

Neonatal Drug Formulary

Neonatal Unit (NNU)
Mbale Regional Referral Hospital

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Neonatal Drug Formulary

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This formulary is aimed for medical and nursing staff working in neonatal care at Mbale Regional Referral Hospital

The drug doses are relevant up to 1 month corrected age

The drug doses specified in this formulary are in accordance with our neonatal guidelines

The main reference guide is the BNF for children published in 2014

The printing of this Neonatal Formulary is sponsored by Born on the Edge



Notes on neonatal medications:

If you are prescribing medications for neonates, the doses may be very small, so there is much more chance of an error occurring.

Please follow the Neonatal Drug Formulary carefully when prescribing and administering medications to neonates. This will help you to avoid errors.

Prescribe and administer medicines at a time when it is easy for staff. Avoid times of when there is a change of staff shifts as this may result in a delay in administration.

Document clearly on the front of the prescription chart

- patient's name
- hospital number
- birth weight or highest weight

Always write the drug dosage and not the volume, e.g. "mg" not "ml" except for when prescribing Haemoforte and Grovit syrups.

UNITS

1 Kilogram (kg) = 1000 grams

1 gram (g) = 1000 milligrams

1 milligram (mg) = 1000 micrograms 1 microgram (mcg) = 1000 nanograms

Drug	Amikacin														
Indication	Used for the management of neonatal sepsis on the advice of a senior doctor or microbiologist														
Presentation	Vial: 500mg/2ml														
Dose:	<p>Term: 15mg/kg per dose once daily</p> <p><2.5kg: 10mg/kg per dose once daily</p> <p><1kg: 7.5mg/kg per dose once daily</p>														
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water for injection • D5, 5 % dextrose • NS, 0.9% saline <p>Draw up 0.4ml (100mg) from vial Add 9.6ml of diluent to make a total of 10ml</p> <p>Total amount =100mg in 10ml Final concentration = 10mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>10mg</td> <td>15mg</td> <td>30mg</td> <td>45mg</td> <td>60mg</td> <td>75mg</td> </tr> <tr> <td>Volume</td> <td>1.0ml</td> <td>1.5ml</td> <td>3ml</td> <td>4.5ml</td> <td>6ml</td> <td>7.5ml</td> </tr> </table>	Dose	10mg	15mg	30mg	45mg	60mg	75mg	Volume	1.0ml	1.5ml	3ml	4.5ml	6ml	7.5ml
Dose	10mg	15mg	30mg	45mg	60mg	75mg									
Volume	1.0ml	1.5ml	3ml	4.5ml	6ml	7.5ml									
Administration	<p>Intravenous (IV): Slow IV injection over 3-5 minutes</p> <p>Intramuscular (IM)</p>														
Adverse effects	Hearing loss Reduced renal function Renal Failure														
Comments	<p>Use Amikacin within 24 hours of diluting</p> <p>Store in fridge if possible</p> <p>Flush the cannula before and after with 0.5ml -1ml of NS</p>														

Drug	Aminophylline														
Indication	Used for the management of apnoea of prematurity														
Presentation	Vial: 250mg in 10ml = 25mg/ml														
Dose:	<p>Loading dose: 6 mg/kg ONCE ONLY</p> <p>Maintenance dose: 2 mg/kg/dose TWICE DAILY. Start maintenance dose 12 hours after loading dose.</p> <p>If still having apnoea consider increasing maintenance dose to 3 mg/kg/dose TWICE DAILY</p>														
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water for injection • 0.9% Sodium Chloride (NS) • 5% Dextrose (D5) <p>Draw up 2ml Aminophylline (50mg) Add 8ml to make a total of 10ml</p> <p>Total amount = 50mg in 10ml Final concentration = 5mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>2mg</td> <td>3mg</td> <td>4mg</td> <td>6mg</td> <td>9mg</td> <td>12mg</td> </tr> <tr> <td>Volume</td> <td>0.4ml</td> <td>0.6ml</td> <td>0.8ml</td> <td>1.2ml</td> <td>1.8ml</td> <td>2.4ml</td> </tr> </table>	Dose	2mg	3mg	4mg	6mg	9mg	12mg	Volume	0.4ml	0.6ml	0.8ml	1.2ml	1.8ml	2.4ml
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Volume	0.4ml	0.6ml	0.8ml	1.2ml	1.8ml	2.4ml									
Administration	<p>Loading dose: Intravenous (IV) over 20 minutes</p> <p>Maintenance dose: Intravenous (IV) slow IV push or orally</p>														
Adverse effects	Tachycardia Feeding intolerance Jittery Seizures														
Comments	<p>Use Aminophylline within 24 hours of diluting</p> <p>Flush the cannula before and after with 0.5ml -1ml of NS</p>														

Drug	Ampicillin														
Indication	Neonatal infections caused by susceptible organisms Provides good cover for Group B Streptococcus and Listeria														
Presentation	Vial: 500mg powder for injection Vial: 1000mg (1g) powder for injection														
Dose:	50mg/kg/dose IV 100mg/kg/dose for meningitis <table border="1"> <tr> <th>Postnatal age</th> <th>Frequency</th> </tr> <tr> <td>Under 7 days</td> <td>12 hourly / BD</td> </tr> <tr> <td>7 to 21 days</td> <td>8 hourly / TDS</td> </tr> <tr> <td>21 to 28 days</td> <td>6 hourly / QDS</td> </tr> </table>	Postnatal age	Frequency	Under 7 days	12 hourly / BD	7 to 21 days	8 hourly / TDS	21 to 28 days	6 hourly / QDS						
Postnatal age	Frequency														
Under 7 days	12 hourly / BD														
7 to 21 days	8 hourly / TDS														
21 to 28 days	6 hourly / QDS														
Preparation:	Diluent: <ul style="list-style-type: none"> • Water for injection • 0.9% sodium chloride (NS) • 10% or 5% Dextrose (D5 or D10) <p>If using 500mg vial: Add 5ml Final concentration = 100mg/ml</p> <p>If using 1000mg vial: Add 10ml Final concentration = 100mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <th>Dose</th> <th>50mg</th> <th>75mg</th> <th>100mg</th> <th>125mg</th> <th>150mg</th> <th>200mg</th> </tr> <tr> <th>Volume</th> <td>0.5ml</td> <td>0.8ml</td> <td>1.0ml</td> <td>1.3ml</td> <td>1.5ml</td> <td>2.0ml</td> </tr> </table>	Dose	50mg	75mg	100mg	125mg	150mg	200mg	Volume	0.5ml	0.8ml	1.0ml	1.3ml	1.5ml	2.0ml
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Volume	0.5ml	0.8ml	1.0ml	1.3ml	1.5ml	2.0ml									
Administration	Intravenous (IV) Intramuscular (IM)														
Adverse effects															
Comments	Use within 2 hours of mixing Flush the cannula before and after with 0.5ml -1ml of NS, especially between Ampicillin and Gentamicin Do not mix in the same syringe as Gentamicin as this can cause inactivation of both drugs Increase the dosage interval if there is renal failure														

Drug	Benzylicillin (Penicillin G, Crystapen)														
Indications	Neonatal infections caused by susceptible organisms														
Presentation	Vial: 600mg powder for injection														
Dose:	<p>25mg/kg per dose IV</p> <p>50mg/kg per dose for meningitis or severe infection</p> <table border="1"> <thead> <tr> <th>Postnatal age</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Under 7 days</td> <td>12 hourly</td> </tr> <tr> <td>7 to 28 days</td> <td>8 hourly</td> </tr> </tbody> </table>	Postnatal age	Frequency	Under 7 days	12 hourly	7 to 28 days	8 hourly								
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Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water for injection • 5% Dextrose (D5) • 0.9% sodium chloride (NS) <p>Add 5.6ml</p> <p>Overall amount = 600mg in 6ml Final concentration = 100mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <thead> <tr> <th>Dose</th> <th>30mg</th> <th>60mg</th> <th>90mg</th> <th>120mg</th> <th>150mg</th> <th>180mg</th> </tr> </thead> <tbody> <tr> <th>Volume</th> <td>0.3ml</td> <td>0.6ml</td> <td>0.9ml</td> <td>1.2ml</td> <td>1.5ml</td> <td>1.8ml</td> </tr> </tbody> </table>	Dose	30mg	60mg	90mg	120mg	150mg	180mg	Volume	0.3ml	0.6ml	0.9ml	1.2ml	1.5ml	1.8ml
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Volume	0.3ml	0.6ml	0.9ml	1.2ml	1.5ml	1.8ml									
Administration	Intravenous (IV): Give IV over 3 minutes														
Adverse effects	Rashes Angioedema Anaphylaxis														
Comments	<p>Use within 1 hour of mixing</p> <p>Do not mix with other drugs</p> <p>Flush the cannula before and after with 0.5ml -1ml of NS</p>														

Drug	Cefotaxime (Cefotaxime Sodium, Claforan)										
Indication	Sepsis, Meningitis. 3 rd generation cephalosporin of choice for use in hospitalised neonates. When readily available use in preference to Ceftriaxone for all neonates If supply is limited use for JAUNDICE neonates and PRETERM neonates										
Presentation	Vial: 500mg powder for injection Vial: 1000mg powder for injection										
Dose	For meningitis and severe infection 50 mg/kg/dose For congenital gonococcal conjunctivitis 100mg/kg (max 1g) ONCE ONLY given Intramuscular (IM)										
Frequency	<table border="1"> <thead> <tr> <th>Age</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Under 7 days</td> <td>12 hourly</td> </tr> <tr> <td>7-21 days</td> <td>8 hourly</td> </tr> <tr> <td>21 days or more</td> <td>6 hourly</td> </tr> </tbody> </table>	Age	Frequency	Under 7 days	12 hourly	7-21 days	8 hourly	21 days or more	6 hourly		
Age	Frequency										
Under 7 days	12 hourly										
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Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water for injection • 5% dextrose (D5) • 0.9% sodium chloride (NS) <p>If using 500mg vial: Add 5ml diluent Overall amount = 500mg/5ml Final concentration = 100mg/ml</p> <p>If using 1000mg vial: Add 10ml diluent Overall amount = 1000mg/10ml Final concentration = 100mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <thead> <tr> <th>Dose</th> <th>50mg</th> <th>100mg</th> <th>150mg</th> <th>200mg</th> </tr> </thead> <tbody> <tr> <th>Volume</th> <td>0.5ml</td> <td>1.0ml</td> <td>1.5ml</td> <td>2.0ml</td> </tr> </tbody> </table>	Dose	50mg	100mg	150mg	200mg	Volume	0.5ml	1.0ml	1.5ml	2.0ml
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Volume	0.5ml	1.0ml	1.5ml	2.0ml							
Administration	Intravenous (IV): over 3 to 5 minutes										
Adverse effects	Vomiting, Diarrhoea, Rash										
Comments	DO NOT mix with other drugs. Flush the cannula before and after with 0.5ml -1ml of NS Reconstituted drug is stable for: <ul style="list-style-type: none"> • 24 hours at room temperature • 48 hours in the fridge 										

Drug	Ceftriaxone (Rocephin) <i>n.b Please use Cefotaxime if available</i>														
Indication	Sepsis, Meningitis														
Presentation	Vial: 500mg Vial: 1000mg (1g)														
Dose:	Sepsis: 50mg/kg/dose ONCE DAILY Meningitis: 100mg/kg loading dose THEN 80mg/kg/dose ONCE DAILY Gonococcal ophthalmia: 50mg/kg/dose														
Preparation:	Diluent: <ul style="list-style-type: none"> Water for injection <p>500mg vial: Add 5ml = 500mg in 5ml = 100mg/ml</p> <p>1000mg vial: Add 10ml = 1000mg in 10ml = 100mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>50mg</td> <td>80mg</td> <td>100mg</td> <td>150mg</td> <td>160mg</td> <td>200mg</td> </tr> <tr> <td>Volume</td> <td>0.5ml</td> <td>0.8ml</td> <td>1.0ml</td> <td>1.5ml</td> <td>1.6ml</td> <td>2.0ml</td> </tr> </table>	Dose	50mg	80mg	100mg	150mg	160mg	200mg	Volume	0.5ml	0.8ml	1.0ml	1.5ml	1.6ml	2.0ml
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Volume	0.5ml	0.8ml	1.0ml	1.5ml	1.6ml	2.0ml									
Administration	Intravenous (IV) Intramuscular (IM)														
Adverse effects															
Comments	DO NOT give to neonates with Jaundice Flush the cannula before and after with 0.5ml -1ml of NS														

Drug	Cloxacillin														
Indication	Staphylococcal Infections <ul style="list-style-type: none"> Note increasing resistance to this drug 														
Presentation	Vial: 2000mg of powder														
Dose:	25 to 50 mg/kg/dose <ul style="list-style-type: none"> 0 to 7 days of life – 12 hourly 7 to 21 days of life – 8 hourly 21 to 28 days of life – 6 hourly 														
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> Water for injection 5% Dextrose (D5) 0.9% Sodium Chloride (NS) <p>1st RECONSTITUTE: Add 6.8ml Water for injection to make 8ml Overall amount = 2000mg in 8ml Concentration = 250mg/ml</p> <p>2nd DILUTE: Take 2ml of the 250mg/ml solution (i.e.500mg) Add 8ml of water for injection to make 10ml Overall amount = 500mg in 10ml Final concentration = 50mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <thead> <tr> <th>Dose</th> <th>25mg</th> <th>50mg</th> <th>75mg</th> <th>100mg</th> <th>125mg</th> <th>150mg</th> </tr> </thead> <tbody> <tr> <th>Volume</th> <td>0.5ml</td> <td>1.0ml</td> <td>1.5ml</td> <td>2.0ml</td> <td>2.5ml</td> <td>3.0ml</td> </tr> </tbody> </table>	Dose	25mg	50mg	75mg	100mg	125mg	150mg	Volume	0.5ml	1.0ml	1.5ml	2.0ml	2.5ml	3.0ml
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Volume	0.5ml	1.0ml	1.5ml	2.0ml	2.5ml	3.0ml									
Administration	Intravenous (IV): Give over 3 to 5 minutes														
Adverse effects	Rashes Angioedema Anaphylaxis														
Comments	Use within 3 days of reconstitution Flush the cannula before and after giving with 0.5ml -1ml of NS														

Drug	Domperidone (Motilium®)
Indication	Gastro-oesophageal reflux
Presentation	Oral liquid: 1mg/ml
Dose:	0.2ml/kg/dose Give 4 times per day BEFORE FEEDS
Preparation:	No further dilution required
Administration	Oral: Give prior to feeds
Adverse effects	Dry mouth Headache Galactorrhoea Rash Tremor
Comments	

Drug	Furosemide (Lasix) INTRAVENOUS												
Indication	Used in fluid overload to produce a diuresis Management of Patent Ductus Arteriosus (PDA) Management of Cardiac Failure Management of pulmonary oedema												
Presentation	Vial: 1ml, 2ml, 4ml available All are 10mg/ml												
Dose:	0.5-1 mg/kg per dose every 24 hours												
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • NS, 0.9% saline (preferred) • Water for injection • NOT WITH DEXTROSE <p>Draw up 1ml (10mg) from vial, add 9ml to make total 10ml Overall amount = 10mg in 10ml Final concentration = 1mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>1mg</td> <td>1.5mg</td> <td>2.0mg</td> <td>2.5mg</td> <td>3.0mg</td> </tr> <tr> <td>Volume</td> <td>1ml</td> <td>1.5ml</td> <td>2.0ml</td> <td>2.5ml</td> <td>3.0ml</td> </tr> </table>	Dose	1mg	1.5mg	2.0mg	2.5mg	3.0mg	Volume	1ml	1.5ml	2.0ml	2.5ml	3.0ml
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Volume	1ml	1.5ml	2.0ml	2.5ml	3.0ml								
Administration	Intravenous (IV): slowly ideally over 5 minutes												
Adverse effects	Dehydration Hyponatraemia Hypokalaemia Rash Ototoxicity Nephrotoxicity												
Comments	DO NOT mix with other drugs Flush the cannula before and after with 0.5ml -1ml of NS												

Drug	Furosemide (Lasix) ORAL												
Indication	Used in fluid overload to produce a diuresis Management of Patent Ductus Arteriosus (PDA) Management of Cardiac Failure Management of pulmonary oedema												
Presentation	Tablet: 40 mg												
Dose:	1 mg/kg per dose every 24 hours OR 0.5mg/kg per dose every 12 hours												
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> Breast milk Drinking water <p>Break 40mg tablet into 4 quarters Put ¼ tablet (10mg) in 5ml diluent and mix well Overall amount = 10mg in 5ml Final concentration = 2mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>1mg</td> <td>1.5mg</td> <td>2.0mg</td> <td>2.5mg</td> <td>3.0mg</td> </tr> <tr> <td>Volume</td> <td>0.5ml</td> <td>0.8ml</td> <td>1ml</td> <td>1.3ml</td> <td>1.5ml</td> </tr> </table>	Dose	1mg	1.5mg	2.0mg	2.5mg	3.0mg	Volume	0.5ml	0.8ml	1ml	1.3ml	1.5ml
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Volume	0.5ml	0.8ml	1ml	1.3ml	1.5ml								
Administration	Orally (PO): give by NGT or orally												
Adverse effects	Dehydration Hyponatraemia Hypokalaemia Rash Ototoxicity Nephrotoxicity												
Comments													

Drug	Gentamicin												
Indication	<p>First line antibiotic for neonatal sepsis</p> <p>Aminoglycoside antibiotic for treatment of infections caused by gram negative organisms including E. Coli, Pseudomonas, Klebsiella</p>												
Presentation	Vial: 80mg/2ml												
Dose:	<p>Doses should be 24 hours apart</p> <p>Term: 5mg/kg/dose once daily (EVERY 24 hours only)</p> <p>Preterm: 3mg/kg dose once daily (EVERY 24 hours only)</p>												
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water for injection • NS, 0.9% saline <p>In 5ml syringe: Draw up 1ml (40mg) from vial, add 3ml to make a total of 4ml Overall amount = 40mg in 4ml Final concentration = 10mg/ml</p> <p>In 10ml syringe: Draw up 2ml (80mg) from vial, add 6ml to make a total of 8ml Overall amount = 80mg in 8ml Final concentration = 10mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>3mg</td> <td>4mg</td> <td>6mg</td> <td>12mg</td> <td>15mg</td> </tr> <tr> <td>Volume</td> <td>0.3ml</td> <td>0.4ml</td> <td>0.6ml</td> <td>1.2ml</td> <td>1.5ml</td> </tr> </table>	Dose	3mg	4mg	6mg	12mg	15mg	Volume	0.3ml	0.4ml	0.6ml	1.2ml	1.5ml
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Volume	0.3ml	0.4ml	0.6ml	1.2ml	1.5ml								
Administration	Intravenous (IV): By slow IV injection over 3-5 minutes												
Adverse effects	<p>Hearing loss</p> <p>Reduced renal function</p> <p>Renal Failure</p>												
Comments	<p>Use within 24 hours of mixing</p> <p>Do not mix in the same syringe as Ampicillin as this can cause inactivation of both drugs</p> <p>Flush the cannula before and after with 0.5ml -1ml of NS ESPECIALLY between giving Ampicillin and Gentamicin</p>												

Drug	Ibuprofen
Indication	Used for closure of patent ductus arteriosus (PDA)
Presentation	Oral suspension: 100mg/5ml
Dose:	<p>Initial dose: 10mg/kg (0.5ml/kg) Second dose after 24 hours: 5mg/kg (0.25ml/kg) Third dose 48 hours after first: 5mg/kg (0.25ml/kg)</p> <p>Doses should be 24 hours apart</p>
Preparation:	No further dilution required
Administration	Orally or by nasogastric tube (NGT)
Adverse effects	<p>Reduced urine output Platelet dysfunction</p>
Comments	<p>Give the doses at 24 hour intervals</p> <p>Monitor for the persistence of the PDA</p> <p>DO NOT GIVE in neonates with:</p> <ul style="list-style-type: none"> o bleeding or platelet <60 o poor urine output o Signs of Necrotising Enterocolitis
Reference	<u>Arch Dis Child Fetal Neonatal Ed.</u> 2012 Jul;97(4):F279-83.

Drug	Iron
Indication	Prophylaxis for iron deficiency anaemia in LBW infants Given to all infants with birthweight <1.800kg from 14-28 days of age
Presentation	Haemoforte syrup = Ferric ammonium Citrate 1000mg/100ml = Elemental Iron 2mg per ml
Dose:	2mg/kg/day of elemental iron = 1ml/kg per day of haemoforte up to maximum 2.5ml
Preparation:	No further dilution required
Administration	Orally once daily
Adverse effects	Gastrointestinal disturbances, dark stools, haemolysis
Comments	

Drug	Ketamine Hydrochloride (Ketamine HCl)												
Indication	<p>Analgesia during painful procedures such as incision and drainage, silo placement for gastroschisis</p> <p>ONLY TO BE GIVEN BY NEONATOLOGIST OR NEONATAL CLINICIAN.</p> <p>PATIENT MUST HAVE CONTINUOUS PULSE OXIMETRY MONITORING DURING PROCEDURE</p>												
Presentation	Bottle: 500mg/10ml												
Dose:	0.25mg/kg up to three times maximum Given 5 minutes apart minimum												
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water for injection • NS, 0.9% saline <p>In 10ml syringe: Draw up 0.2ml (10mg) from vial, add 9.8ml to make a total of 10ml</p> <p>Overall amount = 10mg in 10ml Final concentration = 1mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>0.3mg</td> <td>0.4mg</td> <td>0.5mg</td> <td>0.8mg</td> <td>1mg</td> </tr> <tr> <td>Volume</td> <td>0.3ml</td> <td>0.4ml</td> <td>0.5ml</td> <td>0.8ml</td> <td>1.0ml</td> </tr> </table>	Dose	0.3mg	0.4mg	0.5mg	0.8mg	1mg	Volume	0.3ml	0.4ml	0.5ml	0.8ml	1.0ml
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Volume	0.3ml	0.4ml	0.5ml	0.8ml	1.0ml								
Administration	<p>Intravenous (IV)</p> <p>Ensure continuous monitoring with pulse oximeter throughout administration and for 30 minutes afterwards</p>												
Adverse effects	<p>Secretions</p> <p>Tachycardia</p> <p>Respiratory depression</p> <p>Loss of airway reflexes</p>												
Comments	ONLY TO BE GIVEN BY NEONATOLOGIST OR NEONATAL CLINICIAN.												

Drug	Metronidazole (Flagyl, Metrogyl)												
Indication	Suspected or proven anaerobic infection Necrotising Enterocolitis (NEC)												
Presentation	Bottle: 500mg/100ml												
Dose:	7.5mg/kg per dose twice daily												
Preparation:	<p>No further dilution required</p> <p>Overall amount = 500mg/100ml Concentration = 5mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>7.5mg</td> <td>11mg</td> <td>15mg</td> <td>18mg</td> <td>22.5mg</td> </tr> <tr> <td>Volume</td> <td>1.5ml</td> <td>2.2ml</td> <td>3.0ml</td> <td>3.6ml</td> <td>4.5ml</td> </tr> </table>	Dose	7.5mg	11mg	15mg	18mg	22.5mg	Volume	1.5ml	2.2ml	3.0ml	3.6ml	4.5ml
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Volume	1.5ml	2.2ml	3.0ml	3.6ml	4.5ml								
Administration	Intravenous (IV) slowly over 30 minutes												
Adverse effects	Gastrointestinal disturbance Peripheral neuropathy if prolonged use Neutropaenia												
Comments	Irritating to veins Flush line with 1ml NS before and after administration Once opened not suitable for storage												

Drug	Nystatin (Mycostatin)
Indication	Oral candidiasis
Presentation	Syrup
Dose:	1ml (100,000 units) every 4-6 hours Continue for 2-3 days after symptoms resolve
Preparation:	No further dilution required
Administration	Orally on affected area after feeds
Adverse effects	
Comments	Not suitable for systemic fungal infections Consider topical application to mother's nipple when infant has oral thrush

Drug	Paracetamol INTRAVENOUS												
Indication	Analgesia when patient nil per os (NPO) or not tolerating oral feeds NOT to be given routinely for fever												
Presentation	Bottle: 500mg/100ml												
Dose:	<1.5kg: 7.5mg/kg three times a day >1.5kg: 7.5mg/kg four times a day												
Preparation:	No further dilution required Overall amount = 500mg/100ml Concentration = 5mg/ml Example doses when diluted as described above: <table border="1"> <tr> <td>Dose</td> <td>7.5mg</td> <td>11mg</td> <td>15mg</td> <td>18mg</td> <td>22.5mg</td> </tr> <tr> <td>Volume</td> <td>1.5ml</td> <td>2.2ml</td> <td>3.0ml</td> <td>3.6ml</td> <td>4.5ml</td> </tr> </table>	Dose	7.5mg	11mg	15mg	18mg	22.5mg	Volume	1.5ml	2.2ml	3.0ml	3.6ml	4.5ml
Dose	7.5mg	11mg	15mg	18mg	22.5mg								
Volume	1.5ml	2.2ml	3.0ml	3.6ml	4.5ml								
Administration	Loading dose: Intravenous (IV) slowly over 10 to 15 minutes Maintenance dose: IV or IM beginning 12 to 24 hours after the loading dose												
Adverse effects	Pain at injection site, hypotonia, nausea and vomiting, fever												
Comments	Do not give to extreme preterms Use with caution in other preterms												

Drug	Paracetamol ORAL												
Indication	<p>Second line for closure of patent ductus arteriosus (PDA)</p> <p>Consider giving when treatment with ibuprofen has failed or ibuprofen is contraindicated i.e. renal failure, bleeding, NEC</p> <p>NOT to be given routinely for fever</p>												
Presentation	Syrup in a bottle: 120mg in 5ml												
Dose:	15mg/kg QDS for THREE days (total 12 doses)												
Preparation:	<p>No further dilution required</p> <p>Concentration = 120mg in 5ml (24mg/ml)</p> <p>Example doses:</p> <table border="1"> <tr> <td>Dose</td> <td>15mg</td> <td>23mg</td> <td>30mg</td> <td>38mg</td> <td>45mg</td> </tr> <tr> <td>Volume</td> <td>0.6ml</td> <td>1.0ml</td> <td>1.3ml</td> <td>1.6ml</td> <td>1.9ml</td> </tr> </table>	Dose	15mg	23mg	30mg	38mg	45mg	Volume	0.6ml	1.0ml	1.3ml	1.6ml	1.9ml
Dose	15mg	23mg	30mg	38mg	45mg								
Volume	0.6ml	1.0ml	1.3ml	1.6ml	1.9ml								
Administration	Give one doses after every 6 hours for a total of 12 doses												
Adverse effects													
Comments	Results of trials show similar efficacy to ibuprofen with less side effects, however data on long term outcomes are needed before paracetamol can be recommended as firstline for PDA												
Reference	Ohlsson A, Shah PS. Paracetamol (acetaminophen) for patent ductus arteriosus in preterm or low-birth-weight infants. Cochrane Database of Systematic Reviews 2015, Issue 3.												

Drug	Phenytoin (Phenytoin Sodium)														
Indication	Neonatal seizures NOT responding to phenobarbitone alone														
Presentation	Vial: 250mg in 5ml (Clear solution, 50mg/mL)														
Dose:	<p>Loading dose: 20mg/kg once</p> <p><i>No further loading doses should be given</i></p> <p>Maintenance: 2.5mg/kg twice a day</p>														
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> NS, 0.9% saline <p>Draw up 2ml phenytoin into 10ml syringe. Add 8 ml of NS to make up to 10ml</p> <p>Overall amount = 100mg in 10ml Total concentration = 10mg/ml</p> <p>Mix well before drawing up dose.</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>5mg</td> <td>10mg</td> <td>15mg</td> <td>20mg</td> <td>40mg</td> <td>60mg</td> </tr> <tr> <td>Volume</td> <td>0.5ml</td> <td>1.0ml</td> <td>1.5ml</td> <td>2.0ml</td> <td>4.0ml</td> <td>6.0ml</td> </tr> </table>	Dose	5mg	10mg	15mg	20mg	40mg	60mg	Volume	0.5ml	1.0ml	1.5ml	2.0ml	4.0ml	6.0ml
Dose	5mg	10mg	15mg	20mg	40mg	60mg									
Volume	0.5ml	1.0ml	1.5ml	2.0ml	4.0ml	6.0ml									
Administration	<p>DO NOT GIVE INTRAMUSCULAR (IM)</p> <p>Loading dose: Intravenous (IV) slowly over 10 to 15 minutes</p> <p>Maintenance dose: Slow IV beginning 12 to 24 hours after the loading dose</p>														
Adverse effects	<p>Irritation at injection site Nausea, Vomiting, constipation Overdose or rapid administration may cause hypotension, coma, respiratory depression</p>														
Comments	<p>Phenytoin induces hepatic metabolism and therefore interacts with many drugs</p> <p>Flush the cannula before and after with 0.5ml -1ml of NS</p> <p>Irritating to veins, ensure it is diluted as above</p> <p>Use cautiously in neonates with respiratory failure/apnoea</p>														

Drug	Phenobarbitone INTRAVENOUS														
Indication	First line drug to control seizures in neonates														
Presentation	Vial: 200mg in 1ml (Thick clear solution) Vial: 200mg in 2ml (Thin clear solution)														
Dose:	Loading dose: 20mg/kg once <i>If seizures not controlled can give additional 5-10mg/kg doses up to a total of 40mg/kg maximum loading dose</i> Maintenance: 3-5mg/kg once daily														
Preparation:	Diluent: <ul style="list-style-type: none"> Water for injection <p>If using 200mg in 1ml: Draw up 1ml phenobarbitone into 10ml syringe. Add 9 ml of water for injection to make up to 10ml</p> <p>If using 200mg in 2ml: Draw up 2ml phenobarbitone into 10ml syringe. Add 8 ml of water for injection to make up to 10ml</p> <p>Overall amount = 200mg in 10ml Total concentration = 20mg/ml</p> <p>Mix well before drawing up dose</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>5mg</td> <td>10mg</td> <td>15mg</td> <td>20mg</td> <td>40mg</td> <td>60mg</td> </tr> <tr> <td>Volume</td> <td>0.25ml</td> <td>0.5ml</td> <td>0.75ml</td> <td>1.0ml</td> <td>2.0ml</td> <td>3.0ml</td> </tr> </table>	Dose	5mg	10mg	15mg	20mg	40mg	60mg	Volume	0.25ml	0.5ml	0.75ml	1.0ml	2.0ml	3.0ml
Dose	5mg	10mg	15mg	20mg	40mg	60mg									
Volume	0.25ml	0.5ml	0.75ml	1.0ml	2.0ml	3.0ml									
Administration	Loading dose: Intravenous (IV) slowly over 10 to 15 minutes Maintenance dose: IV or IM beginning 12 to 24 hours after the loading dose														
Adverse effects	Sedation, lethargy, drowsy Respiratory depression														
Comments	Phenobarbitone induces hepatic metabolism and therefore interacts with many drugs Flush the cannula before and after with 0.5ml -1ml of NS Irritating to veins, ensure it is diluted as above Use cautiously in neonates with respiratory failure														

Drug	Phenobarbitone ORAL										
Indication	First line drug to control seizures in neonates Oral phenobarbitone can be given for longer term management										
Presentation	Tablet: 30mg per tablet (white tablet)										
Dose:	5mg/kg once daily										
Preparation:	<p>Diluent:</p> <ul style="list-style-type: none"> • Water • Breast milk <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>8mg</td> <td>15mg</td> <td>23mg</td> <td>30mg</td> </tr> <tr> <td>Volume</td> <td>¼ tab</td> <td>½ tab</td> <td>¾ tab</td> <td>1 tab</td> </tr> </table> <p>Crush and mix required tablet well with diluent and give orally</p>	Dose	8mg	15mg	23mg	30mg	Volume	¼ tab	½ tab	¾ tab	1 tab
Dose	8mg	15mg	23mg	30mg							
Volume	¼ tab	½ tab	¾ tab	1 tab							
Administration	<p>Given after intravenous loading dose or established intravenous therapy</p> <p>Give either orally or via a nasogastric tube depending on the patient</p> <p>Crush and mix the tablet with a small amount of breastmilk or water before giving</p> <p>If giving long term give with folic acid 500 micrograms once a week</p>										
Adverse effects	<p>Sedation, lethargy, drowsy</p> <p>Respiratory depression</p> <p>Folate deficiency</p>										
Comments	Phenobarbitone induces hepatic metabolism and therefore interacts with many drugs										

Drug	Ranitidine												
Indication	Used for treatment of GI haemorrhage												
Presentation	Vial: 50mg in 2ml (25mg/ml) Oral: syrup 15mg/ml												
Dose	IV: <ul style="list-style-type: none"> • Term 1.5mg/kg per dose 8 hourly slowly • Preterm: 0.5mg/kg per dose 12 hourly slowly PO: <ul style="list-style-type: none"> • 2mg/kg per dose 8 hourly 												
Preparation for IV	Diluent: <ul style="list-style-type: none"> • NS, 0.9% saline <p>Draw up 0.2ml (5mg) from vial, add 4.8ml of NS to make a total of 5ml Overall amount = 5mg in 5ml Final concentration = 1mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>0.5mg</td> <td>1.0mg</td> <td>1.5mg</td> <td>2.0mg</td> <td>3.0mg</td> </tr> <tr> <td>Volume</td> <td>0.5ml</td> <td>1.0ml</td> <td>1.5ml</td> <td>2.0ml</td> <td>3.0ml</td> </tr> </table>	Dose	0.5mg	1.0mg	1.5mg	2.0mg	3.0mg	Volume	0.5ml	1.0ml	1.5ml	2.0ml	3.0ml
Dose	0.5mg	1.0mg	1.5mg	2.0mg	3.0mg								
Volume	0.5ml	1.0ml	1.5ml	2.0ml	3.0ml								
Administration	Intravenous (IV) as slow push Orally (PO) – does not matter about timing of feeds												
Adverse effects	Rarely bradycardia or arrhythmias Rarely hepatitis Rarely diarrhoea												
Comments	Do not use prophylactically in preterm infants as it can increase the risk of NEC and mortality In severe renal impairment use half the normal dose												

Drug	Vancomycin												
Indication	Used for vancomycin sensitive infections confirmed by blood culture Should be used on the advice of microbiology or senior doctor only												
Presentation	Vial: 500mg												
Dose	IV: <ul style="list-style-type: none"> • Neonates less than 1kg - 15mg/kg ONCE DAILY • Neonates 1.0-2.0kg - 15mg/kg TWICE DAILY • Neonates over 2.0kg - 15mg/kg THREE TIMES DAILY 												
Preparation for IV	Diluent: <ul style="list-style-type: none"> • NS, 0.9% saline • D5, 5% Dextrose • Sterile water for injection <p>For 500mg vial add 10ml of diluent to the vial</p> <p>Overall amount = 500mg in 10ml Final concentration = 50mg/ml</p> <p>Example doses when diluted as described above:</p> <table border="1"> <tr> <td>Dose</td> <td>15mg</td> <td>20mg</td> <td>30mg</td> <td>40mg</td> <td>50mg</td> </tr> <tr> <td>Volume</td> <td>0.3ml</td> <td>0.4ml</td> <td>0.6ml</td> <td>0.8ml</td> <td>1.0ml</td> </tr> </table> <p>ADD DOSE CALCULATED ABOVE TO A BURETTE CONTAINING PATIENT'S MAINTENANCE FLUID DO NOT GIVE AS A BOLUS IF PATIENT NOT ON IV FLUID, PUT IN 20ML OF NNF AND GIVE OVER 1 HOUR (20 DROPS PER MINUTE)</p>	Dose	15mg	20mg	30mg	40mg	50mg	Volume	0.3ml	0.4ml	0.6ml	0.8ml	1.0ml
Dose	15mg	20mg	30mg	40mg	50mg								
Volume	0.3ml	0.4ml	0.6ml	0.8ml	1.0ml								
Administration	Intravenous (IV) over at least 1 hour in burette of maintenance fluid DO NOT GIVE INTRAMUSCULARLY												
Adverse effects	Renal impairment Hearing loss Anaphylaxis "Red Man Syndrome" – flushing of upper body +/- papi in chest Rash Hypotension, palpitations, tachycardia if given too quickly												
Comments	Do not use with amikacin or gentamicin If possible monitor plasma concentration: pre-dose concentration should be 10-15mg/l												

Drug	Vitamin K (Konakion, Phytomenadione)
Indication	For ALL babies to prevent Haemorrhagic Disease of Newborn
Presentation	Vial: 10mg/1ml
Dose:	Infants >1.5kg: 1mg (1ml) once Infants <1.5kg: 0.5mg (0.5ml) once
Preparation:	Diluent: <ul style="list-style-type: none"> • Water for injection Draw up 1ml (10mg) of Vitamin K from vial, make up to 10ml with 9ml water for injection Overall amount = 10mg in 10ml Final concentration = 1mg/ml
Administration	Intramuscular (IM)
Adverse effects	
Comments	Use Vitamin K within 24 hours of diluting