Emergency Management for Red Cell and Platelet Shortage

Department / Service:	Transfusion Laboratory - Pathology Trust Wide
Originator:	Trust Transfusion Team
Accountable Director:	Chief Medical Officer
Approved by:	Trust Transfusion Committee, Improving Safety Action Group
Date of approval:	3rd June 2025
Review Date: **This is the most current version and should be used until a revised version is in place**	3rd June 2028
Target Organisation(s)	Worcestershire Acute Hospitals NHS Trust
Target Departments	All clinical areas all sites
Target staff categories	All medical, nursing, midwifery, phlebotomy and portering staff involved in the platelet transfusion pathway

Key amendments to this document

Date	Amendment	Approved by:
June 2018	Changes to the trust blood management group table	Gill Godding
March 2020	Updated in line with National guidance and change of accountable director	Gill Godding
October 2023	Addition of pre-amber phase Changed NBS to NHSBT	Transfusion Practitioners
June 25	Amendments to include BloodTrack System	TTC/ISAG

Contents Page

1. Introduction and scope of pathway

The Department of Health require that a policy is in place within the Trust to ensure that, should a red cell or platelet shortage occur, there is a strategy in place to manage blood stocks nationally.

This policy has been updated using *The National Blood Transfusion Committee (NBTC) Plan for NHS Blood and transplant and hospitals to address Red cell shortages* (April 2023) and *NBTC National Blood Transfusion Committee Plan for NHS Blood and transplant and hospitals to address Platelets shortages* (April 2023).

A framework to manage blood and platelet shortages in a variety of situations has been designed by the NHS Blood and Transplant Service (NHSBT) to ensure management of supply and demand.

These contingency plans have been formulated to manage blood stocks during situations which have caused a shortage in blood supplies.

The red cell plan consists of four phases dependent on the National Blood Service stock levels at that time and works on a 'traffic light' system:

Green:	"Normal" circumstances where supply meets demand
Pre-Amber:	Reduced availability of blood for a short or prolonged period without impact on clinical care
Amber	Reduced availability of blood for a short or prolonged period with impact on clinical care
Red:	Severe prolonged shortage with impact on clinical care

The aim of the blood shortage plan is to ensure hospitals and the NHSBT work together within a consistent integrated framework providing equal access for patients on a basis of need.

2. Scope of this document

This policy covers the four phases which represent the levels of stocks available i.e. Red, Pre-Amber, Amber and Green and gives recommendations for action to be taken to ensure best use of resources during each of these phases.

2.1 Definitions, Responsibilities and Duties

The Traffic Light system refers to the four phases used to define stock levels available and gives recommendations for appropriate and fair use.

2.2 Responsibility and Duties

This document will be implemented during any local or national shortages by the Trust Blood Management Group, who will be responsible and accountable for its compliance. Decisions will be made during any shortages, based on this document, by a nominated Consultant Haematologist. The Blood Transfusion Committee and Hospital Transfusion Team will be responsible for ensuring the above Group and all clinical areas are aware of any imminent/pending shortages.
Clinical areas will be responsible for ensuring that red cells or platelets are transfused to patient groups outlined within this plan safely and efficiently, and that they liaise with the Blood Bank Laboratory/Consultant Haematologist for any additional needs they may have.

3. Action plan

Following the National Blood Transfusion Committee recommendations, the Worcestershire Acute Hospitals Management group needs to consist of the personnel in the table below. They will be known

as the Trust Blood Management Group. These members will be contacted as necessary during the Pre-Amber, Amber or Red phase.
The Transfusion Team will notify the Trust Blood Management Group and give advice on the situation and actions that need to be implemented to maintain patient safety. The Trust blood management group will cascade the actions to be taken to their clinical areas.

In the event of red cell or platelet shortage the Trust Blood Management Group will produce an action plan in the form of an Emergency Blood Management Arrangement (EBMA).

Trust Blood Management Group

Chief Executive or representative
Chief Medical Director
Divisional Director of Specialist Medicine
Divisional Director of urgent care
Divisional Director of Surgery
Divisional Director of Specialised clinical services
Divisional Director of Women's and Children's
Chief Nursing Officer
Director of Operations
Chair of the Trust Transfusion Committee
Blood Transfusion Laboratory Manager
Transfusion Practitioner

4. Plan for red cell shortages

Actions for each phase are detailed below

GREEN PHASE: 'Normal' circumstances where supply meets demand

- Normal transfusion practice guidelines, policies and procedures should be adhered to. (This constitutes normal practice time)
- The EBMA should be developed, ready to be issued as and when NHSBT issue an alert to indicate a period of blood supply shortage is imminent.
- Develop, implement and monitor effective blood transfusion policies for appropriate use of red cells.
- Clinical audits should be completed so that the fate of all units of red cells are identified. This should include feedback to reduce any inappropriate use.
- Ensure staff are appropriately trained for their jobs roles, including staff inductions.
- Enter daily stock figures into VANESA, and encourage use of blood alternatives where able

During the green phase NHSBT may issue a precautionary notification to hospitals informing them of potential supply chain issues. This may be all groups or a particular ABO group. Hospitals will be asked to take appropriate action to protect the supply chain. This action is intended to prevent the requirement to move to amber phase.

PRE-AMBER PHASE: Reduced Availability of blood without impact on patient care

During the pre-amber phase, NHSBT may issue a precautionary notification to hospitals informing them of potential supply chain issues and ask hospitals to take appropriate action to protect the supply chain. This is intended to prevent the requirement to move to the Amber phase.

- Check the EBMA is ready to implement and inform the Trust Blood Management Group in case they need to meet on short notice.
- Review haemoglobin thresholds for red cell transfusion and encourage the use of blood alternatives – recommended threshold for transfusion is 70g/L in this phase
- Minimise blood sampling in patient at risk of iatrogenic anaemia
- Ensure pre-operative anaemia are identified and managed, and encourage the use of tranexamic acid and cell salvage unless contraindicated. Ensure all operating theatres have access to cell salvage equipment and staff are trained in how to use it.
- Optimise patients with long term transfusion needs, consider alternatives where possible
- Reduce stock holding where possible, and reserve O negative blood for O negative patients and major haemorrhages only. Transfuse group specific blood wherever possible
- Accept shorter dated red cells if the lab is confident they can be used
- Enter daily stock figures into VANESA, and consider daily waste levels in this phase.
    - Consider reducing stock in satellite fridges
    - Order less irradiated blood, but order it more frequently
    - Reduce period of reservation for all patients

AMBER PHASE: Reduced availability with impact on patient care

If national stocks fall to less than 2 days, NHSBT will communicate a move to the Amber Phase. This may apply to either a single blood group or to all blood groups. All measures from the pre-amber phase should be implemented, along with the following additional actions:

- The EBMA should be activated and the Trust Blood Management Team assembled to discuss ongoing management of stock levels
- Reduce stockholding further, and issue group specific blood wherever possible.
- Decision to transfuse should be consultant led in all cases except emergencies
- In major haemorrhages or trauma situations, assess the prognosis of the patient and consider if high volumes of transfusion are appropriate
- Review thresholds for transfusion should be lowered to 70g/L for all patients, including high risk.

- Elective Surgery may continue if red cell stock levels are adequate, but should be postponed if stock levels continue to drop or if group specific blood is not available for the patient

RED PHASE – Severe shortage of stock with high impact on all patient care

If there is an imminent, severe threat to supply of red cells hospitals will be expected to reduce their stockholding further
The EBMA should be activated, if not already, and stock carefully managed until NHSBT communicate a return to normal levels. This may result in postponement of non-essential services and surgeries. Should this occur, the duty of candour lies with the affected patient's overseeing consultant.

All measures from the previous phases should be implemented, along with the following additional actions:

- NHSBT may request a reduction in hospital stock to specific levels
- All clinical areas should carefully triage their patient's needs, and use blood alternatives in all appropriate situations
- All requests for blood components must be reviewed by the Consultant in charge of Transfusion to minimise inappropriate requests
- In the event of unavailability of O D negative red cells, to prevent delay in transfusion, use of O D positive red cells for all patients (including those of childbearing potential and children <18years), is acceptable if this would be lifesaving.
    - Where O D positive red cells have been transfused due to unavailability of O D negative red cell, ensure that this is reported through local clinical governance structures and to SHOT.
    - If O D positive red cells are transfused to a patient who is of childbearing potential, ensure local haematologists are aware of transfusion, to review appropriateness of administration of prophylactic anti-D.

- Daily entries of red cell stock and wastage figures into VANESA are **mandatory**
    - Consider removal of all stock from satellite fridges, except for emergency units
    - Ensure transportation of urgent units is readily available to satellite areas

- If one or more blood groups are below one day's supply and a compatible alternative group is not available, consultant led prioritisation may need to be undertaken. Increased use of substituted groups can lead to a shortage of other blood groups. There may be insufficient supplies of alternative groups to avoid the need for prioritisation.

The National Emergency Planning Manager may instruct the National Blood Service to communicate a move directly to the Red Phase.

The Blood Bank Manager or transfusion practitioner will contact the members of the Trust Blood management group (see table above) to notify them of the altered phase for Emergency Blood Stock Management.

Each new phase will continue until notified otherwise by NHSBT.

The reduction in hospital stockholding may be sufficient to allow recovery from shortage but this may need to be accompanied by a reduction in use by hospitals.

The Trust may have to consider postponement of procedures. The procedures and patient categories that would be affected are outlined in the table below. In a prolonged shortage this will have an impact on elective surgery and waiting lists.

In more severe shortages reductions in usage will need to be achieved by cessation of some or all procedures in category 2.

In a more severe shortage where for example 50% or more of the red cell supply becomes unavailable it is likely that only patients in category 1 would be treated.

5. Patient categories – Indication for Red Cell Transfusion

During the Amber and Red phase, it may be necessary to restrict transfusion to those groups of patients in most need. In order to simplify this, it is suggested that patients are divided into three broad categories

<table>
<tr><th colspan="2">Category 1</th><th>Category 2</th><th>Category 3</th></tr>
<tr><td colspan="2">These patients will remain highest priority of transfusion</td><td rowspan="2">These patients will be transfused in the Amber but not the Red phase</td><td rowspan="2">These patients will not be transfused in the Amber phase</td></tr>
<tr><td><0.5 days of stock (Red A)</td><td>0.5-1 day of stock (Red B)</td></tr>
<tr><td colspan="2">Resuscitation
Resuscitation of life-threatening /on-going blood loss including trauma. If ongoing major haemorrhage with expected poor prognosis*, review the appropriateness of continuing transfusion support.

Transfusion Dependant Anaemias, including Thalassaemia
Review the need for transfusion and delay if patient is not symptomatic

Haemaglobinopathy patients on regular transfusion programmes
Follow amber guidance but increase interval between red cell exchanges. Consider using top-up transfusions as interim measure</td><td rowspan="2">Surgery*/Obstetrics
Cancer surgery (palliative) Symptomatic but not life threatening post-operative or post-partum anaemia.

Urgent*** surgery

Priority 2 and 3 surgeries*
Consider postponement of procedures likely to require donor blood support. These should be reviewed in a case-by-case basis, taking into consideration blood group and correction of anaemia</td><td rowspan="2">Surgery*
Surgery* Consider postponing priority 4 surgeries which is likely to require donor blood support on a case by-case basis e.g., taking into consideration blood group and correction of anaemia.</td></tr>
<tr><td>Surgical Support *

Priority 1a Procedures* can be supported with donor blood with exceptions**

Priority 1b Emergency Procedures cannot be supported with donor blood

These cases should be reviewed in a case-by-case basis, taking into consideration blood groups and correction of anaemia</td><td>Surgical Support*

Procedures can be supported that are likely to require donor blood support. These should be reviewed in a case-by-case basis, taking into consideration blood group and correction of anaemia.</td><td>Chronically Transfused Patients

1) Haemaglobinopathy Patient on Red Cell Exchange programme
a) Reassess use of red cells during previous exchanges to ensure optimising red cell component usage
b) If available, use the depletion mode in the Apheresis machine if safe to do so and if it results in less blood use
c) Consider increasing the interval between red cell exchanges
d) Consider top up transfusion of red cell</td></tr>
</table>

Non-Surgical Anaemias Continue to transfuse 1) Life-threatening anaemia including patients requiring in-utero support and high dependency care/SCBU. 2) Stem cell transplantation or chemotherapy *already commenced***** Review cadaveric organ transplants and delay, if possible, particularly if large volumes of blood may be required i.e. cardiac /liver transplants	**Non-Surgical Anaemias** Delay starting: 1) Stem cell transplant or chemotherapy 2) Living related organ transplantation Delay prophylactic transfusion: 1) Severe bone marrow failure syndrome if patient not symptomatic with anaemia.	**Non-Surgical Anaemias** Symptomatic but not life-threatening anaemia	post-partial exchange to reduce the number of red cells needed 2) All patients (including haem/oncology patients receiving chemotherapy) – reduce transfusion threshold to 70g/L in not contraindicated 3) Maximise use of all patient blood management measures i.e. tranexamic acid, use of cell salvage, optimisation of pre-op anaemia, minimise iatrogenic anaemia by limiting blood sampling

* Clinical Guidelines to Surgical Prioritisation from the Federation of Surgical Speciality Association
* 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 may be deferred if possible.

6. Plan for Platelet Shortages

The two key aims of the plan for platelets are as follows:

1) The national "pool" of platelets is available for all essential transfusions equally across the country
2) Overall usage is reduced to ensure the most urgent cases receive the supply that is available

As with red cell shortage**,** the platelet shortage plan consists of four phases dependent on the National Blood Service stock levels at that time and works on a 'traffic light' system:

Green: "Normal" circumstances where supply meets demand

Pre-Amber: Reduced availability of blood for a short or prolonged period without impact on clinical care

Amber Reduced availability of blood for a short or prolonged period with impact on clinical care

Red: Severe prolonged shortage with impact on clinical care

GREEN PHASE: 'Normal' circumstances where supply meets demand

- Normal transfusion practice guidelines, policies and procedures should be adhered to. (This constitutes normal practice time)
- The EBMA should be developed, ready to be issued as and when NHSBT issue an alert to indicate a period of blood supply shortage is imminent.
- Develop, implement and monitor effective blood transfusion policies for appropriate use of platelets.
- Clinical audits should be completed so that the fate of all units of platelets are identified. This should include feedback to reduce any inappropriate use.
- Ensure staff are appropriately trained for their jobs roles, including staff inductions.
- Enter daily stock figures into VANESA, and encourage use of blood alternatives where able
- Aspirin or other drugs affecting platelet function should be stopped prior to surgery to allow time for platelet function to recover

During the green phase NHSBT may issue a precautionary notification to hospitals informing them of potential supply chain issues. This may be all groups or a particular ABO group. Hospitals will be asked to take appropriate action to protect the supply chain. This action is intended to prevent the requirement to move to amber phase.

PRE-AMBER PHASE: Reduced Availability of blood without impact on patient care

During the pre-amber phase, NHSBT may issue a precautionary notification to hospitals informing them of potential supply chain issues and ask hospitals to take appropriate action to protect the supply chain. This is intended to prevent the requirement to move to the Amber phase.

- Check the EBMA is ready to implement and inform the Trust Blood Management Group in case they need to meet on short notice.
- Optimise patients with long term transfusion needs, consider alternatives where possible
- Reduce stock holding where possible, and transfuse group specific platelets wherever possible
- Avoid requesting long-dated platelets
- Accept and use both apheresis and pooled platelets (except where patients required HLA/HPA matched platelets)
- Enter daily stock figures into VANESA, and consider daily waste levels in this phase.

AMBER PHASE: Reduced availability with impact on patient care

If national stocks fall to less than 1 day, NHSBT will communicate a move to the Amber Phase. This may apply to either a single blood group or to all blood groups. All measures from the pre-amber phase should be implemented, along with the following additional actions:

- All routine stock holding in hospitals will stop immediately – hospitals will only order when there is a specific identified need for platelets i.e. required for a specific procedure
- Accept platelets of a different ABO group (in line with BSH adult and paediatric guidelines).
- Accept leucodepleted platelets instead of CMV negative platelets
- Accept D positive platelet units where D negative platelet units are not available, administering anti-D to patients of childbearing potential where appropriate (250 IU anti-D will cover 5 adult units of platelets).
- Optimise pre-op preparation of patients e.g. stop anti-platelet agents 7 days prior to surgery whenever possible.
- Consider alternatives or additions to platelet transfusion e.g.:
    - Tranexamic acid - trauma, surgical bleeding and short-term for patients with chronic thrombocytopenia and bleeding.
    - Desmopressin for patients with uraemia or inherited platelet disorders at risk of bleeding or bleeding
    - Fibrinogen to maintain fibrinogen concentration at 1.5-2g/l if trauma or surgical bleeding
- All requests for units of platelets should be authorised by a named clinician

RED PHASE – Severe shortage of stock with high impact on all patient care

The EBMA should be activated, if not already, and stock carefully managed until NHSBT communicate a return to normal levels. All measures from the previous phases should be implemented, along with the following additional actions:

- Restrict usage to category one patients only
- All requests for platelets must made and approved by a consultant haematologist
- Only pre-approved hospitals will be able to hold platelet stock (i.e. major trauma centres)
- Any centres not pre-approved to hold platelet stock must request platelets directly from NHSBT, and include the following information:
    1. Patient identifier (NHS number or name)
    2. Indication for transfusion
    3. Requesting Consultants name
    4. Patient category (see table below)
    5. Patient blood group
- In the case of a major haemorrhage, platelets reserved for other patients should be re-issued to the major haemorrhage, and then re-ordered from NHSBT.
- Daily entries of red cell stock and wastage figures into VANESA are **mandatory**

The National Blood Service will be responsible for informing all Hospitals should stock levels fall and necessitate a move to Amber or Red phase.

The Blood Bank Manager or Transfusion practitioner will notify members of the Trust Blood Management Group

Each phase will continue until notified otherwise by the National Blood Service

7. Patient Categories – Indication for Platelet transfusion

The following table provides guidance for the use of platelet transfusions during a shortage.

Category one patients are those with the greatest clinical need for platelet support and should be given priority when considering allocation of platelets

Use of platelets should be guided by clinical condition and near lab/near patient testing.

Category one (Red phase)	**Category two**	**Category three (Amber phase)**	
Patients to be transfused	**Patients not to be transfused in red phase**	**Patients to be transfused**	**Patients not to be transfused**
Resuscitation a) Resuscitation of life-threatening /on-going blood loss including trauma. If ongoing major haemorrhage with expected poor prognosis*, review the appropriateness of continuing transfusion support. b) Bleeding in the presence of sepsis/acute DIC, BMF, immune thrombocytopenia	**Critical Care patients** resuscitated following massive transfusion with no ongoing active bleeding	Invasive high-risk emergency procedure with risk of bleeding	Procedures with low risk bleeding
Surgery Priority 1a procedures can be supported with platelets with exceptions ** Priority 1b emergency procedures **cannot** be supported with platelets if they go ahead These cases should be reviewed in a case-by-case basis, taking into consideration blood groups and correction of anaemia	**Surgery*/Obstetrics** Cancer surgery (palliative) Priority 2 and 3 surgeries* Consider postponement of procedures likely to require donor platelet support. These should be reviewed in a case-by-case basis, taking into consideration blood group and correction of thrombocytopenia		**Surgery*** Consider postponing Priority 4 surgeries which are likely to require donor platelet support. These should be reviewed in a case-by-case basis, taking into consideration blood group and correction of thrombocytopenia
Non-surgical Conditions a) Thrombocytopenia with bleeding, including patients requiring in-utero supports and neonates in high dependency/SCBU b) Patients already started on stem cell transplantation or chemotherapy with bleeding or additional risk of bleeding	**Non-Surgical thrombocytopenia** Bone marrow failure syndrome on intensive treatment but with no active bleeding Invasive procedures	Bone marrow failure Patients receiving intensive chemotherapy, including following allogenic stem cell transplant	
Consider delay in starting: a) Stem cell transplantation or chemotherapy b) Living related organ transplant c) Cadaveric organ donation, if possible, particularly if large volumes of blood may be required i.e. cardiac/liver transplant		**Do not give prophylactic platelet transfusion for:** a) Bone marrow failure syndromes not receiving intensive treatment b) Auto BMT c) Thrombocytopenia congenital/acquired platelet defects	

* Clinical Guidelines to Surgical Prioritisation from the Federation of Surgical Speciality Association
* 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.

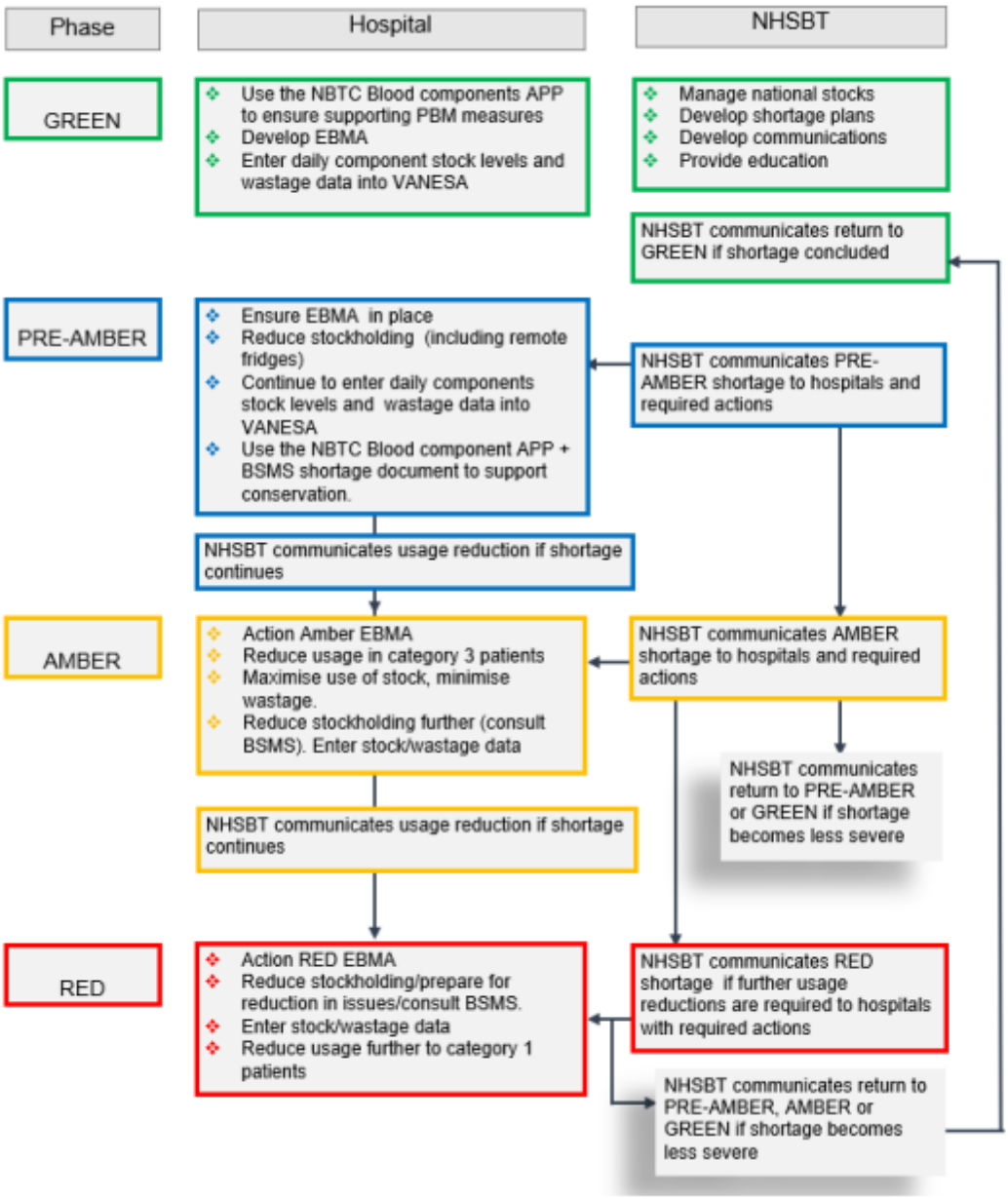
8. Implementation

This policy will be available on the Trust Intranet. Notification to clinical areas will be via the intranet Notice Board and by Global emails.

Dissemination
As per implementation and Training and awareness.

Training and awareness
The Blood Management Group will be aware of the policy and at times of shortages each member will be notified of the situation as it develops, progress of the situation and any clinical situations that need specific attention as will the designated Consultant Haematologist at that time

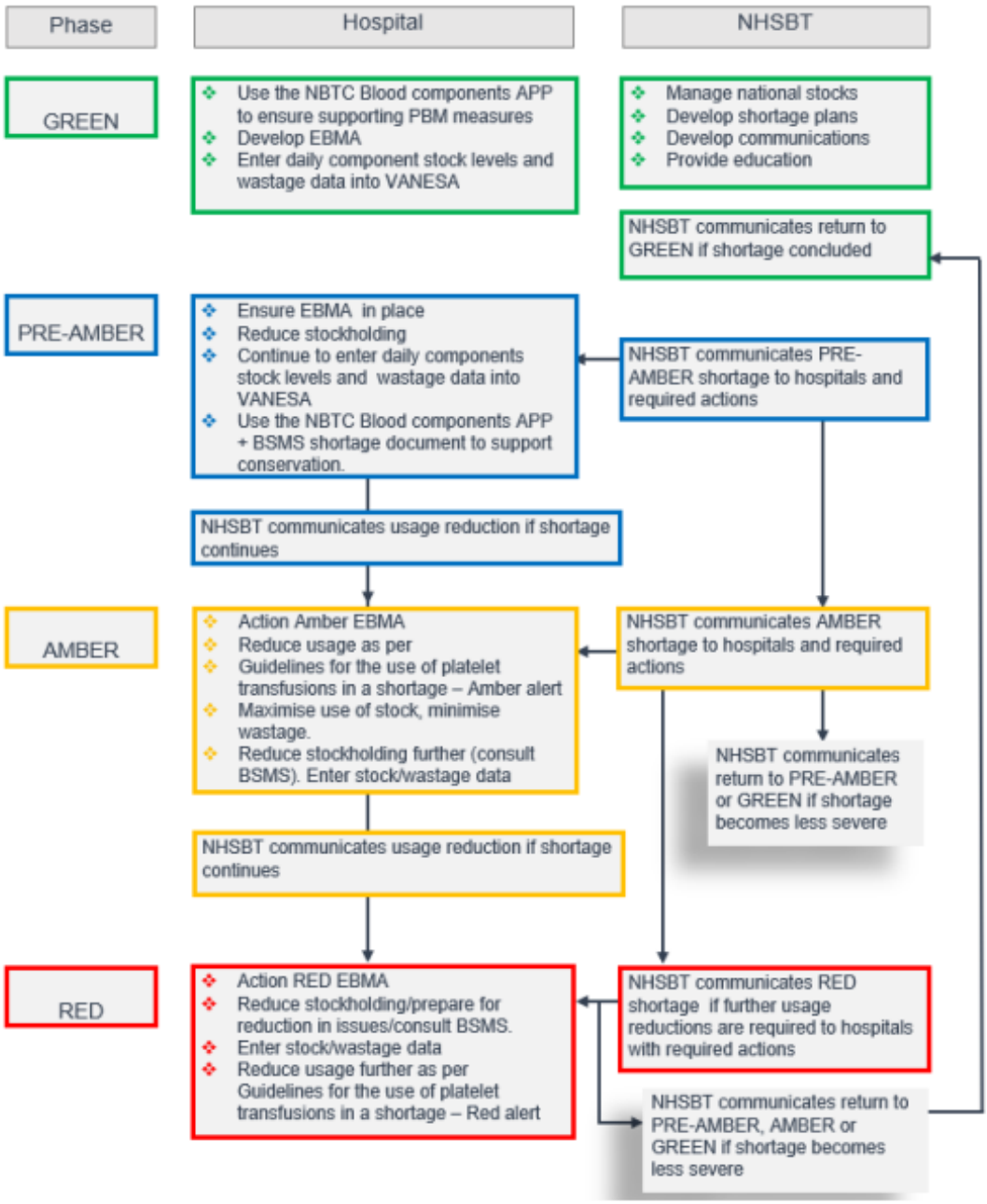
Appendix 1: Schematic of red cell shortage plan



VANESA - Data entry recommendations

Green	Daily component stock levels advised. Wastage data at least monthly advised.
Pre-Amber	Daily component stock levels strongly recommended. Wastage data at least monthly advised.
Amber	Daily component stock levels strongly recommended. Wastage data at least weekly advised.
Red	Daily component stock levels mandatory. Supply wastage data immediately upon wastage of unit (this may be daily) or if local traceability procedures do not allow at least weekly.

Appendix 2: Schematic of platelet shortage plan



VANESA - Data entry recommendations

Green	Daily component stock levels advised. Wastage data at least monthly advised.
Pre-Amber	Daily component stock levels strongly recommended. Wastage data at least monthly advised.
Amber	Daily component stock levels strongly recommended. Wastage data at least weekly advised.
Red	Daily component stock levels mandatory. Supply wastage data immediately upon wastage of unit (this may be daily) or if local traceability procedures do not allow at least weekly.

Appendix 3: Emergency Blood Management Arrangements

Checklist: Emergency Blood Management Arrangements

NHS Blood and Transplant

This guidance has been developed in conjunction with the National Blood Transfusion Committee (NBTC) red cell, platelet and plasma shortage plans and aims to create a short and concise series of steps to follow in the case of shortage.

Click on the white boxes to tick each step

Checklist for green

This is the business as usual phase of the EBMA

Clinical teams to ensure:

1. your EBMA plan is up to date
2. members of Emergency Blood Management (EBM) Group are aware of the plan
3. PBM strategies (anaemia treatment, cell salvage, adherence to national indication codes) are followed
4. familiarity with trust Emergency Preparedness Resilience and Response (EPRR) plans and command structures
5. communications are drafted for use if a move to amber/red is required
6. stock confirmation of Anti D, Tranexamic acid, Fibrinogen, Albumin, Lyoplas, Octaplas and Desmopressin - ensure process to order additional stocks is established
7. process agreed for the review of appropriateness of blood requests with haematology clinicians as needed
8. daily stock levels and wastage are entered into VANESA

Checklist for pre-amber:

1. Ensure EBMA arrangements in place
2. Reduce stockholding (inc. remote fridges)
3. Enter daily stock levels and wastage into VANESA
4. Use the NBTC Blood component APP to ensure supporting PBM measures

Checklist for amber

NHSBT will inform transfusion team that amber alert declared.

General:

1. Activate EBMA and convene EBM group
2. Prepare to report stock levels and decisions made by EBM group for escalation trust-wide
3. Arrange trust-wide communications (screensavers, emails, newsletters)
4. Review satellite fridge stock
5. Consider pharmaceutical alternatives in appropriate patients with EBM group and disseminate decision
6. Contact areas where transfusions may stop
7. Reprioritise prophylactic transfusions
8. Enter daily stock levels and wastage into VANESA

Red cells:

1. Consider, are all PBM methods being used, review scale up?

Platelets:

1. Use reduced dose platelets (if available) for non bleeding patients
2. Consider D positive platelets for D negative patients (cover with anti-D)

Plasma:

1. Consider conserving AB plasma for group AB patients

Checklist for red

The move to red phase will be communicated to trusts if there are severe shortages of either red cells, plasma or platelets.

Complete all amber actions.

General:

1. Launch rota for senior haematology clinicians to support laboratory in vetting requests
2. Update communications to reflect change to red phase
3. Remove all stock from satellite fridges except emergency group O from acute areas e.g. ED and maternity
4. Contact clinical areas where transfusions will not take place.

Recovery phase:

NHSBT will inform the transfusion team of return to 'green' phase.

1. Convene the EBM group
2. Ensure that change in clinical activity reflects blood stock levels
3. Use trust-wide communications to update staff

Appendix 4: Summary of Guidelines for the use of Platelet Transfusions in Amber alert

British Society for Haematology Guideline (2016) **Adults**
British Society for Haematology Guideline (2016 & 2020 addendum) **Children, Neonates**

Platelet transfusion: principles, risks, alternatives, and best practice

Platelet transfusions are an essential component in the management of selected patients with thrombocytopenia. However, they need to be used judiciously as they are a limited resource and are not risk free

Prior to prescribing a platelet transfusion consider:

What is the indication for transfusion in this patient?	Are there any alternatives which could be used instead?	Is the patient aware of the benefits, harms, and alternatives to a platelet transfusion?

Possible alternatives to platelet

- Apply surface pressure after superficial procedures and correct surgical causes for bleeding
- Surgical patients expected to have at least a 500 ml blood loss (or >10% blood volume in children), use tranexamic acid (TXA) unless contraindicated
- Trauma patients who are bleeding or at risk of bleeding, early use of TXA
- Severe bleeding replace fibrinogen if plasma concentration less than 1.5 g/L
- Anti-platelet agents - discontinue or if urgent procedure/bleeding use TXA if risk/benefit would support
- Uraemia with bleeding or pre-procedure – dialyse, correct anaemia, consider desmopressin
- Inherited platelet function disorders - specialist haematology advice required. Consider desmopressin
- Chronic Bone Marrow Failure (BMF) with bleeding – consider TXA

Indication for use of platelet transfusion in adults and children (AMBER ALERT)	Transfusion threshold/not indicated
Prophylactic use (No bleeding or WHO grade 1) - one adult dose required (or weight-based paediatric equivalent)	
• Reversible Bone Marrow Failure, including allogeneic stem cell transplant	10 x 10^9/L
• Critical illness	10 x 10^9/L
• Reversible and Chronic Bone Marrow Failure receiving intensive therapy	10 x 10^9/L
• Chronic Bone Marrow Failure to prevent persistent bleeding of grade > 2	Count variable
• Chronic stable Bone Marrow Failure, abnormal platelet function, platelet consumption/ destruction (e.g., DIC, TTP) or immune thrombocytopenia (ITP, HIT, PTP)	NOT INDICATED
• Reversible BMF with autologous stem cell transplant (patient stable)	
Prophylactic use in presence of risk factors for bleeding (e.g., sepsis, abnormalities of haemostasis)	
• Reversible/chronic bone marrow failure, or critical care	10 to 20 x 10^9/L
• Abnormal platelet function, platelet consumption/destruction (e.g., TTP), immune thrombocytopenia	NOT INDICATED
Pre-procedure	
• Central venous catheter (CVC) tunnelled or untunnelled (excluding PICC line)	20 x 10^9/L
• Lumbar puncture*	40 x 10^9/L
• Percutaneous liver biopsy	50 x 10^9/L
• Major surgery	50 x 10^9/L
• Epidural anaesthesia, insertion & removal	80 x 10^9/L
• Neurosurgery or ophthalmic surgery involving the posterior segment of the eye	100 x 10^9/L
• Bone marrow aspirate or trephine biopsies, PICC line insertion, traction removal of central venous catheters (CVCs), cataract surgery, other procedures with low risk of bleeding	NOT INDICATED
Therapeutic use (Bleeding WHO grade 2 or above)	
• Severe bleeding	50 x 10^9/L
• Multiple trauma, brain or eye injury, spontaneous intracerebral haemorrhage	100 x 10^9/L
• Bleeding (WHO grade >2) but not severe	30 x 10^9/L
• Bleeding in specific clinical conditions – see table next page for indications	

Indication for use of platelet transfusion in neonates (AMBER ALERT)	Transfusion indicated (threshold) / not indicated
Prophylactic use (No bleeding or WHO grade 1)	
• Neonate (including very pre-term) • Neonate with NAIT (no family history of ICH)	25 x 10^9/L 25 x 10^9/L
Prophylactic use in presence of risk factors for bleeding (e.g., sepsis)	
• Preterm neonate with sepsis • Neonate with NAIT (Family history of ICH)	25 x 10^9/L 50 x 10^9/L
Pre-procedure	
• Lumbar puncture* • Major surgery • Neurosurgery	40 x 10^9/L 100 x 10^9/L 100 x 10^9/L
• Procedures with low risk of bleeding	NOT INDICATED
Therapeutic use (Bleeding WHO grade 2 or above)	
• Severe bleeding	100 x 10^9/L
Specific clinical conditions	
Platelet function defect	
• Congenital – Pre-procedure or therapeutic use. When alternative therapy contraindicated or ineffective. Directed by specialist in haemostasis. • Acquired (anti-platelet agents, uraemia)- only indicated for severe bleeding	Count Variable
Disseminated intravascular bleeding	
• Pre-procedure or therapeutic use. Consider threshold counts above but may not be achievable and individual case review required	Use pre-procedure or therapeutic threshold as guide
Thrombotic thrombocytopenic purpura	
• Platelet transfusion contraindicated	unless life-threatening bleeding
Immune thrombocytopenia (excluding NAIT)	
• (ITP, HIT, PTP) Pre-procedure when other therapy ineffective or procedure urgent or to treat severe bleeding. Consider threshold counts above but may be unachievable or unnecessary and individual case review required	Use pre-procedure or therapeutic threshold as guide
Footnotes	
*It is accepted that prior to lumbar puncture some clinicians will transfuse platelets at higher counts (e.g., 50 x 10^9 /L) in clinically unstable children, non-ALL patients, or for the first LP in newly-diagnosed ALL patients to avoid haemorrhage and cerebrospinal fluid contamination with blasts, or at lower counts (≤ 20 x 10^9 /L) in stable patients with ALL, depending on the clinical situation. These practices emphasise the importance of considering the clinical setting and patient factors.	
Abbreviations	
ALL acute lymphocytic leukaemia; BMF bone marrow failure; DIC Disseminated intravascular coagulation; HIT heparin-induced thrombocytopenia; ICH intracranial haemorrhage; ITP primary immune thrombocytopenia; LP lumbar puncture; NAIT neonatal alloimmune thrombocytopenia; PICC peripherally inserted central catheter; PTP post-transfusion purpura; TTP thrombotic thrombocytopenic purpura:	

Appendix 5: Summary of Guidelines for the use of Platelet Transfusions in Red alert

British Society for Haematology Guideline (2016) Adults
British Society for Haematology Guideline (2016 & 2020 addendum) Children, Neonates

Platelet transfusion: principles, risks, alternatives, and best practice

Platelet transfusions are an essential component in the management of selected patients with thrombocytopenia. However, they need to be used judiciously as they are a limited resource and are not risk free.

Prior to prescribing a platelet transfusion consider:

- What is the indication for transfusion in this patient?
- Can the procedure or intervention be delayed?
- Are there any alternatives to platelet transfusion?
- Is the patient aware of the benefits, harms, and alternatives to a platelet transfusion?

Possible alternatives to platelet transfusion:

- Postpone any procedures or surgery that may require a platelet transfusion that are not urgent
- Can the procedure be changed to one with a low risk of bleeding e.g., from percutaneous to trans-jugular liver biopsy?
- Apply surface pressure after superficial procedures and correct surgical causes for bleeding
- Surgical patients expected to have at least a 500 ml blood loss (or >10% blood volume in children), use tranexamic acid (TXA) unless contraindicated
- Trauma patients who are bleeding or at risk of bleeding, early use of TXA
- Severe bleeding replace fibrinogen if plasma concentration less than 1.5 g/L
- Anti-platelet agents - discontinue or if urgent procedure/bleeding use TXA if risk/benefit would support
- Uraemia with bleeding or pre-procedure – dialyse, correct anaemia, consider desmopressin
- Inherited platelet function disorders - specialist haematology advice required. Consider desmopressin
- Chronic Bone Marrow Failure with bleeding – consider TXA

Indication for use of platelet transfusions in adults and children (RED ALERT)	Transfusion indicated (threshold)/ not indicated
Prophylactic use (No bleeding or WHO grade 1)	
• Any cause without additional risk factors for bleeding	**NOT INDICATED**
Prophylactic use in presence of risk factors for bleeding (e.g., sepsis, abnormalities of haemostasis)	
• Reversible or chronic bone marrow failure or critical care – consultant review required	10 to 20 x 10^9/L
• Abnormal platelet function, platelet consumption/destruction (e.g., TTP), immune thrombocytopenia	**NOT INDICATED**
Pre-procedure (Emergency or urgent procedures only)	
• Central venous catheter (CVC) tunnelled or untunnelled (excluding PICC line) • Lumbar puncture* • Percutaneous liver biopsy • Major surgery • Epidural anaesthesia, insertion & removal • Neurosurgery or ophthalmic surgery involving the posterior segment of the eye	20 x 10^9/L 40 x 10^9/L 50 x 10^9/L 50 x 10^9/L 80 x 10^9/L 100 x 10^9/L
• Bone marrow aspirate or trephine biopsies, PICC line insertion, traction removal of central venous catheters (CVCs), cataract surgery, other procedures with low risk of bleeding	**NOT INDICATED**
Therapeutic use (Bleeding WHO grade 2 or above)	
• Severe bleeding • Multiple trauma, brain or eye injury, spontaneous intracerebral haemorrhage • Bleeding (WHO grade >2) but not severe • Bleeding in specific clinical conditions – see table next page for indications	50 x 10^9/L 100 x 10^9/L 30 x 10^9/L

Indication for use of platelet transfusions in neonates (RED ALERT)	Transfusion threshold) / not indicated
Prophylactic use (No bleeding or WHO grade 1)	
• Neonate (including very pre-term) • Neonate with NAIT (no family history of ICH)	25 x 10^9/L 25 x 10^9/L
Prophylactic use in presence of risk factors for bleeding (e.g., sepsis)	
• Preterm neonate with sepsis • Neonate with NAIT (Family history of ICH)	25 x 10^9/L 50 x 10^9/L
Pre-procedure (Emergency or urgent procedures only)	
• Lumbar puncture* • Major surgery • Neurosurgery	40 x 10^9/l 100 x 10^9/l 100 x 10^9/l
• Procedures with low risk of bleeding	**NOT INDICATED**
Therapeutic use (Bleeding WHO grade 2 or above)	
• Severe bleeding	100 x 10^9/L
Specific clinical conditions	
Platelet function defect	
• *Congenital* – Pre-procedure or therapeutic use. When alternative therapy contraindicated or ineffective. Directed by specialist in haemostasis. • *Acquired* (anti-platelet agents, uraemia)- only indicated for severe bleeding	Count Variable
Disseminated intravascular bleeding	
• Pre-procedure or therapeutic use.Consider threshold counts above but may not be achievable and individual case review required	Use pre-procedure or therapeutic threshold as guide
Thrombotic thrombocytopenic purpura	
• Platelet transfusion contraindicated	unless life-*threatening bleeding*
Immune thrombocytopenia (excluding NAIT)	
• (ITP, HIT, PTP). Pre-procedure when other therapy ineffective or procedure urgent or to treat severe bleeding. Consider threshold counts above but may be unachievable or unnecessary and individual case review required	Use pre-procedure or therapeutic threshold as guide
Footnotes	
*It is accepted that prior to lumbar puncture some clinicians will transfuse platelets at higher counts (e.g., 50 x10^9 /L) in clinically unstable children, non-ALL patients, or for the first LP in newly-diagnosed ALL patients to avoid haemorrhage and cerebrospinal fluid contamination with blasts, or at lower counts (≤ 20 x 10^9 /L) in stable patients with ALL, depending on the clinical situation. These practices emphasise the importance of considering the clinical setting and patient factors.	
Abbreviations	
ALL acute lymphocytic leukaemia; BMF bone marrow failure; DIC Disseminated intravascular coagulation; HIT heparin-induced thrombocytopenia; ICH intracranial haemorrhage; ITP primary immune thrombocytopenia; LP lumbar puncture; NAIT neonatal alloimmune thrombocytopenia; PICC peripherally inserted central catheter; PTP post-transfusion purpura; TTP thrombotic thrombocytopenic purpura:	

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust		Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust	☒	Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	Dr Sangam Hebballi

Details of individuals completing this assessment	**Job title** / **e-mail contact** Lead transfusion practitioner / Wah-tr.transfusionpractitioners@nhs.net
Date assessment completed	**02/07/2021**

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title: Emergency Management for Red Cell and Platelet Shortage**				
What is the aim, purpose and/or intended outcomes of this Activity?	Safe Transfusion				
Who will be affected by the development & implementation of this activity?	❑ x ❑ ❑	Service User Patient Carers Visitors	x x ❑ ❑	Staff Communities Other _____	
Is this:	❑Review of an existing activity X New activity ❑ Planning to withdraw or reduce a service, activity or presence?				
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic	NHS BT British Society for haematology guidelines Blood safety and Quality regulations NPSA safer practice notice No:14				

information for patients / services / staff groups affected, complaints etc.	MHRA Serious hazards of transfusion Serious adverse blood reactions and events
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	n/a
Summary of relevant findings	

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		✓		This policy will have neutral impact on all equality groups.
Disability		✓		
Gender Reassignment		✓		
Marriage & Civil Partnerships		✓		
Pregnancy & Maternity		✓		
Race including Traveling Communities		✓		
Religion & Belief		✓		
Sex		✓		
Sexual Orientation		✓		
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling **Other Vulnerable and Disadvantaged Groups** (e.g. carers; care leavers; homeless;		✓		

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Social/Economic deprivation, travelling communities etc.)				
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		✓		

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	none	.		
How will you monitor these actions?				
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)				

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	Laura Walters
Date signed	26/06/2024
Comments:	None

Signature of person the Leader Person for this activity	Sangam Hebballi
Date signed	26/06/2024
Comments:	none

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No

	Title of document:	Yes/No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	None

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval