University Hospitals Bristol and Weston NHS Foundation Trust

Op57 Adult Major Haemorrhage Policy- WESTON SITE ONLY

v.1.3

Date Approved:	September 2022
Date for Review:	September 2025
Directorate / Department responsible (author/owner):	Clinical Support/Pathology (Transfusion Practitioner)
Contact details:	[redacted]
Brief summary of contents	Process and clinical guidance for dealing with an adult patient with a major haemorrhage
Search criteria:	Blood, red cells, major haemorrhage, massive haemorrhage, transfusion, bleeding
Executive Director responsible for Policy:	*Director of Nursing*
Date revised:	September 2022
This document replaces (exact title of previous version):	Op57 Major Haemorrhage Policy v1.2
Title and date of committee/forum/group consulted during development :	Hospital Transfusion Committee
Signature of Executive Director giving approval	
Intranet location:	DMS Policies and Guidelines Blood Transfusion page Weston Intranet Qpulse
Links to key external standards	
Related Documents:	OP3 Blood Transfusion Policy
Training Need Identified?	*ED staff and Theatres (including theatre porters)* *Blood Transfusion lab staff* *Clinical areas with high transfusion volumes.* *General Porters*

SUMMARY

Management of a major haemorrhage requires rapid input from a multidisciplinary team.
Early intervention improves outcome.
Effective communication between all personnel involved in the provision and transportation of blood is vital.

	V	Summary of changes	Author
01.02.14	1.0	New	[redacted]
21.04.17	1.1	New template and minor change to blood product provision and clarification of the responsibility of the biomedical scientist on duty	
31.01.19	1.2	Removal of pBARS Change to single way to request Major Haemorrhage Protocol(3.1) Appendix 1-Protocol/Flow chart 4 units of Red Cells	[redacted]
14.03.19	1.2	Amendment in the flowchart section 2.a/ 2.b	[redacted]
01.09.2022	1.3	New template. Introduction of O Positive provision on Major Haemorrhage situations to biomedical scientist discretion. Clarification of new responsibility acquired by general porters to act as the designated runners between the transfusion laboratory and the clinical areas. Introduction of shock packs and new Transfusion Laboratory SOP New flowchart/ clinical guidelines for porters, switchboard and clinical areas (Appendix 1.0, 1.1, 1.2)	

Version Control Table
Document Amendment Form – minor amendments

No.	Date	Page no	Amendment	Authorised by
1				
2				
3				
4				
5				
6				

Ten or less minor amendments can be made before the document is revised.
Major changes must result in immediate review of the document
If printed, copied or otherwise transferred from the Trust intranet, procedural documents will be considered uncontrolled copies. Staff must always consult the most up to date version – located on the intranet

Contents

Table of Contents

1 INTRODUCTION AND PURPOSE

- This policy covers the management of emergency, life threatening haemorrhage in adults and should be initiated by dialling [redacted] using the term “Major Haemorrhage” and stating the location.
- A dedicated person responsible for communication must be identified. This could be any member of the clinical team and their role is to ensure efficient communication between the transfusion laboratory and the clinical area. They should ensure extension provided is not engaged.
- In theatres, a designated runner (theatre porter) must also be identified.
- Immediate control of obvious bleeding is of paramount importance.
- Fluid resuscitation should allow the blood pressure to be slightly less than normal to promote thrombus formation while still providing enough perfusion to end organs until control of bleeding is achieved (caution in head injury and older patients).
- Haemostatic defects in major haemorrhage will vary, depending on the cause, amount of bleeding and the patient’s co-morbidities. Management should be led by the clinical scenario and guided by laboratory/near patient testing results.
- Microvascular bleeding, a fibrinogen of <1.5 g/l or prothrombin time (PT) and activated partial thromboplastin time (APTT) above the upper limit of the reference range represents coagulopathy. Early infusion of fresh frozen plasma (FFP: 15ml/kg) should be considered with an aim to keep INR<1.5 and APTT-R<1.5).
- Group O should be issued until a valid and in-date sample (G&S) has been received in transfusion laboratory. The “two-sample rule” also applies in emergency situations. Once samples have been received and processed, transfusion laboratory can provide group specific (20 minutes) or fully cross-matched blood.
- Assess response to treatment clinically and with at least hourly full blood count (FBC), clotting screen (CS) and biochemistry.
- Venous thromboprophylaxis should be commenced after haemostasis is secured.

The purpose of this procedure is to efficiently provide appropriate blood product support in the event of a major haemorrhage. Thus improving patient outcome by reducing mortality and associated morbidity rates.
Where more specific policy for the management of major haemorrhage exist e.g. obstetric and gastrointestinal these should also be reviewed. Audit and corrective action is described in section 6 ‘Audit Review Arrangements’.

2 SCOPE

This policy applies to all Trust staff involved in the provision of blood components/products for a patient experiencing a major haemorrhage.
This version supersedes any previous versions of this document.

3 POLICY DETAILS

This policy applies to major haemorrhage in ADULTS:

Major haemorrhage has been defined by the BSH as bleeding which leads to:

A heart rate more than 110 beats/min and/or systolic blood pressure less than90 mmHg.

It was also described as 50% blood volume lost in 3 hours or 150ml/min, but there has been a move away from these standard definitions as they tend to be retrospective and subjective.

Blood loss is normally underestimated and haemoglobin and haematocrit values may not fall for several hours so do not be falsely reassured by one normal value.

3.1 Staff Roles and Responsibilities

To activate the procedure:

- **Call [redacted] state "I would like to trigger the major haemorrhage procedure in (location), extension (xxxx)"**
- **Switchboard will send emergency voice bleep as required (Blood Bank [redacted] and General Porters)**
- **Transfusion BMS will call the extension provided and ask for patient details: Trust identification number, Name, age, and gender. BMS will also advise on G&S samples required by the laboratory.**

3.2 Clinicians on site:

- In addition to the clinical assessment and beginning of resuscitation.
- Put out the emergency call to [redacted] stating Major haemorrhage, location and contact number as shown above in section 3.1.
- The senior clinician treating the patient must nominate a communicator wherever the patient is being treated (this person should clearly relate all communications to 'major haemorrhage', remain near the phone to ensure is not engaged and be able to identify the patient. Could be any of the members of clinical team).
- Liaise with a named person (BMS) within the transfusion laboratory (Ext [redacted] or Bleep [redacted] out of hours).
- Hand over essential patient information to the transfusion laboratory (patient identification, condition etc).
- Expect reception of initial shock packs (See Major Haemorrhage Protocol – Appendix 1.0) and liaise with senior BMS for any further requirements as the patient condition dictates.
- Ensure clear documentation regarding request, receipt and administration of products.
- Liaise with the Haematology clinician regarding the need for specialist support and ongoing investigations.
- Liaise with ITU if required.
- Inform transfusion laboratory when the situation changes and they are able to stand down.

3.3 Laboratory Staff

- Identify themselves and take the name of the key communicator with whom to liaise.
- During routine hours the lead BMS on duty will ensure that the blood bank BMS has the necessary support (for example an MLA and an additional BMS to provide the routine service).
- Call in a second person out of hours if required.
- Inform the Consultant haematologist if required.
- Contact transfusion practitioner if required.
- Supply products as per protocol – Appendix 1.0 Standard Shock Packs.
- Record/ audit sheet (See Appendix 2.0).

3.4 General Porters / Theatre Assistants (If Major Haemorrhage in Theatre)

(See Porters SOP for Major Haemorrhage – Appendix 1.2)

- Attend MH call promptly. Collect and transport emergency blood products and deliver to clinical area as required in a transport box.
- Collect samples from clinical area to laboratory.
- Remain on hand in the transfusion laboratory to collect/deliver further products or equipment.
- Once emergency is stand down, return to clinical area and collect any unused products, transport box, and labels for traceability. Only transfusion laboratory can stand down porters.

3.3 Haematology clinicians (WGH or BRI out of hours)

- Liaise with the clinicians within the area for clinical details
- Advise on additional product support/ investigations
- Maintain contact with the lab/ clinicians
- Audit and review of service as part of the HTC/ HTT

3.4 Switchboard

(See Switchboard SOP for Major Haemorrhage – Appendix 1.3)

- Activate Speech Bleep to Blood Bank (017) and general porters (077) stating:

"Major Haemorrhage, …. (location), XXXX (contact number)
This must be repeated three times i.e.:

"Major haemorrhage, ED Majors, [redacted]. Major haemorrhage, ED Majors, [redacted]. Major haemorrhage, ED Majors, [redacted]."

- Put out emergency call stating 'major haemorrhage location X' informing': clinical site manager, anaesthetic team, ITU, theatres, acute team, clinical co-ordinator/bed manager, and transfusion practitioner.

3.5 The Management of the Major Haemorrhage

3.5.1 Main Actions

(See Flow Chart for the Management of Major Haemorrhage Protocol in clinical areas – Appendix 1.0)

1. Identify patients with uncontrolled bleeding and coagulopathy early. This may occur before arrival in the Emergency Department.
2. Use an ABCDE (Airway, Breathing, Circulation, Disability, Exposure) approach to recognise and treat the patient
3. Organisation

Activate this protocol using the term **"Major Haemorrhage"** stating location and contact number (section 3.1).
This should be done by a consultant, or the most senior doctor present, who will co-ordinate management including identification of a dedicated member of staff responsible for communication:

- To expect the call from Blood Bank and provide patient details and situation.
- Blood Bank will advise what samples are required.
- To liaise with other teams if required: (i.e. ITU, theatres, bed managers).

4. Positive patient identification (ID) is essential. If a temporary emergency number has been used to request blood this should remain in place for administration. All blood component transfusion should comply with Trust Transfusion Policy.
5. Request laboratory investigations - FBC, clotting screen (CS), crossmatch and biochemistry (ensure correct patient ID).
6. Liaise with BMS in Blood Bank and Haematologist for advice ([redacted] or bleep [redacted]) or BRI SpR if out of hours.
Use a blood warmer (obtain from main theatre or day case).

- **NB** Platelets will NOT be routinely ordered by the laboratory when "Major Haemorrhage" policy is activated.

7. Damage Control Resuscitation,

- - Arrest bleeding. Methods include direct pressure, tourniquet, surgery, endoscopic control, reduction and fixation of fractures and interventional radiology.
- - Fluid resuscitation – aim to maintain vital organ perfusion whilst awaiting control of bleeding. Maintain radial pulse and consciousness – usually systolic blood pressure of 90 to 100 mm Hg. NB permissive hypotension is not recommended in head injury and caution required in older patients.

8. Prevent/correct reversible causes of coagulopathy including hypothermia, acidosis, warfarin, heparin, anti-platelet agents and newer anticoagulants – see below.
9. Unless prior allergy or gastrointestinal bleeding, consider giving tranexamic acid early in resuscitation to further assist haemostasis. 1g to be administered intravenously over 10 minutes and a further 1g given over the next 8 hours. There is strong evidence of benefit when given in the first three hours of resuscitation of trauma/PPH patients, and may well be beneficial in other situations associated with large volume haemorrhage.

10. Assess response to treatment clinically and with frequent FBC, Clotting Screen and Biochemistry. See appendix 1.

- Aim to keep the Hb 70-90g/L.
- Aim for a fibrinogen > 1.5 g/l (Increasing evidence keeping >2 is helpful) and PT/APTT within the reference range. If trauma and/or shock are present continue in a 1:1 RBC: FFP ratio.
- Platelets - a therapeutic dose is one bag. Aim for platelets of >50 x 10^9/l (100x 10^9/l in multiple or central nervous system trauma) or higher if platelet function abnormal. Usually guided by platelet count however in severely traumatised patients a 4:4:1 ratio of RBCs: FFP: platelets should be used. If required, they will be blue-lighted from NHSBT Filton. Transfusion laboratory will make this request if required.
- Give cryoprecipitate to maintain fibrinogen to at least >1.5 g/L if this has not been achieved following FFP. The usual dose for an adult is 2 pooled units.
- Monitor calcium and magnesium.

11. Once control of bleeding is achieved, aggressive attempts should be made to normalise blood pressure, acid-base status, coagulopathy and temperature. Avoid vasopressors.
12. Stand down Major Haemorrhage protocol when haemorrhage is controlled and no further immediate need for blood components/ products. If further blood products are required, those can be requested using the standard way, via phone or request form.
13. Complete audit form. This should be delegated by the lead clinician co-ordinating management. See appendix 2.0.
14. Standard venous prophylaxis should be commenced as soon as possible.

3.5.2 Blood Component Issues, Storage and Traceability

a) Red cells

1. Give uncrossmatched group O RhD negative or O RhD positive if the patient is identified as a male over the age of 18 or a female over the age of 51.
Emergency blood products will be immediately prepared and ready for collection as soon as the protocol is activated.
2. Group specific red cells can be issued in massive bleeding without performing an antibody screen as patients will have minimal circulating antibodies and a low risk of reaction. A valid in-date sample is required prior issuing group specific blood.
3. RhD positive blood can be used in RhD negative >18 years old males and >51 years old females (non-childbearing age) if no anti-D is detected and massive haemorrhage confirmed.
4. RBCs should be transfused within 4 hours of leaving the fridge or temperature controlled box. If kept in a cold-box, staff should ensure this is sealed. Unused units can only be returned if kept on a closed cold box to ensure temperature control.

b) Fresh Frozen Plasma (FFP), Platelets and Cryoprecipitate

1. Group AB plasma and group A or B non-high titre platelets may be used initially.
Group compatible units will be used once the patient's blood group is known.
2. Platelets are not stocked routinely but are usually available within 1 hour from NHS Blood & Transplant via emergency blue light.
It is a legal requirement for all blood components to be traceable for 30 years. Trust Transfusion Policy must be followed.

c) Summary tables of availability of blood components after sample received in laboratory unless otherwise stated:

Red cells			
	Emergency ORhD Negative/ ORhD Positive	**Group Specific**	**Crossmatch**
Time Available	Immediate x 2 units in the Issue Fridge	20 minutes	45 minutes

FFP		
	Group Specific	**AB FFP**
Time Available	40 minutes	40 minutes but can be provided without a sample if urgent

Platelets	
Time Available	From one hour after request (from NHSBT Filton blue light delivery). The laboratory will contact the clinical area to check if still required If platelets in laboratory, immediate issue possible

3.5.3 Pharmacological management including reversal of anticoagulant/anti-platelet drugs and underlying coagulopathy

Reverse Heparin
Calculate the dose given in the last two hours. Use protamine and give 1 mg IV to neutralise 100 units of heparin calculated to be still present.
Maximum dose 50 mg IV. LMW heparin is less reversible than unfractionated heparin. N.B. excess protamine induces a coagulopathy.
Reverse Warfarin
Give 10 mg IV vitamin K and prothrombin complex concentrate (PCC) - dose dependant on INR result. PCC is available from the transfusion laboratory.
Newer Agents e.g. fondaparinux, dabigatran, rivaroxaban.
No specific antidote exists; general measures: (resuscitation, intervention, tranexamic acid and prothrombin complex concentrate (PCC). Consider discussing with haematology consultant retrospectively if appropriate.
Aspirin & Clopidogrel
Aspirin has a low risk of increased bleeding but clopidogrel has a higher risk with less ability to reverse. Use tranexamic acid and platelets.
Tranexamic Acid
Recent RCT evidence supports early use of Tranexamic acid, recommended for patients with presentations of major bleeding due to trauma and PPH, but not gastrointestinal bleeding. Caution with repeat doses in renal impairment.
Patients with a Bleeding Diathesis
Contact haematologist
Von Willebrands Disease / Renal Failure
Consider desmopressin 0.3 micrograms/kg in 50 ml sodium chloride 0.9% IV over 30 minutes for patients with Von Willebrand's disease or renal failure
Liver Disease
Liver disease results in reduced clotting factor production and dysfunctional fibrinogen. A dilutional coagulopathy is likely before the loss of one blood volume.

4 DISSEMINATION AND IMPLEMENTATION

Communicated via intranet and Trust newsletter

5 MONITORING AND COMPLIANCE

- Each event triggering this protocol should be recorded on an audit form, appendix 2, by the biomedical scientist and a member of the clinical team and reviewed by the relevant department and hospital transfusion team to ensure appropriate and effective application.
- All incidents which lead to delays or problems in the implementation of this policy, including the provision of blood, should be documented on the audit form and investigated through the Datix system. Incidents should also be reported to the NPSA and when provision of blood was affected the hospital transfusion team will report to the Serious Hazards of Transfusion (SHOT) scheme and/or Medicines and Healthcare Products Regulatory Agency (MHRA)

6 REFERENCES AND BIBLIOGRAPHY

- Stanworth SJ, Dowling K, Curry N, Doughty H, Hunt BJ, Fraser L, et al., on behalf of The Transfusion Task Force of the British Society for Haematology. A guideline for the haematological management of major haemorrhage: A British Society for Haematology Guideline. Br J Haematol.2022;198:654–667.
- *Blood Transfusion and the anaesthetist: management of massive haemorrhage*. Association of Anaesthetists of Great Britain and Ireland. Anaesthesia 2010; 65: 1153-1161
- *The transfusion of blood and blood components in an emergency*. Rapid Response Report NPSA/2010/RRR017; 21 October 2010
- *Effects of tranexamic acid on death, vascular occlusive events, and blood transfusion in trauma patients with significant haemorrhage (CRASH-2): a randomised, placebocontrolled trial.* CRASH-2 trial collaborators. Lancet 2010; Jul 3;376(9734):23-32. Epub 2010 Jun 14.
- *A comparison of aprotinin and lysine analogues in high-risk cardiac surgery*. Ferguson DA, Herbert PC, Mazer CD et al. N Engl J Med 2008 May 29; 358(22):2319-31. Epub May 14.
- *Controversy in Trauma Resuscitation*: *Do ratios of plasma to red blood cells matter?* Stansbury LG, Dutton RP, Stein DM et al. Transfusion Medicine Reviews; Vol 23, No 4 (October), 2009: 255-265
- *Resuscitation and transfusion principles for traumatic hemorrhagic shock*. Spinella PC, Holcomb JB. Blood Reviews 23 (2009); 231-240
- *The Coagulopathy of Trauma*: *A review of mechanisms*. Hess JR, Brohi K, Dutton RP. J Trauma 2008; 65: 748-754

7 WAHT ASSOCIATED RECORDS

OP3 Blood Transfusion Policy

8 STAFF COMPLAINCE STATEMENT

All staff must comply with the Trust-wide procedural document and failure to do so may be considered a disciplinary matter leading to action being taken under the Trust's Disciplinary Procedure. Actions which constitute breach of confidence, fraud, misuse of NHS resources or illegal activity will be treated as serious misconduct and may result in dismissal from employment and may in addition lead to other legal action against the individual concerned

9 EQUALITY AND DIVERSITY STATEMENT IMPACT ASSESSMENT

The Trust aims to design and implement services, policies and measures that meet the diverse needs of users of our services, population and workforce, ensuring that none are placed at a disadvantage over others

This document must be completed in respect of any new or major change to Trust Policy or Procedure and must be attached when submitted to the appropriate ratification committee for approval.

		Yes/No	Rationale
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	Yes	Male >18 years old .They could develop an antibody. Anti-D is a particular concern for D negative patients. This may cause delay or problems in future transfusion support. Approximately 0.3% of all patients have alloimmune anti-D. Potential risk of Haemolytic transfusion reaction.
	• Religion or belief	Yes	Jehovah's Witnesses – please see Policy for patients who decline blood products
	• Sexual orientation	No	
	• Age	Yes	Female >51 years old .They could develop an antibody. Anti-D is a particular concern for D negative patients. This may cause delay or problems in future transfusion support. Approximately 0.3% of all patients have alloimmune anti-D. Potential risk of Haemolytic transfusion reaction.
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are there any exceptions valid, legal and/or justifiable?	Yes	In line with most recent national guidance (BSH and JPAC), supported by regulatory bodies (SHOT) and encouraged by NHSBT, use of O Rh D Positive red cells for >18 years old males and >51 years old females is recommended in life threatening emergencies only as a PBM strategy to ensure rapid release of blood components, as well as ensuring provision for other patients requiring O Rh D negative red cells and prevent wastage of the above. ..\risk-identification-and-assessment-

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4.	Is the impact of the policy/guidance likely to be negative?	No	
5.	If so can the impact be avoided?	N/A	
6.	What alternatives are there to achieving the policy/guidance without the impact?	N/A	
7.	Can we reduce the impact by taking different action?	N/A	
8.	Actions identified following screening process	N/A	
9.	Screening identified a full impact assessment	N/A	

If you have identified a potential discriminatory impact of this policy/procedure, please refer it the appropriate Director in the first instance, together with suggested actions required to avoid/reduce this impact.
For advice in respect of answering the above questions, please contact the H.R Department

Appendix 1.0 Weston Area Health Trust - Adult Major Haemorrhage Protocol in clinical areas

PATIENT ACUTELY BLEEDING

A heart rate more than 110 beats/min and/or systolic blood pressure less than90 mmHg.
(50% blood volume lost in 3 hours or 150ml/min)

GIVE 1GR OF TRANEXAMIC ACID (UNLESS GI BLEED)

ACTIVATE [redacted]

- **"I want to activate MAJOR HAEMORRHAGE protocol, location (xxxx), extension (xxxx)"**
- Identify one person to communicate with transfusion laboratory. Wait for lab to return the call.
- Patient IV access + sample collection (lab will advise what they require)
- Expect shock pack (cold box) delivered by porters. Hand over any samples for the porter to take back to the lab.

EMERGENCY GROUP O RBC

INMEDIATELY AVAILABLE

- BMS will prepare units in cold box. Porter will collect it and deliver to clinical area.
- Porter will collect samples from clinical area to the lab.

SHOCK PACK 1

2 UNITS RBC 0 NEG

If patient's age and gender has already been identified, you may also receive:

(0 POS can be issued for male patients or female >50 y/o)

REASSESS

- Check FBC and clotting
- Platelets >50x109
- Fibrinogen >1.5g/l (>2 obstetrics)
- INR < 1.5

SHOCK PACK 2

2 UNITS RBC (Fully Cross Matched after 45 min) + 2 UNIT FFP

- Resus 2:1 RBC: FFP

Transfusion laboratory will communicate lab results to MH coordinator. Clinician to liaise with transfusion BMS [redacted] or/and Haematology [redacted] or BRI if out of hours) to discuss if further products are required.

Platelets ready within one hour from request. If urgent, can be Bluelighted from NHSBT Filton (requires ordering from Transfusion Laboratory. Please liaise with lead BMS). Cryoprecipitate ready within 30 minutes from request from transfusion laboratory in Weston.

CALL BLOOD BANK TO STAND DOWN ONCE HAEMORRHAGE IS UNDER CONTROL

Appendix 1.2 Porters SOP for Major Haemorrhage

PATIENT ACUTELY BLEEDING

When Major Haemorrhage protocol is activated by clinical area:

Switchboard will activate speech bleep ([redacted]) stating: "**Major Haemorrhage**... (**Location**), XXXX (**contact number**)

- Porter receiving the bleep to **PRIORITISE** this call.
- Porter goes directly to transfusion laboratory.
- Collect cold box from pathology lab and deliver it to specified clinical area.
  The **SHOCK PACK** will be pre-packed by the leading BMS.

On arrival to clinical area:

- Deliver Emergency Blood promptly to relevant clinical staff.
- Collect required samples (if any) and return them promptly to the transfusion laboratory.

While Major Haemorrhage call is still active:

- Porter will remain within the transfusion laboratory to collect/deliver further products if required.

Once Major Haemorrhage is stand down:

- Return to clinical area to collect any unused products, transport boxes, and corresponding paperwork for traceability.
- Return unused products promptly to transfusion lab to prevent wastage.
  Porter can **ONLY** be stood down by Transfusion Laboratory.

Appendix 1.3 Switchboard SOP for Major Haemorrhage

PATIENT ACUTELY BLEEDING

When Major Haemorrhage protocol is activated by clinical area:

- Switchboard will activate speech bleep stating: "**Major Haemorrhage**… (**Location**), XXXX (**contact number**) to Blood Bank ([redacted]) and general porters ([redacted]).
- If Major Haemorrhage occurs in THEATRE, only Blood Bank ([redacted]) needs to be alerted via speech bleep. Theatre will send own porters to collect emergency blood.

- Fast bleep to CSM ([redacted]) to inform them of incident location. CSM to advise which teams should be involved.
- Send emergency bleep to the relevant teams.

While emergency call is still active:

Ensure communication is efficient between the extension provided and transfusion laboratory by interrupting non-urgent calls.

Once emergency is stand down:

- Expect call from transfusion laboratory or clinical area to inform about protocol stand down.

Appendix 2.0 Audit Form

Date	Time Location	
Consultant		Speciality
Patient Name		
DOB		Hospital No
Diagnosis/Reason for Bleed		
Comorbidities		

Surgery	Yes	No
Angiograhic embolisation	Yes	No
Correction of hypothermia	Yes	No
Correction of acidosis	Yes	No
Heparin reversal	Yes	No
Warfarin reversal	Yes	No
Use of tranexamic acid	Yes	No
Other, please specify	Yes	No

Blood Products Used:	**Number of units used/volume**	**Number of units wasted**
Emergency Red Cells		
Red Cells		
Fresh Frozen Plasma		
Platelets		
Cryoprecipitate		
Other		

	Prior to haemorrhage	Post haemorrhage (no further need for transfusion in immediate future)
Haemoglobin		
Platelets		
PT/APTT		
Fibrinogen		
Ph		
Temperature		

Please list any problems encountered in the implementation of this policy. Corrective actions to be agreed and documented prior to Hospital Transfusion Committee review.

Signed: ……

For review by relevant specialty then copy to Hospital Transfusion Committee via Transfusion Practitioner