

TOBRAMYCIN

Read in conjunction with [Disclaimer](#)

⚠ HIGH RISK Medication ⚠

| Formulary: Restricted | | | | | | | | | | | | | |
|--|---|------------------------------|------------------------------|-----------------------|-------------------|-----------|------------------------------|------------------------------|--------------|-----------|------------------------------|------------------------------|--------------|
| Requires Neonatologist or Microbiologist review within 24 hours of initiation. | | | | | | | | | | | | | |
| Presentation | Vial: 80 mg/2 mL | | | | | | | | | | | | |
| Classification | Aminoglycoside antibiotic | | | | | | | | | | | | |
| Indication | Effective against many Gram-negative organisms, with superior anti-pseudomonal activity compared to gentamicin. | | | | | | | | | | | | |
| Special Considerations | <ul style="list-style-type: none">Contraindicated in patients with hypersensitivity to tobramycin, other aminoglycosides or any component of the formulation.Caution in patients with pre-existing renal impairment, auditory or vestibular impairment, hypocalcaemia, depressed neuromuscular transmission. | | | | | | | | | | | | |
| Monitoring | <ul style="list-style-type: none">See Therapeutic Drug Monitoring below.Urine output.Blood urea, nitrogen and creatinine. | | | | | | | | | | | | |
| Therapeutic Drug Monitoring | Monitoring for IV and IM dosing only: <ul style="list-style-type: none">Trough level: 0.4 mL blood immediately prior to dose.Peak level: 0.4 mL blood 1 hour after dose infusion complete. | | | | | | | | | | | | |
| | <table><tr><th>Dose frequency</th><th>First level due with</th><th>Second level due with</th><th>Subsequent levels</th></tr><tr><td>24 hourly</td><td>4th dose (day 4)</td><td>8th dose (day 8)</td><td>Every 4 days</td></tr><tr><td>48 hourly</td><td>3rd dose (day 5)</td><td>5th dose (day 9)</td><td>Every 4 days</td></tr></table> | Dose frequency | First level due with | Second level due with | Subsequent levels | 24 hourly | 4 th dose (day 4) | 8 th dose (day 8) | Every 4 days | 48 hourly | 3 rd dose (day 5) | 5 th dose (day 9) | Every 4 days |
| | Dose frequency | First level due with | Second level due with | Subsequent levels | | | | | | | | | |
| | 24 hourly | 4 th dose (day 4) | 8 th dose (day 8) | Every 4 days | | | | | | | | | |
| | 48 hourly | 3 rd dose (day 5) | 5 th dose (day 9) | Every 4 days | | | | | | | | | |
| | Additional levels required: <ul style="list-style-type: none">After a dose change take a trough and peak blood sample with the second adjusted dose.If an infant’s clinical situation (i.e. renal failure) is likely to lead to unpredictable levels take more frequent levels. | | | | | | | | | | | | |
| | Expected levels: <ul style="list-style-type: none">Trough level at 24 hours post dose: less than 2 mg/LTrough level at 48 hours post dose: less than 1 mg/LPeak: greater than 10 mg/L | | | | | | | | | | | | |
| | Area Under the Curve (AUC): <ul style="list-style-type: none">Calculated using the trough and peak levelsIdeal AUC range: 80 to 100 mg/L.hourCalculated using Neogent (Gentamicin Dosage Calculator) available on the KEMH Neonatal Medication Protocols page (Intranet access only). The target AUC level for tobramycin is the same as for gentamicin.Follow recommendations given by Neogent calculator for dose adjustment. | | | | | | | | | | | | |
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| Compatibility | Fluids: Sodium chloride 0.9%, glucose 5%, glucose 10% |
| Incompatibility | IV aminoglycoside antibiotics, including tobramycin and gentamicin, are inactivated by IV cephalosporins, penicillins and teicoplanin. Ensure lines are adequately flushed between antibiotics or administer at different times. |
| Interactions | <ul style="list-style-type: none"> Increased risk of nephrotoxicity when administered with other nephrotoxic drugs and cephalosporins. Aminoglycosides may enhance the respiratory depressant effect of neuromuscular-blocking agents (e.g. vecuronium) and may prolong blockade. |
| Side Effects | <p>Renal: Increased blood urea nitrogen, increased serum creatinine, oliguria, nephrotoxicity.</p> <p>Ototoxicity: Auditory and vestibular impairment, hearing loss.</p> <p>Endocrine: Decreased serum calcium, magnesium, potassium and sodium.</p> <p>Dermatologic: Dermatitis, rash, urticarial.</p> <p>Central nervous system: Lethargy.</p> <p>Haematologic: Anaemia, leucocytosis, leukocytopenia, thrombocytopenia.</p> <p>Gastrointestinal: Diarrhoea, vomiting.</p> <p>Local: Pain at injection site.</p> |
| Storage & Stability | <p>Vial (Pfizer® preservative free): Refrigerate at 2 to 8°C, do not freeze. Protect from light.</p> <p>Vial (Viatris®): Store at room temperature, below 25°C. Protect from light.</p> <p>Other brands: Follow storage instructions on product information.</p> |
| Comments | Preservative and sulfite free tobramycin should be used for neonates, if available. |

INTRAVENOUS

Presentation

Vial: 80 mg/2 mL

Available from CIVAS (KEMH Only): 10 mg/mL



Dosage

| Corrected Gestational Age | Postnatal Age | Dose | Frequency |
|---------------------------|----------------------|-----------|----------------|
| Less than 30 weeks | 0 to 7 days | 5 mg/kg | Every 48 hours |
| | Greater than 7 days | 5 mg/kg | Every 24 hours |
| 30 to 35 weeks | 0 to 7 days | 6 mg/kg | Every 48 hours |
| | Greater than 7 days | 6 mg/kg | Every 24 hours |
| Greater than 35 weeks | 0 to 14 days | 4.5 mg/kg | Every 24 hours |
| | Greater than 14 days | 7 mg/kg | Every 24 hours |

Dose adjustment

- See [Therapeutic Drug Monitoring](#).
- **Renal impairment:** Use with caution. Contact microbiologist/ID for advice.

Preparation

Withdraw **2 mL** (80 mg) of **tobramycin** and add **6 mL** of compatible diluent to make a final volume of 8 mL.

*Concentration now equal to **10 mg/mL**.*

Administration

IV infusion (preferred option):

Infuse via syringe driver pump over 20 to 60 minutes.

IV push (only to be used if IV infusion not possible):

Inject over 10 minutes.



INTRAMUSCULAR

Presentation Vial: 80 mg/2 mL

Dosage

| Corrected Gestational Age | Postnatal Age | Dose | Frequency |
|---------------------------|----------------------|-----------|----------------|
| Less than 30 weeks | 0 to 7 days | 5 mg/kg | Every 48 hours |
| | Greater than 7 days | 5 mg/kg | Every 24 hours |
| 30 to 35 weeks | 0 to 7 days | 6 mg/kg | Every 48 hours |
| | Greater than 7 days | 6 mg/kg | Every 24 hours |
| Greater than 35 weeks | 0 to 14 days | 4.5 mg/kg | Every 24 hours |
| | Greater than 14 days | 7 mg/kg | Every 24 hours |

Dose adjustment

- Intramuscular (IM) injection is associated with variable absorption, especially in a very small infant.
- See [Therapeutic Drug Monitoring](#).
- **Renal impairment:** Use with caution. Contact microbiologist/ID for advice.

Preparation Use undiluted.

Administration

- Draw up the prescribed dose.
- Inject as per the [Medication Administration Guideline](#).



NEBULISATION

Presentation Vial: 80 mg/2 mL

Dosage 20 mg every 12 hours

Preparation Dilute required dose to 3 mL (or an appropriate volume) with sodium chloride 0.9%

Administration

- Nebulise via endotracheal tube
- The expiratory block of ventilators should be changed on a weekly basis when nebulised drugs are used

Comments

- There is no evidence to support the use of nebulised tobramycin for the eradication of endotracheal tube colonisation.
- Therapeutic drug monitoring may be required. Contact microbiology/ID for advice.

Related Policies, Procedures, and Guidelines

HDWA Mandatory Policies:

[MP 0131/20: WA High Risk Medication Policy](#)

Clinical Practice Guidelines:

[CAHS Neonatology – Sepsis](#)

Pharmaceutical and Medicines Management Guidelines:

[CAHS Neonatology – Medication Administration Guideline](#)

[High Risk Medicines](#)

[WNHS Cold Chain Management for Medications and Vaccines](#)

[CAHS Medication Refrigerators and Freezers](#)

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