

Procedure for Managing Red Blood Cell or Platelet Shortages in NHS Lothian (including the role of the emergency blood management groups)

(also known as the Emergency Blood Management Plan (EBMP) for NHS Lothian)

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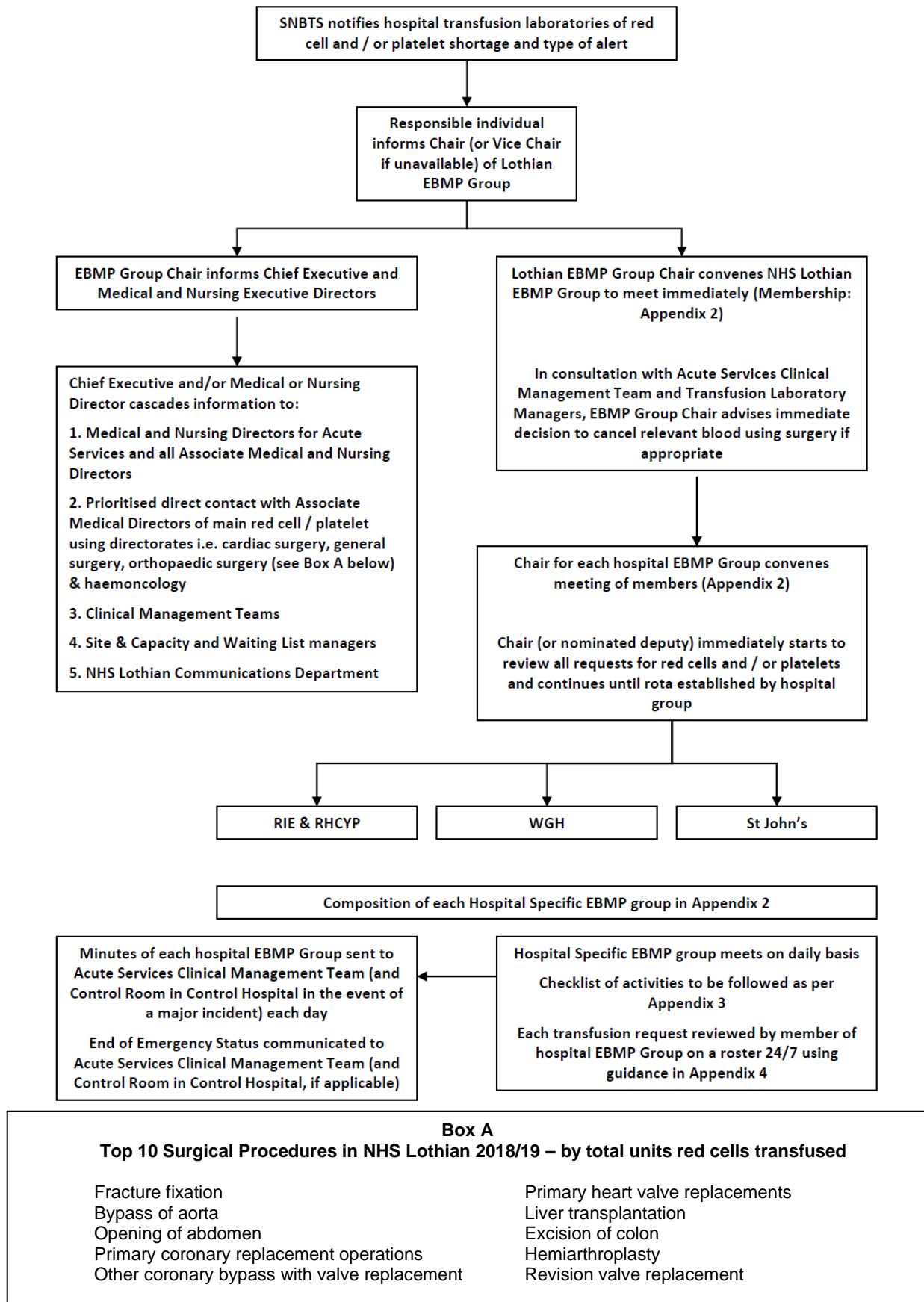
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Figure 1

Procedure to be Followed in the Event of Red Blood Cell or Platelet Shortage



Introduction

Origin of plan: This is the NHS Lothian plan in response to the SNBTS “Integrated Shortage Plan for SNBTS and NHSS Hospitals (Interim Draft Guidance in Response to Covid-19 Contingency Planning)” issued on behalf of SNBTS Patient Services and the Scottish Clinical Transfusion Advisory Committee (this document can be found on the NHS Lothian intranet at Directory > Blood Transfusion > Blood Component Transfusion Guidance and Indications).

The SNBTS Integrated Shortage Plan provides the framework of a proposed contingency plan which is that NHSS Hospitals and SNBTS should work together to reduce the risk of blood component shortages through the management of supply and demand. This is to ensure the effective use of available blood components when blood stocks have fallen to very low levels and is critical to ensuring transfusion support for patients on these occasions. The blood components which are most likely to be in short supply are red cells and platelets.

This Lothian plan reflects local blood use and is informed by audit and research. It should be read in conjunction with the NHS Lothian Blood Transfusion Policy and Procedures and the NHS Lothian Major Haemorrhage Protocol*.

This plan has been developed by the Emergency Blood Management Plan Group (EBMP Group). This plan should be integrated with other emergency planning procedures, depending on individual emergency circumstances. The plan is designed to be consistent with other NHS emergency planning arrangements and guidance in the UK.

Membership and contact details of the overarching Lothian Emergency Blood Management Group (EBMP Group) and all site specific EBMP Groups are found in Appendix 2.

The Chair of the Lothian Emergency Blood Management Group is the Lothian Transfusion Committee Chair. This group has executive powers on behalf of the Chief Executive for NHS Lothian.

Management of Interim Red Blood Cell or Platelet Shortage

There is now a concept of a **PRE-AMBER** state where hospitals receive a notification of a potential shortage of red cells or platelets which has not yet breached the **AMBER** threshold (see page 5). Such a notification is intended to prompt collaborative working between Hospital Transfusion Teams (HTTs), the Lothian Transfusion Committee and local clinical teams aimed at reducing the risk that the amber threshold is reached. **The alert of ‘potential shortage’ does not require activation of the Procedure for Managing Red Blood Cell or Platelet Shortages** however submission of a SITREP (Appendix 6) may be requested to ensure SNBTS remain informed of services and potential changes in demand.

Any prolonged or more severe shortage could progress to a formal instigation of the Procedure for Managing Red Blood Cell or Platelet Shortages.

Major Haemorrhage Protocol

***NHS Lothian Major Haemorrhage Protocol can be found on NHS Lothian intranet: Directory > Blood Transfusion > Policies & Procedures**

Aims and Phases of the Plan

Main aims of the plan:

To ensure

- That the national pool of blood components is available for all essential transfusions to all patients equally across Scotland (logistical actions)
- That overall usage is reduced to ensure the most urgent cases and those with the greatest clinical need receive the supply that is available (clinical actions)

Phases of the plan:

Phase	Blood availability
Green	'Normal' circumstances where supply meets demand <i>3 days or more SNBTS red cell stock</i>
Pre Amber	Anticipated shortage which does not reach the AMBER threshold
Amber	Significantly reduced availability of red cells and/or platelets <i>2 days or less SNBTS red cell stock</i>
Red	Severe, prolonged shortage of red cells and/or platelets Red phase may be an escalation of AMBER phase <i>or</i> a direct notification of RED shortage <i>1 day or less SNBTS red cell stock</i> Hospital stockholdings reduced to 40% target levels

NOTE: There is no agreed definition for AMBER or RED platelet shortages due to the short shelf-life of this component.

On declaration of a shortage by SNBTS, it is intended that all hospitals invoke their Emergency Blood Management Plans at the same time, ensuring a swift response to the shortage.

Suggested strategy for triaging surgical activity and medical transfusions to reduce red cell or platelet requirements:

The Integrated Shortage Plan outlines that, in shortage, it may be necessary to restrict transfusions to those groups of patients in most need. In order to simplify the management of this, it is suggested that patients be divided into three broad categories:

- Category 1: Critical/Emergency
- Category 2: Essential/Urgent
- Category 3: Planned/Elective

In the event of an amber or a red phase patients should be categorised as below. Patients in category two or three may have to have transfusions deferred and / or procedures deferred. Pain and likelihood of complications should be taken into account when assessing these cases.

Suggested Patient Categories for Red Cell Usage		
Category 1 <i>These patients are the highest priority for transfusion</i>	Category 2 <i>Patients to be transfused in the Amber but not the Red phase</i>	Category 3 <i>Patients will not be transfused in the Amber phase</i>
Resuscitation of life-threatening/on-going blood loss including trauma.		
<i>Surgical Support</i> Emergency surgery including cardiac and vascular surgery, and organ transplantation. Cancer surgery (with the intention of cure).	<i>Surgery/Obstetrics</i> Palliative cancer surgery. Symptomatic but not life-threatening post-operative or post-partum anaemia. Urgent (but not emergency) surgery.	<i>Surgery</i> Elective surgery which is likely to require donor blood support. Greater than 20% likelihood of patients requiring donor blood during or after surgery.
<i>Non-Surgical Anaemia</i> 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.	<i>Non-Surgical Anaemias</i> Symptomatic but not life-threatening anaemia.	
<p>Emergency – patient likely to die within 24 hours without surgery. Urgent – patient likely to have major morbidity if surgery not carried out. Planned stem cell transplant or chemotherapy should be deferred if possible.</p>		

Suggested Patient Categories for Platelet Usage		
Category 1 <i>These patients are the highest priority for transfusion</i>	Category 2 <i>Patients to be transfused in the Amber but not the Red phase</i>	Category 3 <i>Patients will not be transfused in the Amber phase</i>
<p>Massive haemorrhage Massive transfusion for any condition including obstetrics, emergency surgery and trauma, with on-going bleeding, maintain > 50 x 10⁹/L. Aim for >100 x 10⁹/L if trauma with ongoing bleeding or CNS trauma.</p>	<p>Massive haemorrhage Patients resuscitated following massive transfusion with no on-going active bleeding, maintain > 50 x10⁹/L.</p>	
<p>Critical Care Bleeding in the presence of sepsis/acute DIC, maintain >50x 10⁹/L.</p>	<p>Critical Care and Surgery Urgent but not emergency surgery for a patient requiring platelet support. Transfusion triggers for invasive procedures According to BSH guidelines.</p>	<p>Surgery Elective, non-urgent surgery likely to require platelet support.</p>
<p>Bone marrow failure Active bleeding associated with severe thrombocytopenia or functional platelet defects. Immune thrombocytopenia if serious/life-threatening bleeding.</p>	<p>Bone marrow failure All other indications except those in category 1 or 3</p>	<p>*Bone marrow failure Prophylactic transfusion of stable patients following autologous stem cell transplant.</p>
<p>Neonates Preterm neonates with v severe thrombocytopenia (count below 25 x 10⁹/l) platelets given in addition to treating underlying cause. Suggested threshold counts for platelet transfusions in other situations are given in the BSH guidelines.</p>		
<p>*prophylactic transfusion category should include WHO grade 1 bleeding (as in TOPPS trial). Exclusions – previous WHO > grade 3 bleed</p>		

Current blood management in NHS Lothian:

NHS Lothian promotes an appropriate transfusion approach based on patient blood management principles. This represents 'business as usual' (i.e. green phase). Key elements of this include:

- The Hospital Transfusion Teams (HTT) have a specific remit to review blood and blood component usage and wastage using the SNBTS blood bank dashboard* and other local sources of information (daily SNBTS issuable stock reports for red cells are also available via this dashboard)
- Pre-operative optimisation: detection of anaemia at pre-assessment clinics and treating, where possible, prior to surgery; peri-operative adjustment of anti-thrombotic treatment
- Peri-operative cell salvage for relevant surgical procedures (especially cardiac, vascular, orthopaedic, transplant, obstetric, paediatric scoliosis) in place
- Tranexamic acid for high blood loss surgery
- Single-unit red blood cell transfusions for adults (or equivalent volumes calculated based on body weight for children or adults with low body weight) who do not have active bleeding
- Widespread implementation of restrictive transfusion triggers in surgical and critical care settings and, increasingly, in medical settings
- Regular revision of the surgical blood ordering schedule
- Electronic issue for most eligible surgical cases (allowing blood to remain in the transfusion laboratory without being reserved for a particular patient. Eligible patients can be provided with suitable blood within 10 minutes of a request being made)
- Intra-operative treatment of coagulopathy causing excessive bleeding based on near-patient testing in applicable settings
- Attention to the de-reservation period of allocated components to manage stocks:
 - Laboratory staff consider returning red cells to stock if unused within 24 hours and will contact the clinical area to ask if they still plan to transfuse (WGH/SJH)
 - Red cells collected daily from satellite fridges by laboratory staff: all units issued the previous day are returned to stock (RIE)

* SNBTS Laboratory dashboard (logon and password required)

<https://viz.nhsnss.scot.nhs.uk/#/site/NSS/views/Bloodbankdashboard/DashboardOverview?iid=1>

Current rates of red cell and platelet use in Lothian:

Data from the Scottish Transfusion Epidemiology Database and SNBTS Blood Bank Dashboard (NHS National Services Scotland) provide blood use by hospital and surgical procedure. Relevant data are shown in Appendix 1. Table 1 in Appendix 1 provides mean red cell and platelet use per day on each of the acute sites.

These data indicate:

- Greatest pressure will be on the RIE and WGH sites

- **The necessary savings will not be achieved by cancellation of elective blood-using surgery alone**
- Blood component savings will be necessary across all specialties, especially medical blood use (this is because more blood is now used in medicine (including haematology) than in surgery)

General Approach to EBMP in Lothian

The Lothian EBMP is based on convening a Board EBMP Group, which oversees a hospital EBMP Group at each of the four major sites. The remit of each hospital EBMP Group is as follows:

- To meet on a daily basis
- To review the status of blood component supply to the hospital
- To review planned surgery for the following 24 hours and make decisions regarding those cases that can be undertaken
- To review planned surgery for the subsequent 5-7 days and make decisions regarding those cases that are likely to be feasible
- To provide 24/7 cover to review all requests for red cells and / or platelets in the hospital, and make appropriate transfusion decisions in collaboration with clinical teams based on red cell / platelet availability and the need of individual patients

What all clinicians must be made aware of during EBMP

- Pre-op anaemia and low body weight are strongly predictive of need for allogeneic red cell transfusion during surgery. Hb levels and BMI should therefore be included on all transfusion request forms wherever possible during the red / amber phase to facilitate decision making by the local EBMP Group
- Full and relevant clinical detail must be provided on transfusion request forms during red /amber phase to facilitate decision making by the local EBMP Group
- In order to conserve Rh D negative supplies, blood group compatible Rh D positive red cells may be given to the following groups:
 - adult male patients if they require uncrossmatched blood in an emergency
 - adult male patients with known blood group Rh D negative
 - female patients older than 50 years with known blood group Rh D negative

Procedure for Red Blood Cell or Platelet Shortages (AMBER OR RED ALERT)

See Figure 1 (Procedure Flowchart) and Appendix 3 (Activities of Hospital EBMP Groups).

Composition of groups is shown in Appendix 2.

1. A telephone call will be made from SNBTS to the Transfusion Laboratories and the message informing of AMBER or RED alert will be passed to the person in charge. The person in charge will be asked if the Transfusion Laboratory Manager is contactable and, if not, who is deputising in their absence. An email will then be sent to the Transfusion Laboratory Manager (or named deputy) to also inform them of the AMBER or RED alert.

Should a RED national shortage occur, the communication from SNBTS will indicate that red cell stockholding should be 40% of target level.

2. It is the responsibility of the Edinburgh and South-East Scotland Blood Transfusion Service (SEBTS) Laboratory Manager (or named deputy), based at the Royal Infirmary of Edinburgh, to contact the Chair of the Lothian EBMP Group immediately (contact details in Appendix 2). If the Chair is not available the vice Chair(s) should be contacted.
3. The Chair of Lothian EBMP Group immediately contacts the Chief Executive and Medical and Nursing Executive Directors who will then cascade information to the Medical Director for Acute Services and the Nurse Director for Acute Services: they, in turn, will cascade to the Associate Medical Directors and Associate Nurse Directors. The Clinical Management Teams (CMTs), Site & Capacity Managers, Waiting List Managers and NHS Lothian Communications Department will then be informed via their management structure.
4. Information to be conveyed will include that some surgery which may result in red blood cell requirement may need to be postponed and that requests for red cell and / or platelet transfusions will be reviewed by the EBMP groups.
5. Chair of Lothian EBMP Group contacts all members of EBMP Group and convenes meeting at earliest opportunity (within 24 hrs), including on weekends / public holidays.
6. Chair of Lothian EBMP Group contacts the Theatre Clinical Service Manager and ORSOS Support Team to obtain theatre lists for the next and subsequent days. Lists will be emailed to Lothian and Hospital EMBP Chairs, Vice Chairs and Transfusion Practitioners. Process for obtaining theatre lists detailed in Appendix 7.
7. Chair of each Hospital EBMP Group (or a nominated deputy) immediately starts to review all requests for blood components as they are made, liaising with clinical teams as necessary to ensure appropriate use of available resource.

8. Chair of each Hospital EBMP Group contacts all members of the individual hospital EBMP group and convenes a meeting of the individual hospital group, scheduled to follow the Lothian group meeting.
9. **During RED status**, red cell stockholding must be reduced to 40% of target levels.
10. Each Hospital Specific EBMP Group draws up a site specific rota which has a senior clinician (e.g. consultant haematologist or other member of the EBMP group) designated to review all transfusion requests. Clinicians will inform their clinical managers and clinical directors that they may need to be freed from other duties when manning this rota. The rota will be provided to the transfusion laboratories by each hospital EBMP group.
11. The Hospital Specific EBMP Group will meet daily prior to 17:00 hours to review blood supply and blood vetting activities.

The Group will review the planned surgical procedures that are scheduled for the coming day/s and will advise the relevant Clinical Directors and Associate Medical Directors which procedures can go ahead and which should be postponed.

Postponement of the following procedures will be considered:

- a. major elective blood-using surgical procedures (taking into account volume of surgery carried out - detailed in Table 2)
- b. other non-emergency potential blood-using procedures
- c. non-emergency procedures where patient has pre-operative Hb <100 g / L and / or low BMI

If an Associate Medical Director disagrees with the proposed cancellation of a planned surgical procedure, the case should be discussed with the Hospital EBMP Group Chair. If agreement is not reached, then the Medical Director of Acute Services will be asked to decide whether or not the planned procedure should go ahead during the period of red blood cell or platelet shortage.

The Group may also advise that the dose of red cell or platelet transfusion and frequency of administration for haematology and medical patients should be reviewed during the period of shortage. Consideration will be given to reducing the transfusion trigger / threshold for all transfusions. Single unit transfusions for non-bleeding patients will be promoted.

During RED status, components will be issued in order of priority based on clinical need.

During RED status, in the event of a major haemorrhage, transfusion laboratory staff will not delay preparing blood components for issue but will inform the on-call member of the hospital EBMP group who will co-ordinate discussion with the clinicians managing the patient. The clinical team will be alerted that red cells and platelets are in short supply and a request to consider stopping transfusion if it is unlikely to improve the patient's outcome may be made. It may be helpful if a member of the EBMP group is

able to go to the clinical area where the major bleed is occurring and discuss directly with the doctors managing the patient.

12. A summary of decisions from each Hospital Specific EBMP Group will be sent immediately following the meeting to the Acute Service Clinical Management Team (via PAs to Acute Services Medical or Nurse Director). In a major incident scenario, the summary of decisions from each Hospital Specific EBMP Group will also be sent immediately following the meeting to the Control Room in the Control Hospital.
13. Any shortage and its impact on patient care will be reviewed daily by each Hospital Specific EBMP Group and a situation report (SITREP) produced (Appendix 6). Once complete, the SITREP will be emailed to SNBTS via NSS.SNBTS-COVID19-Sitrep@nhs.net. The filename YYYY-MM-DD EBMA SITREP <YOUR HOSPITAL or HEALTHBOARD> <YOUR INITIALS> should be used and a copy kept for EBMP and Transfusion Team records.
14. The Chairs of each hospital EBMP Group will liaise regularly through face-to-face meetings, e-mail and teleconference as required.
15. If an adverse event occurs that is considered to be associated with blood conservation activity implemented during an EBMP phase, the clinical team will be advised to alert the EBMP Group Chair and the EBMP Group will be responsible for recording this in the EBMP documentation. If the adverse event is considered to be serious, the clinical team will be advised to generate a Datix incident report (using the 'Transfusion' category). This will be treated as a Serious Adverse Event.

Recovery from shortage

1. SNBTS will inform the Transfusion Laboratory Managers or Hospital Transfusion Laboratory when blood stocks have risen, allowing a move to amber or green status.
2. The Chair of the Lothian EBMP Group will inform the Chief Executive and Medical and Nursing Executive Directors who will then cascade information to the Medical Director for Acute Services and the Nurse Director for Acute Services: they, in turn, will cascade to the Associate Medical Directors and Associate Nurse Directors. The Clinical Management Teams (CMTs), Site & Capacity Managers, Waiting List Managers and NHS Lothian Communications Department will then be informed via their management structure.
3. Hospitals should ensure that immediate demand does not return the national stocks to below critical levels by using a phased return to normal stock levels. The return to normal activity levels should similarly be phased, in particular, elective surgery backlogs should not be compressed into the immediate post recovery period.
4. The Lothian EBMP Group should convene at the earliest opportunity to review the effect of the blood shortage and amend the Procedure for Managing Red Blood Cell or Platelet Shortages as necessary. Any recommendations should be fed back to the Lothian Transfusion Committee.

APPENDIX 1 – EPIDEMIOLOGY OF RED BLOOD CELL AND PLATELET USE IN NHS Lothian

(Analysis of locally derived audit data)

Table 1
Red cell and platelet use in the major Lothian Hospitals (2019)

Hospital	Mean red cell use per day 2019	Mean platelet use per day 2019
Royal Infirmary of Edinburgh	24	4
Western General Hospital, Edinburgh	23	6
St John's Hospital, West Lothian	6	1
Royal Hospital for Children and Young People, Edinburgh	2	2

Table 2**Major blood using surgical procedures in NHS Lothian 2018/19 (Top 10 Surgical Procedures – by total units transfused)****Taken from: NHS Lothian Surgical Blood Use Dashboard (Scottish Transfusion Epidemiology Database)**

Procedure	Number of procedures involving red cell transfusion 2018/19	Total red cell units transfused 2018/19	Mean red cell units per procedure transfused	Mean red cell units utilized per week
Fracture fixation	211	435	2.1	8.4
Liver transplantation	66	414	6.3	8
Primary heart valve replacements	123	323	2.6	6.2
Primary coronary replacement operations	76	203	2.7	3.9
Opening of abdomen	26	148	5.7	2.8
Hemiarthroplasty	58	119	2.1	2.3
Bypass of aorta	15	93	6.2	1.8
Other coronary bypass with valve replacement	25	87	3.5	1.7
Revision valve replacement	13	86	6.6	1.7
Excision of colon	44	85	1.9	1.6

Table 3
Major non-surgical conditions receiving red blood cell transfusions

Site	Case mix
Royal Infirmary of Edinburgh	Gastroenterology (GI bleeding) Acute medicine (anaemia with no bleeding)
Western General Hospital	Haem-oncology (transfusion for symptomatic anaemia in non-bleeding patients)
St John's Hospital	Haem-oncology (transfusion for symptomatic anaemia in non-bleeding patients)

Account for Blood and local NHS Lothian red cell use data show that the proportion of red cells transfused in NHS Lothian that are associated with surgical procedures is significantly lower than the proportion associated with medical care.

Most blood savings will be achieved by controlling requests for red cells for non-bleeding medical patients.

APPENDIX 2 – Composition of Emergency Blood Management Plan (EBMP) Groups

NHS Lothian EBMP group

Role
Chair NHS Lothian Transfusion Committee
Consultant Haematologist, WGH
SEBTS Consultant in Transfusion Medicine, SNBTS Patient Services, RIE
Consultant Haematologist, SNBTS Patient Services, RIE
Consultant Haematologist, SNBTS Patient Services, RIE
Consultant Anaesthetist, WGH
Consultant Physician, SJH
Consultant Anaesthetist, RIE
Consultant Haematologist, SJH
Clinical Director for Anaesthesia, Surgery and Theatres, RHCYP
Transfusion Practitioner SJH/WGH
Transfusion Practitioner RIE/RHCYP
Transfusion Laboratory Manager, SEBTS (RIE)
Transfusion Laboratory Manager, NHS Lothian (WGH & SJH)
Senior Waiting List Manager, Inpatient Bookings, NHS Lothian

Royal Infirmary of Edinburgh and Royal Hospital for Children and Young People EBMP Group

Role
Consultant Anaesthetist, RIE Chair RIE Hospital Transfusion Group
SEBTS Consultant in Transfusion Medicine, SNBTS Patient Services, RIE
Consultant Haematologist, SNBTS Patient Services, RIE
Consultant Haematologist, SNBTS Patient Services, RIE
Consultant Hepatologist/Gastroenterologist
Transfusion Practitioner RIE/RHCYP
Transfusion Laboratory Manager SEBTS (RIE)
Consultant and NRS Fellow in Emergency Medicine, RIE
Consultant in Anaesthesia and Intensive Care Medicine, RIE
Waiting List Manager RIE
Clinical Director for Anaesthesia, Surgery and Theatres, RHCYP
Consultant Anaesthetist, RHCYP
Consultant Paediatrician, RHCYP
Associate Specialist, RHCYP
Consultant Paediatric Haematologist, RHCYP
Consultant Paediatric Haematologist, RHCYP
Assistant Service Manager RHCYP

Western General Hospital EBMP Group

Role
Consultant Haematologist, WGH Chair WGH Transfusion Group
Consultant Anaesthetist, WGH
Transfusion Practitioner St John's Hospital/WGH
Consultant Anaesthetist, WGH
Transfusion Laboratory Manager, NHS Lothian (WGH & SJH Transfusion Laboratories)
Waiting List Manager WGH

St John's Hospital EBMP Group

Role
Consultant Physician
Consultant Anaesthetist
Consultant Haematologist
Consultant Obstetrician & Gynaecologist Chair SJH Transfusion Group
Senior Biomedical Scientist (Section Manager), SJH Transfusion Laboratory
Transfusion Practitioner St John's Hospital/WGH
Transfusion Laboratory Manager, NHS Lothian (WGH & SJH Transfusion Laboratories)
Waiting List Manager SJH
Consultant Physician
Consultant Anaesthetist (ICU)
Consultant Oral & Maxillofacial Surgeon
Consultant OMFS/Head & Neck Surgeon

APPENDIX 3 – Activities of Hospital EBMP Groups

Activity	Outcome
Vetting of all requests to Hospital Transfusion Laboratory for red cells and / or platelets	
Transfusion Consultant or nominated deputy from time of initiating EBMP until hospital rota agreed among EBMP team	Requirement for red cells and / or platelets agreed on an individual patient basis (see guideline Appendix 4)
Agree roster among group to review / vet all transfusion requests	Rota with contact details provided to transfusion laboratory
<p>All requests to transfusion laboratory referred to on-call member of hospital EBMP group</p> <p>In the case of Major Haemorrhage (including activation of Major Haemorrhage Protocol) the Transfusion Laboratory should not delay issuing blood components but should immediately inform the on-call member of the hospital EBMP group of the request, the location of the patient and the contact details for the clinical team</p>	<p>Requirement for red cells and / or platelets agreed on an individual patient basis (see guideline Appendix 4)</p> <p>Consideration given to reducing transfusion trigger/threshold for all transfusions</p> <p>Single unit issue in non-bleeding patients</p> <p>In RED status: issue blood components in order of priority based on clinical need</p>

Daily meeting scheduled before 17:00 throughout Emergency	
Review anticipated Transfusion Laboratory status for following 24 hours	<p>In RED status, reduce red cell stockholding to 40% target levels</p> <p>Estimate red blood cells / platelets required for unavoidable emergency activity during next 24 hours</p> <p>Estimate red blood cells / platelets available for non-emergency activity</p> <p>Review stockholding with the aim of reducing usage and avoidable wastage to increase the central 'pool' of blood components</p> <p>Reduce reservation period for blood components to 12 hours or less wherever possible</p>
Review all urgent / scheduled potential red blood cell using procedures and advise clinical teams accordingly (e.g. urgent cardiac, vascular, GI surgery)	<p>Triage cases based on available red blood cell stocks</p> <p>Ensure appropriate dissemination of cancelled cases through waiting list managers</p> <p>Seek further information from clinical teams for atypical cases to assess risk of red blood cell requirement</p> <p>Contact relevant surgical and anaesthetic teams to ensure full awareness of red blood cell or platelet shortage status, provide direct contact details of "on call" member of EBMP team</p> <p>Ensure maximum availability and use of blood conservation strategies, especially tranexamic acid, perioperative cell salvage, near patient testing for haemoglobin and coagulation, and use of appropriate transfusion triggers</p>
Review red blood cell / platelet regulation activity for previous 24 hours	<p>Ensure consistency and safety of transfusion decisions for bleeding and non-bleeding patients</p> <p>Review adherence to suggested transfusion guide (Appendix 4)</p> <p>Contact relevant clinical teams if transfusion decisions are perceived to be inappropriate or in the event that staff are not adhering to suggested guidance</p>
Review anticipated red blood cell / platelet shortages for next 5-7 days	<p>Advise Acute Services Clinical Management Team and waiting list managers regarding scheduling of major red blood cell-using procedures</p>
Communicate decisions reached at each Hospital EBMP Group meeting	<p>Send a summary of decisions reached immediately following the meeting to the Acute Service Clinical Management Team (via PAs to Medical or Nurse Director) and, if applicable (in the event of a major incident), to the Control Room in the Control Hospital.</p> <p>Complete and submit SITREP (Appendix 6)</p>

APPENDIX 4 – Transfusion Guideline

Suggested transfusion guideline for patients with life-threatening haemorrhage, minor bleeding or no evidence of bleeding in the event of red blood cell shortages

Patient status	Action	Comment
Life-threatening haemorrhage*	Judgement of clinician managing patient, in collaboration with on call member of EBMP group	Aim for haemoglobin level of 70-90 g/L Follow current guidelines for management of major haemorrhage, including early consideration of treatment of coagulopathy. Decisions regarding treatment limitation or withdrawal based on individual patient with caring team
No life threatening haemorrhage No ischaemic heart disease No life threatening symptoms from anaemia	Trigger haemoglobin <70 g/L Single RBC unit transfusions Use of haematinics if appropriate	Target haemoglobin 70-80 g/L
No life threatening haemorrhage Known ischaemic heart disease No evidence of current acute coronary syndrome or cardiac ischaemia	Trigger haemoglobin <70 g/L Single RBC unit transfusions Use of haematinics if appropriate	Target haemoglobin 70-90 g/L Assess individual requirements based on physiological stress and cardiovascular status
No life threatening haemorrhage Acute coronary syndrome or evidence of ischaemia	Trigger haemoglobin <80 g/L Single RBC unit transfusions Use of haematinics if appropriate	Target haemoglobin 90-100 g/L Assess individual requirements based on physiological stress and cardiovascular status

Major Haemorrhage Protocol

*NHS Lothian **Major Haemorrhage Protocol** can be found on NHS Lothian intranet: [Directory > Blood Transfusion > Policies & Procedures](#)

APPENDIX 5 - Temporary Loss of Transfusion Laboratory Service Contingency Plan

The loss of a transfusion laboratory service is recognised as an extremely rare event. This might arise, for example, as a result of failure of the laboratory IT system (e.g. APEX or Traceline) or the requirement for the laboratory staff to evacuate the department. Such events will impact on that laboratory's ability to process transfusion samples and issue blood components. Standard Operating Procedures exist to enable the laboratory staff to manage these situations with the least disruption to clinical service. However, in the event of a protracted period of service loss (i.e. IT failure longer than 24 hours) or if it is apparent that service will be lost for an unknown or potentially protracted period, the laboratory may be required to limit blood component issues to those required for emergency and urgent transfusion only.

In such circumstances the Transfusion Laboratory Manager of that site may trigger this Procedure for Managing Blood Shortages on the relevant site. The Site Transfusion Laboratory Manager will be responsible for informing the relevant site EBMP Chair without delay. It will then be at the discretion of that site EBMP Chair to decide which elements of the Procedure will need to be instigated to manage the situation appropriately.

Response during such an event should tie in with broader NHS Lothian resilience planning. The resilience team contact details can be found at <http://intranet.lothian.scot.nhs.uk/Directory/Resilience/Pages/default.aspx>

The Site Transfusion Laboratory Manager will be responsible for informing the relevant site EBMP Chair without delay when the transfusion laboratory service is re-established.

APPENDIX 6 – Emergency Blood Management Arrangement Situation Report (SITREP) and Instructions for Use



Emergency Blood Management Arrangement: Situation Report



Completion and submission of the SITREP is the responsibility of the Hospital Transfusion Team (HTT).			
Blood Bank			
SITREP completed by:			
Contact details of reporter:	Phone:	Email:	
Period covered by SITREP	From:	To:	
EBMA status	<input type="checkbox"/> EBMA NOT ACTIVATED	<input type="checkbox"/> AMBER	<input type="checkbox"/> RED
1.0 SITUATION			
Hospital activity (reduced, increased, no change) – <i>detail if relevant</i>			
Specific information re: red cells e.g. stock levels/demand/usage/wastage. If stock is being reduced, is that due to change in clinical activity or is there another reason?			
Specific information re: platelets e.g. stock levels/demand/usage/wastage If stock is being reduced, is that due to change in clinical activity or is there another reason?			
2.0 ACTIONS TAKEN AND ACTIONS PLANNED			
Actions implemented/agreed re: stockholding <i>Please give completion/target dates</i>			
Actions implemented/agreed re: restrictive transfusion practice <i>Please give completion/target dates</i>			
3.0 ISSUES			
Any reportable incidents or complaints directly as a result of blood shortages – <i>do not use patient identifiable info</i>			
Any other information to report Including: any agreement by HTT to implement new clinical or laboratory policies with the intention of reducing wastage or clinical usage?			
Please complete all fields. If there is nothing to report, or the information request is not applicable, please insert 'no change since last SITREP'			
Email this SITREP to NSS.SNBTS-COVID19-Sitrep@nhs.net and save a copy for your EBMA and HTT records Use the filename YYYY-MM-DD EBMA SITREP <YOUR HOSPITAL or HEALTHBOARD><YOUR INITIALS>			



Instructions for use

This situation report (SITREP) provides a mechanism for recording and reporting information about the activities and issues during blood shortage. It can also be used when blood shortage is anticipated to gather information about predicted changes in clinical service delivery. The SITREP template is to provide a quick, clear and concise understanding of the current situation focusing on *context*, in addition to the facts. Below is guidance to complete the form.

1.0 Situation to date (what has happened?)

- Brief summary of “hospital activity” – has transfusion activity, increased, decreased? Or is there no change? Add specific detail if relevant. Use this section to record changes to clinical service delivery which might impact on demand for blood components even if the EBMA has not been activated*.
- Summary of information relating to red cells, has stockholding/demand/ usage/ wastage increased or decreased. Is there a specific reason for this change?
- Summary of information relating to platelets has demand/ usage/ wastage increased or decreased? Is there a specific reason for this change?

2.0 Actions taken and actions planned (what has been done/what will be done?)

- Brief reporting of actions completed to date- typically for the period covered by the sitrep
- Brief reporting of scheduled/planned actions.

3.0 Issues (what has gone wrong/might go wrong?)

- Brief description of issue(s)/ complaints that are known/reasonably expected to arise directly as a result of the blood shortages, before the next SITREP is issued. Patient identifiable information **MUST NEVER** be used but DATIX, Q-Pulse or other incident reference would be helpful where available.
- If there is any other information to report please use this section. This could include changes to clinical service delivery which might impact on the demand for blood components* (see section 1.0)

NOTE:

- Information should be factual and largely without interpretation and conjecture.
- Information should cover the period between the last SITREP and the next SITREP
- SITREPs should be brief and not a narrative.
- Do not leave fields blank - If there is no change since the last SITREP please state – Nil or N/A
- Ensure old information is deleted, and do not just add new/additional info.

APPENDIX 7 – Process to Obtain Theatre Lists during AMBER or RED Phase

