## Haematology audit template

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| Date of completion  | (To be inserted when completed) |
| Name of lead author/participants | (To be inserted) |
| Specialty | Haematology |
| Title | **An audit of compliance with the British Society for Haematology guidelines for the identification and management of preoperative anaemia in adults** |
| Background | The British Society for Haematology (BSH) has published guidance on the identification and management of preoperative anaemia in adults. This audit will review compliance with the main recommendations made. |
| Aim & objectives | To review whether: * investigations to identify and manage preoperative anaemia in adults are performed appropriately
* adult patients with preoperative anaemia are being managed appropriately.
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| Standards & criteria | **Criteria range:** 100%, or if not achieved, there is documentation in the case notes that explains the variance.**The association of preoperative anaemia with patient outcome after surgery*** Assessment for anaemia in patients undergoing elective surgery should be performed early in the preoperative pathway.
* Patients undergoing major surgery should be screened for anaemia by full blood count (including red cell indices) in the first instance.
* Patients should be provided with information regarding the results of preoperative screening tests and potential treatment options to allow for shared decision-making regarding further management.

**Definition of anaemia*** In the preoperative context, haemoglobin (Hb) <130 g/L should be considered the threshold at which patients are likely to benefit from screening for iron and/or other nutrient deficiencies and enhanced patient blood management (PBM) measures.

**Iron deficiency anaemia and iron metabolism*** Ferritin <30 μg/L suggests absolute iron depletion/deficiency likely to benefit from iron supplementation.
* Ferritin 30–100 μg/L with a low transferrin saturation (TSAT) (<20%) indicates possible iron depletion/deficiency in the context of inflammation that may benefit from iron supplementation.
* Patients with unexplained absolute iron deficiency (AID) should be referred for investigation according to local criteria or those set out by British Society for Gastroenterology.

**Non-iron deficiency-related anaemia*** In unexplained anaemia without iron deficiency, referral to haematology should be considered according to the severity of anaemia (e.g. men with Hb <120 g/L, women with Hb <100 g/L, or according to locally agreed criteria). The likelihood of a serious cause or haemoglobinopathy is proportional to anaemia severity.

**Algorithms for anaemia investigation*** Commissioners and provider organisations should formalise integrated pathways for the referral of patients found to be anaemic during surgical workup.
* The use of reflex testing aiming to identify the cause of anaemia may reduce delays in anaemia diagnosis and minimise patient visits.

**Treatment of preoperative anaemia*** Patients diagnosed with absolute iron deficiency anaemia (IDA) should be treated with iron replacement. Oral iron therapy should be offered as first-line treatment.
* Intravenous iron may be considered in patients with confirmed iron deficiency who are intolerant of oral iron, or for patients where there is a suboptimal response to oral iron, or where there is insufficient time in the surgical pathway to assess response to oral iron.
* Intravenous iron should not be offered indiscriminately to all patients with anaemia preoperatively.
* Evaluation and audit of practice should be encouraged to contribute to the evidence base for timing of iron therapy.

**Erythropoiesis-stimulating agent therapy*** Erythropoiesis-stimulating agent (ESA) therapy may be indicated to treat preoperative anaemia in patients who decline transfusion therapy or in patients who have complex red cell antibodies.
* When ESA therapy is indicated preoperatively, it should be given with iron supplementation to maximise its efficacy.

**Role of preoperative transfusion*** Preoperative transfusion should only be considered for the correction of preoperative anaemia in very anaemic patients when an urgency for surgery precludes other options for management of anaemia, or when these have been instituted but have not had the desired effect. Restrictive transfusion thresholds should be employed wherever possible.
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| Method | **Sample selection:** All patients with pre-op anaemia in the preceding 12 months. **Data to be collected on proforma (see below).** |
| Results | (To be completed by the author)The results of this audit show the following compliance with the standards.

| **Investigation** | **No. audited** | **No. compliant** | **% compliance** |
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| **The association of preoperative anaemia with patient outcome after surgery** |
| Assessment for anaemia in patients undergoing elective surgery was performed early in the preoperative pathway  |  |  |  |
| Patients undergoing major surgery were screened for anaemia by full blood count (including red cell indices) in the first instance |  |  |  |
| Patients were provided with information regarding the results of preoperative screening tests and potential treatment options to allow for shared decision‑making regarding further management |  |  |  |
| **Definition of anaemia** |
| In the preoperative context, Hb <130 g/L was considered the threshold at which patients are likely to benefit from screening for iron and/or other nutrient deficiencies and enhanced PBM measures  |  |  |  |
| **Iron deficiency anaemia and iron metabolism** |
| Patients with ferritin levels <30 μg/L were offered iron supplementation |  |  |  |
| Patients with ferritin levels 30–100 μg/L with a low TSAT (<20%) in the context of inflammation were offered iron supplementation |  |  |  |
| Patients with unexplained AID were referred for investigation according to local criteria or those set out by British Society for Gastroenterology |  |  |  |
| **Non-iron deficiency-related anaemia** |
| In unexplained anaemia without iron deficiency, referral to haematology was considered according to the severity of anaemia (e.g. men with Hb <120 g/L, women with Hb <100 g/L, or according to locally agreed criteria) |  |  |  |
| **Algorithms for anaemia investigation** |
| Commissioners and provider organisations formalised integrated pathways for the referral of patients found to be anaemic during surgical workup |  |  |  |
| Reflex testing was performed with the aim of identifying the cause of anaemia  |  |  |  |
| **Treatment of preoperative anaemia** |
| Patients diagnosed with IDA were treated with iron replacement. Oral iron therapy was offered as first-line treatment  |  |  |  |
| Intravenous iron was considered in patients with confirmed iron deficiency who are intolerant of oral iron, or for patients where there is a suboptimal response to oral iron, or where there is insufficient time in the surgical pathway to assess response to oral iron |  |  |  |
| Intravenous iron was not offered indiscriminately to all patients with anaemia preoperatively |  |  |  |
| Evaluation and audit of practice was encouraged to contribute to the evidence base for timing of iron therapy  |  |  |  |
| **Erythropoiesis-stimulating agent therapy** |
| Erythropoiesis-stimulating agent therapy was considered to treat preoperative anaemia in patients who decline transfusion therapy or in patients who have complex red cell antibodies |  |  |  |
| When ESA therapy was indicated preoperatively, it was given with iron supplementation to maximise its efficacy |  |  |  |
| **Role of preoperative transfusion** |
| Preoperative transfusion was only considered for the correction of preoperative anaemia in very anaemic patients when an urgency for surgery precludes other options for management of anaemia, or when these have been instituted but have not had the desired effect. Restrictive transfusion thresholds were employed wherever possible |  |  |  |

**Commentary:** |
| Conclusion | (To be completed by the author) |
| Recommend-ations for improvement | Present the result with recommendations, actions and responsibilities for action and a timescale for implementation. Assign a person(s) responsible to do the work within a timeframe. |
| Action plan | (To be completed by the author – see attached action plan proforma) |
| Re-audit date | (To be completed by the author) |
| References | 1. Hands K, Daru J, Evans C, Kotze A, Lewis C, Narayan S *et al*. Identification and management of preoperative anaemia in adults: A British Society for Haematology Guideline update. *Br J Haematol* 2024;205:88–99.
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## Data collection proforma for the identification and management of preoperative anaemia in adults

## Audit reviewing turnaround times

Patient name:

Hospital number:

Date of birth:

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|  **Standard** | **1****Yes**  | **2****No** | **3** If shaded box not ticked, was there documentation to explain the variance?**Yes/No** plus free-text comment | **4** Compliant with guideline if shaded box ticked or an appropriate explanation from column 3. **Yes/No**(Record if standard not applicable) |
| **The association of preoperative anaemia with patient outcome after surgery** |
| **1** Assessment for anaemia in patients undergoing elective surgery was performed early in the preoperative pathway |  |  |  |  |
| **2** Patients undergoing major surgery were screened for anaemia by full blood count (including red cell indices) in the first instance |  |  |  |  |
| **3** Patients were provided with information regarding the results of preoperative screening tests and potential treatment options to allow for shared decision making regarding further management |  |  |  |  |
| **Definition of anaemia** |
| **1** In the preoperative context, Hb <130 g/L was considered the threshold at which patients are likely to benefit from screening for iron and/or other nutrient deficiencies and enhanced PBM measures |  |  |  |  |
| **Iron deficiency anaemia and iron metabolism** |
| **1** Patients with ferritin levels <30 μg/L were offered iron supplementation |  |  |  |  |
| **2** Patients with ferritin levels 30‍–‍100 μg/L with a low TSAT (<20%) in the context of inflammation were offered iron supplementation |  |  |  |  |
| **3** Patients with unexplained AID were referred for investigation according to local criteria or those set out by British Society for Gastroenterology |  |  |  |  |
| **Non-iron deficiency-related anaemia** |
| **1** In unexplained anaemia without iron deficiency, referral to haematology was considered according to the severity of anaemia (e.g. men with Hb <120 g/L, women with Hb <100 g/L, or according to locally agreed criteria) |  |  |  |  |
| **Algorithms for anaemia investigation** |
| **1** Commissioners and provider organisations formalised integrated pathways for the referral of patients found to be anaemic during surgical workup |  |  |  |  |
| **2** Reflex testing was performed with the aim of identifying the cause of anaemia |  |  |  |  |
| **Treatment of preoperative anaemia** |
| **1** Patients diagnosed with IDA were treated with iron replacement. Oral iron therapy should be offered as first-line treatment  |  |  |  |  |
| **2** Intravenous iron was considered in patients with confirmed iron deficiency who are intolerant of oral iron, or for patients where there is a suboptimal response to oral iron, or where there is insufficient time in the surgical pathway to assess response to oral iron |  |  |  |  |
| **3** Intravenous iron was not offered indiscriminately to all patients with anaemia preoperatively |  |  |  |  |
| **4** Evaluation and audit of practice was encouraged to contribute to the evidence base for timing of iron therapy  |  |  |  |  |
| **Erythropoiesis-stimulating agent therapy** |
| **1** Erythropoiesis-stimulating agent therapy was considered to treat preoperative anaemia in patients who decline transfusion therapy or in patients who have complex red cell antibodies |  |  |  |  |
| **2** When ESA therapy was indicated preoperatively, it was given with iron supplementation to maximise its efficacy |  |  |  |  |
| **Role of preoperative transfusion** |
| **1** Preoperative transfusion was only considered for the correction of preoperative anaemia in very anaemic patients when an urgency for surgery precludes other options for management of anaemia, or when these have been instituted but have not had the desired effect. Restrictive transfusion thresholds were employed wherever possible |  |  |  |  |
| **Audit action plan** An audit of compliance with the BSH guidelines for the identification and management of preoperative anaemia in adults |
| Audit recommendation | Objective | Action | Timescale | Barriers and constraints | Outcome | Monitoring |
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