Royal Cornwall Hospitals
NHS Trust

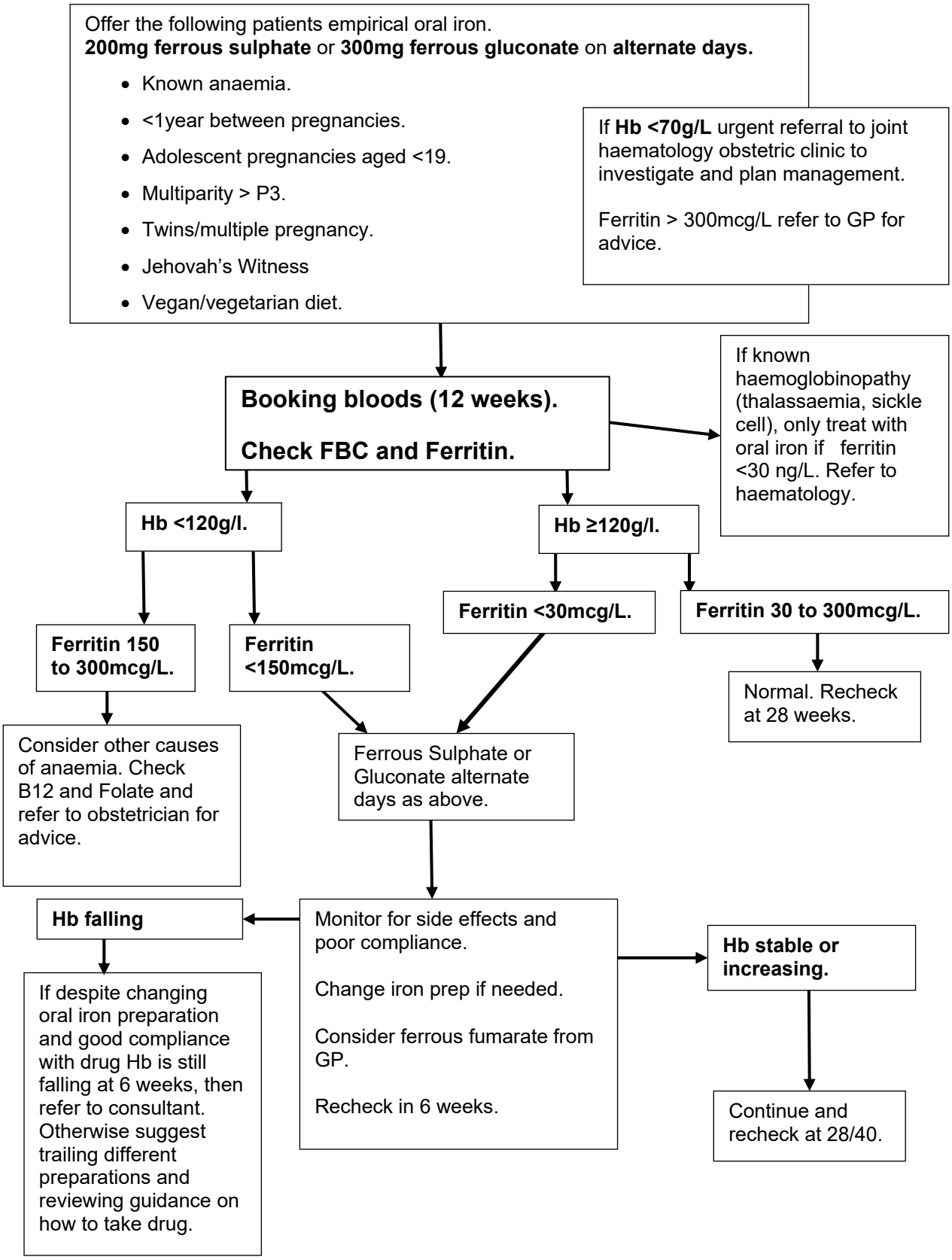
Anaemia and iron deficiency: Diagnosis and Treatment throughout Pregnancy, Labour and Post-Partum Period Clinical Guideline

V4.4

October 2026

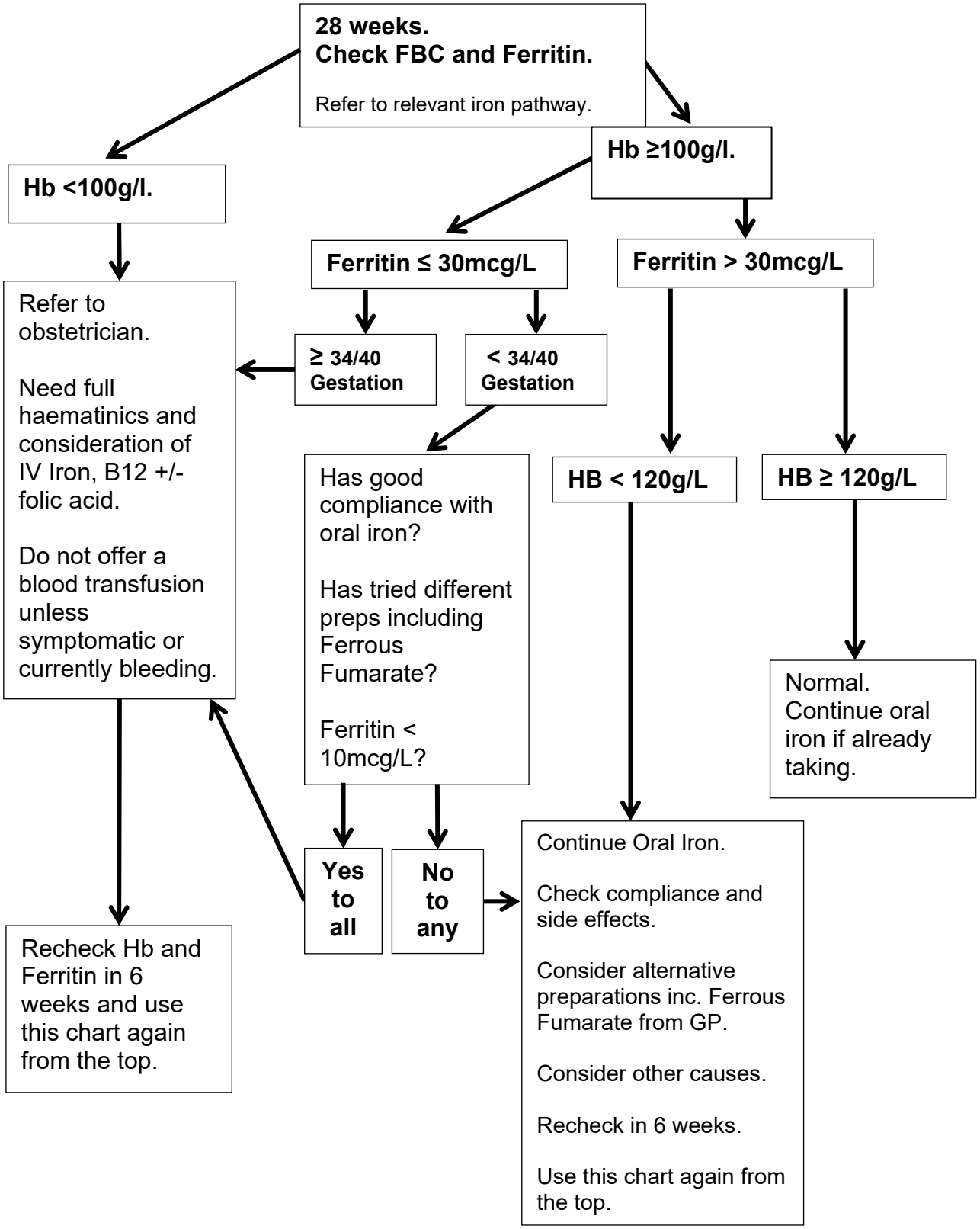
Summary

First Trimester/Booking

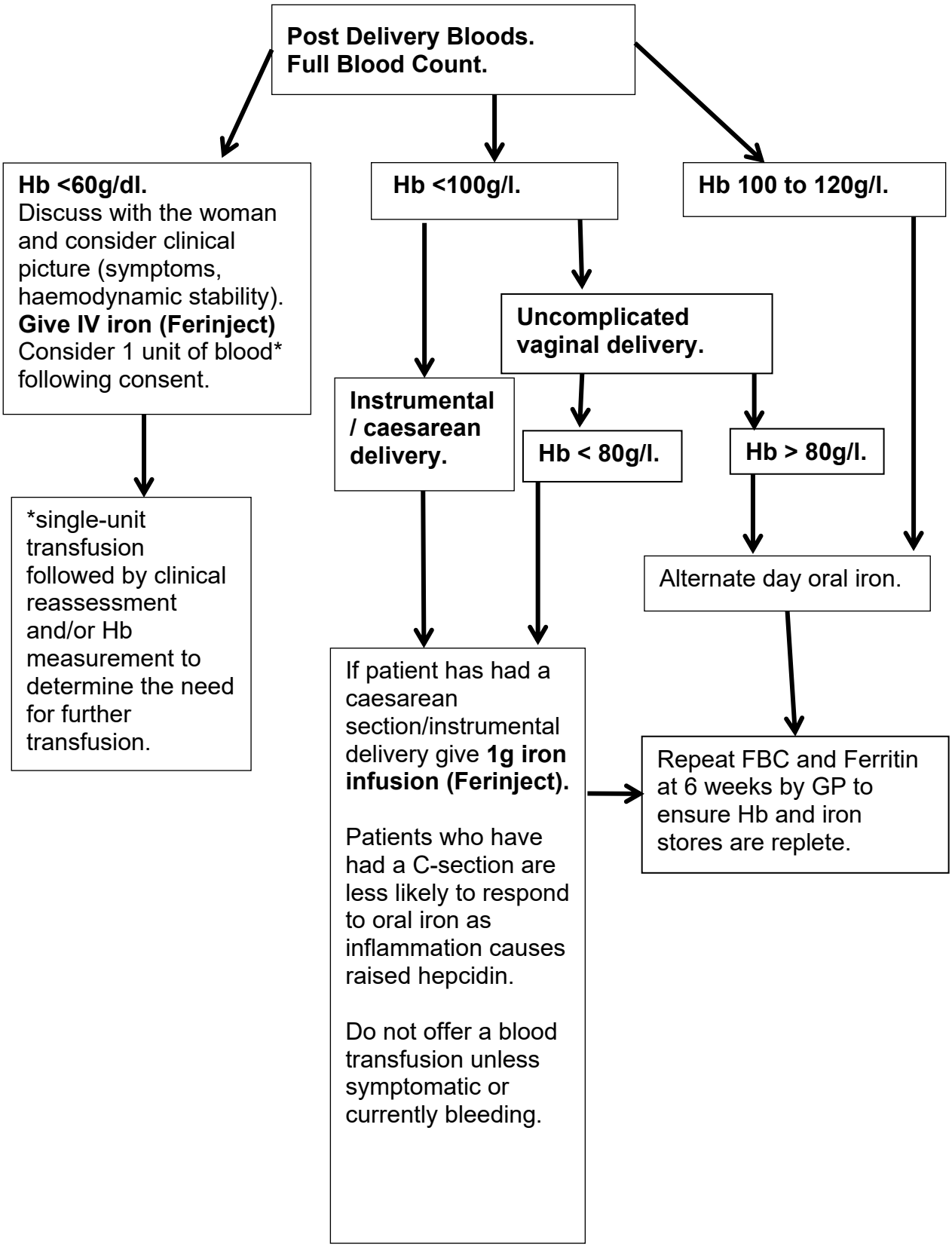


Ferinject is contraindicated in the first trimester.

Summary: Anaemia at 28 weeks



Summary: Postnatal Anaemia



1. Aim/Purpose of this Guideline

1.1. The objective of this guideline is to provide health care professionals with clear and simple recommendations for the diagnosis and treatment of iron deficiency and anaemia in pregnancy and the postpartum period.

1.2. This guideline also contains recommendations for the initial management of women who present with low platelets in the antenatal period (NEW 2025). Refer to section 2.12.

1.3. This guideline makes recommendations for women and people who are pregnant. For simplicity of language the guideline uses the term women throughout, but this should be taken to also include people who do not identify as women but who are pregnant, in labour and in the postnatal period. When discussing with a person who does not identify as a woman, please ask them their preferred pronouns, and then ensure this is clearly documented in their notes to inform all health care professionals.

1.4. This version supersedes any previous versions of this document.

Data Protection Legislation

The Trust must comply with the UK GDPR, Data Protection Act 2018, and Data (Use and Access) Act 2025 by ensuring all personal data is processed lawfully, fairly, transparently, and for a defined purpose.

Before processing personal data, an appropriate Article 6 UK GDPR lawful basis must be identified and recorded. Where special category data is involved, a relevant Article 9 condition must also be documented.

All staff, contractors, students, volunteers, agency workers, and third parties working on behalf of the Trust are responsible for complying with data protection legislation.

Further guidance is available in the Trust's Information Use Framework and Information Governance policies. Advice can also be obtained from the Information Governance Team.

2. The Guidance

2.1. Introduction

2.1.1. **Anaemia** is common in pregnancy and is associated with adverse maternal and perinatal outcomes (Pavord et al 2019). It is possible to identify and treat it prior to childbirth.

2.1.2. **Iron deficiency:** in the UK, over 90% of women who are anaemic in pregnancy have iron deficiency anaemia (IDA). IDA remains a significant problem in the developed world: an estimated 30 to 40% of pregnant women have iron depletion (WHO 2008), as iron stores are often insufficient to meet the increasing demands of pregnancy.

2.1.3. Iron deficiency is already advanced by the time anaemia is detected and has a symptom burden even when anaemia is not clinically apparent. Iron deficiency should be anticipated and treated before the patient develops anaemia.

2.1.4. Effective management of anaemia and iron deficiency is essential to prevent adverse maternal and fetal outcomes and will reduce the need for allogeneic blood transfusion. Blood transfusions entail a number of known risks (e.g. transmission of infectious agents, transfusion reactions, ABO mismatch, transfusion-related acute lung injury, transfusion-associated circulatory overload) and lesser-known consequences such as immunomodulation, increased incidence of infections and cancer recurrence (Goodnough and Shander, 2012).

2.1.5. Without supplementation, 80% of women at term will have no detectable iron stores and it will take 2 years of normal dietary iron to replace the iron lost with each pregnancy (De Leeuw et al. 1966).

2.1.6. Treating iron deficiency has maternal benefits: reduced fatigue, reduced blood loss and PPH risk, reduced hospital stay, reduced risk of infection, reduced postnatal depression, reduced healthcare costs (Bensen et al 2021) and neonatal benefits: reduced risk of prematurity, reduced risk of growth restriction, reduced incidence of low Apgar scores, improved infant neurodevelopment and higher incidence of breast feeding (Rukuni et al 2015).

2.1.7. In IDA there is shortage of iron stores. Iron depletion reduces iron availability for red cell production (erythropoiesis), resulting in decreased haemoglobin (Hb), and decreased oxygen delivery to tissues.

2.1.8. The effects of IDA on the pregnant woman may include increased susceptibility to infections, physical weakness, preterm labour, increased PPH risk, postnatal depression, and low birth weight babies.

2.1.9. There is little information regarding the Hb threshold below which mortality increases, although this may be as high as 89 g/l, which is associated with a doubling of the maternal death risk in Britain (Brabin et al. 2001). Prevalence of adverse pregnancy outcomes (GDM, polyhydramnios, preterm birth, low birth weight) are increased below 110g/l (Lin et al 2018).

2.1.10. 80% of the iron absorbed by the fetus happens in the 3rd trimester. Hence, a low ferritin at 28 weeks is likely to get significantly worse by term without adequate supplementation.

2.1.11. The purpose of this guideline is to ensure women have good compliance with oral preparations of iron, understand how to take the drug and its side effects and that these need to be tried before IV iron is trialled. IV Iron can come with significant side effects and costs and therefore all attempts to improve oral iron uptake need to be undertaken first.

2.1.12. This guideline will hopefully demonstrate when to refer to obstetrics and reduce the frequency of referrals needed.

2.2. Definitions

2.2.1 Definition of anaemia as per the World Health Organisation (WHO)

Anaemia in pregnancy is defined by Hb <110g/l at sea level (New 2025).

2.2.2 Definition of optimal haemoglobin level at Royal Cornwall Hospital

WHO data is derived from global data. Data drawn from healthy pregnant women in high income countries suggests the range should be 114.6 to 121.4g/l (Ohuma et al 2020). Data from our local population supports a haemoglobin target >110g/l at 28 weeks. In addition, it is recognized that iron deficiency will be present before anaemia is detectable on a full blood count. This carries a significant symptom burden and is associated with negative outcomes for mother and baby. For these reasons, women with **Hb >120g/L** at delivery should be considered to have an optimal haemoglobin.

2.2.3 Definition of iron deficiency

There is no international consensus on this, however studies that have looked at risks and benefits state that a ferritin below 30mcg/L is abnormal and increases the risks detailed above.

2.3. Diagnosis of iron deficiency

2.3.1. Clinical symptoms and signs

Since iron is an essential element in all cells, symptoms of iron deficiency can occur before a fall in haemoglobin. Symptoms and signs are non-specific. Fatigue is the most common symptom; others include weakness, headache, palpitation, dizziness, dyspnoea, poor concentration, hair loss, irritability, depression, and increased frequency of infections.

2.3.2. Dilutional anaemia has long been described as causing physiological anaemia in pregnancy, however it is now thought that iron deficiency is the predominant cause, given correction of anaemia when iron is supplemented in pregnancy.

2.3.3. In the post-partum period, symptoms of iron deficiency include decreased physical performance (tiredness, breathlessness, palpitations), increased risk of infection (urinary tract), impaired lactation, reduced cognitive abilities, emotional instability, and depression (Bergmann et al. 2010). Mother–child interactions are affected as women experience difficulties in caring for their newborn, which compromises the emotional bonds between the mother and baby (Perez et al. 2005).

2.3.4. **Lab tests**

FBC (Full Blood Count): Hb below 120g/L indicates anaemia. There is often a low MCV (microcytic), low MCH (hypochromic) anaemia with iron deficiency, although microcytic hypochromic anaemia can also indicate haemoglobinopathies.

2.3.5. **Serum ferritin**

This is the first laboratory test to become abnormal in iron deficiency and is the most useful and easily available parameter for assessing iron deficiency (<30 mcg/L). Other tests like serum iron, or total iron binding, lack sensitivity and specificity so are not recommended in routine diagnosis.

2.4. Oral iron supplementation

2.4.1. All women should be given the leaflet regarding anaemia and iron deficiency in pregnancy.

2.4.2. Oral iron is the first line treatment for iron deficiency anaemia. Some women are at high risk of iron deficiency and should be offered empirical iron therapy while blood test results are awaited. (See booking flowchart). A trial of oral iron should demonstrate a rise in haemoglobin by 6 weeks.

2.4.3. Iron supplementation should be taken on alternate days. This is as effective as taking oral iron daily (Karakoc et al. 2021). It is better tolerated (fewer gastrointestinal side effects), and there will be less increase in maternal hepcidin levels, which can prevent absorption of iron from the gut.

2.4.4. Iron supplements should be taken on an empty stomach, 1 hour before meals with a source of vitamin C such as orange juice to help increase gastric absorption. Other medications or antacids (such as omeprazole), tea, or coffee should not be taken at the same time as they prevent the absorption of iron from the gut. Levothyroxine should not be taken at the same time as iron supplements, as the iron competes with the thyroxine.

2.4.5. Patients should be warned of the potential gastrointestinal side-effects associated with oral iron (abdominal pain, nausea, vomiting, diarrhoea, and dark stools).

2.4.6. Standard oral iron replacement: ferrous sulphate 200mg or ferrous gluconate 300mg on alternate days. Ferrous gluconate may have a better gastrointestinal side effect profile so be better tolerated.

2.4.7. If there has been no improvement in haemoglobin and ferritin by 6 weeks, seek advice and guidance from obstetrics. Refractory anaemia may be due to poor compliance of oral iron therapy. The GP may be able to prescribe an alternative oral iron therapy e.g. ferrous fumarate 200mg. Alternatively, there may be other causes of anaemia than iron deficiency which need investigation and treatment. Take folate and B12 bloods prior to referral.

2.5. Jehovah's Witness

There is strong evidence that patients with a normal ferritin are at decreased risk of PPH and MOH. Therefore, given the religious beliefs surrounding receiving blood, it is prudent to ensure that maternal iron levels are as good as can be. To that end, we advise starting oral iron at booking before HB and Ferritin levels are back. If ferritin levels are normal and the woman no longer wants to take oral iron then they could stop but should be aware that they may be advised to restart at a later date. It is advisable to be vigilant with ferritin levels throughout pregnancy however extra ferritin tests are not required unless requested by the obstetric team.

2.6. Haemoglobinopathy

2.6.1. If the woman is known to have haemoglobinopathy, ferritin should be checked and oral iron started only if ferritin is <30 mcg/L. If haemoglobinopathy status is unknown, it is reasonable to start oral iron whilst screening is being performed.

2.6.2. Sickle Cell Trait / Thalassaemia Trait - this should be referred to the womans area consultant to manage. They will likely need closer monitoring of their Ferritin.

2.6.3. Sickle Cell Disease / Thalassaemia - Please make an urgent referral to the haemobs clinic.

2.7. Other relative contraindications to oral iron replacement.

2.7.1. Patients with pernicious anaemia, coeliac disease or inflammatory bowel disease will be unlikely to respond to oral iron if their underlying disease is untreated.

2.7.2. Patients with macrocytosis may have B12 or folate deficiency as a cause of anaemia.

2.7.3. If patients are known to have one of these conditions, or if they have not responded to oral iron supplementation after 6 weeks, please check B12 and folate levels and refer to obstetrics for advice and guidance.

2.8. Midwives supplying oral iron tablets.

Please see Appendix 5 for how midwives should supply the initial dose of ferrous sulphate or ferrous gluconate, from stocks kept in bases and ordered through POP. After re-check of haemoglobin and ferritin levels, this can be continued by the GP if needed (New 2025).

2.9. Management of iron deficiency

2.9.1. Antenatal

FBC and ferritin should be routinely checked at booking and 28 weeks. They can also be tested at any point in pregnancy if a patient is symptomatic of anaemia.

2.9.2. Booking

2.9.2.1. If the Hb at booking is <120g/L and ferritin <150mcg/L**:** Start on trial of oral iron: Ferrous Sulphate 200mg or Ferrous Gluconate 300mg on alternate days.

2.9.2.2. If booking Hb <120g/L, but ferritin is >150 to 300mcg/L, the patient may have a reason for anaemia other than iron deficiency. Seek obstetric advice and consider other causes of anaemia. Take folate and B12 bloods prior to referral.

2.9.2.3. If booking Hb >120g/L, but ferritin is <30mcg/L, the patient is iron deficient, and at high risk of developing anaemia even though her Hb is currently normal. Start on oral iron therapy and recheck FBC and ferritin after 6 weeks following the same advice as in 2.8.2.2.

2.9.2.4. Hb <70g/L: Urgent referral to joint Haematology Obstetric clinic to investigate and plan management. Do not offer blood transfusion unless symptomatic or currently bleeding.

2.9.2.5. If booking Hb > 120g/L and ferritin is above 30 then this can be rechecked at 28 weeks. No oral iron is needed at this stage. However, the woman should be encouraged to ensure a well-balanced diet.

2.9.2.6. Ferinject is contraindicated in the first trimester.

2.9.2.7. If Ferritin is >300mcg/L then refer to GP for advice.

2.9.2.8. Once oral iron has been started then monitor for side effects and poor compliance. If any issues, then change iron preparation. Consider ferrous fumarate from GP as an alternative if Sulphate and Gluconate have been tried. Recheck in 6 weeks.

2.9.2.9. At 6 week recheck, if Hb is less than at booking then check if compliance has been good and if alternative preparations have been tried. Refer to consultant obstetrician if alternative preparation has been trailed and compliance is good. Refer to section 2.4 for advice on compliance, dose intervals, when to take drug, what to take drug with etc. Ensure woman has leaflet on iron deficiency and anaemia.

2.9.2.10. At 6 week recheck, if Hb is stable or increased compared to booking then continue oral iron therapy and recheck at 28/40. If significant side effects then consider alternative preparation and compliance with rules on when to take drug and what to take with.

2.9.3. **28-week appointment.** Recheck FBC and ferritin for all women. The third trimester is the time when fetal iron uptake increases significantly. Therefore, the emphasis is very much on ferritin at this stage.

2.9.3.1. Hb < 100g/L – take full haematinics and refer to obstetricians.

2.9.3.2. If Hb > 100 and Ferritin is less than 30mcg/L then the woman is at risk of developing severe iron deficiency by term given then upcoming increase in fetal uptake of iron. Treatment depends on gestation.

2.9.3.3. Hb <100g/L, Ferritin <30mcg/L and 34 weeks or more. It is unlikely that there is sufficient time to increase ferritin to above 30mcg/L with oral alone, therefore please refer to obstetricians who may suggest IV iron.

2.9.3.4. HB<100g/L, ferritin <30mcg/L and less than 34 weeks. There may be sufficient time to improve ferritin with oral iron. If there has been **good compliance** with oral iron and they have tried **different preparations** including ferrous fumarate and ferritin is less than **10mcg/L** then please refer as they may need IV iron to ensure they are not iron deplete by term. Otherwise, please continue oral iron, check compliance and side effects, consider alternative preparation and recheck in 6 weeks.

2.9.3.5. Hb 100-120g/L and Ferritin >30 then continue or start oral iron. During this time monitor compliance and side effects and consider alternative preparations and recheck in 6 weeks.

2.9.3.6. Hb >120 and Ferritin >30: continue oral iron if already taking. No need for oral iron if not already on it.

2.10. **Refractory anaemia: If anaemia is unresponsive to an appropriate trial of oral management (ferrous sulphate or ferrous gluconate):**

2.10.1. Recheck booking bloods and haemoglobinopathy screening - for example thalassamia trait leads to borderline low haemoglobin which will be unresponsive to iron so long as the ferritin is adequate.

2.10.2. Check serum vitamin B12 and folate levels, together with a repeat ferritin if this has not been tested in the last month, and discuss the results with an obstetrician.

2.10.2.1. Ferritin <30ng/mlmcg/L indicates iron depletion. If there are suspected issues around compliance, encourage patients to take iron medication. Their GP may be able to prescribe an alternative oral iron therapy e.g. ferrous fumarate 200mg. If poor compliance, intolerance due to side effects, or poor absorption is suspected, the pregnant person may require Ferinject.

2.10.2.2. Low vitamin B12 level is hard to interpret as the assay used in RCHT often gives low levels in pregnant patients without there being a genuine deficiency. If B12 level is low, then it is reasonable to treat, i.e. one single dose of IM Hydroxocobalamin 1 mg. However, this is not a confirmed diagnosis of vitamin B12 deficiency and the GP needs to asked to follow up testing in the postpartum period.

2.10.2.3. Low folate level is usually due to dietary insufficiency, though it can be due to malabsorption. Treat with 5mg/day of Folic acid and recheck FBC and folate in 6 to 8 weeks.

2.10.3. **Postnatal anaemia**

2.10.3.1. Post natal anaemia is associated with maternal reduced cognitive ability, depression, and emotional instability.

2.10.3.2. **Hb >120g/L should be considered an optimal haemoglobin level.** Ferritin is an acute phase protein so levels may be raised following delivery which makes it less reliable than in the antenatal period. It is therefore not checked routinely.

2.10.3.3. **Check FBC on day 1:**

- For all women who have had a LSCS.
- PPH of more than 500ml.
- Uncorrected anaemia in the antenatal period.
- Known iron deficiency anaemia.
- Any woman with symptoms/signs suggestive of anaemia.

2.10.3.4. **Hb >120g/L: no** iron supplementation or further blood tests.

2.10.3.5. **Hb 100 to 120g/L** and asymptomatic and haemodynamically stable. Offer alternate day oral iron for 3 months. Advise the woman to have a repeat FBC and ferritin after 6 weeks to ensure Hb and iron stores are replete.

2.10.3.6. **Hb <100g/l:** Women who have had a caesarean section or instrumental delivery are less likely to absorb oral iron as their hepcidin levels will be higher (due to the inflammatory response to surgery). Offer 1g IV iron to these women.

2.10.3.7. For all other women with Hb <100g/L offer alternate day oral iron. If Hb <80g/l or symptomatic of anaemia, offer 1g IV iron.

2.10.3.8. Repeat FBC and ferritin at 6 weeks by GP to ensure Hb and iron stores are replete.

2.10.3.9. **Hb <60g/l:** Give 1g IV Iron (Ferinject). Discuss options with woman. Assess clinical picture (symptoms, signs, haemodynamic stability). Consider 1 unit of blood following informed consent (this should be a single-unit transfusion with a repeat Hb to determine the need for further transfusion).

2.10.3.10. One red cell concentrate contains approximately 240 mg of iron, which is insufficient to replenish iron reserves. Therefore, concomitant IV iron to replete iron reserves is safe.

2.10.4. **Symptomatic Anaemia**

Women who are symptomatic of anaemia, haemodynamically unstable or continuing to bleed heavily will need a full senior obstetric review to investigate the origin of the blood loss and decide further management. Other speciality involvement may be indicated.

Follow up arrangements with primary care should be ensured at postnatal discharge from hospital.

2.11. Management of labour and delivery in woman with iron deficiency anaemia

With good practice this situation should be avoided, however there are instances when women book late, have not engaged in antenatal care, or moved from out of the county. In such situations take all measures to minimise blood loss at delivery. Women with Hb <100g/L should have an obstetric led birth within hospital. Home birth and midwifery led birth may be considered in women with Hb >100g/L.

2.11.1. Women with Hb <100g/L should have an obstetric led birth: deliver in hospital with IV access, and FBC and group and screen on admission.

2.11.2. Active management of third stage (refer to Third Stage of Labour Clinical Guideline).

2.11.3. Consider prophylactic Syntocinon infusion / Misoprostol (Alfirevic 2007).

2.11.4. In the event of a PPH, there will be a tendency to decompensate quicker, so all measures to stop bleeding should be performed promptly.

2.11.5. Post-natal FBC day 1 and iron replenishment as above.

2.12. **Parenteral iron therapy (Ferinject)**

2.12.1. Is proven to increase Hb faster than oral iron and replenish iron stores faster when compared with oral iron therapy (Bhandal 2005, Wyk 2007, Breymann 2007).

2.12.2. Fewer postpartum blood transfusions are reported in a large group treated with IV iron antenatally (Reveiz 2007).

2.12.3. **Ferinject** is an intravenous iron preparation providing slow release of bioavailable iron for uptake by the reticuloendothelial cells and little risk of release of free iron. Hence there is no need for a test dose.

2.12.4. An erythropoietic response is seen in a **few days** with an increase in reticulocyte count and ferritin level (iron store) returns to normal **in 1 to 2 weeks**.

2.12.5. Doses of up to 1000mg iron can be administered in a single infusion. **Maximum dose is 1000mg per week**.

2.12.6. Indications for parenteral iron therapy include:

- Iron deficiency anaemia (Hb <120g/L and ferritin <30mcg/L) which has not improved despite oral iron therapy.
- Severe anaemia <70g/L from 28 weeks gestation, or postnatally.
- Intolerance to oral iron.
- Proven malabsorption (e.g. coeliac disease, IBD, short bowel syndrome).
- Iron deficiency in late gestation (>34/40).

2.13. **Contraindications**

2.13.1. **Previous Hypersensitivity To IV Iron.**

2.13.1.1. Acute infection/inflammation. This is a relative contraindication. Do not delay IV antibiotics for Ferinject: if IV antibiotics are indicated then administer these first. The decision to give Ferinject is to be made on a case-by-case basis. Caution is advised in severe infection; however, iron deficiency is also a risk factor for maternal infection. Allogeneic blood transfusion is also a risk factor.

2.13.2. First trimester of pregnancy.

2.14. **IV Iron** – Ferinject 1000mg in 20ml vial for slow IV infusion. (Unless body weight <35kg, then dose = 500mg).

2.14.1. Antenatal infusion is based on consultant decision. Evidence of approval from consultant should be uploaded to the electronic record as an attachment.

2.14.2. A serum Ferritin <30 micrograms/l is confirmation of iron deficiency anaemia.

2.14.3. If in community, refer to maternity triage for infusion.

2.14.4. Administer according to prescription.

2.14.5. Postnatal infusions will take place either on delivery suite or Wheal Fortune, or if referred, in maternity triage.

2.14.6. Administer 1g IV iron (Ferinject) according to protocol (Appendix 3 and Appendix 4).

2.14.7. **A test dose is NOT required for 1g iron preparations**. Risk of anaphylaxis - 1 in 10,000 cases (0.01%).

2.14.8. Other uncommon side effects include fast pulse, low BP and feeling dizzy.

2.14.9. There is a small risk of semi-permanent discoloration to the patient's arm. This may be very slow to fade (years). Please warn the patient of this risk. Ask the patient to keep their arm straight during the infusion to reduce the chance of extravasation. Complete visual infusion phlebitis (VIP) score and remain with the patient following start of transfusion to observe closely for signs of extravasation (NEW 2025).

2.14.10. Oral iron should be avoided for 5 days after the administration of Ferinject as it is unlikely to be absorbed when circulating iron levels are high.

2.15. **Ferinject**

2.15.1. Make up single dose infusion 1000mg/1 vial of Ferinject diluted with 250ml 0.9% saline via infusion at 500mls/hr over 30minutes.

2.15.2. Administer as per Appendix 3 and Appendix 4.

2.15.3. Re-check Hb 6 weeks after IV Iron dose and follow flowchart (New 2026).

2.15.4. If woman is still symptomatic, can recheck earlier. They can have a second dose at 14 days. Will need consultant input (New 2026).

2.15.5. Expected outcome = increase can Hb of as much as 20g/l in 5 to 7 days, 30 to 40g/l after 2 weeks. However, it is recommended to check at 6 weeks unless symptomatic.

2.16. **Platelets (NEW 2025)**

2.16.1. **Booking bloods.**

2.16.1.1. If a patient presents with platelets under 150 or over 400 10x9/L, discuss with the area obstetric consultant for appropriate action. (This may just be to repeat FBC at 16 weeks if the result is borderline, or a direct referral to obstetrics/haematology).

2.16.1.2. Any patient with platelets below 100 should be referred to obstetrics/haematology.

2.16.2. **28 weeks or later**

2.16.2.1. If platelets 100-150 10x9/L, repeat FBC monthly and refer to obstetrics if platelets fall below 100. Home birth and Truro Birth Centre are acceptable locations for delivery as long as platelets >90 10x9/L and no suggestion of a pathological cause of low platelets, such as HELLP, liver disease, ITP etc.

2.16.2.2. If platelets <100 10x9/L but the patient is otherwise well, refer to ANC.

2.16.2.3. If platelets <75 10x9/L refer to HaemObs.

2.16.2.4. If there is suspicion of an acute pathological cause e.g. hypertension or other abnormalities on the blood tests, or the patient is unwell for any reason, refer to triage.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	• Haemoglobin and ferritin at booking is measured and 28 weeks. • The diagnosis of anaemia is made if Hb is <120 at booking. • The diagnosis of anaemia is made if Hb is <115 at 28 weeks. • Haemoglobin measurements are reviewed and treated within 2 weeks. • Once iron is commenced the Hb and ferritin should be reviewed after 6 weeks. • After 34 weeks, patients with iron deficiency anaemia should be referred for secondary care review.
Lead	Sophie Haynes, Consultant Obstetrician.
Tool	Elements to be monitored will be recorded on an Excel document.
Frequency	Once in the lifetime of the guideline.

Information Category	Detail of process and methodology for monitoring compliance
Reporting arrangements	Audit meetings and forum.
Acting on recommendations and Lead(s)	Forum and Audit meetings for maternity.
Change in practice and lessons to be shared	Audit team dissemination.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity and Inclusion Policy or the Equality and Diversity website.

4.2. Quality and Equality Impact Assessment (QEIA)

The QEIA process allows RCHT to monitor the impact of changes to its policies and services, ensuring that nobody is unduly disadvantaged. The Quality and Equality Impact Assessment (QEIA) Form is available via the link in Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Anaemia and iron deficiency: Diagnosis and Treatment throughout Pregnancy, Labour and Post-Partum Period Clinical Guideline V4.4
This document replaces (exact title of previous version):	Anaemia: Diagnosis and Treatment throughout Pregnancy, Labour and Post-Partum Period Clinical Guideline V4.3
Date Issued/Approved:	October 2026
Date Valid From:	October 2026
Date Valid To:	March 2028
Directorate / Department responsible (author/owner):	Dr Rob Harper, Consultant Obstetrician. Dr Layth Tameem, Consultant Anaesthetist.
Contact details:	01872 252729.
Brief summary of contents:	The objective of this guideline is to provide health care professionals with clear and simple recommendations for the diagnosis and treatment of iron deficiency in pregnancy, labour, and the postpartum period. The guideline gives the procedure for the administration of IV iron.
Suggested Keywords:	Anaemia, iron deficiency, pregnancy, labour, postnatal period, postpartum, iron infusion, FBC, ferritin, Hb, Ferinject, iron.
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Maternity Guidelines Group
Manager confirming approval processes:	Caroline Chappell

Information Category	Detailed Information
Name of Governance Lead confirming consultation and ratification:	Michael Cross
Links to key external standards:	None required.
Related Documents:	• Pavord et al. UK guidelines on the management of iron deficiency in pregnancy. British Journal of Haematology 2019,Volume 188, Issue 6,Pgs 819-830 https://doi.org/10.1111/bjh.16221. • Benson C et al(2021) The effect of iron deficiency and anaemia on women's health. Anaesthesia, Volume 76, (Suppl.4),Pg84-95. • Rukuni et al. BMC Pregnancy and Childbirth (2015) 15:269 DOI 10.1186/s12884-015-0679Guideline on haemoglobin cut offs to define anaemia in individuals and populations. WHO May 2024. • Karakoc et al. Is every other day iron supplementation effective for the treatment of iron deficiency anaemia in pregnancy? J Matern Fetal Neonatal Med 2022; 35(5): 832-836. • Ohuma et al 2020. International values for haemoglobin distributions in healthy pregnancy women. EClinicalMedicine. 2020 Dec 2;29-30:100660. doi: 10.1016/j.eclinm.2020.100660. PMID: 33437954; PMCID: PMC7788439. • Defining perioperative anaemia in women: challenging the status quo. Ferguson and Dennis. Anaesthesia 2019: 74; 237-245. • Lin et al. Prevalence, risk factors and associated adverse pregnancy outcomes of anaemia in Chinese pregnant women. A multicentre retrospective study. BMC Pregnancy and Childbirth 2018 (18) 11. • UK guideline on the management of iron deficiency in pregnancy, BCSH, July 2011 Bayoumeu F, Subiran-Buisset C, Baka NE, Legagneur H, Monnier-Barbarino P, Laxenaire MC. • Iron therapy in iron deficiency anaemia in pregnancy: intravenous route versus oral route. Am J Obstet Gynecol. 2002; 186:518-522 Brabin, B.J, Hakimi, M., Pelletier, D. (2001).

Information Category	Detailed Information
	• An analysis of anaemia and pregnancy related maternal mortality. Journal of Nutrition 131, 604S- 615S Bhandal N, Russell R. • Intravenous versus oral iron therapy for postpartum anaemia. BJOG 2006; 113:1248-1252 Gravier A, Descargues G, Marpeau L. • How to avoid transfusion in the post-partum period: importance of an intravenous iron supplement]. J Gynecol Obstet Biol Reprod (Paris). 1999; 28:77-78. • Handbook of Obstetric Medicine, second edition, Catherine Nelson Piercy. • M. Muñoz et al. Patient blood management in obstetrics: management of anaemia and haematinic deficiencies in pregnancy and in the post-partum period: NATA consensus statement. Transfus Med 2018; 28:22–39. • Summary of product characteristics – Ferrous Sulphate Jul 2018. • Summary of product characteristics- Ferinject (Ferric Carboxymaltose) Dec 2018.
Training Need Identified?	No.
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet.
Document Library Folder/Sub Folder:	Clinical / Midwifery and Obstetrics.

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
October 2010	V1.0.	Initial document.	Dr Aylur Rajasri, Consultant Obstetrician.
October 2012	V1.1.	Change in product from Venofer to Monofer and change in management of HB ,11 at booking and <10.5 at 28 weeks.	Dr Aylur Rajasri, Consultant Obstetrician.

Date	Version Number	Summary of Changes	Changes Made by
6 February 2014	V1.2.	Change in product name from Monofer to Ferinject only.	Dr Aylur Rajasri, Consultant Obstetrician.
12 January 2017	V1.3.	Ferinject vial changed to 500 mg in 10 ml.	Dr Aylur Rajasri, Consultant Obstetrician.
December 2019	V2.0.	Ferinject + ferrous sulphate dosing adjusted. Flow charts simplified to improve compliance.	Dr Emma Shephard O and G ST2, Dr Cathy Ralph Consultant Anaesthetist.
July 2021	V3.0.	Complete version update. Thresholds (g/L) for commencing iron therapy updated throughout.	Dr Katharine Sprigge, Consultant Anaesthetist.
October 2023	V3.1.	Addition of 2.1.6 and appendix 5 relating to midwives supplying ferrous sulphate.	Sam Gale, Maternity Matron.
February 2024	V3.2.	Addition of contraindication to Ferinject in first trimester.	Sarah Harvey-Hurst, Maternity Matron.
March 2025	V4.0.	Complete version update. Major changes: Addition of routine ferritin checks. Inclusion of ferrous gluconate as alternative to ferrous sulphate. Inclusion of more vulnerable groups to be offered empirical iron therapy. Introduction of alternate day dosing. Guidance on antenatal presentation of platelet abnormality.	Katharine Sprigge Anaesthetic consultant, Sam Gale Maternity Matron, Richard Keedwell, Obstetric consultant.
June 2025	V4.1.	Amendment to ‘Anaemia at 28 weeks’ flow chart.	Catherine Wills, Guidelines midwife.
September 2025	V4.2.	Update to 2.12.9 regarding extravasion.	Catherine Wills, Guidelines midwife.
May 2026	V4.3	Minor amendments for clarity	Dr Layth Tameem, Consultant Anaesthetist.

Date	Version Number	Summary of Changes	Changes Made by
October 2026	V4.4	Minor amendments to summary flow chart Anaemia at 28 weeks.	Dr Layth Tameem, Consultant Anaesthetist.

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus six years.

This document is only valid on the day of printing.

Controlled Document.

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Appendix 2. Quality and Equality Impact Assessment (QEIA) Form

The QEIA process allows RCHT to monitor the impact of changes to its policies and services, ensuring that nobody is unduly disadvantaged.

Please ensure you have completed a Quality and Equality Impact Assessment (QEIA) using this link to complete the form:

E11 QEIA Policy

For guidance, please see the QEIA Essentials – Quick Reference Guide or contact as required below:

Equality, Diversity and Inclusion guidance, please contact: rcht.inclusion@nhs.net

Quality Governance guidance, please contact Jillian Tozer: jillian.tozer3@nhs.net

Appendix 3. Ferinject Administration

10 mL vial = 500 mg **ONLY IF BODY WEIGHT <35kg**.

20 mL vial = 1000 mg.

- Dilute Ferinject dose:
  - For 500mg dose, dilute 10mL in 100mL of 0.9% IV sodium chloride.
  - For 1000mg dose, dilute 20mL in 250mL of 0.9% IV sodium chloride.
- Label.
- Switch on Baxter pump and allow it to undertake its self-check.
- Press “OPEN” and load Baxter administration set. Once loaded it will close automatically.
- Select “new patient”.
- Select “Primary” administration.
- Administer over 30 mins:
  - Set rate at 200mls per hour for 500mg dose,
  - Set rate at 500mls per hour for 1,000mg dose.
- Fully open flow-regulating clamp on administration set and press start.

  Test Dose is Not Required.
- Observations (BP, HR, RR, and saturation) are required prior to the start of the infusion and every 15 mins for the duration of the infusion. (See Appendix 4).

  Patients must stay for 30 mins following infusion and observations checked prior to discharge.

  If hypersensitivity reactions or signs of intolerance occur during administration, the treatment must be stopped immediately.
- If the patient and their observations are all within normal limits the cannula can be removed, and the patient discharged.

Any problems please contact Blood Conservation on 8079.

Appendix 4. IV Iron Infusion in Maternity Checklist

Total Dose Iron Infusion in Maternity Checklist

Appendix 5. Midwives Supplying Ferrous Sulfate or Ferrous Gluconate for Women Meeting Criteria for Supplemental Iron Therapy

The aim of asking community midwives to provide ferrous sulphate or ferrous gluconate tablets to people on their caseload meeting criteria is:

- The potential to increase compliance when women can be issued with an immediate supply which could:
    - Reduce the rates of Ferinject administered and associated costs (approx. 260 Ferinject per year in the antenatal period at the cost of £40,000 (£150 each) - not considering costs of attendance on DAU, admission, clerking etc and postnatal Ferinject infusions).
    - Reduce the co-morbidities associated with anaemia around the time of birth.
- Currently a prescription is sought via the GP which is time costly and inefficient – pregnant people are then poorly complaint/do not collect their prescription/GP queries the prescription, therefore midwives time would be maximised.
- Reducing barriers to medicines compliance – physical barriers (attending GP/pharmacy to collect prescription), administerial barriers (the prohibitive process of requesting a prescription via the GP which can then be queried/not done), lack of understanding of indication/side effects – the midwife can address these.
- The legal framework is already in place to support this – 'Midwives can supply all general sale list medicines (GSL) and pharmacy medicines (P) in accordance with their scope of practice. Medicines not included in midwives' exemptions (this includes GSL, pharmacy (P) and specified POM medicines), require a prescription, a patient-specific direction (PSD) or patient-group direction (PGD).' Ferrous sulphate is a 'P' class medicine.
- Increase health promotion when midwives can 'close the loop' and give advice on administration/maximising absorption/diet.

PROCESS:

- To be ordered as TTO's via the POP application.
- To be stored in a locked cupboard in a lockable room.
- Pregnant people to be administered with an initial supply (1 pack/28 tabs = 1 month), ensuring the person's identifiable sticker is placed next to then instructions on how to take them.
- Hb to be re-checked after 6 weeks.
- Repeat prescription arranged via GP if required.
- Any supplies are to be documented in the green notes, as well as on the electronic record.

- Ferrous gluconate 300mg PO is an alternative to ferrous sulphate 200mg PO. It has a better gastrointestinal side effect profile than ferrous sulphate, so may be better tolerated by pregnant people.

- Taking iron replacement on alternate days has been found to be as effective as taking it every day. This is because alternate day administration is less likely to cause a compensatory increase in the pregnant person's hepcidin levels, which can reduce absorption from the GI tract. It is also better tolerated when taken on alternate days.

- If ferrous sulphate or ferrous gluconate is not appropriate the patient must be referred to the GP (e.g. if needs liquid etc), as not all iron preparations are pharmacy meds and can be supplied in this way.

- Only registered midwives can hand out these medicines.