| DESCRIPTION | • An aminoglycoside antibiotic that inhibits protein synthesis by irreversibly binding to the 30S ribosomal subunit, resulting in cell membrane damage. \(^{(1-3)}\)  
• Amikacin is a High Risk Medicine. |
| INDICATIONS AND RESTRICTIONS | Inhaled amikacin is used in cystic fibrosis patients with respiratory exacerbations who are unable to tolerate nebulised tobramycin, for tobramycin resistant *Pseudomonas aeruginosa* and/or for treatment of non-tuberculosis mycobacteria.  
**ChAMP Restricted (red) antibiotic:**  
ChAMP approval is required prior to prescription. Document the indication, the ChAMP approver, and the date and time on the prescription or in the medication chart indication box. |
| CONTRAINDICATIONS | Amikacin is contraindicated in patients with a history of serious allergic reaction to an aminoglycoside. |
| PRECAUTIONS | • Bronchospasm may occur – ensure a short acting bronchodilator is administered prior to the administration of the first and subsequent doses. \(^{(4)}\) |
| FORMULATIONS | **Available at PCH:**  
• 500mg/2mL vial  
**Other formulations available:**  
• Liposomal amikacin for inhalation – NOT covered in this monograph |
| DOSAGE | The doses listed below fall within the standard range. Higher doses may be prescribed for certain situations. This should be in consultation with Infectious Diseases or Microbiology consultant. |
### Inhalation:
- Patients less than 30kg: Not routinely used in children less than 30kg in weight. Contact Infectious Diseases or Microbiology consultants for advice.
- Weight 30-50kg: 250mg twice daily
- Weight ≥ 50kg: 500mg twice daily.<sup>(5)</sup>

### IV:
- Refer to the separate IV amikacin monograph

### DOSAGE ADJUSTMENT
- As systemic absorption of amikacin following nebulisation is low, dose adjustment is not routinely required. However caution should be taken if inhaled amikacin is used in patients with renal impairment or failure.<sup>(5)</sup>,<sup>(6)</sup>
- Refer to the intravenous amikacin monograph for dosage adjustments required for systemic use.

### RECONSTITUTION
Not applicable

### ADMINISTRATION
Bronchospasm may occur – ensure a short acting bronchodilator is administered prior to the administration of the first and subsequent doses.<sup>(4)</sup>

**To prepare a 250mg dose:**
- Using the 500mg/2mL formulation, draw up 1mL of the solution and dilute to 4mL with sodium chloride 0.9%

**To prepare a 500mg dose:**
- Using the 500mg/2mL formulation, draw up 2mL of the solution and dilute to 4mL with sodium chloride 0.9%
- Part vials of amikacin may be stored in the refrigerator for up to 24 hours and used for the subsequent dose.

### MONITORING
- Measure lung function before and after the initial dose of amikacin and monitor for bronchospasm.<sup>(4)</sup>
- Creatinine clearance should be measured routinely during therapy.<sup>(3)</sup>

### ADVERSE EFFECTS
Minimal adverse effects were seen in clinical trials of inhaled amikacin, however, some systemic absorption may occur and therefore the following adverse effects may occur.

**Rare:**
Nephrotoxicity, vestibular and cochlear toxicity, anaphylaxis, bronchospasm, oliguria, peripheral neuropathy, neuromuscular blockade.<sup>(1)</sup>
### COMPATIBLE FLUIDS
- Salbutamol nebuliser solution\(^{(5)}\)
- Sodium chloride 0.9%

### STORAGE
- 500mg/2mL vial (DBL brand) should be stored below 25°C. \(^{(3)}\)
- Once the vial has been opened, it may be stored in the refrigerator for up to 24 hours and used for the subsequent nebulised dose.

### INTERACTIONS
- Systemic absorption should be negligible but may occur – care should be taken when co-administration occurs with nephrotoxic and ototoxic drugs.

### COMMENTS
Nil

### MANUFACTURER SAFETY DATA SHEET (SDS)
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 amikacin (inhaled). Any variations to the doses recommended should be clarified with the prescriber prior to administration**

### Related internal policies, procedures and guidelines
- [Antimicrobial Stewardship Policy](#) (Medication Management Manual)
- [Intramuscular Injections](#) (Medication Management Manual)
- [ChAMP Empiric Guidelines](#) (ChAMP Manual)

### References
Amikacin inhaled Monograph - Paediatric

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