ANTENATAL CARE

ANAEMIA: SCREENING AND MANAGEMENT DURING PREGNANCY

BACKGROUND
Anaemia in pregnancy is defined as an Hb <110 g/L in the first and third trimester, and a Hb <105 g/L in the second trimester. Women with anaemia in pregnancy may experience fatigue, reduced energy levels, reduced mental performances and in cases of severe anaemia potential outcomes can include preterm birth, low birth weights, and a small for gestational age fetus. In the postpartum period anaemia has been found to be linked to depression, emotional instability, stress and lower cognitive performance tests.

Some of the causes of anaemia in pregnancy include iron deficiency, folate deficiency, vitamin B12 deficiency, haemolytic diseases, bone marrow suppression, chronic blood loss and underlying malignancies. 30-50% of women become anaemic during pregnancy, with iron deficiency being the most common form of anaemia in more than 90% of cases. Iron requirements increase rapidly in the second and third trimester due to fetal growth, however iron absorption in the gut is not sufficient to meet this increased demand. Thus iron balance depends on maternal iron stores during this period.

A trial of oral iron should be considered as a diagnostic test for all pregnant women with suspected iron deficiency anaemia (IDA). Oral iron supplementation is the primary treatment option. A high iron enriched diet should be recommended, including red meats (if possible), fortified cereals and drinks. Intravenous iron should only be used in severe cases of iron deficiency, if the woman is unresponsive or non-compliant to oral iron treatment, or when rapid repletion of iron is required.

KEY POINTS
Screening for anaemia must be recommended for all women on the CMP:
- In the first trimester (or at booking)
- At 28 weeks (client must sign agreement form in CMP MR 08)
- At 36 weeks gestation (client must sign agreement form in CMP MR 08)
- The CMP pamphlet ‘Anaemia in Pregnancy’ should be discussed and given to the client, ensuring she is able to make a fully informed decision.

** Refer to CMP minimum blood test requirements as per CMP guideline

Inclusion Criteria
1. Iron deficiency anaemia (IDA) is diagnosed by a full blood picture (FBP) and serum ferritin levels. Serum iron, or serum ferritin alone are not to be used to diagnose IDA as ferritin levels are elevated in active infection or inflammation and haemoglobin levels can be normal even with low ferritin.
2. Consultation and/or referral should occur with the supporting hospitals obstetrician for all women diagnosed with anaemia and a plan of management should be documented in the Pregnancy Health Records (PHR), refer to Appendix 1.

3. Oral iron if taken at the appropriate dose, and for a sufficient time is an effective first-line treatment for most women in pregnancy. Oral iron is better absorbed if taken with Vitamin C. 2,6,7,8,9

4. If a woman fails to respond to iron therapy further consultation and/or referral is indicated to assess for malabsorption problems, non-compliance with medications, co-existing disease or an incorrect diagnosis. 10

5. Intravenous iron polymaltose therapy is an effective alternative to oral treatment during the second or third trimester, however it should only be recommended for the treatment of IDA in women who are failing to respond to oral iron treatment with known IDA, or in those for whom a rapid repletion of iron stores is required. Consultation with the support hospital obstetrician will need to occur when considering this option.

6. The type, dosage, and frequency of iron supplements for treatment of IDA should be documented in the PHR.

7. At each antenatal visit all women taking iron supplements should be monitored for medication compliance and side-effects.

8. Women with a normal Hb and ferritin levels < 30μg/L should be commenced on oral iron supplements in pregnancy to prevent development of anaemia. A dosage of 65mg elemental iron should be taken once daily. 6

**MANAGEMENT IN PREGNANCY**

- All women should be counselled at the booking visit regarding diet in pregnancy including details of iron rich food sources and factors that may inhibit or promote iron absorption and why maintaining adequate iron stores in pregnancy is important. This should be consolidated by the provision of the CMP client pamphlet ‘Anaemia in Pregnancy’.

- Advise women of the oral iron supplementation options including the type, frequency, and duration of the treatment or medication.

- Discuss side effects of the medication which can exacerbate the symptoms of pregnancy including heartburn, nausea, vomiting, constipation and black stools. 1

- Provide women with advice on how to take supplements and discuss foods that may inhibit absorption (discuss and provide the CMP pamphlet on ‘Anaemia in Pregnancy’).
- The management plan which has been formulated following consultation with the obstetrician at the supporting hospital must be clearly documented in the PHR.
- The timing of repeat blood tests must be discussed with the woman.
- Blood test results in relation to the management plan must be obtained within 24 hours of being performed.
- In the first instance it is the responsibility of the midwife who has ordered the blood tests to obtain all results (refer to CMP process manual 10.1). In the instance where the blood tests were ordered by a doctor it is the responsibility of the primary midwife to ensure all results are obtained.

** Clearance for home birth or birth in a birth centre (FBC or Kalamunda) must be clearly documented by the obstetrician/GP obstetrician in the client records for women diagnosed with anaemia in pregnancy.

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<tr>
<th>BLOOD RESULTS</th>
<th>INTERPRETATION</th>
<th>ADDITIONAL INFORMATION</th>
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<tbody>
<tr>
<td>Hb: &lt; 110 g/L (1\textsuperscript{st} &amp; 3\textsuperscript{rd} trimester)</td>
<td>Anaemia in pregnancy</td>
<td>The definition of anaemia in pregnancy is:</td>
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<tr>
<td>Hb&lt;105g/L (2\textsuperscript{nd} trimester)</td>
<td>Anaemia in pregnancy</td>
<td>- Hb &lt;110 g/L in the first trimester &amp; 3\textsuperscript{rd} trimester</td>
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<td></td>
<td>Anaemia in the post-partum period</td>
<td>- Hb &lt;105 g/L in the second.</td>
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Hb: Hemoglobin, GPA: General Practitioner Anaesthetist, PHR: Patient Health Record.
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<tr>
<th><strong>Ferritin levels:</strong></th>
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<tr>
<td>- &lt; 30μg/L</td>
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<td>- &lt; 15μg/L</td>
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<tr>
<td><strong>Mean corpuscular volume (MCV).</strong></td>
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<tr>
<th><strong>Indicates a low iron status – i.e. small or no iron reserves.</strong></th>
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<td>Indicates depletion of iron stores.</td>
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<tr>
<td>Low MCV indicates small cells and is associated with IDA.</td>
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<td>High MCV is associated with folate and B12 deficiency.</td>
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<tr>
<th><strong>Elevated ferritin levels also occur with inflammation, infection, liver disease and malignancy.</strong></th>
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<td>Haemoglobinopathy risk should be assessed and excluded (^{(6,9)}).</td>
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<td>MCV can be normal in early IDA or with coexisting vitamin B12 or folate deficiency.</td>
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<th><strong>Transferrin, or total iron binding capacity.</strong></th>
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<td>High levels are associated with IDA.</td>
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Quick Reference Guide: Management of anaemia in pregnancy/postpartum period

**Summary of management of anaemia in pregnancy/postpartum period**

- **Hb >110g/L and ferritin >30ug/L**
  - Routine ANC and monitoring
  - Iron rich diet

- **Hb >110g/L and ferritin, ≤ 30ug/L**
  - Commence 65mg elemental oral iron daily.
  - Iron rich diet

- **Hb >70g/L and ≤ 110g/dL and ferritin ≤ 30ug/L**
  - Commence 100mg elemental oral iron daily.
  - Iron rich diet. Consider IV Fe imminent birth

- **Hb >70g/L and ≤ 110g/dL and ferritin > 30ug/L**
  - Requires medical review to assess cause of anaemia
  - i.e. dilutional anaemia following blood loss, thalassemia, anaemia chronic disease, or iron deficiency with coexisting inflammatory disease or infection (↑CRP).
  - Individual management plan

- **Hb <70g/L Irrespective ferritin level**
  - Referral to Haematologist for urgent review if pregnant.
  - Urgent medical review if postpartum

- **Assess if Haemoglobin studies required?**
  - Obtain Hb studies* if Black African or MCV <=80 fL and MCH <=27 pg and not tested before, unless documented to have been normal previously. Assess if received IV Fe elsewhere and responding?

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- **Exclude dilutional anaemia, establish normovolaemia. Assess medical history to exclude anaemia chronic disease, or iron deficiency with coexisting inflammatory disease or infection. Review red cell/iron study historical trends alongside CRP. Assess if received IV Fe elsewhere and is responding?**
  - Assess if Haemoglobin studies required? Obtain Hb studies if Black African or MCV <80 fL and MCH <27 pg and not tested before, unless documented to have been normal previously

- **Assess if actively bleeding, exclude dilutional anaemia. Undertake additional B12, Folate testing. Establish if haemolysis is present.**

*Denotes patients considered high risk of iron depletion or in whom tolerance levels for anaemia should be raised and includes: Twin pregnancy, refusal blood components, teenage pregnancy, presence of co-morbidities, history of anaemia, bleeding disorders, planned home birth, poor compliance to ANC, malabsorption, thrombocytopenia

*Hb studies can be requested as ‘add-on’ to FBP
REFERENCES / STANDARDS
1. Women and Newborn Health service, KEMH Clinical Guideline, Section B: Obstetrics and Midwifery guidelines, 1 Antepartum Care, 2 Complications in pregnancy, 2.23 Anaemia in Pregnancy, March 2013


4. Reveiz L, Gyte GMI, Cuervo LG. Treatments for iron-deficiency anaemia in pregnancy. The Cochrane Database of Systematic reviews. 2007(2).


National Standards – 1- Care Provided by the Clinical Workforce is Guided by Current Best Practice

Legislation - Nil
Related Guidelines / Policies
Other related documents – Midwifery care when a Client Makes a Decision that Is Incompatible with the CMP Midwifery Standard of Practice

RESPONSIBILITY
Policy Sponsor Nursing & Midwifery Director OGCCU
Initial Endorsement May 2015
Last Reviewed
Last Amended
Review date May 2018

Do not keep printed versions of guidelines as currency of information cannot be guaranteed. Access the current version from the WNHS website.