Note:
This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient’s medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Dose and Indications

Use in consultation with Infectious Diseases team

**Meningitis due to susceptible organisms and/or infections caused by Pseudomonas species**

<table>
<thead>
<tr>
<th>Intravenous</th>
<th>Age</th>
<th>Dose/Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All ages</td>
<td>40mg/kg every 8 hours</td>
</tr>
</tbody>
</table>

Length of treatment should be guided by pathology and clinical picture; however in proven sepsis treatment should continue for a minimum of 7 days

**Infection due to susceptible organisms where meningitis is excluded**

<table>
<thead>
<tr>
<th>Intravenous</th>
<th>Gestational Age (weeks) [gestational age at birth]</th>
<th>Postnatal age (days)</th>
<th>Dose/Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;32</td>
<td>≤ 14</td>
<td>20mg/kg every 12 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;14</td>
<td>20mg/kg every 8 hours</td>
</tr>
<tr>
<td></td>
<td>≥32</td>
<td>≤ 14</td>
<td>20mg/kg every 8 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 14</td>
<td>30mg/kg every 8 hours</td>
</tr>
</tbody>
</table>

Length of treatment should be guided by pathology and clinical picture; however in proven sepsis treatment should continue for a minimum of 7 days.
Preparation and Administration
Administer as an IV infusion. However, doses of 20mg/kg or 30mg/kg meropenem may be given as an IV bolus if necessary (e.g. restricted access and/or compatibility issues).

Intravenous Infusion
There are TWO STEPS to process.

If the meropenem **500mg vial** is available (preferred):

**STEP ONE:** Add 9.6mL of water for injection to the meropenem 500mg vial and shake gently to dissolve (total volume of 10mL). The resulting solution contains 50mg/mL meropenem.

**STEP TWO:** Further dilute 2mL of the 50mg/mL meropenem solution with 3mL of water for injection (total volume of 5mL). The resulting solution contains 20mg/mL meropenem.

Otherwise, if the meropenem **1gram vial** is available:

**STEP ONE:** Add 19.1mL of water for injection to the meropenem 1gram vial and shake gently to dissolve (total volume of 20mL). The resulting solution contains 50mg/mL meropenem.

**STEP TWO:** Further dilute 2mL of the 50mg/mL meropenem solution with 3mL of water for injection (total volume of 5mL). The resulting solution contains 20mg/mL meropenem.

<table>
<thead>
<tr>
<th>Dose</th>
<th>20mg</th>
<th>40mg</th>
<th>60mg</th>
<th>80mg</th>
<th>120mg</th>
<th>160mg</th>
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</thead>
<tbody>
<tr>
<td>Volume</td>
<td>1mL</td>
<td>2mL</td>
<td>3mL</td>
<td>4mL</td>
<td>6mL</td>
<td>8mL</td>
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</table>

Infuse over 30 minutes

Intravenous Bolus

<table>
<thead>
<tr>
<th>Vial Strength</th>
<th>Volume of Water for Injection to add</th>
<th>Final Concentration of meropenem</th>
</tr>
</thead>
<tbody>
<tr>
<td>500mg</td>
<td>9.6mL</td>
<td>50mg/mL</td>
</tr>
<tr>
<td>1gram</td>
<td>19.1mL</td>
<td>50mg/mL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose</th>
<th>10mg</th>
<th>20mg</th>
<th>40mg</th>
<th>60mg</th>
<th>80mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>0.2mL</td>
<td>0.4mL</td>
<td>0.8mL</td>
<td>1.2mL</td>
<td>1.6mL</td>
</tr>
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</table>

Administer as a push over at least 5 minutes

Compatible Fluids
Glucose 5%, glucose 10%, glucose/sodium chloride solutions, sodium chloride 0.9%
Meropenem
500mg & 1gram injection

Adverse Effects

**Common**
Diarrhoea, vomiting, rash, thrombocytosis, disturbances in liver function tests

**Infrequent**
eosinophilia

**Rare**
seizures, thrombocytopenia, neutropenia, agranulocytosis

Monitoring

> Periodic monitoring of full blood count and liver function tests recommended
> Monitor renal function
> Assess intravenous site for signs of inflammation

Practice Points

> Reconstituted solutions range in colour from clear and colourless to pale yellow
> There is limited stability with meropenem and glucose 5%, glucose 10% or glucose/sodium chloride solutions, with loss of potency reported. If diluting or infusing through same line, the contact should be less than one hour.
> Meropenem is a beta-lactam antibiotic. Do not use if previous anaphylactic reaction to beta-lactam antibiotic has been reported.
> Give with caution in pre-existing renal impairment. Consider dose reduction if evidence of renal failure – consult with neonatologist / infectious diseases

References

> Germovsek E, Lutsar I, Kipper K, Plasma and CSF pharmacokinetics of meropenem in neonates and young infants: results from the NeoMero studies, 2018, J Antimicrob Chemother, 73, p1908-1916


Document Ownership & History

**Developed by:** SA Maternal, Neonatal & Gynaecology Community of Practice  
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  - If so, which version? **3.1**
- Does this policy replace another policy with a different title? **N**
  - If so, which policy (title)?

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<th>Who approved New/Revised Version</th>
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<td>V4</td>
<td>Domain Custodian, Clinical Governance, Safety and Quality</td>
<td>Revised in line with 5 year schedule for review</td>
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<td>9/03/2018</td>
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<td>SA Health Safety and Quality Strategic Governance Committee</td>
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