

## National Blood Transfusion Committee

# A Plan for NHS Blood and Transplant and Hospitals to address Platelet Shortages Updated Version August 2016

### 1.0 Executive summary

- 1.1 The platelet shortage plan operates in a similar way to the red cell plan describing three phases dependent on NHSBT stock levels - Green, Amber and Red. As with the red cell plan actions listed in the green phase are focused on preparation of arrangements for shortages and implementing appropriate use recommendations.
- 1.2 To help prioritise the patients who should be treated, as shortages become more severe three broad patient categories are identified.
- 1.3 A key set of actions for NHSBT is to continually monitor its stock levels and take appropriate actions to maintain these. Should stocks begin to fall, NHSBT will take action to increase production and if necessary increase collections from donors.
- 1.4 Within hospitals it is expected that the Emergency Blood Management Group established to produce arrangements for, and manage, red cell shortages will also be responsible for producing arrangements for, and managing, platelet shortages.

### 2.0 Background

- 2.1 In 2016, the NBTC updated the integrated blood shortage plan for NHSBT and hospitals.
- 2.2 An integrated, national plan should also be available for the management of platelet shortages to ensure the most effective use of this component.
- 2.3 This document provides details of the plan and hospitals are requested to amend their emergency plans accordingly.
- 2.4 All references to providing, counting or tracking of platelets refer to doses of platelets.

### 3.0 Planning Principles

- 3.1 As with the blood shortage plan, the platelet shortage plan is designed to ensure that hospitals and NHSBT can work within a consistent, integrated framework across England and north Wales, to provide equal access for patients to available units of platelets on the basis of need. This will be achieved by making sure that those patients most in need receive the available supply and ensuring that any reduction in usage is made from those patients who will be least affected. The plan has the following two key aims: -
- That the national “pool” of platelets is available for all essential transfusions to all patients equally across the country.
  - That overall usage is reduced to ensure the most urgent cases receive the supply that is available.
- 3.2 The number of platelets used in England and north Wales is significantly less than the demand for red cells and although more hospitals routinely hold stocks of units of platelets, most requests made of the NHSBT are for specific patients. Consequently, this plan will focus on restricting supplies according to the urgency of treatment required by patient type, rather than a generic reduction in supply and stockholding, as used for red cell shortages in the blood shortage plan.
- 3.3 Hospitals are encouraged to ensure that platelets are used only when necessary and usage follows national, published guidelines.
- 3.4 In the development of the red cell shortage plan, hospitals are required to establish Emergency Blood Management Groups to define Emergency Blood Management Arrangements (EBMA). Hospitals are encouraged to use the same structures when implementing this plan.
- 3.5 Platelet shortages may or may not occur at the same time as red cell shortages. Platelet shortages that occur when there are sufficient blood stocks are only likely to be short-term in nature.
- 3.6 Platelet stock will be considered as a whole. Substitution across ABO groups may be required in line with BCSH guidelines.

### 4.0 Plan Structure

- 4.1 The plan is structured to provide a framework of actions for NHSBT and hospitals at three phase levels: -
- Green: “Normal” circumstances where supply meets demand.
  - Amber Reduced availability of units of platelets.
  - Red: Severe shortage

During the green phase NHSBT may issue a precautionary notification to hospitals informing them of potential supply chain issues, such as a shortage in a particular ABO Rh group, and asking hospitals to take appropriate action to protect the supply chain.

This action is intended to prevent the requirement to move to amber phase.

- 4.2 It is envisaged that each hospital will produce an EBMA for each of the above stages. Guidance to assist hospitals in actions to be taken in EBMA can be found in Appendix 1. This plan should be included in hospital emergency incident plans. NHSBT will also develop plans for each phase.
- 4.3 By ensuring that all hospitals have EBMA for shortage it is expected that, on declaration of a shortage by NHSBT, all hospitals will invoke these plans at the same time, ensuring a swift response to the shortage.
- 4.4 As the Green phase of the plan applies to “normal” circumstances, the plan is, in effect, operating at all times. Actions in this phase will focus on ensuring arrangements for shortage are developed and that platelets are used safely and appropriately.
- 4.5 Hospital actions at Amber and Red phase include actions to stop any stockholding of units of platelets and, where required, to reduce usage.
- 4.6 A chart categorising patient types to support decision-making in hospitals is provided in Appendix 3.
- 4.7 A schematic summary of the plan is listed in Appendix 2.
- 4.8 In situations where NHSBT restrict supply of platelets for stock holding consideration will be given to offering free ad hoc deliveries to sustain the supply chain.

## **5.0 Operation of the Plan**

### **5.1 Green Phase**

- 5.1.1 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.
- 5.1.2 During Green phase the NHSBT will continue to develop communications and logistics plans to support hospitals as effectively as possible during shortages.
- 5.1.3 The NHSBT will take a number of actions to avoid a shortage of platelets. On a daily basis national platelet stock levels are monitored and production levels amended to ensure stock levels are kept at the pre set target stock level. However, if this does not have the desired impact a number of wide ranging actions may be taken. These could include:
  - Calling more donors (of all groups, or of a specific group, depending on the nature of the shortage)
  - Increasing the number of whole blood donations collected into packs suitable for platelet production
  - Extending shifts in the processing department to increase production of platelets
  - Extending the opening times of static clinics for (the collection of platelet donations)
  - Extending opening times of mobile sessions (for the collection of whole blood donations)

- Increased monitoring and movement of the national platelet stock ensuring units of platelets are distributed according to age and group mix, to ensure wastage is kept to a minimum.

Depending on the actions applied in an individual situation the process may be managed using the NHSBT emergency planning system.

5.1.4 If stocks fall at one or more centres or in a particular ABO Rh group, but the national stock remains above the pre-determined level, then NHSBT may ask hospitals to delay platelet transfusions or accept units of platelets of different groups where possible (in line with BCSH adult and paediatric guidelines). This will allow NHSBT to initiate stock transfers to balance the platelet stocks rather than declaring an amber shortage.

5.1.5 Should NHSBT identify a severe, imminent threat to the platelet supply, it may communicate a move directly to the Red phase of the plan and request that only patients in category 1 are treated.

## 5.2 Amber Phase

5.2.1 If NHSBT stocks fall to a pre-determined level where stocks are not sufficient to ensure supply for the day, it will communicate a move to Amber phase..

5.2.2 This information will be communicated by a number of channels including messaging boards on the Online Blood Ordering System, email and/or telephone, where appropriate. The information from NHSBT will include the nature of the shortage and any actions, which need 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.

5.2.3 In the first instance, the actions will be to immediately restrict stockholding in hospitals. This will be achieved by hospitals ordering only where there is a specific identified requirement for a platelet transfusion or for a unit of platelets to be on standby to cover a procedure. The impact of this will be to reduce orders from these hospitals. During amber phase any platelets issued will have a maximum expiry of 24 hours. This will ensure the national stock of platelets held by NHSBT is available to all hospitals.

In addition, to ensure the available national stock is used to its maximum effect, NHSBT may request hospitals to:

- Restrict issues for use in accordance with identified categories of patient as defined in Appendix 3. If a reduction in usage is required at this stage, restrictions to supply will be limited to categories 1 and 2 (including HLA/HPA matched platelets). At this point all requests for units of platelets from the hospital must be authorised by a named clinician.
- Prohibit use of platelets for prophylaxis
- Not request long dated platelet units
- Offer platelets of a different ABO group (in line with BCSH adults and paediatric guidelines).
- Accept leucodepleted platelets instead of CMV negative platelets
- Accept Rh D positive platelet units where Rh D negatives are not available and administering anti-D where applicable.

- Optimise pre-op preparation of patients e.g. stop anti-platelet agents 7 days whenever possible
- Consider alternatives or additions to platelet transfusion e.g.
  - Tranexamic acid - trauma, surgical bleeding and short term for patient 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

5.2.4 NHSBT will take appropriate actions in addition to the actions taken at Green phase to maximise the supply of available platelets, including:

- Suspension of Bacterial Screening, to bring platelets into stock earlier.
- importing platelets from other blood services
- reducing the number of buffy coats to produce pooled platelets from 4 to 3,

5.2.5 NHSBT will monitor demand from hospitals.

5.2.6 If stocks of platelets return to a sustainable level, NHSBT will communicate to hospitals that the Amber phase no longer applies and that orders can return to normal. If, however, stocks continue to fall, NHSBT may communicate that a greater reduction in usage is required which necessitates the declaration of a Red phase.

### 5.3 Red Phase

5.3.1 NHSBT will declare a Red phase shortage if there is a severe shortage of platelets or, if an imminent severe threat to the supply of platelets is identified.

5.3.2 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. Actions will include all actions taken under the Amber phase accompanied by a further reduction in usage such that usage will be restricted to patients in category 1 of Appendix 3.

At this point all requests for units of platelets in the hospital must be made via a named senior Clinician, such as a Consultant Haematologist. Requests to NHSBT will be referred to a NHSBT Consultant who may discuss the requirement with the hospital. Requests for units of platelets from hospitals must be accompanied by the following dataset over and above the usual details provided to NHSBT when ordering platelets:

- Patient identifier (hospital number or name)
- Indication for transfusion
- Requesting Consultants name
- Patient category (see Appendix 3)
- Patient blood group

5.3.3 As the availability of units of platelets will be very low in the Red phase, NHSBT will implement a monitoring process which will allow for the tracking of every unit of platelets. Hospitals will be requested to track closely the fate of each unit of platelets delivered to them. NHSBT will request information on each unit of platelets at regular intervals so that, if the unit is not used, it can be retrieved and delivered to an alternative location for use. This will ensure

that wastage of platelet units is kept to a minimum and the most urgent cases are supported.

#### **5.4 Recovery from shortage**

- 5.4.1 NHSBT will send a fax informing the Transfusion Laboratory that stocks have risen to a level where hospitals can move to Amber or Green phase.
- 5.4.2 The Transfusion Laboratory Manager or deputy will disseminate the information as above. The EBMG should convene at the earliest opportunity to review the effect of the platelet shortage and amend the platelet shortage arrangements as necessary. Any recommendations should be fed back to the Hospital Transfusion Committee.

## **Appendix 1: Proposed generic actions for hospitals at each phase**

### **Green Phase**

- The hospital will work towards ensuring the safe and appropriate use of all platelets.
- Ensuring wherever possible that aspirin or other drugs affecting platelet function are stopped prior to surgery in time to allow platelet function to recover.
- Formulation of Emergency Blood Management Arrangements (EBMA) for Green, Amber and Red phase of a platelet shortage to ensure consistent action in hospitals to ensure the patients who require them most receive the available units of platelets.
- Ensuring clinical audit is undertaken against agreed guidelines so that the fate of all units of platelets is understood. This should include feedback to reduce any inappropriate use, implementation of best practice to ensure the appropriate use of platelets and to minimise wastage and re-audit to ensure effectiveness of actions taken.
- Implementing the National Codes for Transfusion as recommended by the National Blood Transfusion Committee to ensure that every request for transfusion clearly states the indication for transfusion.
- Implementation of agreed transfusion protocols/transfusion thresholds for all transfusions.
- Education/training sessions for staff of all levels, including induction and regular updates.
- Transfusion guidelines formulated and included in the Junior Medical Staff induction.
- Hospital wide education of existence of EBMA
- Participation in the Blood Stock Management Scheme.
- Transfusion Laboratory Manager to develop links with local hospitals with a view to movement of stock between sites.

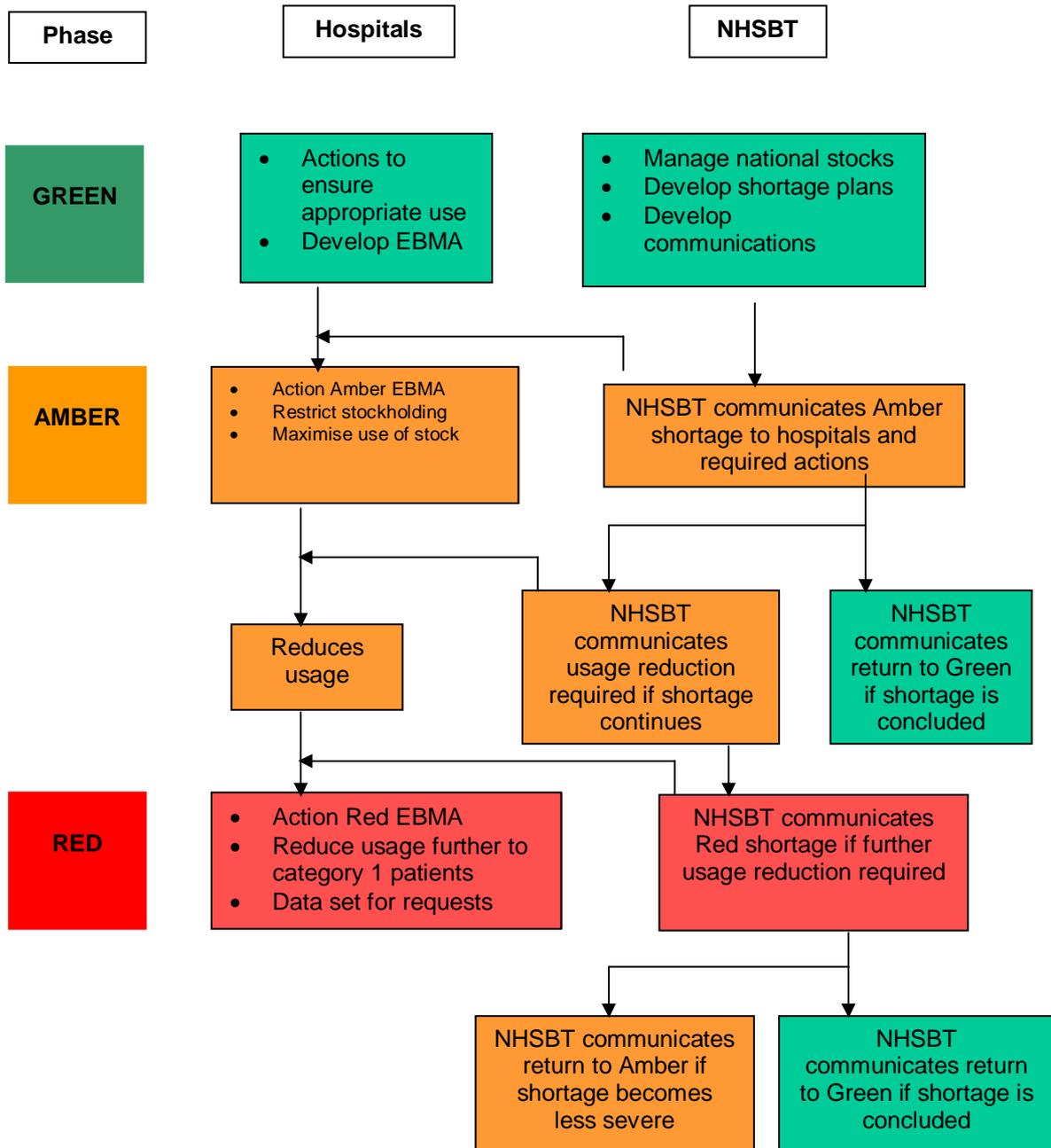
### **Amber Phase**

- Restrict stockholding of units of platelets.
- Maximise the use of available platelet units through:
  - The interchangeable use of apheresis and pooled platelets (except for HLA/HPA matched platelets)
  - Not requesting long dated platelets
  - Accepting platelets of a different ABO group (in line with BCSH guidelines)
  - Accepting leucodepleted platelets instead of CMV negative platelets
  - Accepting Rh D positive platelets where Rh D negative are not available and administering anti-D where applicable.
  - Contact NHSBT Hospital services when platelets have been issued but not used, to establish whether they should be returned to the national pool for re-distribution
- Reduce usage to categories identified in communications from the NHSBT.
  - Ensure all requests are made by a senior clinician
- Identify possible alternatives to transfusion of platelets
- Monitor outcomes of platelet transfusions to inform further transfusion support required

### **Red Phase**

- As in Amber but usage will be restricted to category 1 patients only.
- Provide an additional dataset for every request from NHSBT
- Provide information to the NHSBT to assist with tracking of units of platelets

## Appendix 2: Schematic of platelet shortage plan



## Appendix 3: Categorisation of patient types

The following chart provides general guidance for the use of platelet transfusions in the context of reduced availability. Category 1 patients are those with the greatest clinical need for platelet support and therefore should be given priority when considering allocation of platelets. Category 2 and 3 patients should be given lower priority.

The use of platelets should be considered as one element in the overall management of these patients. Use should be guided by the clinical condition of the patient and laboratory/near patient testing.

<b>Category 1 (Patients to be treated in Red Phase)</b>	<b>Category 2 (Patients to be treated in Red and Amber Phases)</b>	<b>Category 3</b>
<p><b>Massive haemorrhage &amp; Critical care</b> Massive transfusion for any condition including obstetrics, emergency surgery and trauma, with on-going bleeding, maintain &gt; 50 x 10<sup>9</sup>/L. Aim for &gt;100 x 10<sup>9</sup>/L if multiple trauma or CNS trauma</p> <p>Bleeding in the presence of sepsis/acute DIC, maintain &gt;50x 10<sup>9</sup>/L.</p>	<p><b>Critical care</b> Patients resuscitated following massive transfusion with no on-going active bleeding, maintain &gt; 50 x 10<sup>9</sup>/L</p> <p><b>Surgery</b> Urgent but not emergency surgery for a patient requiring platelet support</p> <p><b>Transfusion triggers for invasive procedures</b> According to BCSH guideline</p>	<p><b>Surgery</b> Elective, non-urgent surgery likely to require platelet support for thrombocytopenia or congenital/ acquired platelet defects</p>
<p><b>Bone marrow failure</b> Active bleeding associated with severe thrombocytopenia or functional platelet defects</p> <p><b>Immune thrombocytopenia</b> if serious/life-threatening bleeding</p>	<p><b>Bone marrow failure</b> All other indications except those in category 1 or 3</p>	<p><b>*Bone marrow failure</b> Prophylactic transfusion of stable patients following autologous stem cell transplant.</p>
<p><b>Neonates</b> For neonatal alloimmune thrombocytopenia or severe thrombocytopenia in an otherwise well neonate, platelet transfusions are required when the platelet count falls to between 20 – 30 x 10<sup>9</sup>/L. Higher target levels should be maintained if extremely low birth weight or unwell/bleeding or Intra-cranial haemorrhage suspected/confirmed.</p>		

\*prophylactic transfusion category should include WHO grade 1 & 2 bleeding (as in TOPPS trial). Exclusions – previous WHO ≥ grade 3 bleed, inherited haemostatic or thrombotic disorder, requirement for therapeutic doses of anticoagulation, acute promyelocytic leukaemia, prior to surgery/invasive procedure