Royal Cornwall Hospitals
NHS Trust

Teicoplanin Prescribing and Therapeutic Drug Monitoring in Adults Clinical Guideline

V4.0

December 2023

Summary - Treatment Guideline

For NON-DEEP-SEATED infections (skin and soft tissue infections):

Actual body weight (kg)	Loading dose (6mg/kg)	Maintenance dose (6mg/kg)
44kg or less	200mg every 12 hours for five doses	200mg OD
45-74kg	400mg every 12 hours for five doses	400mg OD
75-109kg	600mg every 12 hours for five doses	600mg OD
110-144kg	800mg every 12 hours for five doses	800mg OD
145kg or more	1,000mg every 12 hours for five doses	1,000mg OD

For DEEP-SEATED infections (respiratory infections/bone and joint infections/infective endocarditis):

Actual body weight (kg)	Loading dose (12mg/kg)	Maintenance dose (12mg/kg)
44kg or less	400mg every 12 hours for five doses	400mg OD
45-59kg	600mg every 12 hours for five doses	600mg OD
60-74kg	800mg every 12 hours for five doses	800mg OD
75-89kg	1,000mg every 12 hours for five doses	1,000mg OD
90-104kg	1,200mg every 12 hours for five doses	1,200mg OD
>105kg	1,400mg every 12 hours for five doses	1,400mg OD

Dose in renal impairment

Renal Impairment	Dosing adjustment
eGFR 30-80mL/min/1.73m^2	Normal dose regimen on days 1–4 depending on indication (see table above), then use normal maintenance dose every 48 hours
eGFR less than 30mL/min/1.73m^2	Normal dose regimen on days 1–4 depending on indication (see table above), and then use normal maintenance dose every 72 hours

Dosage adjustments guide:

<table>
<tr><th rowspan="2">Trough level (mg/L)</th><th colspan="3">Teicoplanin level interpretation and dose adjustment</th></tr>
<tr><th>Infective Endocarditis</th><th>Bone and Joint Infection
Respiratory infection</th><th>Other severe infections (e.g., skin and soft tissue)</th></tr>
<tr><td>Less than 10mg/L</td><td>Move up one dose weight band. Repeat loading with the new dose.</td><td>Move up one dose weight band. Repeat loading with the new dose.</td><td>Repeat loading dose. Maintain with normal dose.</td></tr>
<tr><td>10-14mg/L</td><td>Move up one dose weight band. Repeat loading with the new dose.</td><td>Move up one dose weight band. Repeat loading with the new dose.</td><td>Increase maintenance dose by 200mg.</td></tr>
<tr><td>15-19mg/L</td><td>Repeat loading dose. Maintain with normal dose.</td><td>Repeat loading dose. Maintain with normal dose.</td><td rowspan="2">Target trough level 15 – 30 mg/L.
Continue with current dose. Re-check level one week later.</td></tr>
<tr><td>20-29mg/L</td><td>Increase maintenance dose by 200mg.</td><td>Increase maintenance dose by 200mg.</td></tr>
<tr><td>30-39mg/L</td><td colspan="2">Therapeutic trough level 30 – 40 mg/L.
Continue with current dose. Re-check level one week later.</td><td>Reduce maintenance by 200mg.</td></tr>
<tr><td>40-60mg/L</td><td colspan="2">If stable renal function – continue current dose and recheck level one week later. No relationship between plasma concentrations and toxicity has been established. If deteriorating renal function – contact Pharmacy/Micro/ID.</td><td>Reduce maintenance by 400mg.</td></tr>
<tr><td>Greater than 60mg/L</td><td colspan="3">Do not give the next dose - Discuss with Pharmacy/Micro/ID.</td></tr>
</table>

1. Aim/Purpose of this Guideline

1.1. To provide guidance to RCHT staff on the prescribing and therapeutic drug monitoring for Teicoplanin therapy.

1.2. This version supersedes any previous versions of this document.

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. For indications refer to the Trust Antimicrobial Guidelines on the Trust intranet or Microguide app on mobile devices.

2.2. Teicoplanin distributes well into lung, myocardium and bone tissues, blister fluids, synovial fluid, and peritoneal fluid. Pleural fluid and subcutaneous fat tissue penetration is adequate. Teicoplanin does not readily penetrate into the cerebrospinal fluid (CSF).

2.3. No relationship between plasma concentrations and toxicity has been established. Plasma concentrations can be used as a guide to optimise treatment.

2.4. Long-term concurrent use of Gentamicin and Teicoplanin has the potential to cause additive ototoxicity.

2.5. Trough concentrations should be above 15 milligrams/L (above 30milligrams/L in patients with deep-seated infections such as those of bone and joint or in patients with endocarditis) but less than 40milligrams/L (see Table below).

2.6. Dosing recommendations:

2.7. For NON-DEEP-SEATED infections (skin and soft tissue infections):

Actual body weight (kg)	Loading dose (6mg/kg)	Maintenance dose (6mg/kg)
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2.8. For DEEP-SEATED infections (respiratory/bone and joint infections/infective endocarditis):

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2.9. Dose in renal impairment

Renal Impairment	Dosing adjustment
eGFR 30-80mL/min/1.73m^2	Normal dose regimen on days 1–4 depending on indication (see table above), then use normal maintenance dose every 48 hours

Renal Impairment	Dosing adjustment
eGFR less than 30mL/min/1.73m^2	Normal dose regimen on days 1–4 depending on indication (see table above), and then use normal maintenance dose every 72 hours

2.10. Target trough level recommendations:

Indication	Target trough
Complicated skin and soft tissue infections. Complicated urinary tract infections.	15-30mg/L
Infective endocarditis. Bone and joint infections. Pneumonia.	30-40mg/L

2.11. Measurement of serum concentrations

2.3.1 Teicoplanin trough serum concentrations should be monitored at steady state after completion of the loading dose regimen to ensure that a minimum trough serum concentration has been reached. Request the first level on day 6-8 of treatment.

2.3.2 Teicoplanin serum samples are sent to Bristol for analysis. Sample turnaround times are between 2 and 5 days depending on the day the sample is taken.

2.3.3 If the Teicoplanin course is expected to be short (less than 7 days), it may not be practical to do Teicoplanin levels.

2.3.4 Teicoplanin dose adjustments should not be made until the trough level is reported. Do not withhold doses pending trough level reports.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Appropriate dosing according to patient weight and infection type. Appropriate teicoplanin level monitoring.
Lead	Antibiotic Pharmacy Team.
Tool	In development.
Frequency	Six monthly monitoring and reporting.
Reporting arrangements	Antibiotic Stewardship Management Committee. Recorded in meeting minutes.
Acting on recommendations and Lead(s)	Antibiotic Stewardship Management Committee. Dan Hearsey, Antimicrobial Pharmacist.
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within one month. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity And Inclusion Policy or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Teicoplanin Prescribing and Therapeutic Drug Monitoring Clinical Guideline V4.0
This document replaces (exact title of previous version):	Teicoplanin Prescribing and Therapeutic Drug Monitoring Clinical Guideline V3.1
Date Issued/Approved:	December 2023
Date Valid From:	December 2023
Date Valid To:	December 2026
Directorate / Department responsible (author/owner):	Antibiotic Pharmacy Team / Pharmacy Dan Hearsey, Antimicrobial Pharmacist
Contact details:	01872 253548
Brief summary of contents:	Teicoplanin prescribing and monitoring guidance.
Suggested Keywords:	Teicoplanin
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Medicines Practice Committee
General Manager confirming approval processes:	Richard Andrzejuk
Name of Governance Lead confirming approval by specialty and care group management meetings:	Kevin Wright
Links to key external standards:	None
Related Documents:	https://www.medicines.org.uk/emc/
Training Need Identified?	No

Information Category	Detailed Information
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical /Antimicrobial Prescribing

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
May 2015	1.0	Initial issue	Neil Powell, Antibiotic Pharmacist
October 2018	2.0	None	Neil Powell, Antibiotic Pharmacist
March 2022	3.0	None	Neil Powell, Antibiotic Pharmacist
May 2022	3.1	Update to dosing in endocarditis for 5 loading doses. Removal of lower trough target levels (10mg/L in patients with CKD).	Dan Hearsey, Antimicrobial Pharmacist
November 2023	4.0	Introduction of dose banding table for dosing recommendations for non-deep-seated and deep-seated infections. Additional information regarding therapeutic drug monitoring and only need for levels if treatment if to continue for at least 7 days. Change to trough level targets for indications.	Dan Hearsey, Antimicrobial Pharmacist

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Teicoplanin Prescribing and Therapeutic Drug Monitoring Clinical Guideline V4.0
Directorate and service area:	Pharmacy
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Dan Hearsey, Advanced Specialist Clinical Pharmacist - Antimicrobials
Contact details:	01872 253548

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	To provide information on prescribing and monitoring of Teicoplanin
2. Policy Objectives	To promote a consistent level of shared care between primary and secondary care (in relation to RCHT catchment area).
3. Policy Intended Outcomes	Improve infection outcome through dose optimisation of Teicoplanin for infection management.
4. How will you measure each outcome?	Six monthly reviews.
5. Who is intended to benefit from the policy?	General practitioners, hospital specialists and community pharmacists – from understanding local guidance around use of these medicines. Patients/carers, from being able to access medicines from their GP.

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** Medicines Practice Committee
6c. What was the outcome of the consultation?	Agreed
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** No

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	
Marriage and civil partnership	No	

Protected Characteristic	(Yes or No)	Rationale
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment:
Dan Hearsey, Advanced Specialist Clinical Pharmacist - Antimicrobials

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis