Meropenem
Newborn use only

2020

<table>
<tr><td>Alert</td><td>The Antimicrobial Stewardship Team recommends this drug is listed under the following category: Restricted.
Widespread use of carbapenems has been linked with increasing prevalence of infections caused by methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE), multi-resistant Gram-negative organisms and Clostridium difficile.</td></tr>
<tr><td>Indication</td><td>Severe infections (e.g., sepsis or meningitis) caused by Gram-negative organisms resistant to other conventional antibiotics but susceptible to meropenem e.g., Extended Spectrum Beta Lactamase (ESBL)-producing organisms.
Note: Meropenem is NOT active against many resistant Gram-positive organisms, such as MRSA and most Staphylococcus epidermidis. Vancomycin is first-line therapy for these. Meropenem does have activity against penicillin-susceptible Gram-positive organisms and most anaerobic organisms. For individual advice, discuss therapy with a microbiologist or infectious diseases physician.</td></tr>
<tr><td>Action</td><td>Meropenem is a carbapenem. It inhibits cell wall synthesis. (1)

Meropenem is a better choice than imipenem for central nervous system infections. Meropenem attains a higher concentration in the cerebrospinal fluid particularly with inflamed meninges and has a lower incidence of seizures than imipenem.</td></tr>
<tr><td>Drug type</td><td>Carbapenem antibiotic.</td></tr>
<tr><td>Trade name</td><td>Meropenem APOTEX, Meropenem DBL, Meropenem GH, Meropenem Juno, Meropenem Kabi, Meropenem Sandoz, Merrem</td></tr>
<tr><td>Presentation</td><td>500 mg vial
1000 mg vial</td></tr>
<tr><td>Dose</td><td>Non-CNS and Non-Pseudomonas Sepsis
<table>
<tr><th>Gestational Age at birth</th><th>Postnatal Age</th><th>Dose</th><th>Interval</th></tr>
<tr><td>< 32^{+0} weeks</td><td>0–13 days</td><td>20 mg/kg</td><td>12 hourly</td></tr>
<tr><td>< 32^{+0} weeks</td><td>14+ days</td><td>20 mg/kg</td><td>8 hourly</td></tr>
<tr><td>≥ 32^{+0} weeks</td><td>0–13 days</td><td>20 mg/kg</td><td>8 hourly</td></tr>
<tr><td>≥ 32^{+0} weeks</td><td>14+ days</td><td>30 mg/kg</td><td>8 hourly</td></tr>
</table>
Meningitis and Pseudomonas Sepsis
<table>
<tr><th>Gestational Age at birth</th><th>Postnatal Age</th><th>Dose</th><th>Interval</th></tr>
<tr><td>Any</td><td>Any</td><td>40 mg/kg</td><td>8 hourly</td></tr>
</table></td></tr>
<tr><td>Dose adjustment</td><td>Assess for renal impairment prior to using higher doses as meropenem is primarily excreted via kidneys.</td></tr>
<tr><td>Maximum dose</td><td></td></tr>
<tr><td>Total cumulative dose</td><td></td></tr>
<tr><td>Route</td><td>IV infusion.</td></tr>
<tr><td>Preparation</td><td><u>Infants ≤1kg</u>
Add 9.6 mL of water for injection to 500 mg vial to make a 50 mg/mL solution OR
Add 19.1 mL of water for injection to 1g vial to make a 50 mg/mL solution.

FURTHER DILUTE
Draw up 2 mL (100 mg of meropenem) of the above solution and add 8 mL sodium chloride 0.9% to make a final volume of 10 mL with a final concentration of 10 mg/mL.

<u>Infants >1kg or fluid restricted</u>.
Add 9.6 mL of water for injection to 500 mg vial to make a 50 mg/mL solution.
FURTHER DILUTE
Draw up 4 mL (200 mg of meropenem) of the above solution and add 6 mL sodium chloride 0.9% to make a final volume of 10 mL with a concentration of 20 mg/mL.</td></tr>
<tr><td>Administration</td><td>IV infusion over 4 hours. (5)
May be given over 15 to 30 minutes if longer infusion time is not feasible.</td></tr>
<tr><td>Monitoring</td><td>Renal function.
Liver function.
Electrolytes</td></tr>
</table>

Contraindications	Hypersensitivity to penicillins, cephalosporins and carbapenems.
Precautions	Colitis−due to risk of pseudomembranous colitis. Renal impairment.
Drug interactions	Sodium valproate− meropenem may result in clinically significant reduction in concentration of sodium valproate, which may cause seizures.
Adverse reactions	Phlebitis, diarrhoea (up to 6% in children), anaemia and eosinophilia.
Compatibility	Fluids: sodium chloride 0.9% (preferred for stability), glucose 5%, glucose 10%, Y-site: Amino acid solutions, anidulafungin, caspofungin, linezolid, atropine, dexamethasone sodium, gentamicin, heparin sodium, metronidazole.
Incompatibility	Fluids: Mannitol 10% Y-site: Dolasetron, ketamine, zidovudine.
Stability	Use immediately after preparation. Diluted solutions are potentially unstable, particularly glucose containing solutions and should be discarded if not used immediately.
Storage	Vial: Store at room temperature.
Excipients	Sodium carbonate
Special comments	Meropenem 1 g vial contains 3.92 mmol of sodium.
Evidence	Refer to full version.
Practice points	Refer to full version.
References	Refer to full version.

VERSION/NUMBER	**DATE**
Original 1	**05/12/2015**
Version 1.2	**14/10/2017**
Current 2.0	11/12/2020
REVIEW	11/12/2025

Authors Contribution

Original author/s	Srinivas Bolisetty, Angela Tan
Evidence Review	David Osborn
Expert review	Pam Palasanthiran, Brendan McMullan, Alison Kesson, Tony Lai
Nursing Review	Eszter Jozsa, Kirsty Minter
Pharmacy Review	Michelle Jenkins
ANMF Group contributors	Nilkant Phad, Bhavesh Mehta, John Sinn, Carmen Burman, Jessica Mehegan, Thao Tran, Helen Huynh, Wendy Huynh
Final editing and review of the original	Ian Whyte
Electronic version	Mariella De Rosa, Ushma Trivedi, Cindy Chen, Ian Callander
Facilitator	Srinivas Bolisetty