Flucloxacillin
Newborn use only

2020

<table>
<tr><td>Alert</td><td>The Antimicrobial Stewardship Team has listed this drug under the following category: Unrestricted.</td></tr>
<tr><td>Indication</td><td>Treatment of sepsis where infection by Staphylococcus aureus or susceptible coagulase-negative Staphylococci (CoNS) is suspected or confirmed, and other infections caused by susceptible organisms.</td></tr>
<tr><td>Action</td><td>Bactericidal agent that works by inhibiting the biosynthesis of cell wall mucopeptides. Flucloxacillin is stable against beta-lactamase producing Staphylococci.</td></tr>
<tr><td>Drug type</td><td>Penicillin antibiotic.</td></tr>
<tr><td>Trade name</td><td>Flucil, Flucloxacillin sodium monohydrate for injection (DBL), Flubiclox</td></tr>
<tr><td>Presentation</td><td>500 mg vial, 1000 mg vial, 125 mg/5 mL suspension, 250 mg/5 mL suspension.</td></tr>
<tr><td>Dose/interval</td><td>IV, IM or Intraosseous:
Recommended for infants with moderate to severe infection, with Staphylococcus aureus and susceptible coagulase negative staphylococcus infections: 25 mg/kg/dose every 4 hours [1]

Alternate dosing regimen:
50 mg/kg/dose. Dosing interval as below:
<table>
<tr><th>Day of life</th><th>Dosing interval</th></tr>
<tr><td>Days 0–7</td><td>12 hourly</td></tr>
<tr><td>Days 8–20</td><td>8 hourly</td></tr>
<tr><td>Day 21+</td><td>6 hourly</td></tr>
</table>
Oral: 25 mg/kg/dose. Dosing interval as below:
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<tr><th>Day of life</th><th>Dosing interval</th></tr>
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<tr><td>Dose adjustment</td><td>Therapeutic hypothermia: No information.
ECMO: May need increased dosing. [2]
Renal: Use with caution.
Hepatic: Use with caution.</td></tr>
<tr><td>Maximum dose</td><td>200 mg/kg/day</td></tr>
<tr><td>Total cumulative dose</td><td></td></tr>
<tr><td>Route</td><td>IV
IM (only if IV route not possible as intramuscular route is painful).
Intraosseous
Oral</td></tr>
<tr><td>Preparation</td><td>IV / Intraosseous:
500mg vial
Add 4.6 mL of water for injection to the 500 mg vial for reconstitution to make 100 mg/mL solution
Further dilute
Draw up 5 mL of solution (500 mg of flucloxacillin) and add 5 mL sodium chloride 0.9% to make a final volume of 10mL with a concentration of 50 mg/mL. [3]

1g vial
Add 4.3 mL of water for injection to the 1 g vial for reconstitution to make 200 mg/mL solution.
Further dilute
Draw up 2.5 mL of solution (500 mg of flucloxacillin) and add 7.5 mL sodium chloride 0.9% to make a final volume of 10mL with a concentration of 50 mg/mL. [3]
IM:
500 mg vial: Add 1.6 mL of water for injection, or lidocaine (lignocaine) 1% to 500mg powder for reconstitution (250 mg/mL) [3] OR

1000 mg vial: Add 3.3 mL of water for injection, or lidocaine (lignocaine) 1% to the 1000 mg powder for reconstitution (250 mg/mL). [3]
NOTE: DO NOT ADMINISTER LIDOCAINE (LIGNOCAINE) CONTAINING SOLUTIONS INTRAVENOUSLY</td></tr>
</table>

Administration	**IV:** Infuse over 30 to 60 minutes. May be given as an IV injection over 3–5 minutes however pain and phlebitis are common and can be severe. [4] **IM:** Inject slowly into a large muscle (if administering a volume greater than 1mL, divide the dose and administer at 2 different injection sites to minimise pain). **Oral:** Give 30 to 60 minutes before feeds. Shake the bottle well before measuring dose. Usually reconstituted by Pharmacy. If supplied unreconstituted, reconstitute powder for oral suspension using water for injection with the volume specified on the bottle.
Monitoring	Monitor liver function tests if using high dose/long course or in existing hepatic impairment. Monitor renal function as the drug is mainly renally excreted.
Contraindications	History of flucloxacillin associated jaundice or hepatic dysfunction. History of a hypersensitivity reaction to beta-lactam antibiotics e.g., penicillins.
Precautions	Use with caution in renal or hepatic impairment. Consider dosage adjustment in renal impairment. Use with caution in jaundiced or preterm infants as flucloxacillin can displace bilirubin from albumin. IM injection can cause pain and irritation – obtaining IV access as soon as possible is recommended.
Drug interactions	Aminoglycosides, including gentamicin, should not be mixed with flucloxacillin when both drugs are given parenterally as inactivation occurs. Ensure line is adequately flushed between antibiotics.
Adverse reactions	Transient diarrhoea – common with oral doses. Hypersensitivity (rare) – urticaria, fever, bronchospasm, anaphylaxis, eosinophilia. Phlebitis (much rarer than with dicloxacillin) – monitor injection site. Hepatitis and cholestatic jaundice (may occur up to several weeks after stopping), isolated cases of nephritis.
Compatibility	**Fluids:** Glucose 5%, sodium chloride 0.9%. lidocaine (lignocaine) 0.5% or 1% **Y-site:** Adrenaline (epinephrine), aminophylline, ampicillin, dexamethasone sodium phosphate, digoxin, heparin, hydrocortisone sodium succinate, potassium chloride, ranitidine, sodium bicarbonate.
Incompatibility	**Fluids:** Amino acid solutions and lipid emulsions. **Y-site:** Aminoglycosides (e.g., gentamicin), amiodarone, atropine sulfate monohydrate, benzylpenicillin, calcium gluconate monohydrate, ciprofloxacin, dobutamine, erythromycin, metoclopramide, midazolam, morphine sulfate, vancomycin.
Stability	Use immediately following reconstitution. Vial is for single use only. Reconstituted oral suspension should be discarded after 14 days.
Storage	Vial: Store below 25°C. Oral suspension: Store powder below 25°C, once reconstituted store solution at 2–8°C
Excipients	
Special comments	Powder displacement values of 500 mg and 1 g vials are 0.4 mL and 0.7 mL respectively. [5] IM administration will result in delayed peak serum concentrations compared with administration via Intravenous or Intraosseous route
Evidence	Refer to full version.
Practice points	For the treatment of Staphylococcus aureus, the recommend initial dose of 25 mg/kg/4 hourly for all neonates. [1] (LOE IV GOR C). The bioavailability oral flucloxacillin was 48% in neonates. [12] Oral flucloxacillin 25 mg/kg produced peak plasma levels after 2 hours that were adequate to achieve levels in excess of MIC of Staphylococcus aureus. [13]
References	Refer to full version.

VERSION/NUMBER	**DATE**
Original	05/12/2015
Current 5.0	29/05/2020
REVIEW (5 years)	29/05/2025

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