

# ANAEMIA IN CHILDREN

## Screening

**Screen all children routinely at 9 and 18 months.**

**Method of Screening:** A full blood count is the most reliable method of testing. However, for screening purposes a **HAEMACUE** is easy to use, and is sensitive enough for screening if machine is well maintained, regularly calibrated and correct collection technique is used:

### How to use Haemacue:

- Make sure the patient's hand is warm (run under warm water or use warm towel if fingers are cold),
- Avoid alcohol wipes,
- Prick at the side of the finger (best blood flow),
- Wipe away the first drop of blood and use the 2nd.
- Avoid squeezing finger to 'milk' the blood,
- Avoid topping up the cuvette tip after the first filling.

## Case Definition

AGE	Anaemia if Haemoglobin below:
At birth	< 130 g/L
< 6 months	Lower values maybe normal, discuss with paediatrician
6 – 24 months	< 105 g/L
2 – 11 years	< 115 g/L
> 12 years	<ul style="list-style-type: none"> <li>• Males &lt; 130 g/L</li> <li>• Females &lt; 120 g/L</li> </ul>

**If Hb on Haemacue below 80 obtain a venous FBE, but do not delay treatment if a sample can not be obtained.**

## Principles of Management

1. Prevention of anaemia is critical (see [HEALTHY CHILD](#) protocol for prevention and nutrition advice).
2. Anaemia in children in the Kimberley is nearly always due to iron deficiency, and extensive investigation is rarely warranted.
3. Common causes of iron deficiency and associated anaemia in the Kimberley include:
  - Low iron stores at birth due to low birth weight, prematurity and maternal anaemia.
  - Poor quality / late introduction of weaning foods.
  - High burden of infection.
  - Cows milk in first year.
4. Anaemia is common in children with failure to thrive – see [FTT](#) protocol.
5. Twice weekly supervised oral iron is the preferred method of iron replacement, as it is more effective than recommending daily unsupervised iron and equally effective compared to IM iron administration.
6. Parasites (worms) are common in the Kimberley, and routine treatment is recommended in children with anaemia.
7. Preventing and promptly treating iron deficiency in pregnancy is important in reducing the risk of anaemia in the child (see [ANTENATAL](#) protocol).

## Therapeutic Protocols

1. Discuss all anaemic children with GP.
2. GP to discuss with paediatrician before treatment if:
  - Infant less than 6 months old.
  - Hb < 80.
  - Infant has other illnesses such as FTT or acute infection.
  - Clinical 'red flags' are present such as bruising or bleeding suggestive of serious underlying disease.
3. Provide appropriate advice for carers regarding nutrition. (See [HEALTHY CHILD](#) protocol for prevention and nutrition advice).

4. If bottle feeding, change to iron-fortified infant formula.
5. Treat once for presumed parasites - give Albendazole 200mg daily for 3 days if < 10 kg and 400mg daily for 3 days if > 10 kg.

### 6. Provide oral iron replacement as follows:

<b>Preparation</b>	<b>Ferro-liquid® oral iron</b> (NOTE: if using a different brand, check first with doctor in case a different dose in mls is needed)
<b>How is the dose calculated?</b>	There are 6mg of iron in every ml of Ferro-Liquid®. The dose required is 4mg/kg – this dose is the same whether it is given once a day or twice a week.
<b>How often is oral iron given?</b>	1. Once a day if given by the parent / carer at home. 2. Twice a week if it is given by clinic staff ("supervised") – offer if home dosing by a parent / carer is not possible / acceptable / reliable.
<b>Weight</b>	<b>Dose of Ferro-Liquid® (daily at home or twice weekly supervised)</b>
4 - 5kg	3mls
5.1 - 10kg	5mls
10.1 - 15kg	8mls
15.1 - 20kg	10mls
> 20kg	<b>1 Ferro-F® tablet</b> (crushed if necessary)

### WAYS TO MAXIMISE ORAL IRON ABSORPTION

**Give oral iron with fruit or juice and avoid milk or dairy food as this prevents absorption.**

**NB:** Remind carers to keep oral iron in a safe place as it is very dangerous in overdose.

**If child refuses / does not tolerate oral iron, or if carer has a firm preference, give intramuscular iron.**

### HOW TO GIVE FERRUM H INJECTIONS:

**Injection in children is intramuscular into the thigh.**

- First, pull the skin down from the chosen site and hold in this spot until you have finished giving the injection.
- Put the needle into the muscle.
- Give the injection slowly.
- When finished, leave the needle in place for about 10 seconds (this stops any leak onto the skin).
- Take out the needle and let go of the skin.

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**NB: Total amount of Ferrum H and each dose size, depends on child's weight and Hb level. See table below:**

Ferrum H Treatment				
Weight	Hb 7-9 g/dL		Hb 9-11 g/dL	
	Total dose Ferrum H allowed	Individual dose and frequency	Total dose Ferrum H allowed	Individual dose and frequency
5 - 7kg	3 ml	1 ml on 3 alternate days	2 ml	1 ml on 2 alternate days
8 - 10kg	4 ml	1 ml on 4 alternate days	3 ml	1 ml on 3 alternate days
11 - 13kg	6 ml	2 ml on 3 alternate days	4 ml	2 ml on 2 alternate days
14 - 16kg	7 ml	2 ml on 3 alternate days, then give 1 ml on last alternate day	6 ml	2 ml on 3 alternate days
17 - 19kg	9 ml	2 ml on 4 alternate days, then give 1 ml on last alternate day	7 ml	2 ml on 3 alternate days, then 1 ml on last alternate day

**NB: Frequency of Ferrum H treatment can be less often e.g. twice a week until total Ferrum H allowed is reached. Anaphylaxis is a very rare complication of IM iron administration. Administer in a clinic.**

## Follow-up

See Flow Chart.

## Refer / Discuss

### WITH PAEDIATRICIAN:

1. Infant less than 6 months old.
2. Hb not improving despite adequate treatment as outlined.
3. Hb < 80 g/L.
4. Other causes for anaemia suspected / clinical "red flags" are present e.g. bruising, bleeding, large spleen.

