ADULT VANCOMYCIN INTERMITTENT INFUSION: Prescribing, Administration & Monitoring (PAM) chart (see the full guidance in the Therapeutics Handbook for exclusions/further detail)

NHS Greater Glasgow and Clyde

Patient Name: .....

Date of birth: .....

CHI no.: .....

Affix patient label

Table 1: Use if creatinine not available, otherwise use the GGC online calculator

Actual Body Weight	Vancomycin Loading Dose
< 35 kg	25 mg/kg in 250 mL NaCl 0.9% at 500mg/hr rate •
35 – 44 kg	1000 mg in 250 mL NaCl 0.9% over 2 hours •
45 – 59 kg	1500 mg in 500 mL NaCl 0.9% over 3 hours •
60 – 89 kg	2000 mg in 500 mL NaCl 0.9% over 4 hours •
90 – 119 kg	2500 mg in 500 mL NaCl 0.9% over 5 hours •
≥ 120 kg	3000 mg in 1000 mL NaCl 0.9% over 6 hours •

• Consult the IV monograph on StaffNet for advice in fluid/sodium restriction

See pages 3 and 4 for further advice on how to use this chart, monitoring therapy and managing unintended dosing delays

STEP 1 Prescribe vancomycin 'as required' on HEPMA. Prescribe as '1 dose', without dose times.

STEP 2 Calculate the initial dosing regimen (use the NHSGGC online calculator/Therapeutics Handbook) & input details below;

Sex: M / F **Age:** ..... **Weight:** ..... **Height:** ..... **Creatinine (Cr):** ..... **on** ..... / ..... / .....

Initial dosing regimen◆: ..... mg **as a one-off loading dose** then ..... mg every ..... hours

◆ *This is not a prescription & the dose may change. Doses MUST be prescribed in the prescribing boxes below/overleaf before they can be administered.*

STEP 3 Prescribe & record administration of the **ONE-OFF LOADING DOSE** in Box 1 below;

BOX 1 | Vancomycin Loading Dose Prescription | Administration Record

Date to be given	Time to be given	Vancomycin Dose (mg)	Prescriber's signature, PRINTED name and STATUS	Date given	Infuse at no greater than 500 mg/hr Time started	Given by Sig 1: Sig 2:

Inform nursing staff that the loading dose is due IMMEDIATELY

STEP 4 Prescribe & record administration of the **INITIAL MAINTENANCE DOSE** in Box 2 below;

If Cr is awaited complete step 4 as soon as it is available

BOX 2 | Maintenance Dose Prescription | Administration Record

Infuse at rate no greater than 500 mg/hr

Drug: VANCOMYCIN

Dose (mg)	Dose interval	Route	Date
		IV infusion	

Prescriber (Print and sign)

See box 3 ☐

Stopped* ☐

*Also discontinue on HEPMA

Date:

Initials:

Target vancomycin trough concentration:

Standard: 10-20mg/L ☐

Deep-seated/severe infection: 15-20mg/L ☐

Troughs of 15-20mg/L have a higher risk of nephrotoxicity

SPECIFY dose time(s) ↓	Date:	Date:	Date:
Enter time between 00:00 – 05:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Where possible avoid dosing in the middle of the night (See Tables 2 & 5)			
Enter time between 06:00 – 11:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 12:00 – 17:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 18:00 – 23:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:

STEP 5 Check creatinine DAILY and record here →

Seek advice if reduced urine output or if renal function is unstable (e.g. Cr change of >15-20%)

STEP 6 Record vancomycin blood concentrations here →

Check a vancomycin level every 2-3 days (daily if unstable renal function). AVOID taking drug samples from lines. Record the EXACT TIME of the sample on this chart. See Page 4 for further advice, including the timing of the initial vancomycin level.

Date sample TAKEN			
Time sample TAKEN			
Vancomycin result (mg/L)			
Action/ Comments (initial & state grade)			

STEP 7 continue or amend using box 3 OVERLEAF if required

BOX 3 — Maintenance Dose Prescription

Drug: VANCOMYCIN

Dose (mg)	Dose interval	Route	Date
		IV infusion	

Prescriber (Print and sign)

See box 4 ❑
Stopped* ❑
*Also discontinue on HEPMA
Date:
Initials:

Target vancomycin trough concentration:
Standard: 10-20mg/L ❑
Deep-seated/severe infection: 15-20mg/L ❑
Troughs of 15-20mg/L have a higher risk of nephrotoxicity

Check creatinine DAILY and record here ➔
Seek advice if reduced urine output or if renal function is unstable (e.g. Cr change of >15-20%)

Record vancomycin blood concentrations here ➔

Check a vancomycin level every 2-3 days (daily if unstable renal function). AVOID taking drug samples from lines. Record the EXACT TIME of the sample on this chart.

See Page 4 for further advice.

Administration Record
Infuse at rate no greater than 500 mg/hr

SPECIFY dose time(s) ➔	Date:	Date:	Date:
Enter time between 00:00 – 05:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Where possible avoid dosing in the middle of the night (See Tables 2 & 5)			
Enter time between 06:00 – 11:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 12:00 – 17:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 18:00 – 23:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Date sample TAKEN			
Time sample TAKEN			
Vancomycin result (mg/L)			
Action/ Comments (initial & state grade)			

continue or amend using box 4 BELOW if required ➔

BOX 4 — Maintenance Dose Prescription

Drug: VANCOMYCIN

Dose (mg)	Dose interval	Route	Date
		IV infusion	

Prescriber (Print and sign)

See box 5 ❑
Stopped* ❑
*Also discontinue on HEPMA
Date:
Initials:

Target vancomycin trough concentration:
Standard: 10-20mg/L ❑
Deep-seated/severe infection: 15-20mg/L ❑
Troughs of 15-20mg/L have a higher risk of nephrotoxicity

Check creatinine DAILY and record here ➔
Seek advice if reduced urine output or if renal function is unstable (e.g. Cr change of >15-20%)

Record vancomycin blood concentrations here ➔

Check a vancomycin level every 2-3 days (daily if unstable renal function). AVOID taking drug samples from lines. Record the EXACT TIME of the sample on this chart.

See Page 4 for further advice.

Administration Record
Infuse at rate no greater than 500 mg/hr

SPECIFY dose time(s) ➔	Date:	Date:	Date:
Enter time between 00:00 – 05:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Where possible avoid dosing in the middle of the night (See Tables 2 & 5)			
Enter time between 06:00 – 11:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 12:00 – 17:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 18:00 – 23:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Date sample TAKEN			
Time sample TAKEN			
Vancomycin result (mg/L)			
Action/ Comments (initial & state grade)			

continue or amend using box 5 OPPOSITE if required ➔

BOX 5 Maintenance Dose Prescription

Administration Record
Infuse at rate no greater than 500 mg/hr

Drug: VANCOMYCIN

Dose (mg)	Dose interval	Route	Date
		IV infusion	

Prescriber (Print and sign)

See new chart ❑
Stopped* ❑
*Also discontinue on HEPMA
Date:
Initials:

Target vancomycin trough concentration:
Standard: 10-20mg/L ❑
Deep-seated/severe infection: 15-20mg/L ❑
Troughs of 15-20mg/L have a higher risk of nephrotoxicity

SPECIFY dose time(s) ↓	Date:	Date:	Date:
Enter time between 00:00 – 05:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Where possible avoid dosing in the middle of the night (See Tables 2 & 5)			
Enter time between 06:00 – 11:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 12:00 – 17:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Enter time between 18:00 – 23:59 below: :	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:	Level due ☐ Sig 1: Sig 2: | Time given:
Check creatinine DAILY and record here → *Seek advice if reduced urine output or if renal function is unstable (e.g. Cr change of >15-20%)*			
Record vancomycin blood concentrations here →	**Date sample TAKEN**		
	Time sample TAKEN❖		
Check a vancomycin level every 2-3 days (daily if unstable renal function). AVOID taking drug samples from lines. Record the EXACT TIME of the sample on this chart.	**Vancomycin result (mg/L)**		
See Page 4 for further advice.	**Action/ Comments** (initial & state grade)		

continue or amend using a NEW CHART if required

How to use this PAM chart (see the Therapeutics Handbook/GGC Medicines app for further information)

For PRESCRIBERS

Follow **STEP 1** to **STEP 6** on the front page when prescribing and monitoring.

Table 2: Further advice for STEP 4 (Promoting a good night's sleep)
Where possible use this table to avoid prescribing INITIAL maintenance dose(s) (BOX 2) between midnight and 05:59:

Vancomycin maintenance dose interval	Time window for starting the FIRST vancomycin MAINTENANCE dose (in BOX 2)
Dosing every 8 hours	8 - 12 hours after the START of the initial loading dose
Dosing every 12 hours	10 - 16 hours after the START of the initial loading dose
Dosing every 24 hours	22 - 30 hours after the START of the initial loading dose
Dosing every 48 hours	44 - 52 hours after the START of the initial loading dose

Example: A loading dose is prescribed for 12pm with a 12 hourly maintenance dose thereafter. Instead of prescribing the first maintenance dose to start 12 hours after the loading dose (i.e. dosing at 12am/12pm) it could be prescribed 10 hours after the loading dose (allowing the more convenient times of 10am/10pm).

STEP 7: Re-prescribing and stopping vancomycin

- Re-prescribe the maintenance dose every 3 days (or sooner if the dose amount or dose times change).
- For a new maintenance prescription: discontinue the current maintenance prescription box by ticking 'see box x' (adding a signature/date) & scoring through. There is no need to alter the PRN HEPMA prescription, which lacks dose times/amounts.
- To stop therapy on this PAM chart: tick the 'stopped' box (adding a signature and date) and score through all pages of the PAM chart with the word 'STOP'. Remember to discontinue vancomycin on both this PAM chart **AND** on HEPMA.

For NURSES

- Check BOTH this PAM chart and HEPMA before administering to ensure vancomycin hasn't been discontinued.
- Check that creatinine and vancomycin levels are being monitored (these are recorded underneath the administration record; discuss with the prescriber promptly if this is not being done).
- For advice on how to deal with unintentional dose delays (e.g. loss of venous access), see advice on Page 4 (Table 5).
- Record the **date and exact time** the dose was given **on BOTH this PAM chart and HEPMA (with two nurses' signatures).**
- If the 'level due' box is ticked, confirm a level has been taken before giving the dose. **DO NOT wait for the result before dosing, unless advised to by medical staff or if renal function is deteriorating (check with a prescriber/pharmacist if unsure).**
- If doses are prescribed between 00.00-05.59 discuss with prescriber/pharmacy (it may be possible to adjust to more patient-friendly times). **If prescriber/pharmacy are not available DO NOT delay giving the dose and discuss at a more convenient time.**

See page 3 for further advice for prescribers and nurses on how to use this PAM chart

Monitoring intermittent infusion vancomycin (see the Therapeutics Handbook/app for further information)

- See Table 3 below for advice on when to take the initial vancomycin trough level. Thereafter, check a trough level every 2-3 days (daily if renal function unstable).
- The prescriber should indicate when a vancomycin level is due by ticking the 'level due' box AND arrange for a level to be taken.
- Print TrakCare sample requests **at the time of collection** and record EXACT times of all vancomycin levels on this PAM chart. The sample times reported on TrakCare and Clinical Portal are NOT always accurate.
- Avoid taking drug levels from lines - results are often inaccurate. See the Vascular Access Devices (VADS), Care & Maintenance guideline on Staffnet
- Monitor Cr daily and record the result on this PAM chart. Seek advice from pharmacy if Cr is unstable (e.g. a change of >15-20%).

Table 3: Timing of the INITIAL vancomycin trough (pre-dose) level

Maintenance dose frequency	Check the INITIAL vancomycin trough level:	Comments
8 hourly	Before the 4th dose*	Check urine output and U&Es daily. Do NOT wait for vancomycin result before giving next dose, unless • Renal function deteriorating • Concerns about toxicity • Advised to do so
12 hourly	Before the 4th dose*	
24 hourly	Before the 3rd dose*	
48 hourly	Before 2nd dose* to check that vancomycin has been adequately cleared **and** before 3rd dose* to check steady state	

* ***including loading dose as the first dose***

Interpreting vancomycin results and re-prescribing

- Always check for errors and that the dosing & sampling time histories are correct before making any adjustments (see below#).
- Refer to Table 4 below and contact pharmacy for further advice as necessary (e.g. changing renal function).
- Document the vancomycin level on this PAM chart with the action taken. Prescribe the new dosage regimen if needed.

#If the measured vancomycin concentration is unexpectedly HIGH or LOW

- Was the sample too early in therapy (i.e. pre-steady state - see above for when the initial sample should be taken)?
- Was the sample taken at the correct time (i.e. a true *trough* sample)?
- Were dose & sample times recorded accurately?
- Was the correct dose administered/did the patient receive the full dose?
- Was the sample taken from the line used to administer the drug or was the sample taken *during* drug administration?
- Has renal function deteriorated or improved?
- Does the patient have oedema or ascites or an extreme body weight?

Table 4: Vancomycin dose adjustment

Vancomycin trough level	Suggested action (contact pharmacy before changing a dose if you are unsure or if doses >4000 mg daily are required)
<10 mg/L	↑ the dose amount by half (e.g. increase a 500 mg dose to 750 mg) or consider reducing the dosage interval. Seek advice if you are unsure or if doses >4000 mg daily are required.
10-15 mg/L	If the patient is responding, maintain the current dose regimen. If the patient is seriously ill consider ↑ dose amount or ↓ dose interval to target 15-20mg/L trough.
15-20mg/L	Maintain current dose regimen. Increased risk of nephrotoxicity – monitor renal function closely. If the patient is not responding discuss with microbiology or infectious diseases.
>20 mg/L	Seek advice from pharmacy BEFORE the next dose is due.

Managing UNINTENDED delays in intermittent vancomycin dosing (contact pharmacy if necessary)

This guidance **DOES NOT** apply to **DELIBERATELY** withheld doses. If the patient has STABLE renal function (if unsure about this contact a prescriber/pharmacy) & a dose has been delayed UNINTENTIONALLY (e.g. lost IV access) refer to Table 5 below:

Table 5: Managing unintended delays in dosing

Prescribed dose interval	Dose delay	Action		Prescribed dose interval	Dose delay	Action
8 hourly	≤ 4 hours	Give delayed dose immediately and record the **date** and **exact time** of administration on this PAM chart and HEPMA (with TWO nurses' signatures). **Give the next vancomycin dose at the ORIGINALLY PRESCRIBED TIME.**		8 hourly	> 4 hours	Give the delayed dose immediately and record the **date** and **exact time** of administration on this PAM chart and HEPMA (with TWO nurses' signatures). **Seek advice on further dosing from pharmacy promptly.**
12 hourly	≤ 6 hours			12 hourly	> 6 hours	
24 hourly	≤ 12 hours			24 hourly	> 12 hours	
48 hourly	≤ 24 hours			48 hourly	> 24 hours	

Approved by: NHSGGC Antimicrobial Utilisation Committee November 2023. Date of review: August 2027. PECOS ORDER CODE: GGC0206