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Teicoplanin Inpatient Guideline for Adults (16 years and over)

INTRODUCTION

Vancomycin is NHS Borders' glycopeptide of choice. Please see NHS Borders Antimicrobial Companion app and Antimicrobials Microsite for vancomycin information and dosing calculator.

Teicoplanin should only be used under advice from microbiology consultants or according to agreed local infection management guidelines.

Teicoplanin is a bacteriostatic agent which may be used against most Gram positive organisms (including *Staph. aureus* and *Staph. epidermidis*). Indications may include[1]:

- Bone and joint infections
- Infective endocarditis
- Complicated skin and soft tissue infections
- Community and hospital acquired pneumonias (CAP/HAP)

NOTE: this guidance does not apply to the use of teicoplanin as a three times a week regimen[2]. Contact Consultant Microbiologist or Antimicrobial Pharmacist for advice on this regimen.

Loading dose (page 2)

- Bone and joint infections and infective endocarditis - 12mg/kg 12 hourly for 4 doses
- Complicated skin and soft tissue infections, CAP/HAP - 6mg/kg 12 hourly for 3 doses
- See dose banding tables (page 2; Tables 1 and 2)

Maintenance dose (pages 2+3)

- Start maintenance (once daily) dosing 24 hours after last loading dose
- Dose adjust for renal impairment after day 4 using creatinine clearance (page 3; Table 3)

Monitoring (page 4)

- Required for treatment durations over 7 days
- Trough level to be taken on day 5, then monitored weekly if level is in acceptable range
- Trough levels vary based on indication (page 4; Table 4)

LOADING AND MAINTENANCE DOSING

- Doses will vary depending on the indication – take care to ensure the correct dosing regime is used
- Loading and maintenance dose is based on actual weight and renal function
- Calculate creatinine clearance (CrCl) using Cockroft and Gault equation – do not use eGFR
- If CrCl>80 ml/min use tables below[6] (Tables 1 and 2 for loading and maintenance doses)
- If CrCl <80ml/min, load as normal renal function then see Dosing in Renal Impairment (Table 3) for dose adjustments
- Doses should be prescribed on the regular section of the drug kardex (as per Fig 1.)

TREATMENT OF BONE AND JOINT INFECTIONS AND INFECTIVE ENDOCARDITIS

Table 1 – dose banding for bone and joint infections and infective endocarditis[3,6]

Actual weight	Loading dose	Maintenance dose (started 24h after last loading dose)
<45kg	400mg 12 hourly for 4 doses	400mg every 24 hours
45-60kg	600mg 12 hourly for 4 doses	600mg every 24 hours
61-79kg	800mg 12 hourly for 4 doses	800mg every 24 hours
80-95kg	1000mg 12 hourly for 4 doses	1000mg every 24 hours
96-120kg	1200mg 12 hourly for 4 doses	1200mg every 24 hours
121-140kg	1400mg 12 hourly for 4 doses	1400mg every 24 hours
>140kg	Discuss with Consultant Microbiologist*	

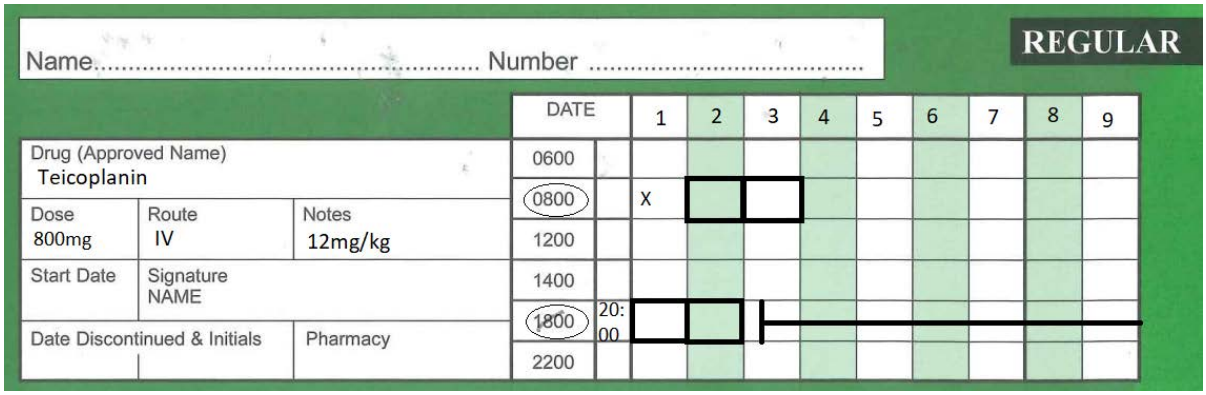
*Dose increases beyond this should be in response to teicoplanin levels only and on advice from Consultant Microbiologist

TREATMENT OF COMPLICATED SKIN AND SOFT TISSUE INFECTIONS, CAP and HAP

Table 2 – dose banding for complicated skin and soft tissue infections and severe CAP/HAP[7]

Actual weight	Loading dose	Maintenance dose (started 24h after last loading dose)
<75kg	400mg 12 hourly for 3 doses	400mg every 24 hours
75-114kg	600mg 12 hourly for 3 doses	600mg every 24 hours
115-140Kg	800mg 12 hourly for 3 doses	800mg every 24 hours
>140kg	Discuss with Consultant Microbiologist	

Figure 1 – example including loading and maintenance doses for a patient with a bone infection weighing 75kg with CrCl>80ml/min (black boxes indicate loading doses).



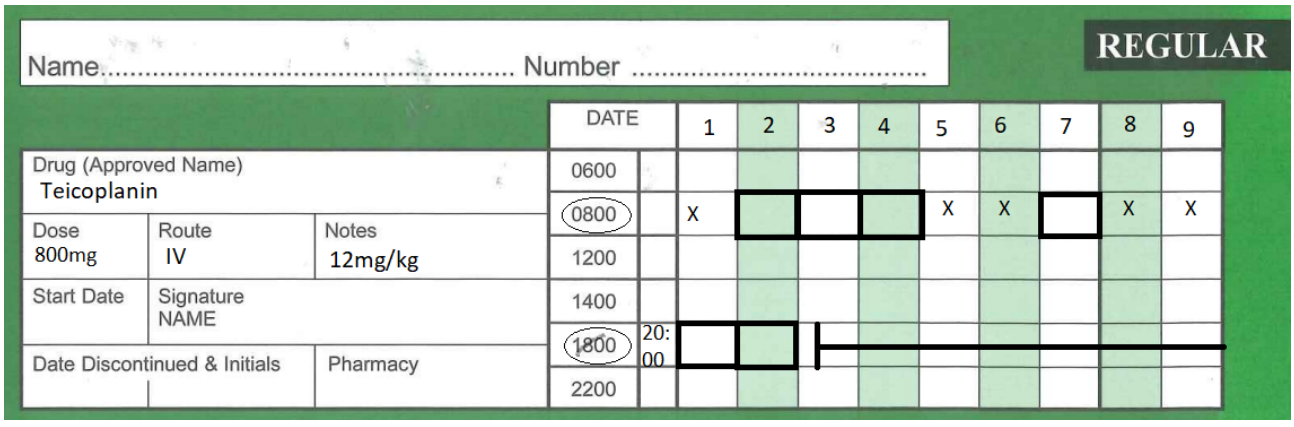
DOSING IN RENAL IMPAIRMENT

After **day four** of treatment, review doses as per table 3 below[1]. See figure 2 for illustrated example of dosing adjustment.

Table 3 – Dose adjustments for patients with renal impairment

Creatinine clearance (CrCl)*	**Dose adjustment**
>80ml/min	No dose adjustment required
30-80ml/min	½ calculated maintenance dose every 24 hours **OR** Full dose every 48 hours
<30ml/min and haemodialysis patients	1/3 calculated maintenance dose every 24 hours **OR** Full dose every 72 hours

Figure 2 – example illustrating potential dosing for a patient weighing 75kg with a creatinine clearance of 25ml/min, dosing 72 hourly. (an alternative option would be 1/3 dosing every 24 hours)



Adverse Reactions[1, 9]

Common adverse effects include: fever, skin reactions and pain at injection site

Uncommon adverse effects include: bronchospasm, diarrhoea, dizziness, eosinophilia, headache, hearing impairment, hypersensitivity, leucopenia, nausea, ototoxicity, thrombocytopenia, vomiting, deranged LFTs

Frequency not known: agranulocytosis, angioedema, chills, neutropenia, overgrowth of non-susceptible organisms, renal impairment, seizure, severe cutaneous adverse reactions (SCARs), thrombophlebitis

MONITORING

- Teicoplanin level monitoring is indicated when using high doses, in renal insufficiency, extremes of body weight, deep seated/complex infections, in patients not responding to treatment, or as advised by the Consultant microbiologist. This is to ensure it is within the recommended therapeutic range for efficacy.
- Teicoplanin levels are not required for treatment courses ≤7 days.
- Pre dose (trough) to be taken on day 5 (avoid weekend sampling if possible). If levels are in range, monitoring is to be carried out weekly thereafter.
- If the dose is to be reduced due to renal impairment, take the level before the first dose of this change.
- Teicoplanin samples are sent to Bristol for analysis, therefore levels may take 3 – 5 working days to be reported on Trak.
- When dose adjustments have been made due to plasma concentration levels being out of range, take the level on the fifth day after this change.
- Continue with the same teicoplanin dosing until the result is available unless creatinine is unstable (e.g. a change of > 15-20 %) – in this case, seek advice from Pharmacist or Consultant Microbiologist.
- For dosing guidance, where creatinine is unstable or trough levels are out of range, contact Pharmacist or Consultant Microbiologist.
- Routine monitoring of U&Es, LFTs, FBC and CRP should continue at least weekly.

Table 4 - target trough levels[1 4,8]:

Indication	Target trough level	Levels out with range
Bone and joint infections	20-40 mg/L	<20mg/L: increase dose by 50%* 40-60mg/L: reduce dose by 25%* >60mg/L: Consider reducing by 50% or withholding doses and discuss with Consultant Microbiologist/Pharmacist
Infective endocarditis	30-40 mg/L	<20mg/L: increase dose by 50%* 20-30mg/L: increase dose by 25%* 40-60mg/L: reduce by 25%* >60mg/L: Consider reducing by 50% and discuss with Consultant Microbiologist/Pharmacist

Complicated skin and soft tissue infections, CAP/HAP	15-30 mg/L	<15 mg/L: increase dose by 50%* 30-40mg/L: no action unless adverse effects are reported/renal function deteriorates 40-60 mg/L: reduce by 25%* >60mg/L: consider reducing by 50%* or withholding doses and discuss with Consultant Microbiologist/Pharmacist

*round to nearest 100mg. Maximum of 2g per single dose

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