

Information for clinicians

Pre-operative optimisation of iron deficiency anaemia

Between 30% and 50% of preoperative patients are found to be anaemic, with the majority of those diagnosed with anaemia being due to iron deficiency. Pre-operative anaemia, even when mild, is an independent risk factor for increased post-operative morbidity and mortality.

Anaemia is also linked to prolonged recovery time, increased length of stay and increased use of blood components, exposing the patient to avoidable transfusion associated risks ^(1,2,3).

Pre-operative anaemia management is now recognised as a key part of surgical prehabilitation and features as part of the Get It Right First Time (GIRFT) National Perioperative Care Programme.

Pre-optimising patients with Iron Deficiency Anaemia (IDA) prior to surgery can reduce risks, reduce transfusion requirements and improve outcomes. Perioperative pathways should be developed to identify and optimise these patients throughout their surgical journey as part of a wider Patient Blood Management (PBM) approach.

Who

- All patients undergoing elective surgery with expected blood loss of 500mls
- Intermediate surgery with cardiovascular or renal disease and uninvestigated symptoms
- All children should be screened If undergoing surgery with a risk of 10% blood loss or more

What

- Identification and treatment of anaemia
 - Check FBC
 - Consider screening for Iron and nutrient deficiencies If Hb <130g/L
 - Diagnose cause
 - Manage underlying cause
 - Optimise deficiencies as per protocol

When

- Early Identification is vital
- Patients should have an FBC check at referral to surgery or first surgical consultation
- Allow appropriate time for optimisation

Why

- Independent risk factor for post-op morbidity and mortality
- Reduce risks and unnecessary transfusion
- Improved patient outcomes
- Guideline compliance (NICE NG24 NICE QS138 CPOC 2025, BSH 2024)

How

- Develop a patient pathway Including anaemia management to embed a PBM approach
- Investigate and manage underlying cause
- Begin optimisation promptly
- Ensure patients are Informed and at the centre of decision making

Which procedures require routine FBC screening?

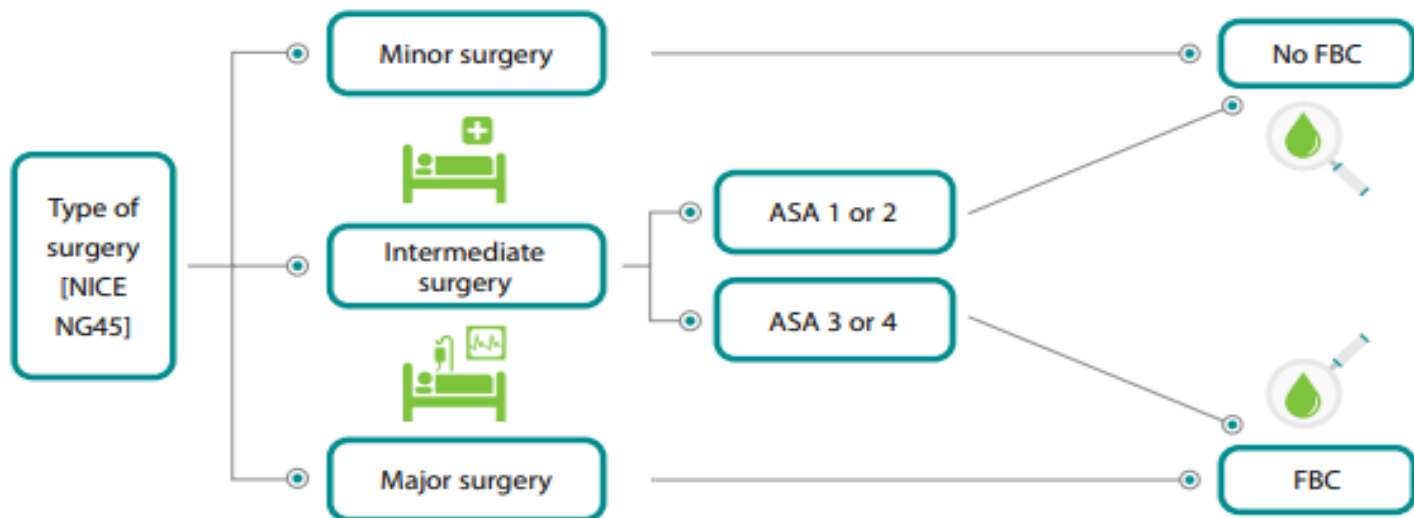


Figure 1: Taken from Centre for Perioperative Care (2025) Guideline for the Management of Anaemia in the Perioperative Pathway¹ pg. 34.

Classification of Anaemia and Management

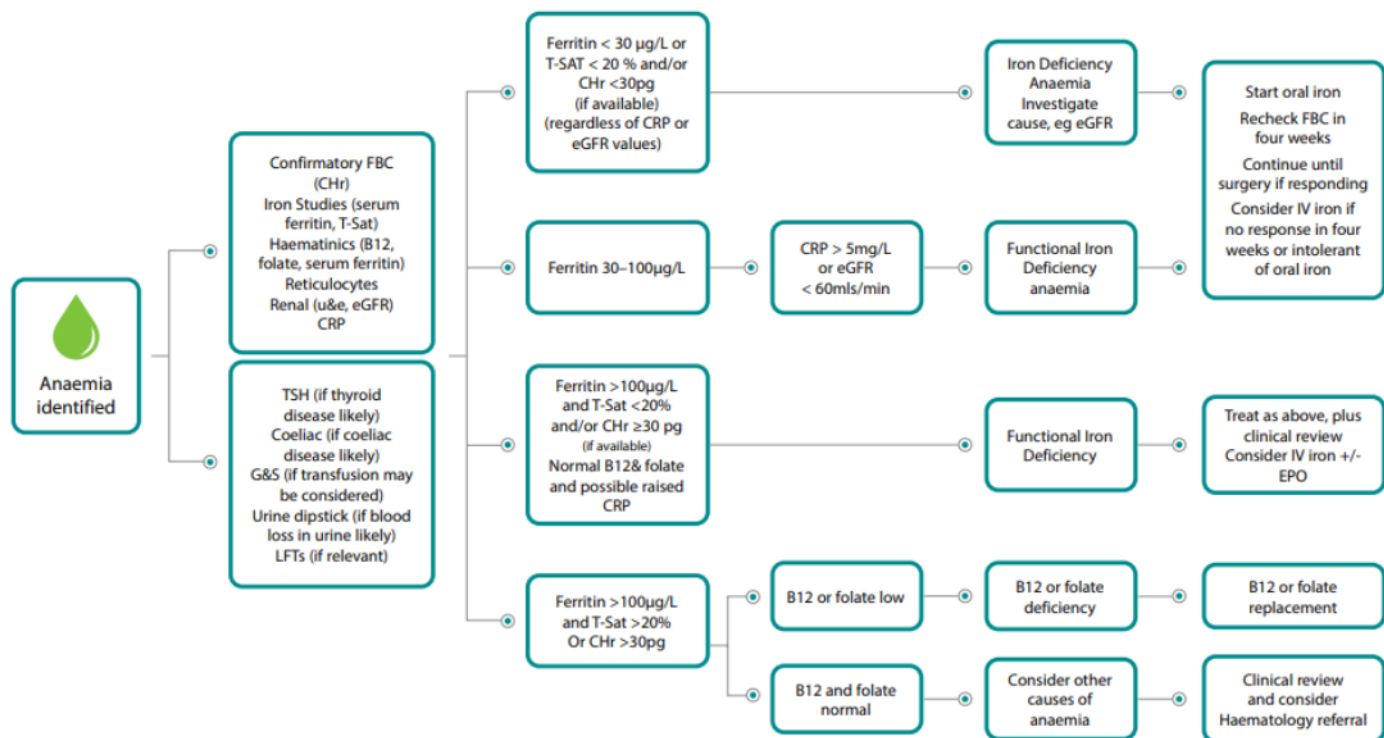


Fig 2: Taken from Centre for Perioperative Care (2025) Guideline for the Management of Anaemia In the Perioperative Pathway¹ pg. 36.

Key interventions

- Develop perioperative pathways for anaemic surgical patients with engagement from commissioners.
- Encourage collaboration between anaesthetic, surgical, and primary care teams.
- All anaemic patients undergoing surgery or at risk of anaemia, should receive information regarding causes and treatment of anaemia including options for blood transfusion ahead of surgery
- Aim to diagnose and treat anaemia as early as possible.
- If initial Hb <130g/L (all sexes) screen for nutritional deficiencies and investigate cause.
- Serum ferritin level < 30 µg/L is the most sensitive and specific test used for the identification of absolute iron deficiency. However, in the presence of inflammation patients with a ferritin between 30- 100 µg/L and a TSAT <20% may still benefit from iron supplementation.
- For iron deficient patients, with or without anaemia, commence oral iron supplementation as soon as possible daily, or on alternate days if there are signs of intolerance.
- Tolerance can vary with different preparations. Oral iron requires around 4 weeks to begin impacting Hb levels, but several weeks are required to adequately replenish iron stores.
- Intravenous iron should be the first line treatment if the procedure date is due within 4 weeks or for patients unable to tolerate, or unresponsive to oral iron. Treat as per local protocol.
- IV iron may be beneficial postoperatively.
- Surgery may need to be delayed while a patient is optimised. This decision should be made by a senior clinician depending on the balance of risk and benefit.
- Anaemia management should be part of a comprehensive patient blood management plan including peri and post-operative management. See the PBM toolkit for further guidance.
- Upon discharge patients and primary care should be given written information including, cause of anaemia, Hb on discharge, treatment during admission and any ongoing management plans and follow up requirements and who is responsible for those actions.
- NB: it is good clinical practice to treat all pre-operative surgical patients with IDA, even if only minor blood loss is expected. However, surgery can proceed for patients undergoing more minor surgical procedures while anaemia evaluation and treatment is ongoing.

* Based on guidance from the British Society for Haematology and Centre for Perioperative Care

NICE Guidance

NICE Blood Transfusion Guidelines NG24⁴

Intravenous and oral iron:

- Offer oral iron before and after surgery to patients with iron deficiency anaemia
- Consider intravenous iron before or after surgery for patients who:
 - have iron deficiency anaemia and cannot tolerate or absorb oral iron, or are unable to adhere to oral iron treatment
 - are diagnosed with functional iron deficiency
 - are diagnosed with iron deficiency anaemia, and the interval between the diagnosis of anaemia and surgery is predicted to be too short for oral iron to be effective

NICE Quality Statements⁵

QS1 - People with iron deficiency anaemia who are having surgery are offered iron supplementation before and after surgery.

Resources

BSH Guidelines

<https://onlinelibrary.wiley.com/doi/10.1111/bjh.19440>

ISBT guidance

[2. Pre-operative optimisation of haemoglobin | The International Society of Blood Transfusion \(ISBT\)](#)

NHSBT supporting Information

<https://hospital.blood.co.uk/patient-services/patient-blood-management/anaemia/>

NICE QS13 Quality Insights Audit tool

<https://hospital.blood.co.uk/audits/qs138-quality-insights-audit-tool/>

Perioperative Quality Improvement Programme

<https://pqip.org.uk/pages/0>

QIST Anaemia

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7048022/>

GIRFT- National Perioperative Care Plan

https://gettingitrightfirsttime.co.uk/associated_projects/npcp/

World Health Organisation

Guidance on implementing patient blood management to improve global blood health status

<https://www.who.int/publications/i/item/9789240104662>

Holmes at al. (2025) *Preoptimization of the anaemic patient*. Anaesthesia & Intensive Care Medicine 26: 1, 1-5.

References

1. Centre for Perioperative Care. Guideline for the Management of Anaemia in the Perioperative Pathway. London: CPOC, 2025.
2. Hands K et al. Identification and management of preoperative anaemia in adults: A British Society for Haematology Guideline update. Br J Haematol 2024; 205:88–99
3. Musallam KM et al. Preoperative anaemia and postoperative outcomes in non-cardiac surgery: a retrospective cohort study. The Lancet 378.9800 (2011): 1396-1407
4. National Institute for Health and Care Excellence (2015) Blood Transfusion {NG24}
<https://www.nice.org.uk/guidance/ng24>
5. National Institute for Health and Care Excellence (2016) Blood transfusion (QS138)
<https://www.nice.org.uk/guidance/qs138>

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