NHS Blood and Transplant

Massive Haemorrhage Audit

Yorkshire and The Humber RTC

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Aims

- Measure compliance with the NPSA Rapid Response Report NPSA/2010/017 (The transfusion of blood and blood components in an emergency)
- Ascertain the level of adoption of the recommendations from the CRASH-2 randomised controlled trial
- Collate data on the status of massive haemorrhage practice in the region

Methodology

- Participating organisations were asked to complete a paper based organisational audit and enter data electronically on all massive haemorrhage events over a three month period
- Massive haemorrhage event was initially defined as where at least 10 units of red blood cells were used in 24 hrs. This was modified after 4 wks to include all transfused blood components that were equal to or exceeded 10 units in total in 24 hours

Participation

- 14 Trusts completed organisational questionnaire
- 13 Trusts submitted cases
- 131 cases audited

Standard One	Y&H RTC	You
The hospital transfusion committee reviews the local protocols and practices for requesting and obtaining blood in an emergency (including out of hours), ensuring that they include all the actions required by clinical teams, laboratories and support services, e.g. portering and transport staff/drivers and any specific actions pertinent to sites without an on-site transfusion laboratory.	**84.2%**	
Standard Two		
Local protocols enable the release of blood and blood components without the initial approval of a haematologist although they should be advised of the situation at the earliest opportunity.	**100%**	
Standard Three		
Staff (clinical, laboratory and support staff) know where to find the massive blood loss protocol in all relevant clinical and laboratory areas and are familiar with it, supported by training and regular drills.	Where to find **94.7%** Aware of contents **68.4%** Use of “drills” **47.3%**	

Standard Four	Y&H RTC	You
The blood transfusion laboratory staff are informed of patients with a massive haemorrhage at the earliest opportunity.	**96.2%**	
Standard Five		
Clinical teams dealing with patients with massive haemorrhage nominate a specific member of the team to co-ordinate communication with the laboratory staff and support services for the duration of the incident.	**94.7%**	
Standard Six		
There is a clear and well understood trigger phrase to activate the massive blood loss protocol.	**100%**	

Standard Seven	Y&H RTC	You
All incidents where there are delays or problems in the provision of blood in an emergency are reported and investigated locally, and reported to the NPSA and the Serious Hazards of Transfusion (SHOT) scheme.	**94.7%**	
Standard Eight		
Each event triggering the massive blood loss protocol is recorded and reviewed by the hospital transfusion committee to ensure local protocols are applied appropriately and effectively.	**68.4%**	
Standard Nine		
In patients (over the age of 16 years) with massive haemorrhage secondary to trauma intravenous Tranexamic acid is administered using a loading dose of 1g intravenous Tranexamic acid over 10 minutes (within the first 3 hours of trauma) followed by 1g Tranexamic acid intravenous infusion over 8 hours.	Unable to measure due to lack of trauma cases	

Recommendations and implementation tools

- Hospital presentations including local data
- Action plan with supporting documents
- Laboratory data collection tool
- HTT data collection/audit tool

Action plan

Recommendation	Present situation	Action	Progress	Useful resources
1. It is imperative that massive haemorrhage protocols include specific actions for sites without a transfusion laboratory. Protocols that do not include this must be amended as appropriate to promote optimum outcomes for relevant patients.				Information available from TP's at Mid Yorkshire Hospital Off site protocol - York  MH protocol Clifton Park.pdf
2. If, for valid reasons, massive haemorrhage protocols do not stipulate the requirement for informing a haematologist of every massive haemorrhage event they should specify exactly when haematologist advice should be sought.				Massive blood loss protocol examples York  Massive blood loss protocol adults York.p
3. Four units of FFP should be available for massive haemorrhage events (for adults) although the final decision on dosage is a clinical decision guided by the weight of the patient (caution in obesity).				Transfusion Practice Website Transfusion management of major haemorrhage
4. Massive haemorrhage protocols need to reflect SaBTO guidelines mandating the use of MBFFP or SDFFP for recipients born after 1st January 1996. This includes the provision of MBFFP/SDFFP in massive haemorrhage packs.				
5. Massive haemorrhage protocols that do not include the recommendations of the Crash-2 trial i.e patients with massive haemorrhage secondary to trauma receiving tranexamic acid, should be rectified appropriately.				

Action plan cont'd

6. Trusts that do not comply with NPSA RRR2010/017 requirements to perform massive haemorrhage drills should address this issue.				**Massive haemorrhage drill examples** MH drill theatre Harrogate.pdf MH drill Addendum ward - Harrogate.pdf MH drill addendum lab Harrogate.pdf MH drill addendum IO Harrogate.pdf Information on drills also available from TP's at Mid Yorkshire NHS Trust
7. Massive haemorrhage protocols should specify which events must be reviewed and HTCs should ensure that those involving delays or problems are reported to the NPSA/SHOT as appropriate.				**Massive haemorrhage audit** Barnsley MH audit Barnsley.pdf
8. Appropriate clinical and laboratory staff should be trained on and be fully conversant with the massive haemorrhage protocols within their Trust. The use of aide-memoires in pertinent areas may be appropriate.				

Action plan cont'd

9. Communication between the clinical area and the laboratory needs to be improved upon: • Clinical staff need to improve documentation around the massive haemorrhage event in the patients' medical records. • Laboratory staff need to have systems to record relevant data on massive haemorrhage events. They should ask for and record details of the massive haemorrhage event including the protocol activator and the communication/link coordinator. The use of standardised documentation in appropriate areas may be beneficial. • Massive haemorrhage protocols need to provide enough clarity to the clinical teams about whom should be designated as the communication/link coordinator with the transfusion laboratory and what the role involves.				Massive haemorrhage checklist - clinical area Leeds  2013 GENERIC Massive Haemorhage Massive haemorrhage checklist laboratory York  Massive blood loss protocol request form Generic Templates Laboratory form  W:\Transfusion practitioner\Audit\RT Audit form  W:\Transfusion practitioner\Audit\RT
10. Further audit focussed on massive haemorrhage secondary to trauma cases is recommended to facilitate assessment of regional compliance with recommendations pertaining to the early use of tranexamic acid.				

Disclaimer: The policies and protocols embedded within this action plan are the property of the named NHS Trusts and as such the responsibility for the contents of these documents remains with those organisations.

Recommendation 1

- It is imperative that massive haemorrhage protocols include specific actions for sites without a transfusion laboratory. Protocols that do not include this must be amended as appropriate to promote optimum outcomes for relevant patients.

Recommendation 2

- If, for valid reasons, massive haemorrhage protocols do not stipulate the requirement for informing a haematologist of every massive haemorrhage event they should specify exactly when a haematologist’s advice should be sought.

Recommendation 3

- Four units of FFP should be available for massive haemorrhage events (for adults) although the final decision on dosage is a clinical decision guided by the weight of the patient (caution in obesity).

Recommendation 4

- Massive haemorrhage protocols need to reflect SaBTO guidelines mandating the use of MBFFP or SDFFP for recipients born after 1st January 1996. This includes the provision of MBFFP/SDFFP in massive haemorrhage packs.

Recommendation 5

- Massive haemorrhage protocols that do not include the recommendations of the Crash-2 trial i.e.patients with massive haemorrhage secondary to trauma receiving tranexamic acid, should be rectified appropriately.

Recommendation 6

- Trusts that do not comply with NPSA RRR2010/017 requirements to perform massive haemorrhage drills should address this issue.

Recommendation 7

- Massive haemorrhage protocols should specify which events must be reviewed and HTCs should ensure that those involving delays or problems are reported to the NPSA/SHOT as appropriate.

HTT data collection/audit tool

Audit of the use of the massive transfusion management protocol data collection tool

Did the case meet definition of massive haemorrhage (i.e. 50% blood volume loss within 3 hours, a rate of loss of 150ml per minute, the loss of one blood volume within a 24 hour period)? Yes / No

Name..... DOB..... ID No.....

Date of episode..... Ward and Site.....

Diagnosis..... Consent? Yes / No

Was the massive haemorrhage protocol activated? Yes/No

If 'No' why not .....

Estimated Blood Loss..... Protocol activation Code ..... Time Protocol initiated.....

Initiated by..... ..Any emergency O Rh D negative blood used? Yes / No. If Yes How many units? .....

Any emergency O Rh D positive blood used? Yes / No. If Yes How many units?.....

Blood component use

1st Phase

Red Blood cells	Time requested	Time issued	Time 1st unit given	Number used
O Rh D negative				
O Rh D positive				
Group specific				
Crossmatched				
Fresh Frozen Plasma				
Platelets				
Cryoprecipitate				

2nd Phase

Blood Component	Time requested	Time issued	Time 1st unit given	Number used
Red Blood cells				
Fresh Frozen Plasma				
Platelets				
Cryoprecipitate				

Total blood component use in first 24 hours (units/bags/ml)

Red Blood cells	Salvaged Red Blood Cells	Fresh Frozen Plasma	Platelets	Cryoprecipitate

Protocol deactivation

Protocol deactivated? Yes/No If yes: Date.....Time.....by whom.....

All units correctly prescribed? Yes/No Patient Outcome?.....

Were any other treatments used?

Product	Yes	No	Dose	Date	Time
Tranexamic acid 1st dose					
Tranexamic acid 2nd dose					
Fibrinogen concentrate					
Prothrombin Complex Concentrate					
rFVIIa					
Intra operative cell salvage			mls		

Did the patient have any other haemostatic challenges?

Product	Yes	No	Corrective action
Warfarin			
LMWH			
Unfractionated heparin			
Aspirin			
Clopidogrel			
Coagulopathy: describe			

Further notes

	Yes	No	Notes
Request form correct?			
Sample labelled correctly?			
Sample labelled correctly?			
Porters requested timely?			
Unused products returned in time?			
All units fated?			
Does the ward/clinical area hold regular drills			

Additional information

Recommendation 8

- Appropriate clinical and laboratory staff should be trained on and be fully conversant with the massive haemorrhage protocols within their Trust. The use of aide-memoires in pertinent areas may be appropriate.

Recommendation 9

- Communication between the clinical area and the laboratory needs to be improved upon:
  - Clinical staff need to improve documentation around the massive haemorrhage event in the patients' medical records.
  - Laboratory staff need to have systems to record relevant data on massive haemorrhage events. They should ask for and record details of the massive haemorrhage event including the protocol activator and the communication/link coordinator. The use of standardised documentation in appropriate areas may be beneficial.
  - Massive haemorrhage protocols need to provide enough clarity to the clinical teams about whom should be designated as the communication/link coordinator with the transfusion laboratory and what the role involves.

Laboratory data collection tool

MASSIVE HAEMORRHAGE FORM FOR BLOOD TRANSFUSION DEPARTMENT

Please complete the sections below to inform HTT/HTC/TP when massive haemorrhage protocol is activated

Patient Name..... DOB..... ID No.....

Ward/Clinical area/Site..... Activation Code.....

Communication coordinator: Name..... Contact number .....

	Date	Time (please use 24hr clock)	By whom
Protocol activated			
Protocol deactivated			

Was O Rh D negative emergency blood used? Yes /No

Was O Rh D positive emergency blood used? Yes /No

Additional notes

Recommendation 10

- Further audit focussed on massive haemorrhage secondary to trauma cases is recommended to facilitate assessment of regional compliance with recommendations pertaining to the early use of tranexamic acid.

Any questions?

Acknowledgments:
Yorkshire and The Humber Audit Working Group; S Baker, B Hockley, C Ivel, Dr M Karakantza, D Smith.
Dr Y Sorour, RTC Chair and O Colgrave RTC Administrator.
Contributing organisations.