Hospital Emergency Blood Management (EBM) Plan for Managing Shortages of Blood Components

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National Transfusion Advisory Group NTAG -proposed Framework

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The NTAG Plan will be considered for update Quarter one 2022.

1 Introduction and Development

This National Transfusion Advisory Group (NTAG) framework Emergency Blood Management plan for hospitals is to ensure the most appropriate use of available blood components in times of shortages. This is integrated with the NTAG Plans for Red Cell and Platelet Shortages. This plan has been reviewed by the Stakeholder groups NTAG, Irish Haematology Society (IHS), Academy of Clinical Science and Laboratory Medicine (ACSLM) and National Haemovigilance Special Interest Group (NHV SIG).

Appropriate clinical application, with patient blood management (PBM) practice in place, is essential at all times irrespective of stock levels. However, it is essential that the hospital Emergency Blood Management (EBM) plan is in place to ensure that any shortage of blood or blood components (National or local to the Hospital) is effectively managed, supporting the hospital's delivery of clinical service for patients who require transfusion support. This plan also considers contingency in the event of a prolonged or severe shortage.

2 Scope and Purpose

This document refers to hospital services which require support by blood transfusion. The framework identifies the structures and responsibilities to assist each hospital develop and maintain an Emergency Blood Management Plan. This will support consistent reduction in usage as safely as possible and ensure availability of blood for all essential transfusion support for patients equally across Ireland, at times of supply shortage.

It is a requirement for each hospital to have an Emergency Blood Management Group and a hospital Transfusion Team to effectively implement this plan in the event of a supply shortage. Membership of the Hospital Emergency Blood Management Group is as specified below. This may vary in particular circumstances. The hospital should make arrangements to integrate the Emergency Blood Management plan with the Major Incident Plan, particularly in the scenario of a Major Incident exhausting the available stock. In these circumstances the Chair of the Emergency Blood Management Group is responsible for effective communication with Command Control Centre. (The Major Incident Plan for Laboratory Activity may also be integrated.)

3 Terms and Abbreviations

EBM – Emergency Blood Management

C/S MS – Chief/Senior Medical Scientist

MS - Medical Scientist

Hospital - *specify as appropriate*

IBTS Irish Blood Transfusion Service

PBM – Patient Blood Management

SAE – Serious Adverse Event

SAR – Serious Adverse Reaction

NTAG Plan Phases and Categories -

- This plan adopts three phases in relation to availability of blood supply (**Appendix 1)**

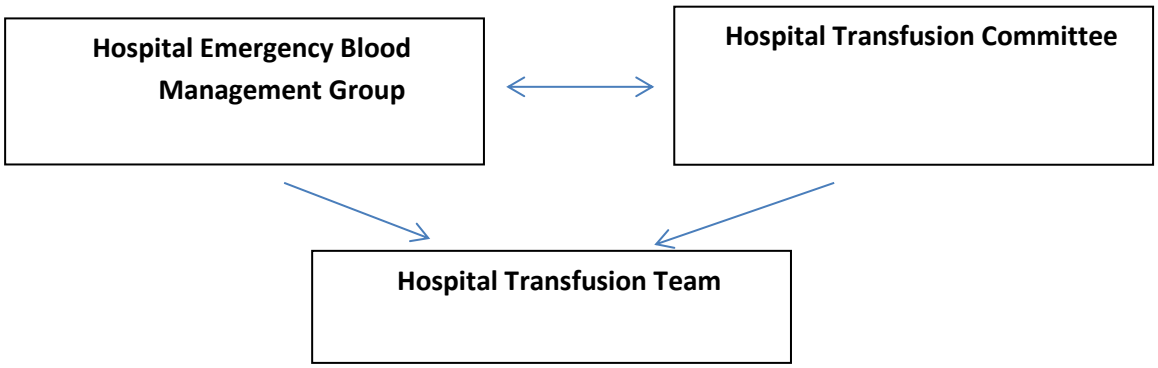
Green relating to normal.
Amber relating to reducing availability for a short or prolonged period.
Red relating to severe shortage.

- This plan recognises three categories of patients requiring transfusion **(Appendix 2)**
  Category 1 : These patients will remain highest priority for transfusion
  Category 2 : These patients will be transfused in the Amber but not the Red phase
  Category 3 : **These patients will not be transfused in the Amber phase**

4. Roles and Responsibilities

4.1 The **IBTS** is responsible for communication in relation to blood supply with Hospitals/Transfusion Laboratories/Lead Haematologists for Transfusion. In times of shortage, timely notice will be provided and there will be on-going communication in relation to hospital demand. The Clinical Lead Advisor for Transfusion will support communication.

4.2 Hospital responsibilities are met through the Emergency Blood Management Group, the Hospital Transfusion Committee, the Hospital Transfusion Team and the Clinical service users.



4.2.1 The Hospital Emergency Blood Management Group,

- Reports to the CEO/Hospital Manager:
- Has senior hospital management support from the CEO/Hospital Manager and Clinical Director to make decisions in times of severe shortage.
- Sets out the hospital plan for blood shortages and considering off-site hospitals for which the Blood Bank provides transfusion support.
- Will agree arrangements in relation to supply management at time of shortage and review daily during shortage

- Oversees communication within the hospital
- Manages IBTS notification of recovery from shortage in an orderly fashion within the hospital
- Reviews any activation of the plan with a particular focus on enhancement
- Provides feedback to the hospital clinicians

Membership
Clinical Director
Consultant Haematologist with responsibility for Blood Transfusion
Quality and Risk Management
Chair of the HTC
Chief/ Senior Medical Scientist Hospital Transfusion Laboratory
Operations Manager
Haemovigilance officer
Perioperative Director
Other specify

The CEO/Hospital Manager provides senior support in times of severe shortage of blood supply

4.2.2 Hospital Transfusion Committee (HTC)

The HTC is responsible for the transfusion policies and strategic direction of transfusion service delivery at the hospital, including patient blood management, Haemovigilance, audit, staff training and the Quality system. The HTC is supported and resourced by the hospital CE/manager and senior hospital management and in turn, supports members of the hospital Emergency Blood Management group to plan and implement actions in the event of blood supply shortage. The committee should include the Lead Haematologist for Transfusion/ Haemovigilance, representatives of the transfusion laboratory and the main clinical units with significant transfusion activity.

The HTC convenes to review the effect of the Blood shortage schedule. Any practice enhancement identified at that review will have the training and audit requirements identified and an implementation plan agreed.

4.2.3 Hospital Transfusion Team (HTT)

Membership
Consultant Haematologist Lead for Blood Transfusion/Haemovigilance.
Chief /Senior Medical Scientist Hospital Transfusion Laboratory
Haemovigilance Officer
Chair of the Hospital Transfusion Committee

The HTT is responsible to manage arrangements agreed by the EBM group.

The role of the HTT members is set out below

Lead Haematologist for Transfusion

The Lead Haematologist for Transfusion will authorise the Emergency Blood Management plan and act (or designate a colleague) to approve clinical application when this is activated – in conformance with patient categorisation as specified in the NTAG Plan. Hospital consultants can discuss specific requirements. The lead Haematologist for Transfusion should be consulted with regard to Massive Haemorrhage plan activation, to assist management of transfusion support.

Chief/Senior medical scientist (C/SMS)

In the event of shortage activation of the EBM plan the Hospital Chief/Senior Medical Scientist (C/SMS) is in close communication with the Lead Haematologist for Blood Transfusion and the IBTS. They will review inventory across all storage facilities in the hospital and make any necessary arrangements to centralise supply, as appropriate. Medical Scientist (MS) will engage in red cell sharing/ re-routing with other hospitals, paying particular attention to O RhD negative inventory and demand and any special requirements for CMV negative, Kell negative components, as appropriate. The C/SMS will review the reservation period for cross-matched red cells with a view to reduction in light of supply and clinical circumstances. The C/SMS empowers medical scientists in the hospital Transfusion Laboratory to ensure that appropriate clinical information is provided with requests for transfusion, as per local protocols, and query clinicians about the appropriateness of requests for transfusion against local guidelines. Particular attention will be given to single unit transfusion and requirement for patient assessment prior to further transfusion in the non-bleeding, cardiac stable patient. The C/SMS support orderly return to steady state supply (Green phase) in managing orders on a phased basis.

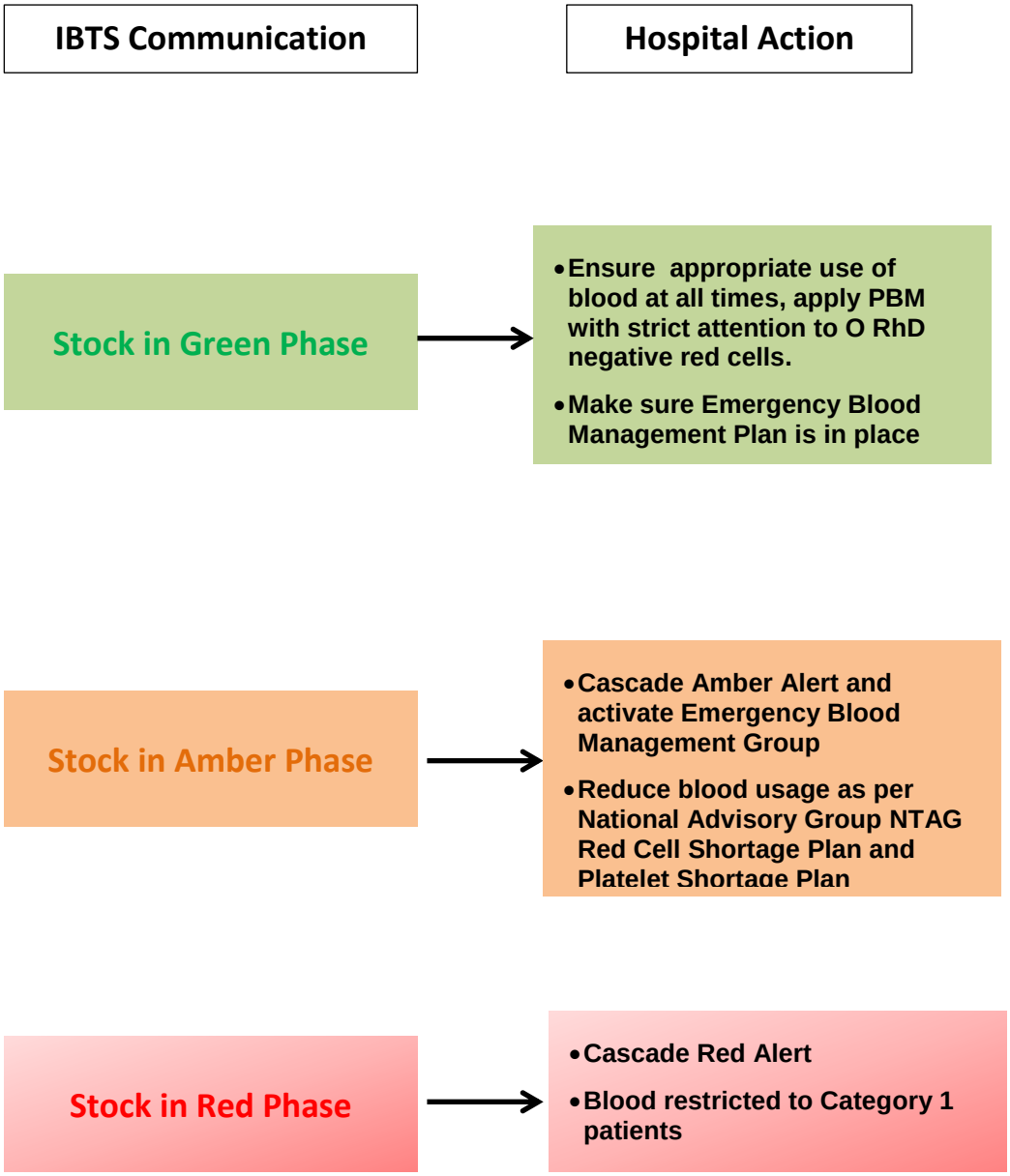
Haemovigilance Officer (s) (HVO)

The Haemovigilance Officer actively engages in policy development to affect appropriate transfusion practice and deliver the associated training. The HVO undertakes a programme of audits to include good PBM practices. In the event of shortage the HVO will support hospital red cell shortage transfusion protocols, captures and investigates all serious transfusion reactions (SAR) and events (SAE) associated with the shortage , for consideration by the EBM group when

4.2.4 Clinical Service Users

All clinical staff requesting transfusion support must be familiar with patient categorisation and provide information to allow consideration of the request. Staff contact details are essential for further discussion and follow-up, as transfusions requested outside the indications stated will need discussion.

Appendix 1: IBTS Communication and Hospital Action



Appendix 2: Indication for transfusion in red cell shortage

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 is an essential part of decision-making for individual patients.

Category 1	**Category 2**	**Category 3**
These patients will remain highest priority of transfusion	**These patients will be transfused in the Amber but not the Red phase**	**These patients will not be transfused in the Amber phase**
Resuscitation Resuscitation of life-threatening/ on-going blood loss including trauma.		
Surgical support Emergency surgery*including cardiac and vascular surgery**, and organ transplantation. Cancer surgery with the intention of cure.	***Surgery/Obstetrics*** Cancer surgery (palliative). Symptomatic but not life-threatening post-operative or post-partum anaemia. Urgent*** (but not emergency) surgery.	***Surgery*** Planned elective surgery which is likely to require donor blood support (Patients with > 20% chance of needing 2 or more units of blood during or after surgery).
Non-surgical anaemias Life-threatening anaemia including patients requiring in-utero support and high dependency care/SCBU. Stem cell transplantation or chemotherapy **** Severe bone marrow failure. Thalassaemias (but consider lower threshold). Sickle cell disease crises affecting organs. Sickle cell patients aged < 16 with past history of CVA.	***Non-surgical anaemias*** Symptomatic, but not life-threatening anaemia.	

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

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

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

**** Planned stem cell transplant should be discussed with IBTS Consultant Haematologists. SACT patients should be considered in line with NCCP advice and also blood supply

Appendix 3: Proposed generic actions for hospitals at each phase

Green Phase

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

 Secure senior management and Clinical Director's support for PBM and authorisation of hospital Emergency Blood Management (EBM) plan.
 Secure appropriate membership and functioning of the Hospital Transfusion Committee (HTC) and Hospital Transfusion Team (HTT) including staffing and resources
 Ensure that effective blood transfusion policies for the appropriate use of donor blood are in place, implemented and monitored.
 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.
 Engage in local/ regional stock rerouting, that is effective in reducing transfusion of O Rh D negative to Rh D positive patients. Ensure red cells transferred between INAB accredited facilities in validated transportation is utilised at receiving hospitals.

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

 Implement existing guidance on the appropriate use of blood and alternatives.
 Ensure that guidance is in place for the medical and surgical use of red cells, platelets and SD plasma.
 Ensure regular monitoring and audit of usage of red cells, platelets and SD plasma in all clinical specialities.
 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.
 Develop policy on dealing with major bleeding including guidance on when to stop blood component support

Secure appropriate and cost-effective provision of blood transfusion and alternatives in surgical and obstetric care

 Ensure that mechanisms are in place for the pre-operative assessment of patients for planned surgical procedures to allow the identification, investigation and treatment of anaemia and the optimisation of haemostasis.
 Ensure that an agreed list of indications for transfusion are established, in collaboration with key clinical specialities and are implemented and monitored.
 Ensure periodic review of the Maximum Surgical Blood Order Schedule MSBOS
 Develop a blood conservation strategy including the use of point-of-care testing for haemoglobin concentration and haemostasis and alternatives to donor blood such as peri-operative cell salvage and pharmacological agents such as anti-fibrinolytics and intravenous iron, and monitor its implementation.
 Ensure the establishment of procedures for the identification and management of maternal anaemia, in particular correction of iron deficiency, in the antenatal and postnatal period.

Amber Phase

 Continuation of elective surgery will depend on blood stock levels.
 Consideration should be given to reviewing the transfusion trigger for transfusions.
 In cases of actual or potential massive blood loss, a Consultant Haematologist must be contacted by the referring clinical team to allow discussion and planning of patient management and blood product provision.
 All cases deemed to require transfusion outside hospital guidelines for transfusion should be referred to a Consultant Haematologist.
 Stock holding may need to be reduced and redistribution between hospitals should be optomised to reduce expiry
 Reduce the reservation period for blood to 12 hours, wherever possible.

Red Phase

 Reduce stockholding to the level notified by the IBTS.
 Reduce usage to the level indicated by IBTS.
 Daily review of the blood shortage and its impact on patient care by the EBM group.
 Medical assessment of all requests by a Consultant Haematologist.
 An order of priority based on clinical need.
 Active engagement in stock redistribution between hospitals to utilise stocks more effectively.
 Activate policy on dealing with major bleeding including guidance on when to stop blood component support