Optimising the Treatment of Iron Deficiency Anaemia in Adults in Primary Care

Please note – this guideline does not cover the **diagnosis** of iron deficiency anaemia (IDA) but its **management in primary care** with oral iron preparations and should be read in conjunction with CKS Anaemia - iron deficiency | Health topics A to Z | CKS | NICE which includes referral criteria.

If dietary deficiency of iron is thought to be a contributory cause of iron deficiency anaemia, advise the person to maintain an adequate balanced intake of iron-rich foods (for example dark green vegetables, iron-fortified bread, meat, apricots, prunes, and raisins) and consider referral to a dietitian. Useful resources are the BDA food fact sheet and NHS choices website.

Oral iron supplements increase levels of hepcidin which is the most important inhibitor of iron absorption and thus impairs absorption of subsequent doses. Therefore, dosage regimen are moving away from two-three times daily dosing to once daily or even alternate days.

A diagnostic trial of iron treatment should not be used for men and postmenopausal women as these are more at risk of occult gastrointestinal bleeding and malignancy which should be excluded by immediate investigation.

- Iron replacement therapy (IRT) should not be deferred while awaiting investigations for IDA unless colonoscopy is imminent
- In pregnancy, as per NICE NG201, full blood counts are routine at the first antenatal appointment and at 28 weeks and oral iron supplementation should be actively initiated and encouraged by the midwives, if required. Consult BSH guidelines for management of iron deficiency in pregnancy - if anaemia without an obvious other cause is detected, a diagnostic trial of oral iron should be given without delay, with a repeat full blood count in 2–3 weeks
- Prescribe all people with iron deficiency anaemia **one tablet once daily** of oral ferrous sulfate, ferrous fumarate or ferrous gluconate — the incidence of adverse effects is no greater with ferrous sulfate than with other iron salts.
- If a liquid preparation is required, consider sodium feredate 190mg/5ml but be aware of low quantity of elemental iron (27.5mg/5ml)
- Modified-release iron preparations are not recommended
- If once daily dosing is not tolerated (usually GI disturbance), reduce the dose to **one tablet on alternate days**
- If alternate day therapy is still not tolerated, consider ferric maltol. Due to a relatively low iron content, the rate of iron loading is comparatively slow with ferric maltol. Although more expensive than traditional iron salts, ferric maltol is considerably less expensive than parenteral iron.

Recommended Oral Iron Preparations - NB: recommended doses are different to those in the BNF who are aware of this issue and currently reviewing their content based on updated guidelines

Formulation	Preparation	Dose	Elemental Iron	Cost per 28 days
Ferrous sulfate	Tablets	200mg	65mg	£1.15
Ferrous fumarate	Tablets	210mg	69mg	£1.33
Ferrous gluconate	Tablets	300mg	37mg	£0.91
Sodium feredetate[#]	liquid	207.5 mg	27.5 mg of iron/5 mL	£4.19
Ferric maltol*	Capsules	30mg	30mg	£23.80

[#] Useful if liquid preparation is required

*Reserved as last oral option if parenteral iron is being considered

Please note:

- Iron tablets contain gelatine, stearic acid, and/or magnesium stearate which may be of animal origin. If necessary, contact the medicines information department for the generic manufacturer of the stocked iron preparation and enquire whether it is suitable for vegetarians/ vegans.
- Despite previous suggestions of benefit (and continuing recommendation by some specialists), coadministration of vitamin C with oral IRT is not recommended in BSG guidelines —a recent large randomised controlled trial has confirmed that it neither enhances the haematological response or rate of iron loading, nor diminishes side effects.
- Advise people (especially the parents of young children) about the safe storage of iron supplements, as accidental overdose can be fatal.
- Continue treatment for **3 months** after iron deficiency is corrected to allow stores to be replenished.

Parenteral Iron

- Consider parenteral iron if oral iron is contraindicated, ineffective or not tolerated with referral via local pathways. Ferric maltol capsules may be prescribed as a final option before referral.
- Infusion-related reactions are uncommon with modern intravenous iron preparations, but hypersensitivity-type and infusion reactions (approximate incidence—0.5%) are commoner than with oral iron or placebo. All intravenous iron preparations carry the risk of anaphylaxis. Patients require monitoring and access to resuscitation facilities. Serious adverse reaction rates are low, however, and similar for oral and parenteral iron preparations

Adverse Effects of iron therapy are dose related and include: constipation, diarrhoea, epigastric pain, faecal impaction, gastrointestinal irritation and nausea. To improve tolerance:

- Offer a laxative to people with constipation, for example a macrogol
- Offer reassurance to people who have black stools.
- Recommend the person takes iron with or after meals -
- Reduce the dose frequency of the iron supplement to alternate days.
- NB: The standard practice of switching to an alternative traditional oral iron salt is not supported by evidence (however ferric maltol may be better tolerated)

If the person is still unable to tolerate oral iron supplements, seek specialist advice.

Monitor response in line with CKS recommendations

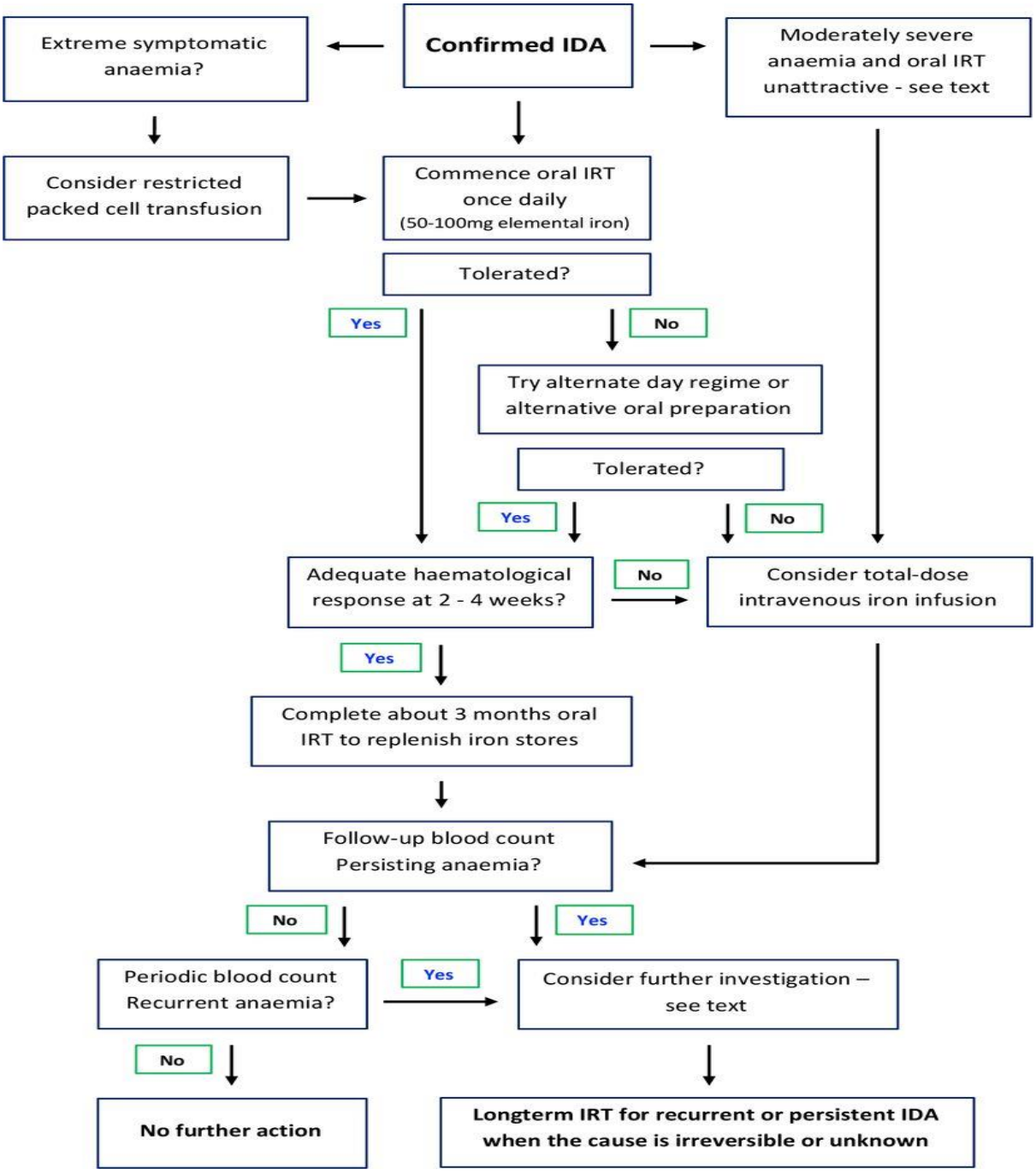
There should be a prompt and measurable haematological response to the initiation of IRT, and early monitoring should detect those patients not responding to or intolerant to oral iron. Normalisation of haemoglobin levels can be used as a measure of successful treatment. The absence of an Hb rise of at least 10 g/L after 2 weeks of daily oral IRT is strongly predictive of subsequent failure to achieve a sustained haematological response but logistically checking at 2 weeks may be difficult and in the case of an alternate day regime, a check at 4 weeks is more appropriate.

- The normal reference ranges are age/sex dependent and are always given alongside the results for each patient
- Recheck haemoglobin levels (full blood count) within the first 4 weeks of iron supplement treatment to assess the person's response. The haemoglobin concentration should rise by about 20 g/L over the first 3–4 weeks.
- Intolerance and/or ineffectiveness should be managed promptly and appropriately
- If there is a response, re-check the full blood count at 2–4 months to ensure that the haemoglobin level has returned to normal.
- Once haemoglobin and red cell indices are normal, continue iron treatment for **3 months** to aid replenishment of iron stores, and then **stop**.
- Monitoring full blood count periodically — for example, 3-monthly for 12 months and then 6-monthly for 2–3 years.
- Ongoing prophylactic iron treatment (e.g. ferrous sulphate 200mg daily) may be required in some people e.g. with menorrhagia (see CKS)
- After IV iron repletion, some patients may need to be maintained on an oral iron therapy regimen, if tolerated, which may avoid the need for further parenteral iron or increase the time between infusions. Absorption of oral iron is decreased when administered concurrently with IV iron and restarting oral therapy should be delayed by 5 days
- Always assess compliance and whether the treatment is tolerated if there is inadequate response

After checking compliance, refer people for specialist assessment if there is a lack of response (that is, an increase of less than 20 g/L in the haemoglobin level) after 3–4 weeks

Use local referral pathways to facilitate IV iron for patients with known iron deficiency anaemia who are unable to tolerate oral iron, or where it is ineffective.

BSG Treatment algorithm for IDA. (IDA, iron deficiency anaemia; IRT, iron replacement therapy) – for text see guideline in references below



References:

British Society of Gastroenterology guidelines for the management of iron deficiency anaemia in adults

Scenario: Management | Management | Anaemia - iron deficiency | CKS | NICE

Ning, Shuoyan, and Michelle P. Zeller. "Management of iron deficiency." Hematology 2014, the American Society of Hematology Education Program Book 2019.1 (2019): 315-322.