# Dehydration management

*(child WITHOUT severe malnutrition/severe anaemia*)

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Shock, 20mls/kg Ringer’s Immediately</th>
<th>Plan C – Step 1</th>
<th>Plan C – Step 2</th>
<th>Plan B - 75mls/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>30mls/kg Ringer’s</td>
<td>70mls/kg Ringer’s or NG ORS</td>
<td>Oral / ORS</td>
</tr>
<tr>
<td>Age &lt;12m, 1 hour</td>
<td>Age ≥1yr, ½ hour</td>
<td>Volume</td>
<td><strong>Assumes ‘adult’ IV giving sets where 20 drops=1ml</strong></td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td>40</td>
<td>50</td>
<td>10</td>
<td>150</td>
</tr>
<tr>
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<td>500</td>
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<td>800</td>
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</tr>
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<td>16.00</td>
<td>320</td>
<td>500</td>
<td>75</td>
<td>1100</td>
</tr>
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<td>340</td>
<td>500</td>
<td>80</td>
<td>1200</td>
</tr>
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<tr>
<td>20.00</td>
<td>400</td>
<td>600</td>
<td>95</td>
<td>1400</td>
</tr>
</tbody>
</table>

*Consider immediate blood transfusion if severe pallor or $Hb < 5g/dl$ on admission*
Pneumonia for children aged 2-59 months without severe acute malnutrition

For HIV exposed/infected children see separate protocol

History of cough or difficulty breathing, age > 60 days

Yes

One of the danger signs
- Oxygen saturation <90%
- Cyanosis
- Inability to drink / breast feed
- AVPU = ‘V’, ‘P’ or ‘U’, or
- Grunting

Yes

SEVERE PNEUMONIA
Admit
- Oxygen
- Penicillin
AND
- Gentamicin

Wheeze

No

• Lower chest wall indrawing

OR

• Fast breathing (RR≥ 50/min (Age 2-11mo) RR≥ 40/min (Age 12-59mo)

Yes

No

No pneumonia, probably URTI

If there is a wheeze,
Consider POSSIBLE ASTHMA and treat according to asthma protocol and revise pneumonia classification after initial treatment with bronchodilators

PNEUMONIA
Oral Amoxicillin
Counsel carefully on danger signs and need to return if these develop

All children must be reviewed within 48 hrs (if review is not possible admit children with indrawing and treat with amoxicillin)
It is government policy that **ALL SICK CHILDREN** presenting to facilities with unknown status should be offered HIV testing using **PITC**.

PITC is best done on admission when other investigations are ordered. All clinicians should be able to perform PITC and discuss a positive / negative result.

**Below is a quick guide to PITC**

- As much as possible find a quiet place to discuss the child's admission diagnosis, tests and treatment plans.
- After careful history / examination plan all investigations and then inform caretaker what tests are needed and that HIV is common in Kenya.
- Explain GoK guidance that **ALL sick children with unknown status should have an HIV test** - so that their child is not being ‘picked out’.
- That in this situation it is **normal** to do an HIV test on a child because:
  - You came to hospital wanting to know what the problem was and find the best treatment for it.
  - Knowing the HIV test result gives doctors the best understanding of the illness and how to treat it.
  - The treatment that is given to the child will change if the child has HIV.
  - If the child has HIV s/he will need additional treatment for a long time and the earlier this is started the better.
- That the HIV test will be done with their approval and not secretly.
- That the result will be given to them and that telling other family / friends is their decision.
- That the result will be known only by doctors / nurses caring for the child as they need this knowledge to provide the most appropriate care.
- Give the parent / guardian the opportunity to ask questions.

**The person asking permission for HIV testing should then write in the medical record that permission was given / refused.**

Any child < 18 months with a positive rapid test is HIV exposed and is treated as though infected until definitive testing rules out HIV infection.

**Ongoing treatment/feeding**

1) If breast fed encourage exclusive breast feeding until 6 months. If an alternative to breast feeding is affordable, feasible, accessible, safe and sustainable (AFASS) discuss this option before delivery.

2) Do not abruptly stop breast feeding at 6 months, just add complementary feeds and continue nevirapine until 1 week after breast feeding stops.

3) Refer child and carers to an HIV support clinic.

4) All HIV exposed / infected infants should start CTX prophylaxis from age 6 wks.
### Paediatric management guidelines

#### Scenario

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Infant ARV prophylaxis</th>
<th>Duration of infant ARV prophylaxis</th>
</tr>
</thead>
</table>
| 1  Mother diagnosed with HIV during pregnancy at any gestation, labour, delivery and immediate post-partum irrespective of feeding option | Nevirapine             | • Immediately initiate Nevirapine (NVP) prophylaxis for 12 weeks  
• Do HIV PCR test in accordance with national recommendations on early infant diagnosis;  
• Initiate treatment if the infant is infected |
| 2  Infant identified as HIV exposed after birth (through infant or maternal HIV antibody testing) and is breastfeeding   | Nevirapine             | • Immediately initiate NVP prophylaxis  
• Do HIV PCR test in accordance with national recommendations on early infant diagnosis  
• If results positive, initiate ART and stop NVP prophylaxis  
• If results negative, continue NVP prophylaxis up to 12 weeks |
| 3  Infant identified as HIV exposed after birth (through infant or maternal HIV antibody testing) and is not breastfeeding/on replacement feeding | No drug                | • Do HIV PCR test in accordance with national recommendations on early infant diagnosis;  
• No infant ARV prophylaxis;  
• Initiate treatment if the infant is infected |
| 4  Mother receiving ART but interrupts ART regimen while breastfeeding (such as toxicity, stock-outs or refusal to continue) | Nevirapine             | • Initiate NVP until 12 weeks after maternal ART is restarted or until 1 week after breastfeeding has ended if mother does not restart ART  
• Do HIV PCR test in accordance with national recommendations on early infant diagnosis |

* Ministry of Health; National AIDS and STI Control Program (NASCOP). Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection: A rapid advice, 2014
Neonatal Sepsis

see page 50 for Newborn Antibiotic doses

Age < 60 days

Yes

One or more of:
- Change in level of activity
- Bulging fontanelle
- History of convulsions
- Feeding difficulty
  - Temperature ≥ 37°C or < 35.5°C
  - Fast breathing / respiratory rate ≥ 60 bpm
  - Severe chest wall indrawing
  - Grunting
  - Cyanosis/oxygen saturation

Also check

- Jaundice (see page 41-43)
- Capillary refill
- Severe pallor
- PROM > 18 hrs if aged <7d
- Localized severe infection - joints, abdominal distension
- Weight loss

DECIDE - does the baby need fluids, feeds or blood (pages 46-49)

No signs of serious illness

Is there
- Pus from the eye;
- Pus from the ear;
- Pus from umbilicus and redness of abdominal skin; or
- Few large, pus-filled blisters / septic spots.

Yes

Do LP unless severe respiratory distress

1) Check for hypoglycaemia, treat if unable to measure glucose
2) Start gentamicin and penicillin (see chart on page 50)
3) Give oxygen if cyanosed / respiratory rate > 60 bpm
4) Give Vitamin K if born at home or not given at maternity
5) Keep warm
6) Maintain feeding by mouth or ng, use iv fluids only if respiratory distress or severe abdominal distension (see charts on page 46-49)

Where appropriate:
1) Treat for neonatal ophthalmia
2) Treat with oral antibiotic - one that covers Staph aureus if large, pus-filled septic spots
3) Give mother advice and arrange review
Newborn care management guidelines

Continuous Positive Airway Pressure (CPAP)
(For maximum benefit start as soon as symptoms are identified)

Newborn with severe respiratory distress with all of these
- Weight of >1000gm,
- APGAR score of ≥ 4 at 5 minute and
- Respiratory distress defined as a Silverman Anderson Score of ≥ 4

Initiate CPAP

Monitor every three hours
- Vital signs - Temperature, Heart rate and Respiratory Rate
- Pulse Oximetry
- Silverman Anderson Scoring
- Need of nasal clearing/suction

Worsening signs & score
- Ensure the CPAP seal and equipment is working well
- Senior Review for further evaluation

Improving signs & score
- Continue CPAP and Monitor until Silverman Anderson score of <4
- Transition from CPAP to Oxygen by Nasal Prongs

Silverman-Anderson Score

<table>
<thead>
<tr>
<th>Feature</th>
<th>Score 0</th>
<th>Score 1</th>
<th>Score 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest Movement</td>
<td>Equal</td>
<td>Respiratory Lag</td>
<td>Seesaw Respiration</td>
</tr>
<tr>
<td>Intercostal Retraction</td>
<td>None</td>
<td>Minimal</td>
<td>Marked</td>
</tr>
<tr>
<td>Xiphoid Retraction</td>
<td>None</td>
<td>Minimal</td>
<td>Marked</td>
</tr>
<tr>
<td>Nasal Flaring</td>
<td>None</td>
<td>Minimal</td>
<td>Marked</td>
</tr>
<tr>
<td>Expiratory Grunt</td>
<td>None</td>
<td>Audible with Stethoscope</td>
<td>Audible</td>
</tr>
</tbody>
</table>

*Score of >6 initiate CPAP as you prepare for transfer for mechanical ventilation
(For instruction on how to set up CPAP, refer to CPAP training/equipment manuals)
Newborn care management guidelines

**Newborn < 1.5kg: Feeding requirements (well newborns)**

All babies <1.5 kg and well (without respiratory distress, who have not required BVM resuscitation, and do not have a congenital malformation as a contraindication to feeding) start feeds with EBM of 5 mls and increase by 5 mls **each 3 hourly feed** until full 3 hourly feed volume achieved (80 mls/kg/day on day 1 and increasing by 20mls/kg each day)

Always use EBM for NGT feeds unless contra-indicated

Causes of failure to gain weight should be carefully investigated; if underlying causes have been excluded case by case decisions should be made on how best to support nutritional intakes to enable growth

Fortifiers are not routinely required but such babies should routinely receive recommended vitamin and mineral supplements at appropriate post-gestational ages.

It may be possible to increase volumes further to as much as 200mls/kg/day but seek expert advice.

<table>
<thead>
<tr>
<th>Weight (Kg)</th>
<th>0.8-0.9 NG 3 hourly feed</th>
<th>0.9-1.0 NG 3 hourly feed</th>
<th>1.1-1.2 NG 3 hourly feed</th>
<th>1.3-1.4 NG 3 hourly feed</th>
<th>1.4-1.5 NG 3 hourly feed</th>
<th>Total Daily Fluid/Milk Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>8</td>
<td>9</td>
<td>11</td>
<td>13</td>
<td>14</td>
<td>80ml/kg/day</td>
</tr>
<tr>
<td>Day 2</td>
<td>10</td>
<td>11</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>100ml/kg/day</td>
</tr>
<tr>
<td>Day 3</td>
<td>12</td>
<td>14</td>
<td>17</td>
<td>20</td>
<td>21</td>
<td>120ml/kg/day</td>
</tr>
<tr>
<td>Day 4</td>
<td>14</td>
<td>16</td>
<td>19</td>
<td>23</td>
<td>25</td>
<td>140mls/kg/day</td>
</tr>
<tr>
<td>Day 5</td>
<td>16</td>
<td>18</td>
<td>22</td>
<td>26</td>
<td>28</td>
<td>160mls/kg/day</td>
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<tr>
<td>Day 6</td>
<td>18</td>
<td>20</td>
<td>25</td>
<td>29</td>
<td>31</td>
<td>180ml/kg/day</td>
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</table>
# Newborn antibiotic doses

## Intravenous / intramuscular antibiotics aged ≤ 7 days

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Penicillin (50,000iu/kg)</th>
<th>Ampicillin / Flucloxacillin (50mg/kg)</th>
<th>Gentamicin (3mg/kg &lt;2kg, 5mg/kg ≥ 2kg)</th>
<th>Ceftriaxone (50mg/kg)</th>
<th>Metronidazole (7.5mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>50,000</td>
<td>50</td>
<td>3</td>
<td>50</td>
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<td>62.5</td>
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<td>75</td>
<td>12.5</td>
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<tr>
<td>1.75</td>
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<td>85</td>
<td>6</td>
<td>75</td>
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<td>100,000</td>
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<td>10</td>
<td>100</td>
<td>15</td>
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<td>2.50</td>
<td>150,000</td>
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<td>200</td>
<td>20</td>
<td>200</td>
<td>30</td>
</tr>
</tbody>
</table>

## Oral antibiotics aged ≤ 7 days

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Amoxicillin</th>
<th>Ampicillin / Flucloxacillin</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mg/kg</td>
<td>125mg/5mls</td>
<td></td>
</tr>
</tbody>
</table>

## Warning:
- **Gentamicin** – Please check the dose is correct for weight and age in DAYS
- **Gentamicin** used OD should be given IM or as a slow IV push – over 2-3 mins.
- If a baby is not obviously passing urine after more than 24 hours consider stopping gentamicin.
- **Penicillin** dosing is **twice daily** in babies aged ≤ 7 days.
- **Chloramphenicol should not be used** in babies aged ≤ 7 days.
- **Ceftriaxone** is not recommended in obviously jaundiced newborns – Cefotaxime/ ceftazidime are safer cephalosporins in the first 7 days of life.

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**Ophthalmia Neonatorum:**
Swollen red eyelids with pus should be treated with a single dose of:
- Kanamycin or Spectinomycin 25mg/kg (max 75mg) IM, or,
- Ceftriaxone 50mg/kg IM