Clinical Guideline

TRANSFUSION: MAJOR HAEMORRHAGE

SETTING Trust-wide excluding Weston

FOR STAFF Clinical, portering, laboratory and switchboard staff

FOR PATIENTS Patients with haemorrhage where immediate blood is required

1. Overview

The major haemorrhage procedure is designed to provide blood products in the minimum time to the site of a major haemorrhage.

Major haemorrhage is considered as any situation where immediate delivery of blood is required for a patient with rapid blood loss. All clinical and laboratory staff can activate the procedure if immediate emergency delivery of blood is deemed necessary.

The procedure is activated with one phone call. Calls will be recorded as routine.

1. Call [redacted] and say
"I would like to trigger the major haemorrhage procedure in location x, extension xxxxx".
2. Switchboard will then send emergency bleep as required.
3. A transfusion BMS will then call you on the extension provided and ask for patient details (inc. Trust/ Identification number, Name, Age, and Sex). The BMS will also advise on any Group and Save samples

Upon activation, switchboard will mobilise portering and laboratory staff and bleep the duty clinical support manager (CSM) (section 6). A dedicated porter (and taxi service if required) will be assigned to transport blood products and specimens between the clinical site and the laboratory (section 2).

Red cells, FFP and platelets will be provided in the form of "shock packs" containing multiple units of products (see section 3). Cryoprecipitate or specialist products must be requested explicitly.
Clinicians at site should assign a specific member of team ("Coordinator") at site to coordinate communication during the incident (see section 5)

Call transfusion on [redacted] to stand down when haemorrhage is under control. Only the transfusion BMS can stand down porters/taxi.

2. Portering arrangements

The senior porter in the BRI porters lodge will activate transport arrangements according to location:

All porters should follow the instructions in LP-BTR-MHPORTERS for Major Haemorrhage.

Blood samples must be given directly to a member of pathology Reception lab staff, telling them this is the sample for the major haemorrhage.

Major haemorrhage at St Michaels

The air tube system **must not** be used in major haemorrhage. An arrangement for immediate taxi dispatch has been made.

1. Emergency call from switchboard to Portering Lodge stating a Major Haemorrhage Protocol activation at St. Michaels.
2. Senior BRI Porter to complete the details on LF-BTR-MHPC, contact the taxi company and
    - Instruct taxi to come to BRI main entrance
    - Instruct a porter to go to the transfusion lab
3. Porter goes to/ waits in transfusion lab.
4. Porter collects Shock pack B, prepared by the BMS and heads to main entrance to take taxi.
5. Porter travels in taxi to St. Michaels.
6. Porter to deliver the blood to the clinical area (if CDS deliver to CDS reception).
7. Porter to collect any available samples (if no samples available do not wait unless advised by lab BMS or Clinician).
8. Porter to travel to BRI main entrance.
9. Repeat steps 3 – 9 (relaying samples to lab and blood to St. Michaels) until,
10. Porter stood down by transfusion BMS

There are four units of O D negative blood available in Central Delivery Suite blood bank. Six bottles of fibrinogen concentrate are held in CDS drug fridge that can be accessed immediately.

Major haemorrhage at BRI/ BCH

1. Emergency call from switchboard to Portering Lodge stating a Major Haemorrhage Protocol activation at BRI or BCH.

2. Senior Porter to complete the details on LF-BTR-MHPC, locate and dispatch a porter immediately to the transfusion lab.

3. Porter goes to/ waits in transfusion lab.

4. Porter collects the boxes prepared by the BMS and heads to clinical area.

5. Porter to deliver the blood to the clinical area.

6. Porter to collect any available samples (if no samples available do not wait unless advised by lab BMS or Clinician).

7. Repeat steps 3 – 6 (relaying samples to lab and blood to clinical area) until,

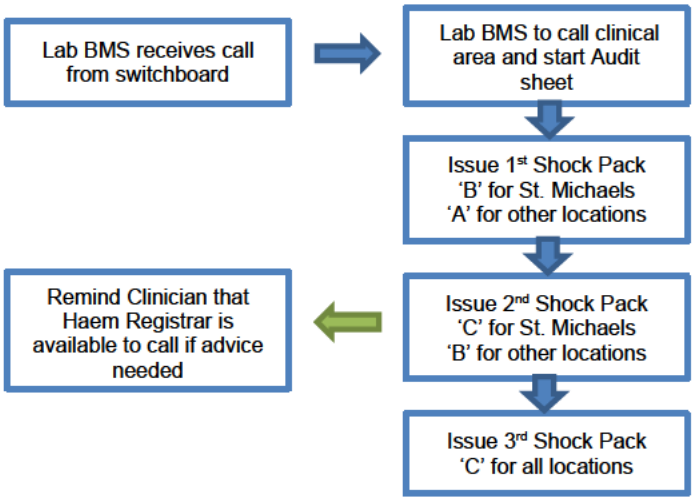
8. Porter stood down by transfusion BMS

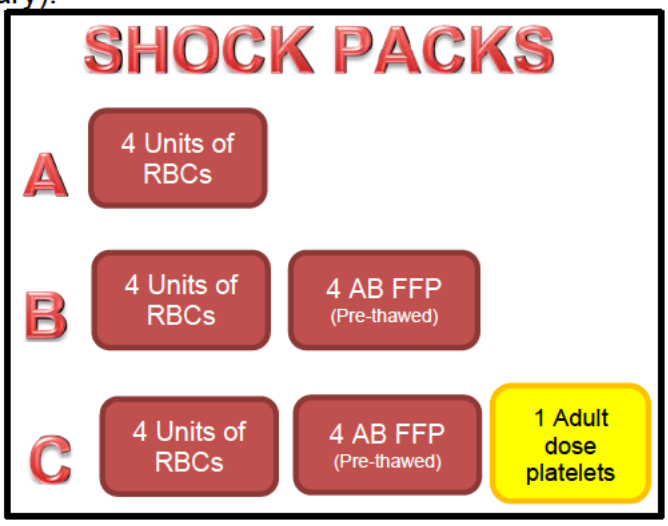
If a porter is not available in the lodge, the senior porter is responsible for locating a porter via the internal radio system and instructing him/her to go directly to the transfusion laboratory level 8.

3. Role of Laboratory staff

All Lab Staff should follow the instructions in LP-BTR-MHBMS for Major Haemorrhage.

1. Lab to call the clinical area on extension number given in major haemorrhage speech bleep.
2. Start audit sheet (Apendix A) and complete patient details.
3. Notify pathology reception, haematology, chemistry and coagulation staff that major haemorrhage has been activated, giving them patient name and trust number (if known)
4. Reception staff must book in samples according to LI-BTR-MHSamples and take samples immediately to transfusion/ haem/ coag/ biochemistry
5. Issue blood products (see flowchart below). Blood should be issued in temperature controlled blood boxes.
6. Remind clinicians on site that they can call the haematology registrar [on call registrar out of hours] on 2nd shock pack activation or after 8 units RBC issue if required.
7. BMS to consider calling second on call if out of hours.
8. Inform the location when blood products have been collected by porter and on route.
9. Contact location at intervals of 20 – 30 mins if no communication is received to enquire if stand down is appropriate.
10. Issue Cross-Matched blood as soon as possible to replace Emergency Issued blood. MH Porter to swap these over as soon as available.
11. When stand down activated: Discuss the return of all unused blood products, shock pack boxes, and compatibility/ luggage labels.
12. Send porter to location to collect everything to be returned – including STM.
13. After porter has returned everything to transfusion, stand down porter.
14. Contact porters lodge on [redacted] and inform them that the porter has been stood down. Advise that taxi can be stood down (if necessary).





4. Role of haematology medical staff

Clinicians managing the major haemorrhage will be advised they can contact haematology registrar:

Advise on additional product support/investigation based on guidelines. Key roles are to ensure appropriate product support has been given and to advise on ongoing management of any coagulopathy.

Ensure clinicians at location have registrar/consultant contact details.

Discuss with consultant at discretion or if Novoseven considered. Early consultant involvement is suggested for obstetric haemorrhage.

5. Role of clinicians at site

Identify a specific member of team “Co-ordinator” at site to coordinate communication during the incident (may be CSM if appropriate)

Coordinator should

- Wait for call from transfusion BMS.
- Inform transfusion BMS immediately of patient details (Name, Age, Trust/ unique number, Sex) and confirm contact details.
- Phone lab to request second/ subsequent shock packs, or products.
- Record time of requests and product/ result receipt in patient notes.
- Ensure luggage tag/ compatibility labels are complete.
- Phone transfusion BMS to stand down when appropriate.
- Return any shock packs, unused blood products, and completed luggage tag/ compatibility labels.
- Identify a specific individual to contact for subsequent case review (notify to laboratory)

Discuss with haematology registrar (haemostasis registrar or on call registrar out of hours) regarding ongoing product support.

A consultant grade clinician should be involved in care if the major haemorrhage procedure is activated

Phone communications regarding event should start with “this call relates to the major haemorrhage in (location).” If there is difficulty contacting laboratory **contact switchboard via [redacted] to advise**.

6. Role of switchboard

Following [redacted] activation:

1. Take the location and details of major haemorrhage from caller.
2. Inform the caller to clear the line/keep the line open.
3. Put out speech bleep to relevant major haemorrhage team (dependent on location).
4. Fast bleep [redacted] to give extension number of location
5. Ring the porters lodge or interrupt the line if engaged to confirm they’ve received and have activated the procedure.

On subsequent request from clinicians involved with major haemorrhage, it may be necessary to interrupt calls in progress on the laboratory phone.

Communications should begin with phrase “this call relates to the major haemorrhage in (location)”

7. Monitoring and evaluation

The Hospital Transfusion Team will review all major haemorrhages on a weekly basis. A major haemorrhage log sheet should be completed for each major haemorrhage event to enable review. A minimum dataset should be completed at the time of the event to enable retrospective completion.

Major Haemorrhage Logsheet (see Appendix A) should be opened:

- On activation of major haemorrhage procedure
- On request of 8th unit in 24 hours (even if major haemorrhage procedure not activated)

Minimum details to complete at time

- Patient details, location, date +time
- Diagnostic category (trauma/ obstetric/GI/Cardiac surgery/ non-cardiac surgery/other)
- Time shock packs issued
- Name of clinician(s) involved
- Difficulties encountered

Remainder of sheet can be completed next working day:

- Products issued and transfused
- Laboratory results
- Outcome (did patient survive 24 hours)

Debrief: A member of the hospital transfusion team will contact clinical and laboratory staff involved with the massive haemorrhage by the next working day where possible. A “Structured Debrief” should be completed and filed with the Major Haemorrhage Logsheet.

- File the porters log sheet with the major haemorrhage log sheet

8. Clinical guidelines

Basic principles:

- Positive patient identification (ID) is essential. All blood component transfusion should comply with Trust Transfusion Policy.
- Use an ABCDE (Airway, Breathing, Circulation, Disability, Exposure) approach to treat the patient. Give oxygen.
- Arrest bleeding / provide fluid resuscitation.
- Request laboratory investigations - Crossmatch and “major haemorrhage profile” (FBC, Coagulation, fibrinogen and biochemistry including Calcium). Ensure correct patient ID. **Samples should be given only to the dedicated porter and not batched with routine samples.**
- Prevent/correct reversible causes of coagulopathy including hypothermia, acidosis, warfarin and heparin – see below.
- Assess response to treatment clinically and with at least hourly FBC, coagulation and biochemistry including calcium. Near patient testing (eg thromboelastogram) may be used to guide product replacement while awaiting laboratory results.

- Aim to keep the Hb above 100g/l.
- Aim for a fibrinogen > 1.5 g/l and PT/aPTT within the reference range. In patients with severe trauma a 1:1 RBC : FFP ratio may be appropriate.
- Platelets - a therapeutic dose is one bag. Transfuse platelets if < 75 x 10^9/l (100 x 10^9/l in multiple or central nervous system trauma) or higher if platelet function abnormal. Usually use guided by platelet count however in severely traumatised patients a 4:4:1 ratio of RBC's : FFP : Platelets may be appropriate.
- Give cryoprecipitate or fibrinogen concentrate to maintain fibrinogen > 1.5 g/l if this has not been achieved following FFP. The usual dose for an adult is 2 pools cryo or 70mg/kg fibrinogen concentrate.
- Tranexamic acid iv - 1g over 10 mins then 1g over 8 hrs. Unless contraindicated, this should be given early (within 3 hours) if increased fibrinolysis is predicted e.g trauma, obstetric haemorrhage.
- Consider additional fibrinogen supplementation early (2 pools cryo or 70 mg/kg fibrinogen concentrate). This must be explicitly requested.

Trust guidelines on blood product use in major haemorrhage are available on DMS:

1. Blood transfusion: Clinical guidelines including use of blood products.
2. Management of Massive obstetric haemorrhage.
3. Blood and blood components transfusion policy.
4. Transfusion: Paediatric Major Haemorrhage Procedure.

9. Table of abbreviations

aPTT- Activated partial thromboplastin time
BCH- Bristol Childrens Hospital
BRI- Bristol Royal Infirmary
CSM- Clinical Support manager
FBC- Full blood count
RBC- Red blood cells
PT- Prothrombin time

Table A

REFERENCES	BCSH Guidelines http://www.bcshguidelines.com/documents/massive_bloodloss_bjh_2006.pdf AABGI guidelines: http://www.aagbi.org/publications/guidelines/docs/massive_haemorrhage_2010.pdf
RELATED DOCUMENTS	1. Blood transfusion: Clinical guidelines including use of blood products http://nww.avon.nhs.uk/dms/download.aspx?did=3939 2. Obtaining Blood Urgently Major Haemorrhage Procedure St Michaels Hospital http://nww.avon.nhs.uk/dms/download.aspx?did=7620 3. Blood and blood components transfusion policy http://nww.avon.nhs.uk/dms/download.aspx?did=23321
AUTHORISING BODY	Hospital Transfusion Committee
SAFETY	None
QUERIES	[redacted]

Appendix A – Major Haemorrhage/Massive Transfusion Log Sheet

NHS
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Event Type: (please tick box)

Major Haemorrhage: Any activation of the Major Haemorrhage Procedure ☐
Massive Transfusion: If >8 units RBCs issued within 24 hours ☐

Patient Details:

Patient Name:……..

Date of Birth:……/……/…….. Hospital/ NHS number:……..

Location:…… Date and Time:……/……/……. ……hrs

Staff Involved: (print names)

Transfusion BMS:…… Haem Reg:……..

Consultant:…… Clinician Co-ordinating:……

Porter:…… Other (specify):……

Category: (please circle)

Trauma, Obstetric, GI bleed, Surgery(non-cardiac), Surgery (cardiac), Other:……

Products/ Packs Issued:

Product/ Shock Pack	Time Issued	Time Collected	Final Fate

PHONE LOCATION WHEN SHOCK PACKS HAVE BEEN COLLECTED

PLEASE PERFORM FIBRINOGEN ON ALL COAGULATION SAMPLES

Any difficulties encountered? Y / N

Stand down Date and Time:……/……/…… ……hrs

PT: Not sent ☐ **Greatest value:……**
APTT: Not sent ☐ **Greatest value:……**
Fib: Not sent ☐ **Lowest value:……..**
Plt: Not sent ☐ **Lowest value:……..**

Did patient survive 24 hours? Y / N

Major haemorrhage: Structured debrief (continue overleaf if needed)

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Date+ time of haemorrhage: **Location:**

Clinical feedback
Staff contacted:

Patient outcome

Communication difficulties:

Blood delivery difficulties:

Difficulties with results:

Appropriateness of call:

Problems with management:

Stand down:

Other comments

Laboratory feedback
Staff contacted:

Communication difficulties:

Blood delivery difficulties:

Difficulties with workload:

Appropriateness of call:

Other comments: