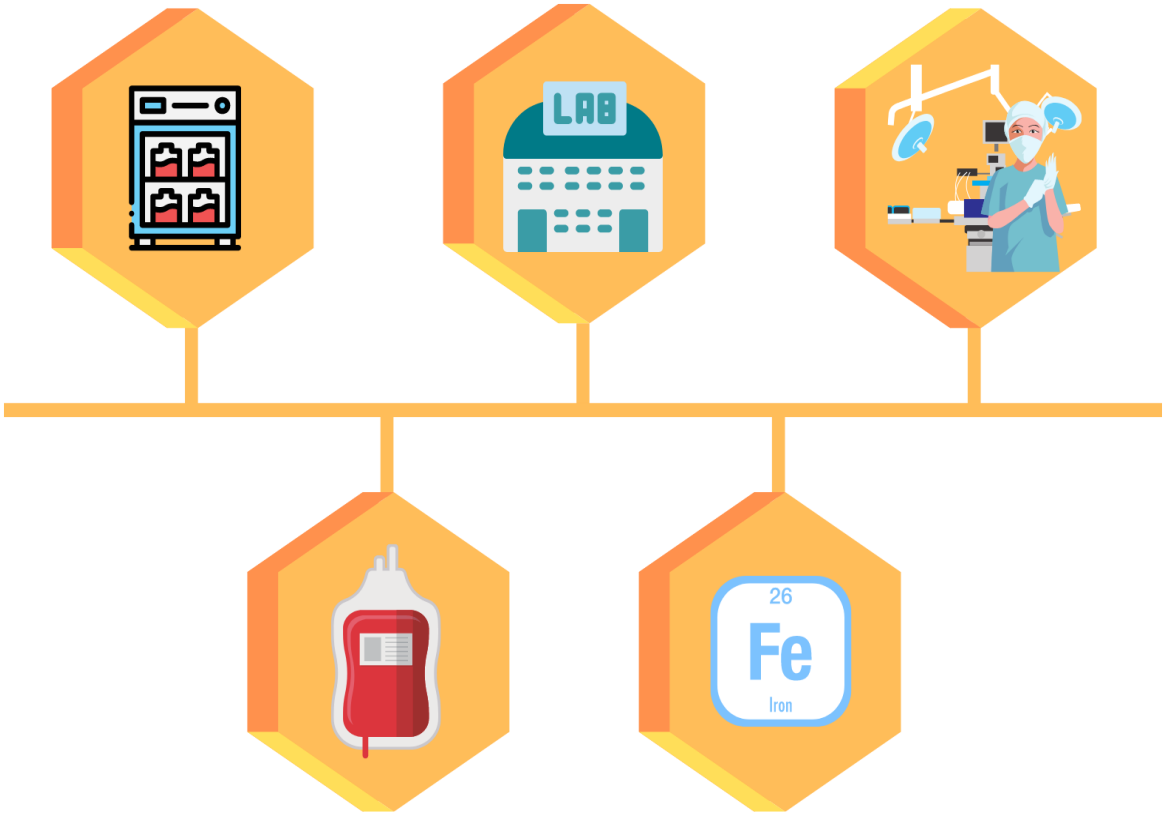
NHS
Blood and Transplant



NHSBT Amber Alert Actions Survey

Report on survey findings

6th December 2022

Acknowledgements

With thanks to all participating hospitals that submitted data - see Appendix 2 for list of contributing hospitals.

Acknowledgment to the Patient Blood Management Team *Amber Alerts Action Survey* development and report writing group: Sasha Wilson, Anwen Davies, Sophie Staples, Brian Hockley, and the Clinical Services SMT and PBM Consultant reviewers, who contributed to both the survey development and this report.

Contents

Executive Summary

This survey was launched the day after the Amber Alert for red cell shortages was stood down (9th November). Given the proximity in time to the end of the Amber Alert, the number of responses and significant amount of feedback from hospital transfusion teams has been commendable.

There were a range of strategies utilised to reduce red cell stock holding. Hospitals were categorised according to their red cell use as per Blood Stocks Management Scheme (BSMS). Overall there was a 35.9% response rate (90/251 hospitals) to this survey, however the response was much higher from very high (54.3%) and high (48.1%) user hospitals. The respondents account for approx. 45% of total red cell use.

The responding hospitals indicated that resources provided by NHSBT were of benefit in reducing red cell stock and red cell transfusions during the Amber Alert. Respondents indicated that resources such as NHSBT communications, the PBM toolkit, guidance from NBTC and The Royal Colleges had a positive impact on the emergency planning.

Responding hospitals also indicated positive impacts of - challenging requests for transfusion; adhering to transfusion triggers; and single unit transfusion had on reducing red cell usage. Many of these initiatives were partially used prior to the Amber Alert, but the alert permitted hospitals to promote increased uptake on measures such as these and other PBM interventions such as IV Iron utilisation, cell salvage and tranexamic acid use.

There are insufficient responses to draw any firm conclusions from this survey, however, the responses received do support many of the stock reduction assumptions and informal intelligence NHSBT had received on the local measures implemented by hospitals during the blood shortage.

Given that hospitals who did make changes during the Amber Alert may have been more likely to respond, there may be some more nuanced information that we did not receive from hospitals where lower levels of Amber Alert activity occurred.

Key points are made after each question in this report, but highlights include -

- In relation to sustaining changes made to red cell stock levels in laboratories, 73% of responding hospitals had positive responses towards the maintaining reductions they had made.
- The question on delaying or rescheduling surgery had the highest proportion of that responses fell into the *Neutral* and *Not Done Locally* categories [44%], with a further 16% responding that they disagreed that this action had a positive impact on red cell requests/demand.
- 77.7% of people who responded agreed that monitoring, and review of red cell requests and challenging where appropriate, had a positive impact. A similar percentage [78.7%] were positive about the impact of stricter adherence to red cell triggers and increased use of single unit transfusion followed by review [73.3%].
- Overall, there was a positive response regarding the sustainability of gains made across the PBM and/ or better adherence to clinical indication measures they had taken during the Amber Alert [84.7% of respondents].
- Regarding NBTC Emergency Planning Guidance and Resources results for this question elicited a strongly positive response, with 90.3% of respondents selecting the *Agreement* categories.
- A high percentage of responses to the question on NHSBT Communications were in the *Agreement* categories for this question [92.6%], which indicates that many responders felt that NHSBT helped to support them implement their Amber Alert actions.

Background

The Amber Alert for red cell shortages was actioned for all blood groups by NHSBT on 12th October 2022, remaining in place for 4 weeks. The stand-down was communicated to hospitals on 8th November 2022, alongside a request to return to a *Pre-Amber* phase for management of red cells.

Following the issue of the Amber Alert for red blood cells we saw that hospitals had undertaken significant work to reduce red cell demand. There was an 18% reduction overall in the number of red cells issued to hospitals during this time.

NHSBT customer facing teams (Patient Blood Management [PBM], Hospital Customer Services and Medical) maintained communications with hospitals throughout the Amber Alert. Hospital Transfusion Teams (HTTs) told us that they were taking a wide range of approaches to reduce red cell usage, which included actions that were over and above those set out in the National Blood Transfusion Committee (NBTC) Red Cell Shortage Plan.

To ensure that red cell stocks can be maintained after moving out of the Amber Alert and over the coming months, it was important to get a better understanding of what measures had been implemented by hospitals, and to what degree these could be maintained. A set of questions for hospitals was produced, to help us understand which actions had a positive impact on reducing red cell usage/demand, alongside questions regarding any changes to blood stock management. The aim being to support the ongoing development of NHSBT plans to maintain blood supply resilience and forecast demand over the coming months.

Survey Design

There was acknowledgement that HTTs had been exceptionally busy over the Amber Alert period and therefore the survey needed to be quick to complete. It was too early to ask hospitals to undertake the work required for the submission of quantitative audit data at this stage. The approach was taken to ask their opinions on what made a difference, for the clinical / communications-based questions. To aid analysis of subjective responses, a 7-point Likert scale was used, where applicable, to collect qualitative data.

The electronic survey had three parts and was set up using SnapSurveys© software. Questions in part 1 of the survey were transfusion laboratory focused, part 2 had a clinical focus and the questions in part 3 were on communications, and the resources that were available to support Amber Alert planning and implementation. Hospitals were asked to only return one response for their organisation, but we suggested that the clinical and laboratory team collaborate to provide the answers. All comments and feedback given by respondents completing this survey is included in Appendix 1. And these have been themed to aid review of responses.

The survey was open for two weeks between 9th November [14.00] and 23rd November 2022 [00.00].

Method

A small NHSBT group drawn from both the PBM and BSMS Team was established to develop this survey. Questions were formulated using an iterative process, with review and feedback from the Clinical Services Senior Management Team, PBM Consultants and external stakeholders prior to launch. Response rates were monitored on a regular basis and further contact made to improve the return rate.

Answers to each question have been analysed proportionately (n, %). Comments from respondents have been thematically reviewed and/or included in full, where inclusion provides useful granularity of information for this report.

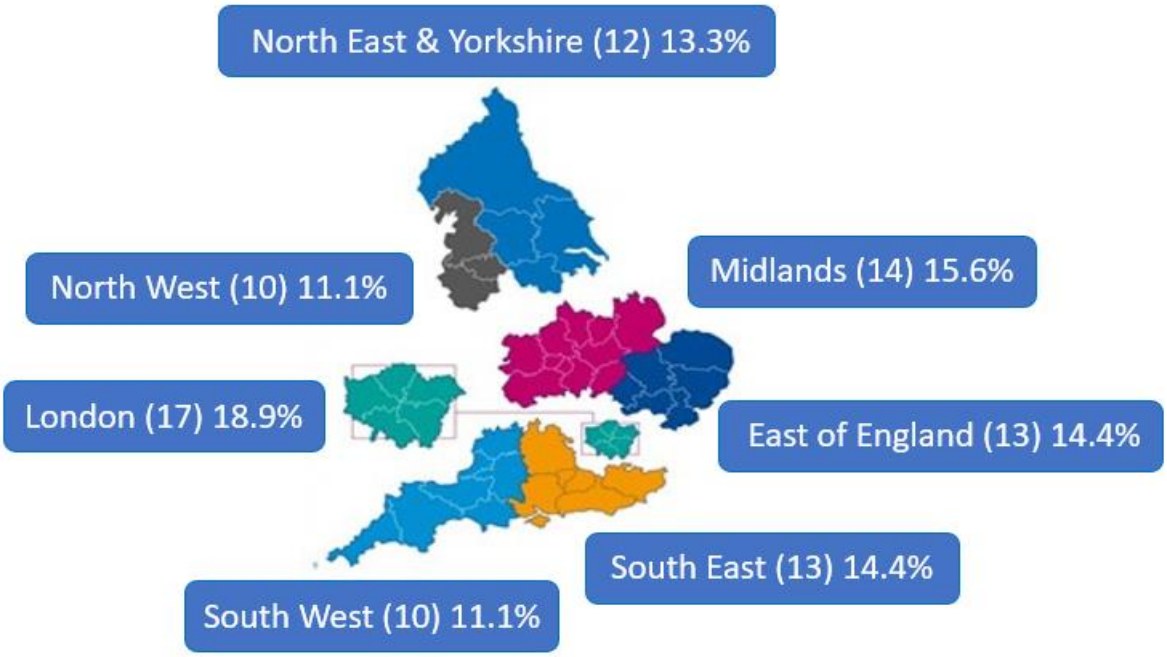
Survey Results

Distribution of Hospital responses

Data was collected on BSMS User Category and Regional Transfusion Committee [RTC] region.

The survey was sent to all hospitals that are direct NHSBT customers, n=251. Overall, 90 individual sites responded, representing a response rate of 35.9% (90/251). Duplicate entries with differing feedback were received from 4 sites. All responses (n=94) were included in the analysis of the laboratory and clinically focused questions.

Responding sites (n=90) by RTC region



Site Response rate by BSMS user category

BSMS User Category	Survey Site Response Rate n/N (%)	Proportional response by BSMS User category n/N (%)	Overall Distribution - % of all sites
Very High	19/90 (21.1%)	19/35 (54.3%)	35/251 (13.9%)
High	25/90 (27.8%)	25/52 (48.1%)	52/251 (20.7%)
Moderate	30/90 (33.3%)	30/83 (36.1%)	83/251 (33%)
Low	14/90 (15.5%)	14/52 (16.9%)	52/251 (20.7%)
Very Low	2/90 (2%)	2/29 (6.9%)	29/251 (11.7%)

A higher proportion of moderate, high, and very high users responded to the survey compared to the overall response rate. This means that the survey represents a higher proportion of overall use than the total survey response suggests.

The table below shows the hospitals responding to this survey, issued red blood cell [RBC] units as a proportion of total issues, therefore 35% respondents represent 45% issued RBC units -

	Total RBC Issues 12 months (Nov 21 - Oct 22) n=251	Respondents to survey in category	Responding hospitals issues n=90	% Total issues the across the 90 responding hospitals represents
Red Cell Usage - Very High	**516,963**	54.3%	**287,000**	56%
Red Cell Usage - High	**381,402**	48.1%	**165,402**	43%
Red Cell Usage - Moderate	**362,942**	36.1%	**126,467**	35%
Red Cell Usage - Low	**85,802**	16.9%	**27,325**	32%
Red Cell Usage - Very Low	**6,353**	6.9%	**831**	13%
Grand Total	**1,353,462**	35.9%	**607,025**	45%

Part 1: Transfusion laboratory focused questions

The BSMS routinely collects data from hospitals on blood component inventory management, including red cell stocks, issues and wastage utilising the web-based data management system VANESA. The aim of the questions asked in this part of the survey was to add context to the BSMS data collected by VANESA by understanding the inventory management practices utilised during the Amber Alert to reduce stock holding.

Results

- Which methods of reducing red cell stock and issues have you actioned since the Amber Alert was issued? (Tick all that apply)

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	93	20	26	30	15	2
Reductions to stock levels across all red cell blood groups	55 59.1%	12 60.0%	19 73.1%	17 56.7%	7 46.7%	- -
Reduction of de-reservation periods of issued units	51 54.8%	12 60.0%	14 53.8%	19 63.3%	6 40.0%	- -
Sharing red cell units through existing or new partnerships with other hospital laboratories, either to increase stock availability or reduce time expired wastage (TIMEX)	32 34.4%	6 30.0%	8 30.8%	11 36.7%	6 40.0%	1 50.0%
Increased efforts to minimise wastage through out of temperature control (OTCOL)	28 30.1%	6 30.0%	10 38.5%	9 30.0%	3 20.0%	- -
Reductions to stock levels for specific red cell blood groups	27 29.0%	5 25.0%	5 19.2%	13 43.3%	3 20.0%	1 50.0%
Reduction of stock held in remote/satellite fridges	18 19.4%	6 30.0%	7 26.9%	4 13.3%	1 6.7%	- -
Increasing number of red cell orders placed on Ad-hoc deliveries to enable a	21 22.6%	4 20.0%	7 26.9%	7 23.3%	2 13.3%	1 50.0%

variation of expiry dates and limit stock volume held on site						
Other	11 11.8%	3 15.0%	2 7.7%	5 16.7%	1 6.7%	- -

Where respondents selected “Other”, these comments related to stock control measures:

Please provide any additional information
“Decreased stock holding of red cells, ceased stock holding of platelets”
“Reduction in emergency units stocked at certain locations in non-remote fridges.”
“Cancelled routine deliveries from NHSBT due to the reduced stock levels”
“Changes to MH protocols e.g., reduction from 6 red cells to 4 red cells in a pack 3”
“Satellite fridges – during most of this period we were moving our fridges to the new hospital so most emergency stock was kept in the lab, we did for a few weeks change our 4x O NEG units in A+E to 2x O POS + 2 O NEG”

Key points raised regarding methods of reducing red cell stock and issues actioned since the Amber Alert was issued

- 93 hospital responses = 243 actions, mean 2.6 actions per hospital response.
- Mix of actions across BSMS user groups, with all strategies being utilised, popular responses were -
  - Reductions to stock levels across all red cell blood groups (55 (59.1%)
  - Reduction of de-reservation periods of issued units (51 (54.8%)
  - Sharing red cell units through existing or new partnerships with other hospital laboratories, either to increase stock availability or reduce time expired wastage (TIMEX) (32 (34.4%)
- Very High [VH] hospitals respondents more able to make stock reductions across all blood groups, moderate hospital more able to reduce specific blood groups (13/30 43.3% moderate users indicating specific red cell group reductions)
- Additional actions indicated by responding hospitals included reducing volume or composition (including O Pos) of major haemorrhage packs.

- Have you used data to guide your decisions to make changes to your stock and issues (select all that apply)?

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94	20	26	31	15	2
Yes, internal hospital data	68 72.3%	16 80.0%	19 73.1%	22 71.0%	10 66.7%	1 50.0%
Yes, data provided by VANESA and BSMS	53 56.4%	7 35.0%	19 73.1%	20 64.5%	5 33.3%	2 100.0%
No	9 9.6%	1 5.0%	2 7.7%	2 6.5%	4 26.7%	- -

Where respondents answered "No" in the table above additional information was received:

Please provide any additional information
"Only hold minimal stock, we could only reduce by 1 unit for groups held in stock."
"10% reduction in group O Neg, O Pos, and A Pos. Reviewed Ad-hoc usage and any incidents relating to delays to trigger a new review of stock levels"
"We have previously reviewed our stock levels across the country for our hospitals that operate a Hub and Spoke set up with NHBST and no more can be done"
"Using information as there was a decrease in use to reduce stock of O and A"
"Already had plan in place for Amber Alerts. Plan reviewed with consideration of current data".
"Common sense approach to general reductions"

Key points raised regarding types of data used to guide decision making

- 85/94 (90%) responding hospitals used local or BSMS data to guide decisions about stock reductions.
- 32/94 (34%) responding hospitals used both local hospital data and BSMS/VANESA data together.
- Only 9/94 (10%) responding hospitals did not use data to guide decisions.

Likert Scale Questions

The following tables [questions 3-8] provide data collected using a 7-point Likert scale, with additional options to select 'not known' or an alternate response where applicable. A 7-point Likert scale is thought to provide a good balance between having enough points of discrimination, without providing too many response options. Therefore, this type of scale should provide a better reflection of a respondent's true evaluation than a 5- or 10-point scale. Counts and percentages are using the counts applicable to the total number of responders in each BSMS category as the denominator.

- Once we have moved out of the Amber Alert, we will be able to maintain the changes made to our red cell stock levels during the Amber Alert' - or tick not applicable/ not known

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	6 6.4%	2 10.0%	2 7.7%	- -	1 6.7%	1 50.0%
Somewhat Disagree	5 5.3%	4 20.0%	1 3.8%	- -	- -	- -
Neutral	8 8.5%	- -	4 15.4%	1 3.2%	2 13.3%	1 50.0%
Somewhat Agree	26 27.7%	2 10.0%	9 34.6%	9 29.0%	6 40.0%	- -
Agree	33 35.1%	9 45.0%	7 26.9%	15 48.4%	2 13.3%	- -
Strongly Agree	10 10.6%	3 15.0%	1 3.8%	5 16.1%	1 6.7%	- -
Not Applicable	5 5.3%	- -	2 7.7%	1 3.2%	2 13.3%	- -
Not Known	1 1.1%	- -	- -	- -	1 6.7%	- -

*Total number of individual replies

Key points raised regarding sustainability of changes to red cell stock levels

- 69/94 (73%) of responding hospitals had positive responses towards maintaining reductions to stock levels.
- 8/94 (8.5%) of responding hospitals had a neutral response towards maintaining reductions to stock levels.
- 17/94 (18%) of responding hospitals had negative responses towards maintaining reductions to stock levels or were not applicable as changes had not been made.

Summary of the 37 optional comments received

Additional Comments (examples)
There were **12** comments regarding attempting to maintain some level of reduced stocks, or require an increase in some groups or implementing incremental return e.g. “We will not increase the stock levels to the original stock levels, but will have to increase them a little to avoid too many ad hocs, and prevent potential delays”
There were **9** comments regarding the practice of trialling and monitoring reduced stock levels and adapting levels based on usage and ad-hoc costs. e.g. “Will be assessed on a need basis, but we will attempt to retain reduced stock as long as possible”
There were **6** comments stating that no changes were made to stock levels, therefore continue to hold same stock as green or pre amber e.g. “Lack of changes made due to pre-existing measure to keep stock levels low”
There were **4** comments relating to a negative outcome of the reduction or anticipate can’t maintain as hospital usage returns to normal e.g. “We carry low stock numbers**,** and we are a Trauma centre so have returned to normal stock levels to be able to safely and easily meet demand in the event of a Trauma or Major Incident requiring blood.”
There were **2** comments relating to a positive impact from the stock reduction and intentions towards keeping some changes e.g. “We have not encountered any problems so far with reduced stock numbers.”

Part 2: Clinically focused actions during Amber Alert

Introduction to part 2 data

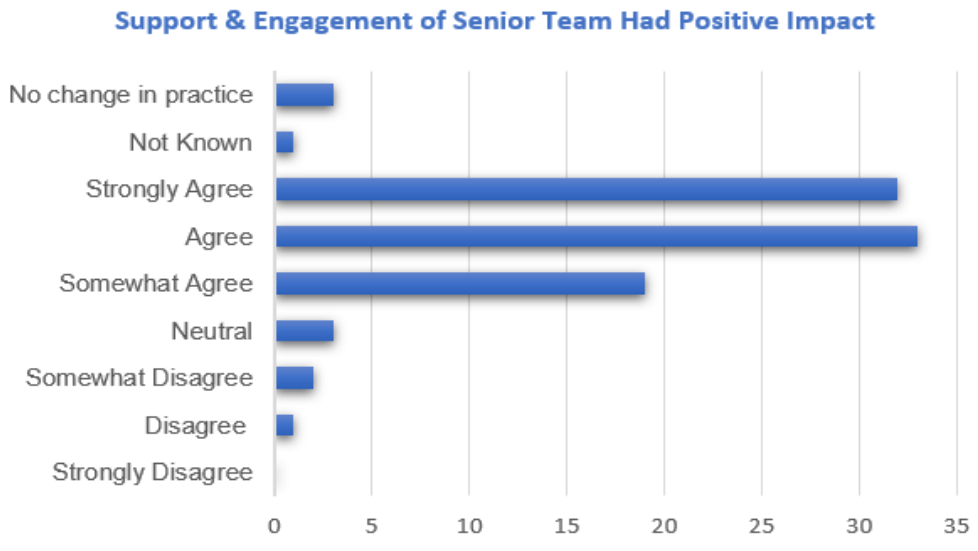
- Questions 4-8 in this section employed a Likert scale to collect responses. Bar charts showing summary data are provided after each table for these questions, these show the total individual responses [n] for each answer category.
- Questions 9,10 and 11 used tick box options for answers [*Yes*, *No*, *Not Known* and where applicable *Not Done Locally*], because it was felt that respondents would be less likely to be able to evaluate the impact of the actions undertaken in these areas.

Results

- During the Amber Alert, support and engagement from hospital senior management and senior clinicians [E.g., Medical Directors, Head of Nursing, Departmental Clinical Leads/ Consultants, Directors of Operations] has had a positive impact on reducing red cell requests/ demand within our hospital' or tick not known or no change in practice

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	1 1.1%	- -	- -	- -	1 6.7%	- -
Somewhat Disagree	2 2.1%	1 5.0%	- -	1 3.2%	- -	- -
Neutral	3 3.2%	- -	1 3.8%	2 6.5%	- -	- -
Somewhat Agree	19 20.2%	5 25.0%	6 23.1%	5 16.1%	3 20.0%	- -
Agree	33 35.1%	7 35.0%	7 26.9%	10 32.3%	8 53.3%	1 50.0%
Strongly Agree	32 34.0%	7 35.0%	10 38.5%	12 38.7%	2 13.3%	1 50.0%
Not Known	1 1.1%	- -	1 3.8%	- -	- -	- -
No change in practice	3 3.2%	- -	1 3.8%	1 3.2%	1 6.7%	- -

*Total number of individual replies



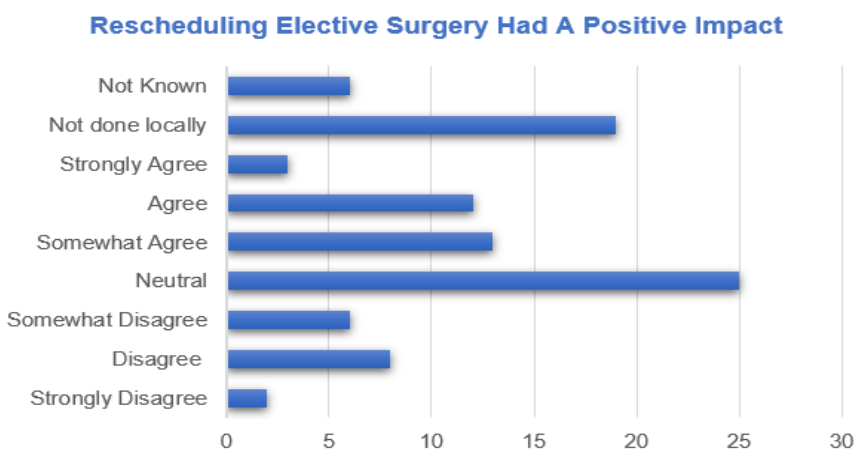
Key points on senior team engagement and involvement

- 89.3% of respondents felt that the input of senior management / clinicians had a positive impact on reducing red cell requests/demand within their hospital.
- Only 3.2% of respondents *somewhat disagreed* or *disagreed* with the statement indicating that, *senior team support/engagement had a positive impact*, and this may indicate that there was limited, or no additional support offered in these hospitals.
- Review of HTC membership, in consultation with hospital senior management / clinicians may help hospitals to maintain the momentum of positive change that has arisen during the Amber Alert.

- During the Amber Alert, delaying or rescheduling elective surgery for category 3 [P04] patients, expected to require blood component support, has had a positive impact on reducing red cell requests/ demand within our hospital

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	2 2.1%	- -	2 7.7%	- -	- -	- -
Disagree	8 8.5%	3 15.0%	1 3.8%	4 12.9%	- -	- -
Somewhat Disagree	6 6.4%	- -	3 11.5%	3 9.7%	- -	- -
Neutral	25 26.6%	3 15.0%	6 23.1%	10 32.3%	6 40.0%	- -
Somewhat Agree	13 13.8%	5 25.0%	4 15.4%	2 6.5%	2 13.3%	- -
Agree	12 12.8%	3 15.0%	4 15.4%	3 9.7%	2 13.3%	- -
Strongly Agree	3 3.2%	1 5.0%	1 3.8%	- -	- -	1 50.0%
Not done locally	19 20.2%	4 20.0%	3 11.5%	7 22.6%	4 26.7%	1 50.0%
Not Known	6 6.4%	1 5.0%	2 7.7%	2 6.5%	1 6.7%	- -

*Total number of individual person replies



Key points on delaying or rescheduling elective surgery for category 3 patients

- For this question the highest proportion of responses that fell into the *Neutral* and *Not Done Locally* categories [44%], with a further 16% responding that they disagreed that this action had a positive impact on red cell requests/demand. This question elicited the lowest number of positively scored answers [28%] amongst the clinically focused questions.
- The Amber Alert was activated at a time when hospitals were also managing COVID recovery plans, with a backdrop of increased surgical waiting list times across the country. Use of red cells for lower risk surgical patients has also reduced over recent years.
- From respondent's feedback: "*In our experience there was limited scope to reduce red cell usage in surgical patients, reductions in usage appear to be mostly in medical transfusions*". This comment mirrors several we received.
- These responses suggest that when the national Emergency Red Cell Shortage Plan is reviewed, the focus on surgical measures to reduce demand at the Amber stage should be revisited to update this the guidance and include a wider breadth of measures.

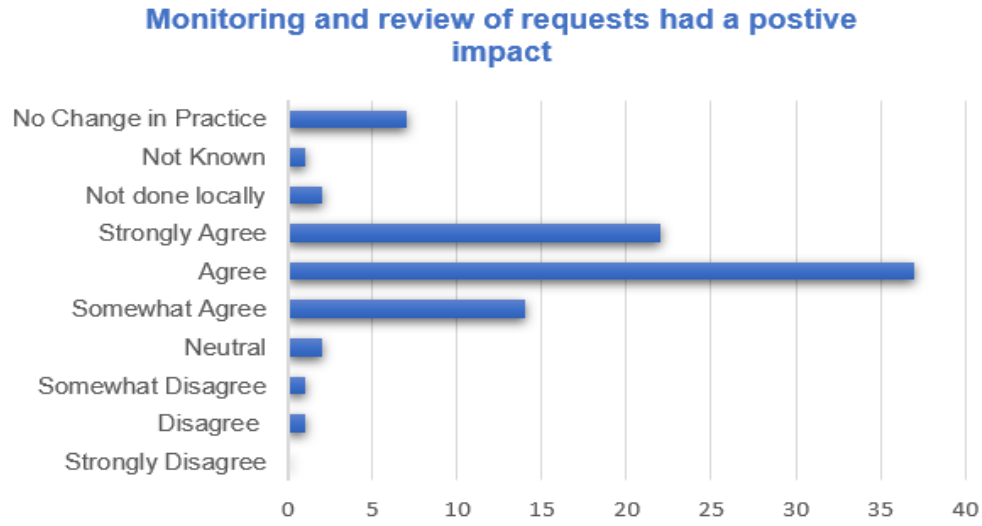
- During the Amber Alert, monitoring, and review of requests by Biomedical Scientist (BMS) staff and/or clinical members of the Transfusion Team, and challenging where appropriate, had a positive impact on reducing red cell requests/ demand within our hospital

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	1 1.1%	- -	- -	- -	1 6.7%	- -
Somewhat Disagree	1 1.1%	1 5.0%	- -	- -	- -	- -
Neutral	2 2.1%	- -	- -	1 3.2%	1 6.7%	- -
Somewhat Agree	14 14.9%	1 5.0%	4 15.4%	4 12.9%	4 26.7%	1 50.0%
Agree	37 39.4%	11 55.0%	11 42.3%	11 35.5%	3 20.0%	1 50.0%
Strongly Agree	22 23.4%	3 15.0%	7 26.9%	10 32.3%	2 13.3%	- -
Not Done Locally	2 2.1%	- -	1 3.8%	1 3.2%	- -	- -
Not Known	1 1.1%	1 5.0%	- -	- -	- -	- -
No Change in Practice	7 7.4%	2 10.0%	- -	3 9.7%	2 13.3%	- -
Action Taken in Pre-Amber	7 7.4%	1 5.0%	3 11.5%	1 3.2%	2 13.3%	- -

***Total number of individual person replies**

Key points on monitoring, and review of requests and challenging where appropriate, had a positive impact

- 77.7% of people who responded agreed these actions had a positive impact, with only 2.2% of respondents giving a negative response for this question.
- Significant work has been done over the last 10 years to help promote BMS empowerment. Transfusion Teams have told us they continued this work during the Amber Alert, supporting new and developing BMS staff to review/ challenge requests. This work during the Amber Alert is reflected in the strongly positive response regarding the impact of this measure.
- Transfusion Teams have also told us that support provided by Transfusion Consultants, Haematologists and Transfusion Practitioners was helpful during this time.

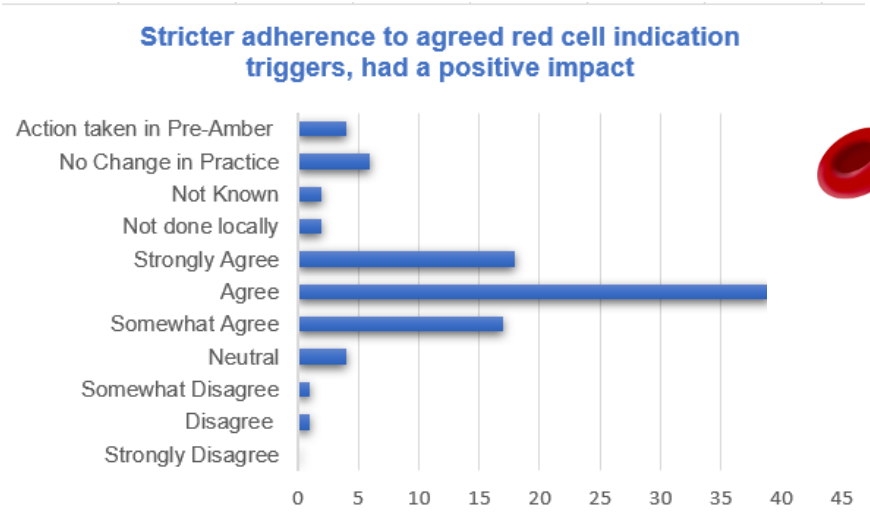


- During the Amber Alert, stricter adherence to agreed red cell indication triggers, had a positive impact on reducing red cell requests/ demand within our hospital

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	1 1.1%	- -	- -	- -	1 6.7%	- -
Somewhat Disagree	1 1.1%	1 5.0%	- -	- -	- -	- -
Neutral	4 4.3%	- -	1 3.8%	3 9.7%	- -	- -
Somewhat Agree	17 18.1%	1 5.0%	5 19.2%	8 25.8%	3 20.0%	- -

Agree	39 41.5%	13 65.0%	10 38.5%	7 22.6%	7 46.7%	2 100.0%
Strongly Agree	18 19.1%	2 10.0%	5 19.2%	11 35.5%	- -	- -
Not Done Locally	2 2.1%	- -	- -	1 3.2%	1 6.7%	- -
Not Known	2 2.1%	1 5.0%	1 3.8%	- -	- -	- -
No Change in Practice	6 6.4%	1 5.0%	2 7.7%	1 3.2%	2 13.3%	- -
Action Taken in Pre-Amber	4 4.3%	1 5.0%	2 7.7%	- -	1 6.7%	- -

***Total number of individual person replies**



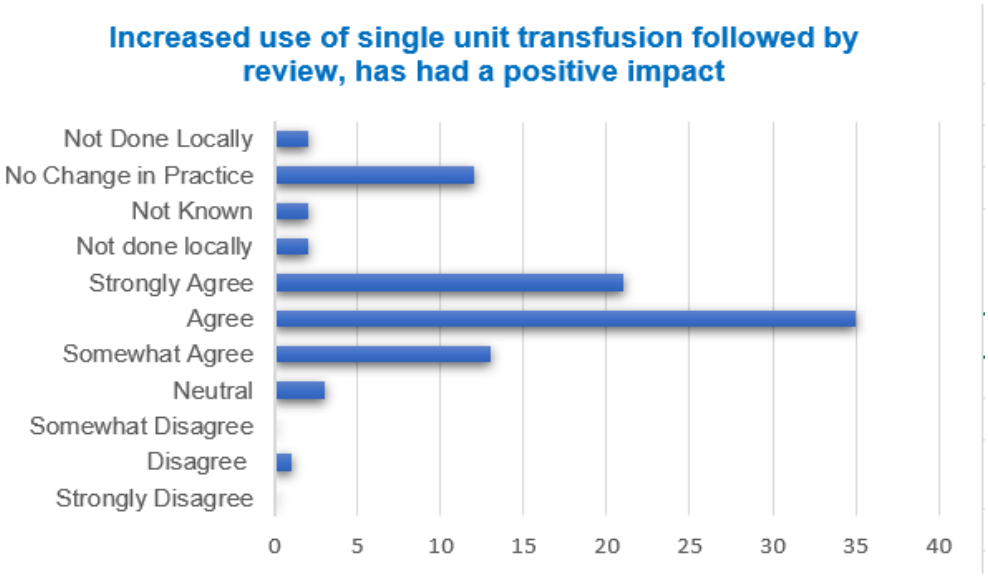
Key points on stricter adherence to agreed red cell indication triggers, had a positive impact

- The results for this question align closely to those set out in question 6 above. It is likely that in many respects these actions may operate in parallel, where defined red cell indication triggers were used to support review and challenge of requests.
- 78.7% of people who responded agreed this action had a positive impact, with only 2.2% of respondents giving a negative response for this question.
- By promoting stricter adherence to agreed red cell indication triggers during the Amber Alert, this should have had the additional benefit of increasing awareness of appropriate transfusion and local guidelines for practice across the clinical teams who requested blood during this time.

- During the Amber Alert, increased use of single unit transfusion followed by review, has had a positive impact on reducing red cell requests/ demand within our hospital

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	1 1.1%	- -	- -	- -	1 6.7%	- -
Somewhat Disagree	- -	- -	- -	- -	- -	- -
Neutral	3 3.2%	- -	2 7.7%	- -	- -	1 50.0%
Somewhat Agree	13 13.8%	3 15.0%	4 15.4%	3 9.7%	3 20.0%	- -
Agree	35 37.2%	11 55.0%	8 30.8%	13 41.9%	2 13.3%	1 50.0%
Strongly Agree	21 22.3%	2 10.0%	6 23.1%	10 32.3%	3 20.0%	- -
Not Done Locally	2 2.1%	- -	- -	- -	2 13.3%	- -
Not Known	4 4.3%	1 5.0%	2 7.7%	- -	1 6.7%	- -
No Change in Practice	12 12.8%	2 10.0%	2 7.7%	5 16.1%	3 20.0%	- -
Action Taken in Pre-Amber	3 3.2%	1 5.0%	2 7.7%	- -	- -	- -

*Total number of individual person replies



Key points on increased use of single unit transfusion followed by review, had a positive impact

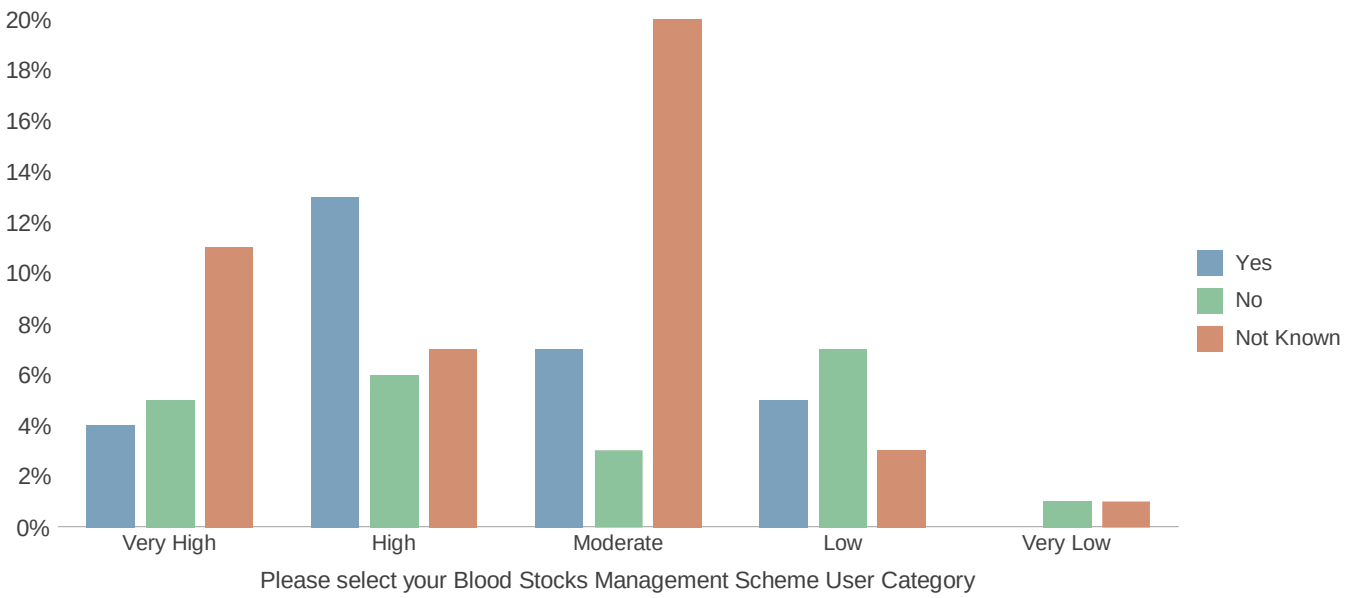
- There was a high percentage of positivity regarding the positive impact of this measure, with 73.3% of responses being across the *Agree* categories. There was only 1 [1.1%] response in the disagree category.
- 15.8% of responses indicated that this practice was already in place prior to the Amber Alert and did not increase because of it being activated. Only 2% of respondents indicated that a single unit transfusion, with review approach was not in place at their hospital.
- Significant work has been undertaken by the NHSBT Patient Blood Management Team and hospital-based Transfusion Teams to promote a single unit approach to red cell transfusion, supported by national guidance. The additional work done by hospitals should aid momentum towards embedding this guidance into practice.

Questions 4-8 Additional Information: The number of respondents reporting *'Not Known'* across these 5 questions was low [total n=14]. Strong disagreement was only indicated in one question [n=2 responses], which related to whether cancellation of elective surgery had a positive impact.

Overall, the responses to the first five questions in this section demonstrate that there were significant levels of engagement and activity undertaken by Hospital Transfusion Teams to deliver Amber Alert actions. Hospital Transfusion Teams are positive about their ability to sustain the increased uptake of PBM initiatives, and/or better adherence to clinical indications for transfusion beyond the Amber Alert.

Q9 Fig 1

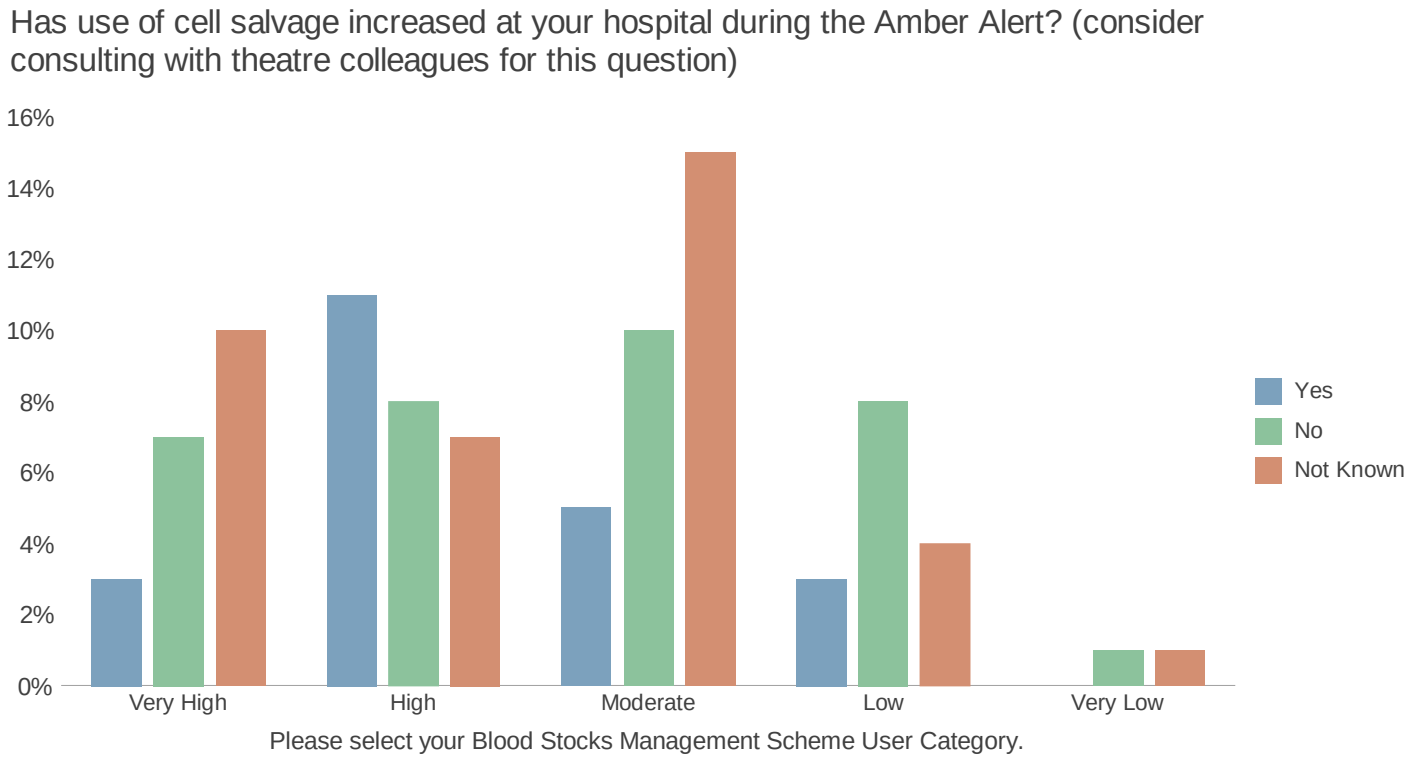
Has use of Tranexamic Acid increased at your hospital during the Amber Alert? (consider consulting with pharmacy and/or theatre colleagues for this question)



Key points on Tranexamic Acid usage during the Amber Alert

- Overall, 29 of the 94 respondents told us that Tranexamic Acid use had increased at their hospital during the Amber Alert, with the highest percentage increase being seen in hospitals classified as High Users by BSMS.
- There were 22 *No Change* responses, as Tranexamic Acid use should be routine where its use is indicated, where this practice is fully embedded there should be no change directly related to Amber Alert. This assumption may be associated with some of the *No Change* responses.
- The 2021 PBM Survey did indicate that further work was required within hospitals to fully implement guidance on the use of Tranexamic Acid, the Amber Alert may have helped to further increase use, with increased promotion of current guidance.
- The high number of *Not Known* responses [n=42] for this question may in part be because Tranexamic Acid is likely to be held as a stock item in Theatres reducing the likelihood of current data being available from hospital pharmacies, and accessibility of electronic records for operations will be variable.
- The timing of the Amber Alert being issued fell soon after new publications further advocating its use, supported by medical Royal Colleges, new NHSBT resources and other professional groups e.g., Centre for Perioperative Care. Therefore, this will increase the challenge for hospitals trying to extrapolate the underlying reason for any increase seen in Tranexamic usage, which may have also impacted on the number of unknown responses. Lack of access to current baseline comparator data is also likely to be a potential factor.

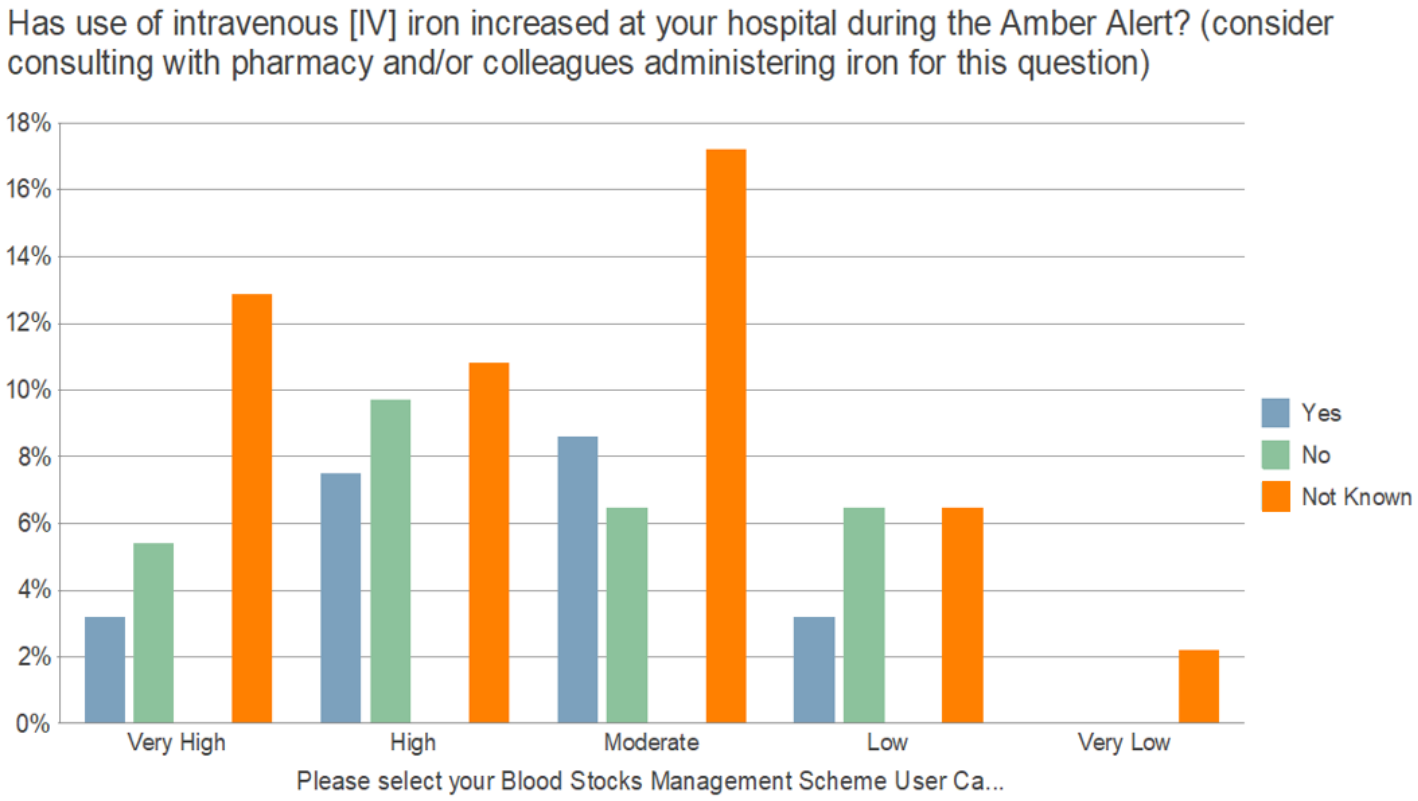
Q10 Fig 2



Key points on cell salvage usage during the Amber Alert

- Overall, 22 of the 94 respondents told us that use of cell salvage had increased at their hospital during the Amber Alert. In common with the responses for Tranexamic Acid the highest percentage increase can be seen in hospitals classified as High Users by BSMS. 34 respondents reported no change in practice.
- The *Not Known* category was selected by 37 respondents. Transfusion of cell salvaged blood is not generally recorded on the transfusion LIMS system and the accessibility of this data will be variable due to differences in recording methods and availability of electronic operation records. Lack of access to current baseline comparator data is also likely to be a potential factor.
- The NHSBT PBMP team have had reports of new cell salvage equipment being purchased during the Amber Alert and one hospital reported that they had put a mechanism in place to record transfused salvaged red cells on the transfusion LIMS to aid audit and completeness of their patient's transfusion records.
- Cell salvage is not performed in all hospitals, it is more commonly seen in high/ very user groups.
- Capacity to increase to increase usage, where in place, will be constrained by the number of staff trained and proficient in using this equipment.

Q11 Fig 3



Key points on IV Iron usage during the Amber Alert

- Overall, 21 respondents out of 94 told us that IV Iron use had increased at their hospital. No increase was 26, this information was *Not Known* by 46 respondents.
- Given the time frames needed for haemoglobin to increase following IV Iron infusion, it is likely that the impact of IV Iron usage on red cell demand was not significant during the Amber Alert.
- Increases in use of IV Iron may have short and longer terms benefits, during the new Pre-Amber phase we have re-entered, following stand down of the Amber Alert. These results may indicate an increase in the ability of hospitals to deliver IV iron services.
- Anecdotal reports during the Amber Alert suggested that ordering of IV iron from suppliers went up noticeably.

12. The hospital where we work will be able to sustain the increased uptake of PBM initiatives, and/or better adherence to clinical indications for transfusion beyond the Amber Alert

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	1 1.1%	- -	- -	- -	1 6.7%	- -
Somewhat Disagree	2 2.1%	1 5.0%	- -	- -	- -	1 50.0%
Neutral	2 2.1%	1 5.0%	- -	1 3.2%	- -	- -
Somewhat Agree	32 34.0%	6 30.0%	9 34.6%	8 25.8%	9 60.0%	- -
Agree	42 44.7%	11 55.0%	13 50.0%	15 48.4%	2 13.3%	1 50.0%
Strongly Agree	6 6.4%	- -	1 3.8%	5 16.1%	- -	- -
No Change in Practice	7 7.4%	1 5.0%	2 7.7%	1 3.2%	3 20.0%	- -
Not Known	2 2.1%	- -	1 3.8%	1 3.2%	- -	- -

*Total number of individual person replies

Key points on sustainability of PBM measure and/or better adherence to clinical indications for transfusion beyond the Amber Alert

- Overall, there was a positive response regarding the sustainability of gains made across these areas during the Amber Alert (84.7% of respondents).
- There was a lower percentage of '*Strongly Agree'* responses for this question. Respondent would not have known at the time of answering this survey, how much a reduction in organisational focus on transfusion may impact on their ability to maintain changes in practice.
- From the comments received "*The amber alert helped us to implement measures across the trust to ensure all transfusions were appropriate and that all staff were engaged. We hope that we can continue these measures when this issue fades from the minds of staff across the trust*."
- Transfusion Teams have told us they were able to rapidly progress PBM and appropriate use measures during the Amber Alert phase. Generally, these were actions they were working to embed already, but the Amber Alert enabled them to drive forward change and provided them with the support/ justification needed to challenge inappropriate transfusion.

Questions 9,10 and 11 Additional information

There was a greater number of *'Not Known'* responses for these 3 questions [total n=125], which supports the view of the survey development team that this information may not be readily available.

The responses given across the last 3 questions in this section show that there was thought to be an increase in the use of intravenous (IV) iron [n=21], Tranexamic Acid [n=29] and cell salvage [n=22], during the Amber Alert period. Recent improvements in the frequency in use of these PBM methods are positive and may also indicate improvements in the ability of hospitals to deliver IV Iron and cell salvage services beyond the Amber Alert.

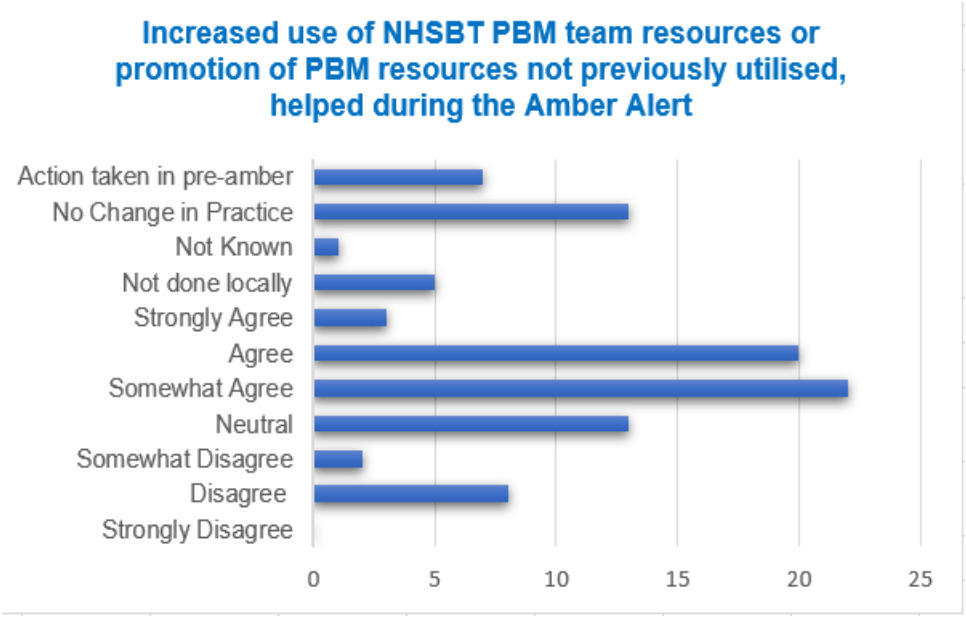
Part 3: Feedback on resources and communications

13. Increased use of NHSBT PBM team resources or promotion of some PBM resources not previously utilised, helped support implementation of, and engagement with, our local Emergency Blood Management Plan [EBMP] during the Amber Alert

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	8 8.5%	3 15.0%	1 3.8%	2 6.5%	2 13.3%	- -
Somewhat Disagree	2 2.1%	1 5.0%	- -	1 3.2%	- -	- -
Neutral	13 13.8%	3 15.0%	4 15.4%	3 9.7%	2 13.3%	1 50.0%
Somewhat Agree	22 23.4%	5 25.0%	6 23.1%	7 22.6%	4 26.7%	- -
Agree	20 21.3%	3 15.0%	8 30.8%	6 19.4%	3 20.0%	- -

Strongly Agree	3 3.2%	- -	- -	3 9.7%	- -	- -
Not Used Locally	5 5.3%	1 5.0%	1 3.8%	2 6.5%	- -	1 50.0%
Not Known	1 1.1%	- -	- -	1 3.2%	- -	- -
No Change in Practice	13 13.8%	4 20.0%	3 11.5%	4 12.9%	2 13.3%	- -
Action Taken in Pre-Amber	7 7.4%	- -	3 11.5%	2 6.5%	2 13.3%	- -

*Total number of individual person replies

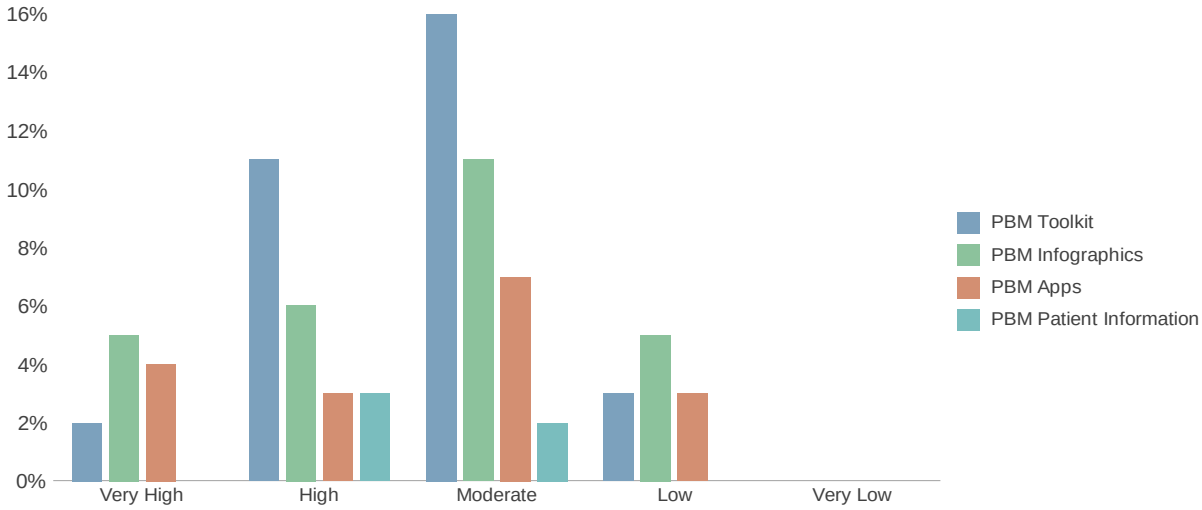


Key points on use of PBM resources during the Amber Alert

- The resources produced by the PBM team were all in place prior to the Amber Alert and had all been promoted to Transfusion Teams when published. They are accessible to all hospital staff through Hospitals and Science Website.
- It is positive that 47.9% of respondents found it useful to utilise these pre-existing resources to support implementation / engagement with their local EBMA plans.
- A further 21.4% indicated that resources were already being used, with no change when the Amber Alert was activated.
- Only 5.3% of respondents said the NHSBT PBM resources were not used locally. 10.6% of respondents did not feel that the PBM resources were helpful during the Amber Alert.
- The type/s of PBM resources used are set out below in *Fig 4,* with the PBM Toolkit, followed by PBM Infographics featuring most strongly.

Q18 Fig 4

If used, which NHSBT PBM resources were signposted/employed to support your EBMP activity during the Amber Alert? [tick all that apply]

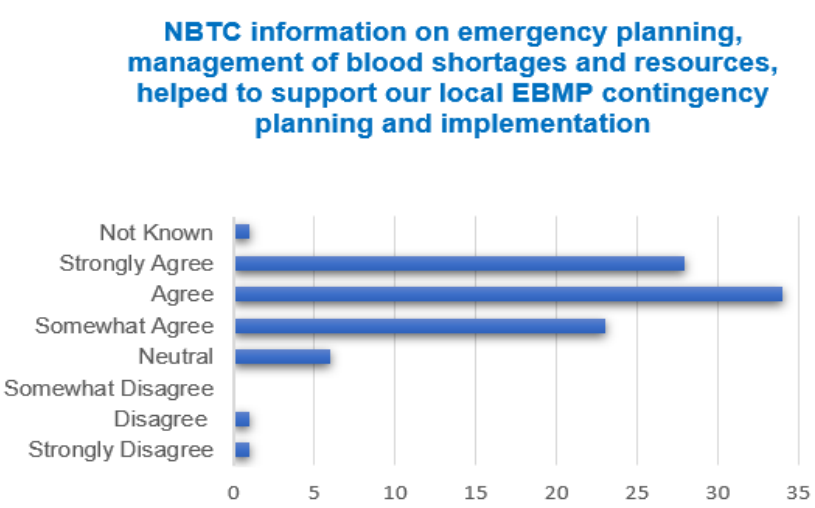


Please select your Blood Stocks Management Scheme User Category.

14. National Blood Transfusion Committee [NBTC] information on emergency planning, management of blood shortages and resources, helped to support our local EBMP contingency planning and implementation

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	1 1.1%	1 5.0%	- -	- -	- -	- -
Disagree	1 1.1%	- -	1 3.8%	- -	- -	- -
Somewhat Disagree	- -	- -	- -	- -	- -	- -
Neutral	6 6.4%	2 10.0%	- -	3 9.7%	1 6.7%	- -
Somewhat Agree	23 24.5%	5 25.0%	8 30.8%	4 12.9%	5 33.3%	1 50.0%
Agree	34 36.2%	8 40.0%	8 30.8%	11 35.5%	6 40.0%	1 50.0%
Strongly Agree	28 29.8%	4 20.0%	9 34.6%	12 38.7%	3 20.0%	- -
Not Known	1 1.1%	- -	- -	1 3.2%	- -	- -

*Total number of individual person replies



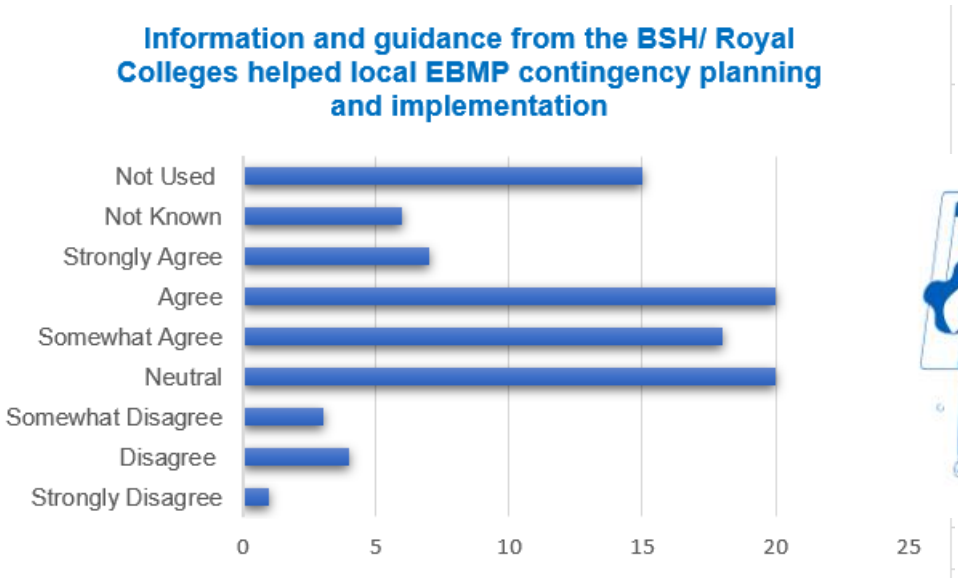
Key points on NBTC Emergency Planning Guidance and Resources

- The results for this question elicited a strongly positive response, with 90.3% of respondents selecting the *Agreement* categories, indicating that the NBTC guidance and resources supported development of local emergency planning arrangements.
- Only 2.3% of respondents indicated *Disagreement* for this question.
- Some additional feedback was received for this question [see Appendix 1, section A], this broadly centred on suggestions around the wording around surgical cancellations & highlighting that there was a greater reduction in usage for medical patients.
- Several respondents noted they had updated local EBMA plans.

15. Information and guidance from the British Society for Haematology [BSH]/ Royal Colleges helped local EBMP contingency planning and implementation

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	1 1.1%	- -	1 3.8%	- -	- -	- -
Disagree	4 4.3%	1 5.0%	- -	3 9.7%	- -	- -
Somewhat Disagree	3 3.2%	1 5.0%	- -	2 6.5%	- -	- -
Neutral	20 21.3%	6 30.0%	7 26.9%	3 9.7%	4 26.7%	- -
Somewhat Agree	18 19.1%	4 20.0%	5 19.2%	3 9.7%	5 33.3%	1 50.0%
Agree	20 21.3%	3 15.0%	7 26.9%	8 25.8%	2 13.3%	- -
Strongly Agree	7 7.4%	2 10.0%	1 3.8%	4 12.9%	- -	- -
Not Used	15 16.0%	2 10.0%	4 15.4%	5 16.1%	3 20.0%	1 50.0%
Not Known	6 6.4%	1 5.0%	1 3.8%	3 9.7%	1 6.7%	- -

*Total number of individual person replies



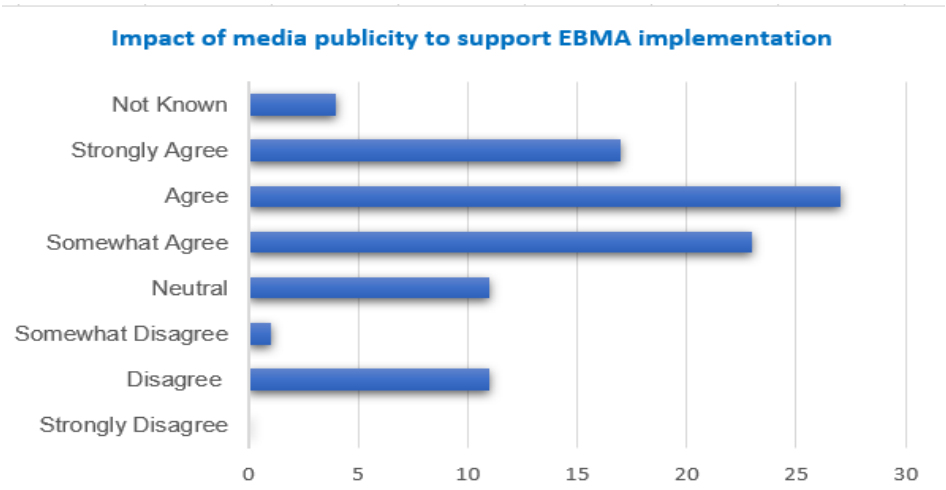
Key points on BSH & Royal Colleges Guidance and Information

- 47.8% of respondents answered this question in the Agreement categories.
- 16% said guidance from the Royal Colleges and BSH was not used in their organisation.
- The communication pathways for updates from BSH and the Royal Colleges may not have reached Transfusion Practitioners and Laboratory Managers, as not signposted in the same way as other updates from NHSBT and this may have impacted on awareness of this information.

16. Publicity at the start of the Amber Alert generated by the media [E.g., TV, newspapers, social media] helped promote engagement with our local EBMP

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category.				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	11 11.7%	2 10.0%	2 7.7%	6 19.4%	1 6.7%	- -
Somewhat Disagree	1 1.1%	- -	- -	- -	1 6.7%	- -
Neutral	11 11.7%	3 15.0%	2 7.7%	5 16.1%	1 6.7%	- -
Somewhat Agree	23 24.5%	4 20.0%	8 30.8%	7 22.6%	3 20.0%	1 50.0%
Agree	27 28.7%	5 25.0%	7 26.9%	9 29.0%	5 33.3%	1 50.0%
Strongly Agree	17 18.1%	4 20.0%	6 23.1%	4 12.9%	3 20.0%	- -
Not Known	4 4.3%	2 10.0%	1 3.8%	- -	1 6.7%	- -

*Total number of individual person replies



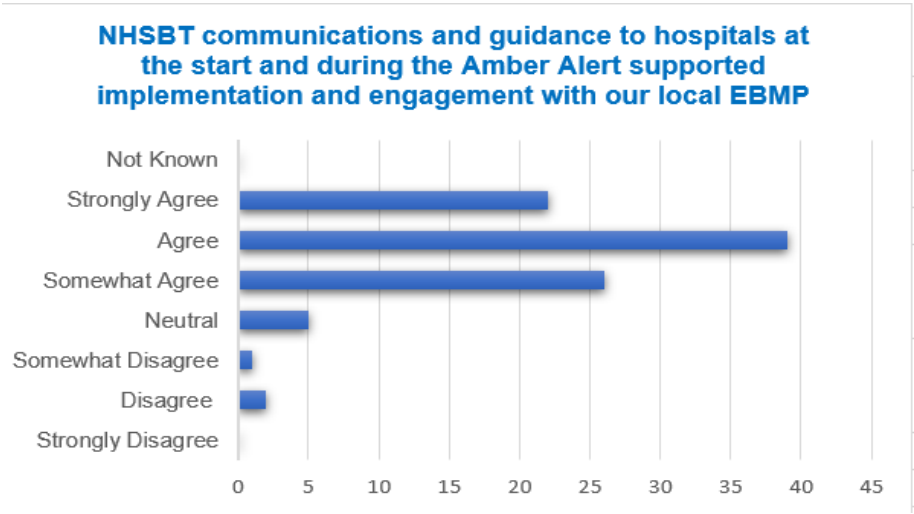
Key points on Media Publicity

- 71.3% of responses were in the *Agreement* categories for this question, which indicates that many responders felt that media publicity helped to support them implement their Amber Alert actions.
- 12.8% of respondents did respond in the disagreement category for this question, with a further 11.7% reporting a neutral response, this represents a higher % of *Disagreement* than for any other question in this survey.
- One comment in the feedback noted that - *"The history behind the amber alert was very interesting but not widely known by most staff/ patients. They all just thought we'd 'run out of blood"*

17. NHSBT communications and guidance to hospitals at the start and during the Amber Alert supported implementation and engagement with our local EBMP

Counts Break % Respondents	Total	Please select your Blood Stocks Management Scheme User Category				
		Very High	High	Moderate	Low	Very Low
Base	94*	20	26	31	15	2
Strongly Disagree	- -	- -	- -	- -	- -	- -
Disagree	2 2.1%	1 5.0%	1 3.8%	- -	- -	- -
Somewhat Disagree	- -	- -	- -	- -	- -	- -
Neutral	5 5.3%	- -	1 3.8%	4 12.9%	- -	- -
Somewhat Agree	26 27.7%	7 35.0%	5 19.2%	9 29.0%	4 26.7%	1 50.0%
Agree	39 41.5%	10 50.0%	14 53.8%	5 16.1%	9 60.0%	1 50.0%
Strongly Agree	22 23.4%	2 10.0%	5 19.2%	13 41.9%	2 13.3%	- -
Not Known	- -	- -	- -	- -	- -	- -

*Total number of individual person replies



Key points on Communications

- A high percentage of responses were in the *Agreement* categories for this question [92.6%], which indicates that many responders felt that NHSBT helped to support them implement their Amber Alert actions.
- Only 2.1% of respondents responded in the disagreement category for this question.
- This question did generate a large amount of comment and feedback [n=27]. Comments can be viewed in Appendix 1. Section E.
- The pathways for communications to hospitals was raised by 6 respondents. Timings and frequency of communications was raised 10 respondents, with the majority having wanted more frequent / regular communication, but 2 respondents thought there were too many communications.
- 5 responses referred to confusion being introduced by the withdrawal of the Amber stand-down email at the end of the Amber Alert period, this issue was related to unintentional human error.

Recommendations From This Survey

- A planned stakeholder event with both internal and external participants, including hospital clinical and management representation from outside of Hospital Transfusion Teams, would be beneficial to build on the learning from this survey, the Amber Alert and to inform any updates to National Emergency Planning documents.

- The National Red Cell Shortage Plan should be reviewed and updated to include additional guidance on measures to be taken for medical patients during an Amber Alert and to provide greater clarity on the approach for surgical patients.

- Despite the significant challenges for hospitals introduced by the Amber Alert, responses and feedback has shown that this period has helped advance PBM, and appropriate use measures being embedded within hospitals. The results and feedback within this survey should be reviewed so that ongoing actions to maintain these benefits can be prioritised, including but not limited to:
    - Promotion of the new NHSBT automated QS138 Audit Tool when available. This is scheduled to commence its pilot phase in week commencing 5th December 2022. This will support hospitals in data collection, with rapid access to results and benchmarking data.
    - Review of NHSBT PBM materials and resources to identify any gaps or updates required to support any future component shortages.
    - Review and update of BSMS blood shortage support document to support any future component shortages.

- Communication pathways for key communications to hospitals should be reviewed to ensure that there is a clear pathway for this type of communications, which is visible both internally and externally.

- The findings of this survey should be reviewed to target any key areas where additional information gathering/national audit activity should be focused, with the aim of strengthening measures to support long term blood supply resilience.

- The process for Ad-Hoc delivery charges should be reviewed to evaluate if there are any measures that can be taken to financially incentivise hospitals to maintain the changes they have introduced to stock levels, over the current pre-amber phase and beyond.

Appendix 1

Comments 

All comments received have been included in this appendix, except where they have included in full within the report text. Reponses have been themed to aid review of feedback.

A. Guidance Related Feedback
There seemed to be a focus on planned revisions and other surgeries that are not generally high blood users and less on changes to the way medical patients requiring transfusion are managed.
In terms of cancelling surgery – surgical blood usage is very low and does not represent a large number of transfusions. Guidance could be improved nationally on transfusion triggers in all patients (including children & neonates) to support both the Laboratory in screening requests, and haematology SpRs who have discussions with clinical teams.
We updated our EBMP policy as a result of the Amber Alert.
The recent Amber alert has enabled us to implant and test our emergency blood management policy. There has been some learning that has prompted us to review this policy to make it more fit for purpose should we be faced with a blood shortage in future.
The EBMA needs review. Parts very out of touch with current practice.
Our experience is that there is limited scope to reduce red cell usage in surgical patients, we feel that most of our reduction in usage was in medical patients.
Guidance was a useful tool
Reconsider the elective op cancellation wording - concentrate instead on pre-operative optimisation i.e., elective surgery with a risk of bleeding should not go ahead if Hb is <130 until it has been investigated and pre-optimisation attempted
In our experience there was limited scope to reduce red cell usage in surgical patients, reductions in usage appear to be mostly in medical transfusions.

B. PBM, Appropriate Use and Clinical - Actions and Feedback
Cancellation of operations with over 20% likelihood of bleed
Review of pre-operative assessment pathways to optimise patient reviews
Like many hospitals, we did review our PBM measures, and the amber alert did give an opportunity for us to engage with a bit more focus with some of our clinical colleagues. This has included a review of transfusion triggers, a need for an FBC within the last 24 hours for top-up transfusions, a review of IDA in children prior to surgery with the plan to set up a small working group and reviewing the current use of Tranexamic Acid in routine high bleeding risk surgery in children.
1. Review and changes to special requirements for sickle cell and thalassaemia patients e.g., acceptance of blood up to 14 days old. 2. Changes to MH protocols e.g., reduction from 6 red cells to 4 red cells in a pack 3. Promoting one red cell transfusions instead of two. 4. Reduction in emergency units stocked at certain locations in non-remote fridges.
All requests that didn't meet NICE guidance were referred to Haematology Consultants. Surgery expected to require 2 or more units were looked at on a case-by-case basis and postponed if appropriate.
Single unit requesting (challenges by BMS) Hb checking before and after Tx
Continuing to promote good PBM.
Control via laboratory on single unit transfusion
Our Trust already had single unit transfusions, BMS challenging requests and proactive returning units from the fridge if they had not been used by the next day. Therefore, we did not need to change our practice due to the Amber alert.

Amber alert supported us at BT to get the message out blood is not an infinite supply, national guidance on single unit transfusion and hb check after each transfusion is recommended for a reason and must be followed.
Particularly with operational planning of elective surgery. Highlighted importance of PBM triggers and adhering to them.
Our Trust, including 2 other hospitals already followed PBM agenda during routine work. IV iron and TXA are routinely used. We closely monitor the wastage as part of our routine.
Support from clinical directors
Clinical directors aware and supportive
The role of our trust resilience team was crucial in creating an effective EBM team. We had excellent senior management and clinician engagement and communications to staff and patients.
We did not need to change much during the amber alert. We cancelled elective cases that may have required blood (this was managed by the CMO). We already operate a strict restrictive transfusion thresholds policy here using single unit and review practice
PBM initiatives all in place prior to amber alert but this helped promote and help sustain these approaches
There has been no discernible change in clinical practice at this hospital since the Amber alert. There was a flourish of high-level activity which concluded that there were few surgical procedures which could/would be cancelled, but that prudence would be encouraged. The major changes revolved around blood bank stock reduction and a greater use of ad hoc ordering, in particular for irradiated red cells. There was strong resistance to reducing emergency units in satellite fridges, triggering a laboratory audit of emergency blood usage. This has been fed to the next clinical risk committee, the head of surgery and the head of emergency medicine and we are awaiting sanction to go ahead.
Having the Amber alert brought blood transfusion to the forefront. Lack of IT systems to pull this data was apparent. For instance, difficult to find number of transfusions for Orthopaedic processes. Led to very time-consuming trawling through raw data.
The amber alert certainly raised awareness Trust wide of how precious blood is as a resource. It has allowed us to recalibrate on our PBM initiatives and the challenging of requests by BMS staff. This has been well received with good understanding by clinicians who request blood. Single unit transfusions continue to be requested outside of trauma, obstetric and haematology/oncology requests which is positive to see.
With regards to Q17 statement. ‘Increased use of NHSBT PBM team resources or promotion of some PBM resources not previously utilised, helped support implementation of, and engagement with, our local Emergency Blood Management Plan [EBMP] during the Amber Alert’ It also helped the other way around (I think the Amber alert is helping our clinicians to adhere to the rules of PBM)
The amber alert helped us to implement measures across the trust to ensure all transfusions were appropriate and that all staff were engaged. We hope that we can continue these measures when this issue fades from the minds of staff across the trust.
Many of the PBM initiatives were already in place within the Trust hence no change to practice. For surgical cancellations need NHSE direction early on. Trust not keen to make cancelations based on amber alert and individually (required regional ICB approach). Effect on bloodstocks would have been very low (biggest impact was stock holding reductions). Risk/benefit consideration with long waiting lists and sicker patients at this time.
As unfortunate as the situation was, it seems to have improved practice and raised the focus of the blood supply in general, and the HTL in particular.
Good experience for learning.

C. Engagement With NHSBT During Amber Alert & Networking
The London TP group set up weekly Teams meetings so the TPs could discuss any issues or ask questions, and the TP's who were the only TP in their trust felt supported. These were also attended by the London PBMP team
There is a good network between labs, and they communicate via WhatsApp
Communication from NHSBT local account manager was excellent
Every hospital wanted to know what the other hospitals were doing therefore regional Teams/Zoom meetings should be set up, organised by the RTC Administrator and chaired by the regional NHSBT Patient Consultant. The regional meetings could then feed into a national meeting, with nominated representatives & regional NHSBT Patient Consultant so a national picture was known by all. Feedback from ICU is there is a national approach to bed management, and this should be possible for blood transfusion
Apart from the recent Royal College of Pathologists seminar, there have been no national seminars/webinars for hospitals to engage with NHSBT senior management team and ask questions. Not just the Haematology Consultants, but the Directors and Associate Directors from the organisation who are all part of the process from donor to recipient
NHSBT has engaged very well with the National Transfusion Lab Managers, and I hope they have found this engagement useful
The Patient Blood Management Practitioners were amazing. Everybody put all their questions to them (and there were many!). They were so helpful, supportive, and never once complained. They became the face of NHSBT finding out so many things relating to donation, processing, and stock management which I'm sure are not within the remit of a PBMP. They all deserve special recognition by NHSBT for all the hard work they did with the hospitals.
Emergency regional meetings were helpful to discuss share ideas/ approaches being taken at different sites.
The Midlands RTC meeting to discuss the situation was very helpful and provided good insight into how NHSBT had reached this point and what was being done to get out of it. It was also a good forum for shared learning.
Drop-in sessions were useful to share good practice. NHSBT updates were very helpful.
Regional drop-in session re amber alert from the SE RTC was well received and our TPs found this helpful in coordinating and sharing responses across the region. Thank you. We appreciate the hard work from NHSBT during this challenging time.

D. Strategy and learning feedback
When the pre-amber alert was declared in July it felt like there wasn't a plan from NHSBT. It would've been better if it had been stated that the situation would be reviewed (every 4 weeks for example) and then update with what NHSBT have been doing to manage the situation
Leading on from that, NHSBT weren't very visible in what they were doing to mitigate us going into a full amber alert (which of course we eventually did). We were told there were many reasons why the blood shortage – post COVID stocks couldn't cope with increased NHS activity, donors not turning up, lack of trained staff at donor centres, lack of staff in processing, bad weather, Queen's funeral Bank Holiday but not how it was being resolved. Although we are sure things were being done, the hospitals were under immense pressure to reduce stocks and defer surgery but with little transparency from NHSBT on their actions
NHS England were very quiet throughout all this. They should be part of the national meeting approach as many Trusts were expecting input from them
There was not enough coming from Department of Health in the early stage or interaction with the ICS/ICB in relation to collaborative responses.
Moving forward hospitals would like some feedback from NHSBT on what they've learned from this, how they are mitigating against it happening again and how they plan to build greater resilience in their systems.

E. Communications Feedback
Wasn't clear whether the alert was for all blood groups or just group O
NHSBT communication useful, but too many! Confusion to when the Amber alert had actually ended.
There have been so many communications from NHSBT about pre-amber and then amber alerts that I'm not certain these were, or are, actually acknowledged.
Some of the communications came too late around the guidance of what you expected - at the end of week 2
More regular updates by email required to help inform EBM group would have been helpful
Release then withdrawal of the email sent 07/11/22 declaring that we were returning to a Pre-Amber alert was not helpful.
NHSBT communication to hospitals started well when the amber shortage was first declared, however it deteriorated towards the end and despite a promise of weekly updates, the week before we were stood down we had nothing. In addition the daily stocks levels on NHSBT Hospitals & Science website were not updated every day towards the end of the alert. Was this because blood stocks were improving but if hospitals saw this they might ramp up activity so they were deliberately not published?
The communications from NHSBT were slightly confusing and when coming out of the alert - they created lots of confusion. They also did not provide enough guidance to the independent healthcare sector
The initial communications were good and supported what was required, plus helped answer some of the questions posed at the EBM meeting. I would have preferred more regular emails as it was hard (initially) to get the Trust to cancel elective surgeries, stating the worst case (red alert)
Communication did not occur on a frequent enough basis - we were having daily meetings but not receiving any guidance from NHSBT
At the very beginning, the cascading from NHSBT meant that more senior people in the hospital, not in a position to do much were informed of the Amber. The Trust also fed back they were not happy with the level of communication that came through to them considering the magnitude of the issues and the fact a business continuity incident needed to be declared.
Improved communication of NHSBT actions taken to improve blood stocks possible in future
Would have appreciated weekly communication even in the Pre-Amber Alert state, we have requested reimbursement of our ad hoc deliveries during pre-amber state and have not had a response.
It was felt that NHSBT might have kept us in pre-amber alert for too long, with little communication.
The communications did not come through to the lab manager, they were forwarded by other members of the transfusion team. We will try to get him added to the email list.
However, communication around stand down was confusing.
Some of the communications were helpful but some caused confusion
Different groups within the Trust got emails when others did not. There was a discrepancy when senior management got an email, and the transfusion laboratory manager did not. As a TLM I did not know what information they had, and I found myself sending emails that they already had or asking a question presuming they had been informed and they did not know. Also, other hospitals were receiving emails hours before they did or vis versa.
The communications were unclear towards the end of the alert as it was called off prematurely and then on again. Used letters to circulate to clinical staff who were querying. Not enough structured information for pre-amber. Also overwhelmed during amber but not specific enough to guide practice of what operations to cancel.
Insufficient communication on NHSBT actions in the early days to share with medical and divisional directors
Communications about the alert went out to chief executive/medical director before transfusion teams heard about it. May have been useful to send out simultaneously. The lifting of the alert and then retraction

did cause some consternation but thankfully we did not have to retract any comms. Overall, the communications and guidance to hospitals was helpful.
Sending regular communication to medical director definitely engaged key personnel
Communication regarding the initial actions that NHSBT were taking during the Pre-Amber Alert would have been useful. NHSBT gave the hospitals actions to take but we did not know what NHSBT were doing to resolve. We felt we took the Pre-Amber Alert very seriously, which meant we did not have to implement too much for the Amber Alert.
The actions we took during pre-amber alert did not involve the Trust Board, perhaps we should have forwarded the pre-Amber to the Board to warn them?
The communications from NHSBT did not always go through a central route, there were disjointed and confusing messages from different sources (other than NHSBT), there were sometimes long gaps between communications and then short notice to return to pre-Amber. The recalled message about returning to pre-amber and then not again was especially unhelpful and caused confusion.
It was confusing for staff to receive a 'return to amber phase' email followed by a retraction followed by a reinstatement of the pre amber phase the following day.
There was confusion caused by the email received standing down the amber alert which was then retracted.

F. Blood stocks & feedback on ability to maintain change
The lab will definitely be able to sustain the changes. Whether the wider hospital will or not is unknown.
We plan to trial keeping stock level at 33% reduction for amber level, with immediate effect to see if we can reduce the number of days stock held
This will be trialled and monitored daily to see what impact this will have long term
High usage site which holds not many days stock
This will be trialled and monitored daily
we have not encountered any problems so far with reduced stock numbers
Maintain stock levels implemented during Amber Alert.
We carry low stock numbers, and we are a Trauma centre so have returned to normal stock levels to be able to safely and easily meet demand in the event of a Trauma or Major Incident requiring blood.
Will be assessed on a need basis, but we will attempt to retain reduced stock as long as possible
It would be difficult to continue to operate with the reduced O Pos and O Neg levels, as we have a high level of trauma patients
We have moved to a 40% reduction so for patient safety reasons will now increase to a 20% reduction. This will reduce the number of extra collections required also.
Remote fridge stock levels will not be changed back to normal following pre-amber alert. One unit transfusion will be promoting across the trust.
No changes made during amber alert period because our stock levels are very lean and stock management is optimised.
We will need to monitor for increased costs due to need for additional ad hoc deliveries.
We have gradually been trying to reduce stock levels in line with BSMS suggestions but find the number of collect journeys from NHSBT has increased - we have noticed that we often do not have appropriate antigen negative units in stock and often have to use alternative groups when we have insufficient time to order specific units in for a patient.
It is likely the usage will return to normal, meaning more units will be needed to meet the demand.

Minimal impact but may be able to use more reactive requesting of deliveries rather than holding stock due to proximity to NHSBT
We reduce our pre amber alert stocks too
stock levels already low so no further reduction needed
Lack of changes made due to pre-existing measure to keep stock levels low
BMS empowerment to continue to be encouraged. Reduced stock levels will be continuously reviewed.
We will not increase the stock levels to the original stock levels, but will have to increase them a little to avoid too many ad hocs, and prevent potential delays
No changes made, as stock levels are very low
Attempts to reduce emergency stock held in satellite fridges has met with some resistance, but there is a remaining action to achieve this.
We plan to maintain the lower stock level, but this will depend on clinical demand
We met weekly and were very proactive in cancelling certain ops.
Only sustainable if there is an increased use of blood on demand for patients eligible for electronic issue. This is currently being monitored twice a day and dependent on NHSBT being able to deliver stock quickly
We will need to raise only the O pos stock by several units
Running a large hospital with only enough O neg to replace the emergency O neg could not be maintained, but some other levels will be kept
Reduction in flying squad levels (from 4 to 2) to remain in place
Very close to issue centre. Stock levels between pre-amber and amber not dissimilar.
Less control due to remote fridges being back in use.
There have been days when the level of A positive and O Positive have got a little too close to running out for a hospital of our size
Will base decisions on evidence regarding usage and wastage obtained and adjust levels appropriately.
We will be slowly increasing holding to roughly halfway between normal and amber alert stock levels and assessing whether this is sustainable.
We will be slowly increasing holding to roughly halfway-between normal and amber stock levels and assessing whether this is sustainable.
I keep stock levels at a minimum with my ISI being about 2. This is as low as I feel comfortable going. We did remote stock in the remote issue fridges
We already have the lowest possible stock holding in the lab due to movement of stock around LUHFT (excluding Aintree) and use the VMI (Vender Managed Inventory) to keep stock levels where they have been agreed. Satellite fridges – during most of this period we were moving our fridges to the new hospital so most emergency stock was kept in the lab, we did for a few weeks change our 4x O NEG units in A+E to 2x O POS + 2 O NEG Although we did not do many Ad Hoc orders as we use the VMI instead – we did on a number of occasions accept short dated red cells and platelets.
Cancelled routine deliveries from NHSBT due to the reduced stock levels
Decreased stock holding of red cells ceased stock holding of platelets
Hospitals worked really hard to reduce their stock holding and that was evident by the national stock graphs released after the shortage was declared.
The biggest reduction was achieved by reducing stock holding in the laboratory and in our remote issue fridges. Remote issue fridges made it difficult to triage transfusion decisions because they are designed to dispense on demand and are positioned to be in close proximity to the clinical area.
O neg as percentage of issues will be high for next few months and KPI's have not been amended for this time so will increase incident workload.

G. Blood Donation Related Feedback
The history behind the amber alert was very interesting but not widely known by most staff/ patients. They all just thought we'd 'run out of blood'. Also, many people rushed forwards to donate and then were frustrated that there were no slots available. Maybe if you had described to people that donating in the future was just as important as donating now and enabled them to book a few months ahead they would not have just turned away and forgotten about it. I think that was a missed opportunity.
Staff and visitors could not understand why they were unable to donate if the stock situation was so poor. It would have been useful to have an official reason for this at the start of the alert
Awareness of the amber alert meant that staff in the hospital were wanting to donate their blood but found that there was no donor sessions available. This information could have been put out to the media at the pre-Amber alert, so donations went up to prevent going into Amber alert in the first place.
Some donors complain about the difficulty in donating blood during and after the pandemic, such as the distance and cancellation.

Appendix 2

Acknowledgments

With thanks to all the hospitals below who contributed to this survey:

Addenbrooke's Hospital
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Barnsley Hospital
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Birmingham Children's Hospital
Birmingham City Hospital
Birmingham Heartlands Hospital
Birmingham Women's Hospital
BMI Ealing
Bradford Royal Infirmary
Broomfield Hospital
Burnley General Hospital
Calderdale Royal Hospital
Central Middlesex Hospital
Cheltenham General Hospital
Chesterfield and North Derbyshire Royal Hospital
Colchester General Hospital
Countess of Chester Hospital
Croydon University Hospital
Darent Valley Hospital
Doncaster Royal Infirmary
Dorset County Hospital
Ealing General Hospital
Epsom General Hospital
Fairfield General Hospital
Freeman Hospital
Frimley Park Hospital
Gloucester Royal Hospital
Guy's Hospital
Great Ormond Street Hospital
HCA Laboratories
Hinchingbrooke Hospital
Huddersfield Royal Infirmary
Ipswich Hospital
James Paget University Hospital
John Radcliffe Hospital
Kent and Canterbury Hospital
King's College Hospital
King's Mill Hospital
Lister Hospital, Stevenage
Medway Maritime Hospital
Milton Keynes General Hospital
Norfolk and Norwich University Hospital
North Middlesex Hospital
Northern General Hospital
Northumbria Specialist Emergency Care Hospital
Northwick Park Hospital
Nottingham University Hospital - Queens Campus
Nuffield Hospital Exeter
Peterborough City Hospital
Poole General Hospital
Princess Royal Hospital, Telford
Queen Alexandra Hospital, Portsmouth

Queen Elizabeth the Queen Mother Hospital, Margate
Queen's Hospital, Romford
Rotherham General Hospital
Royal Berkshire Hospital
Royal Bolton Hospital
Royal Bournemouth Hospital
Royal Cornwall Hospital
Royal Derby Hospital
Royal Free Hospital
Royal Hallamshire Hospital
Royal Lancaster Infirmary
Royal Liverpool University Hospital
Royal National Orthopaedic Hospital
Royal Papworth at Cambridge Biomed Campus
Royal Preston Hospital
Royal Shrewsbury Hospital
Royal Stoke University Hospital
Salisbury District Hospital
Sheffield Children's Hospital
Southampton University Hospital
Southend Hospital
Southmead Hospital
SPIRE Parkway Hospital
St George's Hospital
St Mary's Hospital, Isle of Wight
St Peter's Hospital
St Richard's Hospital
St Thomas' Hospital
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The London Clinic
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