MEROPENEM

<table>
<tr><td>Trade Name</td><td>Meropenem –AFT ®
Meropenem Ranbaxy® Douglas Pharmaceuticals
PENEMBACT Powder for Intravenous Injection (Intepharma)</td></tr>
<tr><td>Class</td><td>Carbapenem Beta lactam antibiotic - broad spectrum activity</td></tr>
<tr><td>Mechanism of Action</td><td>Interferes with bacterial cell wall synthesis. The ease with which it penetrates bacterial cells, its high level of stability to all serine beta lactamases and its marked affinity for the penicillin binding proteins explain the potent bactericidal activity of meropenem against a broad spectrum of aerobic and anaerobic bacteria.</td></tr>
<tr><td>Indications
Individual ID approval required for full treatment course</td><td>Aerobic and anaerobic gram positive and negative infections. Less active against gram +ve bacteria than Imipenem. Generally inactive against MRSA. Usually reserved for infections resistant to other antibiotics.</td></tr>
<tr><td>Contraindications</td><td>Caution in beta lactam allergy as partial cross-sensitivity has been demonstrated.
Monitor LFTs carefully in patients with pre-existing liver disease.</td></tr>
<tr><td>Supplied As</td><td>Powder for injection 1g.</td></tr>
<tr><td>Dilution</td><td>Reconstitute the vial by adding 19.1 mL of water for injection to the 1g vial of meropenem to get a 50mg/mL solution.
*displacement volume of Meropenem AFT = approx 0.94mL
<table>
<tr><th>Drug</th><th>Water for injection</th><th>Final Volume</th><th>Final Concentration</th></tr>
<tr><td>1g</td><td>19.1 mL</td><td>20 mL</td><td>50 mg/mL</td></tr>
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<tr><td>Dosage</td><td>Sepsis: 20 mg/kg/dose
Meningitis and Pseudomonas infections: 40 mg/kg/dose</td></tr>
<tr><td>Interval</td><td>Lengthen dosing interval if significant renal impairment/anuria
<table>
<tr><th></th><th>Age</th><th>Interval (hrs)</th></tr>
<tr><td>Sepsis</td><td>≤7 days</td><td>12</td></tr>
<tr><td></td><td>>7 days</td><td>8</td></tr>
<tr><td>Meningitis or Pseudomonas</td><td>Any</td><td>8</td></tr>
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<tr><td>Administration</td><td>IV infusion over 1 hour
Longer infusion is to promote “time dependent kill” of bacteria with longer time for the drug to be in the bloodstream</td></tr>
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Compatible With	**In solution:** Glucose 5%, Glucose 10%, 0.9% sodium chloride. **Terminal Y-site:** Adrenaline, acyclovir*, albumin, amikacin, aminophylline, atenolol, atropine, azithromycin, benzyl penicillin, caffeine citrate, calcium chloride, caspofungin, cefazolin, cefotaxime, cefoxitin, ceftazidime, ceftriaxone, cefuroxime, cimetidine, clindamycin, ciclosporin, dexamethasone, dexmedetomidine, digoxin, dobutamine,* dopamine, erythromycin, fentanyl, fluconazole, furosemide, gentamicin, heparin, hydrocortisone, imipenem, insulin, labetalol, lidocaine, linezolid, magnesium sulphate, methylprednisolone, metoclopramide, metronidazole, milrinone, morphine, naloxone, noradrenaline, octreotide, paracetamol, phenobarbital, piperacillin, potassium chloride, potassium phosphate, propranolol, ranitidine, rocuronium, salbutamol, sodium bicarbonate, sulfamethoxazole/trimethoprim, tobramycin, valproate sodium, vancomycin*, vasopressin, voriconazole *Variable reports of compatibility with aciclovir, dobutamine and vancomycin avoid combination with meropenem if possible and if infused together monitor for signs of precipitation
Incompatible With	Amiodarone, amphotericin B, calcium gluconate, ciprofloxacin, diazepam, hydralazine, ketamine, midazolam, phenytoin, sildenafil, zidovudine
Monitoring	Periodic CBC (for thrombocytosis and eosinophilia) and hepatic transaminases. Assess IV site for signs of inflammation.
Stability	Reconstituted solutions should be used immediately. Discard remaining solution in vial after reconstitution. Use a new vial for each dose
Storage	Store vials at room temperature.
Adverse Reactions	Diarrhoea, nausea/vomiting, and rash. May cause inflammation at the injection site.
Metabolism	Clearance is directly related to renal function, and 70% of a dose is recovered intact in the urine. Hepatic function does not affect pharmacokinetics. Plasma protein binding is minimal. Serum half-life is 3 hours in preterm and 2 hours in full term neonates. It is relatively stable to inactivation by human renal dehydropeptidase. Meropenem penetrates well into the CSF and most body tissues.
Comments	Used with caution with nephrotoxic drugs. May cause positive coomb's test without haemolysis. Little evidence of other interactions though no formal studies have been done. Each 1g vial of meropenem contains 4mmol of sodium

References	1. Neofax in www.micromedexsolutions.com 2. Medicines for Children, Royal College of Paediatrics and Child Health 1999 3. www.medsafe.govt.nz/Profs/datasheet/m/merremIVinj.htm 4. NZHPA Notes on Injectable Drugs www.noids.nz 5. Trissels IV Compatibility data in www.micromedexsolutions.com 6. www.anmfonline,org
Updated By	Garth Smith August 2002 P Schmidt, B Robertshawe March 2006 A Lynn, B Robertshawe, F Robertson May 2009 (new pumps) A Lynn, B Robertshawe October 2012 (re-order profile) A Lynn, Tony Walls (Paed ID) July 2013 (PHARMAC update Ab approvals) A Lynn, B Robertshawe March 2018 (vial strength) A Lynn, B Robertshawe December 2021 (routine update) A Lynn, B Robertshawe February 2025 change to infusion