



CLINICAL GUIDELINES

Iron Deficiency Management during Pregnancy and the Puerperium, Obstetrics

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The Intranet version of this document is the only version that is maintained. Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Greater Glasgow & Clyde Obstetric Guidelines

Management of iron deficiency during pregnancy and the puerperium

Maternal anaemia is defined as:

- Hb <110g/l 1st trimester
- Hb <105g/l 2nd & 3rd trimesters

Maternal anaemia can result in maternal fatigue, increased risk of postpartum haemorrhage and is associated with an increased risk of stillbirth, preterm birth and neonatal low ferritin levels ⁽¹⁾. Iron deficiency anaemia, the commonest cause of maternal anaemia can be treated easily by oral iron replacement.

Flow chart of investigation of anaemia in pregnancy [APPENDIX 1].

If Hb low (as above) check;

- FBC (Hb & MCV)
- Blood film
- Reticulocytes
- Serum ferritin

Consider commencing oral iron (as below) while awaiting results. ⁽²⁾ Check whether the woman is already taking iron tablets and confirm correct compliance.

Blood tests taken in the community should be followed up by the community midwife. Blood tests taken in the hospital should be followed up by the person requesting the test. Results of tests ordered through Trakcare will appear in the list of electronic results awaiting sign off. When results are signed off they should be actioned at the same time. A letter should be sent to the patient with a copy for the GP [Appendix 2] if treatment is required (see below).

Beware of congenital anaemias that are sometimes associated with a low MCV/MCH but do not respond to iron replacement. These conditions can be associated with iron overload and therefore iron replacement is relatively contraindicated.

- Thalassaemia trait
- Sickle cell disease (HbSS or HbSC)
- Haemolytic anaemias (e.g. Hereditary spherocytosis)

Patients are likely to know they have these conditions.

Always test serum ferritin first to confirm iron deficiency and exclude iron overload, and discuss with a haematologist before giving iron to women with these conditions.

If ferritin <30µg/l: commence oral replacement therapy. ^(2, 3, 4) If taking iron already - confirm compliance and correct administration (as below).

What: Choice of iron tablet doesn't matter e.g. ferrous fumarate / sulfate / gluconate

Dose: ONE tablet daily (Sytron 5ml daily)

When: in Morning ⁽⁵⁾

How: On an empty stomach with water or fresh orange juice. ^(2,6, 7) Avoid tea / coffee for two hours afterwards as absorption of iron can be reduced. ⁽⁸⁾

Duration: Throughout the remainder of pregnancy, continuing until 3 months postpartum. For postnatal women starting on iron replacement continue for at least 3 months.

Recent evidence shows once daily dosing is just as effective ^(7,9) as twice or three times a day but has fewer side effects (increasing compliance). ^{7,90)} Alternate day dosing is possible for women unable to tolerate daily dosing.

If ferritin >30µg/l prior to iron treatment

- Consider other causes of anaemia e.g. folate or Vitamin B12 deficiency. Check levels. If strong clinical suspicion of iron deficiency anaemia, consider checking transferrin (request "iron studies" on Trakcare)

Results of investigations performed for anaemia with Hb <105g/l

Ferritin	<30	<30	>30	>30
MCV (FBC)	Low	Normal	Normal / low	Normal
Transferrin	High/Normal/Low	High/Normal/Low	High	Normal / low
Cause	Iron deficiency anaemia	Iron deficiency anaemia	Iron deficiency anaemia is likely	Anaemia <u>NOT</u> likely due to iron deficiency – look for other causes

Normal ranges:

Ferritin: >30µg/l for pregnancy

MCV - Mean Cell Volume (part of FBC result): 88-109 fl in pregnancy

Transferrin: 2-4g/l

Monitor response

- Check Hb and reticulocyte count 2-4 weeks after starting oral iron as **treatment** for iron deficiency anaemia. ⁽²⁾
- Blood tests may be delayed until the patient's next appointment if treatment started before 20 weeks gestation unless Hb ≤ 80g/l (early monitoring required).
- Reticulocyte count will increase prior to rise in Hb and will indicate that red blood cell production is responding to therapy
- If no response in reticulocyte count at 2 weeks, review the diagnosis / compliance.
- Response will depend on the initial degree of iron deficiency, patient requirements e.g. multiple pregnancy, and compliance.

When to discuss with obstetric team ⁽²⁾

- Hb < 70g/l
- Significant symptoms of anaemia
- Advanced gestation > 34/40
- Failure to respond after 2-3 weeks of **correctly** taken oral iron

If iron deficiency is confirmed and there is no response to oral iron replacement (non-compliant or known malabsorption), or oral iron cannot be tolerated despite once daily dosing (side effects: nausea, epigastric pain, constipation, diarrhoea)¹¹, intravenous iron may be used (see Appendix 3). ⁽¹¹⁾

Check ferritin levels in the following women and give oral iron if ferritin < 30µg/l ⁽²⁾

Non-anaemic women at high risk of iron deficiency at booking

- Previous anaemia
- Para ≥ 3
- Pregnancy interval < 1 year since delivery
- Vegetarians / vegans
- Teenagers
- Recent history of bleeding
- Multiple pregnancy

Non-anaemic women where an estimate of iron storage level is necessary

- At high risk of bleeding
- Women who would refuse blood transfusion
- Women for whom it is difficult to obtain compatible blood

Anaemic women with

- Known haemoglobinopathy
- Prior to intravenous iron therapy [Appendix 3]

Updated on behalf of Obstetric Guidelines Group by

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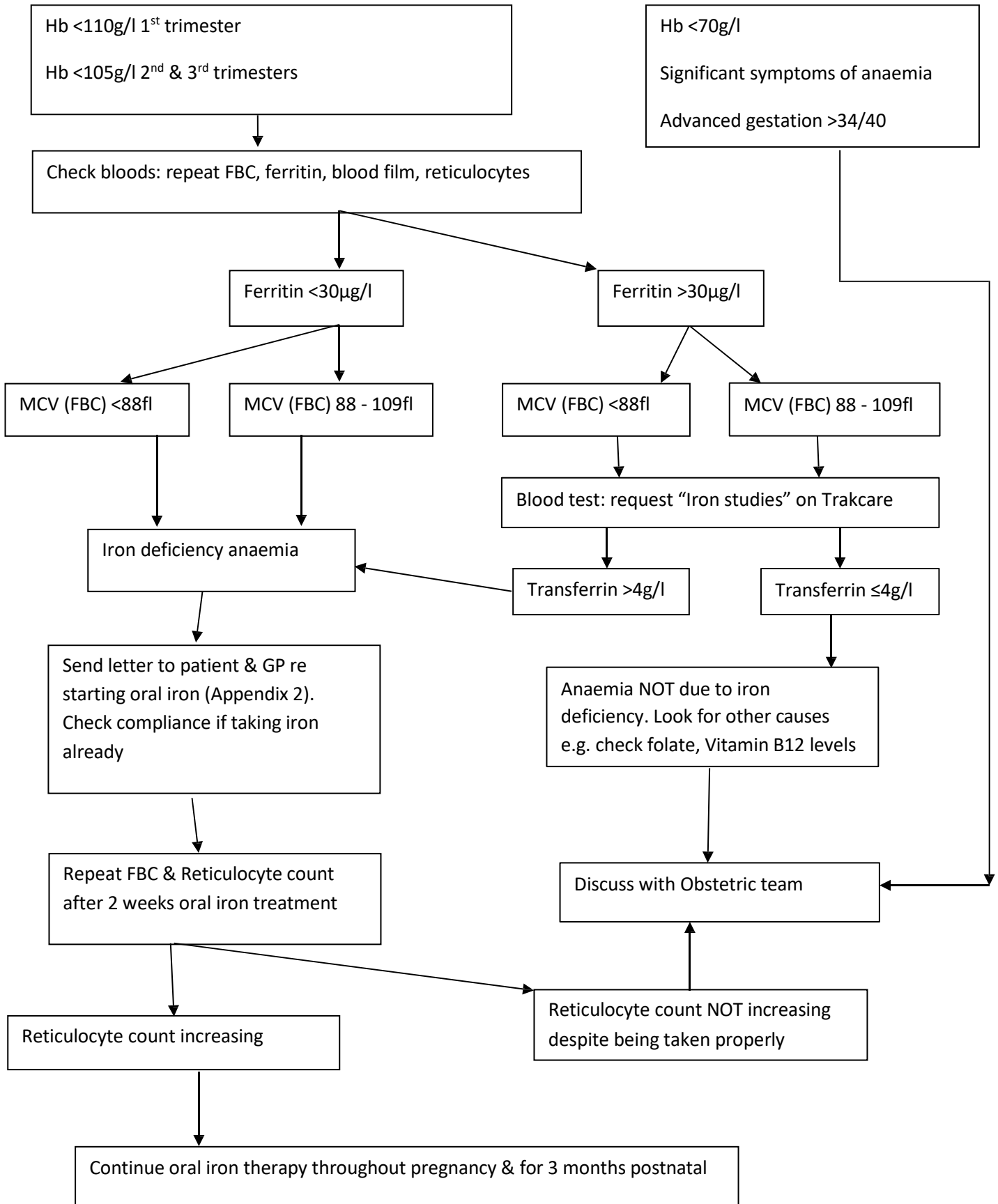
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Date Dec 2020 (v.3)

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APPENDIX 1: Flow chart of investigation of anaemia in pregnancy



APPENDIX 2: Standard letter for women requiring oral iron therapy

Date:

Dear

A recent blood test has shown that you are anaemic (Hb g/l), and /or your iron stores are low (Ferritin µg/l). This is easily remedied by taking iron tablets. Please collect a prescription from your general practice reception.

I recommend:

What: Choice of iron tablet doesn't matter e.g. ferrous fumarate / sulfate / gluconate. Your GP can decide which one to prescribe. Sytron (liquid iron) is suitable if you can't swallow tablets.

Dose: ONE tablet daily (Sytron 5ml daily)

When: in Morning

How: On an empty stomach with water or fresh orange juice. Avoid tea / coffee for two hours afterwards as absorption of iron can be reduced.

Duration: For the rest of your pregnancy and for 3 months after delivery.

Yours sincerely,

Midwife / Doctor

c.c. Patient's GP

APPENDIX 3: Intravenous iron (Ferrinject) therapy

Intravenous iron is much more expensive (drug & staff cost) than oral iron.

Most effective route of iron replacement is uncertain ⁽¹²⁾

Ferritin level MUST be checked prior to intravenous iron

Indications ⁽¹³⁾

- Non – compliance with oral iron therapy
- Intolerance of oral iron
- Known malabsorption condition
- Late pregnancy >34/40 gestation if Hb < 80g/l & iron deficient
- Postpartum in stable patient to avoid blood transfusion

Contraindications

- History of anaphylaxis or allergy to intravenous iron
- First trimester (possibly teratogenicity)
- Acute / chronic infection
- Chronic liver disease

Up to 25% patients develop side effects with intravenous iron

Risk of anaphylactoid reaction with i.v. iron between 1 in 100 – 1 in 1000 Risk

of permanent skin staining with extra-vascularisation of intravenous iron

Postnatal use of iron

Intravenous iron can be used in a stable postpartum patient if she is not actively bleeding or requiring immediate increase in Hb.

Expect 30g/l increase in Hb in 14 days ⁽¹⁴⁾

GGC guideline on “Blood transfusion in stable postpartum patients”

(<https://obsgynhandbook.nhs.uk/nhs.uk/guidelines/guidelines-library/common-obstetric-problems-intrapartum-labour-ward/cg-postpartum-blood-transfusion-in-stable-patients/>) recommends:

Hb 90-100g/l – give oral iron

Hb ≤89g/l – if asymptomatic give iron (oral or i.v.); if symptomatic transfuse 1 unit packed red cells & reassess

See GGC guideline for Ferinject administration: [Ferinject](#)