Approved by: Trauma Services Committee, Lab, Clinical Practice

DEPARTMENT: Lab/Blood Bank	POLICY TITLE: Massive Transfusion Protocol
Page 1 of 5	REPLACES POLICY DATED: 5/05, 6/08, 9/09, 10/10, 09/11, 06/13
EFFECTIVE DATE: 10/15	REFERENCE NUMBER: 736-BB-100-3

PURPOSE:

It is the policy of the Laboratory Service, Transfusion Service, in cooperation with patient care areas and medical staff, that the proper steps necessary to obtain blood and blood components in a designated massive transfusion situation are communicated and adhered to according to the standards and guidelines set forth by accreditation agencies: American Association of Blood Banks (AABB), College of American Pathologists (CAP), Food and Drug Administration (FDA), and The Joint Commission (TJC).

This policy is intended to educate and establish the sequential steps and requirements needed to obtain blood and/or blood components in an expedient manner and develop a standard of practice for the trauma compromised patient. Exceptions to or deviations from this policy may be permitted if in the best interest of the patient provided that the exception/deviation is approved (verbally or written) by the attending physician directly involved in the care of the patient or the Medical Director of the Laboratory and documented for record.

POLICY:

In the event of a possible MTP, a pink top tube should be obtained before blood products are administered. A **second pink top tube must be obtained, by a second person, for confirmation typing**. In addition, it is desirable to collect the following tubes: purple top (hematology), 2 green tops (for hematology and chemistry), 2 blue tops (for coag and hematology), extra red and/or gold as needed. These may be the specimens used for the Trauma Panel labs. **All specimens must be properly labeled, or will not be accepted for testing.**

1. Massive transfusion is the replacement of one or more blood volumes within a 24 hour period. **The initiation of the Massive Transfusion Protocol (MTP) should be considered when ongoing blood loss results in an estimated need for 4 units of packed red blood cells (PRBC) within one hour.** In addition, activation of the MTP should be considered for life-threatening trauma patients presenting to the ED, unexpected surgical blood emergencies, and or surgeries expected to require massive transfusion. Special consideration needs to be given to the pediatric population with excessive blood loss appropriate to their size, in which cases the physician will determine when the MTP will be initiated.
2. During an MTP event, females age <45 will be issued group O negative (O -) PRBC and all other patients will be issued group O positive (O +) PRBC until a blood type has been determined. (Refer to the Issuing Uncrossmatched Blood [Blue Card] policy 736-BB-200-5 and obtain physician signature on a blue card for uncrossmatched products.) Group A thawed plasma may be issued and utilized as a universal donor while ABO/Rh of the patient is determined. ***Group A plasma as universal donor may be not used on neonates or children.*** Group A thawed plasma may be used during massive transfusion protocol and emergency release under stated previous condition. No physician's approval is needed for use of group A thawed plasma until blood type has been determined. If the patient's type is determined as B or AB, patient will be switched immediately to group AB thawed plasma until patient's type is confirmed.
3. The MTP will be initiated only by a physician. Upon initiation of the MTP, a MTP recorder and runner will be designated at the patient site. The recorder (or communicator) could be the charge nurse or other designated key nurse coordinating the MTP event. This person will be responsible for all communication to lab/blood bank regarding product orders, test orders, or MTP deactivation orders. The MTP recorder will be the primary communicator between the location of the patient and the blood

bank with the goal of preventing PRBC stockpile, ensuring justified non-PRBC component usage, and ensuring the collection of blood samples as often as instructed by the physician. The recorder will also document times and type of products transfused. The runner will be responsible for the transportation of blood samples to the lab as well as the delivery of blood components to the patient site, and will be responsible to return all coolers with paperwork back to the blood bank.

4. It is recommended that repeat Hgb/Hct be drawn after administration of every other cooler.
5. It is recommended that TEG be performed additionally as soon as possible after each MTP activation; as well, rapid TEG be performed with 4th, 7th, etc. batch cooler.
6. Additional testing can be performed at the physician's discretion.
7. The MTP must be deactivated as determined by the ordering physician and communicated to the blood bank via the recorder (communicator).
8. Unknown patients shall remain registered according to the unidentified patient policy. The blood bank and primary RN will communicate to clear the patient for name change after MTP event.
9. All massive transfusion protocol activations should undergo multidisciplinary performance improvement review.
10. All transfusion records must be returned to the blood bank upon termination of the MTP. Two signatures are recommended on each transfusion record form but not required during life-threating situations. Documentation of vital signs will be located in the clinical area record according to patient location. (Ex: Trauma Flow sheet in ED; Anesthesia Record in OR; CCU Flow sheet, etc.)

PROCEDURE:

1. The physician will request that the primary RN/charge RN inform the Blood Bank that the MTP is being activated.
2. The nurse notifying the blood bank will communicate the following to the Blood Bank:
    a. Patient name
    b. Gender
    c. Age
3. If the patient is BOTH a trauma patient AND has arrived within 3 hours of the injury the primary nurse will send the following order to pharmacy:
    a. Cyklokapron (Tranexamic Acid) 1 gm IV over 10 min STAT. Followed by Cyklokapron (Tranexamic Acid) 1 gm IV over 8 hours.

   Special note: In ED and OR, Cyklokapron (Tranexamic Acid) should be pulled from the Pyxis for immediate use and not requested from pharmacy.
4. At the time of activation, it is the responsibility of the clinical area to designate the following individuals:
    a. RN (recorder), who will be responsible for communication between the clinical area and the Blood Bank and also the documentation of blood product administration.
    b. Runner, who will be responsible for the transportation of blood products and specimens between the clinical area and the Blood Bank.
5. Upon activation of the MTP the Blood Bank will immediately prepare the first cooler which will contain four (4) units of PRBC and four (4) units of thawed plasma.
6. The runner will be sent from the clinical area to retrieve the cooler from the Blood Bank.
7. Thawed plasma and packed red blood cells may be transported in the same cooler during Massive

Transfusion Protocol. All blood and blood products issued during massive transfusion procedure are transported in blood bank coolers with ice pack for up to a two (2) hour grace period.

8. All blood products that DO NOT require refrigeration (e.g. platelet and cryo) are issued by Blood Bank using acceptable transport bag.
9. The RN (recorder) will ensure a second blood sample in a pink top is drawn from the patient and sent to the lab so confirmation typing can be performed by the Blood Bank.
10. The Blood Bank will continue to stay one cooler ahead until notice of MTP deactivation is received from the clinical area. Blood Bank will not release more than two coolers at a time. Empty coolers must be returned immediately to the Blood Bank. Units of blood must be returned to Blood Bank within two (2) hours of issuance if not infused.
11. When the clinical condition of the patient allows, the physician will request that the RN (recorder) notify the Blood Bank for deactivation of the MTP.

SPECIAL CONSIDERATIONS:

1. It is imperative for the RN (recorder) and the Blood Bank to maintain communication during the MTP event. Phone Extensions and Contact Names should be exchanged at the onset of the MTP event.
2. In order to maintain constant flow of blood products from the Blood Bank, it is necessary for the runner to continually return empty coolers from the Clinical Area to the Blood Bank.

PROCEDURE NOTES:

1. **Uncrossmatched** RBC products will only be released as the urgency warrants and as ordered by the physician. (Refer to the Emergency Issuing Uncrossmatched Blood policy.)
2. Initial batch will consist of 4 PRBC and 4 thawed plasma. Subsequent batch composition will follow the MTP batch composition chart below. Additional products (such as cryoprecipitate) may be ordered over and above the MTP batches, based on lab results such as Hgb/Hct and/or TEG.

3.

Batch #	PRBC	Plasma	Platelets
1	4 units	4 units	
2	4 units	4 units	1 unit
3	4 units	4 units	
4	4 units	4 units	1 unit
5	4 units	4 units	
6	4 units	4 units	*
7	4 units	4 units	
8	4 units	4 units	*
9	4 units	4 units	
10	4 units	4 units	*

***Further platelets will be released per physician request only.**

4. Blood bank will keep 4 units PRBC on hold for the patient at all times until MTP deactivation order is received via the **RECORDER/COMMUNICATOR.** Type O PRBC will continue to be given until a blood type is obtained on the patient, at which time, the patient will be switched to type-specific units as inventory allows.
5. Two licensed staff members will check each unit and both will sign the transfusion slip. Start time will be recorded on the transfusion slip. Original slip will be kept with medical record, and copy will be placed in the cooler for return to the Blood Bank.
6. Blood product batches will continue to be processed and dispensed by blood bank to the RUNNER as long as MTP event is active. Blood Bank will not release more than two coolers at a time. Processing of products and/or lab testing will stop only upon notification of MTP deactivation as communicated by the RECORDER/COMMUNICATOR.
7. Blood bank will stay one blood shipment ahead during the course of the MTP. If a shipment has been prepared and the runner/communicator has not picked it up within an hour, the Blood Bank will call the treatment area (communicator) and inquire on the status of the patient.

REFERENCES:

Standards for Blood Banks and Transfusion Services, current edition, AABB, 8101 Glenbrook Road, Bethesda, Maryland.
Technical Manual, current edition, AABB, 8101 Glenbrook Road, Bethesda, Maryland.
ACS TQIP Massive Transfusion in Trauma Guidelines, current edition. American College of Surgeons.
Callum JL, Rizoli S. ASH Education Book. December 8, 2012 ;(1):522-528.
Hess JR, Thomas MJ. Blood use in war and disaster: Lessons from the past century. Transfusion. November 2003;43(11):1622-1633

ATTACHMENTS: None

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AUTHORIZATION:

Date:	Signature and/or Revised Approval

Date	Policy History/Changes
6/2008	Format updated.
09/2009	Policy reviewed and updated---worksheet revised.
09/2011	Policy reviewed and updated
05/2013	Policy reviewed and updated. Worksheet removed.
06/2013	Updated for a new ratio RBC's:FFP
10/28/15	Policy reviewed and updated on TEG testing.