



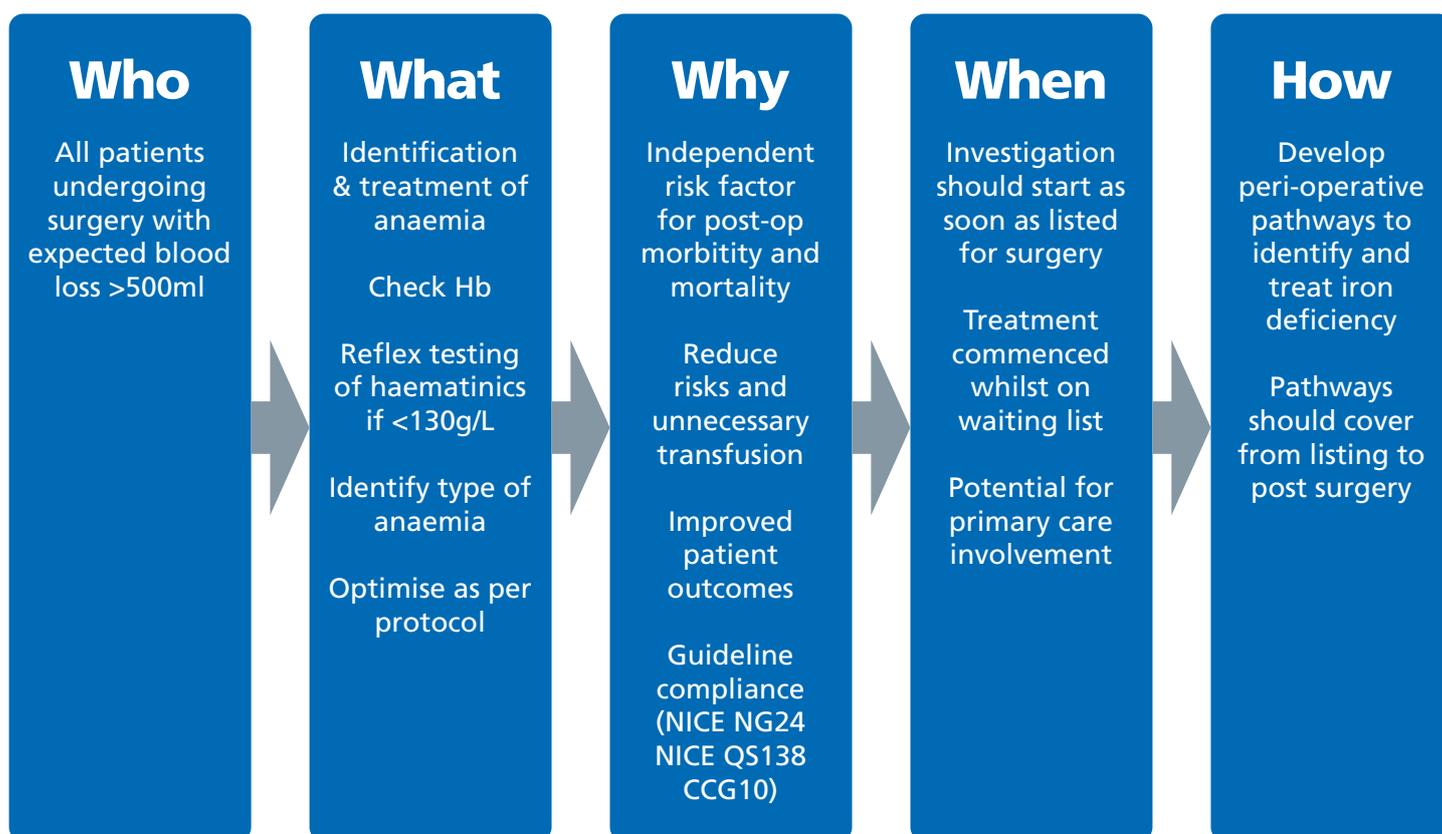
## Information for clinicians

# Pre-operative optimisation of iron deficiency anaemia

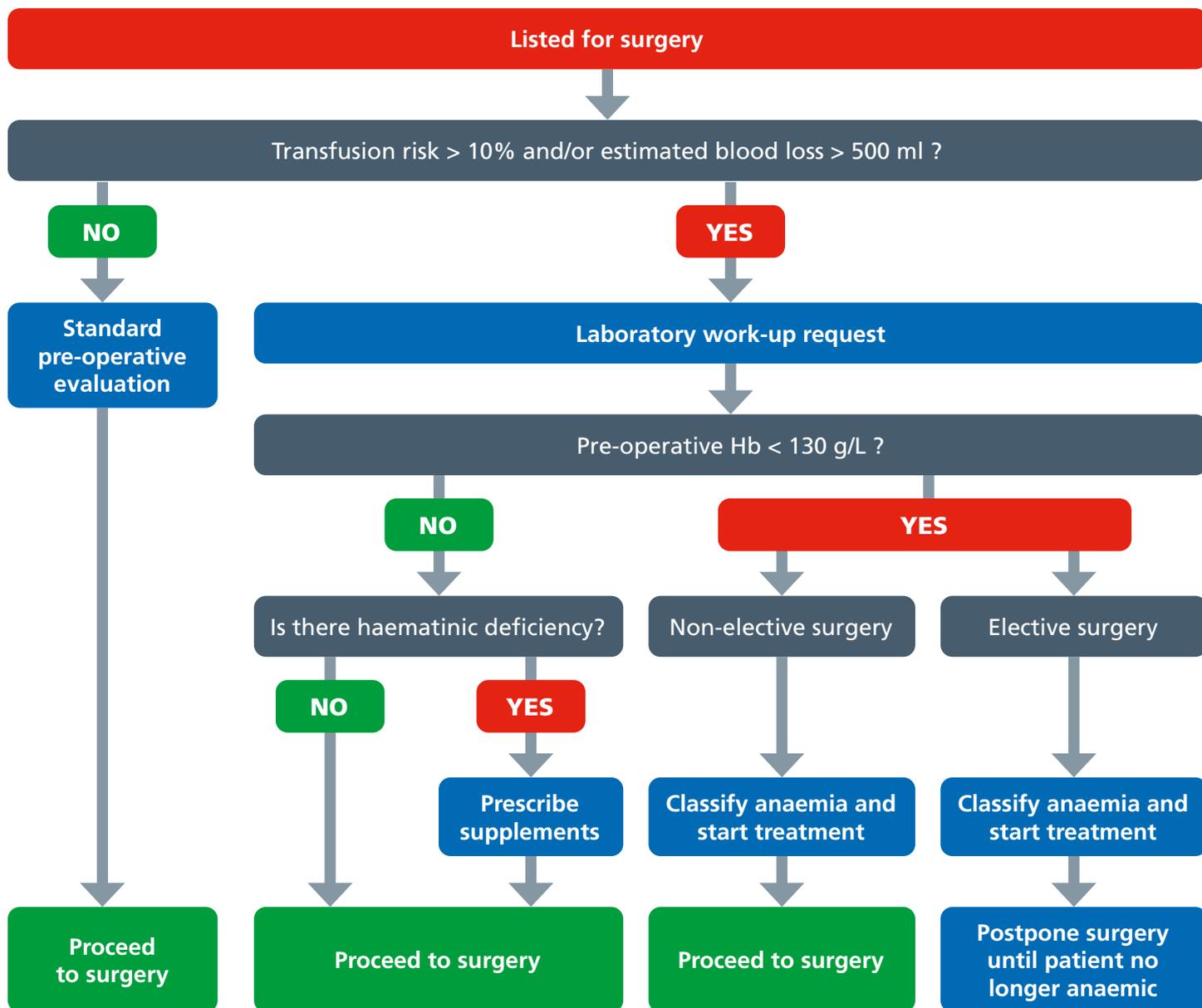
**Iron deficiency anaemia (IDA) accounts for up to 75% of pre-operative anaemia cases. Even mild anaemia is an independent risk factor for post-operative morbidity and mortality and is associated with increased post-operative risks including prolonged recovery time and length of stay, transfusion of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

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.



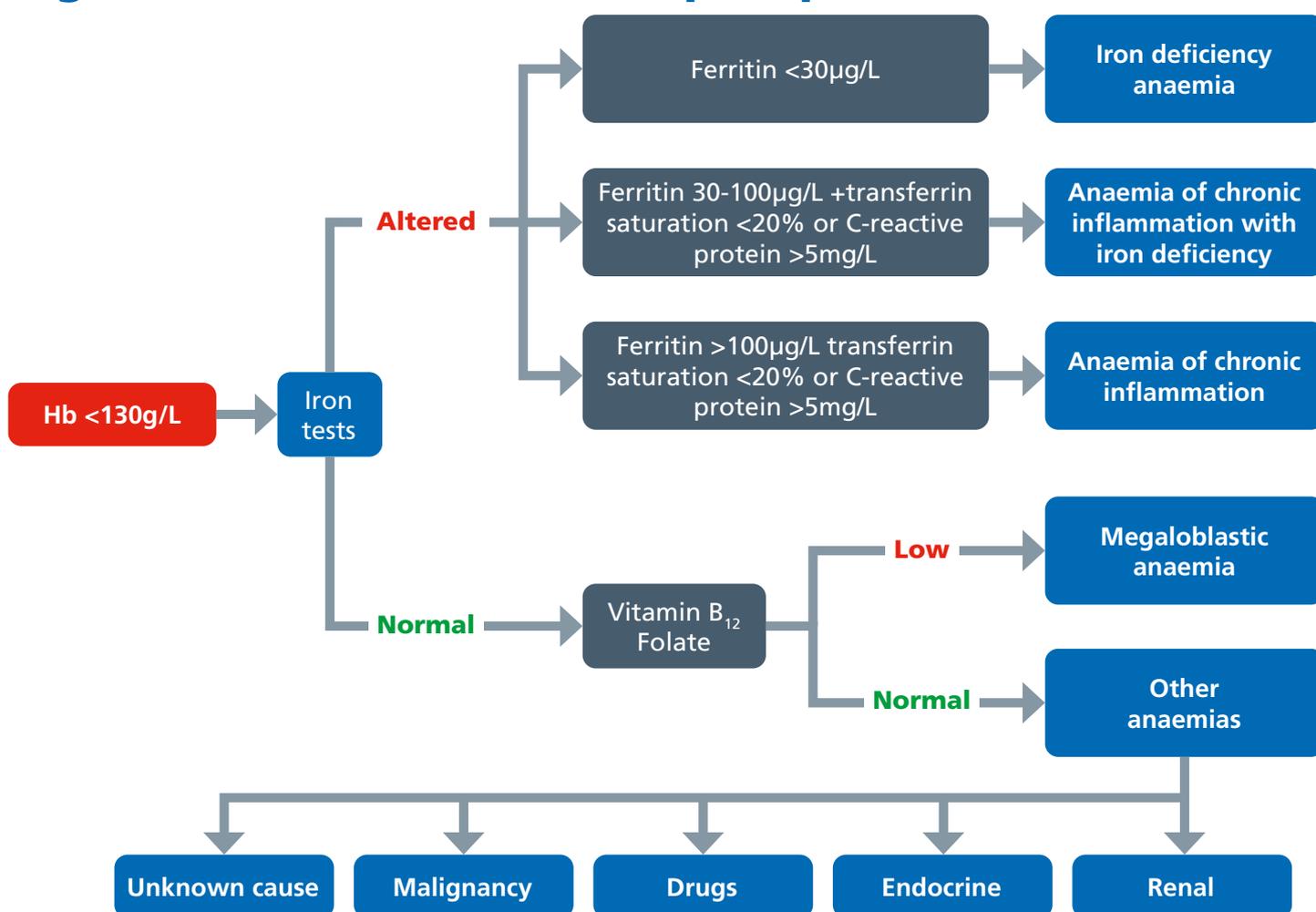
## Algorithm for the management of surgical patients<sup>1</sup>



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**Key interventions:**

- Perioperative pathways should be developed, covering from when a patient is listed for surgery through to post-operative 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 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 anaemias<sup>1</sup>**

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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 deficiency <sup>1</sup>.

## Guidance

### NICE Blood Transfusion Guidelines NG24<sup>3</sup>

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 Statements<sup>4</sup>

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

#### CQUIN CCG10

<https://www.england.nhs.uk/wp-content/uploads/2020/01/FINAL-CQUIN-20-21-Indicator-Specifications-190220.pdf>

#### CQUIN for 2020/21

##### 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

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

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

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

NBTC guidelines <http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/patient-blood-management>

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

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

The Anaemia Community <https://anaemia.org.uk/>

## References

1. Muñoz, M., Acheson, A.G., Auerbach, M., Besser, M., Habler, O., Kehlet, H., Liembruno, G.M., Lasocki, S., Meybohm, P., Rao Baikady, R., Richards, T., Shander, A., So-Osman, C., Spahn, D.R. and Klein, A.A. (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

**We would welcome your feedback and comments on this leaflet. You can contact us:**

By post to:

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Or by phone: **01865 381010**

This leaflet was prepared by NHS Blood and Transplant in collaboration with the National Blood Transfusion Committee. Further supplies can be obtained by accessing <https://hospital.nhsbtleaflets.co.uk>

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