appropriate prescribing details and monitoring have been documented before a dose is administered.

For further advice contact:

Antibiotic Pharmacists Bleep 3933, Ext: 51048.
Ward Clinical Pharmacists - see ward information for contact details.
Medical Microbiology via switchboard.

References


Consultation List

Antimicrobial Management Team Members;

Dr Ian Gould, Medical Microbiology
Dr Sandy Mackenzie, Consultant, Infectious Diseases
Dr Ivan Tonna, Consultant, Infectious Diseases
Pamela Harrison, Infection Control Manager
Gillian Macartney, Antibiotic Pharmacist

Comments received from:

Antimicrobial Management Team
Medicines Guidelines and Policies Group
Records Standards Group
Appendix 1: Adult Intravenous Vancomycin Intermittent Infusion (Pulsed): Prescription, Administration & Monitoring Record

Private & Confidential
Adult Intravenous Vancomycin Intermittent Infusion (pulsed)
Prescription Administration and Monitoring Record

<table>
<thead>
<tr>
<th>Surname</th>
<th>Forename</th>
<th>Address</th>
<th>Postcode</th>
</tr>
</thead>
</table>

Community Health Index (CHI) | Age | Male | Female |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>kg</td>
<td>Height</td>
<td>cm</td>
</tr>
</tbody>
</table>

Source of Initial dosage regimen
- Online calculator (preferred method)
- Manual calculation
- Weight-based, creatinine not known

Table 1
Promt administration within 1 hour of recognition of sepsis reduces mortality

<table>
<thead>
<tr>
<th>Body weight (kg)</th>
<th>Vancomycin loading dose (mg in 250ml NaCl 0.9% over 1.5 hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40</td>
<td>750mg</td>
</tr>
<tr>
<td>40-59kg</td>
<td>100mg</td>
</tr>
<tr>
<td>60-90kg</td>
<td>150mg</td>
</tr>
<tr>
<td>&gt;90kg</td>
<td>200mg</td>
</tr>
</tbody>
</table>

Table 2
Vancomycin trough concentration

<table>
<thead>
<tr>
<th>Concentration (mg/L)</th>
<th>Suggested action for intermittent infusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10</td>
<td>Increase dose by 50% or seek advice. Usual maximum daily dose is 3g, discuss with senior medical staff/physician before increasing above this.</td>
</tr>
<tr>
<td>10-14.9</td>
<td>If patient responding, maintain current dose. Otherwise, consider increasing the dose or altering the dosing schedule (refer to full guidance for further advice) to achieve a trough level of 15-20mg/L</td>
</tr>
<tr>
<td>15-20</td>
<td>Maintain current dose</td>
</tr>
<tr>
<td>&gt;20</td>
<td>Stop until ≤20mg/L and seek advice</td>
</tr>
</tbody>
</table>

Step 1: Calculate & prescribe the loading and maintenance dose of vancomycin
- Use the online vancomycin calculator
- If creatinine is not known - calculate a loading dose based on actual body weight (see Table 1).
- Calculate maintenance dose once creatinine available.
- Prescribe loading dose (A), maintenance dose (B) and times in the prescribing sections of this chart (overleaf) – additional charts (C,D,E) available for dose changes.
- Prescribe vancomycin as per chart on the Prescription and Administration Record.

Step 2: Checking the patient’s vancomycin concentration
- Take a vancomycin trough (pre-dose) sample within 48 hours of starting therapy.
- Then sample at least every 2-3 days, or daily if renal function unstable.
- After a trough level is taken, ensure the vancomycin dose which is due is given – DO NOT withhold while awaiting the result unless instructed by medical staff.
- Record the exact time of all vancomycin samples (overleaf) AND on the sample request form.

Step 3: Interpreting vancomycin results and re-prescribing
- Always check that the dosing and sampling time history are correct before making any adjustments.
- Record the measured concentration. Refer to Table 2 for dose adjustment advice and reassess the dose/dosing interval as indicated.
- Document action on the monitoring section of the chart (overleaf) and in the medical notes.

Step 4: Assess patient daily
- Monitor creatinine daily. Seek advice if renal function significantly changing (e.g. a change in creatinine of >15-20% or ↓ urine output/oliguria).
- Assess ongoing need for vancomycin.
Appendix 1: Adult Intravenous Vancomycin Intermittent Infusion (Pulsed): Prescription, Administration & Monitoring Record (Continued)

<table>
<thead>
<tr>
<th><strong>Patient Name</strong></th>
<th><strong>Date of Birth</strong></th>
<th><strong>Community Health Index (CHI)</strong></th>
<th><strong>Max Infusion Rate is 500mg/hr</strong></th>
</tr>
</thead>
</table>

**A**
- **Vancomycin Loading Dose Prescription**
  - Date to be given
  - Time to be given
  - Vancomycin Dose (mg)
  - Prescriber's signature + Print name
  - Date given
  - Time started
  - Given by

**B**
- **Drug**: VANCOMYCIN
- **Dose**
- **Route**
- **IV infusion**
- **Date Started**
- **Signature / Print Prescriber Name**
- **Pharm**

**C**
- **Drug**: VANCOMYCIN
- **Dose**
- **Route**
- **IV infusion**
- **Date Started**
- **Signature / Print Prescriber Name**
- **Pharm**

**D**
- **Drug**: VANCOMYCIN
- **Dose**
- **Route**
- **IV infusion**
- **Date Started**
- **Signature / Print Prescriber Name**
- **Pharm**

**E**
- **Drug**: VANCOMYCIN
- **Dose**
- **Route**
- **IV infusion**
- **Date Started**
- **Signature / Print Prescriber Name**
- **Pharm**

**Maintenance Dose Prescription**

**Administration Record** (record exact times)

**Additional chart if required for continuation or dosage change**

**Duration / review date**

**Monitoring Record**
- Date & time blood sample taken - pre dose trough
- Vancomycin level (mg/L)
- Is dosage change required? If Yes, tick and prescribe new dose in section E

**Review the need for IV Vancomycin daily and discuss IV to Oral Switch (VCST) with an infection specialist if necessary**
### Appendix 2: Example of Vancomycin Calculator Screenshot

#### INTRAVENOUS VANCOMYCIN DOSE CALCULATOR FOR ADULT PATIENTS

<table>
<thead>
<tr>
<th>Type in the data shown in blue and press &lt;enter&gt;</th>
<th>Recommended doses and dosage intervals are shown in black below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>80</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>160</td>
</tr>
<tr>
<td>OR Height (feet)</td>
<td></td>
</tr>
<tr>
<td>(inches)</td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>56.0</td>
</tr>
<tr>
<td>Sex (m/f)</td>
<td>f</td>
</tr>
<tr>
<td>Creatinine (μmol/L)</td>
<td>70</td>
</tr>
</tbody>
</table>

**INITIAL IV LOADING DOSE**

- 1000 mg over 2 hours

**REGULAR IV MAINTENANCE DOSE**

- **Intermittent (pulsed) infusion**
  - Time after loading to start of maintenance infusion: 12 hours
  - Maintenance Dose: 500 mg
  - Interval: 12 hours
  - Duration of infusion: 1 hour(s)
Appendix 3: Maximum Body Weight table – for creatinine clearance calculations

This table can be used to determine whether patients are classed as ‘obese’ (>20% over Ideal Body Weight) and to determine the Maximum Body Weight for use in the Cockcroft Gault equation (see Box 1).

<table>
<thead>
<tr>
<th>Height (ft inches)</th>
<th>Height (cm)</th>
<th>MBW (kg) MALE</th>
<th>MBW (kg) FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4' 8&quot;</td>
<td>142</td>
<td>49</td>
<td>43</td>
</tr>
<tr>
<td>4' 9&quot;</td>
<td>145</td>
<td>52</td>
<td>47</td>
</tr>
<tr>
<td>4' 10&quot;</td>
<td>147</td>
<td>54</td>
<td>49</td>
</tr>
<tr>
<td>4' 11&quot;</td>
<td>150</td>
<td>58</td>
<td>52</td>
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Appendix 4: NHS Grampian Adult INTRAVENOUS VANCOMYCIN Intermittent Infusion (pulsed) Information Sheet for NURSES & PRESCRIBERS

This information sheet highlights the key safety checks to ensure that all appropriate prescribing details and monitoring have been documented before a vancomycin dose is safely administered.

Before administering the first (loading) dose:
1. Check prescriber has used the Vancomycin prescription chart – see example below:

   ![Example Chart]

2. Check if prescriber has printed off results from online calculator, added patient details, and filed with prescription charts (this gives a double check that dose is correct) – see example:

3. If online calculator not used/ printed off, see loading dose table on prescription chart to check this corresponds to patient’s weight.
4. Ensure the time of administration is accurately noted using 24 hour clock.

Before administering maintenance doses:
1. If there are any issues with the patient’s IV access, inform medical staff well in advance of the next dose being required, as any delays will significantly affect the efficacy of antibiotic treatment.
2. If infusion not started within about 10-15 minutes of the prescribed time then accurately record the time (24 hour clock) as this will impact on interpretation of levels.
3. A trough level (immediately before dose given) should be taken within 48 hours of starting therapy and then the dose should be administered as prescribed i.e. do not wait for the result.
4. If a trough level has been recorded on the prescription chart, check that the prescriber has completed the Y/N box to indicate whether any dosage change is required.
5. If in doubt, check with prescriber / medical staff/ pharmacist before administering.