802FM.2 IRON DEFICIENCY ANAEMIA IN ADULTS

1. FIRST CONFIRM IRON DEFICIENCY

Anaemia, (haemoglobin (Hb) <115 g/L in women or Hb <130 g/L in men) PLUS evidence of iron deficiency:
   - Hypochromic and/or microcytic (MCH <26.9 pg or MCV <80 fl)
   - Low ferritin (ferritin <22 ng/mL). Ferritin may be elevated in the presence of inflammation. If CRP is high then still consider iron deficiency as cause of anaemia.
   - Low transferrin saturation, low iron, raised total iron-binding capacity.

2. ASSESS SEVERITY OF IRON DEFICIENCY ANAEMIA PLUS TIMESCALE FOR REPLACEMENT

Consider need for urgent blood transfusion if symptomatic anaemia (chest pain, short of breath (SOB), postural hypotension etc.) or active bleeding. In pre-operative patients, intravenous iron may be required if there is a short time frame to major surgery. Otherwise replace with oral iron, which is effective, available, inexpensive and safe.

Oral iron is recommended to be taken with a source of vitamin C for 3 months (a glass of orange juice or ascorbic acid 50 mg)¹:
   - Ferrous sulphate 200 mg (65 mg iron) tablets PO once a day (first choice in hospital)
   - Ferrous fumarate 210 mg (68 mg iron) tablets PO once a day (first choice in primary care)
   - Oral iron suspensions e.g. ferrous fumarate 140 mg (45 mg iron)/5 mL PO once a day should also be considered before a decision to change to intravenous iron is made.

Oral iron has previously been given at higher doses (recommended daily dose is 150 - 200 mg of elemental iron) but this often results in side effects and non-compliance with treatment. Higher doses may actually impair iron absorption.² Recent studies have shown no difference in the effectiveness of 15 mg, 50 mg or 150 mg of elemental iron in elderly patients.³ Lower doses are better tolerated. The optimum schedule for iron replacement is not currently known.⁴

Once normalised, monitor the Hb concentration and red cell indices every three months for one year. Re-check after a further year, and again if symptoms of anaemia develop. Further oral iron should be given if the Hb or red cell indices fall below normal. Further investigation is only necessary if the Hb and red cell indices cannot be maintained in this way or there are new gastrointestinal (GI) symptoms.

3. CONSIDER REFERRING TO GASTROENTEROLOGY FOR INVESTIGATION INTO THE CAUSE

Most patients who are sufficiently fit will be investigated with a gastroscopy and either colonoscopy or computerised tomography (CT) imaging (depending on fitness and symptoms). Small bowel imaging (magnetic resonance imaging (MRI) enteroclysis, CT enterography or capsule endoscopy) only has a useful diagnostic yield in patients with symptoms suggestive of small bowel disease or who are transfusion dependent.

Think carefully about whether to investigate iron deficiency anaemia in very frail or elderly patients. If the patient is not fit for surgery then it may not be in their best interest to submit them to lower GI investigation.

If referring, please arrange anti-TTG (with patient on a gluten-containing diet), urine dipstick for blood (to check for urological cause for anaemia) and Hb electrophoresis for haemoglobinopathy if appropriate. The referral form can be found in Appendix 1 (Word version available separately on the Nettelormulary).

The following patients should be referred under the two week wait initiative¹:
   - Men and post-menopausal women
   - Menstruating women with strong family history of bowel cancer (one affected first degree relative <50 years old or two affected first degree relatives) or symptoms of GI disease
Patients with iron deficiency without anaemia do not need to be referred. Check coeliac serology and treat empirically with oral iron replacement for 3 months and refer for investigation if iron deficiency recurs within next 12 months. Rates of malignancy in patients with iron deficiency without anaemia are very low (0.9% for post-menopausal women and men, 0% for menstruating women) so currently there is no clear indication for endoscopic investigation in the absence of other symptoms.

4. IF THERE IS NO RESPONSE TO TREATMENT…. RETHINK!
(Haemoglobin not increasing by 2 g/dL over approximately three weeks)
   - Check compliance and duration of treatment.
   - Consider whether there is evidence of malabsorption, history of gastric resection, inflammatory bowel disease or ongoing gastrointestinal bleeding.
   - Consider treatment with intravenous iron therapy.

5. USING INTRAVENOUS IRON

Intravenous iron should only be used if the patient has not been able to tolerate, has not responded to or is unable to absorb oral iron. It can be used in pre-operative patients when there is not enough time for the haemoglobin to increment sufficiently. It can only be authorised by a consultant.

Intravenous iron should always be used with caution because of the risk of serious hypersensitivity reactions. Test doses are no longer required. Ref to MHRA/CHM advice (2013).

The administration instructions for all IV iron products on formulary including iron isomaltoside 1000 (MonoFer®) can be found in Guideline 222 Adult and Paediatric Injectables Guide.

**Iron isomaltoside 1000 (MonoFer®)**
- Is the standard IV iron treatment.
- The dose is weight and haemoglobin dependent and can be calculated using Table 1.
- The total dose can usually be given in one single infusion.
- Post repletion, assessments should be completed to ensure that iron levels are corrected and maintained. Further infusions may be required at an appropriate interval.

### Table 1: Calculating the dose of MonoFer®

<table>
<thead>
<tr>
<th>Hb (g/L)</th>
<th>Patients with body weight</th>
<th>Patients with body weight</th>
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<tr>
<td></td>
<td>50 kg to 70 kg</td>
<td>≥70 kg</td>
</tr>
<tr>
<td>&gt;100</td>
<td>1,000 mg MonoFer®</td>
<td>1,500 mg MonoFer®</td>
</tr>
<tr>
<td>&lt;100</td>
<td>1,500 mg MonoFer®</td>
<td>2,000 mg MonoFer®</td>
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For patients with a body weight of less than 50 kg, please contact Pharmacy Medicines Information (01494 425355) for advice.

**Iron sucrose (Venofer®)**
- Is available in smaller doses of 200 mg.
- Several infusions are often required with a maximum of three per week.
- Venofer® may be more appropriate for patients who need only a small amount of intravenous iron and/or who are regularly attending hospital for other reasons.
- Venofer® is the drug of choice in the first trimester of pregnancy.
- It is also prescribed by the Renal Team

**Ferric carboxymaltose (Ferinject®)**

Is available on formulary as follows:
- Prescribing by consultant gastroenterologists for treatment of iron deficiency anaemia in patients with severe liver impairment and who meet the criteria for use of MonoFer® in accordance with this guideline.
- Prescribing by the Renal Team.

See Summary of Product Characteristics (SPC) for dosing.

**Iron isomaltoside 1000 (Diafer®)**

Is restricted on formulary for use by the Renal Team.
See SPC for dosing.
References:
5. Iron isomaltoside 1000 Diafer® 50 mg/mL summary of product characteristics last updated on the EMC 29 Sept 2014 [https://www.medicines.org.uk/emc/product/5324](https://www.medicines.org.uk/emc/product/5324)
6. Iron isomaltoside 1000 Monofer® 100 mg/mL summary of product characteristics last updated on the EMC 9 June 2017 [https://www.medicines.org.uk/emc/product/5676](https://www.medicines.org.uk/emc/product/5676)

See also: 
*Guideline 222  Adult and Paediatrics Injectables Guide*

<table>
<thead>
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<th>Title of Guideline</th>
<th>Iron Deficiency Anaemia in Adults</th>
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<tbody>
<tr>
<td>Guideline Number</td>
<td>802FM</td>
</tr>
<tr>
<td>Version</td>
<td>2</td>
</tr>
<tr>
<td>Effective Date</td>
<td>August 2018</td>
</tr>
<tr>
<td>Review Date</td>
<td>August 2021</td>
</tr>
<tr>
<td>Original Version Published</td>
<td>January 2018</td>
</tr>
<tr>
<td>Formulary Management Group</td>
<td>v.1 28th June 2017; adjustments to renal formulary products in guideline approved 2nd May 2018</td>
</tr>
<tr>
<td>Clinical Guidelines Subgroup</td>
<td>25th July 2018</td>
</tr>
<tr>
<td>Accountable Care System</td>
<td>6th December 2017</td>
</tr>
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</table>
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| SDU(s)/Department(s) responsible for updating the guideline | Gastroenterology, Haematology, Pharmacy |
| Uploaded to Intranet          | 7th August 2018                  |

Buckinghamshire Healthcare NHS Trust/Buckinghamshire Clinical Commissioning Group
Appendix 1: Referral Form

IRON DEFICIENCY ANAEMIA PATHWAY

Please complete this form in full and fax to **with accompanying referral letter**: (incomplete forms will be returned)

Gastroenterology Department Wycombe Hospital 01494 425579, Stoke Mandeville Hospital 01296 316776

From Dr……………………………………Practice Code……………………………………
Practice Telephone Number……………………………………………………………….
Referral Date……………………………………………………………………………………

Patient Details
Age ……………………………………………………………………………………………
NHS Number………………………..Postcode (patient)……………………………………

Does the patient have any communication needs? e.g. ?Translator required  Yes  No
If yes please indicate……………………………………………………………………

Indication
1. Iron deficiency anaemia (note 1 for diagnostic criteria) in male or post-menopausal
   female □
2. Iron deficiency anaemia (note 1 for diagnostic criteria) in menstruating female plus
   symptoms of GI disease or strong family history (see note 2)
   and □
3. No overt site of blood loss □
4. Anti-TTG negative □
5. Urine dipstick negative for blood □
6. Patient informed that they may be triaged “direct to test (see note 3) □

Medication
On warfarin/NOAC □ Can it be stopped  Yes  No
On clopidogrel □ Can it be stopped  Yes  No
On aspirin □ Can it be stopped  Yes  No
On NSAIDS □
Other medication  Yes  No (Please attach printed list if yes)

Time of onset
When was the IDA first diagnosed?

Has IDA been previously investigated? (see note 4)

Significant comorbidity e.g. DM/COPD

Transmissible disease □
Any allergies □

Is the patient fit for Endoscopy under normal sedation and full bowel prep?
Yes  No

Please send an accompanying letter: This form is simply to allow triaging straight to test in simple cases.

Guideline 802FM.2 4 of 4