Preoperative Anaemia Pathway

Author: Dr Mark MacGregor, Consultant Anaesthetist

Service Lead: Denise Hallett

Status: Approval date: October 2018

Ratified by: Drug and Therapeutics Committee (DTC)
TASCC Governance Committee
Patient Blood Management Committee

Review date: October 2022

Patients first • Personal responsibility • Passion for excellence • Pride in our team
History

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date Issued</th>
<th>Brief Summary of Change</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dec 2018</td>
<td>New policy</td>
<td>Mark MacGregor</td>
</tr>
<tr>
<td>2</td>
<td>June 2019</td>
<td>Addition of Monofer administration information. Change to contact information</td>
<td>Mark MacGregor</td>
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</table>

For more information on the status of this document, please contact:

Policy Author | Dr Mark MacGregor  
Department/Directorate | Anaesthetic Department  
Date of issue | June 2019  
Review due | October 2022  
Ratified by | Drugs and Therapeutics Committee  
Audience | All staff involved in caring for adult patients undergoing elective surgery. 

Executive summary

NICE released a quality statement in December 2016 stating that all patients with iron-deficiency anaemia scheduled for surgery should be offered iron supplementation before and after surgery.

The rationale behind the statement is that preoperative anaemia is associated with increased postoperative morbidity and mortality. There are also increased transfusion needs. Treating iron deficiency with iron supplements can reduce the need for blood transfusion which avoids serious risks associated with blood transfusion such as infection, fluid overload and incorrect transfusion. This iron supplementation may also reduce the length of hospital stays and the cost to the NHS. Depending on the circumstances, the cause of the iron deficiency should be investigated before or after surgery.

This guideline provides recommendations for preoperative identification and management of anaemic adult surgical patients at ASPH.
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1. Introduction

1.1 Patient blood management is a multidisciplinary evidence based approach to optimising the care of patients in order to avoid or minimise the need for allogeneic blood transfusion.¹,²,³

1.2 Anaemic patients are at increased risk of transfusion, mortality and major morbidity, in proportion to the degree of anaemia. Even mild anaemia has an impact on mortality.

1.3 Preoperative anaemia is common (between 5-75% of patients depending on the population studied).¹,²

1.4 Preoperative anaemia increases healthcare costs with additional costs outside hospital. It increases the likelihood of allogeneic blood transfusion which increases the burden on blood donors and blood services.¹

1.5 When treating anaemia pre-operatively, the target haemoglobin concentration should be > 130 g/L in both sexes to minimise the risk of transfusion-associated unfavourable outcome.¹,²,³

2. Scope

2.1 This guideline is relevant to all clinical staff involved in the care of patients prior to surgery and to facilitate safe and appropriate treatment where necessary.

3. Purpose

3.1.1 To reduce perioperative anaemia. Anaemia is an independent risk factor for poor surgical outcome.

3.1.2 To identify and optimise all patients with anaemia prior to surgery and minimise the risk of requiring an allogeneic transfusion.

3.1.3 To provide practical recommendations for the management of anaemia prior to surgery.

3.1.4 To reduce blood use during elective surgery.

4. Duties and responsibilities

4.1 The Drug and Therapeutics Committee (DTC) is responsible for authorising the document and receiving assurances of compliance through review and audit by the Patient Blood Management Committee.

4.2 Patient Blood Management Committee (PMBC) is the committee sponsoring the document and is responsible for local guidelines that are based on national guidelines and recommendations. The PMBC will review compliance with this document by review of local adverse incident reports.

4.3 The transfusion practitioner team is responsible for the review of any individual incidents of non-compliance, report externally to Serious Hazards of Transfusion (SHOT) and other bodies where necessary and report to the PBMC.

See also: Surrey Pathology Services Blood Transfusion Policy. Latest version available via Trust intranet
4.4 Ward and departmental managers are responsible for dissemination of this document and ensuring compliance of their staff under their responsibility.  
4.5 All staff are required to comply with this document and report any adverse incident via the Trust Datix incident reporting process.

5. Policy

5.1 Pre-operative assessment

The investigation and management of pre-operative anaemia should ideally be a collaborative process involving primary and secondary care.

To avoid disruption to surgical schedules, anaemia screening should take place as early as possible in the referral pathway, ideally when referral is first made. Wherever possible, this should take place with sufficient time to allow investigation and correction if appropriate.

Where surgery is urgent, the limited time available before the operation should still be used for anaemia investigation and treatment initiation.\(^2\)

Anaemia may be expected as part of the presenting complaint. However, surgery represents a ‘sentinel event’ for many patients and work-up may reveal previously unsuspected disease.

Diagnosed anaemic patients fall into two groups:

- Those patients who can safely proceed to surgery with anaemia treatment.
- Patients who require investigation may require a delay of surgery whilst more extensive investigation is carried out to exclude previously undetected disease.

The pre-operative assessment should include:

- Identification, investigation and management of patients with or at risk of anaemia.
- Assessment of the adequacy of iron stores in patients undergoing planned procedures in which substantial blood loss is anticipated.
- Awareness and assessment of medications and complementary medicines that might increase bleeding risk.
- Awareness of and ability to discuss the possible risks associated with blood transfusion and appropriate cell salvage with patients.

**Hemocue™ machines** are now available on both Trust hospital sites. The SPH handset is stored in pre-assessment and the Ashford model is stored overnight in Dickens ward. The indication for a Hemocue™ test is according to NICE guidelines for pre-operative full blood count (FBC) which are the same as the current POAC policy at ASPH. These patients will also receive a formal FBC as usual, but the Hemocue™ result will guide if they are discharged home on the same day with oral iron and if **CRP, ferritin, transferrin saturation** blood test are additionally requested. (Serum ferritin is an acute phase protein...
and may be raised if CRP is elevated). The pre-assessment nurses can issue the oral iron according to the patient group direction for ferrous fumarate.

Oral iron will be issued to all patients with a haemoglobin (Hb) below 130g/L and all patients with a Hb below 11g/L will be registered on the iron registry on the T-drive and receive a request form for the Hb to be checked after 1 month of oral iron. Those that fulfil the criteria for immediate IV iron as specified in these guidelines (page 7) need to be reviewed and referred after completing the audit form (Appendix 7) and following the 4 steps listed on P9.

All laboratory blood results should be reviewed within 2 working days of sampling by the Pre-operative Assessment Clinic (POAC) nurses. Abnormal results (see Flowchart 1) should be discussed with a member of the speciality clinical team who has sufficient authority to refer to the appropriate doctor for commencement of treatment, refer for further investigation or delay surgery as necessary. (Colorectal - MDT co-ordinator Natasha Parvess-Williams; Colorectal cancer – cancer specialist nurses; Breast - breast specialist nurses; Vascular – Dr Mark MacGregor; Upper GIT – Mr Kumaran Ratnasingham; Gynaecology – Dr Higgins/ Dr Kuttler; Urology –Dr Cunningham/ Dr O’Neill; Bariatric – Dr Alenka Miles/ Dr Mark Kubli)

Determine the possible cause of anaemia based on history, examination and laboratory results (see flowchart 1 at the end of section 5). Seek specialist advice as appropriate. For example seek Haematology advice if concomitant low platelet and white cell counts, Gastroenterology advice in GI bleeding, Nephrology advice in the presence of chronic kidney disease (eGFR<30 ml/min). If the eGFR is greater than this cut-off value and the patient is known to our renal unit, the patient should be discussed with them prior to surgery. In some instances this assessment will involve a referral to the patient’s GP for further investigation (see Appendix 4 – GP referral letter template). Should the patient be referred back to the GP for further investigation of anaemia cause, please book the patient for a follow up with the nurse led PAOC in 3 months from sending the letter. If the cause for the anaemia has been identified by this 3 month follow-up visit and the patient is on treatment, please could CBO be alerted regarding the patient’s eligibility for surgery and a surgery review can be arranged.

For anaemic patients requiring treatment, a clear and timely approach should be available without undue disruption to existing patient pathway.

Inherited haemoglobin disorders (haemoglobinopathies) should be considered in all individuals with microcytic anaemia if there is no evidence of iron deficiency, or if red cell changes persist after adequate iron replacement. Send an EDTA blood sample for High-performance liquid chromatography (HPLC) testing.

### 5.2 Management of anaemia

The management option(s) appropriate for an anaemic patient depend on interplay between the following factors:

i) The cause and severity of anaemia

ii) The anticipated peri-operative blood loss

iii) The timescale before surgery
iv) Whether surgery may safely be postponed

Common causes of anaemia include iron, B12 or folate deficiency, anaemia of chronic disease and chronic kidney disease. Consider blood loss or haemolysis if reticulocyte count is increased.

**Iron Deficiency Anaemia** can be caused by blood loss, impaired iron absorption or failure to utilise iron stores. Potential contributors are: menorrhagia, chronic gastro-intestinal symptoms or chronic bleeding from GI tract, acute or chronic inflammatory bowel disease or malabsorption, malignancy and pregnancy.

**Iron Therapy**

Both oral iron tablets and intravenous iron preparations are inexpensive products in comparison with red cell transfusion costs.

Oral iron is indicated in iron deficient anaemic patients when surgery can be delayed. Intravenous iron is indicated in patients intolerant or unresponsive to oral iron or when surgery is needs to be expedited.

Iron therapy is also indicated for non-anaemic iron deplete patients (suggested by ferritin level <100µg/L) scheduled to undergo surgery with predicted total peri-operative erythrocyte loss >30g/L, to protect against post-operative iron deplete anaemia (IDA).

**Oral iron therapy:**

First line treatment:

**Ferrous Fumarate** (chosen because least gastro-intestinal tract side effects) 210 mg tds

Second line treatment (if first line treatment regime not tolerated):

**Ferrous Fumarate** 210 mg bd daily or alternate days

Third line treatment: (those who fail to tolerate one preparation may tolerate another)

**Ferrous Sulphate** 200 mg tds

Patients must be advised how to take oral iron effectively. (Patient information Letter Appendix 6). Iron should be taken on an empty stomach with orange juice or squash. Tea, coffee and calcium decrease the absorption of iron and should be avoided an hour either side of treatment.

Oral iron can cause significant gastrointestinal side effects that result in poor compliance. A patient who fails to tolerate one preparation may tolerate another.

Oral iron should be continued for 3 months after the haemoglobin and iron stores are replenished.

When oral iron is prescribed the following needs to be completed:

1) Letter sent to the patient’s GP (Appendix 3)
2) Add a clinical note on EVOLVE ® confirming oral iron was issued
3) Record the issuing of the oral iron to the patient in the pre-assessment drug record book.

**Parenteral (IV iron):**

1. Intravenous iron should only be used when:
   a) oral iron is not tolerated,
   b) there is a history of malabsorption or active inflammatory bowel disease,
   c) the timescale before surgery is limited to <4 weeks
   d) the patient has not responded to oral iron and are embarking upon surgery with blood loss expected to be >500ml.
   e) After consultant assessment, patients with Hb below 100g/L can be considered for IV iron as well without trialling oral iron if other types of anaemia have been excluded. (flowchart 1)

Preoperative patients will receive **Monofer®** (iron (III) isomaltoside 1000) infusions at the Infusion Suite at Ashford.

**Contraindications to Monofer®**
- Hypersensitivity to **Monofer®**
- Known serious hypersensitivity to other parenteral iron products
- Non-iron deficiency anaemia (e.g. haemolytic anaemia)
- Iron overload or disturbances in utilisation of iron (e.g. haemochromatosis, haemosiderosis)
- Decompensated liver disease

**Special warnings and precautions for use of Monofer®**

Parenterally administered iron preparations can cause hypersensitivity reactions including serious and potentially fatal anaphylactic/ anaphylactoid reactions (1:250 000). Hypersensitivity reactions have also been reported after previously uneventful doses of parenteral iron complexes. Facial flushing (1:20) and mild hypotension (1:100) can occur commonly. **Stop the infusion and start at a slower rate.**

The risk is enhanced for patients with known history of severe asthma, eczema or other atopic allergy.

There is also an increased risk of hypersensitivity reactions to parenteral iron complexes in patients with immune or inflammatory conditions (e.g. systemic lupus erythematosus, rheumatoid arthritis).

Each patient should be observed to exclude adverse effects for at least 30 minutes following each **Monofer®** injection. If hypersensitivity reactions or signs of intolerance occur during administration, the treatment must be stopped immediately.
Delayed reactions may occur and can be severe. They are characterised by arthralgia, malaise and sometimes fever. Onset is from a few hours to 4 days. Symptoms last 2 to 4 days and settle spontaneously or with simple analgesics. **Patients should be warned on discharge home after receiving IV iron.**

In patients with compensated liver dysfunction, parenteral iron should only be administered after careful benefit/risk assessment. Parenteral iron administration should be avoided in patients with hepatic dysfunction (alanine aminotransferase and/or aspartate aminotransferase > 3 times upper limit of normal) where iron overload is a precipitating factor, in particular Porphyria Cutanea Tarda (PCT). Careful monitoring of iron status is recommended to avoid iron overload.

Parenteral iron should be used with caution in case of acute or chronic infection. **Monofer®** should not be used in patients with ongoing bacteraemia.

Hypotensive episodes may occur if intravenous injection is administered too rapidly. Caution should be exercised to avoid para-venous leakage when administrating **Monofer®**. Para-venous leakage of **Monofer®** at the injection site may lead to irritation of the skin and potentially long lasting brown discoloration at the site of injection. In case of para-venous leakage, the administration of **Monofer®** must be stopped immediately.

The dosage of Intravenous **Monofer®** recommended:

- If HB>100g/L: 1000mg [for pts weighing between 50-70kg]
  1500mg [for pts weighing >70kg]
- If HB<100g/L: 1500mg [for pts weighing between 50-70kg]
  2000mg [for pts weighing >70kg]

**Monofer®** 500 mg in 100 ml of sodium chloride (0.9%) over 15 min
**Monofer®** 1000 mg in 100 to 250 ml of sodium chloride (0.9%) over a minimum of 30 min, max dose 20 mg/kg
**NB:** Patients must be observed for at least 30 minutes post infusion.

**Should the patient develop anaphylaxis please call the on call anaesthetist at Ashford Hospital.**
*(pager # 5666)*

**Arranging for patients to receive Monofer® in the infusion Suite at Ashford Hospital:**

1) Completed referral form must be sent to the suite. (Appendix 7). *(Referring doctor to do)*
2) Register the patient on the “Patient Iron treatment register” on the Trust T-drive. *(POAC to do)*
3) Inform the patient’s GP (letter Appendix 3) *(POAC to do)*
4) Sign for Monofer™ on the drug chart in the infusions section *(referring doctor to complete)*
5) Email the Monofer™ prescription for to the following email addresses: *(POAC will organise)*
   asp-tr.pharmacydischarges@nhs.net and asp-tr.infusion.referrals@nhs.net

The pharmacy will then supply the Monofer™ against the prescription and send the IV iron to Ashford. This email address is monitored throughout the day Monday to Friday so there should be no delays in processing the prescription. Although there will be no signature on
the prescription chart to say that a Pharmacist has screened the prescription this authorisation is recorded as screened on their systems.

Flowchart 1: The management of preoperative anaemia.

Table 1: When to consider the patient for intravenous iron

2. The surgery is regarded as major with more than 500 ml blood loss
3. The Hb is below 100g/L and other types of anaemia have been excluded (flowchart 1)
4. Less than 4 weeks to surgery which is urgent
5. The patient has not responded to oral iron

If uncertain, please liaise with the following members of staff according to surgical speciality:

- Colorectal - MDT co-ordinator Natasha Parvess-Williams
- Colorectal cancer – cancer specialist nurses who can liaise with the correct consultant or Dr Anja Kuttler.
- Breast - breast specialist nurses who can liaise with the correct consultant.
- Vascular – Consultant anaesthetists Dr Mark MacGregor, Dr Michael Parris or Dr Lara Wijayasiri
- Upper GIT – surgeon Mr Kumaran Ratnasingham
- Gynaecology – Dr Kuttler, Dr Higgins
- Urology –Consultant anaesthetists Dr Alice O’Neill or Dr Claire Cunningham
- Bariatric – Consultant anaesthetists Dr Alenka Miles or Dr Mark Kubli

If you are unsuccessful contacting any speciality representative, please contact anaesthetists Dr Mark MacGregor or Dr Caroline Pocknall.
5.2 Assessment post-treatment

All patients who are diagnosed as anaemic and were commenced on treatment should be re-assessed before surgery. In patients with persistent anaemia, a decision to delay surgery is based on clinical circumstances.

For those at risk of requiring blood transfusion, ensure group and saved or cross-matched blood has been arranged, in accordance with the MSBOS (Maximum Surgical Blood Ordering Schedule).

Consider the feasibility of intra-operative cell salvage depending on the nature of procedure and the amount of blood likely to be lost.

Consider peri-operative use of Tranexamic acid (1 gram tds started on day of surgery) if blood loss is likely and there are no contraindications. Intraoperative intravenous Tranexamic acid should be administered to all patients who are undergoing surgery with an expected blood loss of greater than 500mL (if there are no contraindications) in accordance with NICE guidelines. Continue Tranexamic acid for 72 hours post-surgery; if appropriate and after discussion with the surgeon.

Where transfusion is required, consider accepting lower post-operative haemoglobin levels before transfusing blood. When using a restrictive red blood cell transfusion threshold, consider a threshold of 70 g/L and a haemoglobin target of 80-90 g/L after transfusion. Consider a red cell transfusion of 80 g/L and a haemoglobin target of 80-100 g/L after transfusion for patients with acute coronary syndrome as per NICE guidance. Consider single unit transfusion when appropriate, in accordance with NICE guidelines.

Following surgery, all patients should have their FBC checked and management should be based depending on the clinical circumstances and level of haemoglobin.

If following surgery there has been a significant blood loss, the patient should be given adequate iron replacement for a period of time to ensure iron stores are rapidly replenished and the haemoglobin rises to normal as rapidly as possible. We recommend at discharge these patients are issued with a 6 week TTO supply of the iron regime they were on prior to surgery. This will allow time for a 6 week GP assessment and review with a FBC/Ferritin follow up.

Iron replacement may be more than adequate treatment for post-operative anaemia and may obviate the need for post-operative transfusion. The estimated rise of haemoglobin is 10-15 g/L after 4 weeks of oral iron treatment and 2 weeks with intravenous iron infusion.

Arrangements should be made with the patients’ general practitioner to ensure that the treatment of post-operative iron deficiency is appropriately monitored and investigated after discharge.
6. Training

6.2 The policy will be highlighted at all education forums attended or arranged by the trust Transfusion Practitioner Team, including Trust induction and mandatory training sessions.

6.3 The Transfusion Practitioner team will arrange familiarisation training with the preoperative assessment team when the policy becomes live.

7. Stakeholder Engagement and Communication

7.2 The document author discussed the content of the policy and patient flow considerations with the representatives of the following departments: Preoperative assessment, anaesthetics, infusion suite, general surgery, vascular surgery, haematology, primary care and pharmacy.

8. Approval and Ratification

8.2 The policy was reviewed and approved by the Patient Blood Management Committee, Drugs and Therapeutics Committee and TASCC Governance Committee.

9. Dissemination and Implementation

9.2 The policy will be covered at all education forums attended or arranged by the trust Transfusion Practitioner Team, including Trust induction and mandatory training sessions.

9.3 The Transfusion Practitioner team will arrange familiarisation training with the preoperative assessment team when the policy becomes live.

9.4 The policy will be emailed to all surgical, anaesthetic consultants and the pre-assessment team to highlight the importance of replenishing iron stores before surgery and emphasising the new pathway.

10. Review and Revision Arrangements

10.1 This guideline will be reviewed by the DTC every 3 years.

10.2 New national guidance, local changes to practice or results of audit may necessitate update to the guideline in addition to the 3 yearly review.

11. Document Control and Archiving

11.2 The Patient Blood Management Committee will detail the process for uploading new, approved versions of the policy onto the intranet, and archiving arrangements.
12. Monitoring compliance with this Policy

<table>
<thead>
<tr>
<th>Measurable Policy Objective</th>
<th>Monitoring/Audit method</th>
<th>Frequency of monitoring</th>
<th>Responsibility for performing the monitoring</th>
<th>Monitoring reported to which groups/committees, inc responsibility for reviewing action plans</th>
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<tbody>
<tr>
<td>Assess that staff involved in the care of elective adult surgical patients are aware of the appropriate treatments available to reduce the use of allogeneic blood.</td>
<td>Review of Datix reports reporting episodes where elective surgical patients have received allogeneic blood transfusion and the policy has not been followed.</td>
<td>Continuous</td>
<td>Transfusion Practitioner team</td>
<td>Patient Blood Management Committee</td>
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<td>Appropriate use of Trust blood bank resources</td>
<td>Review of blood bank usage and wastage report</td>
<td>Quarterly</td>
<td>Transfusion Practitioner team</td>
<td>Patient Blood Management Committee</td>
</tr>
</tbody>
</table>

13. Supporting References / Evidence Base


13.4 British Journal of Haematology, 2015, 171, 322-331

13.5 Anaesthesia 2015,70 (Suppl 1), 20-28
13.6 AAGBI Core Topics in Anaesthesia 2015, 127-143
13.7 Anaesthesia (Supplement 1 Peri-operative Medicine) 2016
13.8 British Journal of Anaesthesia Education, Volume 17, Number 1, January 2017
13.9 British Journal of Anaesthesia, Volume 118, Number 6, June 2016
13.10 British Journal of Anaesthesia, Volume 113, Number 3, September 2014
13.11 International Society of blood transfusion, Vax Sanguinis (2015) 109, 257-266
APPENDIX 1: EQUALITY IMPACT ASSESSMENT

Equality Impact Assessment Summary

Name and title: Dr Mark MacGregor, Consultant Anaesthetist
Policy: Patient Blood Management Prior to Surgery

<table>
<thead>
<tr>
<th>Background</th>
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<tr>
<td>Who was involved in the Equality Impact Assessment</td>
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The Author
The Transfusion Practitioner Team
Pharmacy

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<tr>
<td>A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age)</td>
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<td>The data sources and any other information used</td>
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<td>The consultation that was carried out (who, why and how?)</td>
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Equality Impact Assessment discussed with stakeholders at the Patient Blood Management Committee.

<table>
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<tr>
<th>Key Findings</th>
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<tr>
<td>Describe the results of the assessment</td>
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<tr>
<td>Identify if there is adverse or a potentially adverse impacts for any equalities groups</td>
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No adverse or potentially adverse impacts identified for any equality groups.

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<td>No adverse or potentially adverse impacts identified for any equality groups.</td>
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<tr>
<td>No changes recommended</td>
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<tr>
<td>Assessment will be repeated when the guideline is reviewed.</td>
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</table>
# APPENDIX 2: CHECKLIST FOR THE REVIEW AND APPROVAL OF DOCUMENTS

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

**Title of the document:** Patient Blood Management Prior to Surgery  
**Policy (document) Author:** Dr Mark MacGregor  
**Service Lead:** Denise Hallett

## 1. Title
- Is the title clear and unambiguous? **Yes**
- Is it clear whether the document is a guideline, policy, protocol or standard? **Yes** Guideline

## 2. Scope/Purpose
- Is the target population clear and unambiguous? **Yes**
- Is the purpose of the document clear? **Yes**
- Are the intended outcomes described? **Yes**
- Are the statements clear and unambiguous? **Yes**

## 3. Development Process
- Is there evidence of engagement with stakeholders and users? **Yes**
- Who was engaged in a review of the document (list committees/individuals)? **Yes**  
  - Patient Blood Management Committee  
  - Drugs and Therapeutics Committee  
  - TASCC Governance Committee
- Has the policy template been followed (i.e. is the format correct)?

## 4. Evidence Base
- Is the type of evidence to support the document identified explicitly? **Yes**
- Are local/organisational supporting documents referenced? **Yes**

## 5. Approval
- Does the document identify which committee/group will approve/ratify it? **Yes**
- If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document? **Yes**

## 6. Dissemination and Implementation
- Is there an outline/plan to identify how this will be done? **Yes** Section 9
- Does the plan include the necessary training/support to ensure compliance? **Yes**
<table>
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<td>7.</td>
<td>Process for Monitoring Compliance</td>
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<tr>
<td>Are there measurable standards or KPIs to support monitoring compliance of the document?</td>
<td>Yes</td>
<td>Iron registry and request form audit</td>
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<td>8.</td>
<td>Review Date</td>
<td></td>
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<tr>
<td>Is the review date identified and is this acceptable?</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?</td>
<td>Yes</td>
<td></td>
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<tr>
<td>10.</td>
<td>Equality Impact Assessment (EIA)</td>
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<tr>
<td>Has a suitable EIA been completed?</td>
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**Committee Approval (insert name of Committee)**

If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner

<table>
<thead>
<tr>
<th>Name of Chair</th>
<th>Date</th>
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</table>

**Ratification by Management Executive (if appropriate)**

If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner

**Date:** n/a
APPENDIX 3: GP REFERRAL LETTER TO INFORM THAT ORAL/ IV IRON TREATMENT HAS BEEN PRESCRIBED.

This letter must be sent for every patient treated.

Pre-assessment Clinic

Tel ext: 2498 or 2651

Dear Dr

Name of Patient.................................................................
NHS number.................................................................
Date of birth.................................................................

______________________________________________________________________________

THIS LETTER MAY REQUIRE ACTION BY THE GP

Your patient was seen in the Pre-operative Assessment Clinic on: .........................

Planned surgical procedure: ...................................................................................

Planned surgery date: ............................................................................................

The Full Blood Count Results drawn at pre-assessment have indicated that this patient is currently anaemic. (Please see the attached printout of the laboratory results)

We have decided to continue with the planned surgical procedure as detailed above. However, in order to help improve the haemoglobin prior to surgery, we initiated your patient on a course of:

Ferrous Fumarate 210 mg □  Ferrous Sulphate 200 mg □

Frequency: twice daily □  three times per day □

Iron isomaltoside (MONOFER®) IV □

We have arranged to check the patient’s blood results again in 4 weeks at the hospital. Yes □ No □

(Oral iron should be continued for 3 months after the haemoglobin and iron stores are replenished.)

NOTE: The cause of your patient’s anaemia may not have been investigated. Following review of the medication, if the patient remains anaemic you may wish to refer for appropriate investigation.

Thank you for your help

Signed:

Name (printed):
Date:
APPENDIX 4: GP REFERRAL LETTER REQUESTING INVESTIGATION OF THE PATIENT’S ANAEMIA

Dear Dr

Name of Patient: .................................................................
NHS number: ........................................................................
Date of birth: ........................................................................

THIS LETTER MAY REQUIRE ACTION BY THE GP
Your patient was seen in the Pre-operative Assessment Clinic on: ..................................
Planned surgical procedure: ............................................................................................
Surgical Consultant name: ............................................................................................
Who to contact when patient is optimised: Name: ..................................................
   Email: ............................ pager ........ telephone No:..........................

The Full Blood Count results drawn at pre-assessment indicate that this patient is currently anaemic with no known cause. (Please see the attached printout of the laboratory results) In line with the NICE Quality Statement (December 2016) your patient’s surgery has been postponed and we have informed the patient of this. The cause of the iron deficiency should be investigated before the surgery and we would appreciate your assistance in investigating this before we re-schedule their planned surgery. Surgery will be delayed until the cause of the anaemia is investigated and the patient’s anaemia is treated, or under discussion with the clinical team a decision is made for surgery to continue. The rationale for this decision stems from robust evidence that preoperative anaemia is associated with increased postoperative morbidity and mortality and with increased transfusion needs. We have initiated your patient on a course of:

Ferrous Fumarate 210 mg □ Ferrous Sulphate 200 mg □
Frequency: twice daily □ three times per day □
Iron isomaltoside (MONOFER®) IV □
Oral iron should be continued for 3 months after the haemoglobin and iron stores are replenished.

We have already booked the patient for a follow-up appointment at the nurse led Pre-Operative assessment Clinic in three months. Yes □ No □
If the patient remains anaemic and you think the surgery is still required, please contact the consultant’s secretary for a follow-up appointment to discuss further.
If your patient misses follow-up at three months, please refer the patient back to the Trust or email the following address .................................................................

Thank you for your help.
Yours sincerely
Signed:
Name (printed): Date:

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Dear patient

One of the routine blood tests taken when you came to the Pre-Operative Assessment Clinic has showed that you are anaemic which suggests you need to increase the iron in your blood before your surgery. Optimising your blood iron levels has also been shown to help speed up your recovery and reduce your chance of post-operative complications and reduce your need for blood transfusion either during or after your surgery.

Due to this unfortunately your surgery will need to be postponed until the cause of your anaemia has been identified and treated.

As treatment we would like you to start a course of:

- Ferrous Fumarate 210 mg three times a day
- Ferrous Fumarate 210 mg twice a day
- Ferrous sulphate 200 mg three times a day

What do you need to do?

1. Please take your treatment as advised and make an appointment to see your GP within the next few weeks to discuss investigation of your anaemia. You do not need to book an urgent appointment unless specifically advised. You may need to have some more tests or a referral to another hospital department organised.
2. You will have a review appointment at the Pre-Operative Assessment Clinic in three months to check that you are now well enough for surgery. This will be after the investigations and treatment by your GP.
3. You may also need to see your consultant again for an appointment to discuss other options for surgery.
4. If you experience any problems with any treatment started or need any additional help or advice please contact your GP.

Please note: Iron tablets sometimes have side effects, which make it difficult to continue with the treatment. These include: sickness, some discomfort in the upper part of your stomach, diarrhoea or constipation. Your stools can also take on a dark colour. Patients diagnosed with inflammatory bowel disease may experience an exacerbation of the irritable effects. These symptoms are common and not serious but if you find it difficult to continue with the tablets please contact your GP; they may be able to suggest another type of treatment. Iron should be taken on an empty stomach with orange juice or squash for best absorption. Tea, coffee and calcium tablets decrease the absorption of iron and should be avoided an hour either side of treatment.

Thank you

Signed:

Name (printed):        Date:
APPENDIX 6: PATIENT INFORMATION LETTER FOR PATIENTS WHO ARE ADVISED TO TAKE AN ORAL IRON PRE-OPERATIVELY

Pre-assessment Clinic

Tel ext: 2498 or 2651

Address, contact name and number

Dear patient

One of the routine blood tests taken when you came to the Pre-Operative Assessment Clinic has showed that you are mildly anaemic which suggests you would benefit from increasing the iron in your blood before your surgery. This is not a serious problem but correction of the iron prior to surgery will reduce your need for blood transfusion either during or after your surgery. Optimising your blood iron levels has also been shown to help speed up your recovery and reduce your chance of post-operative complications.

As treatment we would like you to start a course of:

- Ferrous Fumarate 210 mg **three times** a day □
- Ferrous Fumarate 210 mg **twice** a day □
- Ferrous sulphate 200 mg three times a day □

Your response to this treatment will be assessed by a further blood test in about 1 month of starting treatment. The form for this blood test is supplied along with this letter and can be taken to your local GP or hospital phlebotomy area.

What do you need to do?

1. The treatment should preferably be continued until the time of your surgery. After 1 month of treatment, please take the attached blood sample request form to Ashford or St Peter’s Hospital for a repeat blood test to reassess your iron levels. (St Peter’s Hospital, Rheumatology Department, Level 2 OPD Block, Mon –Fri 9h00-16h00 or Ashford Hospital Level 2 Ward Block, Mon –Fri 9h00-16h00.) or book an appointment with your GP.

2. If you experience any problems or need any additional help or advice please contact your GP.

Please note: Iron tablets sometimes have side effects, which make it difficult to continue with the treatment. These include: sickness, some discomfort in the upper part of your stomach, diarrhoea or constipation. Your stools can also take on a dark colour. Patients diagnosed with inflammatory bowel disease may experience an exacerbation of the irritable effects. These symptoms are common and not serious but if you find it difficult to continue with the tablets please contact your GP; they may be able to suggest another type of treatment.

Iron should be taken on an empty stomach with orange juice or squash for best absorption. Tea, coffee and calcium tablets decrease the absorption of iron and should be avoided an hour either side of treatment.

Thank you

Signed:

Name (printed): Date:

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APPENDIX 7: REFERRAL FOR IV IRON INFUSION TREATMENT AT ASHFORD INFUSION SUITE

Dear Infusion Suite team

I would be grateful if you can arrange an intravenous iron infusion slot for this patient:

Name of Patient: ................................................................. DOB: .........................................................
Hospital number: ................................................................

This patient was seen in the Pre-operative Assessment Clinic on: ........................................
Planned surgical procedure: ...........................................................................................................
Surgery date: ........................................

The indication for IV Monofer®?

- Failed to respond to oral iron: □
- Did not tolerate oral iron: □ What was the reason for not tolerating? .........................
- Surgery needs to be expedited: □
- Other reason: ...........................................................................................................................

Blood results: date: (……/……/…….)
Hb: ......................... CRP: ......................... WCC: ......................... Ferritin: .........................

The dosage of Intravenous Monofer® recommended:

- If HB>100g/L:  1000mg [for pts weighing between 50-70kg]
- 1500mg [for pts weighing >70kg]
- If HB<100g/L: 1500mg [for pts weighing between 50-70kg]
- 2000mg [for pts weighing >70kg]
(Maximum dose is 20 mg/Kg)

Should the patient develop anaphylaxis please call the on call anaesthetist at Ashford Hospital.
(pager # 5666)

Treatment required (tick the appropriate box) and prescribe dose on the patient’s drug chart too:

- Monofer® 500 mg in 100 ml of sodium chloride (0.9%) over 15 min □
- Monofer® 1000 mg in 100 to 250 ml of sodium chloride (0.9%) over a minimum of 30 min □
- Monofer® 1500 mg in 100 to 250 ml of sodium chloride (0.9%) over a minimum of 45 min □
- Monofer® 2000 mg in 100 to 250 ml of sodium chloride (0.9%) over a minimum of 60 min □

NB: Patients should be observed for at least 30 minutes post infusion.

Yours sincerely

Signed: ...........................................................

Name (printed): ...........................................................
Date: ................................................................

PLEASE FILE THIS REQUEST FORM IN THE PATIENT’S PURPLE FOLDER FOR SCANNING ONTO EVOLVE