IMIPENEM + CILISTATIN

<table>
<tr><td>Trade Name</td><td>Imipenem + Cilistatin RBX (Douglas)</td></tr>
<tr><td>Class</td><td>Carbapenem beta lactam antibiotic with broad spectrum of activity, combined with Cilastatin.</td></tr>
<tr><td>Mechanism of Action</td><td>Bactericidal activity by interfering with bacterial cell wall synthesis. Imipenem is combined in a 1:1 ratio with cilastatin (a renal dipeptidase inhibitor with no intrinsic antibacterial activity), thereby reducing renal brush border inactivation of imipenem.</td></tr>
<tr><td>Indications

Individual ID approval required for full treatment course</td><td>Restricted to treatment of non-CNS infections caused by bacteria, primarily enterobacteriaceae and anaerobes, resistant to other antibiotics.</td></tr>
<tr><td>Contraindications</td><td>Hypersensitivity to any part of this preparation.
Caution in beta lactam antibiotic allergy – there may be cross reactivity.
Should not be used for CNS infections.</td></tr>
<tr><td>Supplied As</td><td>500mg vials (500mg of imipenem and 500mg of cilastatin)
Prescribe as mg/kg of imipenem.</td></tr>
<tr><td>Dilution

TWO dilution steps required</td><td>
Step 1. Reconstitute the vial
<table>
<tr><th rowspan="2">Drug</th><th>Add Diluent</th><th rowspan="2">Total Volume</th><th rowspan="2">Concentration</th></tr>
<tr><th>Water for injection</th></tr>
<tr><td>500mg</td><td>10 mL</td><td>10 mL</td><td>50 mg / mL</td></tr>
</table>
Step 2. Further dilute the 50 mg/mL solution in step 1
<table>
<tr><th rowspan="2">Drug</th><th>Add Diluent</th><th rowspan="2">Total Volume</th><th rowspan="2">FINAL CONCENTRATION</th></tr>
<tr><th>0.9% sodium chloride</th></tr>
<tr><td>50mg = 1mL</td><td>9 mL</td><td>10 mL</td><td>5 mg / mL</td></tr>
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</td></tr>
<tr><td>Dosage</td><td>20 mg/kg per dose.
Doses of 25mg/kg have been used from 1 week of age.</td></tr>
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<tr><td>Interval</td><td>
<table>
<tr><th>Age</th><th>Interval</th></tr>
<tr><td>≤ 7 days</td><td>12</td></tr>
<tr><td>>7 days</td><td>8</td></tr>
</table>
</td></tr>
<tr><td>Administration</td><td>Intermittent IV infusion over 20 - 30 minutes
IV bolus – not recommended
IM – not permitted</td></tr>
<tr><td>Compatible With</td><td>Solutions: Sodium chloride 0.9%, glucose 5% and 10%, mannitol 5 and 10%, glucose 5%/potassium chloride 0.15%.
Terminal Y-site: compatibility (if given above in-line filter) with: aciclovir, cefepime, insulin, linezolid, midazolam, propofol zidovudine, fat emulsion.</td></tr>
<tr><td>Incompatible With</td><td>Amikacin, amiodarone, azithromycin, fluconazole, gentamicin, lorazepam, milrinone, sodium bicarbonate, and tobramycin.</td></tr>
<tr><td>Monitoring</td><td>Periodic CBC and hepatic transaminases.
Assess IV site for signs of phlebitis.</td></tr>
<tr><td>Stability</td><td>Discard opened vial immediately after use
Discard unused reconstituted 5mg/mL solution immediately
Use a new vial to draw up each dose
The colour of the solution may vary from colourless to pale yellow. This does not represent any change in potency.</td></tr>
<tr><td>Storage</td><td>Store powder at room temp <30 ^{o}C</td></tr>
<tr><td>Adverse Reactions</td><td>Seizures occur frequently in patients with meningitis, preexisting CNS pathology and severe renal dysfunction.
Local reactions at the injection site and increased platelet counts are the most frequent adverse effects.
Others including eosinophilia, elevated hepatic transaminases, and diarrhoea also occur in more than 5% of patients.</td></tr>
<tr><td>Metabolism</td><td>Clearance is directly related to renal function (70% is excreted unchanged in the urine). Serum half life of imipenem in neonates is 2.5 hrs, the half life of cilastatin is 9 hrs.
CNS penetration is poor with imipenem. Meropenem should be used if meningitis suspected.</td></tr>
<tr><td>Comments</td><td>Avoid concomitant use with other beta lactam antibiotics as possible in vitro antagonism.
Sodium content is 1.6mmol per 500mg vial</td></tr>
</table>

References	1. Neofax fourteenth edition 2001 2. "Medicines for Children" Royal College of Paediatrics and Child Health 1999 3. www.medsafe.govt.nz/profs/datasheet/p/primaxininj.htm 4. LA Trissel, Handbook on Injectable Drugs, 11th Ed., 2001 5. www.noids.nz
Updated By	Garth Smith August 2002 A Lynn, B Robertshawe September 2009 A Lynn, B Robertshawe Oct 2012 (re-order profile,2 dilution,discard vial) A Lynn, Tony Walls (Paed ID) July 2013 (PHARMAC update Ab approvals) A Lynn, B Robertshawe May 2021 (update brand, route of administration & compatibilities) A Lynn, B Robertshawe March 2023 (double dilution instructions)