



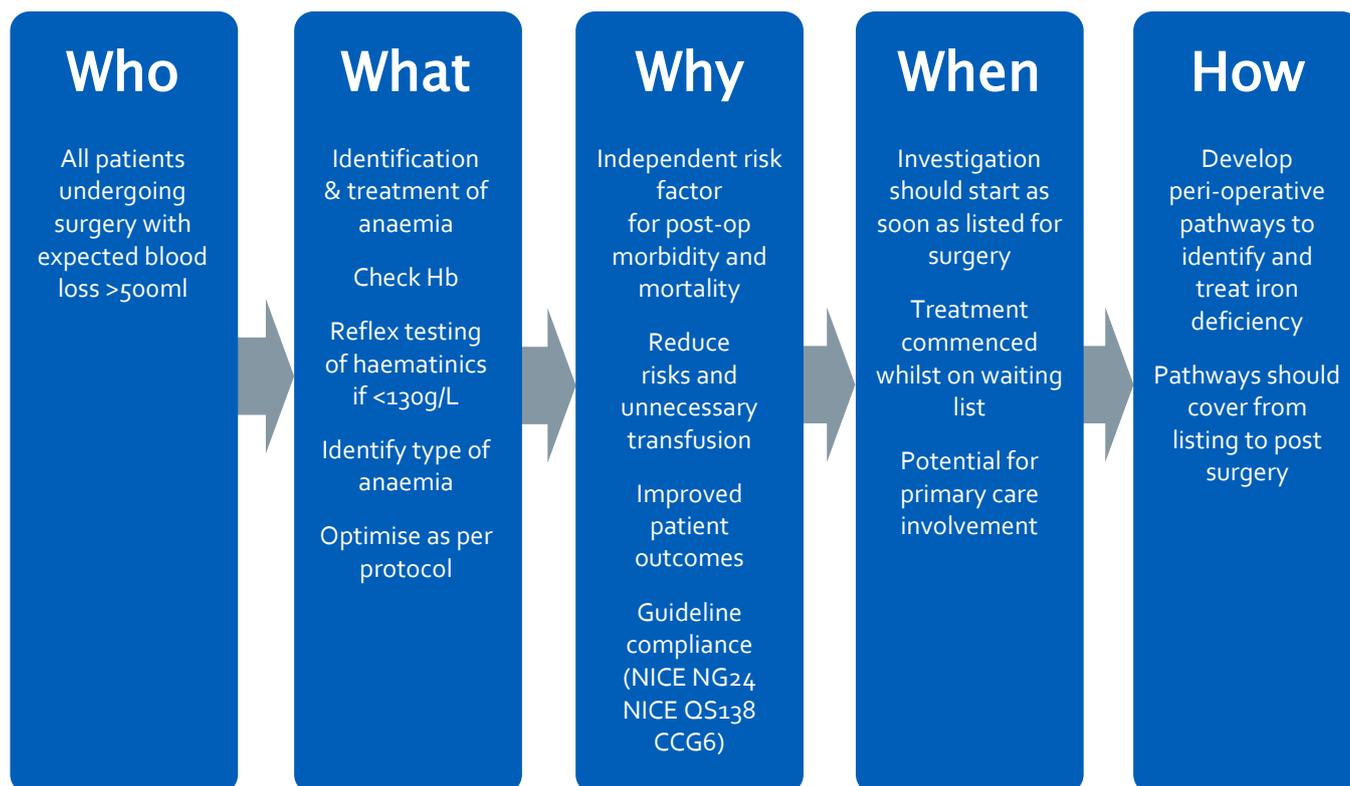
Information for clinicians

Pre-operative optimisation of iron deficiency anaemia

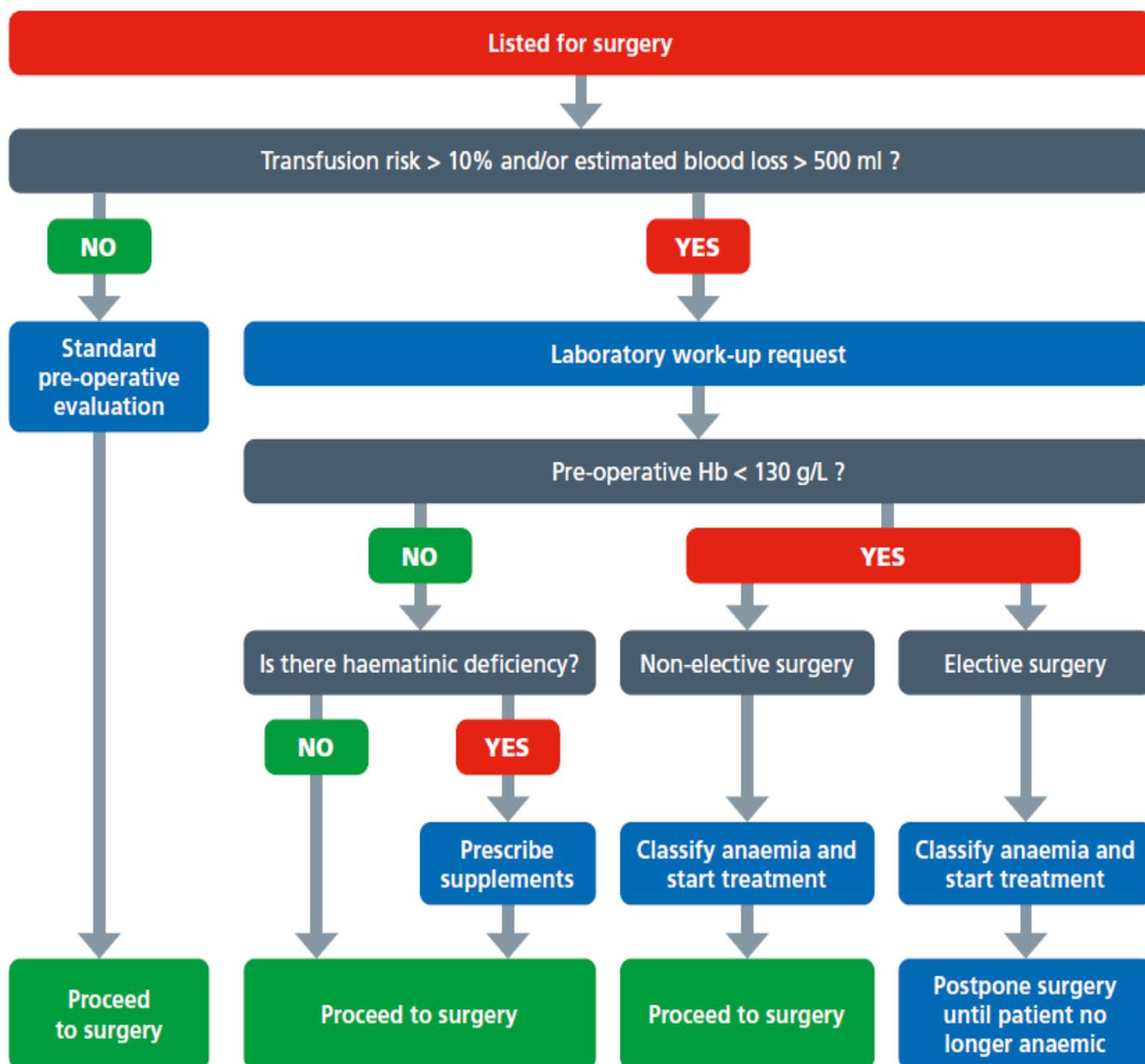
Iron deficiency anaemia (IDA) accounts for up to 75% of pre-operative anaemia cases. Even mild anaemia is an independent risk factor for post-operative morbidity and mortality and is associated with increased post-operative risks including, prolonged recovery time and length of stay, transfusion of blood components, and the associated risks of transfusion. Additionally, transfusions given for iron deficiency may indicate inappropriate use of blood^{1,2}.

Pre-optimisation of patients with IDA prior to surgery can reduce these risks, reduce transfusion requirements, and improve patient outcomes.

Perioperative pathways should be developed to identify and optimise these patients through the surgical process with the considerations below.



Algorithm for the management of surgical patients¹

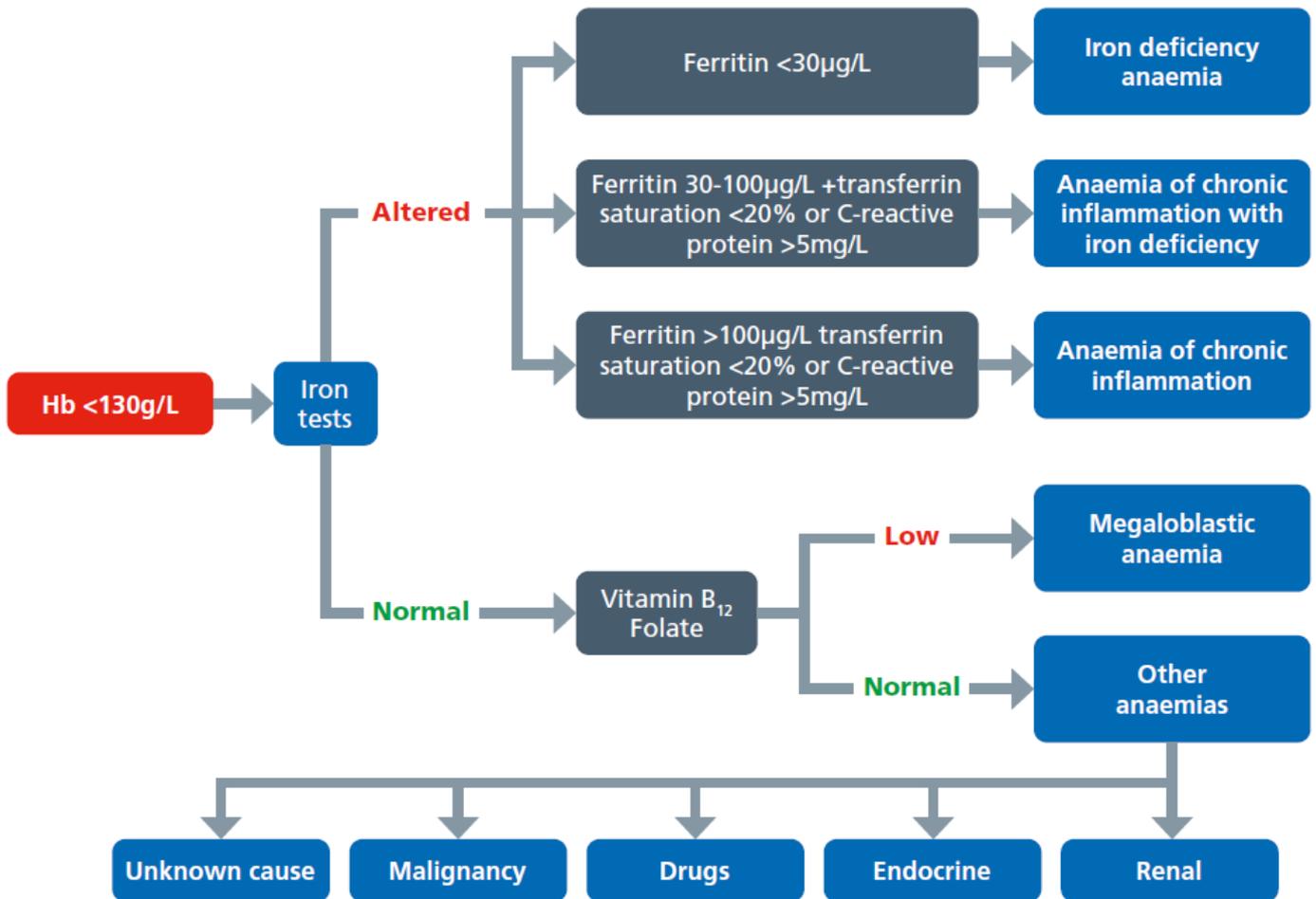


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Key interventions:

- Perioperative pathways should be developed, covering from when a patient is listed for surgery through to postoperative discharge
- Encourage collaboration between anaesthetic, surgical, and if possible, primary care teams. Engage with finance, audit, quality improvement teams, and commissioning groups to support pathway development
- Aim to diagnose and treat patients as early as possible
- An initial Hb should be checked as soon as listed for surgery
- If results of initial Hb <130g/L (all sexes) check haematinics (Ferritin, CRP, TSATS, B12, Folate) to identify type of anaemia

Algorithm for classification of perioperative anaemias¹



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- 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 (C-reactive protein > 5 mg/L) and/or transferrin saturation < 20%, a serum ferritin level < 100 µg/L is indicative of iron deficiency
- For iron deficient patients, with or without anaemia, where surgery is scheduled 6-8 weeks after diagnosis, oral iron replacements should be given, preferably by the GP. Daily (40–60 mg) or alternate-day (80–100 mg) treatment with oral iron and nutritional advice should be initiated immediately in patients with iron deficiency and no contra-indications
- Intravenous iron should be used if surgery is planned less than 6 weeks after the diagnosis or for patients unable to tolerate, or not responsive to, oral iron. Treat as per local protocol
- Consider postponing surgery to allow correction of treatable anaemia

NB: it is still 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 the International consensus statement of perioperative management of anaemia and iron deficiency¹.

Guidance

NICE Blood Transfusion Guidelines NG24³

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 Statements⁴

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

CQUIN CCG6

<https://www.england.nhs.uk/wp-content/uploads/2021/12/B1119-ii-cquin-annex-indicator-specifications.pdf>

CQUIN for 2022/23

Description

Ensure that 60% of major elective blood loss surgery patients are treated in line with the NICE Guideline NG24

Numerator

All admissions where the following actions were applied within the 6-week period prior to the procedure:

- Haemoglobin (Hb) measured; and,
- If anaemia present, have serum ferritin level tested; and,
- If diagnosed with iron deficiency anaemia offered appropriate iron treatment (oral and/or IV iron)

Resources

BSH Guidelines <https://onlinelibrary.wiley.com/doi/full/10.1111/bjh.13623>

ISBT guidance

<https://www.isbtweb.org/working-parties/clinical-transfusion/chapter-3-pre-operative-optimisation-of-haemoglobin>

NBTC guidelines

<https://www.transfusionsguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/patient-blood-management>

Perioperative Quality Improvement Programme <https://pqip.org.uk/pages/0>

QIST Anaemia <https://qist.org.uk/>

World Health Organisation *The urgent need to implement patient blood management: policy brief*

<https://apps.who.int/iris/bitstream/handle/10665/346655/9789240035744-eng.pdf?sequence=1&isAllowed=y>

Mitchell E et al (2017) *A pre-operative anaemia service to avoid unnecessary blood transfusions*. Nursing Times [online]; 113: 2, 53.

References

1. Munoz M, Acheson AG, Auerbach M, Besser M, Habler O, Kehlet H, Liembruno, GM, Lasocki S, Meybohm P, Rao Baikady R, Richards T, Shander A, So-Osman C, Spahn DR, and Klein AA (2017) International consensus statement on the peri-operative management of anaemia and iron deficiency. *Anaesthesia*, 72: 233-247. doi:10.1111/anae.13773
2. Musallam KM et al. Preoperative anaemia and postoperative outcomes in non-cardiac surgery: a retrospective cohort study. *The Lancet* 378.9800 (2011): 1396-1407
3. National Institute for Health and Care Excellence (2015) Blood Transfusion {NG24} <https://www.nice.org.uk/guidance/ng24>
4. National Institute for Health and Care Excellence (2016) Blood transfusion (QS138) <https://www.nice.org.uk/guidance/qs138>

Contact us

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This leaflet was prepared by NHS Blood and Transplant in collaboration with the National Blood Transfusion Committee.

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