## 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 forthe management of myelofibrosis |
| Background | The British Society for Haematology (BSH) has published guidance on the management of myelofibrosis. This audit will review compliance with some of the main recommendations made. |
| Aim & objectives | This audit template is a tool to determine whether:patients with myelofibrosis are being generally managed in keeping with suggested BSH guidance. |
| Standards & criteria | **Criteria range**: 100%, or if not achieved, there is documentation in the case notes that explains the variance.**Treatment with Janus kinase inhibitors** 1. Ruxolitinib should be used in the treatment of myelofibrosis-related splenomegaly or symptoms for eligible patients who have intermediate II or high-risk disease and in keeping with National Institute for Health and Care Excellence (NICE) guidance.
2. Hepatitis B and C, and human immunodeficiency virus (HIV) status should be assessed prior to treatment with ruxolitinib. Risk factors of mycobacterial infection and herpes zoster reactivation should also be evaluated.
3. Initial dosing should be regularly optimised by clinical assessment and blood count monitoring.
4. Spleen size assessment and objective symptom monitoring should be performed.
5. Ruxolitinib should not be stopped abruptly to avoid the possibility of systemic inflammatory response syndrome (SIRS).

**Fedratinib**1. Fedratinib should be considered for patients with myelofibrosis for the treatment of disease-related splenomegaly and/or for patients who are resistant to or intolerant to ruxolitinib, in the 2nd line setting as per NICE guidance.
2. Blood thiamine levels should be measured prior to starting fedratinib and monitored during treatment, with replacement given if levels are lower than the local normal range.

**Useful agents in certain circumstances** 1. Patients with anaemia associated with inadequate erythropoietin levels should be treated with a trial of erythropoiesis-stimulating agents (ESAs), with and without ruxolitinib.
2. Patients with intermediate II or high risk myelofibrosis with haemoglobin <100g/L and disease related symptoms or splenomegaly, should be treated with momelotinib in the 1st or 2nd line setting as per NICE guidance.

**Special situations**1. All transplant-eligible patients should ideally be discussed early with a transplant centre regarding suitability and donor options.
2. Patients planned for allogenic-haematopoietic stem cell transplant (allo-HSCT) with bulky splenomegaly should undergo pretransplant therapy with Janus kinase inhibitors (JAKi) or be enrolled in a suitable clinical trial prior to allo-HSCT to maximise spleen response.
3. Patients with iron overload should be given iron chelation if time permits.
4. Where possible, allo-HSCT should be performed at the time of best response to a JAKi.
5. Post-transplant measurable residual disease monitoring should be performed.

**Accelerated and blast phase myelofibrosis**1. Full assessments should include single nucleotide polymorphism (SNP) array/karyotype and an extended myeloid gene panel.
2. Patients eligible for a transplant should undergo human leukocyte antigen (HLA) typing and early referral to a stem cell transplant centre.
3. Patients not eligible for a transplant should enter a clinical trial or receive hypomethylating agents (HMAs), with and without a JAKi for disease control. These patients should have an early introduction to holistic palliative care services.
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| Method | **Sample selection:** (To be completed by the author)All patients diagnosed with myelofibrosis in the preceding 12 months up to a maximum of 20 consecutive 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.

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| Investigation | No. audited | No. compliant | % compliance |
| Treatment with Janus kinase inhibitors |
| 1. Ruxolitinib was used in the treatment of myelofibrosis-related splenomegaly or symptoms for eligible patients who have intermediate II or high-risk disease and in keeping with NICE guidance.
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| 1. Hepatitis B and C, and HIV status was assessed prior to treatment with ruxolitinib. Risk factors of mycobacterial infection and herpes zoster reactivation were evaluated.
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| 1. Initial dosing was regularly optimised by clinical assessment and blood count monitoring.
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| 1. Spleen size assessment and objective symptom monitoring was performed.
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| 1. Ruxolitinib was not stopped abruptly, avoiding the possibility of SIRS.
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| Fedratinib |
| 1. Fedratinib was considered for patients with myelofibrosis for the treatment of disease-related splenomegaly and/or for patients who were resistant to or intolerant to ruxolitinib in the 2nd line setting as per NICE guidance.
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| 1. Blood thiamine levels were measured prior to starting fedratinib and monitored during treatment, with replacement given if levels were lower than the local normal range.
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| Useful agents in certain circumstances |
| 1. Patients with anaemia associated with inadequate erythropoietin levels were treated with a trial of ESAs, with and without ruxolitinib. |  |  |  |
| 2. Patients with intermediate II or high-risk myelofibrosis with haemoglobin <100g/L and disease related symptoms or splenomegaly, were treated with momelotinib in the 1st or 2nd line setting as per NICE guidance. |  |  |  |
| Special situations |
| 1. All transplant-eligible patients were discussed early with a transplant centre regarding suitability and donor options. |  |  |  |
| 2. Patients planned for allo-HSCT with bulky splenomegaly should undergo pretransplant therapy with Janus kinase inhibitors (JAKi), or be enrolled in a suitable clinical trial prior to allo-HSCT to maximise spleen response. |  |  |  |
| 3. Patients with iron overload were given iron chelation if time permitted. |  |  |  |
| 4. Where possible, allo-HSCT was performed at the time of best response to a JAKi. |  |  |  |
| 5. Post-transplant measurable residual disease monitoring was performed. |  |  |  |
| Accelerated and blast phase myelofibrosis |
| 1. Full assessments included SNP array/karyotype and an extended myeloid gene panel. |  |  |  |
| 2. Patients eligible for a transplant underwent HLA typing and early referral to a stem cell transplant centre. |  |  |  |
| 3. Patients not eligible for a transplant entered a clinical trial or received HMAs, with and without a JAKi. These patients had an early introduction to holistic palliative care services. |  |  |  |

**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.**Some suggestions:**highlight areas of practice that are differentpresent findings. |
| Action plan | (To be completed by the author – see attached action plan proforma) |
| Re-audit date | (To be completed by the author) |
| References | 1. McLornan DP, Psaila B, Ewing J, Innes A, Arami S, Brady J *et al.* The management of myelofibrosis: A British Society for Haematology guideline. *Br J Haematol* 2024;204:136–150.
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## Data collection proforma for patients (the management of myelofibrosis)

## Audit reviewing practice

Patient name:

Hospital number:

Date of birth:

Consultant:

Case number:

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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) |
| Treatment with Janus kinase inhibitors |
| **1**Ruxolitinib was used in the treatment of myelofibrosis-related splenomegaly or symptoms for eligible patients who have intermediate II or high-risk disease and in keeping with NICE guidance. |  |  |  |  |
| **2**Hepatitis B and C, and HIV status was assessed prior to treatment with ruxolitinib. Risk factors of mycobacterial infection and herpes zoster reactivation were evaluated. |  |  |  |  |
| **3**Initial dosing was regularly optimised by clinical assessment and blood count monitoring. |  |  |  |  |
| **4**Spleen size assessment and objective symptom monitoring was performed. |  |  |  |  |
| **5**Ruxolitinib was not stopped abruptly, avoiding the possibility of SIRS. |  |  |  |  |
| Fedratinib |
| **1**Fedratinib was considered for patients with myelofibrosis for the treatment of disease-related splenomegaly and/or for patients who were resistant to or intolerant to ruxolitinib in the 2nd line setting as per NICE guidance |  |  |  |  |
| **2**Blood thiamine levels were measured prior to starting fedratinib and monitored during treatment, with replacement given if levels were lower than the local normal range |  |  |  |  |
| Useful agents in certain circumstances |
| **1**Patients with anaemia associated with inadequate erythropoietin levels were treated with a trial of ESAs, with and without ruxolitinib |  |  |  |  |
| **2**Patients with intermediate II or high-risk myelofibrosis with haemoglobin <100g/L and disease related symptoms or splenomegaly, were treated with momelotinib in the 1st or 2nd line setting as per NICE guidance |  |  |  |  |
| Special situations |
| **1**All transplant-eligible patients were discussed early with a transplant centre regarding suitability and donor options. |  |  |  |  |
| **2**Patients planned for allo-HSCT with bulky splenomegaly should undergo pretransplant therapy with Janus kinase inhibitors (JAKi), or be enrolled in a suitable clinical trial prior to allo-HSCT to maximise spleen response. |  |  |  |  |
| **3**Patients with iron overload were given iron chelation if time permitted. |  |  |  |  |
| **4**Where possible, allo-HSCT was performed at the time of best response to a JAKi. |  |  |  |  |
| **5**Post-transplant measurable residual disease monitoring was performed. |  |  |  |  |
| Accelerated and blast phase myelofibrosis |
| **1**Full assessments included SNP array/karyotype and an extended myeloid gene panel. |  |  |  |  |
| **2**Patients eligible for a transplant underwent HLA typing and early referral to a stem cell transplant centre. |  |  |  |  |
| **3**Patients not eligible for a transplant entered a clinical trial or received HMAs, with and without a JAKi. These patients had an early introduction to holistic palliative care services. |  |  |  |  |

**List of investigations** (To be completed by the author)

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| Audit action plan An audit of compliance with the BSH guideline for the management of myelofibrosis |
| Audit recommendation | Objective | Action | Timescale | Barriers and constraints | Outcome | Monitoring |
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