## 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 guideline on the screening and diagnosis of significant haemoglobinopathies** |
| Background | The British Society for Haematology (BSH) has published guidance on the screening and diagnosis of significant haemoglobinopathies.1 This audit will review compliance with some of the main recommendations. |
| Aim & objectives | To review whether:  patients with significant haemoglobinopathies are being screened, tested and managed in an appropriate way  investigations are being performed appropriately. |
| Standards & criteria | **Criteria range:** 100%, or if not achieved, there is documentation in the case notes that explains the variance.  **Assessment of abnormal antenatal screening results**   1. The suspected presence of a significant variant of haemoglobin (Hb) should be confirmed by a suitable alternative method. 2. All patients with low mean cell haemoglobin (MCH) and high Hb A2 percentage should have a report of β thalassaemia. 3. The reports of β thalassaemia for patients with low MCH and high Hb A2 percentage should not be done with DNA testing.   **Newborn screening**   1. Babies with suspected β thalassaemia major/transfusion-dependent thalassaemia (TDT), based on there being Hb F only or only a low concentration of Hb A, must be followed up and further testing performed. 2. Detection of a significant abnormality should be followed by further testing to achieve a definitive diagnosis.   **Preoperative/paranaesthesia**   1. Emergency screening with a sickle solubility test or other screening test must always be followed by definitive analysis.   **Laboratory investigation in the diagnosis and management of clinical disorders**   1. Patients with β thalassaemia intermedia/non-transfusion dependent thalassaemia (NTDT) being administered hydroxycarbamide or having received gene therapy should have Hb F monitored.   **Laboratory methods**   1. Abnormal laboratory screening results should be confirmed by a complementary technique(s) and that complementary technique(s) should be appropriate for the abnormality. If the technique(s) was not appropriate, then a third technique should be used. 2. All sickle solubility tests should be confirmed by high performance liquid chromatography (HPLC), capillary electrophoresis (CE) or an alternative method. 3. Paternal tests should ideally be performed after iron results were requested and received. 4. Laboratories should be aware of the conditions that may not be detected when using the Antenatal and Newborn Screening Programmes’ algorithms and also of the effect of blood transfusion on the interpretation of results.   **Accurate information of family origin**   1. A local written policy for linkage of antenatal and neonatal screening services should be followed, including the use of the at-risk pregnancy alert form. |
| Method | **Sample selection (as appropriate):**  For pre-operative or screening patients, all individuals who have received a haemoglobinopathy report in the preceding 12 months, up to a maximum of 50 patients  or  for diagnosis patients, all individuals who have received a haemoglobinopathy report in the preceding 12 months, up to a maximum of 20 patients.  **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** | | **Assessment of abnormal antenatal screening results** | | | | | 1. The suspected presence of a significant variant of Hb was confirmed by a suitable alternative method |  |  |  | | 1. All patients with low MCH and high Hb A2 percentage had a report of β thalassaemia |  |  |  | | 1. The reports of β thalassaemia for patients with low MCH and high Hb A2 percentage were not done with DNA testing |  |  |  | | **Newborn screening** | | | | | 1. Babies with suspected β thalassaemia major/TDT, based on there being Hb F only or only a low concentration of Hb A, were followed up and further testing was performed |  |  |  | | 1. Detection of a significant abnormality was followed by further testing to achieve a definitive diagnosis |  |  |  | | **Preoperative/paranaesthesia** | | | | | 1. Emergency screening with a sickle solubility test or other screening tests were always followed by definitive analysis |  |  |  | | **Laboratory investigation in the diagnosis and management of clinical disorders** | | | | | 1. Patients with β thalassaemia intermedia/NTDT being administered hydroxycarbamide or having received gene therapy underwent Hb F monitoring |  |  |  | | **Laboratory methods** | | | | | 1. Abnormal laboratory screening results were confirmed by a complementary technique(s) and that technique(s) was appropriate for the abnormality. If the technique(s) was not appropriate, then a third technique was used |  |  |  | | 1. All sickle solubility tests were confirmed by HPLC, CE or an alternative method |  |  |  | | 1. Paternal tests were ideally performed after iron results were requested and received |  |  |  | | 1. Laboratories were aware of the conditions that may not be detected when using the Antenatal and Newborn Screening Programmes’ algorithms and also of the effect of blood transfusion on the interpretation of results |  |  |  | | **Accurate information of family origin** | | | | | 1. A local written policy for linkage of antenatal and neonatal screening services was followed, including the use of the at-risk pregnancy alert form |  |  |  |   **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 time frame.  Some suggestions:  highlight areas of practice that are different  present findings. |
| Action plan | (To be completed by the author – see attached action plan proforma) |
| Re-audit date | (To be completed by the author) |
| Reference | 1. Bain BJ, Daniel Y, Henthorn J, de la Salle B, Hogan A, Roy NBA *et al*. Significant haemoglobinopathies: A guideline for screening and diagnosis: A British Society for Haematology Guideline: A British Society for Haematology Guideline. *Br J Haematol* 2023;201:1047–1065. |

## Data collection proforma for patients (Significant haemoglobinopathies: A guideline to screening and diagnosis)

## Audit reviewing practice

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) |
| Assessment of abnormal antenatal screening results | | | | |
| **1** The suspected presence of a significant variant of Hb was confirmed by a suitable alternative method |  |  |  |  |
| **2** All patients with low MCH and high Hb A2 percentage had a report of β thalassaemia |  |  |  |  |
| **3** The reports of β thalassaemia for patients with low MCH and high Hb A2 percentage were not done with DNA testing |  |  |  |  |
| Newborn screening | | | | |
| **1** Babies with suspected β thalassaemia major/TDT, based on there being Hb F only or only a low concentration of Hb A, were followed up and further testing was performed |  |  |  |  |
| **2** Detection of a significant abnormality was followed by further testing to achieve a definitive diagnosis |  |  |  |  |
| Preoperative/paranaesthesia | | | | |
| **1** Emergency screening with a sickle solubility test or other screening tests were always followed by definitive analysis |  |  |  |  |
| Laboratory investigation in the diagnosis and management of clinical disorders | | | | |
| **1** Patients with β thalassaemia intermedia/NTDT being administered hydroxycarbamide or having received gene therapy underwent Hb F monitoring |  |  |  |  |
| Laboratory methods | | | | |
| **1** Abnormal laboratory screening results were confirmed by a complementary technique(s) and that technique(s) was appropriate for the abnormality. If the technique(s) was not appropriate, then a third technique was used |  |  |  |  |
| **2** All sickle solubility tests were confirmed by HPLC, CE or an alternative method |  |  |  |  |
| **3** Paternal tests were ideally performed after iron results were requested and received |  |  |  |  |
| **4** Laboratories were aware of the conditions that may not be detected when using the Antenatal and Newborn Screening Programmes’ algorithms and also of the effect of blood transfusion on the interpretation of results |  |  |  |  |
| Accurate information of family origin | | | | |
| **1** A local written policy for linkage of antenatal and neonatal screening services was followed, including the use of the at-risk pregnancy alert form |  |  |  |  |

**List of investigations**

(To be completed by the author)

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|  | **Yes** | **No** |
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| **Audit action plan**  An audit of compliance with the BSH guideline on the screening and diagnosis of significant haemoglobinopathies | | | | | | |
| Audit recommendation | Objective | Action | Timescale | Barriers and constraints | Outcome | Monitoring |
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