

Emergency Blood Management Plan (Red Blood cells and platelets)

Issue Date	Review Date	Version
July 2019	July 2024	4

Purpose

This framework is designed to ensure that National Health Service Blood and Transplant (NHSBT) and hospitals in England and Wales work in a consistent, integrated manner to manage blood shortages.

Who should read this document?

Members of the emergency blood management teams. All medical staff and service line directors and managers.

Key Messages

The appropriate use of donor blood and the use of effective alternatives to blood are important public health and clinical governance issues. This plan is designed to build on actions taken by hospitals to improve transfusion safety and effectiveness in line with the, 'Better Blood Transfusion: Safe and Appropriate Use of Blood 2007/001', initiative.

Core accountabilities

Owner	Specialist Practitioner of Transfusion
Review	Hospital Transfusion Committee (HTC)
Ratification	Medical Director
Dissemination (Raising Awareness)	Specialist Practitioner of Transfusion
Compliance	Transfusion Team

Links to other policies and procedures

Version History

1	January 2005	
2	June 2007	
2.2	December 2013	
2.3	March 2015	
3	March 2017	Reviewed and updated
4	July 2019	Reviewed and updated

The Trust is committed to creating a fully inclusive and accessible service. Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff. We will treat people with dignity and respect, promote equality and diversity and eliminate all forms of discrimination, regardless of (but not limited to)

age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/maternity.

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Contents

Section	Description	Page
1	Introduction	3
2	Purpose, including legal or regulatory background	3
3	Definitions	3
4	Duties	4
5	Emergency Blood management plan Roles and responsibilities in the event of an alert Green Phase Amber Phase Red Phase Recovery from shortages Schematic of red cell and/or platelet storage plan Patient prioritisation categories	4 -18
6	Overall Responsibility for the Document	19
7	Consultation and Ratification	19
8	Dissemination and Implementation	20
9	Monitoring Compliance and Effectiveness	20
10	References and Associated Documentation	20-21
Appendix 1	Action card for Blood bank manager or deputy	22
Appendix 2	Action card for Consultant Haematologist	23
Appendix 3	Action card for Trust Doctors	24
Appendix 4	Normal and reduced red cell stock levels	25
Appendix 5	Transfusion codes and triggers- Red Cells	26-27
Appendix 6	Transfusion codes and triggers- Platelets	28
Appendix 7	Dissemination Plan and Review Checklist	29
Appendix 8	Equality Impact Assessment	30-31

1 Introduction

This framework is designed to ensure that NHSBT and hospitals in England and Wales work in a consistent, integrated manner to manage blood shortages.

The appropriate use of donor blood and blood products with the use of effective alternatives to blood are important public health and clinical governance issues. This plan is designed to build on actions taken by hospitals to improve transfusion safety and effectiveness in line with the '*Better Blood Transfusion: Safe and Appropriate Use of Blood 2007/001*' initiative.

In 2019 the United Kingdom is due to leave the European Union (EU). This has raised concerns over the provision of blood and blood products and potential delays in supplies. The National Blood and Transplant service (NHSBT) is largely self-sufficient in blood and blood components. They do not export or import products in large quantities. NHSBT collects blood from donors in England for the vast majority of routine demand for red blood cells, platelets and plasma.

Around 6.5% of plasma units issued to the UK from Europe for patients born after 1996 as a precautionary safety measure against exposure to the risk of Variant CJD. NHSBT is continuing to establish contingency arrangements to mitigate any potential impact on its products and services that may arise as a result of the United Kingdom's exit from the E.U.

2 Purpose

This framework is designed to ensure that National Health Service Blood and Transplant (NHSBT) and hospitals in England and Wales work in a consistent, integrated manner to manage blood shortages.

3 Definitions

BCSH	- British Committee for Standards in Haematology
CMV	- Cytomegalovirus
EBMA	- Emergency Blood Management Arrangements
EBMG	- Emergency Blood Management Group
EBMP	- Emergency Blood Management Plan
E.U	- European Union
HTC	- Hospital Transfusion Committee
HTT	- Hospital Transfusion Team
NHSBT	- National Health Service Blood and Transplant
UHPNT	- University Hospitals Plymouth National Health Trust
vCJD	- Variant Creutzfeldt - Jakob disease

4 Duties

- Ensure a safe, appropriate and efficient transfusion service to all patients.
- Ensure Blood stock management is robust in conserving the blood resources available
- Ensure patient blood management schemes are implemented to assist in conservation of blood resources.
- Minimise wastage of blood/blood products.

5 Emergency Blood Management plan

This policy is designed to ensure that in the event of a blood or platelet shortage blood and platelets remain available for essential transfusions and that overall usage is reduced to ensure a supply for urgent cases.

The plan is structured in three phases with a final phase of recovery to prevent a sudden increase in usage until blood stocks are back to near normal.

Phase 1-Green: Normal circumstances where supply meets demand:

- No shortage of blood components or blood products exists.
- NHS Blood and Transplant service (NHSBT) is able to provide optimal inventory service according to requests received.
- Strategies to reduce wastage and ensure that red cells and platelets are used appropriately should continue.

Phase 2-Amber: Reduced availability for a short or prolonged period:

- NHSBT will contact the duty Blood Bank Manager, on call Consultant Haematologist or Transfusion Practitioner informing that there is a shortage in red cell or platelet stocks.
- NHSBT will require the University Hospitals Plymouth NHS Trust (UHPNT) to call an Amber alert.
- UHPNT will be required to reduce stock levels and reduce usage of those components affected by the shortage.
- Local actions may be required to reduce and prioritise usage.
- When the stock levels begin to rise it is crucial that we do not resume usage of product at or near normal levels but that a gradual return to normal usage is undertaken.

Phase 3-Red: Severe, prolonged shortage of blood:

- NHSBT will contact the duty Blood Bank Manager, on call Consultant Haematologist, Transfusion Practitioner and On-call Director to report that national red cell or platelet stocks have fallen to levels requiring implementation of the *Emergency Blood Management Plan*.
- NHSBT will require UHPNT to instigate Emergency Preparedness Resilience and Response arrangements co-ordinated through the Major Incident Control Centre.
- Normal usage of blood and blood products must stop immediately.
- The Red team members will take the necessary action to protect stocks and control how they will be used.
- When the stock levels begin to rise it is crucial that a gradual return to normal usage is undertaken

Recovery Phase:

- When the stock levels begin to rise it is crucial that we do not resume usage of product at or near normal levels but that a gradual return to usage is undertaken
- NHSBT will indicate when stocks are stable again and a gradual return to normal levels of usage can begin.

This plan gives a description and actions to be taken for each of these four phases.

All hospitals will be implementing their own Emergency Blood Management Plans at the same time, when alerted to do so by NHSBT

NHSBT (NHS Blood and Transplant) actions

National stock levels are monitored daily and production levels amended to ensure stock levels are kept at the pre-set target level. However, if this does not have the desired impact a number of wide ranging actions may be taken. These include:

- Calling more donors.
- Extending shifts in the processing department to increase production.
- Increased monitoring and movement of the national stock ensuring stock is distributed according to age and group mix, to ensure wastage is kept to a minimum.
- Importing red cell units from other blood services.

If these actions prove unsuccessful NHSBT will declare a shortage and communicate a move to the Amber phase.

Hospital Emergency Blood Management Arrangements (EBMA)

It is recommended that each hospital should establish as part of their overall emergency planning, an Emergency Blood Management Group (EBMG) with representation from the Medical Director, operational and risk management, key clinical users and the Hospital Transfusion Team.

The responsibility of the group is to provide strategic guidance and formulate arrangements to manage the appropriate use of blood in each operational phase, as part of their existing emergency plans.

NHS Trust plans should clarify the roles and responsibilities of staff and give clear guidance for internal communication. Consideration should be given to centralising hospital stock and modification of elective surgical lists.

Once the arrangements have been formulated they should be managed by the Hospital Transfusion Team and re-enforced when required by senior clinical staff representing the main users of blood.

Should a national blood shortage occur, NHSBT will activate their emergency plan and will notify duty Blood Bank Manager, on call Consultant Haematologist, Transfusion Practitioner and On-Call Director to implement the emergency blood management plan. In a shortage, actions within hospitals may need to be reviewed daily by either the EBMG or a nominated group of key staff.

It is essential that the EBMA have senior hospital management support i.e. On-call Director and Medical Director to ensure their effectiveness when they are called into action. Clinical staff should be aware of their existence and be willing to accept that a decision making process, however difficult, is necessary when the supply of blood is limited.

Roles and responsibilities in the event of an alert

To oversee the response, there are two key groups:

The 'Hospital Transfusion Team',

And the

'Emergency Blood Management Group'.

Roles and responsibilities are detailed in the appropriate action cards on pages 22 to 24.

Initiation of Amber or Red alerts

NHSBT will notify the Blood Bank Manager via the Blood Bank Office.

Where an Amber alert has been called the Duty Blood Bank Manager or Deputy or BMS Blood Bank Specialist on duty will follow the Amber phase action card for calling a meeting of the Amber team.

This meeting will be held in the Major Incident Control Centre, Level 6 (Diagnostics Meeting Room). If there is another meeting occupying the room (that is not incident related) they are to vacate the room to enable the Amber Team to take over the Major Incident Control Centre. At the same time a 'Major Incident Standby' callout cascade should be undertaken by Switchboard, to ensure senior representation from the outset.

Where a Red alert has been called the initiating person will be the Blood Bank staff member on duty at the time. This person will follow the Red Phase action card for calling a Red alert team meeting.

The duty blood bank staff member will make contact as soon as possible with a Red Team member in order that the work under way in the Blood Bank is not unduly compromised. The first person contacted is responsible for contacting other Red Team members and calling a meeting to be held in the Major Incident Control Centre, Level 6 (Diagnostics Meeting Room). If there is another meeting (that is not incident related) occupying the room they are to vacate the room to allow the Red Team to take over the Major Incident Control Centre. If a 'Major Incident Standby' callout cascade has not previously been undertaken contact Switchboard, to ensure senior representation from the outset.

Major Incident Control Centre

This room is purpose built and has a number of features to allow efficient management of incidents under the Direction of the On-call Director and On-call Manager.

When operational the contact details are:

Derrifordhospital.controlcentre@nhs.net

Tel 55158 or 01752 245158

Tel 39835 or 01752 439835

Fax 52239 or 01752 792239

Full facilities are available to support an incident response including computers, telephones, radios, TV, whiteboards etc.

For resilience, telephones in this room run off 2 independent switchboards.

There are two way radios available should they be required. These are needed where phone systems are down or there are power supply problems.

The Hospital On-call Manager is responsible for support arrangements for the control centre, e.g. press releases, situation reports and catering arrangements.

Access to the Major Incident Control Centre and its equipment

The room is security protected and to get access codes to the doors it is necessary to enter via Imaging Offices door or out-of-hours bleep Security via Switchboard

GREEN Phase

The Green Phase represents normal operating circumstances.

- Secure appropriate arrangements for Better Blood Transfusion and the appropriate use of blood.
- Maintain senior management and NHS Trust Board Commitment.
- Maintain appropriate membership and functioning of the Hospital Transfusion Committee (HTC) and Hospital Transfusion Team (HTT).
- Appropriate blood transfusion policies for the effective use of donor blood are in place, implemented and monitored.
- Provision of education and training to all staff involved in the process of blood transfusion and is included in the induction programmes for new staff.
- Maintain links with other local hospitals and investigating the best policies for moving stocks between sites.
- Ensure the appropriate use of blood and the use of effective alternatives in every clinical practice where blood is transfused.
- Practice within existing national guidance on the appropriate use of blood and alternatives.
- Maximising the use of intra-operative cell salvage for surgery with a high blood loss.
- Provide guidance for the medical and surgical use of red cells, and other blood components such as platelets and fresh frozen plasma.
- Regularly monitor and audit of usage of red cells, platelets and fresh frozen plasma in all clinical specialities.
- Empower blood transfusion laboratory staff to ensure that appropriate clinical information is provided with requests for blood transfusion.
- Empower blood transfusion laboratory staff to ask clinicians about appropriateness of requests for transfusion against local guidelines for blood use.
- Secure appropriate and cost effective provision of blood transfusion and alternatives in surgical and obstetric care.
- Promote procedures for the pre-operative assessment of patients for planned surgical procedures to allow the identification, investigation and treatment of anaemia and the optimisation of haemostasis.
- Implementing hospital transfusion codes as recommended by the National Blood Transfusion Committee to ensure that each request for transfusion clearly gives the

reason for transfusion of blood components (see Hospital Transfusion Policy and blood request forms for transfusion codes).

- Practice blood conservation strategies including the use of point-of-care testing for haemoglobin concentration and haemostasis and alternatives to donor blood such as peri-operative cell salvage and pharmacological agents such as anti-fibrinolytic and intravenous iron.
- Promote procedures for the identification and management of maternal anaemia in particular with correction of iron deficiency in the antenatal and postnatal period.

For any queries, advice or assistance contact:

Consultant Haematologist – Transfusion Lead

☎ 52876
☎ Bleep 89901
(mobile phone
through main
switchboard)

Consultant Haematologist Secretary
Blood Bank Manager

☎ 52398
☎ 52465

Senior Transfusion Practitioner and team

☎ 31487
☎ Bleep 0604/0909

The Amber Phase represents a reduced availability for a short or prolonged period.

NHSBT will take action to maximise production and increase collection of red cells and platelets during this time.

The HTT will review compliance of the following:

- Continuation of elective surgery will depend on blood stock levels.
- All clinical areas to strictly apply guidelines on blood product use and reduce transfusion triggers where possible (Appendix 5 and 6).
- All requests for blood or platelets must have detailed and legible clinical details, a pre-transfusion / pre-operative haemoglobin or platelet count concentration.
- Operation by blood group for elective surgery depending on stock level. No surgery can go ahead without appropriate blood or platelets being identified as available by the transfusion laboratory.
- In cases of actual or potential massive blood loss, a Consultant Haematologist must be contacted by the referring team to allow planning of blood product provision and give advice about blood conserving measures.
- Reduction of the reservation period for blood to 12 hours wherever possible.

If a reduction of up to 33% in use is required, then in addition to the above:

- Stop all transfusions in Category 3 (page 17 and 18) and ensure review of theatre lists via Theatre Central Coordinator daily meeting.
- Blood Bank to stop routine stockholding of platelets – order only for a specific identified requirement or for a unit of platelets to be “on standby” for a specific procedure.
- Platelets to be issued to category 1 and 2 patients only see page 18.
- Blood bank will prepare to:
 - Cease requesting “long dated” platelets.
 - Interchange pooled and aphaeresis platelets, reserving aphaeresis platelets for children under 16 where possible.
 - Accept Leucodepleted instead of CMV negative platelets.
 - Accept RhD positive when RhD negative platelets are not available.
 - Accept platelets of a different ABO group (in line with BCSH guidelines).

For any queries, advice or assistance please contact On-call Consultant Haematologist or On-call Manager – via Switchboard:

Amber Team		
Members	During working hours (0800 - 1800 Mon - Fri)	Out of hours
Consultant Haematologist for Transfusion	52876 Bleep 89901 Sec: 30126	On call Haematologist
Care Group Director – Surgical Services	Via Switchboard	
Care Group Director – Medical Services	Via Switchboard	
Care Group Manager – Clinical Support Services	Via Switchboard	
Care Group Director for Women and Children	Via Switchboard	
On call Haematology Consultant	N/A	Via Switchboard
Duty Floor Anaesthetist (in hours)	37158	N/A
On call Consultant Anaesthetist (out of hours)	N/A	Via Switchboard
Blood Bank Manager	52465	Bleep 0871
Emergency Planning & Liaison Officer	Pager: 89363	On-call Manager Via Switchboard
Specialist Practitioner of Transfusion	31487 Bleep 0909/0604	N/A
Chief Operating Officer / On-call Director	Via Executive Office	Via Switchboard
ITU Consultant on Penrose (in hours)	Via Penrose	Via Switchboard
Cardiac Anaesthetic ITU Consultant (in hours)	Via Torrington	Via Switchboard
Chair of Hospital Transfusion Committee (HTC)	Via Switchboard	Via Switchboard
Theatre Matron/Band 7 Theatre Coordinator	Via Main Theatres	Via Main Theatres

RED Phase

The Red Phase represents a severe and prolonged shortage of blood.

NHSBT will communicate the nature of the shortage and the actions that need to be taken by the Trust.

Daily review of the blood shortage and its impact on patient care via a medical assessment of all requests by a Consultant Haematologist.

Further actions include (in addition to green and amber actions):

- Stop all Category 2 and 3 red cell and platelet transfusions unless specific cases authorised by the EBMG (see page 17 and 18).
- All units of platelets used will be closely tracked to ensure that there is no wastage.
- Priority transfusion based on clinical need.
- In major bleeding, involve a Consultant Haematologist immediately to plan blood product use, consider alternative haemostatic agents and discuss when blood component support should be stopped.
- Blood Bank manager will liaise with NHSBT and local hospitals to determine if transfer of any stocks is required to make the most effective use of the available pool.
- The EBMG will review compliance with the above implementations and all blood use will be carefully audited.

Members	0800 - 1800 Mon - Fri	Out of Hours
All the Amber Team PLUS:		
On call duty Manager	Via Switchboard	On-call Manager via Switchboard
Matron of the Day	Via switchboard	Duty Senior Nurse Bleep 0355
Head of Communications	Pager 89363	Via Switchboard
Medical Director/ Care Group Director	Via Executive Suite	Via Switchboard
Chief Executive	Via Executive Suite	Via Switchboard

Role of the EBMG: (Red team)

- To corporately plan arrangements in the event of severe blood shortages outside the role of the HTT.
- To strategically lead the response and communications during the red phase.
- The EBMG will meet immediately, daily and as necessary to review further actions to be taken and consider issues raised.
- Review blood shortage and impact on patient care daily and performance targets.
- Undertake clinical arbitration and provide situation reports to relevant organisations – NHSBT, Clinical Commissioning Groups, NHS England Area Team, Trust Development Agency, CQC.
- Oversee media response and provision of information to patients.
- Confirmation of situation regarding blood use target achievement in event of amber or red phase.
- Review list of all patient priority – divided by categories 1, 2 and 3 (see page 17 & 18).
- To make arrangements for enhanced donor sessions on site for staff.
- Arrange communication of red phase throughout the Trust including the 'duty teams'.
- Monitor and audit compliance of the implementation by medical staff – responsibility for ensuring that reduction targets are met.
- Review of this plan and agreement of amendments.

Recovery from shortage (Amber or Red phases)

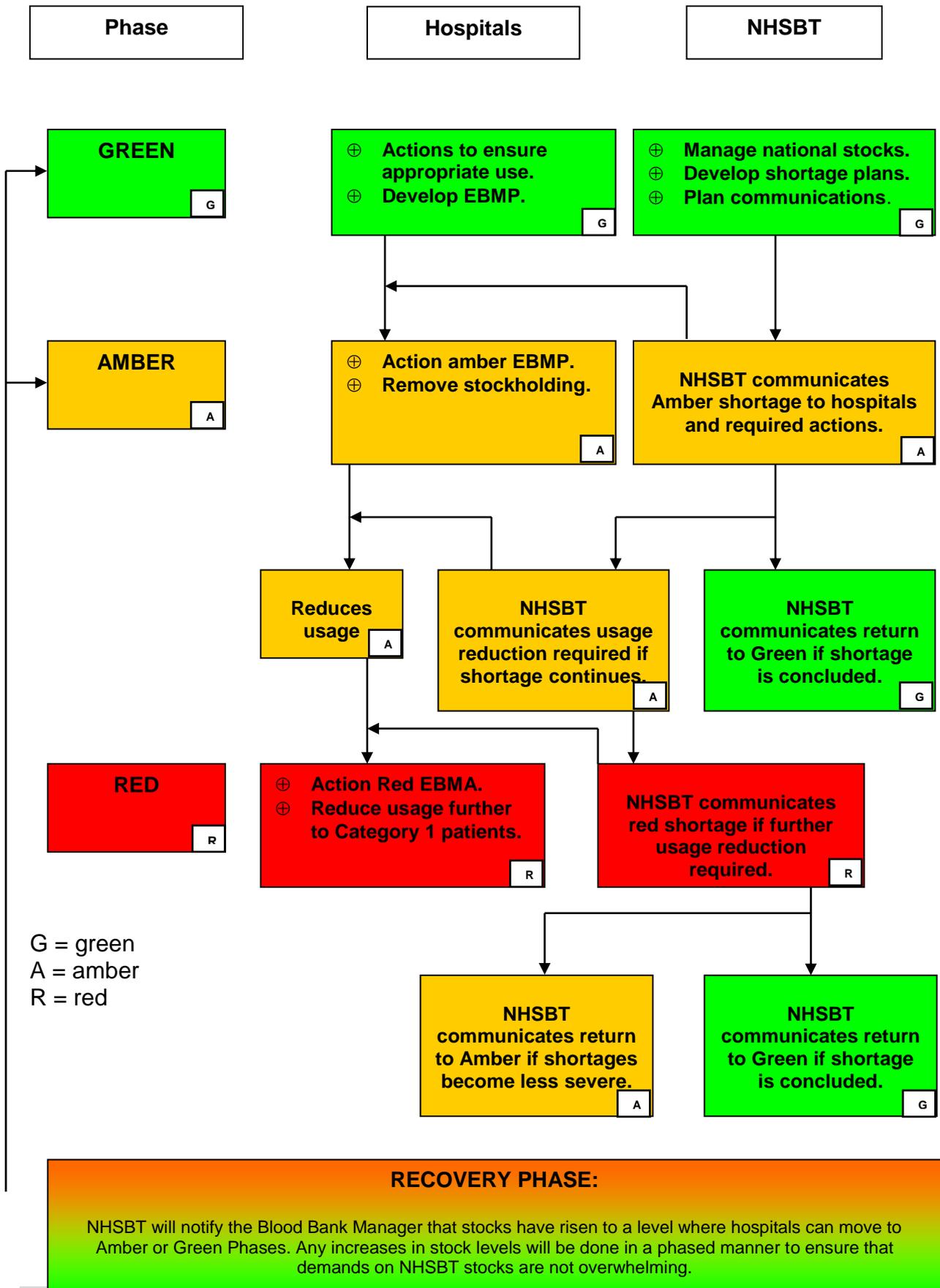
NHSBT action:

NHSBT will notify the Blood Bank Manager that stocks have risen to a level where hospitals can move to Amber or Green Phases.

Local action:

- The Blood Bank Manager (or Deputy) will immediately inform, and copy the correspondence to the:
 - Haematology Consultant with responsibility for transfusion.
 - Medical Director.
 - Chief Operating Officer
 - Transfusion Practitioners.
- The Haematology Consultant will authorise the change to the appropriate phase of the emergency blood management plan.
- All Care Group Leads and Service Line Leads will be informed of the change in status and this will be cascaded to all staff.
- Any increases in stock levels will be done in a phased manner to ensure that demands on the NHSBT stocks are not overwhelming.
- Return to normal activity levels will also be phased. Elective surgery back-logs should not be compressed into the immediate post-recovery period.
- This process will be authorised by the EBMG and implemented under the guidance of the HTT.

Schematic of red cell and/or platelet shortage plan.



Patient Prioritisation Categories

Red Cells

In order to ensure that blood is available for those at most need in Amber and Red phases, patients requiring transfusion will be divided into three broad categories:

Category 1 These patients will remain highest priority of transfusion	Category 2 These patients will be transfused in the Amber but not the Red phase	Category 3 These patients will not be transfused in the Amber phase
<u>Resuscitation</u> <ul style="list-style-type: none"> Resuscitation of life-threatening/on-going blood loss including trauma. 		
<u>Surgical support</u> <ul style="list-style-type: none"> Emergency surgery* including cardiac and vascular surgery**, and organ transplantation. Cancer surgery (probably curative). All emergency surgery. Obstetric surgery. 	<u>Surgery/Obstetrics</u> <ul style="list-style-type: none"> Cancer surgery (palliative). Symptomatic but not life-threatening post-operative or post-partum anaemia. Urgent*** (but not emergency) surgery. All major cancer surgery. Urgent cardiac and vascular. 	<u>Surgery</u> <ul style="list-style-type: none"> Elective surgery which is likely to require donor blood support (Patients with > 20% chance of needing 2 or more units of blood). Elective cardiac and vascular, joint replacements, breast reconstruction surgery.
<u>Non-surgical anaemia's</u> <ul style="list-style-type: none"> Life-threatening anaemia including patients requiring in-utero support and high dependency care/SCBU. Stem cell transplantation or chemotherapy. **** Severe bone marrow failure. Thalassaemia (but consider lower threshold). Sickle cell disease crises affecting organs. Sickle cell patients aged ≤16 with past history of CVA. 	<u>Non-surgical anaemia's</u> <ul style="list-style-type: none"> Symptomatic but not life-threatening anaemia. Refer to reduced transfusion codes and triggers. 	<u>Non-surgical anaemia's</u> <ul style="list-style-type: none"> Elective top-up for anaemia. Post-operative top-up transfusion.

* Emergency – patient likely to die within 24 hours without surgery.

** With the exception of poor risk aortic aneurysm patients who rarely survive but who may require large volumes of blood.

*** Urgent – patient likely to have major morbidity if surgery not carried out.

**** Planned stem cell transplant or chemotherapy should be deferred if possible.

Platelets

The following chart provides general guidance for the use of platelets in the context of reduced availability. Category 1 patients must be given priority.

The use of platelets should be considered as one element in the overall management of these patients.

Please be guided by the clinical condition and the laboratory testing results.

Category 1 (Patients to be treated in Red phase)	Category 2 (Patients to be treated in Amber phase)	Category 3
<u>Massive Haemorrhage and Critical care</u> <ul style="list-style-type: none"> Massive transfusions for any condition including obstetrics, emergency surgery and trauma, with on-going bleeding, maintain $> 50 \times 10^9/l$. Aim for $>100 \times 10^9/l$ if multiple trauma or CNS trauma, sepsis, acute DIC, maintain $>50 \times 10^9/l$. 	<u>Critical care</u> <ul style="list-style-type: none"> Patients resuscitated after massive transfusion with no on-going active bleeding, maintain $> 50 \times 10^9/l$. <u>Surgery</u> <ul style="list-style-type: none"> Urgent but not emergency surgery for a patient requiring platelet support. 	<u>Surgery</u> <ul style="list-style-type: none"> Elective, non-urgent surgery likely to require platelet support for Thrombocytopenia or congenital /acquired platelet defects.
<u>Transfusion triggers for invasive procedures</u> <ul style="list-style-type: none"> Invasive monitoring or biopsy work, maintain platelet count $> 50 \times 10^9/l$. General surgery -maintain count $>70 \times 10^9/l$. Operations in critical sites such as brain or eyes maintain $> 100 \times 10^9/l$. 		
<u>Bone Marrow failure and Immune Thrombocytopenia</u> <ul style="list-style-type: none"> Active bleeding associated with thrombocytopenia or functional platelet defects. 	<u>Bone Marrow failure</u> <ul style="list-style-type: none"> Prophylactic transfusion for thrombocytopenia (platelet count $< 10 \times 10^9/l$) in patients who are not infected and are haemodynamically stable. Consider support if platelet count is $<20 \times 10^9/l$ for patients at a higher risk of bleeding. 	
<u>Neonates</u> <ul style="list-style-type: none"> For neonatal Alloimmune thrombocytopenia or severe thrombocytopenia in an otherwise well neonate, platelet transfusions are required when the platelet count falls to between $20 - 30 \times 10^9/l$. Higher target levels should be maintained if extremely low birth weight or unwell or bleeding or intra cranial haemorrhage is suspected or confirmed. 		

- Lower platelet thresholds may be considered if the neonate is well.
- Planned stem cell transplant or chemotherapy should be deferred if possible.

6 Overall Responsibility for the Document

Hospital Transfusion Team and Hospital Transfusion Committee

7 Consultation and Ratification

Core Information				
Document Title	Emergency Blood Management Plan (and platelets)			
Date Finalised	July 2019			
Dissemination Lead	Specialist Practitioner of Transfusion (SPOT)			
Previous Documents				
Previous document in use?	yes			
Action to retrieve old copies.	Via vital signs			
Dissemination Plan				
Recipient(s)	When	How	Responsibility	Progress update
Members of Hospital Transfusion Committee	April 2019	e-mail/minutes	SPOT	
Members of the Blood Bank committee	April 2019	e-mail/ via blood bank meeting	SPOT	
All members of the Red and Amber teams from the policy	April 2017	e-mail Policy on intranet	SPOT	

The design and process of review and revision of this policy will comply with The Development and Management of Formal Documents.

The review period for this document is set as default of five years from the date it was last ratified, or earlier if developments within or external to the Trust indicate the need for a significant revision to the procedures described.

This document will be reviewed by the Hospital Transfusion Committee and ratified by the Medical Director.

Non-significant amendments to this document may be made, under delegated authority from the Medical Director, by the nominated owner. These must be ratified by the Medical Director.

Significant reviews and revisions to this document will include a consultation with named groups, or grades across the Trust. For non-significant amendments, informal consultation will be restricted to named groups, or grades who are directly affected by the proposed changes.

8 Dissemination and Implementation

Following approval and ratification, this policy will be published in the Trust's formal documents library and all staff will be notified through the Trust's normal notification process, currently the 'Vital Signs' electronic newsletter.

Document control arrangements will be in accordance with The Development and Management of Formal Documents.

The document owner will be responsible for agreeing the training requirements associated with the newly ratified document with the named Medical Director and for working with the Trust's training function, if required, to arrange for the required training to be delivered.

9 Monitoring Compliance and Effectiveness

- This policy will be reviewed every 5 years (unless required sooner) by the Hospital Transfusion Committee)
- Ongoing daily monitoring of blood stocks performed by blood bank manager/nominated deputy.
- Ongoing liaison with NHSBT re management of blood shortages. Plan will be implemented on instruction from NHSBT of Amber or Red Alert.
- Continuation of existing patient blood management schemes to conserve donated blood products for patients whom transfusion is the most appropriate treatment choice.

10 References and Associated Documentation

1. Draft Update on Contingency Planning for a severe, prolonged shortage of blood, CMO,s National Blood Transfusion Committee, 2004
2. DoH. Health Service Circular: 2007/001, Better Blood Transfusion: Safe and Appropriate Use of Blood.
3. Blood Conservation Strategies, James, V. Appropriate Use Sub-Group of the NBS Blood and Tissue Safety Assurance Group, 2003
4. British Committee for Standards in Haematology (2003) Guidelines for the use platelet transfusions. British Journal of Haematology 122: 10-23.
5. DoH: Emergency Planning: Development of an integrated plan for the management of blood shortages. July 2004.
6. BCSH Guideline (2003) Guidelines for the Clinical use of Red Cell Transfusions. British Journal of Haematology 113, 24-31
7. NHS Commissioning Board Command and Control Framework For the NHS during significant incidents and emergencies – January 2013

8. NHS England South Escalation Framework – May 2013
9. Guidelines for the Blood Transfusion Services in the United Kingdom. 8th Edition
2013. London TSO

Notified by: National Blood and Transplant Service

Responsible to: Consultant responsible for transfusion

Location: Blood bank, Level 6
☎52465
Fax 01752 792409

Purpose

- To lead and co-ordinate the laboratory staff during the AMBER phase.
- To participate as a member the EBMG and the HTT in implementing the plan.

Action:

- On receipt of NHSBT notification fax for Amber Alert - immediately inform and copy the correspondence to: (and again when recovering between phases)
 - The Haematology Consultant (or deputy) responsible for transfusion.
 - The Medical Director.
 - The Chief Executive/ Chief Operating Officer.
 - Transfusion Practitioners.
- Inform all additional members of the EBMG and HTT and secretarial staff.
- Inform all laboratory and blood bank staff.
- Attend an HTT meeting in the Incident room.
- Arrange for bloodstocks to be reduced to 67% or as required either by usage or by returning some stock.
- Reduce blood reservation to 12 hours wherever possible.
- Review compliance of the implementations and audit blood use
- Ensure that blood is available for clinically 'essential' transfusions.
- Cross Match only 1 unit at a time (other than for massive blood loss)
- Issue further units only when need is clearly identified and documented.
- Liaise with NHSBT and local hospitals to determine if the transfer of any stocks is required to make the most effective use of the available pool.

Notified by: Blood Bank Manager

Responsible to: Medical Director and Transfusion Haematologist Consultant

Location: DCL Level 7 - ☎52876

Purpose

- To authorise the implementation of the Amber and Red phases of the EBMP.
- To lead medical response to the Amber and Red phases.
- Responsible for prioritising the use of blood for transfusion.

Action:

- To inform all members of the Amber and Red team that the Amber or Red phase has been implemented so they will cascade this message to all staff.
- Attend immediate meeting of the HTT or EBMG Arrange for further meetings to review as required.
- Participate as a member of the HTT and the EBMG to review compliance of the implementations and carefully audit all blood use to ensure only clinically essential transfusions take place.
- Be available to Medical staff across the Trust for advice and discussion when transfusion outside of recognised indications is required.
- Authorise the change of the Amber phase down to Green or up to Red as notified and inform all senior medical staff and directorate managers.

Notified by: Transfusion Haematology Consultant via Care Group Directors

Responsible to: Medical Director

Location: Trust wide

Purpose

- To reduce blood use in the Trust by up to 33% (amber) or 60% (red).
- To ensure that all blood requested for transfusion is essential and clinically indicated.
- To promote, encourage and adopt alternatives to transfusion wherever possible.

Action:

- In addition to the usual requesting criteria, all requests for blood must be accompanied by a pre transfusion/pre-operative haemoglobin and detailed and legible clinical indications for transfusion.
- Ensure that surgery does not go ahead without appropriate blood being identified.
- Apply guidelines on blood product use and reduce transfusion triggers where possible.
- Refer to consultant haematologist when transfusion outside of recognised indications is required.

Following a careful analysis of stock levels and issue patterns the Blood Stocks Management Scheme (BSMS) have provided us with a suggested stock level for each phase of the plan.

This will be subject to review as the use of red cells is currently being reduced due to a number of factors.

Figures in () are our current average monthly use (based on data from 2017- 2018). Our current good practice puts us at an advantage when reductions are required.

Status	O Pos	O Neg	A Pos	A Neg	B Pos	B Neg	AB Pos	AB Neg
GREEN	(50)	(15)	(50)	(10)	(10)	Ordered as required	Ordered as required	(0) 0
	60	20	50	15	10			
AMBER	40	13	35	10	6	Order as required	Order as required	0
	40	13	35	10	6			
RED	24	8	24	6	4	Order as required	Order as required	0
	24	8	24	6	4			

Reviewed by M Binney, March 2019

Note:

- Amber alert will be up to 67% of green stock levels.
- Red alert will be up to 40% of green stock levels.
- Platelets will not be stocked during Amber or Red alerts.
- Reductions could be required in one or more of the ABO groups.

Reductions in transfusion triggers may be required during Amber and Red phases

These are taken from UK national guidelines for the use of blood components. Although it is accepted that clinical judgement plays an essential part in the decision to transfuse red cells, the purpose of transfusion guidelines is to help clinicians decide when blood transfusion is appropriate, and to minimise unnecessary exposure to transfusion.

It is assumed that many patients undergoing elective surgical operations should not require transfusion support if their Hb concentration is normal before surgery. Assuming normovolaemia has been maintained, the Hb can be used to guide the use of red cell transfusion.

Measures to avoid the use of blood transfusion including the use of alternatives to blood should be considered as part of *Better Blood Transfusion* even when blood stocks are normal. Non-surgical management of bleeding e.g. arterial embolisation, stenting or coiling of aneurysms might be more readily considered as treatment options during blood shortages.

Overdependence on group O RhD negative red cells will have a negative impact on the management of this scarce resource. Blood services worldwide encounter recurrent shortfalls of O RhD negative red cells. It is accepted that certain groups of patients benefit more than others from the use of this universal product. It is important that patients are prioritised with respects to their transfusion needs in order to identify those where the use of O RhD negative cells is essential. Group O RhD positive red cells may be used for males and women of non-child bearing age in who no anti-D is detectable. Hospitals are directed to the NBTC guidelines for the appropriate use of group O RhD negative red cells.

Each indication has been assigned a number, which may be used by clinicians when requesting blood or for purposes of audit. Specific details regarding the patient's diagnosis and any relevant procedures to be undertaken must also be provided.

Red cell concentrates: (NHS Blood and Transplant)

Acute blood loss

R1.

In patients with massive haemorrhage, the haemoglobin concentration (Hb) is a poor indicator of acute blood loss and empirical decisions about the immediate use of red cell transfusion are required by clinicians experienced in resuscitation. The following is a guide to the likelihood of the need for blood transfusion, although estimation of blood losses may be difficult:-

- < 30% loss of blood volume (< 1500ml in an adult): transfuse crystalloids. Red cell transfusion is unlikely to be necessary.
- 30-40% loss of blood volume (1500-2000ml in an adult): rapid volume replacement is required with crystalloids. Red cell transfusion will probably be required to maintain recommended Hb levels.

- >40% loss of blood volume (>2000ml in an adult): rapid volume replacement including red cell transfusion is more likely to be required.

When normovolaemia has been achieved/maintained, frequent measurement of Hb (for example, by near patient testing) can be used to guide the use of red cell transfusion. Where future blood loss is unpredictable (e.g. gastrointestinal haemorrhage), a Hb threshold of 100g/L to guide transfusion is recommended; otherwise the objective is to maintain circulating blood volume and Hb >70g/L in otherwise fit patients, and >80g/L in elderly patients and those with known cardiovascular disease.

Peri-operative transfusion

Many patients undergoing elective surgical operations will not require transfusion support if their Hb is normal before surgery. Assuming normovolaemia has been maintained, the Hb can be used to guide the use of red cell transfusion.

R2. Hb <70g/L.

R3. Hb <80g/L in a patient with known cardiovascular disease, or those with significant risk factors for cardiovascular disease (e.g. elderly patients, and those with hypertension, diabetes mellitus, peripheral vascular disease).

R4. Severe Sepsis, Traumatic brain injury and/or acute cerebral ischaemic – use Hb <90g/L to guide transfusion.

R5. Radiotherapy. There is limited evidence for maintaining Hb >100g/L

R6. Chronic Anaemia: Maintain Hb to prevent symptoms of anaemia. Hb >80g/L is appropriate for many patients.

R7. Exchange Transfusion

Platelet concentrates:

(Dose - 15 ml/kg body weight for children <20kg; 1 adult therapeutic dose for adults and older children)

Bone marrow failure

- P1.** Prophylactic use if reversible bone marrow failure and platelet count $<10 \times 10^9/l$.
- P2.** Prophylactic use if bone marrow failure with additional risk factors for bleeding e.g. sepsis, if count $<20 \times 10^9/l$
- P3.** To prevent bleeding associated with invasive procedures. The platelet count should be raised to $>50 \times 10^9/l$ before lumbar puncture, epidural anaesthesia, insertion of intravascular lines, trans-bronchial and liver biopsy, and laparotomy, and to $>100 \times 10^9/L$ before surgery in critical sites such as the brain or the eyes. Transfusion prior to bone marrow biopsy is not usually required.

Critical care/surgery

- P4.** Massive blood transfusion.. Aim to maintain platelet count $>75 \times 10^9/l$. Keep the platelet count $>100 \times 10^9/l$ if multiple, eye or CNS trauma.
- P5.** Acquired platelet dysfunction e.g. post-cardiopulmonary bypass, use of potent anti-platelet agents such as clopidigrel with non-surgically correctable bleeding.
- P6.** Acute disseminated intravascular coagulation (DIC) in the presence of bleeding and severe thrombocytopenia.
- P7.** Inherited platelet dysfunction disorders e.g. Glanzmanns thrombasthenia with bleeding or as prophylaxis before surgery.

Immune thrombocytopenia

- P8.** Immune thrombocytopenia, as emergency treatment in advance of surgery or in the presence of major haemorrhage. A platelet count of ≥ 80 is recommended for major surgery and a count of $>70 \times 10^9/l$ for obstetric regional axial anaesthesia.
- P9.** Post-transfusion purpura, in the presence of major haemorrhage.
- P10.** Neonatal alloimmune thrombocytopenia, to treat bleeding or as prophylaxis to maintain the platelet count $>30 \times 10^9/l$.

Dissemination Plan			
Document Title	Emergency Blood Management Plan (red blood cells and platelets)		
Date Finalised	31/03/2019		
Previous Documents			
Action to retrieve old copies	On Trust documents/ notification to users via Vital Signs/email		
Dissemination Plan			
Recipient(s)	When	How	Responsibility
All Trust staff		Vital Signs	Information Governance Team

Review Checklist		
Title	Is the title clear and unambiguous?	Yes
	Is it clear whether the document is a policy, procedure, protocol, framework, APN or SOP?	Yes
	Does the style & format comply?	Yes
Rationale	Are reasons for development of the document stated?	Yes
Development Process	Is the method described in brief?	Yes
	Are people involved in the development identified?	Yes
	Has a reasonable attempt has been made to ensure relevant expertise has been used?	Yes
	Is there evidence of consultation with stakeholders and users?	Yes
Content	Is the objective of the document clear?	Yes
	Is the target population clear and unambiguous?	Yes
	Are the intended outcomes described?	Yes
	Are the statements clear and unambiguous?	Yes
Evidence Base	Is the type of evidence to support the document identified explicitly?	Yes
	Are key references cited and in full?	Yes
	Are supporting documents referenced?	N/A
Approval	Does the document identify which committee/group will review it?	Yes
	If appropriate have the joint Human Resources/staff side committee (or equivalent) approved the document?	N/A
	Does the document identify which Executive Director will ratify it?	Yes
Dissemination & Implementation	Is there an outline/plan to identify how this will be done?	Yes
	Does the plan include the necessary training/support to ensure compliance?	N/A
Document Control	Does the document identify where it will be held?	Yes
	Have archiving arrangements for superseded documents been addressed?	Yes
Monitoring Compliance & Effectiveness	Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?	No
	Is there a plan to review or audit compliance with the document?	No
Review Date	Is the review date identified?	Yes
	Is the frequency of review identified? If so is it acceptable?	Yes
Overall Responsibility	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes

Core Information	
Date	March 2019
Title	Emergency Blood Management Plan (Red blood cells and platelets)
What are the aims, objectives & projected outcomes?	This framework is designed to ensure that National Health Service Blood and Transplant (NHSBT) and hospitals in England and Wales work in a consistent, integrated manner to manage blood shortages.
Scope of the assessment	
Collecting data	
Race	There is no evidence to show an impact in this area. This policy can be made available in different languages on request.
Religion	There is no known impact other than to the Jehovah's Witnesses. There is a close partnership between the transfusion practitioners and the JW's including being involved in staff education.
Disability	There is no known evidence to show an impact in this area
Sex	There is no known evidence to show an impact in this area
Gender Identity	There is no known evidence to show an impact in this area
Sexual Orientation	There is no known evidence to show an impact in this area
Age	There is no known evidence to show an impact in this area
Socio-Economic	There is no known evidence to show an impact in this area
Human Rights	There is no known evidence to show an impact in this area
What are the overall trends/patterns in the above data?	No trends or patterns identified at this stage.
Specific issues and data gaps that may need to be addressed through consultation or further research	There are no other issues or data gaps. Should any arise then an early and prompt adjustment to the policy will be made through the control of the Hospital Transfusion Committee.

Involving and consulting stakeholders				
Internal involvement and consultation	Hospital Transfusion Team Hospital Transfusion Committee.			
External involvement and consultation	NHSBT			
Impact Assessment				
Overall assessment and analysis of the evidence	This is regularly monitored and overseen by the Hospital Transfusion Committee.			
Action Plan				
Action	Owner	Risks	Completion Date	Progress update
Continual monitoring to collect any data requiring changes to the policy	SPOT	None known	On-going	As required