



MONOGRAPH

Meropenem Monograph - Paediatric

Scope (Staff):	Medical, Pharmacy, Nursing
Scope (Area):	All Clinical Areas

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [DISCLAIMER](#)

QUICKLINKS

Dosage/Dosage Adjustments	Administration	Compatibility	Monitoring
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DRUG CLASS

Carbapenem antibiotic.⁽¹⁾

INDICATIONS AND RESTRICTIONS

Meropenem is a broad spectrum antibiotic active against many resistant enteric Gram-negative rods including *Pseudomonas aeruginosa* and extended-spectrum beta-lactamase enzymes (ESBL) producing isolates. It is **NOT** active against *Stenotrophomonas maltophilia* and Methicillin Resistant *Staphylococcus aureus* (MRSA).⁽²⁾

Oral: Monitored (orange) antibiotic

- If the use is consistent with a standard approved indication, this must be communicated to ChAMP by documenting that indication on all prescriptions (inpatient and outpatient).
- The ChAMP team will review if ongoing therapy is required and/or if the order does not meet [ChAMP Standard Indications](#)
- If use is not for a standard approved indication, phone approval must be obtained from ChAMP before prescribing.

CONTRAINDICATIONS

- Hypersensitivity to meropenem, any component of the formulation or patients with a high risk allergy to carbapenems.^(1, 3, 4)

PRECAUTIONS

- Meropenem may be prescribed in selected patients with a high risk allergy to another Beta-lactam sub-class (e.g. some penicillins, cephalosporins) in discussion with immunology.^(1, 5) In patients with a previous [low risk reaction](#) to meropenem or another carbapenem- (delayed rash [>1 hr after initial exposure] without mucosal or systemic involvement) the risk of subsequent reaction is low. Re-challenge may be acceptable in discussion with immunology.
- Avoid use in combination with sodium valproate when possible due to a significant reduction in the concentration of sodium valproate.^(1, 5)
- Meropenem has been known to lower the seizure threshold and may cause seizures, especially in patients with renal impairment and/or underlying neurological conditions.⁽⁴⁾
- Each 1gram vial contains 3.92mmol (90.2mg) of sodium.^(1, 4, 6)

FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- 1gram powder for injection

Imprest location: [Formulary One](#)

DOSAGE & DOSAGE ADJUSTMENTS

Neonates: [Refer to Neonatal Medication Protocols](#)

Children (>4 weeks to 18 years):

Usual dose (including febrile neutropenia): 20mg/kg/dose (to a maximum of 1gram) every 8 hours^(1, 3, 4, 7)

Severe infections (including CNS infections) and Cystic Fibrosis: 40mg/kg/dose (to a maximum of 2grams) every 8 hours^(3, 4, 7)

Extended infusions for Hospital in the Home (HiTH)

- If meropenem is required on HiTH, discuss with Infectious Diseases or Clinical Microbiology if switching to [ertapenem](#) is an appropriate alternative.
- In some cases, an extended infusion of meropenem administered via a CADD pump may be suitable for HiTH patients. Contact Pharmacy for further information.

Usual dose: 30mg/kg/dose (to a maximum of 1.5grams) given twice daily via a 12 hour infusion

Severe infections: 60mg/kg/dose (to a maximum of 3 grams) given twice daily via a 12 hour infusion.

Renal impairment:

- [eGFR calculator](#) (Google Chrome[®])

eGFR > 50mL/minute : normal dose

eGFR 30 – 50mL/minute : 100% of the normal dose 12 hourly

eGFR 10 – 29mL/minute : 50% of the normal dose 12 hourly

eGFR < 10mL/minute : 50% of the normal dose 24 hourly^(3, 4)

Dosage adjustment required in hepatic impairment:

No dosage reductions are required in hepatic impairment.⁽⁴⁾

Dosing in Overweight and Obese Children: Dose based on measured body weight.⁽⁸⁾

RECONSTITUTION & ADMINISTRATION**IV reconstitution**^(9, 10)

Vial strength	Volume of water for injection required	Resulting concentration	Powder volume
1gram	19.1mL	50mg/mL	0.9mL

IV injection:

- Reconstitute to a concentration of 50mg/mL and give via slow IV injection over 3 to 5 minutes.^(6, 9)

IV infusion (preferred for doses of 40mg/kg):

- After reconstitution, dilute to a suitable volume with compatible fluid and infuse over 15 to 30 minutes.^(6, 9)
- For critically unwell patients, an extended infusion may be considered, discuss with ChAMP.

Extended infusion via CADD pump (HiTH only):

- The CADD pump will be prepared by the Pharmacy Compounding Service (PCS) at a final concentration of 10mg/mL and should be set to run as a 12 hour infusion.
- The CADD pump must be kept cool whilst the solution is being administered. This can be achieved by using ice packs in the supplied bag and changing them every 12 hours.

COMPATIBILITY (LIST IS NOT EXHAUSTIVE)**Compatible fluids:**

- Glucose 5%
- Glucose/sodium chloride solutions
- Sodium chloride 0.9%^(5, 6, 9)

Compatible at Y-site:

[Compatibilities of IV drugs](#) must be checked when two or more drugs are given concurrently.

MONITORING

- Renal, hepatic and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7 days) ^(1, 4)

ADVERSE EFFECTS

Common: thrombocytosis, raised liver function tests and lactate dehydrogenase, nausea, vomiting, diarrhoea, abdominal pain, headache and injection site reactions, inflammation, skin reactions. ^(1, 7)

Infrequent: *Clostridioides difficile*-associated disease, itch, rash, eosinophilia, paraesthesia, urticaria, thrombophlebitis. ^(1, 7)

Rare: seizures, thrombocytopenia, leucopenia, neutropenia, agranulocytosis, severe cutaneous adverse reactions (SCARs), anaphylaxis, seizures, haemolytic anaemia, multi-organ hypersensitivity syndrome. ^(1, 7)

STORAGE

- Store vials below 25°C. ^(5, 6)
- Store syringes prepared by PCS between 2 – 8 °C ⁽⁶⁾

INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. [Clinical Pharmacology](#)), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

Please note: The information contained in this guideline is to assist with the preparation and administration of meropenem. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines

[Antimicrobial Stewardship Policy](#)




[ChAMP Empiric Guidelines and Monographs](#)

[KEMH Neonatal Medication Protocols](#)

References

1. Rossi S, editor. Australian Medicines Handbook. Adelaide, S. Aust.: Australian Medicines Handbook; 2021.
2. Antibiotic Writing Group. eTG complete. West Melbourne: Therapeutic Guidelines Ltd; 2021. Available from: <https://tgdcdp-tg-org-au.pklibresources.health.wa.gov.au/etgAccess>.
3. Meropenem - Pediatric Drug Information [Internet]. Lexicomp. 2021 [cited 12/08/2021].
4. Clinical Pharmacology [Internet]. Elsevier BV. 2021 [cited 8/07/2021]. Available from: <http://www.clinicalpharmacology-ip.com.pklibresources.health.wa.gov.au/default.aspx>.
5. MIMS Australia. MIMS online [full product information]. St Leonards, N.S.W: CMP Medica Australia.; 2021. p. 1v. (various pagings).
6. Symons K. Ermer J. (editors). Australian injectable drugs handbook. Collingwood: The Society of Hospital Pharmacists of Australia; 2020.
7. Paediatric Formulary Committee. BNF for Children: 2020. London: BMJ Group Pharmaceutical Press; 2021.
8. Kendrick JG, Carr RR, Ensom MH. Pediatric Obesity: Pharmacokinetics and Implications for Drug Dosing. Clin Ther. 2015;37(9):1897-923.
9. Lilley L, Legge D. Paediatric Injectable Guidelines 5th ed. Melbourne: Royal Children's Hospital Melbourne; 2016.
10. Meropenem Ranbaxy New Zealand: Douglas Pharmaceuticals; 2018 [Available from: <https://www.medsafe.govt.nz/profs/datasheet/m/MeropenemRanbaxyinj.pdf>].

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