Alert
The Antimicrobial Stewardship Team recommends this drug is listed under the following category:
Unrestricted.

Indication
Directed treatment of infections caused by susceptible gram positive (including Streptococcus species, Enterococcus faecalis and Listeria monocytogenes) and susceptible gram negative bacteria (some strains of Escherichia coli, many strains of Haemophilus influenzae, Neisseria meningitidis, Proteus mirabilis and Salmonellae).

Empiric treatment of suspected early onset sepsis including meningitis, with an aminoglycoside.

Action
Bactericidal - inhibits the synthesis of the bacterial cell wall. Ampicillin is hydrolysed by beta-lactamases and therefore not effective against penicillinase producing bacteria.

Drug Type
Antibacterial - Penicillin

Trade Name
Ampicyn, Austrapen, Ibimicyn

Presentation
Ampicillin 500 mg vial
Ampicillin 1000 mg vial

Dosage / Interval
Standard infections: 50 mg/kg/dose. Dosing interval as per table below
Meningitis: 100 mg/kg/dose. Dosing interval as per table below

<table>
<thead>
<tr>
<th>Method</th>
<th>Corrected Gestational Age/Postmenstrual Age</th>
<th>Postnatal Age</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 30th weeks</td>
<td>0–28 days</td>
<td>12 hourly</td>
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<tr>
<td></td>
<td>&lt; 30th weeks</td>
<td>29+ days</td>
<td>8 hourly</td>
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<tr>
<td></td>
<td>30th–36th weeks</td>
<td>0–14 days</td>
<td>12 hourly</td>
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<td></td>
<td>30th–36th weeks</td>
<td>15+ days</td>
<td>8 hourly</td>
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<tr>
<td></td>
<td>37th–44th weeks</td>
<td>0–7 days</td>
<td>12 hourly</td>
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<td></td>
<td>≥ 45th weeks</td>
<td>8+ days</td>
<td>8 hourly</td>
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<td>0+ days</td>
<td>6 hourly</td>
</tr>
</tbody>
</table>

Maximum Daily Dose
400 mg/kg/day

Route
IV
IM (only if IV route not possible as intramuscular route is painful)

Preparation/Dilution
IV: Add 4.7 mL of water for injection to the 500 mg vial for reconstitution to make 100 mg/mL solution OR Add 9.3 mL of water for injection to the 1 g vial for reconstitution to make 100 mg/mL solution. 100 mg/mL can be infused directly, but if desired and fluid balance allows, can be FURTHER DILUTED:
- Draw up 5 mL (500 mg of ampicillin) of solution and add 5 mL sodium chloride 0.9% to make a final volume of 10mL with a concentration of 50 mg/mL solution OR
- Draw up 3 mL (300 mg of ampicillin) of solution and add 7 mL sodium chloride 0.9% to make a final volume of 10mL with a concentration of 30 mg/mL solution

IM:
Add 1.7 mL of water for injection to the 500 mg vial for reconstitution to make 250 mg/mL solution.

Administration
IV: Infusion over 5–10 minutes into the proximal cannula site with a maximum rate of 100 mg/minute.
Separate from aminoglycosides by clearing the lines with a flush as ampicillin inactivates them. Higher doses should be diluted to 30 mg/mL and infused over 30 minutes.

Monitoring
Plasma concentrations not usually required; however may be useful for infections caused by bacteria with high Minimum Inhibitory Concentration (MIC).

Contraindications
Hypersensitivity reactions can occur in ampicillin-treated infants younger than 6 months of age but are rarely reported in neonates.
### Precautions
- Hypersensitivity to penicillin derivatives.
- In renal impairment the excretion of ampicillin will be delayed. In infants with severe renal impairment it may be necessary to reduce the total daily dose.

### Drug Interactions
- Aminoglycosides including gentamicin should not be mixed with ampicillin when both drugs are given parenterally as inactivation occurs. Ensure line is adequately flushed between antibiotics.

### Adverse Reactions
- Allergic reactions – maculopapular or urticarial rash, fever (rare in neonates).
- Other: Diarrhoea; CNS excitation or seizures with very large doses reported in adults; and prolonged bleeding time with repeated doses.

### Compatibility
- Fluids: Sodium chloride 0.9%
- Y site: Aciclovir, amifostine, anidulafungin, aztreonam, bivalirudin, dexmedetomidine, esmolol, filgrastim, fosfomycin, granisetron, heparin sodium, labetalol, linezolid, magnesium sulfate, morphine sulfate, pethidine, potassium chloride, remifentanil.

### Incompatibility
- Fluids: Glucose and glucose containing solutions, fat emulsions.
- Y site: Amino acid solutions, adrenaline hydrochloride, aminoglycosides – amikacin, gentamicin, tobramycin; aminophylline, atropine, buprenorphine, caspofungin, chlorpromazine, clindamycin, dobutamine, dolasetron, dopamine, ergometrine, fluconazole, ganciclovir, haloperidol lactate, hydralazine, ketamine, lincomycin, metoclopramide, midazolam, mycophenolate mofetil, ondansetron, pentamidine, prochlorperazine, promethazine, protamine, sodium bicarbonate, tranexamic acid, verapamil.

### Stability
- Administer immediately; discard unused portion of reconstituted solution.

### Storage
- Store below 25°C
- Protect from light.

### Special Comments
- Clearance is primarily by the renal route. Clearance increases with increasing gestational age and postnatal age. Serum half-life is longer in premature infants and infants younger than 7 days.

### Evidence summary
- Refer to full version.

### References
- Refer to full version.