**Teicoplanin Monograph - Paediatric**

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<th>Scope (Staff):</th>
<th>Medical, Nursing, Pharmacy</th>
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<td>Scope (Area):</td>
<td>Perth Children’s Hospital (PCH)</td>
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This document should be read in conjunction with this DISCLAIMER

**DESCRIPTION**

- Teicoplanin is a glycopeptide antibiotic, it inhibits bacterial cell wall synthesis by preventing the formation of peptidoglycan polymers.\(^1\)\(^2\)
- Teicoplanin is a High Risk Medicine.

**INDICATIONS AND RESTRICTIONS**

- Teicoplanin is active against a wide range of Gram-positive organisms. It is mostly used in the treatment of penicillin-resistant, Gram-positive organisms when vancomycin is not suitable e.g. MRSA, methicillin resistant coagulase negative staphylococci and Enterococcus faecium.\(^2\)
- Teicoplanin is similar to vancomycin, but has a significantly longer duration of action, allowing once daily administration after the loading doses.\(^3\)

**IV: Restricted (red) antibiotic**

- ChAMP approval is required prior to prescription.

**CONTRAINDICATIONS**

- Hypersensitivity to teicoplanin or any component of the product.\(^4\)\(^5\)

**PRECAUTIONS**

- Teicoplanin should be used with caution in those patients with a previous severe reaction to vancomycin as cross reactivity has occurred between vancomycin and teicoplanin.\(^1\)\(^4\)
- A history of ‘red-man’ syndrome with vancomycin is not a contraindication to the use of teicoplanin.\(^4\)\(^6\)
- Care should be taken in patients with a history of thrombocytopaenia associated with vancomycin or teicoplanin use.\(^1\)
- Ototoxicity and nephrotoxicity may be more common in patients with renal failure-ensure dose is adjusted appropriately.\(^1\)\(^5\)
- Hearing impairment and/or concurrent use of ototoxic drugs may increase the risk of ototoxicity with teicoplanin.\(^1\)
- Life threatening or even fatal cutaneous reactions such as
Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) have been reported with the use of teicoplanin. Stop teicoplanin immediately if progressive skin rash, blisters or mucosal lesions.

**FORMULATIONS**

Available at PCH:
- **Teicoplanin IV**: 400mg powder for injection vial (multiple brands)

**Other preparations available:**
- **Targocid® Teicoplanin**: 400mg powder for injection vial
  
  *(Note: Targocid® brand contains a surplus of 60mg allowing the full dose to easily be withdrawn from the vial – see RECONSTITUTION instructions below).*

**DOSAGE**

- The doses listed below fall within the standard range.
- Higher doses may be prescribed for certain situations in consultation with an Infectious Diseases or Clinical Microbiology consultant.

**Neonates (less than 30 days of age):**
- Teicoplanin is not routinely used in neonates as vancomycin is the preferred agent.
- If teicoplanin is required the following doses have been used in term neonates:
  - **Loading dose**: 16mg/kg as a single dose
  - **Maintenance dose**: 8mg/kg/day 24 hours after the loading dose

**Children 1 month to 18 years:**

**IV:**
- **Loading**: 10mg/kg/dose (to a maximum of 800mg) 12 hourly for THREE (3) doses
- **Maintenance**: 6-10mg/kg/dose (to a maximum of 400mg) once daily

**PHARMACOKINETICS**

Dosage adjustment required in renal impairment:
- Dosage adjustment may be required in cases of impaired renal function (with creatinine clearance of less than 80mL/min).
- To calculate the estimated glomerular filtration rate (eGFR) use the following formula:

\[
\text{eGFR (mL/min/1.73m}^2\text{)} = \frac{36.5 \times \text{height (in cm)}}{\text{Serum creatinine (micromol/L)}}
\]
- The standard dose should be used for the **first three (3) days** then adjusted on day four (4) of treatment according to renal function.\(^{(2)}\)
- If eGFR is 30-80mL/minute/1.73m\(^2\) use standard maintenance dose every 48 hours.\(^{(3)}\)
- If eGFR is <30mL/minute/1.73m\(^2\) use standard maintenance dose every 72 hours.\(^{(3)}\)
- Monitor trough concentrations for patients with renal impairment.\(^{(2)}\)
- Contact pharmacy for advice on dosing patients on dialysis.

### RECONSTITUTION

**Sandoz brand:**
- Reconstitute each 400mg vial with 3mL of the supplied diluent (water for injection) to produce a 400mg/3mL solution.
- The diluent should be injected slowly down the side of the vial. Roll the vial gently between the palms until dissolved.\(^{(4, 6)}\)
- **Do not shake.** If the product foams, allow to sit for 15 minutes to allow the foam to settle.\(^{(4, 6)}\)

**Targocid\(^{®}\) brand:**
- Reconstitute each 400mg vial with the supplied 3.14mL diluent (water for injection) to give a 400mg/3mL solution. (A small excess is contained in each vial to allow a full 400mg dose to be withdrawn.)\(^{(4, 6)}\)
- **Do not shake** the vial, gently rotate to dissolve as the product foams significantly when shaken.\(^{(4, 6)}\)

> Each vial of Targocid\(^{®}\) contains a small excess. For doses of 400mg only withdraw 3mL of the reconstituted solution.\(^{(4, 6)}\)

### ADMINISTRATION

**IV infusion (preferred):**
- Dilute with compatible fluid and infuse over 30 minutes.\(^{(1, 5, 6)}\)

**IV injection (not suitable for neonates):**
- May be given via slow IV injection over 5 minutes.\(^{(6)}\)

### MONITORING

- In severe infections a trough level can be used to optimise treatment. Trough level should be greater than 15mg/L (30-40mg/L in patients with *S. aureus* endocarditis).\(^{(5)}\)
- Trough level should be taken immediately prior to the dose being administered and sent to PathWest on weekdays. A minimum of 2mL sample is required in a Lithium Heparin 2 mL (No gel) or Serum (Red top) 2mL (No Gel) sample container.\(^{(5, 8)}\)
- Renal, hepatic and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7
| ADVERSE EFFECTS | Common:  
| --- | ---  
| • Phlebitis, pain, rash, fever, renal dysfunction, nausea, vomiting, diarrhoea, rigors and pruritus.\(^{(1, 3, 4)}\)  
| Rare:  
| • Ototoxicity, nephrotoxicity, thrombocytopenia (may be immune mediated), infusion related events (e.g. erythema and flushing), hypersensitivity (including fever, rash, itch, rigor, eosinophilia, angioedema, erythema, bronchospasm, anaphylaxis), blood dyscrasias.\(^{(1, 3, 4)}\)  

| COMPATIBLE FLUIDS | • Glucose 5%.  
| --- | ---  
| • Sodium chloride 0.9%.  
| • Glucose 4% with sodium chloride 0.18%.  
| • Hartmann’s.\(^{(6)}\)  

| STORAGE | • Vial: Store below 25 °C.\(^{(4, 6)}\)  

| INTERACTIONS | Teicoplanin may interact with other medications; please consult PCH approved references (e.g. Clinical Pharmacology), your ward pharmacist or Pharmacy on extension 63546 for more information.  
| --- | ---  
| • Treatment with nephrotoxic drugs, e.g. aminoglycosides, may increase risk of nephrotoxicity; monitor renal function and drug concentration.\(^{(1)}\)  
| • Concurrent use of ototoxic drugs may increase the risk of ototoxicity with teicoplanin.\(^{(1)}\)  
| • IV aminoglycoside antibiotics are inactivated by IV cephalosporins, penicillins and teicoplanin. Administration of these agents should be separated by at least one (1) hour. If this is not possible, (for example HITH patients) lines should be flushed well with sodium chloride 0.9% before and after giving each medication.\(^{(4)}\)  

| COMMENTS | • Targocid\(^{®}\) contains 24.8mg of sodium chloride per 400mg vial.\(^{(4)}\)  
| --- | ---  
| • Sandoz brand teicoplanin contains 24mg of sodium chloride per 400mg vial.\(^{(4)}\)  

| MANUFACTURER SAFETY DATA SHEET | To access to the Manufacturer SDS for this product, use the following link to ChemAlert.  

**Please note:** The information contained in this guideline is to assist with the preparation and administration of teicoplanin. Any variations to the doses recommended should be clarified with the prescriber prior to administration

### Related CAHS internal policies, procedures and guidelines

- **Antimicrobial Stewardship Policy**
- **ChAMP Empiric Guidelines and Monographs**
- **KEMH Neonatal Medication Protocols**

### References

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