Prescribing in Paediatrics

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Objectives

• Understand importance of safe prescribing in paediatrics

• Learn how to prescribe for children

• Become familiar with new drug chart for Nalufenya
This week’s drug charts...
**Admission Details**

- **Name of Child:** Buoba
- **Age:** 9 months
- **Sex:** Female
- **Parish:** Malindi
- **Village:** Buoba
- **Name of LC1 chairman:** Blair
- **District:** Bukerere
- **Name of NOK:** Asanyu Aisha
- **Name of father (if not NOK):** Mostem
- **Religion:** Self referral
- **Tribal:** T2

**History/Symptom Check**

<table>
<thead>
<tr>
<th>Symptom (all must be answered)</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convulsions</td>
<td></td>
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<tr>
<td>Altered consciousness</td>
<td></td>
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<tr>
<td>Vomiting</td>
<td></td>
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<tr>
<td>Unable to drink/breastfeed</td>
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**Past Medical History:**

- None

**Vital Signs**

- Temperature: 38.5°C
- Weight: 15 kg
- Pulse: ___ / min
- BP: ___ / ___

**General Examination**

- **Pallor:** None
- **Skin pinch return (sec):** 0
- **Severe wasting:** None
- **Edema:** None

**Respiratory System**

- **Deep breathing:** Yes
- **Airway:** Clear
- **Flaring of nostrils:** Yes
- **Wheezing:** No
- **Intercostal recession:** Yes
- **Pleural rub:** No
- **Cough:** No
<table>
<thead>
<tr>
<th>Drug</th>
<th>Date</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Artemether - IM</td>
<td>2011-04-12</td>
<td></td>
</tr>
<tr>
<td>Artesunate - IV</td>
<td>2011-04-10</td>
<td></td>
</tr>
<tr>
<td>Artesunate - rectal</td>
<td>2011-04-11</td>
<td></td>
</tr>
<tr>
<td>Quinine - oral</td>
<td>2011-04-13</td>
<td></td>
</tr>
<tr>
<td>SP - oral</td>
<td>2011-04-12</td>
<td></td>
</tr>
<tr>
<td>Artesunate - oral</td>
<td>2011-04-11</td>
<td></td>
</tr>
<tr>
<td>Chloroquine - oral</td>
<td>2011-04-10</td>
<td></td>
</tr>
<tr>
<td>Cotrimoxazole - oral</td>
<td>2011-04-12</td>
<td></td>
</tr>
<tr>
<td>Amodiaquine - oral</td>
<td>2011-04-10</td>
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<tr>
<td>Chloramphenicol - IV</td>
<td>2011-04-11</td>
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<tr>
<td>Gentamicin - IV</td>
<td>2011-04-13</td>
<td></td>
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<tr>
<td>Penicillin - IV</td>
<td>2011-04-11</td>
<td></td>
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<tr>
<td>Ceftriaxone - IV</td>
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<tr>
<td>Ampicillin IV</td>
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<tr>
<td>Cotrimoxazole - oral</td>
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<td></td>
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<tr>
<td>Nalidixic acid - oral</td>
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<tr>
<td>Amoxil - oral</td>
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<tr>
<td>Albendazole - oral</td>
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<tr>
<td>Ketoconazole - oral</td>
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<tr>
<td>Mebendazole - oral</td>
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<td>TB drugs</td>
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<td>Diazepam - rectal</td>
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<td>ORS</td>
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<td>Vitamin A</td>
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<td>Zinc</td>
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<td>Ferrous sulphate</td>
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<td>Folic acid</td>
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<td>Hydrocortisone IV/IM</td>
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<tr>
<td>Paracetamol</td>
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<tr>
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Why is prescribing important?

- Prescribing errors are common from all grades of doctors
- Many clinical incidents are due to prescribing errors
- Prescribing errors or unclear prescriptions can be fatal
- Prescribing for children is different to adults and is difficult, especially in stressful situations
Why is prescribing different in children?

Children are not small adults

Factors include:

• Body weight – from <1kg to 70kg +
• Body composition
• Surface area
• Nutritional status
• Organ maturation
We shall cover…

• Dose calculation based on age and weight

• Prescribing fluids

• Local guidelines
General principles

• Some medications come in liquid form
• Usually more appropriate to prescribe in actual dose of drug (eg. mg) rather than volume (eg. mL)
• Medications have different concentrations eg. paracetamol 120mg/5mL or 250mg/5mL
• Importance of difference between micrograms and milligrams
• Use generic drug names
• Prescribe sensibly – consider drug rounding
Age and weight

ALL drug charts must have recent weight and DOB

- Calculations of drug dose depend on child’s age, weight or surface area
- Neonates – consider gestation, day of life, condition eg. antibiotics
- Check local guidelines or BNFc to ensure calculated dose is correct and rational prescribing
On the following pages are the drugs commonly found and used at Jinja Regional Referral Hospital.

These should be used as a guide. IF there is ANY concern please speak to a senior colleague.
Calculating drug dose – by weight

- 2yr old James weighs 12kg
- He has a temperature of 38.5°C
- How much paracetamol will you give him?
  - In this example, give 15mg/kg every 6 hours
  - 12kg x 15mg/kg = 180mg four times a day (QDS)
Calculating drug dose – by age

- 4 year old Moses weighs 16kg
- He has a mild chest infection
- How much oral co-amoxiclav would you prescribe him?
  - Use age range instead of weight
  - Age = 4 therefore 5mls of 125/31 suspension 3 times a day (TDS)
Prescribing fluids

- Usual maintenance fluids are RL + 5% or 10% dextrose
- Difficult to give infusions here
- Prescribe based on weight maintenance fluids for 24 hours (? 2 hourly boluses)
  - For every kg up to 10kg give 100mL/kg/day
  - For every kg between 10-20kg give 50mL/kg/day
  - For every kg over 20kg give 20mL/kg/day
Acute Treatment algorithm for Pneumonia

Cough and/or difficulty in breathing in any infant over 2 months of age

**Airway**
- Grunting
- Breathing - cyanosis
- Circulation - not breast feeding or drinking
- Disability - AVPU = V, P, U

**Very Severe Pneumonia**
- **Airway**
  - Ensure airway open, use airway manoeuvres if needed
- **Breathing**
  - Oxygen
- **Circulation**
  - IV access
  - Start intravenous maintenance fluids
- **Disability**
  - IF AVPU = V,P,U ensure airway is safe
  - IF not available start benzylpenicillin 50mg/kg 6 hourly and gentamicin 5mg/kg OD
  - Vitamin A (6-11m 100,000 IU, 12-59m 200,000 IU)

**Severe Pneumonia**
- **Airway**
  - Safe
- **Breathing**
  - Monitor for cyanosis and worsening distress
- **Circulation**
  - Assess for dehydration. Encourage oral intake. Needs IV fluid?
- **Disability**
  - Monitor for deterioration
  - Start benzylpenicillin 50,000 IU/kg 6 hourly and gentamicin 5mg/kg OD
  - Vitamin A (6-11m 100,000 IU, 12-59m 200,000 IU)

**Pneumonia**
- **Airway**
  - Ceftriaxone 100mg/kg OD if worsens at any point or fails to improve after 48 hours.

**If HIV Positive**

- Ceftriaxone 24mg/kg 8 hourly
- If has had ceftriaxone during this illness or for prophylaxis give amoxicillin 25mg/kg 8 hourly.
Acute Treatment algorithm for Malaria

### Severe Disease = Fever with +ve BS/RDT & any of:
- AVPU = V.P.U
- Respiratory distress or acidicotic breathing and severe anaemia (Hb<5)
- Not BF or drinking
- Glucose < 2.2
- Repeated convulsions
- Haemoglobinuria

**Airway and Breathing**
- Ensure airway safe
- If respiratory distress give oxygen and check Hb.

**Circulation**
- If Hb<5 give 10mls/kg packed RBCs (no lasix) or 20mls/kg/day whole cells (+ 1mg/kg lasix).
- If CRT>3secs and weak pulses give 10mls/kg fluid bolus and reassess need for further boluses.

**Disability**
- Check glucose – if <2.2 give glucose bolus
- If AVPU = V.P.U consider cerebral malaria.
- Watch for seizures and treat as necessary.
- Monitor for eye deviation and pupil asymmetry
- Consider LP if no contraindications.
- Careful nursing care and position at 30 degrees.
- Careful fluid balance

Give IV artesunate 2.4mg/kg at 0, 12, 24, and then give oral coartem tablets. If patient not able to take orally or Coartem unavailable give 7 days IV artesunate once daily.

**Breathing comfortable**
- Severe anaemia (Hb<5)
- AVPU = A
- Able to drink

**Fever, but no severe disease.**
- Eating and drinking
- AVPU = A
- Malaria test positive?

**AL (artemether and lumefantrine)**
Use AS+AQ if AL unavailable
- Hb >5 oral iron supplements for 2/52
  - Hb<5 give 20mls/kg whole blood and then 10mls/kg packed RBCs over 4 hrs.

**Antimalarials not required.**
- Consider other diagnoses
- If ongoing concern repeat blood film.

AL (artemether and lumefantrine)
Or DP (Artek/Cotexin) if AL has been tried and failed.
- Hb <9 give 2/52 oral iron supplements.

If on treatment for malaria and deteriorates reassess and treat according to above algorithm.

**Failure of treatment**
1. Other cause for illness
2. Developed severe malaria – commence artesunate
3. After 72 hours fever persists and blood film still positive:
   a. Check compliance
   b. Switch to DP (dose chart page 8)
Audit presentations
Nalufenya new drug chart
Prescription standards

- Legible
- Age and weight on chart
- Correct dose, correct route, correct time
- Use local guidelines or BNFc for doses and checking
- Prescribe dose rather than mLs
- If you are unsure, ask senior colleague!
Any questions?