

# AMPICILLIN

**Indication**

- Treatment of infections due to susceptible gram-positive and gram-negative organisms<sup>1</sup>
- Empirical treatment of early onset sepsis<sup>1</sup>
- Meningitis<sup>1</sup>

**Presentation**

- Vial 500 mg | 1 g
- 50 mg/kg (frequency by current gestational age and day of life)

**Dosage<sup>1</sup>**

Current gest age (weeks)	Day of life (day)	Frequency
29+6 or less	0–28	every 12 hours
	29 or more	every 8 hours
30+0–36+6	0–14	every 12 hours
	15 or more	every 8 hours
37+0–44+6	0–7	every 12 hours
	8 or more	every 8 hours
45 or more corrected	0 or more	every 6 hours

**Meningitis dosage<sup>2</sup>**

- 100 mg/kg (frequency by day of life)

Day of life (day)	Frequency
0–6	every 12 hours
7–20	every 8 hours
21 or more	every 6 hours

**Preparation**  
(dose 50 mg/kg or less)

- 500 mg vial
  - Add 3 mL of water for injection
  - Withdraw contents and make up to 5 mL total volume with water for injection
  - *Concentration now equal to 100 mg/mL*
- 1 g vial
  - Add 3 mL of water for injection
  - Withdraw contents and make up to 10 mL total volume with water for injection
  - *Concentration now equal to 100 mg/mL*

**Meningitis preparation**  
(dose more than 50 mg/kg)


- 500 mg vial
  - Add 3 mL of water for injection
  - Withdraw contents and make up to 20 mL total volume with water for injection
  - *Concentration now equal to 25 mg/mL*
- 1 g vial
  - Add 3 mL of water for injection
  - Withdraw contents and make up to 40 mL total volume with water for injection
  - *Concentration now equal to 25 mg/mL*

**Administration**

- Standard dosage (50 mg/kg or less)
  - Draw up prescribed dose
  - IV injection over 3–5 minutes<sup>3</sup>
- Meningitis dosage (more than 50 mg/kg) IV infusion
  - Prime the infusion line and reduce total syringe volume to the prescribed dose
  - IV infusion via syringe driver pump over 15–30 minutes<sup>3</sup>
  - On completion, disconnect syringe and infusion line
  - Flush access port at same rate as infusion

INTRAVENOUS



<b>IM</b>	<b>Presentation</b>	<ul style="list-style-type: none"> <li>Vial 500 mg   1 g</li> </ul>																						
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<b>Preparation</b>	<ul style="list-style-type: none"> <li>500 mg vial                             <ul style="list-style-type: none"> <li>Add 1.7 mL of water for injection<sup>3</sup></li> <li>Concentration now equal to 250 mg/mL</li> </ul> </li> <li>1 g vial                             <ul style="list-style-type: none"> <li>Add 3.3 mL water for injection<sup>3</sup></li> <li>Concentration now equal to 250 mg/mL</li> </ul> </li> </ul>																							
<b>Administration</b>	<ul style="list-style-type: none"> <li>Draw up prescribed dose</li> <li>Intramuscular injection into thickest part of the vastus lateralis in the anterolateral thigh (maximum 0.5 mL per site)<sup>4</sup></li> </ul>																							

<b>Special considerations</b>	<ul style="list-style-type: none"> <li>Rapid intravenous administration may result in convulsive seizures<sup>5</sup></li> <li>1 g contains 2.7 mmol of sodium</li> <li>If GBS meningitis, seek expert advice from infectious disease specialist</li> <li>If co-prescribed with aminoglycoside, give the antibiotic with shortest duration of administration first (so antibiotic cover commences asap)                             <ul style="list-style-type: none"> <li>Do not mix in the same injection or infusion solution; flush before and after with 0.9% sodium chloride (especially if 5% or 10% glucose is infusing)</li> </ul> </li> <li>IM route only if IV route not available</li> <li>UAC route: Consult with neonatologist/paediatrician prior to use and refer to Queensland Clinical Guideline: <i>Neonatal medicines</i><sup>6</sup></li> <li>Current gestational age is the same as <i>postmenstrual age</i> (PMA)</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>Renal and hepatic function</li> <li>FBC during extended duration of treatment<sup>1</sup></li> </ul>
<b>Compatibility</b>	<ul style="list-style-type: none"> <li>Fluids                             <ul style="list-style-type: none"> <li>0.9% sodium chloride<sup>3</sup></li> </ul> </li> <li>Y-site                             <ul style="list-style-type: none"> <li>Aciclovir<sup>3</sup>, alprostadil<sup>1</sup>, filgrastim<sup>3</sup>, furosemide (frusemide) heparin<sup>3</sup>, hydrocortisone, insulin, magnesium sulphate<sup>3</sup>, metronidazole<sup>7</sup>, morphine<sup>3</sup>, potassium chloride<sup>3</sup>, vancomycin<sup>1</sup></li> </ul> </li> </ul>
<b>Incompatibility</b>	<ul style="list-style-type: none"> <li>PN and fat emulsion are incompatible with ampicillin—loss of potency reported</li> <li>Fluids                             <ul style="list-style-type: none"> <li>5% glucose<sup>3</sup>, 10% glucose<sup>7</sup> (minimal contact will not cause significant drug degradation, therefore safe via 3-way tap close to IV insertion site if 5% or 10% glucose infusing)</li> <li>Blood products</li> </ul> </li> <li>Drugs                             <ul style="list-style-type: none"> <li>Amikacin<sup>3</sup>, amiodarone<sup>3</sup>, atropine<sup>3</sup>, clindamycin<sup>3</sup>, dobutamine<sup>3</sup>, dopamine<sup>3</sup>, adrenaline (epinephrine)<sup>1</sup>, fluconazole<sup>3</sup>, gentamicin<sup>3</sup>, lincomycin<sup>3</sup>, midazolam<sup>3</sup>, ondansetron<sup>3</sup>, sodium bicarbonate<sup>3</sup>, tobramycin<sup>3</sup></li> </ul> </li> </ul>
<b>Interactions</b>	<ul style="list-style-type: none"> <li>IV aminoglycosides are inactivated by IV cephalosporins, penicillins and teicoplanin<sup>8</sup></li> </ul>

<b>Stability</b>	<ul style="list-style-type: none"> <li>• Vial <ul style="list-style-type: none"> <li>○ Store below 25 °C. Protect from light<sup>5</sup></li> </ul> </li> <li>• Reconstituted solution <ul style="list-style-type: none"> <li>○ Use immediately or within one hour after mixing<sup>3</sup></li> </ul> </li> </ul>
<b>Side effects</b>	<ul style="list-style-type: none"> <li>• Hypersensitivity reactions: rare in neonates. May present as erythema and rash (maculopapular rash, red purple plaques or urticarial type plaques<sup>9-12</sup>)</li> <li>• Blood pathology<sup>5</sup>: anaemia, thrombocytopaenia, leucopenia, and agranulocytosis</li> <li>• Digestive<sup>5</sup>: vomiting, diarrhoea</li> </ul>
<b>Actions</b>	<ul style="list-style-type: none"> <li>• Bactericidal agent that inhibits cell wall synthesis<sup>5</sup></li> </ul>
<b>Abbreviations</b>	ASAP: as soon as possible, GBS: Group B streptococcus; IM: intramuscular IV: intravenous, PN: parenteral nutrition, UAC: umbilical arterial catheter,
<b>Keywords</b>	ampicillin, ampicyl, austrapen, ibimicyl amoxicillin, neonatal sepsis, meningitis, infection, antibiotic

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

## References

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## Document history

ID number	Effective	Review	Summary of updates
NMedQ19.012-V1-R24	25/06/2019	25/06/2024	Endorsed by Queensland Neonatal Services Advisory Group (QNSAG)
NMedQ19.012-V2-R24	01/11/2019	25/06/2024	<ul style="list-style-type: none"> <li>Co-prescription with aminoglycosides changed from 'separate by 1 hour' to 'give aminoglycoside first and flush between'</li> <li>Meningitis dose (more than 50 mg/kg):               <ul style="list-style-type: none"> <li>Preparation clarified</li> <li>Administration duration changed from '30 minutes' to '15–30 minutes'</li> </ul> </li> <li>Endorsed by Queensland Neonatal Services Advisory Group (QNSAG)</li> </ul>
NMedQ19.012-V3-R24	30/07/2020	25/06/2024	<ul style="list-style-type: none"> <li>Dosage: gestational age amended to current gestational age</li> <li>IV preparation: amended to produce enough volume to prime the line</li> <li>QR code added</li> </ul>
NMedQ19.012-V4-R24	01/03/2021	25/06/2024	<ul style="list-style-type: none"> <li>Amended preparation instructions for dosage greater than 50 mg/kg (meningitis dose)</li> <li>Removed UAC icon and amended instructions for administration via UAC</li> <li>Added PMA equivalent to current gestational age</li> </ul>
NMedQ19.012-V5-R24	13/08/2021	25/06/2024	<ul style="list-style-type: none"> <li>Added 10% glucose infusion as safe if ampicillin administered close to IV insertion site and flushed before and after with 0.9% sodium chloride</li> <li>Amended instructions for co-prescription with aminoglycosides to clarify order of administration</li> </ul>

## QR code

