

# National Blood Transfusion Committee

## A Plan for NHS Blood and Transplant and Hospitals to Address Red Cell Shortages

Updated September 2026 - changes are highlighted in purple

### 1.0 Executive summary

1.1 A working group of the National Blood Transfusion Committee (NBTC) was tasked with updating the plan written for red cell shortages **originally** in 2016 (**subsequently updated in 2020 and 2022<sup>1</sup>**). The current document builds on the principles of the original and subsequent plans.

1.2 All hospitals (including those in the private sector) and NHS Blood and Transplant (NHSBT) should work together to reduce the risk of red cell shortages through the management of both the supply and demand for blood.

1.3 This latest update incorporates the feedback received from hospitals from the Amber alert in October 2022, **July 2024 to July 2025 and the DHSC led exercises on national power outage 2025 and NHS London Mass Casualty exercise in 2025**.

1.4 The objective is to ensure that patients who need blood can receive timely transfusion support. The arrangements are designed to ensure that: -

- Red cells units are available for all essential transfusions.
- Overall red cell usage is reduced to ensure supply remains available for the patients who need it most.

1.5 A shortage of red cells may be associated with a platelet shortage. Readers are referred to the NBTC webpage; <https://nationalbloodtransfusion.co.uk/recommendations> for guidelines to address platelet shortage. <sup>2</sup>

1.6 The red cell and platelet shortage plans operate in similar ways describing four phases dependent on NHSBT stock levels - **Green**, **Pre-Amber**, **Amber**, and **Red**. The

Green phase is focused on implementing the principles of patient blood management (PBM) to ensure appropriate use.

1.7 In relation to severe shortage of O D negative red cells i.e., Red Phase, 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.

1.8 If one or more blood groups are below one day's supply i.e., Red Phase, and a compatible alternative group is not available, consultant led prioritisation **MUST** be undertaken as suggested in [section 8.4.5](#). 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.

1.9 In exceptional circumstances, such as a national power outage or major IT network failure, a "Red Alert" may be declared for all blood components. NHSBT may be unable to notify hospitals of the shortage. Although such events are rare, they will be evident across the healthcare system. **Hospitals MUST maintain a hard copy of this shortage plan, as it may not be accessible electronically during these situations.**

1.10 Patient safety remains the overriding principle throughout all phases of this plan. Actions to reduce blood utilisation must not compromise the safe management of patients. Clinical decisions should be individualised and supported by multidisciplinary review where appropriate.

1.11 NHSBT will work with the other UK Blood Services to monitor component availability and coordinate responses to actual or anticipated shortages, including risk mitigation, mutual aid, and consistent communication. Significant changes to supply, prioritisation, substitution or importation arrangements will be shared to support a safe and coordinated UK-wide response.

## **2.0 Background**

2.1 NHS emergency planning requires the development of contingency plans to ensure the effective use of available blood when blood stocks fall to very low levels. Pre-

determined plans will be critical to ensuring transfusion support remains available for the patients who need it most.

2.2 Although severe red cell shortages are rare in the UK, recent experiences have shown the fragility of the blood supply chain when multiple factors are combined with other external issues including but not limited to industrial action, extreme weather, infectious diseases (e.g., influenza, pandemic), IT failure/cyberattack and power outage. Levels of red cell units have been at Pre-Amber for specific blood groups including O D negative at various times for prolonged periods.

2.3 The original integrated plan for the management of red cell shortage included a framework to manage shortages in a variety of situations, including:

- Short term shortages, for example, during bad weather or an influenza outbreak.
- Very acute shortages, for example where NHSBT facilities are structurally impacted (i.e., flood, fire etc.), security and safety issues which prevent donors coming forward to donate blood (risk of disease transmission), loss of donor centres, industrial action, and adverse weather.
- Prolonged shortages which could result from several circumstances, for example the introduction of further measures to reduce the risk of disease transmission by transfusion or changes in processing.
- Unexpected increases in demand for example following a major incident or mass casualty event (man-made or natural disasters).

### 3.0 Rationale

3.1 The framework described below is designed to ensure that NHSBT and hospitals in England work in a consistent, integrated manner to manage red cell shortages.

3.2 The plan is designed to be always accessible even when there is no shortage. Where there are modest reductions in the blood supply, for example <10% reduction, appropriate use / Patient Blood Management (PBM) programmes should help avoid the activation of formal red cell shortage arrangements.

3.3 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* <sup>3,4,5</sup> and *PBM* initiatives. <sup>6</sup>

3.4 Patient safety MUST remain the overriding principle throughout all phases of this plan. Measures to reduce blood utilisation must not compromise safe patient care. Clinical decisions should be individualised and where appropriate, supported by multidisciplinary review.

## 4.0 Plan Structure

4.1 The plan is structured to provide a framework of actions for NHSBT and hospitals at four phases. A schematic of the plan is shown in Appendix 1.

**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 activity.

**Red** Severe, prolonged shortages with impact on clinical activity.

4.2 NHSBT will actively strive to minimise the risk of blood shortages. However, if red cell stocks fall to a pre-determined critical level, then NHSBT may activate shortage plans and communicate a move to Pre-Amber or Amber phase after discussions have been undertaken with relevant approval bodies i.e., NHS England, Department of Health, and Social Care (DHSC).

4.3 During the Pre-Amber phase NHSBT will issue a precautionary notification informing all hospitals of potential supply chain issues and asking hospitals to take appropriate actions to protect the blood supply chain. This action is intended to prevent the requirement to move to Amber phase.

4.4 Activation of red cell shortage may apply to either a single blood group or all blood groups. However, should NHSBT identify a severe, imminent threat to the blood supply

then, NHSBT may communicate a move directly to the Red phase. In extreme circumstances (e.g., a national power outage, or widespread IT failure), a “Red Alert” will be declared for all components.

4.5 Hospitals are required to have Emergency Blood Management Arrangements (EBMA) to respond to notifications from NHSBT in a timely manner. The response may require a reduction in both red cell stocks and red cell use. It is recommended that blood use should be prioritised according to the recommendations suggested in Appendix 2.

## 5.0 NHSBT actions

5.1 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 several wide-ranging actions may be taken. These may include:

- Calling more donors (of a specific group or all groups, depending on the nature of the shortage).
- Convert donation to meet requirements i.e., plasma to whole blood.
- Extending shifts in the manufacturing department to increase production.
- Extending the opening times of static clinics and mobile donor sessions.
- Increased monitoring and movement of the national stock to ensure;
  - stock is distributed according to age and group mix.
  - wastage is kept to a minimum.
- Importing red cell units from other UK Blood Services and other approved providers.

5.2 If these actions are insufficient to mitigate blood supply issues in the short term, NHSBT will declare a shortage and communicate a move to the next appropriate phase.

5.3 NHSBT will send communications to Chief Executives, Medical Directors, Transfusion Laboratory Managers, Transfusion Practitioners, Chair of Regional Transfusion Committees, Consultant Haematologist with responsibility for Blood Transfusion and England EPRR.

5.4 The Blood Components App will show an alert banner in Amber and Red phase shortage. There are no banners for Green and Pre-Amber phase.

5.5 It is the responsibility of Hospitals (and other organisations), to inform NHSBT of any changes in contact details of the above listed positions.

5.6 As necessary, NHSBT will communicate with the Press and Politicians.

5.7 NHSBT will work with the UK Blood Services to monitor component availability and coordinate responses to actual or anticipated shortages including risk mitigation, mutual aid, and consistent communication. Significant changes to supply, prioritisation, substitution, or importation arrangements will be shared across the services to support a safe and coordinated UK-wide response.

## 6.0 Hospital Emergency Blood Management Arrangements (EBMA)

6.1 It is recommended that each hospital should establish as part of their overall emergency planning, an Emergency Blood Management Group (EBMG) (or equivalent body) which may include representation from the Medical Director, operational and risk & governance management, Emergency planning and Communications team together with key clinical users including services leads from Surgery, Anaesthetics, Maternity, Trauma, Emergency Department, Haematology, Medicine, and Hospital Transfusion Teams. Each hospital should have procedures in place on how a blood shortage is managed utilising existing emergency planning / business continuity arrangements (e.g., Bronze / Silver / Gold command and control structure). It is likely that required members of EBMG will already be represented in existing structures, if not they should be incorporated. The responsibility of the EBMG is to provide strategic guidance and formulate arrangements to manage the appropriate use of red cells in each operational phase, as part of existing emergency plans. The table below aligns activity, with accountability and responsibility.

| Activity                          | Accountable                                    | Responsible               |
|-----------------------------------|------------------------------------------------|---------------------------|
| Activation of EBMA                | Medical Director                               | EBMG                      |
| Reduction of stockholding         | Transfusion Consultant /<br>Laboratory Manager | Laboratory team           |
| Clinical prioritisation decisions | Lead Transfusion Consultant                    | Specialty teams           |
| Safety review                     | Medical Director                               | Clinical governance team  |
| Haemovigilance reporting          | Relevant staff (clinical or laboratory)        | Hospital transfusion team |

6.2 Proposed generic actions for hospitals at Green, Pre-Amber, Amber, and Red are outlined in Appendix 3. The choice of actions is dependent on the local case mix and configuration of services. Hospitals 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 surgical lists.

6.3 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.

6.4 Should a national red cell shortage occur, NHSBT will activate their emergency plan and will notify Hospital Transfusion Teams to implement the EBMA. In a shortage, actions within hospitals may need to be reviewed daily by either the EBMG or a nominated group of key staff.

6.5 It is essential that the EBMG have senior hospital management support i.e., from the Chief Executive and Medical Director (or designated deputy) 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 red cells is limited.

6.6 The frequency of the EBMG meetings should be determined by each hospital; this is likely to depend on size/services provided and according to local risk assessment. As a minimum the EBMG should meet at declaration of Pre-Amber, Amber or Red phase and at stand down to undertake a post incident review. Suggested frequency of meetings during shortage phases where impact in patient care may occur are given below;

- Amber: as required (i.e., weekly, bi-monthly or monthly), depending on local risk assessment and duration of shortage.
- Red: at least daily initially then dependent on local risk assessment and duration of shortage.

6.7 If an Amber shortage is declared, all requests to the transfusion laboratory should be vetted by laboratory staff and referred to Hospital Haematology Specialist Registrar or Consultant if request falls outside BSH guidance.

6.8 If a Red Phase shortage is declared, all requests to the transfusion laboratory should be vetted by Hospital Haematologists (Registrar or Consultant) or other authorised persons for appropriateness and before the order(s) are placed to the local Hospital Services at NHSBT.

6.9 In all delivery types if Hospital Services is unable to meet a request, and no suitable alternative can be found; this will be referred to the on call NHSBT Consultant and communicated to the requesting hospital transfusion laboratory.

## 7.0 Indications for transfusion

7.1 The indications for transfusion provided below are taken from UK national guidelines for the use of blood components and are provided in the [Indication Codes for Transfusion](#).<sup>7</sup> Although it is accepted that clinical judgement plays an essential part in the decision to transfuse or not, the purpose of drawing available transfusion guidelines together into a single table is to help clinicians prioritise the use of blood transfusion. It is recommended that the national indication codes for blood transfusion are used to document the indication for transfusion. It should be noted these are based on current guidelines and may change depending on new evidence.

7.2 Assuming normovolaemia has been maintained, the haemoglobin can be used to guide the use of red cell transfusion. **Patients undergoing elective surgical operations may not require transfusion support if their haemoglobin concentration is normalised before surgery.**

7.3 **PBM** measures to avoid the use of blood transfusion include pre-operative iron replacement for iron deficiency anaemia, **treatment of anaemia due to other causes (i.e., vitamin B12/folate deficiency)** and the use of tranexamic acid (TXA) for surgical patients. **TXA should be offered if the following conditions are met for both adults and children;**<sup>8</sup>

- **The procedure will breach the skin or mucous membrane**
- **There is a risk of bleeding**

7.4 Overdependence on group O D negative red cells may have a negative impact on the management of this scarce resource. Blood services worldwide encounter recurrent shortfalls of group O D negative red cells. It is accepted that certain groups of patients benefit more than others from the use of this valuable blood component. It is important that patients are prioritised with respect to their transfusion needs to identify those where the use of group O D negative cells is essential. Group O D positive red cells may be used for males and patients of non-childbearing potential where no anti-D alloantibody is detectable. Hospitals are directed to the [NBTC guidelines for the appropriate use of group O D negative red cells](https://nationalbloodtransfusion.co.uk/recommendations) <https://nationalbloodtransfusion.co.uk/recommendations>.<sup>9</sup>

7.5 The provision of group O red cell units for use in the pre-hospital setting may also need review. It is recommended that pre-hospital teams carry dual inventory of group O red cells where possible. In the event of an Amber or Red alert for O red cells (O negative and/or O positive), the decision to support the supply, needs multidisciplinary agreement as to whether the service is suspended, or the provision of the number of red cell units provided is reduced. In addition, all efforts should be made to ensure that unused red cell units are returned to stock.

7.6 In the pre-hospital setting, as the care is Consultant led, early decision on the appropriateness of aggressive resuscitation with blood components should be taken according to the expected prognosis or success of resuscitation.

7.7 The taking of pre-hospital pre-transfusion samples by pre-hospital teams is recommended where teams are providing care for single patients. This will help early identification of the patient's ABO/D group and will help conserve precious group O stock.

## **8.0 Operation of the Plan (see Appendix 3 for specific actions at each phase)**

### **8.1 Green Phase**

8.1.1 Hospitals will develop their EBMA and integrate these within their emergency incident plans. The EBMA will define which members of staff will participate in the shortage management and how a reduction in usage will be achieved.

8.1.2 During the Green phase NHSBT will continue to develop communications and logistics plans to support hospitals as effectively as possible during shortages.

8.1.3 Use of red cells should be monitored to ensure appropriate use.

8.1.4 Use of red cells for procedures using large volumes of red cells should be reviewed regularly for target aims and wastage e.g., review blood usage and HbS targets for patients undergoing regular automated red cell exchanges.

8.1.5 Hospital transfusion laboratory teams should enter component stock levels and wastage data into [VANESA](#) <sup>10</sup> as per table 1 in appendix 2. Inventory management resources from Blood Stock Management Scheme can be found [here](#) <sup>11</sup>.

## 8.2 Pre-Amber Phase

### 8.2.1 Clinical teams in Hospitals should take the following actions

- Ensure EBMA are in place and that the EBMG can be convened quickly if needed. This is in anticipation of a potential Amber alert should the situation not improve. It is recommended that the Medical Director is alerted at the potential move to Amber and the implications of this move.
- Review haemoglobin triggers for red cell transfusions with use of restrictive transfusions as per evidence-based Patient Blood Management guidance.
- Use tools available to support decisions to administer transfusions and to consider alternatives to blood including the [Blood Components App](#) <sup>12</sup> summarising national clinical indications for transfusions and the Patient Blood Management toolkit.
- If contacted by NHSBT for recruitment of specific blood groups of donors, ensure communications are relayed by advertisement on the local intranet requesting staff who are regular blood donors to arrange appointment with local donation centre.

### 8.2.2 Transfusion laboratory teams in hospitals should take the following actions

- [Laboratories should have available stock plans for Pre-Amber phase readily available to all laboratory staff. Stockholding should be reduced on activation of this phase.](#) Even a small reduction in stockholding in every hospital will make a significant difference overall.
- Conserve group O D negative red cells for group O D negative patients in line with guidelines.
- Transfuse group specific blood wherever possible.
- Enter red cell stock levels into [VANESA](#) <sup>10</sup> as per table 1 in appendix 2. This will help NHSBT determine the precise blood supply status at all times to inform actions.

- Accept shorter dated red cells where you are confident that they can be used.
- Avoid requesting fresh red cells for stock.
- Accept units that are not marked as K-negative.
- Avoid ordering specific typed units for stock or for "just in case" (e.g. R2R2 units).
- Start communications with senior clinicians/high users about potential move to Amber phase and the consequences of this.

### 8.2.3 Transfusion laboratory teams in hospitals will be asked to consider if it is safe to:

- Reduce reservation periods.
- Reduce levels of stock in remote fridges.
- Reduce levels of irradiated stock and ordering more often as needed.
- Limit requests for phenotyped units for stock and order on a named patient basis only.

## 8.3 Amber Phase

8.3.1 If national stocks ([Blood stocks - Hospitals and Science - NHSBT](#) <sup>13</sup>) fall to less than 2 days or an imminent threat to the blood supply is identified, NHSBT will communicate a move to Amber phase. This may apply to either a single blood group or to all blood groups.

8.3.2 Information from NHSBT about blood shortages will be communicated to hospitals by several channels e.g., Online Blood Ordering Messaging screen (OBOS), email, or mass messaging technology where appropriate. Hospital Business Continuity plans should ensure reliable and tested methods are available for communication with NHSBT at all times.

8.3.3 The information from NHSBT will include the nature of the shortage and any actions needed to be taken by hospitals as part of their EBMA. At this stage, hospitals should activate their EBMA to confirm any actions to be taken.

8.3.4 The Blood Components App has been updated to show a banner alert if an Amber alert has been declared to guide users to appropriate blood usage.

8.3.5 Hospital laboratories should have a stock plan for Amber phase readily available to all laboratory staff. Hospitals are expected to revise their usage and/ or stockholding further during the Amber phase.

8.3.6 Hospital Transfusion Consultants should activate a rota for senior haematology clinicians to support the laboratory in vetting requests for appropriateness/prioritisation of transfusion.

8.3.7 If patient care is adversely affected by the red cell shortage, the responsibility for communicating this to the patient i.e., duty of candour lies with the Hospital Consultant in charge of the patient. Advice can be sought from NHSBT Consultant as required.

8.3.8 If stocks of red cells return to a sustainable level, NHSBT will communicate to hospitals the return to Pre-Amber phase. If, however, stocks continue to fall, NHSBT may communicate that a greater reduction in usage is required. This may be within the Amber phase or be accompanied by the declaration of a move to Red phase.

## 8.4 Red Phase

8.4.1 NHSBT will declare a Red phase shortage if there is a severe shortage of red cells or, if an imminent severe threat to the supply of red cells is identified (i.e., national power outage or IT failure). The Red phase will be divided according to number of days of supply, Red B is between 0.5-1.0 days' supply of stock, Red A is less than 0.5 days' supply of stock.

8.4.2 NHSBT will communicate with hospitals as in the Amber phase. The information will include the nature of the shortage and any actions that need to be taken by hospitals as part of their EBMA.

8.4.3 Laboratories should have a blood stock plan for Red phase readily available to all laboratory staff to enable a further reduction in stockholding on activation of a shortage and a reduction in usage by a percentage (based on normal use).

8.4.4 Laboratories should enter daily stock usage/ wastage data into [VANESA](#)<sup>10</sup> as per table 1 in appendix 2. **Data entry is mandatory in Red phase.**

8.4.5 During routine working hours, specialty consultants must directly authorise every transfusion. Out of hours, transfusion should only be undertaken within agreed local protocols for emergency / life threatening events.

8.4.6 Hospitals are directed to the [NBTC guidance and triage tool for the rationing of blood for massively bleeding patients during a severe national blood shortage](#),<sup>14</sup> adapted from the Canadian guidance<sup>15</sup> for UK practice. Appendix 5a and 5b outlines the algorithm for triaging patients in the context of severe national shortage. The Recommended Summary Plan for Emergency Care and Treatment ([ReSPECT](#))<sup>16</sup> (Appendix 5c) can be used to document decisions made by multidisciplinary teams in an emergency.

8.4.7 Hospitals should have processes for identifying patients affected by shortage-related care changes, including postponed procedures, delayed transfusions, or use of non-standard transfusion strategies. If patient care is adversely affected by the red cell shortage, the responsibility for communicating this to the patient i.e., duty of candour lies with the Hospital Consultant in charge of the patient. Advice can be sought from NHSBT Consultant as required.

## 9.0 Impact and monitoring of shortages

9.1 Most declared shortage scenarios will need to be accompanied by a reduction in red cell usage by hospitals.

9.2 Where the required reduction in usage is quite small it is anticipated that hospitals will be able to achieve this through the implementation of appropriate use measures. However, hospitals may have to consider postponement of procedures in category 2 (Appendix 2) to achieve the required reductions in usage, especially where the patient remains anaemic despite best efforts at optimising with PBM measures. In a prolonged shortage this will inevitably have an impact on elective surgery and waiting lists. In a more severe shortage, reductions in usage will need to be achieved by postponement of some or all procedures in category 2. 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.

9.3 All patient safety incidents associated with shortage management must be recorded and reported locally through local governance systems. These include but are not limited to;

- delays to transfusion attributable to shortages
- adverse outcomes associated with postponed procedures/ surgery captured.
- any use of alternative blood groups outside normal practice
- increase in emergency transfusion
- delayed treatment of symptomatic anaemia
- increased length of stay
- near misses
- laboratory workload pressures

9.4 Reports should be submitted to SHOT and MHRA via the SABRE portal promptly where reporting criteria are met and to NHSBT as needed. SHOT reporting criteria can be found via this [link](#).<sup>17</sup>

9.5 Organisations should undertake post-event review following Amber and Red phase activations to review trends and lessons learned throughout the shortage period and after recovery. An example of escalation summary report is shown below:

| Phase | Supply status | Governance | Clinical impact | Reporting |
|-------|---------------|------------|-----------------|-----------|
|       |               |            |                 |           |

9.6 During shortages NHSBT will monitor blood usage in hospitals. It is recognised that hospital caseloads and case-mix vary, but where hospitals are unable to meet the recommended reductions in stockholding and use, the Haematologist with responsibility for blood transfusion or the Transfusion Laboratory Manager will be expected to discuss the hospital needs with an NHSBT Consultant, Hospital Customer Service Manager, or member of the PBM Team. NHSBT will work closely with the Regional Transfusion Committees, the National Blood Transfusion Committee and Hospital Trusts to support and share good practice.

9.6 Hospitals should be able to collect and notify NHSBT the following information:

- Hospital-level stock reductions achieved
- The number of postponed procedures
- Shortage-related incidents
- The number of transfusion delays
- Serious patient harm events

## **10.0 Recovery from shortages**

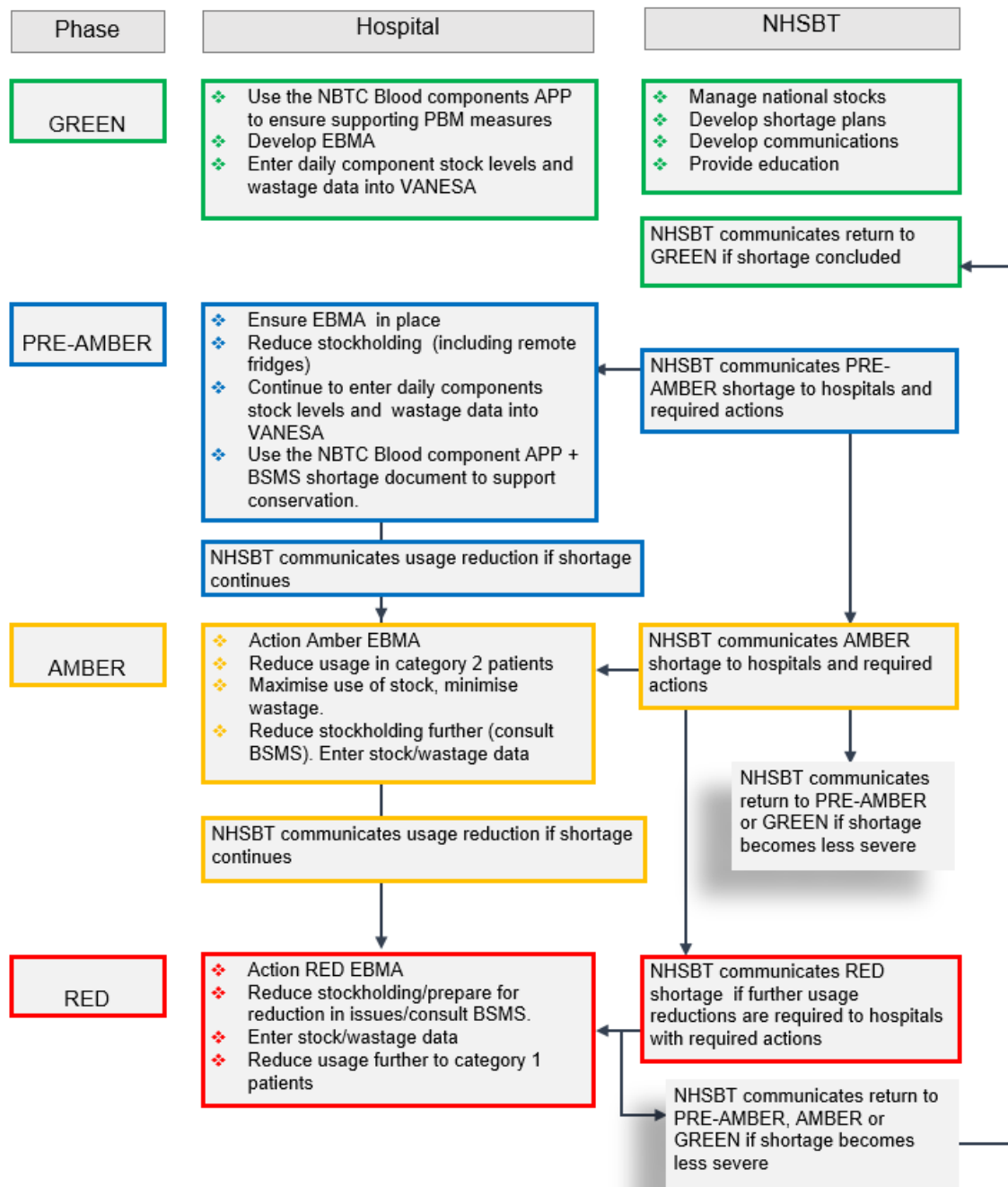
10.1 NHSBT will contact the **Hospitals** to tell them that stocks have risen to a level where hospitals can move to Pre-Amber, Amber, or Green phase.

10.2 NHSBT will update the Blood Components App to reflect changes in the shortage phase.

10.3 On stand down from any Amber or Red phase activation, the EBMG should convene at the earliest opportunity to undertake a formal multidisciplinary debrief and document lessons learned, including patient safety incidents, operational challenges and examples of good practice.

10.4 The recovery plan should be communicated to staff.

## Appendix 1: Schematic of red cell shortage plan



**Table 1:** Vanessa- 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: Indication for transfusion

To simplify the management of patients in a general red cell shortage a traffic light system has been created using three broad patient categories. This is to assist hospitals with prioritising patients to achieve the required reduction in red cell usage. It is recognised that clinical judgement and context of the shortage are essential parts of decision-making.

| OPTIMISE ALL PATIENT BLOOD MANAGEMENT STRATEGIES                                                                                                                                                                                                                                                                |                            |                                                               |                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|
| Category 1 (RED Phase)                                                                                                                                                                                                                                                                                          |                            | Category 1 (Red Phase Continued)                              | Category 2                                                      |
| <0.5days of stock (RED A)                                                                                                                                                                                                                                                                                       | 0.5 -1day of stock (RED B) |                                                               |                                                                 |
| <b>These patients will remain highest priority of transfusion</b><br><br><b>Resuscitation</b><br>Resuscitation of life-threatening /on-going blood loss including trauma. If ongoing major haemorrhage with expected poor prognosis, review appropriateness of continuing transfusion support (see appendix 3). |                            | <b>These patients will not be transfused in the RED phase</b> | <b>These patients will not be transfused in the AMBER phase</b> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Transfusion-dependent anaemias including thalassaemia</b><br/>Review the need for transfusion and delay if not symptomatic with anaemia.</p> <p>Haemoglobinopathy patients on regular transfusion programmes - follow amber guidance but also <b>consider using top up transfusion instead of Red Cell Exchange as interim measure, or relaxing pre Hb S targets for indications where evidence base is lacking.</b></p> |                                                                                                                                                                                                                                                                          | <p><b>Surgery*/Obstetrics</b><br/>Cancer surgery (palliative). Symptomatic but not life-threatening post-operative or post-partum anaemia. Urgent*** surgery.</p> <p><b>Priority 2 and 3 surgeries</b><br/>Consider postponing case(s) 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.</p> <p><b>Non-surgical anaemias</b> Symptomatic but not life-threatening anaemia.</p> | <p><b>Surgery*</b><br/>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Surgical*support</b></p> <p><b>Priority 1a</b><br/>*procedures can be supported with donor blood with exceptions<br/>**</p> <p><b>Priority 1b</b><br/>emergency procedures <b>CANNOT</b> be supported with donor blood.</p> <p>These should be reviewed on a case-by-case basis e.g., taking into consideration blood group and correction of anaemia.</p>                                                               | <p><b>Surgical*support</b></p> <p><b>Priority 1a and 1b</b><br/>Procedures can be supported which are likely to require donor blood support. These should be reviewed on a case-by-case basis e.g., taking into consideration blood group and correction of anaemia.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p><b>Chronically transfused patients</b></p> <p><b>1) Haemoglobinopathy</b> Patients on Red Cell Exchange (RCE) programme</p> <p>a) Consider increasing interval for RCE.<br/>b) Consider top up red cell transfusion post partial exchange to reduce number of red cells needed.</p> <p><b>2) All Patients</b> (including haemato-oncological patients receiving chemotherapy)<br/>Reduce transfusion threshold to 70g/L if no contraindication.</p> <p><b>3) Maximise use of all PBM measures</b> i.e., Tranexamic acid, use of cell salvage, optimisation of pre-op anaemia, minimise iatrogenic anaemia by limiting blood sampling.</p> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                         |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <p><b>Non-surgical anaemias</b></p> <p>Continue to transfuse</p> <p>a) in life-threatening anaemia including patients requiring in-utero support and high dependency care/SCBU.</p> <p>b) Stem cell transplantation, or chemotherapy already commenced****</p> <p><b>Review cadaveric organ transplants and delay, if possible</b>, particularly if large volume of blood may be required i.e., cardiac / liver transplant</p> | <p><b>Delay starting</b></p> <p>a. Stem cell transplantation, or chemotherapy</p> <p>b. Living related organ transplantation</p> <p><b>Delay prophylactic transfusion</b></p> <p>a. in severe bone marrow failure syndrome if patient not symptomatic with anaemia.</p> |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

\*[Clinical Guide to Surgical Prioritisation](#) from Federation of surgical Speciality Association <sup>18</sup>

\* 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 haemopoietic stem cell transplant or chemotherapy may be deferred if possible.

### ***Appendix 3: Proposed actions for hospitals at each phase***

#### **Green Phase**

##### **Secure appropriate arrangements for Patient Blood Management and the appropriate use of blood**

- Obtain senior management and NHS Trust Board commitment to PBM measures.
- Secure appropriate membership and functioning of the Hospital Transfusion Committee (HTC) and Hospital Transfusion Team (HTT) including staffing and resources (see Annex A).
- Ensure that effective blood transfusion policies for the appropriate use of red cells are in place, implemented and monitored.<sup>19</sup>
- Ensure that education and training are provided to all staff involved in the process of blood transfusion and is included in the induction programmes for relevant new staff.
- Consider the establishment of links between hospital blood transfusion laboratories to utilise regional stocks more effectively.
- Enter stocks levels and wastage figures into [VANESA](#)<sup>10</sup> as per table 1 in appendix 2.

##### **Ensure the appropriate use of blood and the use of effective alternatives in every clinical practice where blood is transfused**

- Implement existing national guidance on the appropriate use of blood and alternative.
- Ensure that guidance is in place for the medical and surgical use of red cells, and other blood components such as platelets and fresh frozen plasma.
- Ensure regular monitoring and audit of usage of red cells, platelets, and fresh frozen plasma in all clinical specialities.
- Use of red cells for procedures using large volumes of red cells should be reviewed regularly for target aims and wastage e.g., review blood usage and HbS% targets for patients undergoing regular automated red cell exchange (RCE).

- Consider use of depletion mode in the Apheresis machine in Sickle Cell Disease patients on regular automated RCE if safe to do so and if it results in less blood use.
- Review number of units utilised during previous red cell exchanges to prevent over ordering.
- Remove age requirement for red cells used for red cell exchanges in haemoglobinopathy patients.
- Establish local protocols to empower blood transfusion laboratory staff to ensure that appropriate clinical information is provided with requests for blood transfusion.
- Establish local protocols to empower blood transfusion laboratory staff to query clinicians about the 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**

### **Pre-Amber Phase**

#### **Clinical teams in Hospitals should take the following actions:**

- Ensure EBM arrangements are in place and that the EBMG can be convened quickly if needed. This is in anticipation of a potential Amber alert should the situation not improve. It is recommended that the Medical Director is alerted at the potential move to Amber and the implications of this.
- Review haemoglobin triggers for red cell transfusions with use of restrictive transfusions as per evidence-based Patient Blood Management guidance.
  - Use tools available to support decisions to administer transfusions and to consider alternatives to blood including the 'Blood Components App' summarising national clinical indications for transfusions and the Patient Blood Management toolkit.
  - If contacted by NHSBT for targeted donation i.e., specific group(s) that maybe low, to ensure communication is relayed by advertisement on the local intranet to request for staff who are regular donors to arrange appointment with **their** local donation centre.

## All patients

- Minimise iatrogenic anaemia (reduce frequency **and/or** volume), take samples from patients only if this will change clinical management.
- Use a restrictive red cell transfusion threshold, haemoglobin of 70 g/L unless patient is bleeding, has acute coronary syndrome, or is on a chronic transfusion programme.
- Transfuse one unit of red cells at a time (or equivalent volumes calculated based on body weight for children from 1 year of age, or adults with low body weight), in patients who are not bleeding or on a chronic transfusion programme. Reassess the patient clinically and with a further blood count to determine if further transfusion is needed.

## Surgical patients

- Ensure patients with anaemia who are due to have elective surgery are properly diagnosed and treated **for anaemia** prior to the planned surgery.
- Ensure early pre-assessment of patients in priority categories P2-3, check haematinic status, and treat deficiencies with appropriate supplement. Early screening for anaemia and other significant comorbidities is recommended by other NHSE guidance and can be supported by using Hemocue or similar point of care devices.
- Optimise care of patients in P1 category with iv iron infusions pre-operatively or at induction.
- Review preoperative haemoglobin concentration and expected blood loss. **Ensure TXA is considered / given in all cases where the skin or mucosal membrane is likely to be broken** <sup>8</sup>. If intraoperative blood loss could be greater than 500ml (in adults) use salvage unless contraindicated. Contraindications to either tranexamic acid or cell salvage should be documented.
- Ensure that operating theatres have adequate access to cell salvage equipment and appropriately trained staff to deliver cell salvage when it is indicated.
- Use point-of-care coagulation testing to guide intraoperative blood component management.

- Consider use of post-operative iv and/or oral iron in anaemic patients to avoid need for transfusion.

### **Patients requiring or who may require a chronic transfusion programme**

- Use alternatives to transfusion, where appropriate (MDS guidance, oncology guidance).
- Review local protocols for red blood cell transfusions if they are used to maintain haemoglobin concentration above a target level during curative radiotherapy (e.g., in cervical or head and neck cancers). The evidence that transfusion improves cancer outcomes in this situation is of poor quality.
- Review patients on long term transfusion support to assess suitability for alternative management.
- Review haemoglobinopathy patients on RCE programmes to ensure:
  - the red cells ordered for procedures are based on actual units (mls) used during previous red cell exchanges to ensure appropriate ordering to prevent wastage.
  - assess all patients for suitability for depletion RCE and ensure they are having procedures using the depletion mode on the Apheresis machine if safe to do so and if it results in less blood use.

### **Transfusion laboratory teams**

- Use the Emergency Blood Management Arrangements (EBMA) [checklist](#) (Appendix 4).
- Use the recommended guidance provided by the Blood Stocks Management Scheme (BSMS) to reduce stock orders.
- Reduce stockholding of red cells where possible.
- Conserve group O D negative red cells for O D negative patients in line with guidelines.
- Transfuse group specific red cells wherever possible.
- Enter red cell stock levels and wastage data into [VANESA](#) <sup>10</sup> as per table 1 in appendix 2.
- Accept shorter dated red cells or units not marked as K-negative where you are confident that they can be used.

- Start communications with senior clinicians/high users about potential to move to Amber phase and the consequences of this.
- Set up sharing of stock between sites/ networks and neighbouring Hospitals. Use the [Service Level Agreement](#).
- Consider if it is safe to do so:
  - reducing reservation periods.
  - reducing levels of stock in remote fridges.
  - reducing levels of irradiated stock and ordering more often.
  - limiting requests for phenotyped units for stock and order on a named patient basis only.
- Any delays to transfusion or avoidable transfusion should be reported to [Serious Hazards of Transfusion \(SHOT\)](#) <sup>17</sup>.

These guidance from NHSBT and other organisations can be found in this [link](#) <sup>13</sup>.

## Additional actions in the Amber Phase

### All patients

- Decision to transfuse should be **consultant led in all cases** unless it is an emergency.
- In pre-hospital setting, trauma scenario or major haemorrhage, review transfusion support in clinical cases where component use is prolonged or of significant quantity to consider the appropriateness of continued treatment.
- The clinical team should liaise with the hospital transfusion laboratory and consider the availability of blood components.
- Consideration should be given to reviewing the transfusion trigger for all transfusions particularly in haemato-oncological or critical care unless contraindicated.

### Surgical

- Continuation of elective surgery will depend on red cell stock levels.

### Patients requiring or who may require a chronic transfusion programme

- Use alternatives to transfusion, where appropriate, e.g., iv iron vitamin B12 / folate or erythropoietin (MDS guidance, oncology guidance).

- Review local protocols for red blood cell transfusions if they are used to maintain haemoglobin levels above a target level during curative radiotherapy (e.g., in cervical or head and neck cancers). The evidence that transfusion improves cancer outcomes in this situation is of poor quality.

### **Red cell exchange for haemoglobinopathy patients**

- Consider where possible, exchanging to a higher post HbS% (i.e., **partial exchange**).
- **Review patients with Hb S target <15%. On case-by-case basis** reconsider bringing HbS% post exchange to below 15%. To achieve this often requires many additional units because at lower HbS% levels you are removing mostly transfused blood. Other mechanisms of maintaining a sufficiently low HbS% could include aiming at a higher haemoglobin following RCE.
- **Consider increasing the interval between RCE.**

### **Transfusion laboratory teams**

- Decrease stock holding when safe to do so using the recommended guidance provided by the Blood Stocks Management Scheme.
- Consider a reduction in the reservation period for blood.
- Consider the use of temperature loggers in blood boxes to reduce wastage because of uncertainty in cold chain management.
- Consider the further reduction or removal of stock in Remote Issue fridges especially those in locations used for elective surgery.
- **Consider reducing number of emergency O units in remote sites.**
- Any delays to transfusion or any avoidable transfusion incidents should be reported to **MHRA/ SABRE** and [Serious Hazards of Transfusion \(SHOT\)](#) <sup>17</sup>.
- **Share stock** between sites/networks and neighbouring Trusts.

These guidance from NHSBT and other organisations can be found in this [link](#) <sup>13</sup>.

**In all delivery types except in an emergency, if Hospital Services is unable to meet a request and no suitable alternative can be found, this will be referred to the on-call NHSBT Consultant.**

## Additional actions in the Red Phase

- Haemoglobinopathy patients on regular transfusion programmes - follow amber guidance but also **consider using top up transfusion (rather than RCE) as interim measure.**
- Entry of daily red cell stock levels and wastage data into VANESA is **mandatory.**
- NHSBT may request a reduction in stock levels down to a given level on an individual hospital basis.
- EBMG to review red cell stock levels and the impact of the blood shortage on patient care as frequently as needed.
- All requests for blood components to be reviewed by the blood transfusion laboratory supported by the Consultant in charge of transfusion to minimise inappropriate requests for this Red Phase.
- Consider where possible the removal of all red cell stock from remote issue fridges, except for emergency units, and issue blood components directly from the laboratory.
- **Consider reducing number of emergency O units in remote sites.**
- Hospitals with no on-site laboratory will need to ensure transportation is maintained to ensure adequate blood component availability.
- Clinical teams are advised to consider following the [NBTC guidance and triage tool for the rationing of blood for massively bleeding patients during a severe national blood shortage](#) <sup>14</sup> which outlines the algorithm for triaging patients <sup>14,15</sup> in the context of severe national shortage.
- In severe shortage of O D negative red cells, 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 / children <18years), is acceptable if this would be lifesaving. The benefits of transfusing O D positive red cells significantly outweigh the risk of antibody development <sup>20-22</sup>. Where possible this decision should be led by senior clinicians.
- If O D positive red cells are transfused to a patient who is of childbearing potential or to children under 18-year-olds, ensure local haematologists are aware of transfusion, to review appropriateness of administration of prophylactic anti-D.

- Where O D positive red cells have been transfused due to unavailability of O negative red cell, ensure that this is reported through local clinical governance structures.
- 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 as suggested in section 8.4.3. Increased use of substituted groups can lead to a shortage. There may be insufficient supplies of alternative groups to avoid the need for prioritisation.
- In the event of insufficient supplies prioritisation may not be possible.
- Any delays to transfusion or any avoidable transfusion incidents should be reported to [MHRA/SABRE](#) and [Serious Hazards of Transfusion \(SHOT\)](#).<sup>17</sup> Ensure duty of candour is completed (see section 8.4.4) if O positive red cells have been unavoidably transfused in place of O negative red cells.

**In all delivery types except in an emergency, if Hospital Services is unable to meet a request and no suitable alternative can be found, this will be referred to the on-call NHSBT Consultant.**

## Appendix 4: Emergency Blood Management Arrangement Checklist

### Checklist: Emergency Blood Management Arrangements

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.



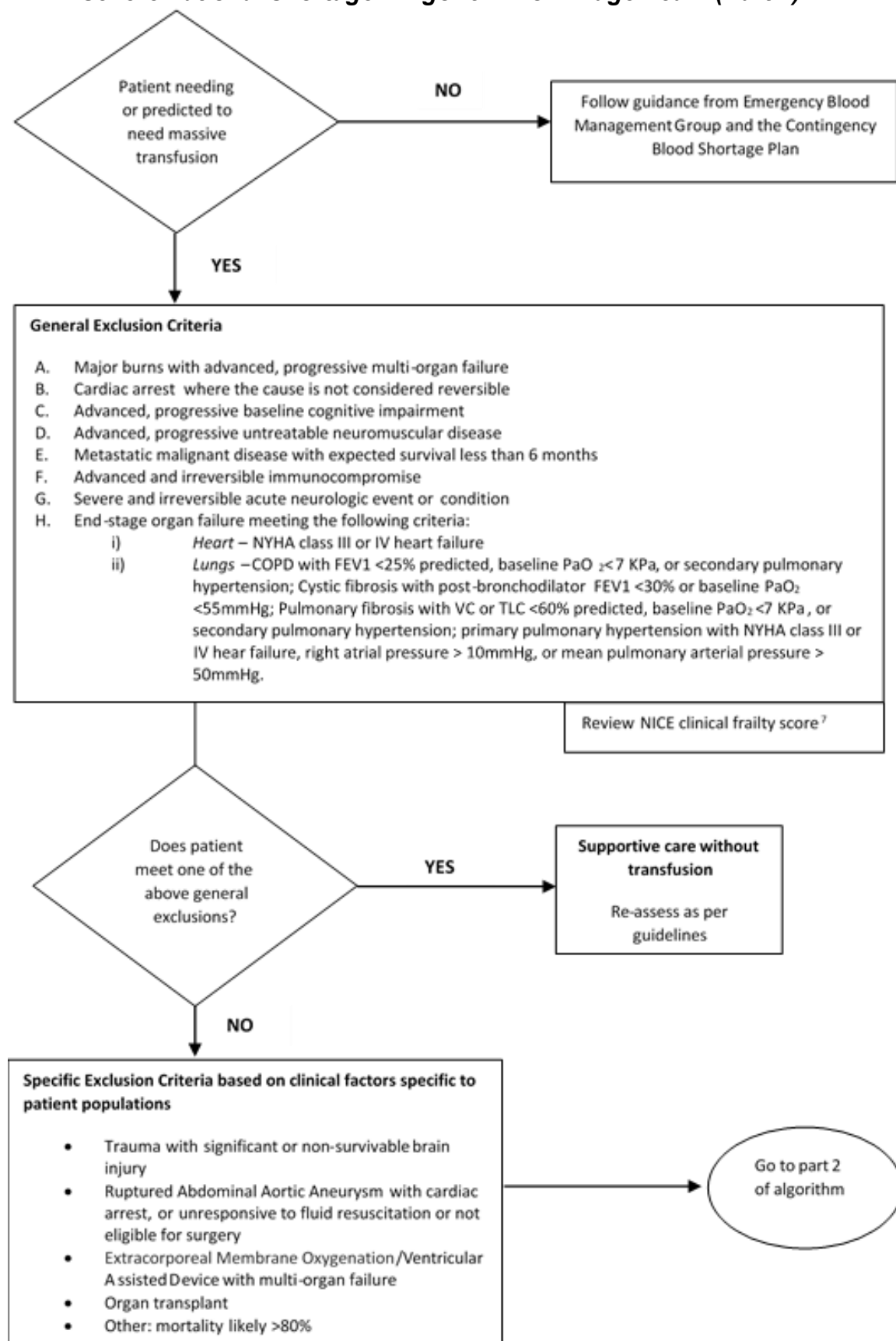
Click on the white boxes to tick each step

| Checklist for green                                                                                                                                                                           | Checklist for amber                                                                                                                                                                                                                         | Checklist for red |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <p><i>This is the business as usual phase of the EBMA</i></p> <p><b>Clinical teams to ensure:</b></p>                                                                                         |                                                                                                                                                                                                                                             |                   |
| 1. your EBMA plan is up to date <input type="checkbox"/>                                                                                                                                      |                                                                                                                                                                                                                                             |                   |
| 2. members of Emergency Blood Management (EBM) Group are aware of the plan <input type="checkbox"/>                                                                                           |                                                                                                                                                                                                                                             |                   |
| 3. PBM strategies (anaemia treatment, cell salvage, adherence to national indication codes) are followed <input type="checkbox"/>                                                             |                                                                                                                                                                                                                                             |                   |
| 4. familiarity with trust Emergency Preparedness Resilience and Response (EPRR) plans and command structures <input type="checkbox"/>                                                         |                                                                                                                                                                                                                                             |                   |
| 5. communications are drafted for use if a move to amber/red is required <input type="checkbox"/>                                                                                             |                                                                                                                                                                                                                                             |                   |
| 6. stock confirmation of Anti D, Tranexamic acid, Fibrinogen, Albumin, Lyoplas, Octaplas and Desmopressin - ensure process to order additional stocks is established <input type="checkbox"/> |                                                                                                                                                                                                                                             |                   |
| 7. process agreed for the review of appropriateness of blood requests with haematology clinicians as needed <input type="checkbox"/>                                                          |                                                                                                                                                                                                                                             |                   |
| 8. daily stock levels and wastage are entered into VANESA <input type="checkbox"/>                                                                                                            |                                                                                                                                                                                                                                             |                   |
| <p><b>Checklist for pre-amber:</b></p>                                                                                                                                                        |                                                                                                                                                                                                                                             |                   |
| 1. Ensure EBMA arrangements in place <input type="checkbox"/>                                                                                                                                 |                                                                                                                                                                                                                                             |                   |
| 2. Reduce stockholding (inc. remote fridges) <input type="checkbox"/>                                                                                                                         |                                                                                                                                                                                                                                             |                   |
| 3. Enter daily stock levels and wastage into VANESA <input type="checkbox"/>                                                                                                                  |                                                                                                                                                                                                                                             |                   |
| 4. Use the NBTC Blood component APP to ensure supporting PBM measures <input type="checkbox"/>                                                                                                |                                                                                                                                                                                                                                             |                   |
| <p><b>Checklist for amber</b></p> <p><i>NHSBT will inform transfusion team that amber alert declared.</i></p> <p><b>General:</b></p>                                                          |                                                                                                                                                                                                                                             |                   |
|                                                                                                                                                                                               | 1. Activate EBMA and convene EBM group <input type="checkbox"/>                                                                                                                                                                             |                   |
|                                                                                                                                                                                               | 2. Prepare to report stock levels and decisions made by EBM group for escalation trust-wide <input type="checkbox"/>                                                                                                                        |                   |
|                                                                                                                                                                                               | 3. Arrange trust-wide communications (screensavers, emails, newsletters) <input type="checkbox"/>                                                                                                                                           |                   |
|                                                                                                                                                                                               | 4. Review satellite fridge stock <input type="checkbox"/>                                                                                                                                                                                   |                   |
|                                                                                                                                                                                               | 5. Consider pharmaceutical alternatives in appropriate patients with EBM group and disseminate decision <input type="checkbox"/>                                                                                                            |                   |
|                                                                                                                                                                                               | 6. Contact areas where transfusions may stop <input type="checkbox"/>                                                                                                                                                                       |                   |
|                                                                                                                                                                                               | 7. Reprioritise prophylactic transfusions <input type="checkbox"/>                                                                                                                                                                          |                   |
|                                                                                                                                                                                               | 8. Enter daily stock levels and wastage into VANESA <input type="checkbox"/>                                                                                                                                                                |                   |
|                                                                                                                                                                                               | <b>Red cells:</b>                                                                                                                                                                                                                           |                   |
|                                                                                                                                                                                               | 1. Consider, are all PBM methods being used, review scale up? <input type="checkbox"/>                                                                                                                                                      |                   |
|                                                                                                                                                                                               | <b>Platelets:</b>                                                                                                                                                                                                                           |                   |
|                                                                                                                                                                                               | 1. Use reduced dose platelets (if available) for non bleeding patients <input type="checkbox"/>                                                                                                                                             |                   |
|                                                                                                                                                                                               | 2. Consider D positive platelets for D negative patients (cover with anti-D) <input type="checkbox"/>                                                                                                                                       |                   |
|                                                                                                                                                                                               | <b>Plasma:</b>                                                                                                                                                                                                                              |                   |
|                                                                                                                                                                                               | 1. Consider conserving AB plasma for group AB patients <input type="checkbox"/>                                                                                                                                                             |                   |
|                                                                                                                                                                                               | <p><b>Checklist for red</b></p> <p><i>The move to red phase will be communicated to trusts if there are severe shortages of either red cells, plasma or platelets.</i></p> <p><b>Complete all amber actions.</b></p> <p><b>General:</b></p> |                   |
|                                                                                                                                                                                               | 1. Launch rota for senior haematology clinicians to support laboratory in vetting requests <input type="checkbox"/>                                                                                                                         |                   |
|                                                                                                                                                                                               | 2. Update communications to reflect change to red phase <input type="checkbox"/>                                                                                                                                                            |                   |
|                                                                                                                                                                                               | 3. Remove all stock from satellite fridges except emergency group O from acute areas e.g. ED and maternity <input type="checkbox"/>                                                                                                         |                   |
|                                                                                                                                                                                               | 4. Contact clinical areas where transfusions will not take place. <input type="checkbox"/>                                                                                                                                                  |                   |
|                                                                                                                                                                                               | <p><b>Recovery phase:</b></p> <p><i>NHSBT will inform the transfusion team of return to 'green' phase.</i></p>                                                                                                                              |                   |
|                                                                                                                                                                                               | 1. Convene the EBM group <input type="checkbox"/>                                                                                                                                                                                           |                   |
|                                                                                                                                                                                               | 2. Ensure that change in clinical activity reflects blood stock levels <input type="checkbox"/>                                                                                                                                             |                   |
|                                                                                                                                                                                               | 3. Use trust-wide communications to update staff <input type="checkbox"/>                                                                                                                                                                   |                   |

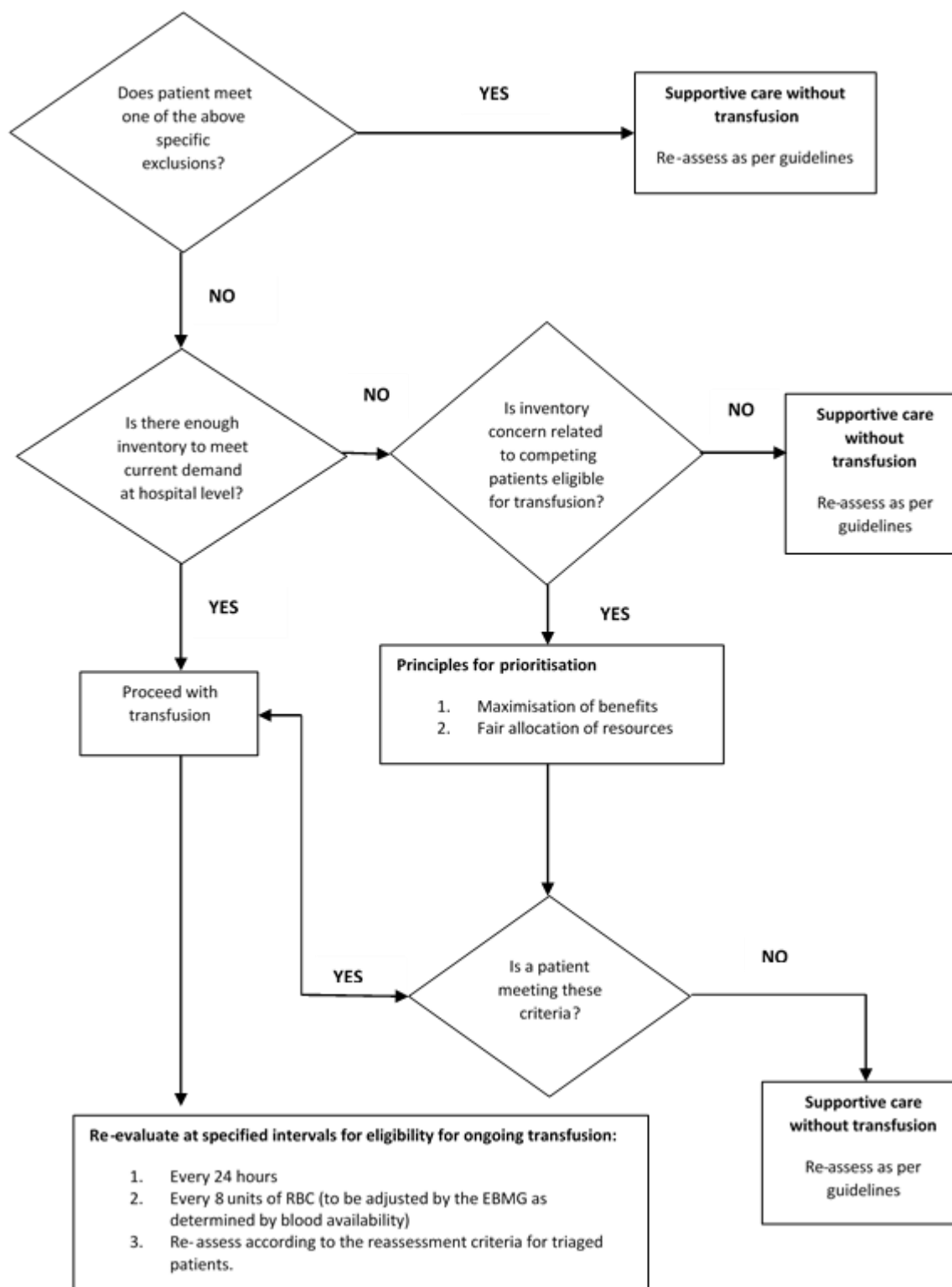
[CLICK HERE](#)  
for more  
information



## Appendix 5a: Emergency Framework for Blood Rationing in the context of severe national shortage - Algorithm for Triage Team (Part 1)



**Appendix 5b: Emergency Framework for Blood Rationing in the context of severe national shortage- Algorithm for Triage Team (Part 2)**



This flow chart has been adapted from National Advisory Committee on Blood and Blood products, Canada. Working group on emergency disposition of blood during a red phase blood shortage. Emergency framework for rationing of blood for massively bleeding patients during a red phase of a blood shortage. 2012 <sup>15</sup>.

<https://nacblood.ca/resources/shortages-plan/emergency-framework-final.pdf>

## Appendix 5c: ReSPECT

### Recommended Summary Plan for Emergency Care and Treatment

#### 1. Personal details

Full name: \_\_\_\_\_ Date of birth: \_\_\_\_\_ Date completed: \_\_\_\_\_

NHS/CHI/Health and care number: \_\_\_\_\_ Address: \_\_\_\_\_

#### 2. Summary of relevant information for this plan (see also section 6)

Including diagnosis, communication needs (e.g. interpreter, communication aids) and reasons for the preferences and recommendations recorded.

Details of other relevant planning documents and where to find them (e.g. Advance Decision to Refuse Treatment, Advance Care Plan). Also include known wishes about organ donation.

#### 3. Personal preferences to guide this plan (when the person has capacity)

How would you balance the priorities for your care (you may mark along the scale, if you wish):

Prioritise sustaining life, even at the expense of some comfort

\_\_\_\_\_

\_\_\_\_\_

Prioritise comfort, even at the expense of sustaining life

Considering the above priorities, what is most important to you is (optional):

\_\_\_\_\_

#### 4. Clinical recommendations for emergency care and treatment

Focus on life-sustaining treatment as per guidance below

\_\_\_\_\_ signature

Focus on symptom control as per guidance below

\_\_\_\_\_ signature

Now provide clinical guidance on specific interventions that may or may not be wanted or clinically appropriate, including being taken or admitted to hospital +/- receiving life support:

\_\_\_\_\_

CPR attempts recommended Adult or child

\_\_\_\_\_ signature

For modified CPR Child only, as detailed above

\_\_\_\_\_ signature

CPR attempts NOT recommended Adult or child

\_\_\_\_\_ signature

#### 5. Capacity and representation at time of completion

Does the person have sufficient capacity to participate in making the recommendations on this plan? **Yes / No**

Do they have a legal proxy (e.g. welfare attorney, person with parental responsibility) who can participate on their behalf in making the recommendations? **Yes / No / Unknown**

If so, document details in emergency contact section below

#### 6. Involvement in making this plan

The clinician(s) signing this plan is/are confirming that (select A,B or C, OR complete section D below):

**A** This person has the mental capacity to participate in making these recommendations. They have been fully involved in making this plan.

**B** This person does not have the mental capacity to participate in making these recommendations. This plan has been made in accordance with capacity law, including, where applicable, in consultation with their legal proxy, or where no proxy, with relevant family members/friends.

**C** This person is less than 18 (UK except Scotland) / 16 (Scotland) years old and (please select 1 or 2, and also 3 as applicable or explain in section D below):

**1** They have sufficient maturity and understanding to participate in making this plan

**2** They do not have sufficient maturity and understanding to participate in this plan. Their views, when known, have been taken into account.

**3** Those holding parental responsibility have been fully involved in discussing and making this plan.

**D** If no other option has been selected, valid reasons must be stated here. Document full explanation in the clinical record.

Record date, names and roles of those involved in decision making, and where records of discussions can be found:

\_\_\_\_\_

#### 7. Clinicians' signatures

| Designation (grade/speciality) | Clinician name | GMC/NMC/HCPC Number | Signature | Date & time |
|--------------------------------|----------------|---------------------|-----------|-------------|
|                                |                |                     |           |             |
|                                |                |                     |           |             |
|                                |                |                     |           |             |

#### 8. Emergency contacts

| Role                | Name | Telephone | Other details |
|---------------------|------|-----------|---------------|
| Legal proxy/parent  |      |           |               |
| Family/friend/other |      |           |               |
| GP                  |      |           |               |
| Lead Consultant     |      |           |               |

#### 9. Confirmation of validity (e.g. for change of condition)

| Review date | Designation (grade/speciality) | Clinician name | GMC/NMC/HCPC number | Signature |
|-------------|--------------------------------|----------------|---------------------|-----------|
|             |                                |                |                     |           |
|             |                                |                |                     |           |

Taken from ReSPECT. COVID-19 Resources. <https://www.resus.org.uk/respect> <sup>16</sup>

## References / Resources:

1. National Blood Transfusion Committee. A Plan for NHS Blood and Transplant and Hospitals to Address Red Cell Shortages. Original version August 2016 updated version March 2020, July 2022. <https://www.transfusionguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations>
2. National Blood Transfusion Committee. A Plan for NHS Blood and Transplant and Hospitals to Address Platelet shortages. Updated Version March 2023. <https://nationalbloodtransfusion.co.uk/recommendations>
3. DOH Circular HSC 1998/224 Better Blood Transfusion. <https://www.transfusionguidelines.org/document-library/documents/hsc-1998-224-better-blood-transfusion>
4. DOH. HSC 2002/009: Better Blood Transfusion – Appropriate use of blood. <https://www.transfusionguidelines.org/document-library/documents/hsc-2002-009-better-blood-transfusion-appropriate-use-of-blood>
5. DOH HSC 2007/001: 'Better Blood Transfusion' safe and appropriate use of blood. <https://www.transfusionguidelines.org/document-library/documents/hsc-2007-001-better-blood-transfusion-safe-and-appropriate-use-of-blood>
6. Patient Blood Management. <https://hospital.blood.co.uk/patient-services/patient-blood-management/>
7. Indications Codes for Transfusion: <https://nationalbloodtransfusion.co.uk/recommendations>
8. National Institute for Health and Care Excellence Blood transfusion (update) [A] Evidence review for tranexamic acid for reducing anticipated minor blood loss due to surgery NICE guideline NG24 [NG24 Blood transfusion: Evidence review A 26/02/2026](https://www.nice.org.uk/guidance/ng24/evidence-review)
9. National Blood Transfusion Committee. Appropriate use of group O D negative red cells. <https://www.transfusionguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations>
10. VANESA. <https://safe.nhsbt.nhs.uk/Vanesa/Account/Login?ReturnUrl=%2fvanesa>
11. Blood Stock Management Scheme: Publications, Inventory management resources newsletters, and other education resources. <https://www.bloodstocks.co.uk/resources/publications/>
12. Blood Components App. <https://www.bloodcomponents.org.uk/>

13. Blood stocks - Hospitals and Science – NHSBT.  
<https://hospital.blood.co.uk/business-continuity/blood-stocks/>
14. NBTC guidance and triage tool for the rationing of blood for massively bleeding patients during a severe national blood shortage.  
<https://nationalbloodtransfusion.co.uk/recommendations>
15. National Advisory Committee on Blood and Blood products, Canada. Working group on emergency disposition of blood during a red phase blood shortage. Emergency framework for rationing of blood for massively bleeding patients during a red phase of a blood shortage. 2012.  
<https://nacblood.ca/resources/shortages-plan/emergency-framework-final.pdf>
16. ReSPECT. COVID-19 Resources.  
<https://www.resus.org.uk/respect>
17. SHOT reporting criteria.  
<https://www.shotuk.org/reporting/>
18. Clinical Guide to Surgical Prioritisation from Federation of surgical Speciality Association.  
[https://fssa.org.uk/userfiles/pages/files/covid19/prioritisation\\_master\\_28\\_01\\_22.pdf](https://fssa.org.uk/userfiles/pages/files/covid19/prioritisation_master_28_01_22.pdf)
19. Choosing wisely.  
<https://www.rcpath.org/profession/patient-safety-and-quality-improvement/patient-safety-resources/choosing-wisely.html>
20. Cardigan R, Latham T, Weaver A, Yazer M, Green L. Estimating the risks of prehospital transfusion of D-positive whole blood to trauma patients who are bleeding in England. Vox Sang. 2022 May;117(5):701-707. doi: 10.1111/vox.13249. Epub 2022 Jan 12. PMID: 35018634; PMCID: PMC9306525.
21. Roberts B, Green L, Ahmed V, Latham T, O'Boyle P, Yazer MH, Cardigan R. Modelling the outcomes of different red blood cell transfusion strategies for the treatment of traumatic haemorrhage in the prehospital setting in the United Kingdom. Vox Sang. 2022 Nov;117(11):1287-1295. doi: 10.1111/vox.13359. Epub 2022 Sep 14. PMID: 36102164; PMCID: PMC9825834.
22. Malone JR. Ethical considerations in the use of Rh D-positive blood products in trauma. Transfusion. 2024 May;64 Suppl 2: S4-S10. doi: 10.1111/trf.17787. Epub 2024 Mar 16. PMID: 38491917.

*Sept 2026: Updated by Fatts Chowdhury*

*Oct 2024: Addendum updated by Fatts Chowdhury & Julie Staves*

*April 2023: Updated by Fatts Chowdhury & Julie Staves.*

*All updates have been reviewed by the following groups UK Red Alert Planning, NBTC EPWG, PBM Team, BSMS and the SHOT team.*