2018 Survey of Patient Blood Management

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We would also like to thank the PBM survey working group who were invaluable with shaping the survey questionnaire in the early stages of its development and the administration support provided.

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**Administration support**

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Patient Blood Management (PBM) is a multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion. It represents an international initiative in best practice for transfusion medicine. It is a long-term approach to improve patient care and save money. It requires co-ordinated planning at national and local level and resources and investment.

PBM was launched in 2012 as a collaborative initiative between NHS England (NHSE), the National Blood Transfusion Committee (NBTC) and NHS Blood and Transplant (NHSBT). In July 2014 the NBTC produced national recommendations for the implementation of PBM in hospitals in England.

In October 2013 and November 2015, all NHS Trusts in England were surveyed about their readiness for PBM. The key findings indicated that there had been improvements in education and training, consent for transfusion and the management of anaemia while gaps were identified with regard to the use of information technology (IT) to support PBM, implementation of appropriate transfusion policies and the use of alternatives to blood transfusion such as cell salvage. Since then, the National Institute for Health and Care Excellence (NICE) has published Guidelines ([https://www.nice.org.uk/guidance/ng24](https://www.nice.org.uk/guidance/ng24)) (2015) and Quality Standards for blood transfusion ([https://www.nice.org.uk/guidance/qs138](https://www.nice.org.uk/guidance/qs138)) (2016).

A modified PBM survey was launched in November 2018 taking into account the NICE guidance. The survey was closed in January 2019, and 78% of 114 eligible NHS Trusts responded.

**KEY FINDINGS**

**Staff resources to support PBM**
- 98% of Trusts employed a Transfusion Practitioner (TP) either full-time or part-time
- 8% had no consultant haematologist designated to blood transfusion

**Important changes since 2015** (data from 2015 survey reported in brackets)
- 21% of consultant haematologists had no programmed activity for transfusion (43%)
- 46% of Trusts have implemented a process for identification and correction of underlying cause of anaemia prior to transfusion (32%)
- 60% of Trusts have processes in place to ensure patient involvement with the decision to transfuse (20%)
- 89% of Trusts have mechanisms in place to monitor blood wastage and related actions (71%)
- 55% of Trusts in BSMS high user category have recently submitted business cases to support PBM initiatives (26%)
- Implementation of the NICE transfusion guidelines and quality standards
- Only 26% of Trusts were able to provide data to measure compliance with NICE Quality Standards
- The main barriers and difficulties establishing policies and monitoring compliance with the NICE Quality Standards were lack of funding, clinical engagement from clinical colleagues, audit support outside the Hospital Transfusion Committee (HTC), and TP time.

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**Executive Summary**

Patient Blood Management (PBM) is a multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion. It represents an international initiative in best practice for transfusion medicine. It is a long-term approach to improve patient care and save money. It requires co-ordinated planning at national and local level and resources and investment.

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A modified PBM survey was launched in November 2018 taking into account the NICE guidance. The survey was closed in January 2019, and 78% of 114 eligible NHS Trusts responded.
PBM support for hospitals
Trusts were asked how NHSBT/NBTC might be able to support with implementation of PBM and what educational resources would be required for successful implementation:
- 73% would like standardised education and training programmes for transfusion
- 87% would like support with identification of anaemia in primary care
- 61% said more support was needed for individual Trusts on specific PBM projects
- 78% said further support was needed with informing and empowering patients and the public on PBM through campaigns and educational resources
- 58% would like a PBM self-accreditation tool

Educational resources
Trusts were asked what specific educational resources were required to support them with implementing their PBM programmes:
- 38% E-learning
- 29% Applications (Apps)
- 25% PBM Conferences
- 8% Webinars/podcasts

FURTHER WORK REQUIRED
- Support for the implementation of NICE transfusion guideline and compliance with quality standards
- Development and use of a self-accreditation tool
- Provision of national and local reports of where and when blood is used to inform clinical users
- Strengthening PBM education for clinicians

NEXT STEPS
Hospital Transfusion Teams
- Ensure the findings of this national report and your individual Trust report are discussed at transfusion and senior management meetings in your Trust
- Develop an action plan based on the results and gap analysis and incorporate this into your team and HTC objectives
- Use the information to promote your objectives to a higher level within your organisation and explore the possibility of using the benchmark data to support business cases for further resources for PBM
- Continue efforts to engage with your Regional Transfusion Committees and discuss the potential of forming small working groups to support the development of key PBM objectives
- Engage with local audit departments to support audit and monitoring of the NICE transfusion guidelines and quality standards
- Explore ways of providing clinical users with reports about blood use and wastage to promote appropriate use of blood components
- Provide results of national comparative audits to all relevant clinical staff groups
NBTC/NHSBT
- Identify specific areas of PBM for immediate action and work closely with hospitals to implement pilots
- Continue the National Comparative Audit (NCA) programme and support regional and local audit to identify areas for improvements in practice and for further work
- Consider the provision of further support for PBM either as national initiatives or pilots through NCG funding
- Explore the development and use of a PBM self-accreditation tool
- Work with hospitals to improve the availability of patient information
- Develop education tools to support the translation of evidence and guidelines into practice
- Explore the use of IT, digital innovations and social media to promote best practice
Introduction

Patient Blood Management (PBM) is an evidence-based, multidisciplinary approach to optimising the care of patients who might need transfusion. It puts the patient at the heart of decisions made about blood transfusion to ensure they receive the best treatment and avoidable, inappropriate use of blood and blood components is reduced. It represents an international initiative in best practice for transfusion medicine.

National, regional and local audits in England consistently show inappropriate use of all blood components to some degree. Evidence shows that the implementation of PBM improves patient outcomes by focussing on measures for the avoidance of transfusion and reducing the inappropriate use of blood and therefore can help reduce health-care costs.

PBM improves patient care by reducing inappropriate transfusion and also helps to ensure the availability of blood components for those patients where there are no transfusion alternatives.

PBM needs leadership and support at every level, including national and regional leaders, hospital management, and health professionals.

2013 PBM survey
In October 2013 all NHS Trusts in England were surveyed about their readiness for PBM. 144/149 (97%) of Trusts sent a response and their replies were incorporated into a report which is available at 2013 PBM Survey Report. This survey concluded that many Trusts had considerable scope for developing PBM initiatives and the survey identified the following key areas where development towards PBM could take place:

- Too few medical and nursing staff with dedicated time for PBM
- Too few policies incorporating PBM
- IT that does not readily support PBM
- Inadequate investigation and management of anaemia
- Under-exploitation of point of care testing
- Under-use of alternatives to transfusion such as cell salvage

2015 PBM survey
In 2015, the PBM survey was repeated to evaluate progress towards PBM in UK NHS Trusts.

The key findings from this survey were:

There had been an improvement in:

- Education and training in transfusion
- Provision of information relating to consent for transfusion
- The management of anaemia and the use of alternatives to transfusion

Further work was required in the following areas:

- Introduction of electronic systems to support and monitor safe use and appropriate transfusion requests
- Provision of reports to inform clinical users about blood use and wastage
- Implementation of policies to support appropriate use of components e.g. single unit transfusion policies for red cells and platelets
- Greater use of alternatives to transfusion: cell salvage services, use of iron in the management of anaemia
METHODS

The 2018 survey was not a duplicate of the 2015 survey and asked additional questions particularly about progress towards the implementation of the NICE guidelines and quality standards. A copy of the 2015 survey report is available for download at 2015 PBM Survey Report.

The survey was implemented using online methodology (SnapSurveys©). Trusts were encouraged to use the online system but were given an option to complete the survey on paper if they wished. Responders were asked to discuss the survey at their local Hospital Transfusion Committees or Teams (HTC, HTT) and decide on their answers collectively with one person given the responsibility of submitting the data online. The survey was distributed during the first week of November 2018 and responses were accepted until January 2019. Duplicate responses were removed, and non-responders contacted to encourage completion.

Results

A. RESPONSE RATE

- 2013 Survey 144/149 (97%)
- 2015 Survey 136/149 (91%)
- 2018 Survey 114/147* (78%)

*reduction due to organisational changes

- Data from the questions in the survey has been analysed proportionately (n, %). The denominator in each case is the number of responses to each question or each part of the question for multiple choice items.
- Not all questions were relevant to all Trusts and appropriate “routing” was employed to direct responders to questions. Not all Trusts answered all questions even if they were relevant. The actual number responding to each question is given in the Tables.
- Data has also been analysed in some cases by red cell blood use categories as defined by the Blood Stocks Management Scheme (BSMS) criteria of Red Blood Cells – Issues Per Annum: Very Low Use = <=700; Low Use = >700 and <= 3,600; Moderate User = >3,600 and <= 5,850; High Use = >5,850 and <= 9,300; Very High User = >9,300
- The response to the survey by red cell use group compared to 2015 is summarised in the below table. The response rate in the very high user category was particularly disappointing, 29 (25.4%) compared to 2015, 52 (38%).
Overall response rates by red cell BSMS user category

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Total</th>
<th>Very High</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Very Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 survey</td>
<td>136</td>
<td>52</td>
<td>38</td>
<td>33</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>38%</td>
<td>28%</td>
<td>24%</td>
<td>9%</td>
<td>0.7%</td>
</tr>
<tr>
<td>2018 survey*</td>
<td>114</td>
<td>29</td>
<td>37</td>
<td>36</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>25.4%</td>
<td>32.5%</td>
<td>31.6%</td>
<td>9.6%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

*New 2018 BSMS categories

- A further breakdown of the response rate per Regional Transfusion Committee (RTC) region is provided in the table below. The majority of non-responders in the very high user category were in London (4) followed by the West Midlands (2) and East Midlands (2).
- 25.4% (38% in 2015) of Trusts described themselves as very high users (> 9,300 red cell issues per annum) with the London RTC region the highest at 37%
- There has been a re-classification of BSMS categories since 2015 so these data are not directly comparable to previous surveys

Transfusion Committee Region - PBM Survey Response by BSMS User Category - percentages

<table>
<thead>
<tr>
<th>BSMS Category</th>
<th>London</th>
<th>NW</th>
<th>SW</th>
<th>NE</th>
<th>SC</th>
<th>SEC</th>
<th>YH</th>
<th>WM</th>
<th>EM</th>
<th>EoE</th>
</tr>
</thead>
<tbody>
<tr>
<td>V High</td>
<td>64%</td>
<td>83%</td>
<td>100%</td>
<td>100%</td>
<td>50%</td>
<td>100%</td>
<td>100%</td>
<td>33%</td>
<td>33%</td>
<td>66%</td>
</tr>
<tr>
<td>High</td>
<td>66%</td>
<td>80%</td>
<td>100%</td>
<td>75%</td>
<td>33%</td>
<td>67%</td>
<td>50%</td>
<td>66%</td>
<td>100%</td>
<td>86%</td>
</tr>
<tr>
<td>Moderate</td>
<td>50%</td>
<td>50%</td>
<td>80%</td>
<td>100%</td>
<td>100%</td>
<td>22%</td>
<td>50%</td>
<td>100%</td>
<td>66%</td>
<td>100%</td>
</tr>
<tr>
<td>Low</td>
<td>29%</td>
<td>30%</td>
<td>60%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>17%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Very Low</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

* Includes some private sector

B. RESOURCES TO SUPPORT TRUST TRANSFUSION TEAMS AND TRANSFUSION COMMITTEES

- Transfusion Practitioners: 99% of trusts employ a TP compared to 100% in 2015
- 8.9% of Trusts indicated they employed a specific role dedicated to implementing PBM initiatives
- 98% of respondents (113/114) have a consultant haematologist designated to blood transfusion of which 67% had a Programmed Activity (PA) in comparison to 56% in the 2015 survey
- Provision of reporting mechanisms to internal hospital groups and structures has shown a downward trend.
Transfusion Practitioners (TPs)

Details of the percentage of TPs (full and part time) employed by Trusts are given in appendix 1.

Two organisations (moderate and high user under NHSBT BSMS classifications) indicated they did not directly employ any TPs. In summary:

- 98% (99%) of respondents said they had between 1 and 5 Transfusion Practitioner(s) (TP) employed at their Trust (Figure 1).
- 72% (70%) of Trusts employ at least one full time TP, 28% (30%) employ at least one part time TP.
- Most part-time TPs worked between 3 and 4 days per week.
- In addition to Transfusion Practitioners; 10 (8.9%) Trusts indicated they employed a specific role dedicated to implementing PBM initiatives, these included:
  - Pre-operative anaemia nurse
  - Blood conservation co-ordinator
  - Research transfusion practitioner
  - Anaemia nurse specialist
  - Iron deficiency anaemia nurse
  - Cell salvage co-ordinator
- 24 (21.4%) Trusts had no plans to employ specific roles dedicated to implementing PBM initiatives.

TP’s were asked which aspects of their day-to-day activity they experience as taking up the bulk of their workload ranked on a scale of 1-7. Implementation of Patient Blood Management (PBM) initiatives was added to the 2018 survey.

Ranking of TPs workload priorities

<table>
<thead>
<tr>
<th>Analysis % Respondents</th>
<th>Incident investigations</th>
<th>Education</th>
<th>Competency assessments</th>
<th>Tracing component use</th>
<th>Audits</th>
<th>Appropriate use of components</th>
<th>Implementation of PBM Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>109</td>
<td>110</td>
<td>109</td>
<td>111</td>
<td>107</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Rank 1</td>
<td>19.3%</td>
<td>60%</td>
<td>4.6%</td>
<td>9.9%</td>
<td>0%</td>
<td>3.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Rank 2</td>
<td>31.2%</td>
<td>20%</td>
<td>23.9%</td>
<td>8.1%</td>
<td>2.8%</td>
<td>6.4%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Rank 3</td>
<td>19.3%</td>
<td>7.3%</td>
<td>18.3%</td>
<td>11.7%</td>
<td>21.5%</td>
<td>13.6%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Rank 4</td>
<td>16.5%</td>
<td>5.5%</td>
<td>12.8%</td>
<td>13.5%</td>
<td>22.4%</td>
<td>17.3%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Rank 5</td>
<td>7.3%</td>
<td>0.9%</td>
<td>12.8%</td>
<td>5.4%</td>
<td>26.2%</td>
<td>26.4%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Rank 6</td>
<td>4.6%</td>
<td>3.6%</td>
<td>9.2%</td>
<td>19.8%</td>
<td>13.1%</td>
<td>28.2%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Rank 7</td>
<td>1.8%</td>
<td>2.7%</td>
<td>18.3%</td>
<td>31.5%</td>
<td>14%</td>
<td>4.5%</td>
<td>26.4%</td>
</tr>
</tbody>
</table>

- Education was ranked highest in terms of workload prioritisation followed by incident investigations. This has not changed since the 2015 survey.
- Implementing PBM and appropriate blood use were ranked as the lowest priority after conducting audits. Respondents also identified additional responsibilities not included in the above categories. These included, reviewing, writing and implementing policies (Appendix 1).
Consultant Haematologists
- 92 (98%) of respondents said they had a consultant haematologist designated to blood transfusion
- 50/92 (44%) gave information regarding programme activities (PAs) designated for transfusion medicine.
- 73 responses were provided in relation to “programme activity”. 49/73 (67%) said they had some form of programmed activity aligned with blood transfusion. 24/73 (33%) said they had no programme activities aligned with blood transfusion (Figure 2). This was 43% in the 2015 survey.

Figure 1 Consultant haematologist programme activities (PAs)

Staff supporting transfusion teams:
The 2015 survey suggested an overall figure of less than 50% of Trusts had support staff in place. In 2018, this has risen slightly to 54%. Of the 67 replies:
- 48% said they had a transfusion team administrator
- 15% said they had a data analyst to look at information related to transfusion
- 27% had a band 4 or below transfusion assistant

Other staff support included secretarial and laboratory staff taking on some transfusion related duties
- 10% indicated they intend to employ TP assistants in the future (band 3 or below)
- 40% of support staff are employed on a 0.5 WTE or less
- There were no plans to expand these posts in over 95% of respondents (90% in 2015)

HTC reporting mechanisms 2018 and 2015 survey results
The table indicates replies to a multiple choice question where respondents could respond to more than one option.

<table>
<thead>
<tr>
<th>Respondent Replies</th>
<th>Clinical governance committee</th>
<th>Patient safety committee</th>
<th>Trust Board</th>
<th>Other</th>
<th>None – we do not report</th>
<th>No Reply</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 – (112)</td>
<td>42, 68%</td>
<td>27, 44%</td>
<td>30, 48%</td>
<td>13, 21%</td>
<td>47, 42%</td>
<td>3, 5%</td>
</tr>
<tr>
<td>2015 – (134)</td>
<td>70, 52%</td>
<td>56, 42</td>
<td>39, 29%</td>
<td>17, 12%</td>
<td>3, 2%</td>
<td>2, 1%</td>
</tr>
</tbody>
</table>
65/112 (58%) said they produced an annual HTC report
47/112 (42%) did not produce an annual HTC report compared to just 2% in 2015, however, many explained they provide quarterly reports to various committees instead
Other (2018) include pathology committee, patient safety group, medical director for cascade etc
Minutes were circulated from HTC meetings as proxy for reporting in some sites

NICE QUALITY STANDARDS (QS138) FOR BLOOD TRANSFUSION

- **QS1** People with iron-deficiency anaemia who are having surgery are offered iron supplementation before and after surgery
- **QS2** Adults who are having surgery and expected to have moderate blood loss are offered tranexamic acid
- **QS3** People are clinically reassessed and have their haemoglobin levels checked after each unit of red blood cells they receive, unless they are bleeding or are on a chronic transfusion programme
- **QS4** People who may need or who have had a transfusion are given verbal and written information about blood transfusion

In December 2016, NICE published the blood transfusion quality standards QS 138 [https://www.nice.org.uk/guidance QS138](https://www.nice.org.uk/guidance QS138)
79% of respondents indicated they had blood transfusion policies linked to the NICE quality standards
Pre-operative anaemia checks (QS1) and the use of tranexamic acid (QS2) were the most frequent quality standards assessed

The PBM survey asked responding organisations to indicate what they had done in relation to the NICE transfusion guidelines since their introduction in terms of auditing the quality standards.

If organisations had the standards, they were asked if they were able to provide information as to what extent the standards were being applied and what barriers to implementation existed. Replies are summarised below.

- 79% of respondents indicated they had blood transfusion policies linked to the NICE quality standards
- Pre-operative anaemia checks (QS1) and the use of tranexamic acid (QS2) were the most frequent quality standards assessed
- 31.6% said lack of engagement from clinical colleagues was the main barrier and difficulty they faced to implementing the NICE Transfusion guidelines
- Across the 5 standards, an average of 28 sites reported that they had compliance data and an average of 11 sites actually submitted data
- The greatest barrier to auditing the Quality Standards was lack of audit support
Challenges to implementation of guidelines

Respondents were also asked if they had experienced difficulties in establishing policies and programmes related to the NICE QS (Figure 2).

Figure 2 Principal reasons as to why such difficulties may occur n = 114

- 31.6% (36) said lack of engagement from clinical colleagues was the main barrier and difficulty they faced to implementing the NICE Transfusion guidelines
- 54.4% (62) cited “other” reasons, this included combined polices, for example tranexamic acid use is incorporated into the massive haemorrhage protocols while consent is part of a wider Trust policy. A full list under the “other category” is given in appendix 2.

Data demonstrating compliance

For each quality standard, respondents were asked if they were able to provide data demonstrating compliance to each of the four quality standards. Compliance was determined by local audits and surveys. Sites providing “compliance” data ranged from 0% to 100% compliant depending on the standard. The number of sites providing information is quite small so these data should be interpreted with caution. Less than half of sites were able to provide information.

Compliance data for NICE QS

<table>
<thead>
<tr>
<th>NICE Quality Standards</th>
<th>QS1pre</th>
<th>QS1post</th>
<th>QS2</th>
<th>QS3</th>
<th>QS4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites having compliance data (% of Trusts)</td>
<td>26 (23%)</td>
<td>17 (15%)</td>
<td>31 (28%)</td>
<td>38 (34%)</td>
<td>40 (36%)</td>
</tr>
<tr>
<td>Sites providing Compliance Data (n)</td>
<td>4</td>
<td>2</td>
<td>12</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Mean Level of Compliance (%)</td>
<td>61% (30-100%)</td>
<td>40% (10-69%)</td>
<td>69% (0-100%)</td>
<td>55% (20-78%)</td>
<td>53% (0-100%)</td>
</tr>
</tbody>
</table>

Trusts were also asked what difficulties they had encountered when attempting to audit compliance to the NICE quality standards.
Barriers to auditing NICE Quality Standards

<table>
<thead>
<tr>
<th>Analysis %</th>
<th>Total Replies for all questions</th>
<th>Barriers to Auditing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lack of TP time</td>
<td>No audit support outside the HTT</td>
</tr>
<tr>
<td>Respondents</td>
<td>Base</td>
<td>270</td>
</tr>
<tr>
<td>QS1a Iron Supplementation pre surgery</td>
<td>42</td>
<td>21.40%</td>
</tr>
<tr>
<td>QS1b Iron Supplementation post-surgery</td>
<td>58</td>
<td>24.10%</td>
</tr>
<tr>
<td>QS2 Use of Tranexamic Acid</td>
<td>56</td>
<td>21.40%</td>
</tr>
<tr>
<td>QS3 Clinical and Hb assessed before each unit transfused</td>
<td>46</td>
<td>26.10%</td>
</tr>
<tr>
<td>QS4 Written and verbal consent documented</td>
<td>68</td>
<td>44.10%</td>
</tr>
</tbody>
</table>

For “other” reasons, most indicated an audit was anticipated but it was felt the standard had not yet embedded fully and there was insufficient data. A full list under the “other category” is given in appendix 3.

C. USING DATA TO IMPROVE PRACTICE

- Only 16% of Trusts provided regular information on where and why blood was being used to inform clinical users compared with 48% in 2015
- Only 4% of Trusts are using electronic decision support to ensure compliance of transfusion triggers and targets with the most common methods used are continued education (52%) and audit (22%) and “other” approaches (22%).

Transfusion reports
Trusts were asked if they provided reports on the use of blood components to clinical specialties, on a regular basis. 28 (25%) provided such reports compared to 40% (52) in 2015. In addition:
- 21 respondents indicated they extracted data for reports electronically while 7 completed this task manually
- Alternative methods used to extract data include Crystal Reports (an SQL software package report generator), LIMS systems, Microsoft Access databases and Excel. A full list is provided as appendix 4
- If they are produced, reports are most often discussed in the Hospital Transfusion Committee and transfusion teams within the Trust. Some organisations discuss their reports within Trust wide governance, risk and pathology committees

Transfusion triggers and targets
A Transfusion trigger is defined as that value of haemoglobin (Hb) below which a red blood cell transfusion is indicated.
Trusts were asked if they use agreed triggers/targets and how they ensured compliance with them. Only 8 (7%) Trusts said they were not doing this and gave the reasons below:

- 93% of respondents used transfusion triggers and targets
- 8 (7%) said they did not use triggers and targets
  - 2 indicated they had no systems in place to monitor this
  - 4 said there was a lack of clinical engagement in adhering to the indicators
  - 1 said lack of systems, lack of engagement
  - 1 was attempting to introduce a new system for monitoring
- Very few Trusts are using electronic decision support to ensure compliance of transfusion triggers and targets with the most common methods used are continued education and audit. Other methods can be found in appendix 5.

**How organisations ensure compliance with transfusion triggers and targets**

Continued education was cited as the main approach taken to ensure triggers and targets are adhered to (51%). Local and national audits accounted for a further 22% and electronic decision support 3.8%. Other reasons are given below.

**‘Other’ methods to ensure compliance**

- “Education, audit and BMS* empowerment to challenge - with support from TP and Lead Consultant”
- “Advanced Nurse Practitioners challenge clinicians to ensure compliance”
- “BMS empowerment to challenge - with support from TP and Lead Consultant”

*Biomedical Scientist
D. SERVICES FOR PATIENTS WITH SICKLE CELL DISEASE

- Trusts were asked if they have access to automated red cell exchange for patients with sickle cell anaemia

Number of Trusts with access to automated red cell exchange

<table>
<thead>
<tr>
<th>Clinical Area</th>
<th>Totals</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>All</td>
<td>215</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27.9%</td>
</tr>
<tr>
<td>Adults</td>
<td>107</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31.8%</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>108</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.1%</td>
</tr>
</tbody>
</table>

E. TRANFUSION EDUCATION

Educational resources
- Trusts were also asked if there were specific educational resources that may help them implement their local PBM programmes with E learning and the use of Apps being the top 2 resources. (Figure 3)

Figure 3 Educational resources required to support successful implementation

- E learning 41 (38.3%)
- Applications (Apps) 31 (29.0%)
- Webinar/podcast 8 (7.5%)
- PBM national conferences 27 (25.2%)

Transfusion education outside the hospital setting
- In the 2018 survey, questions relating to transfusion education were changed. In 2018, sites were asked about transfusion education outside the immediate hospital setting.
- 57.7% of Trusts indicated they provided transfusion education outside the hospital setting, 48% of these said they provide transfusion education to hospices
F. PROGRESS WITH IMPLEMENTING PBM INITIATIVES

- Improvements in the use of single unit transfusion strategies (66%, 2015 to 78% 2018)
- Improvements in wastage monitoring (71%, 2015 to 89% 2018)
- Large improvement in patient involvement (20% in 2015 to 60% in 2018)
- Lack of funding, TP time and engagement from clinical colleagues were all cited as the main barriers

Trusts were asked what PBM initiatives they have implemented or are working towards and the key barriers to implementation of PBM programmes.

Main areas of progress identified;
- Identification and correction of underlying anaemia prior to transfusion
- Monitoring of blood wastage and acting on inappropriate wastage
- Processes in place to ensure patient involvement with the decision to transfuse

Main area needing further work;
- Providing PBM education to clinicians and non-medical authorisers
- Introduction of electronic systems to support and monitor appropriate use of blood components
Progress with PBM initiatives compared to 2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification and correction of underlying cause of anaemia prior to transfusion</td>
<td>50</td>
<td>54</td>
<td>41</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>45.50%</td>
<td>49.10%</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>Monitor blood wastage and act on inappropriate wastage</td>
<td>99</td>
<td>12</td>
<td>92</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>89.20%</td>
<td>10.80%</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>Process in place to ensure patient involvement in the decision process to transfuse</td>
<td>66</td>
<td>40</td>
<td>20</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>60.00%</td>
<td>36.40%</td>
<td>71%</td>
<td>32%</td>
</tr>
<tr>
<td>Introduction of electronic systems to support and monitor appropriate and safe use of blood</td>
<td>31</td>
<td>62</td>
<td>29</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>27.90%</td>
<td>55.90%</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>Single unit platelet transfusion</td>
<td>85</td>
<td>20</td>
<td>83</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>78.00%</td>
<td>18.30%</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>Provide PBM education to clinicians and non-medical authorisers</td>
<td>76</td>
<td>30</td>
<td>96</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>69.10%</td>
<td>27.30%</td>
<td>74%</td>
<td>33%</td>
</tr>
<tr>
<td>Use of agreed triggers and targets for transfusion</td>
<td>94</td>
<td>14</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>85.50%</td>
<td>12.70%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Use of laboratory protocols/systems to question inappropriate requests</td>
<td>79</td>
<td>23</td>
<td>79</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>71.20%</td>
<td>20.70%</td>
<td>62%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Trusts told us about other PBM initiatives they are progressing; these include:
- Use of O D positive emergency red cells for adult male trauma patients
- Developing apps on iPads to assist with bedside checks
- Nurse led anaemia clinics within the Trust
- Looking at ways to reduce iatrogenic anaemia
- Weight-adjusted red cell dosing app
- Transfusion Associated Circulatory Overload (TACO) assessment review and improved consenting for a blood transfusion prior to prescribing
- Pre-operative intravenous iron service

Barriers to implementation of PBM initiatives
Trusts were asked to provide information on constraints for successful implementation of their PBM programme. Lack of funding, TP time and engagement from clinical colleagues were all cited as the main barriers. A further 31 commented with ‘other’ constraints, see below and appendix 7.
barriers to implementation

- “Lack of availability of a robust electronic clinical decision support system for blood transfusion”
- “National guidelines out of date, and NCAs slow to be reported back to trust”.
- “Lack of other staff help with PBM everything left to TPs”

SUPPORT WITH IMPLEMENTING PBM INITIATIVES
There has been a substantial increase compared to 2015 in the number of Trusts submitting business cases to support local PBM programmes from 31% in 2015 to 42% in 2018

Business cases to support PBM implementation
- Trusts were asked if they had submitted business cases to support the PBM initiative
- There has been a substantial increase compared to 2015 in the number of Trusts submitting business cases to support local PBM programmes

Figure 5 Number of business cases submitted to support PBM programmes

<table>
<thead>
<tr>
<th>Barriers to PBM</th>
<th>n=110</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of funding</td>
<td>24</td>
</tr>
<tr>
<td>Lack of TP time to implement a PBM programme</td>
<td>26</td>
</tr>
<tr>
<td>Lack of engagement from clinical colleagues</td>
<td>29</td>
</tr>
<tr>
<td>Other</td>
<td>31</td>
</tr>
</tbody>
</table>

‘Other’
Support from NHSBT/NBTC

- Trusts were asked how NHSBT/NBTC might be able to support with implementation of PBM. In 2018, questions were changed to gather information in relation to new developments since 2015. Where no equivalent data was available, these have been indicated as “NA”.

Figure 6 Number of Trusts submitting a business case in each BSMS user category n=47
### How NHSBT/NBTC can support Trusts with implementation of PBM

<table>
<thead>
<tr>
<th>Area</th>
<th>Response 2018</th>
<th></th>
<th></th>
<th>Response 2015</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Not sure</td>
<td>Yes</td>
<td>No</td>
<td>Not Sure</td>
</tr>
<tr>
<td>Education tools to support identification of anaemia in primary care</td>
<td>87%</td>
<td>8%</td>
<td>5%</td>
<td>90%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Standardised education and training for medical students (predominantly delivered within a university setting)</td>
<td>85%</td>
<td>9%</td>
<td>6%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Informing and empowering patients and the public on PBM through campaigns and educational resources</td>
<td>78%</td>
<td>12%</td>
<td>10%</td>
<td>76%</td>
<td>9%</td>
<td>14%</td>
</tr>
<tr>
<td>Standardised education and training for pre-registration nurses (predominantly delivered within a university setting)</td>
<td>75%</td>
<td>13%</td>
<td>13%</td>
<td>75%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>Education tools to support maternal anaemia</td>
<td>73%</td>
<td>17%</td>
<td>10%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Standardised education and training programmes for transfusion laboratory staff</td>
<td>72%</td>
<td>13%</td>
<td>14%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Standardised and accredited education and training programme for nursing and allied healthcare professionals e.g. NHSBT non-medical authorisation course</td>
<td>71%</td>
<td>12%</td>
<td>18%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Educational tools to support transfusion in patients with haemoglobinopathies</td>
<td>65%</td>
<td>17%</td>
<td>18%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Working more closely with individual Trusts on specific PBM projects</td>
<td>61%</td>
<td>13%</td>
<td>25%</td>
<td>66%</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>PBM self-accreditation tool</td>
<td>58%</td>
<td>9%</td>
<td>33%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Support with stock management and wastage</td>
<td>43%</td>
<td>41%</td>
<td>15%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
DISCUSSION

There has been a reduction in the response rate to the survey from 91% in 2015 to 78% in 2018 and should be noted that several transfusion related hospital surveys were also in circulation around the same time which may have affected the lower response rate. Nevertheless, 78% still reflects a significant level of engagement and interest of PBM.

Despite limited additional resource in terms of staff and funding, NHS Trusts are making good progress with specific areas of PBM; the number of Trusts who have implemented a process for identification and correction of underlying cause of anaemia prior to transfusion, an increase of processes in place to ensure patient involvement with the decision to transfuse and those who have mechanisms in place to monitor blood wastage and related actions.

It is encouraging to see that Trusts are beginning to employ staff whose focus is to implement specific aspects of PBM and that 55% (26% in 2015) of Trusts in BSMS high user category have recently submitted business cases to support continued implementation of PBM initiatives. However, further investigation on the success of these business cases is required.

Most Trusts continue to employ at least one Transfusion Practitioner either full or part-time, however only a minority of their time is focussed on implementing PBM initiatives. Education is ranked the highest workload priority for Transfusion Practitioners. This is an essential part of the TP role to ensure blood components are safe and appropriate and in 2018 the survey demonstrated this education now extends beyond the hospital setting with the majority, 48%, providing some form of transfusion education to local hospices, closely followed by private and community hospitals.

In 2018, 92% (98% in 2015) of Trusts have a consultant haematologist allocated to Transfusion. In 2018, 21% had no specific time allocated to this role in their job plan. This has improved since 2015 where the number of responses indicating no programme activities assigned to their role was 43%. However, fewer than 50% of transfusion teams have support from administrators, TP assistants, data analysts and this is unchanged from the 2015 survey. There were no plans to expand any of the support posts in 95% of Trusts (90% in 2015).

Following publication of the NICE Clinical Transfusion Guidelines and associated quality standards, the 2018 survey included a section on the progress that has been made on implementation of the NICE quality standards for blood transfusion.

79% said they had transfusion policies that could be linked to the quality standards. An average of 26% of Trusts indicated they had data demonstrating varying degrees of compliance to the NICE QS and compliance levels ranged from 0% to 100% with an average of 55%. It should be noted that levels of compliance are based on low response numbers so should be interpreted with caution and it is clear that further work is required in the future to address poor compliance and support improved uptake.

This is work in progress for most organisations as these guidelines and quality standards become embedded, however, the results show that nearly a quarter of those responding indicated they had no audit support outside of the hospital transfusion team (HTT) to support with monitoring compliance of this guideline.

NHSBT and the NBTC are committed to continuing to support implementation of PBM initiatives and popular areas highlighted in the survey include;
• Support with standardised education and training programmes for transfusion across professional groups
• Support with identification of anaemia in primary care
• More opportunities with working more closely with individual Trusts on specific PBM projects
• Support with informing and empowering patients and the public on PBM through campaigns and educational resources

In addition, there is interest in the development of a PBM self- accreditation tool with 58% of responding Trusts expressing an interest with a further 33% saying they were not sure at this stage. Following on from this a working group has been formed by the NBTC to investigate if self-accreditation or self-assessment is a viable option.

It is pleasing to see that PBM practice has improved over the last couple of years and following the publication of the NICE clinical transfusion guidelines there has been further opportunity to push PBM up the agenda of NHS Trusts. With continuing effort, and support from NHSBT and the NBTC, there is room for further significant adoption of best practice in transfusion. Specific areas for improvement include;
• audit and monitoring of NICE transfusion guideline implementation
• provision of reports to inform clinical users about blood use and wastage
• strengthening PBM education for clinical staff
• further consideration to develop a PBM self-accreditation tool

**NEXT STEPS**

Ensure the findings of this report and your individual Trust report are discussed at transfusion meetings in your Trust.

Write an action plan based on the results and gap analysis and incorporate this into your objectives for this year.

Use the information to promote your objectives to a higher level within your organisation and explore the possibility of using the benchmark data to support business cases for further resource for PBM.

Continued efforts to engage with your Regional Transfusion Committees and discuss the potential of forming small working groups to support the development of key PBM objectives.
Appendices

Appendix 1

Stocks Management Scheme Red Cell Use Categories

<table>
<thead>
<tr>
<th>Use Category</th>
<th>Issues Per Annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>&lt;=700</td>
</tr>
<tr>
<td>Low</td>
<td>&gt; 700 and &lt;=3,600</td>
</tr>
<tr>
<td>Moderate</td>
<td>&gt;3,600 and &lt;=5,850</td>
</tr>
<tr>
<td>High</td>
<td>&gt;5,850 and &lt;=9,300</td>
</tr>
<tr>
<td>Very High</td>
<td>&gt;9,300</td>
</tr>
</tbody>
</table>

Percentage of TP's employed either full or part time in 2018

Edited summary of additional comments in response to questions

Appendix 2 – Additional activities carried out by Transfusion Practitioners (TPs).
Key areas were:
Clinical input
Report writing
Review of policies and protocols

Appendix 2 – NICE Transfusion guideline ‘other’ reasons for difficulty implementing
Iron supplementation Pre-Op
Lack of engagement
Lack of policies
Time and resources
**Post-OP Iron Supplementation**
No established policies although pilots are being conducted

**Tranexamic Acid**
Lack of specific policies
Lack of consistency of use across directorates
Not part of TP responsibility

**Single Unit**
Specific policies are still being written and not fully established
IT issues can prevent adequate monitoring
Single unit approaches are combined with other policies

**Providing written and verbal information**
Written into more general "blood use" policies rather than specific policies around consent

**Appendix 3 – NICE Quality Standards: Barriers to Implementation**

**Quality Standard 1 – Use of Iron**
Standards not fully embedded so audits not commenced
Lack of TP time to undertake audits
Not seen as TP role
Resistance from clinical areas outside blood transfusion

**Quality Standard 2 – Use of Tranexamic Acid**
Engagement of clinical and Trust colleagues
Standards not fully embedded so audits not commenced
Lack of TP time to undertake audits
Not seen as TP role

**Quality Standard 3 – Single Unit Policy**
Lack of appropriate data collection tools.
No support for audit
Lack of clarification as to the definition of single unit policy within this organisation

**Quality Standard 4 – Providing written and verbal information**
No audit support outside the HTT & Too difficult to obtain the data required
Insufficient TP time and support outside HTT to deliver audit

**Appendix 4 – Alternate methods of data extraction from Laboratory Systems**
Data from LIMS extracted electronically then manually inputted into spreadsheet and analysed
Electronic systems, but extracting useful data is problematic when patients move location
Winpath manager
Developed through Performance and Informatics
Wastage figures are provided in the HTT report
Audit reports
Information is available to everyone via hypercube

**Appendix 5 – Compliance with transfusion triggers and targets (other approaches)**
Laboratory BMS act as gatekeepers
Request form and LIMS requires indication code
Electronic Patient Records include target levels
Continued education, local and national audits
Use of IT infrastructure (screensavers etc)
Integrated into paper Transfusion Prescription and Administration record continued education
Empowering lab staff to challenge requests outside of transfusion triggers
Lab staff check results to see if request appropriate
Audit
Advanced Nurse Practitioners challenge clinicians to ensure compliance.
Laboratory staff challenge requests outside guidance which is then audited
Introduced a sticker for clinicians to complete - gives an audit trail on compliance

Appendix 6 – Other – progress with PBM Initiatives
Reduction iatrogenic anaemia
Weight-adjusted RBC dosing web app
Clinical transfusion support bleep
Transfusion management plans
Electronic blood tracking
RhD Fetal testing to reduced prophylactic anti-D
Marketing of PBM initiatives within the organisation
Use of O positive emergency blood for male trauma patients and possible expansion to post-menopausal females
Consent form for transfusion
TACO assessment review and improved consenting for a blood transfusion prior to prescribing
Preoperative anaemia pathway
Developing apps on iPods to assist with bedside checks
Blood and platelet transfusion triggers.
Pan Dorset anaemia identification and treatment pre 'proposed' surgery
Provide a more robust pathway for patients with anti-bodies.
Lean the MHP pathway sim runs
Remote issue fridge
Nurse led anaemia clinics within the trust
Receiving referrals from primary and secondary care for review and appropriate treatment of IDA
Pre-op IV iron service
Considering pre-op anaemia clinics

Appendix 7 – Other – barriers to implementing PBM Initiatives
Lack of availability of a robust electronic clinical decision support system for blood transfusion
Lack of time/funding
Scale of the process within an acute trust
Lack of standardised high-quality educational material
Lack of means to monitor activity/data
National guidelines out of date
NCAudits slow to be reported back to trust
Limited access to doctor’s education time
Limited time to educate prescribers of blood components
Lack of IT infrastructure