Doncaster and Bassetlaw Hospitals NHS
NHS Foundation Trust

TEICOPLANIN DOSING AND MONITORING GUIDELINE

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This document is part of antibiotic formulary guidance

Formulary guidance holds the same status as Trust policy

Introduction

Teicoplanin is a glycopeptide antibiotic which is used to treat serious staphylococcal and streptococcal infections. Due to its long half-life, teicoplanin requires the administration of loading doses to achieve satisfactory serum levels. Dosing is individualised based on weight and renal function to achieve target pre-dose (trough) levels.

Teicoplanin is potentially nephrotoxic and is also associated with blood dyscrasias – regular monitor of FBC and U&E is required.

Teicoplanin use is restricted to the indications in the Trust antibiotic guidelines. Therefore, use outside Trust guidelines must be discussed with a Consultant in Infection (see Policy for Restricted Antimicrobials).

Dosing in adults with normal renal function (based on actual weight)

- Loading dose is based on patient's actual body weight
- After loading regimen, maintenance dose should be prescribed once daily based on renal function / actual body weight. Refer to Table 1.
- For patient weighing <45kg, treat with 400mg 12-hourly for 3 doses, followed by 400mg 24-hourly maintenance dose
  For patients weighing >140kg, discuss appropriate dosing with Consultant in Infection

Table 1: Calculating dose in patients with normal renal function

Indication	Dose	Frequency	Target trough concentration (Monitoring is not always required – see below**)
-Skin and soft tissue infections **-Pneumonia** **-Complicated urinary tract infections**	6mg/kg	*Loading regimen:* 12-hourly for first 3 doses followed by *Maintenance regimen:* 24-hourly dosing	Pre 15-30 but <60 mg/L
-Severely unwell patients (e.g. bacteraemia, septic shock) **-Bone & Joint infections, including discitis**	12mg/kg (maximum 1.4g)		20 – 40 but <60 mg/L
-Infective endocarditis	12mg/kg (maximum 1.4g)		30 – 40 but <60 mg/L

NB: Round the dose to nearest 200mg

Dose adjustments in renal impairment – refer to Table 2

- Teicoplanin is almost exclusively renally excreted so doses should be reduced in renal impairment.
- **Dose adjustment is not required until after Day 4 of treatment**. Give normal dose on Days 1 – 4, then adjust for renal function on Day 5. Refer to Table 2.
- Calculate the creatinine clearance using the Cockcroft-Gault equation below:

$$\text{Creatinine Clearance (ml/min)} = \frac{[(140 - \text{age}) \times \text{weight (kg)}] \times 1.23 \text{ (male) or } 1.04 \text{ (female)}}{\text{Serum creatinine (micromol/L)}}$$

Table 2: Calculating dose in patients with renal impairment

Creatinine Clearance* (ml/min) ***Do not use eGFR**	Loading dose	Maintenance Dose NB: Continue the full (normal dose) until Day 4, then adjust as below from Day 5
>60		24-hourly
30 - 60		48-hourly
<30	Give normal	72-hourly
Dialysis / renal replacement therapy patients (including PD, HD, HDF, CVVH)	loading dose	One-third of the full dose (either given as one third of the full dose each day OR as full dose every 3 days)

Administration

Doses of <800mg can be given as an IV bolus over 3 – 5 minutes or as a 30-minute infusion.

Doses ≥800mg should be infused over at least 30 minutes.

For infusions, dilute with 100ml glucose 5% or sodium chloride 0.9%.

Caution

Teicoplanin should be administered with caution in patients known to be hypersensitive to vancomycin since cross hypersensitivity may occur. However, a history of the “Red Man Syndrome” that can occur with vancomycin is not a contra-indication to teicoplanin (consider slower infusion rate, i.e. over at least 60 minutes).

Monitoring

Weekly FBC and U&E are ESSENTIAL during treatment.

Teicoplanin levels are recommended in the following situations:

- Severe / deep-seated infection including endocarditis, septic arthritis & osteomyelitis
- Prolonged course (when treatment continues for > 1 week)
- Intravenous drug users who may exhibit rapid clearance of teicoplanin

A trough level (i.e. pre-dose) should be taken on day 5 or the first normal working day thereafter. Subsequent levels should be undertaken weekly.
If dose adjustment is made due to level being outside of the range, repeat level should be taken on day 5 following change in dose.

Assays are sent away for testing, and results may not be back for few days.
Once a level has been taken, doses should only be withheld if there is concern that the level will be too high due to poor or deteriorating renal function.

Refer to **Table 3** for guidance on interpretation of levels and dose adjustments.

Table 3: Monitoring and dose adjustment

Indication	Target trough level	Action if Level outside range
-Skin and soft tissue infections **-Pneumonia** **-Complicated urinary tract infections**	15 – 30mg/L	**<15 mg/L:** Increase dose by 50% ***30-40 mg/L:*** *No action unless adverse effects are reported or renal function deteriorates* ***40-60 mg/L:*** *Reduce dose by 25%* **>60 mg/L:** Discuss with Consultant in Infection or Pharmacist
-Severely unwell patients (e.g. bacteraemia, septic shock) **-Bone & Joint infections, including discitis**	20 – 40mg/L	**<20 mg/L:** Increase dose by 50% ***40-60 mg/L:*** *Reduce dose by 25%* **>60 mg/L:** Discuss with Consultant in Infection or Pharmacist
-Infective endocarditis	30 – 40mg/L	**<20 mg/L:** Increase dose by 50% ***20-30 mg/L:*** *Increase dose by 25%* **40-60 mg/L:** Reduce dose by 25%* **>60 mg/L:** Discuss with Consultant in Infection or Pharmacist

Side Effects

Hypersensitivity reactions (including rash, bronchospasm, fever) can occur and require discontinuation of teicoplanin. Blood dyscrasias, renal and hepatic impairment can occur rarely. Adverse effects are more likely to occur with the higher dosing schedule and with prolonged therapy.

References

1) Lamont et al. Development of teicoplanin dosage guidelines for patients treated within an outpatient parenteral antibiotic therapy (OPAT) programme. Journal of Antimicrobial Chemotherapy (2009) 64, 181 – 187.
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3) Severn Pathology North Bristol NHS Trust. Antimicrobial Reference Laboratory Guideline ranges for TDM 2025-2026. Accessed via Antimicrobial Reference Laboratory Resources | North Bristol NHS Trust
4) Health Improvement Scotland. Teicoplanin Inpatient Guidelines for Adults (16 years and over) | Right Decisions