

LAB-06-001 Massive Transfusion Protocol - MTP Downtown

Copy of version 8.0 (approved and current)

Last Approval or
Periodic Review Completed 5/17/2024

Uncontrolled Copy printed on 2/17/2025 1:07 PM

Next Periodic Review
Needed On or Before 5/17/2026

Organization UF Health Jacksonville

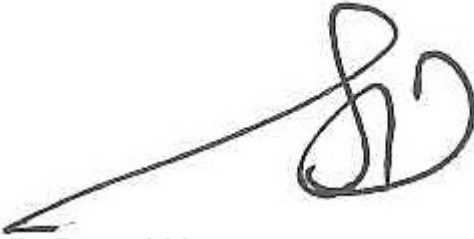

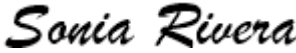
Effective Date 5/17/2024

Author
Sonia Rivera

Description
emergency release during massive bleeding

Comments for version 8.0
Updated to EPIC foundation workflow

Approval and Periodic Review Signatures

Type	Description	Date	Version	Performed By	Notes
Approval	Lab Director	5/17/2024	8.0	 Shahla Masood (Dr. Masood)	
Approval	TS Medical Director	5/16/2024	8.0	 Agnes Aysola (aaysola)	
Approval	Manager	4/17/2024	8.0	 Sonia Rivera (140436)	

Signatures from prior revisions are not listed.

Version History

Version	Status	Type	Date Added	Date Effective	Date Retired
8.0	Approved and Current	Major revision	4/17/2024	5/17/2024	Indefinite

TITLE: Massive Transfusion Protocol (MTP)

POLICY: When this protocol is initiated by the attending physician, the Transfusion Service will suspend normal testing and issuing procedures in order to provide blood components as quickly as possible to the patient without compromising patient safety. The suggested protocol is not intended to replace the physician's responsibility of clinical judgment and the schedule of blood components can be altered as requested. The immediate transfusion records are abbreviated, but the complete record will be entered in the patient's medical record after the event is ended.

The MTP protocol can be initiated in any patient care area. An EPIC order or written order is required. The Transfusion Service will accept either a downtime Physician Order form (#270005 Adult and #2700 Neonate/Pediatric) or EPIC Start MTP order requisition (LAB175). The Physicians Order form provides a place to write the name of the Attending physician and document the MTP order. The EPIC Start MTP order will have the Attending physician printed on the order. Blood Bank ID armbands should be kept on the floor for ready use at all times.

Healthcare providers will follow policy N-01-002, Blood Administration, for direction regarding patient identification, blood product administration, and patient care following the transfusion. The policy is available on the Bridge.

DEFINITIONS:

1. Massive Transfusion (Adult): the loss of the whole blood volume in 24 hours OR the presumed need for the transfusion of at least 10 packed red blood cells in 2 hours or less.
2. Massive Transfusion (Child): The loss of >50% of total blood volume in 3 hours.

PROCEDURE:

Initiate Massive Transfusion Protocol

1. The Attending physician verbally commands the Charge RN or the patient's RN to initiate the MTP
 - A. The MTP can be initiated in any patient care area.
 - B. The MTP can only be requested by an Attending physician.
 - C. Attending physician orders the EPIC Start MTP order requisition (LAB175).

Notify the Transfusion Service

1. The RN immediately telephones the Transfusion Service with the following information (or as much as is known)
 - A. **Blood Bank armband – REQUIRED Patient Identification.** A Blood Bank armband (BBID) will be assigned to the patient at this time if they do not ready have a current one. The RN is responsible for ensuring the same BBID is used throughout the entire MTP event.
 - B. Name of *Attending* ordering the MTP
 - C. If the EPIC Start MTP order requisition (LAB175) has not been placed, Transfusion Service staff will order the Blood Bank Trauma Notification order (LAB 9096) in EPIC.
 - D. The information below **must** be obtained at a later time during or after the MTP:
 - a. Patient's first and last name (required)
 - b. Medical record number (required)
 - c. Gender
 - d. Age (approximate)
 - e. Weight, if Pediatric patient
 - f. Location and phone number of patient care area
 - E. The Transfusion Service will ask if the patient has received blood products from the Trauma or OR-PACU refrigerator. If they have, this is considered Batch #1. The next batch is Batch #2.

2. The Transfusion Service will notify the RN if a current sample is already available or if a new Type and Screen sample is required.

Follow routine procedure for collection and labeling of sample.

See N-01-064.

- A. The Transfusion Service will not issue ABO/Rh type-specific blood components based on historical records. Group O red blood cells and A or AB Plasma will be issued until a current sample can be tested. If the patient does not have a previous blood type on record, an ABO/Rh confirmation must be performed on a separate sample per SOP: BB-05-045
- B. The following recipients whose blood type have not been determined may receive group O Rh positive packed cells without prior consent of the transfusion physician on call:

- a. Males equal or older than 15 years old
b. Women past the child bearing age (over 50 y/o)

If patient types as Rh negative, notify the clinical service.

- C. During Emergency release and MTP activation males equal or older than 15 years old or female over 50 y/o that are type Rh negative can be switched to Rh positive RBC units for the following:
- a. When ≤ 12 O Rh negative units are in the blood bank; notify clinical service.
b. If Rh positive emergency batches have been issued and patient types as Rh negative later, continue to issue Rh positive units; notify clinical service.
- D. Type A or AB plasma can continue to be transfused for type O patients.
E. For type B or AB patients, a total of 12 type A plasma units can be given. After that, type specific- plasma must be given as soon as possible, after testing the ABO type on a current sample.

3. The Transfusion Service staff will document the phone call on the MTP Issue Form and will order the Blood Bank Trauma Notification order (LAB 9096) in EPIC if the EPIC Start MTP order requisition (LAB175) has not been placed in EPIC.

- A. The form is used by the Transfusion Service to document the issue and return of blood components during the MTP event.
B. At the end of the event, the MTP issue form will be checked for accuracy and retained in the department. A copy will be sent to the patient's medical record. All transfusion testing and blood components will be entered in the Blood Bank Information System (BBIS).

Issue Blood Components

1. A nursing staff member from the patient care area will be dispatched to pick up blood from the Transfusion Service, no MTP blood products will be delivered by the pneumatic tube system.
- A. The nursing staff member must present a copy of the Physician's Order for Transfusion (#270005 in Forms Fast) or a printed copy of the EPIC Start MTP Order.
- B. The form must have:
- a. Blood bank armband
b. First and last name of the patient
c. Medical record number (8 digit)
d. The name of the Attending physician ordering the MTP

- C. Check "MTP" under Section 2 of the Physicians Order form.
- 2. For **immediate** use, the Transfusion Service will keep available at all times
 - A. 4 units of group O packed red blood cells, partially tagged
 - B. 4 units Group A or AB liquid or thawed plasma, partially tagged
 - C. 1 platelet apheresis, any type
 - D. 1 Irradiated AB NEG platelet apheresis for Pediatric patients.
 - A. The Transfusion Service also keeps 4 units of group type O **Low Titer Whole Blood** (Titer <200 for Anti-A and Anti-B) in the Trauma refrigerator. The low titer WB units in the Trauma refrigerator will be placed in a ziplock plastic bag to differentiate from RBC units. Patients in hemorrhagic shock should receive Whole Blood (WB) units.
 - B. Type O Positive WB can be given to all adult males patients equal or older than 15 years old or women beyond childbearing age >50 years old.
 - C. Each patient can receive up to 4 WB units.
 - D. Absolute contraindications for the transfusion of the group O Whole Blood units:
 - a. Patients in need of Irradiated units
 - b. Pediatric patients <15 y/o
- 3. Blood Products issued from the blood bank will have transfusion tags generated by the blood bank computer system. Each blood product will have two transfusion stickers. For RBC products the transfusion tag will have the information stating if the product is: 'UNCROSSMATCHED" or "CROSSMATCH COMPATIBLE". This will depend on the availability of a current Type and Screen sample.
- 4. Blood Products issued from the remote refrigerators in Trauma or PACU, are tagged with Emergency Transfusion Release tag (manual tag) in an abbreviated manner.

The transfusion service staff needs to complete the following on the manual Emergency Transfusion tag:

- A. Check "Uncrossmatched" (The units will not be crossmatched until after issue)
 - B. Unit number including check digit
 - C. Check product type (add ISBT product code)
 - D. Donor ABO/Rh
 - E. Donor expiration date/time
 - F. Patient's blood bank armband alpha identifier
 - G. First and last name of patient
 - H. Medical record number (8 digit)
 - I. Date/time of issue
 - J. Transfusion Service Staff initials
 - K. Location of patient
- 5. At issue, the Transfusion Service will:
 - A. Pull a segment from the packed cell for crossmatch if it was not attached to the last copy of the Emergency Release form. For Wellsky generated tags attach the segment to the label retain in the blood bank.

- B. Retain the last copy of the Emergency Release form or the last label of the Transfusion tag generated by Wellsky.
 - C. Pack RBCs and FFP in the Bio Fridge or in a validated cooler. Nursing needs to leave all blood products in the cooler until time of transfusion.
 - D. Compare the patient information on the Blood Order form to that of the transfusion tag and sample. **If there is any discrepancy, it must be corrected before issue.**
 - E. Instruct the Nursing staff member to sign the MTP Issue Form.
 - F. Blood Bank will finalize MTP documentation after Nursing Staff member has left.
6. At every issue, the nursing staff member **must** present the original MTP Physician Order form to ensure accurate patient identification, especially since multiple MTP events can occur.
- a. Transfusion Service Staff will be responsible for documenting on the MTP issue form donor information for each batch.

Nursing Guidelines for MTP transfusion

1. All MTP blood products will be delivered inside the patient room and verbally announced to team that all MTP products are now available.
2. All blood products must be verified by two staff RNs to identify the correct blood product to the correct patient.
3. Blood Products issued from the blood bank will have transfusion tags generated by the blood bank computer system. Each blood product will have two transfusion stickers. For RBC products the transfusion tag will have the information stating if the product is: 'UNCROSSMATCHED" or "CROSSMATCH COMPATIBLE". This will depend on the availability of a current Type and Screen sample.
4. During the transfusion:
 - A. One of the stickers must remain on the blood product.
 - B. The second sticker needs to be attached to the Transfusion Record form fast form# 270031.
 - C. The nursing staff will complete the 'Prior to blood administration, complete all checks" area of the form. This step requires dual verification from RN transfusing blood and a confirming RN. Both RN must sign the form #270031.
5. Blood Products issued from the remote refrigerators in Trauma or PACU, are tagged with Emergency Transfusion Release tag (manual tag). The dual verification must be documented on the Emergency Transfusion manual tag.
6. If products from the remote refrigerators are used, the nursing staff must inform the blood bank immediately. The pink and yellow copies from the Emergency transfusion tag must be left for the blood bank.
7. The RN managing the rapid infuser fluid warmer will verify the two initials indicating the patient identification processes has been completed.
8. All blood products (RBC and FFP) must remain in the Bio Fridge or in the validated cooler until time of transfusion.
9. All platelets must remain at room temperature until time of administration (do not place inside the Bio Fridge or MTP cooler). The Bio Fridge has a designated area for platelets. Platelets must never be placed on ice, always return at room temperature if unused.
- A. Follow Policy N-01-002, Blood Administration, for direction regarding patient identification, blood product administration, and patient care following the transfusion. The policy is available on the Bridge.

Schedule of blood components for Adult Patients:

1. Batch #1: Blood products used from the Trauma or OR-PACU refrigerator.
2. Batch #2 (from Transfusion Service) will be issued immediately to the Nursing staff member :
 - A. 4 Group O RBC uncrossmatched (UNXM) packed red blood cells
 - B. 4 Group A or AB liquid or thawed plasma
 - C. 1 unit platelet apheresis, any type
 - a. Platelets will be issued and maintained at room temperature. Do not put platelets on ice or inside the Bio Fridge.
 - D. This batch may be ABO type-specific if a current Type and Screen sample has been tested. ABO type must be confirmed on a separate sample or by historical record before transfusing ABO type-specific RBC.
 - a. Type A or AB plasma can continue to be transfused for type O patients. For type B or AB patients, a total of 12 type A plasma units can be given. After that, type specific- plasma must be given as soon as possible, after testing the ABO type on a current sample
3. Batch #3 (from Transfusion Service)
 - A. 4 RBC (may be crossmatched, uncrossmatched group O or type specific)
 - B. 4 Plasma (Group A or AB or type specific) liquid or thawed.
 - C. 1 platelet apheresis: Platelets will be issued and maintained at room temperature. Do not put platelets on ice or inside the Bio Fridge.
4. Batch #4 will be issued:
 - A. 4 RBC (may be crossmatched and type-specific)
 - B. 4 Plasma (may be type specific)
5. Platelets will be issued with the first two batches from Transfusion Service (Batch # 2 and Batch # 3) and then every other uneven batch (# 5, # 7, # 9, etc.).
6. Cryoprecipitate is ordered as needed, and must be called to the Transfusion Service.
7. The amount of blood components can vary dependent upon patient need. Open communication between the physician and the Transfusion Service is critical.
8. If required, it is appropriate for blood products to follow the patient from Surgery to the ICU provided they are transported in the Bio Fridge or blood cooler. The Surgery charge nurse must notify the Transfusion Service that the MTP cooler with blood products accompanied the patient.
 - H. The blood products cannot remain in the coolers indefinitely. Blood products must be kept at the proper temperature. The cooler is not intended for long term storage. The coolers must be returned as soon as the massive bleeding has stopped.

Schedule of blood components for Pediatric Patients:

Blood product dosing by weight for Pediatric MTP

RBC: 20 ml/kg

Plasma: 20 ml/kg

Platelets: 10 ml/kg

Cryoprecipitate: 1 unit/10kg



Policy Number:
Last Update:
Initial Approval:
Page 6 of 11

LAB-06-001
April 2024
July 2008

Downtown **North** **Offsite** **Bridge**

1. **For Group 1 issue:** O Neg RBC, A or AB plasma and AB Neg Platelets
 Do not delay the issue of RBC and FFP if the Platelets aliquot is not ready.

Group 1: < 5 kg			
Batch From Blood Bank	RBC	FFP	Platelets Apheresis
1	1 Unit	1 Unit	60ml
2	1 Unit	1 Unit	PRN
3	1 Unit	1 Unit	PRN
4	1 Unit	1 Unit	PRN
5	1 Unit	1 Unit	PRN

2. **For Group 2 issue:** O Neg RBC, A or AB plasma and AB Neg Platelets
- A. ABO/RH type specific will be issued if a current Type sample is available. For patients with no history that are not type O, an ABO/Rh re-type must be performed before ABO/Rh specific RBC can be issued.
 - B. The use of non- type specific platelets requires approval from the Transfusion Service Medical Director or designee.

Group 2: 6-23 Kg			
Batch From Blood Bank	RBC	FFP	Platelets Apheresis
1	2 Units	2 Units	1 Unit
2	2 Units	2 Units	
3	2 Units	2 Units	
4	2 Units	2 Units	1 Unit
5	2 Units	2 Units	

3. **For Group 3 issue:** O Neg RBC, A or AB plasma and AB Neg Platelets
- A. ABO/RH type specific will be issued if a current Type sample is available. For patients with no history that are not type O, an ABO/Rh re-type must be performed before ABO/Rh specific RBC can be issued.
 - B. The use of non- type specific platelets requires approval from the Transfusion Service Medical Director or designee.

Group 3: 24-50 Kg			
Batch From Blood Bank	RBC	FFP	Platelets Apheresis
1	3 Units	3 Units	1 Unit
2	3 Units	3 Units	
3	3 Units	3 Units	1 Unit
4	3 Units	3 Units	
5	3 Units	3 Units	1 Unit

4. **For Group 4 less than 15 years old issue:** O Neg RBC, A or AB plasma and AB Neg Platelets
- A. For patients equal or older than 15 years of age follow the Adult Patients guidelines
 - B. If the patient is a male equal or older than 15 years of age, it is acceptable to issue O-Positive red blood cells.
 - C. ABO/Rh type specific will be issued if a current Type sample is available. For patients with no history that are not type O, an ABO/Rh re-type must be performed before ABO/Rh specific RBC can be issued.

Group 4: > 50 Kg Treat as adults			
Batch From Blood Bank	RBC	FFP	Platelets Apheresis
1	4 Units	4 Units	1 Unit
2	4 Units	4 Units	1 Unit
3	4 Units	4 Units	
4	4 Units	4 Units	1 Unit
5	4 Units	4 Units	

Technical notes for Transfusion Service

1. It is appropriate to issue type-specific before the antibody screen is completed, but you must perform 2 separate blood types per routine procedure. Continue to transfuse Group O until ABO/Rh is confirmed.
2. Use of Group A plasma for use during MTP:
 - A. Until the patient's ABO is tested on a current sample, issue Group AB or A plasma.
 - B. Remote refrigerators are stocked with Group A or AB plasma.
 - C. Type A or AB plasma can continue to be transfused for type O patients.
 - D. For type B or AB patients, a total of 12 type A plasma units can be given. After that, type specific- plasma must be given as soon as possible, after testing the ABO type on a current sample
3. If the antibody screen is positive, notify the Attending and the Transfusion Service Medical Director immediately. Document physician approval to continue with abbreviated crossmatch.
4. All paperwork must have 2 patient identifiers. At the very minimum, use the Blood Bank armband alpha identifier until the patient is registered in the hospital computer system. The Blood Bank alpha identifier can be used as a first and last name.
5. As soon as the Transfusion Service has been notified of a MTP:
 - A. Start thawing the 2nd batch of FFP, even if before the 1st batch is issued. Use liquid plasma first if available.
 - B. Call the patient location after the first batch has been released and the second batch has been thawed to ask how the case is going and how many more blood products is expected to be transfused. This might help with reducing the number of plasma units thawed.
 - C. Determine which tech will manage RBC and which will manage components and issue
 - D. Order additional blood products from Life South as needed.
6. The attending surgeon can deviate from this established protocol, but must notify the Transfusion Service.
7. After the patient has received 10 RBC units in less than 24 hours, subsequent RBC units do not require a serological immediate spin crossmatch. The units will be assigned to the patient in Wellsky using the Single Worksheet without Observations. Even if the MTP has ended, this is applicable up to 24 hrs. from the MTP start time. After the 24 hrs. from the MTP start time, a crossmatch will be required.

End of MTP

1. Attending physician or RN will notify the Transfusion Service when the MTP event has ended. The patient RN will call the Transfusion Service to discontinue an MTP. The Transfusion Service Staff will document on the MTP Issue Form the name of the Attending Physician discontinuing the order.
2. The Start MTP order in EPIC must be discontinued in EPIC.
 - A. The printed Discontinue order requisition will be placed with the internal MTP paperwork.
3. The Nursing Staff will document blood products transfused in EPIC.
4. If after 2 hours no call is received in the Transfusion Service to discontinue the MTP the blood bank staff will call unit to verify continued need of MTP.
5. Transfusion Service Staff will document on the internal MTP form that no call was received or that the Transfusion Service called to confirm the end of the MTP. All unused blood components must be returned to the Transfusion Service as soon as possible.
6. All transfusions must be documented in the computer system and the patient record.
7. Notify the Transfusion Service medical director regarding any variances in procedure.



Policy Number:
Last Update:
Initial Approval:
Page 9 of 11

LAB-06-001
April 2024
July 2008

Downtown **North** **Offsite** **Bridge**

References

1. Standards for Transfusion Services, American Association of Blood Banks, current edition.
2. Technical Manual, American Association of Blood Banks, current edition
3. Zielinski, MD, et al. Emergency use of pre-thawed Group A plasma in trauma patients *J Trauma Acute Care Surg*; 74: 69-75.
4. Chhibber,V., et al. Is Group A thawed plasma suitable as the first option for emergency release transfusion? *Transfusion*; 54; 1751-1755.
5. The PROPPR Randomized Clinical Trial. Transfusion of Plasma, Platelets, and Red Blood Cells in a 1:1:1 vs 1:1:2 Ratio and Mortality in Patients with Severe Trauma. *JAMA*.2015;313(5): 471-482. Doi:10.1001
6. MTP Spectrum Health
7. MTP U Michigan
8. MTP_JohnsHopkins_2015_9-23
9. MTP_UPMC_2015
10. Neonatal MTP Luban *BJHaematol* 2013
11. Ped MTP Dehmer, 2010
12. PEMPLAYBOOK
13. Scandinavia Nyrstum 2015

DOCUMENT REVISION HISTORY AND REVIEW

DATE	DESCRIPTION	SIGNATURE
2/22/2016	Updated to include Platelet apheresis in Batch#2 and Batch#3	S Rivera
2/22/2016	Updated crossmatch not required after 10 units of RBC in less than 24 hrs.	Agnes Aysola MD
2/22/2016	Approved	Shahla Masood MD
3/17/2017	Updated to include Pediatric MTP and use of A plasma	S Rivera
3/17/2017	Approved	Agnes Aysola MD
3/17/2017	Approved	Shahla Masood MD
5/11/2017	Updated to include ABORH Confirmation	S Rivera
5/11/2017	Approved	Agnes Aysola MD
5/11/2017	Approved	Shahla Masood MD
11/2017	Updated age of pediatric patients from 14 to 15 years old	S Rivera
11/2017	Approved	A Aysola MD
11/2017	Approved	S Masood MD



Policy Number:
Last Update:
Initial Approval:
Page 10 of 11

LAB-06-001
April 2024
July 2008

Downtown **North** **Offsite** **Bridge**

4/2019	Updated to include the use of Whole Blood and to reduce the number of blood products per batch.	S Rivera
4/2019	Approved	A Aysola MD
4/2019	Approved	S Masood MD
6/2019	Updated to define amount of plasma A to be given	S Rivera
6/2019	Approved	A Aysola MD
6/2019	Approved	S Masood MD
7/2019	Updated to allow switching to RH positive males older than 15 y/o and women over 50 y/o that are RH negative: notification of clinical service required	S Rivera
7/2019	Approved	A Aysola MD
7/2019	Approved	S Masood MD
3/2020	Removed the need for testing LDH, Total Bili and Haptoglobin after transfusing Whole Blood	S Rivera
3/2020	Approved	A Aysola MD
3/2020	Approved	S Masood MD
9/2021	Updated to include the transfusion tags generated by HCLL and to clarify nursing guidelines fir documentation. Updated usage of Whole blood to all patients in hemorrhagic shock.	S Rivera
9/2021	Approved	A Aysola MD
9/2021	Approved	S Masood MD
10/2021	Changed to whole blood total of units to be transfused from maximum 2 to up to 4 units.	S Rivera
10/2021	Approved	A Aysola MD
10/2021	Approved	S Masood MD
11/2021	Technical notes for crossmatch not required after 10 units transfused within 24 hrs. of the start of the MTP	S Rivera
11/2021	Approved	A Aysola MD
11/2021	Approved	S Masood MD
11/2022	Updated HCLL to Wellsky	S Rivera
11/2022	Approved	A Aysola MD

Uncontrolled Copy
 Current as of 7/2025 1:17 PM



Policy Number:
Last Update:
Initial Approval:
Page 11 of 11

LAB-06-001
April 2024
July 2008

Downtown **North** **Offsite** **Bridge**

11/2022	Approved	S Masood MD
10/2023	Updated to remove pounds from Pediatric guidelines	S Rivera
4/2024	Updated to Epic Foundations blood orders Trauma notification order entered by the TS staff will only be needed when the EPIC start MTP order has not been placed by the attending physician.	S Rivera

Uncontrolled copy
Current as of 2/17/2025 1:07 PM