West Midlands Regional Transfusion Committee

Re-survey of Pre-operative Assessment Clinics: Management of Anaemia 2013

Andrea Harris, Dr Charles Baker, Suzette Biggs, Mike Herbert, Dr Craig Taylor, Caroline Tuckwell

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Thanks to all the hospital staff who agreed to participate and undertook the data collection.

West Midlands Regional Transfusion Committee Audit Group

Mike Herbert (chair)
Transfusion Laboratory Manager, The Royal Wolverhampton Hospitals NHS Trust

Dr Charlie Baker
Consultant Anaesthetist, University Hospitals of North Midlands NHS Trust

Suzette Biggs
West Midlands Regional Transfusion Committee Administrator

Andrea Harris
Patient Blood Management Practitioner, NHS Blood and Transplant

Dr Craig Taylor
Consultant Haematologist, Dudley Group of Hospitals NHS Foundation Trust

Caroline Tuckwell
Transfusion Practitioner, Dudley Group of Hospitals NHS Foundation Trust

For information about the report contact:

Andrea Harris
Patient Blood Management Practitioner
NHS Blood and Transplant
Vincent Drive
Edgbaston
Birmingham
B15 2SG

Tel: 0121 278 4006
E-mail: andrea.harris@nhsbt.nhs.uk
West Midlands Regional Transfusion Committee
Re-survey of Pre-operative Assessment Clinics: Management of Anaemia 2013

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Summary
The West Midlands Regional Transfusion Committee (WM RTC) have undertaken two regional surveys (2005 and 2013) and one audit of practice (2007) examining pre-operative assessment clinics (POACs) within the West Midlands region in relation to managing pre-operative anaemia.

The 2005 survey highlighted that only 39% of POACs had policies for the management of anaemia.

The 2007 audit indicated that anaemia is not being recognised, and it was suggested that there perhaps needs to be a culture change in this respect, as the correction of anaemia would appear to be of very low priority.

The 2013 survey indicates that little improvement has been made. There has been a small increase in hospital policies for management of anaemia pre-operatively and administering iron pre-op, but anaemia is still not being recognised, with 80% having a Hb trigger <110g/dl. Oral iron is only used routinely or regularly in four POACs (across four Trusts), and rarely in another two. IV iron is used (regularly) in only one POAC. Disappointingly transfusion is initiated regularly in three POACs, and in another three occasionally (across six Trusts).

Background
The Health Service Circular 2007/001: Better Blood Transfusion: Appropriate Use of Blood (DH 2007) recommends that mechanisms are in place for the pre-operative assessment of patients for planned surgical procedures to allow the identification, investigation and treatment of anaemia and the optimisation of haemostasis. This document built on previous Better Blood Transfusion recommendations (DH 2002) which noted that most patients undergoing elective surgery should not require transfusion support if their pre-operative haemoglobin level is normal.

More recently, Patient Blood Management, which is an internationally recognised initiative to optimise the care of patients who might need a transfusion, firmly advocates pre-operative identification, management and treatment of anaemia (NBTC 2014, Shander et. al. 2012). This concept is also recommended in the NHS Enhanced Recovery (ER) Programme, with pre-operative assessment being a key element (NHS Quality Improvement 2013).

In 2005 the West Midlands Regional Transfusion Committee (WM RTC) undertook a NHS organisational survey of pre-operative assessment clinics (POACs). This showed that only 39% of POACs within Trusts had policies for the management of patients presenting in their clinics with anaemia. This survey was followed in 2007 by a more in-depth WM RTC audit, which looked at actual practice in pre-operative assessment. This audit found that anaemia is not being recognised, and it was suggested that there perhaps needs to be a culture change in this respect, as the correction of anaemia would appear to be of very low priority.
It was recognised by the WM RTC audit group that there were no national or regional guidelines on how anaemic patients should be managed pre-operatively, and so in 2007 they launched their regional ‘Guideline for the management of anaemia in pre-operative assessment clinics’ at a regional educational event specifically developed for pre-op assessment colleagues. During 2009/10, members of the audit group also assisted with the initiative to include pre-operative anaemia management in the NHS ER Programme.

In 2013 it was agreed by the WM RTC that a follow-up audit of practice was needed to assess progress with pre-operative assessment and management of anaemia.

**Audit Aim**

This survey was commissioned to review whether practices in POACs had changed in relation to the management of pre-operative anaemia since the previous regional survey (2005) and audit (2007) and the introduction of the ER programme.

**Objectives**

- Determine the number of Trusts / hospitals and specialities with POACs
- Determine if these POACs have appropriate policies in place relating to anaemia and haemostasis
- Examine the effectiveness of POACs in managing pre-operative anaemia

**Method**

A survey questionnaire was sent to Hospital Transfusion Teams in all 19 NHS Trusts and three Independent hospital groups across the WM RTC. This survey was in two parts. Firstly, each hospital was asked to complete an organisational questionnaire (see appendix 1). Secondly, hospitals were asked to invite their individual POACs to complete a questionnaire (see appendix 2).

Responses were received from 14 hospitals (12 NHS, 2 independent), and from a total of 23 individual POACs.

**Results**


The 2013 survey was in two parts. Part 1 was an organisational questionnaire (one response per hospital); part 2 was a POAC questionnaire (one response per hospital POAC).
**Part 1 results**

All 14 responding hospitals have POACs.

**POAC Specialities**

Table 1 shows which specialities these cover.

Table 1 – Number of POACs by speciality

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Number of clinics</th>
</tr>
</thead>
<tbody>
<tr>
<td>General surgery</td>
<td>14</td>
</tr>
<tr>
<td>Orthopaedic</td>
<td>14</td>
</tr>
<tr>
<td>Urology</td>
<td>14</td>
</tr>
<tr>
<td>Gynaecology</td>
<td>13</td>
</tr>
<tr>
<td>ENT / Max Fax / Dental</td>
<td>13</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>7</td>
</tr>
<tr>
<td>Cardiac surgery</td>
<td>6</td>
</tr>
<tr>
<td>Vascular</td>
<td>4</td>
</tr>
<tr>
<td>Breast</td>
<td>3</td>
</tr>
<tr>
<td>Plastics</td>
<td>3</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>1</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>1</td>
</tr>
<tr>
<td>Colorectal</td>
<td>1</td>
</tr>
<tr>
<td>Paediatric</td>
<td>1</td>
</tr>
<tr>
<td>Day Case</td>
<td>1</td>
</tr>
<tr>
<td>Respite</td>
<td>1</td>
</tr>
</tbody>
</table>

**POAC Services**

One hospital stated that 1 clinic had recently been withdrawn (major vascular). None had plans to withdraw pre-operative clinic services in the future. Five indicated to expand services in the future.

**POAC Lead**

Two hospitals had no named POAC lead. One did not answer. 11 stated that they did have a named lead (8 Consultant, 3 Nurse).

Only five hospitals invite the named POAC lead to their Hospital Transfusion Committee meeting. Four of these attend regularly (75 – 100% attendance rate).

**POAC Policy**

12 hospitals indicated that they have a Trust / Hospital-wide policy for pre-operative assessment. Two stated no.

Of the 12 hospitals that do, this policy was last reviewed:

- **Within the last 12 months**: 5
- **Within the last 3 years**: 4
- **>3 years ago**: 1
- **Did not answer**: 2

(Table 2 – Review of hospital policy for pre-operative assessment)
Compliance with WMRTC Pre-operative assessment guidelines
Following the 2007 POAC audit, the WMRTC produced some guidelines for the management of anaemia in POACs (2007). Hospitals were asked to indicate whether they had implemented the following recommendations:

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yes</th>
<th>No</th>
<th>Partial</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>All POACs should have a comprehensive written policy in place covering all aspects for the recognition, management and treatment of anaemia</td>
<td>3</td>
<td>2</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Pre-operative assessment should take place ideally immediately following the decision to operate and prior to listing for theatre. As a minimum pre-assessment should occur at least 4 weeks prior to surgery</td>
<td>5</td>
<td>0</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>All patients who are identified as at risk of requiring a blood transfusion (according to local MSBOS Group and save or cross-match) should have FBC assessed at POAC.</td>
<td>11</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Patients should also be given information about the possibility of requiring a blood transfusion, and, when appropriate, alternatives to transfusion e.g. intra-operative cell salvage</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Recommendation</td>
<td>Yes</td>
<td>No</td>
<td>Partial</td>
<td>No answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>Point of care testing should be utilised whenever possible, but abnormal results should always be confirmed by laboratory tests. All results must be fully documented in the patients clinical records</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Patient's current medication should be assessed for drugs which increase blood loss and the decision to cease pre-operatively should be made as appropriate</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>All FBC results should be reviewed within 2 working days.</td>
<td>11</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The diagnosis of anaemia should be based on World Health Organisation (WHO) classifications (female &lt;120g/l, male &lt;130g/l) or locally determined normal ranges</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
## West Midlands Regional Transfusion Committee
### Re-survey of Pre-operative Assessment Clinics: Management of Anaemia 2013

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yes</th>
<th>No</th>
<th>Partial</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal results should be discussed with a member of the clinical team who has sufficient authority to commence treatment, refer for further investigation and delay surgery as necessary</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Oral iron therapy should be commenced in all anaemic patients where MCV/ MCH suggests iron deficiency anaemia (MCV &lt;80 +/- MCH &lt;27)</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>IV iron should be considered if oral iron is not tolerated / appropriate</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Erythropoetin should be considered pre-operatively if a rapid rise in Hb is needed due to the urgency of the surgery, or during times of potential blood shortages, or if the patient refuses blood transfusion</td>
<td>1</td>
<td>9</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
**Recommendation**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yes</th>
<th>No</th>
<th>Partial</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those patients who were found to be anaemic should be re-assessed prior to listing for theatre.</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

![Figure 13 Are patients found to be anaemic reassessed prior to listing for theatre?](image)

**Shared care**
Two hospitals indicated that they pre-assess patients who are due to have surgery in another hospital / Trust. This is for orthopaedic (1), vascular (1) and gynaecology (1) specialities. Both of these hospitals use their own POAC protocols for these patients.

Both take blood samples for these patients, but only one takes any blood transfusion samples, which are sent to their own hospital transfusion laboratory.

**Patient Identification numbers**
All hospitals use either their own hospital identification number, or the NHS number. Some use both numbers.

<table>
<thead>
<tr>
<th>Own hospital identification number</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS number</td>
<td>1</td>
</tr>
<tr>
<td>Both numbers</td>
<td>6</td>
</tr>
<tr>
<td>Did not answer</td>
<td>1</td>
</tr>
</tbody>
</table>

(Table 3 – Patient Identification Numbers)

**Part 2 results**
23 POACs from 12 hospitals responded (two did not state which hospital they were from).

Appendix 3 shows a comparison of 2005, 2007 and 2013 results (where possible).

**Average timing of pre-operative assessment**
The average timing between pre-operative assessment and routine surgery is shown in figure 14.

Although the part 1 organisational survey indicated that 13/15 (87%) sites had full or partial organisational policy stating that pre-operative assessment should occur at least four weeks prior to surgery, the majority of POACs indicate that this is often not achieved.
Patient assessment
The vast majority of patients are assessed by nurses (19 responses). At one clinic, patients are assessed only by medical staff. Three clinics use a mix of nurses and medical staff.

Written policies and guidelines
POACs were asked whether they have a range of policies related to the management of anaemia pre-operatively. These are listed in table 4 and figure 15.

Table 4 – POAC policies

<table>
<thead>
<tr>
<th>Written policy</th>
<th>Yes</th>
<th>No</th>
<th>Partial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which patients have their Hb checked</td>
<td>20</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Recognition of anaemia pre-operatively</td>
<td>14</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Management of anaemia pre-operatively (e.g. referral of patients or commencing treatment)</td>
<td>12</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Prescribing oral iron</td>
<td>3</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Administering I/V iron in the POAC</td>
<td>1</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>Discontinuation of antiplatelet drugs and oral anticoagulants</td>
<td>18</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Which patients are group and saved or cross-matched</td>
<td>17</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 15 – POAC policies
**Review of Hb results**

In 17 POACs the nursing team review the Hb results. In 3, the medical team review the results, whilst in the other 3, both nurses and medics review the results.

14/23 (61%) of POACs review these results within 2 working days (48 hours). However, the part 1 organisational survey indicated that 11/14 (79%) hospital sites had a written hospital policy for this (full compliance with recommendation). Responses from the POACs from two of these hospital sites indicates a shortfall in compliance with hospital policy.

The person reviewing the results was deemed able to action them (i.e. make appropriate referrals or initiate treatment) in 12/23 (52%) POACs. In the other 11/23 (48%) all could identify a member of staff these would be referred to (Consultant x 8, other doctor x 3).

The haemoglobin level at which action would be taken is shown in figure 16.

**Referral of patients for treatment**

The vast majority would refer to the GP, with some also referring to surgeons, anaesthetists and haematologists. Some had more than one referral pathway. Figure 17 gives a summary of responses.

None would refer to GI or an anaemia clinic / nurse.
Initiation of treatment of anaemia

Six POACs indicated that would (either always or sometimes) initiate treatment themselves (rather than refer to the GP).

Table 5 shows a summary of the treatments for anaemia which would be considered and how often these are initiated.

Table 5 - Summary of the treatments for anaemia which would be considered

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Routinely</th>
<th>Regularly</th>
<th>Occasionally / Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral iron</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>IV iron</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Transfusion</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

These six POACs were spread across six different hospital sites. POACs at the same hospital gave differing responses. However, the part 1 organisational survey indicated that 6/14 (43%) sites had implemented oral iron therapy in all anaemic patients where the MCV / MCH suggests iron deficiency anaemia, suggesting that this should be initiated routinely, or at least regularly.

These six hospital sites, compared with answers from their own corresponding POACs, are shown in table 6.
Table 6 – Comparison of organisational answers Vs POAC answers – oral iron

<table>
<thead>
<tr>
<th>Hospital code</th>
<th>Organisational response – implemented oral iron therapy for all patients suggestive of iron deficiency anaemia</th>
<th>POAC response – Oral iron therapy would be considered</th>
<th>POAC response – there is a policy for prescribing oral iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>No answer</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Yes</td>
<td>No answer</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>Routinely</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Yes</td>
<td>Routinely</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>Yes</td>
<td>Rarely</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Partial</td>
<td>No answer</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>Partial</td>
<td>No answer</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Partial</td>
<td>No answer</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>Partial</td>
<td>Rarely</td>
<td>No</td>
</tr>
</tbody>
</table>

Conclusions
Following the 2005 survey, the 2007 audit, the 2007 regional guidelines for the management of anaemia in POACs and the advent of ER, these 2013 survey results are disappointing, and would indicate that POACs are not assessing and optimising patients. It is recognised by the WMRTC that POAC services are fragmented and that there are many competing priorities.

There has been a small increase in hospital policies for management of anaemia pre-operatively and administering iron pre-op, with a greater increase in policies for discontinuing aspirin and warfarin. There is a decrease in the number of policies related to which patients should be group and saved or cross-matched, but this may be explained by developments in laboratory IT systems such as electronic cross-match.

Nurses are taking much more of a lead role in pre-op assessment clinics. 83% patients are reviewed by nurses alone, and 74% blood results are reviewed by nurses alone.

Anaemia is still not being recognised, with 80% of clinics having a Hb trigger less than 110g/dl. Oral iron is only used routinely or regularly in four clinics.
Disappointingly transfusion is also initiated regularly in three clinics and occasionally in another three. IV iron is only used in one clinic.

It is hoped that with the advent of Patient Blood Management in England, that the drive to implement pre-operative assessment blood conserving strategies may be re-invigorated. National guidance for the identification and management of pre-operative anaemia are also anticipated from the British Committee for Standards in Haematology (BCSH) during 2015.

The WM RTC audit group have considered repeating the 2007 audit in order to gain a more in-depth regional picture of current practice. However, it is anticipated that the National Comparative Audit of Blood Transfusion is planning a surgical audit during 2015, and this will include elements of pre-operative assessment. It has therefore been decided to defer any regional audits until this national audit has been reported.

**Recommendations**
The recommendations from the 2007 WMRTC audit report remain valid. These are summarised as:

- POACs must have written policies for the management of pre-operative anaemia, including referral for investigation and treatment.
- Patients must be assessed at least 4 weeks prior to surgery to allow time to address anaemia.
- Anaemia must be recognised as Hb <130g/l for men and <120g/l for women.
- POACs should examine their procedures for review of blood results. Ideally this should happen on the day of assessment when the patient is still present. Referring clinicians should ensure that patients with comorbidities or those being referred for major surgery should have a recent FBC and U&E available so that patients can be seen in POAC with recent relevant results.
- Laboratories should consider routine haematinic assessments on samples that show anaemia unless recently performed.
- Anaemia should be treated in a timely manner to reduce requirements for transfusion and attempt to reduce surgical morbidity and mortality.
- POACs should consider the use of oral iron supplementation and have a written policy on this. This may occur in conjunction with an appropriate referral.
- Patients found to be anaemic in the POAC should be reassessed with a repeat haemoglobin prior to surgery.
- Non-urgent surgery should be deferred in anaemic patients where necessary to allow the investigation and correction of anaemia.

The WM RTC Guidelines for the Management of Anaemia in Pre-operative Assessment Clinics (2007) also remain valid, and should be used in conjunction with the forthcoming BCSH guidelines (due 2015).
References


West Midlands Regional Transfusion Committee (2005) Pre-operative Assessment Clinics. Available at: http://www.transfusionguidelines.org.uk/uk-transfusion-committees/regional-transfusion-committees/west-midlands


## Appendix 1
Organisational questionnaire (2013 Survey)

<table>
<thead>
<tr>
<th>Hospital:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust:</td>
</tr>
</tbody>
</table>

1. Does your trust have pre-operative assessment clinics (POACs)?

   - Yes [ ] No [ ]

   - If yes, in which specialities? (Please tick)
     - General Surgery: Yes [ ] No [ ]
     - Cardiac Surgery: Yes [ ] No [ ]
     - Orthopaedic: Yes [ ] No [ ]
     - Urology: Yes [ ] No [ ]
     - Obstetrics: Yes [ ] No [ ]
     - Gynaecology: Yes [ ] No [ ]

   - Other Please specify: 

2. If you do not currently have POACs, are there plans to introduce them in line with Better Blood Transfusion recommendations? (Please tick)

   - Yes [ ] No [ ] Additional comments (if required): 

3. Have you had POACs in the past but these have since been withdrawn?

   - Yes [ ] No [ ]

   - If yes, in which specialities? (Please tick)
     - General Surgery: Yes [ ] No [ ]
     - Cardiac Surgery: Yes [ ] No [ ]
     - Orthopaedic: Yes [ ] No [ ]
     - Urology: Yes [ ] No [ ]
     - Obstetrics: Yes [ ] No [ ]
     - Gynaecology: Yes [ ] No [ ]

   - Other Please specify: 

   - If no, are there plans to withdraw them in the future?

     - Yes [ ] No [ ]

   - If they have been withdrawn, have they been amalgamated into other POACs or is pre-op assessment for this group no longer offered?

     - Amalgamated [ ] No longer offered [ ]
4. Are there any plans to expand POACs in the future?
   Yes [ ]  No [ ]
   If yes please give details: ..............................................................
   ........................................................................................................

5. Does your Hospital / Trust have a lead for pre-op assessment?
   Yes [ ]  No [ ]  (If no, please go to question 8)
   If yes, please state job title: ...............................................................
   ........................................................................................................

6. Does the Hospital / Trust lead have dedicated sessions in their job plan for pre-op
   assessment?
   Yes [ ]  No [ ]
   If yes, how many: ..............................................................................
   ........................................................................................................

7. Is the Hospital / Trust lead (or a representative) invited to sit on the Hospital Transfusion
   Committee (HTC)?
   Yes [ ]  No [ ]
   If yes, what percentage of HTC’s has the Hospital / Trust Lead (or a nominated deputy /
   representative) attended over the past 12 months? .................................
   ........................................................................................................

8. Do you have a Trust / Hospital-wide policy for pre-op assessment?
   Yes [ ]  No [ ]
   If yes, when was this last reviewed? ......................................................
   Within the last 12 months [ ]  Within the last 3 years [ ]  >3 years ago [ ]

9. Please indicate whether you have implemented the following recommendations from the
    West Midlands RTC pre-op assessment guidelines (available at
    http://www.transfusion-guidelines.org.uk/docs/pdfs/rtc-
    wmidcs_edu_anaemia_guide_preop_07_11.pdf)
    All POACs should have a comprehensive written policy in place covering all aspects for
    the recognition, management and treatment of anaemia
    Yes [ ]  No [ ]
    Partial [ ]

   Additional information: ............................................................................
   ........................................................................................................
Pre-operative assessment should take place ideally immediately following the decision to operate and prior to listing for theatre. As a minimum pre-assessment should occur at least 4 weeks prior to surgery.

Additional information

All patients who are identified as at risk of requiring a blood transfusion (according to local MSBOS Group and save or cross-match) should have FBC assessed at POAC.

Additional information

Patients should also be given information about the possibility of requiring a blood transfusion, and, when appropriate, alternatives to transfusion e.g. intra-operative cell salvage.

Additional information

Point of care testing should be utilised whenever possible, but abnormal results should always be confirmed by laboratory tests. All results must be fully documented in the patient’s clinical records.

Additional information

Patient’s current medication should be assessed for drugs which increase blood loss and the decision to cease pre-operatively should be made as appropriate.

Additional information

All FBC results should be reviewed within 2 working days.

Additional information

The diagnosis of anaemia should be based on WHO classifications (female <120g/l, male <130g/l) or locally determined normal ranges.

Additional information
Abnormal results should be discussed with a member of the clinical team who has sufficient authority to commence treatment; refer for further investigation and delay surgery as necessary

Additional information

Oral iron therapy should be commenced in all anaemic patients where MCV/MCH suggests iron deficiency anaemia (MCV <80 +/- MCH <27)

Additional information

IV iron should be considered if oral iron is not tolerated/appropriate

Additional information

Erythropoetin should be considered pre-operatively if a rapid rise in Hb is needed due to the urgency of the surgery, or during times of potential blood shortages, or if the patient refuses blood transfusion

Additional information

Those patients who were found to be anaemic should be re-assessed prior to listing for theatre.

Additional information

10. Does your pre-operative assessment service see patients due to have surgery in another Trust/hospital?

Yes ☐ No ☐ If no – please go to Question 11

If yes, what specialties – please tick all that apply:

- Vascular
- Upper Gt
- Lower Gt
- Orthopaedic
- Other
- Please state:
For these patients, which protocols do you follow:

- Own protocols
- Hub hospital protocols

If you have any concerns with these patients, who do you raise it with:

- Own hospital doctors
- Hub hospital doctors

Do you take blood samples for these patients?

- Yes
- No

If yes, would this ever include cross-match (blood transfusion) samples?

- Yes
- No

Where would these samples be sent?

- Own hospital laboratory
- Hub hospital laboratory

11. What patient ID numbers does your Trust use?

Please tick all that apply:

- Hospital unit number
- NHS number
- Other

Please state:

Any further additional comments:
Appendix 2
Pre-operative assessment clinic questionnaire (2013 survey)

Please complete a separate form for each specialty / clinic

West Midlands Regional Transfusion Committee
Re-survey of Pre-operative Assessment Clinics: Management of Anaemia 2013

Appendix 2
Pre-operative assessment clinic questionnaire (2013 survey)

Please complete a separate form for each specialty / clinic

West Midlands Regional Transfusion Committee Audit Group
Pre-Operative Assessment Clinics – Questionnaire Survey
PART II (Clinics)

| Hospital Name: |
| Trust Name: |
| Clinic Name: |
| Surgical Specialty (if different): |

1. How many patients have been seen in this clinic in the past financial year (April 2012 – March 2013)?

2. On average, how long before routine surgery are patients assessed?

3. Who are the patients initially assessed by? (Please tick all that apply)
   - Nursing staff  [ ]
   - Medical staff  [ ]
   - Other:  [ ] Please specify:

4. Do you have written policies or guidelines which cover the following? (Please tick)
   - Which patients have their Hb checked?  [ ] Yes  [ ] No
   - Recognition of anaemia pre-operatively?  [ ] Yes  [ ] No
   - Management of anaemia pre-operatively (e.g. referral of patients or commencing treatment)?  [ ] Yes  [ ] No
   - Prescribing oral iron?  [ ] Yes  [ ] No
   - Administering I.V. iron in the pre-operative clinic?  [ ] Yes  [ ] No
   - For discontinuation of antiplatelet drugs and oral anticoagulants?  [ ] Yes  [ ] No
   - Which patients are grouped and saved or cross-matched?  [ ] Yes  [ ] No
5. Who reviews the haemoglobin results? (Please tick)
   Clinic Nurse ☐  Medic ☐  Other ......................................................

6. How soon are the results usually reviewed after the clinic visit?
   Within 48 hours ☐  48-72 hours ☐  72 hours – 1 week ☐  >1 week ☐

7. Is the person that reviews the results able to action them (e.g. make appropriate referrals or initiate treatment)?
   Yes ☐  No ☐
   ➢ If No, who would they refer these to initially (please state)..........................

8. At what haemoglobin level is action taken?
   ........................................g/l

9. Does this Hb level vary depending on the patient's co-morbidities?
   Yes ☐  No ☐
   If yes, at what haemoglobin level is action taken in patients with co-morbidities
   ........................................g/l
   And what does the clinic class as a 'higher risk' patient? (i.e. with which co-morbidities)
   ..............................................................................................................

10. Is treatment of anaemia initiated by the Pre-Operative Assessment Clinic?
    Yes ☐  No ☐
    If yes – which treatments may be considered and how often:

    | Treatment     | Routinely | Regularly | Rarely | Never |
    |---------------|-----------|-----------|--------|-------|
    | Oral iron     |           |           |        |       |
    | IV iron       |           |           |        |       |
    | Transfusion   |           |           |        |       |
    | Other (please give details): |


11. If patients are referred for investigation or treatment of anaemia, to whom are they referred?

Please tick all that apply:
- Anaesthetist
- Surgeon
- GP
- Haematologist
- GI
- Anaemia Clinic / Nurse

Other – please state: ________________________________________________________________

12. What other actions (if any) are taken if the haemoglobin is low?

________________________________________________________________________________

13. In otherwise uncomplicated patients, how long before surgery are the following stopped
(if not stopped – please circle ‘not stopped’)?

- Warfarin: ___________ days / not stopped
- Aspirin: _______________ days / not stopped
- Other anti-platelet drugs (e.g. clopidogrel): ___________ days / not stopped
- Novel anticoagulants (e.g. dabigatran, rivaroxaban): ___________ days / not stopped

14. In a patient with known / likely ongoing blood loss (e.g. GI cancer, menorrhagia) would you routinely give iron?

- Yes, oral iron
- Yes, IV iron
- Not applicable
- No

Any further additional comments: ____________________________________________________
### Appendix 3

<table>
<thead>
<tr>
<th>Survey / audit question</th>
<th>2005 survey (56 clinics from 15 hospital)</th>
<th>2007 audit (387 patient episodes)</th>
<th>2013 survey (23 clinics from 15 hospitals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your Trust have written policies for:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which patients have Hb checked</td>
<td>Yes: 48/56 (86%)</td>
<td>No: 8/56 (14%)</td>
<td>Yes: 20/23 (87%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No: 3/23 (13%)</td>
</tr>
<tr>
<td>How to manage anaemia pre-op</td>
<td>Yes: 21/56 (37.5%)</td>
<td>No: 35/56 (62.5%)</td>
<td>Yes: 11/23 (48%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No: 11/23 (48%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Partial: 1/23 (4%)</td>
</tr>
<tr>
<td>Administering iron pre-op</td>
<td>Yes: 0%</td>
<td>No: 100%</td>
<td>Yes: 3/23 (13%)</td>
</tr>
<tr>
<td>Discontinuing anti-platelet / anti-coagulant drugs</td>
<td>Yes: 24/56 (43%)</td>
<td>No: 32/56 (57%)</td>
<td>Yes: 18/23 (78%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No: 5/23 (22%)</td>
</tr>
<tr>
<td>Which patients should have Group &amp; Screen / Cross-match</td>
<td>Yes: 48/56 (86%)</td>
<td>No: 8/56 (14%)</td>
<td>Yes: 16/23 (70%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No: 5/23 (22%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No response: 2/23 (8%)</td>
</tr>
<tr>
<td>Who are patients assessed by?</td>
<td>Nurses: 50%</td>
<td>Medical: 5%</td>
<td>Nurses: 19/23 (83%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Both (medic &amp; nurse): 45%</td>
<td>Medical: 3/23 (13%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Both (medic &amp; nurse): 1/23 (4%)</td>
</tr>
<tr>
<td>Hb levels where action is taken</td>
<td>Hb levels where action is taken in fit patients under 65 years of age</td>
<td></td>
<td>Hb levels where action is taken in fit patients under 65 years of age</td>
</tr>
<tr>
<td></td>
<td>47 responses received:</td>
<td></td>
<td>20 responses received:</td>
</tr>
<tr>
<td></td>
<td>13% stated variable trigger</td>
<td></td>
<td>20% stated variable trigger</td>
</tr>
<tr>
<td></td>
<td>6% had Hb trigger &lt;95 g/l</td>
<td></td>
<td>10% had Hb trigger &lt;90 g/l</td>
</tr>
<tr>
<td></td>
<td>54% had Hb trigger &lt;100 g/l</td>
<td></td>
<td>50% had Hb trigger &lt;100 g/l</td>
</tr>
<tr>
<td></td>
<td>Total 75% had Hb trigger &lt;110</td>
<td></td>
<td>Total 80% had Hb trigger &lt;110</td>
</tr>
</tbody>
</table>
### Who reviews the Hb results?

- Clinic nurse: 58%
- Ward nurse: 4%
- Medical: 9%
- Both (medical and nursing): 29%

### N/A

Nurses: 17/23 (74%)
Medical: 3/23 (13%)
Both (medic & nurse): 3/23 (13%)

### What actions do hospitals take if Hb is low

<table>
<thead>
<tr>
<th>Action</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most refer patients to GP if Hb &lt;100g/l</td>
<td></td>
</tr>
<tr>
<td>2 x administer iron (oral)</td>
<td></td>
</tr>
<tr>
<td>8 x administer blood transfusion (5 x pre-op, 3 x on admission)</td>
<td></td>
</tr>
<tr>
<td>3 x combination of iron and blood transfusion</td>
<td></td>
</tr>
<tr>
<td>All included patients had Hb &lt;130g/l (n=387)</td>
<td></td>
</tr>
<tr>
<td>70% had Hb 110 – 130g/l</td>
<td></td>
</tr>
<tr>
<td>30% had Hb &lt; 110g/l</td>
<td></td>
</tr>
<tr>
<td>92/387 (24%) were identified as potentially iron deficient</td>
<td></td>
</tr>
</tbody>
</table>

5/23 (22%) Pre-op clinics initiate treatment for anaemia

### Figure 1: Hb level where action is taken (2005)

- <95 g/l
- <100 g/l
- 100-105 g/l
- 110 g/l
- 110-130 g/l
- Variable

### Figure 2: Hb level where action is taken (2013)

- 90 g/l
- 100 g/l
- 110 g/l
- 115 - 135 g/dl
- Variable
(Hb 100 – 110g/l)

25/387 (6.5) received oral iron from the pre-op clinic. Only 13 (14%) of the patients identified as potentially iron deficient received iron therapy

3 patients received blood transfusion pre-operatively
2 of these had malignancy
1 had Hb 76g/l with menorrhagia
All 3 had indications for iron deficiency, but none were prescribed iron

<table>
<thead>
<tr>
<th>Who are patients referred to for management of anaemia or investigation</th>
<th>52 responses</th>
<th>68% were not referred for treatment or investigation</th>
<th>22 responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>73% refer to GP</td>
<td>Of the 17% who were referred, the majority were back to the GP</td>
<td>55% refer to GP</td>
<td></td>
</tr>
<tr>
<td>27% refer to mixture of surgeon, GP and occasionally haematologist</td>
<td>45% refer to mixture of surgeon, GP and occasionally haematologist</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| How long before surgery are medications stopped: Aspirin | Range: 0-14 days | 69/387 (18%) patients were taking aspirin pre-operatively | Range 0-14 |
| --- | Most common time interval: 7 days | Stopped in 22/69 (32%) cases | Most common time interval: 7 days |
| 23% do not routinely stop aspirin pre-operatively | 17% do not routinely stop aspirin pre-operatively |
| Warfarin | Range: 1-7 days  
Most common time interval: 3 days | 15/387 (4%) patients were taking warfarin  
11/15 (73%) stopped 3-5 days pre-op  
12/15 (80%) had INR checked pre-op | Range: 2-7 days  
Most common time interval: 4-5 days  
3 stated: variable  
2 stated: referred to anti-coag team |