

<b>PROCEDURE</b> <b>PTT53101 MASSIVE TRANSFUSION PROTOCOL</b>	
<b>Transfusion Service Manual</b>	<b>Effective Date:</b> 11/14/2013
<p style="text-align: center;"><b>IMPORTANT NOTICE:</b>  The official version of this document is contained in the Policy and Procedure Manager (PPM) and may have been revised since the document was printed.</p>	

## PURPOSE

To describe a protocol for managing a massive transfusion event, defined as the provision of uncrossmatched RBCs and blood components for an acutely bleeding patient who requires rapid infusion of large volumes of blood.

## POLICIES

1. A massive transfusion event (MTE) protocol is initiated by the patient's physician for an acutely bleeding patient.
  - 1.1 This patient is given the highest priority over all other blood orders being processed.
  - 1.2 If no patient specimen is available, obtain specimen (pink top tube) as soon as possible or contact patient care area immediately.
2. No ABO-specific RBCs are given during a massive transfusion event.
3. For the first delivery of blood components, 6 units of uncrossmatched group O RBCs, 4 units of thawed group AB plasma and 1 non-group O plateletpheresis are provided immediately.
  - 3.1 Group O, Rh negative RBCs are provided for the following patients when a current blood type and confirmatory ABO/Rh typing, if required, have not yet been determined: (Refer to [PTT01501 Confirmation of Patient ABO/Rh Type.](#))
    - a. Females 50 years of age and under, or whose age is unknown.
    - b. All pediatric patients 15 years of age or under.

**NOTE: During an Rh negative blood shortage, a Transfusion Medicine (TM) physician must be notified immediately.** For Labor and Delivery (LDR) patients, LDR must be also be notified immediately at 7-1765.

    - c. When the current blood type is known and confirmed as Rh positive for these patients, group O, Rh positive RBCs can be given.
  - 3.2 Group O, Rh positive RBCs are provided for all other patients.
4. For subsequent deliveries, 6 units of uncrossmatched group O RBCs and 6 units of plasma are provided.

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- 4.1 Patients who initially received group O, Rh negative RBCs and subsequently found to be Rh positive on current and confirmatory blood typing, are switched to group O, Rh positive RBCs.
- 4.2 Patients who initially received group O, Rh positive RBCs and subsequently found to be Rh negative on current and confirmatory blood typing, are given Rh positive RBCs for the rest of this event.  
**NOTE: When additional RBC transfusions are requested after the MTE is terminated, crossmatched Rh negative RBCs are given.**
- 4.3 Six units of ABO-compatible plasma are provided when a current blood type is known.
  - a. When a current blood type has not been determined, Group AB plasma is given.
- 4.4 Plasma ABO-compatible platelets are provided when a current blood type is known. (Refer to SOP [PTT51101 Selection and Allocation of Non-RBC Components for Patients \(v 14\).](#))
  - a. When a current blood type is unknown, non-group O platelets are given.
- 4.5 When transfusion of all non-RBC components (PLTs, Plasma, CRYO) containing ABO incompatible plasma will exceed approximately 1000 cc within a day, approval from the pathologist must be obtained prior to issue of additional components. In addition, post transfusion specimen must be requested to perform DAT and visual inspection of hemolysis.
- 4.6 Issue one unit of each component **Plateletpheresis** and **pooled CRYO** (8 units) with the **3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup> set of coolers**.
5. The Blood Bank staff member delivering the first cooler must obtain the signature of the physician requesting uncrossmatched blood or designee on [IS5024 Emergency Transfusion Request Uncrossmatched Blood](#).
6. A [IS5109 Massive Transfusion Protocol Patient Worksheet \(v 2\)](#) is initiated to record critical aspects of the case and cooler deliveries.
7. The Technologist-in-Charge (TIC) serves as the contact person for all communication with the patient care area during this event.
  - 7.1 To resolve any patient problems or questions contact:
    - a. Trauma at x3-4284
    - b. OR at pager 0689

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c. LDR at x7-1765

8. A TM Resident/Fellow must be notified of any problems or deviations from established protocols.

### **EQUIPMENT AND MATERIALS**

<b><u>Equipment</u></b> Coolers with blue ice packs                      Cooler inserts or carriers	
<b><u>Materials</u></b> <a href="#">TS5109 Massive Transfusion Protocol Patient Worksheet (v.2)</a> <a href="#">TS5092 Blood Bank - Patient &amp; Product Identification Form (PPI Form)</a> <a href="#">TS5150 Massive Transfusion Flow</a>	

### **SAFETY**

1. Standard Precautions apply.
2. Exposure Control Plan for Occupational Exposure to Bloodborne Pathogens applies.
3. Cedars-Sinai Medical Center Safety Policies and Procedures apply.

### **PROCEDURE**

1. Upon notification of a massive transfusion event, immediately deliver:
  - 1.1 6 units of group O uncrossmatched RBCs in a cooler. (Refer to Policy #3 for selection of Rh type.)
  - 1.2 4 units of thawed group AB plasma (Trauma Pack "MP"), in a separate cooler.
    - a. Thaw additional group AB plasma as needed until a current blood type has been determined.
  - 1.3 1 unit of non-group O plateletpheresis (Trauma Pack "MT").
2. Record all cooler deliveries and other required information on a [TS5109 Massive Transfusion Protocol Patient Worksheet \(v.2\)](#). Update the worksheet as additional products are delivered, with patient location/information changes, and as problems are encountered.



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3. Perform a **STAT** type and screen if not already done using a current sample, and confirmatory ABO/Rh typing (on a second sample), if necessary.
  - 3.1 Patient care area will be called immediately if Blood Bank has not received specimen (pink top tube) for the patient; all communication during MTE should be documented in MTE form (TS5109) or BB communication book.
  - 3.2 Perform ABO/Rh typing by tube test and antibody screening by manual gel test. [See [PTT41031 ABO Grouping \(Tube Test\)](#); [PTT41032 Rh \(D\) Typing and Weak D Testing \(Tube Test\)](#) (v. 15); [PTT31201 Antibody Screening by ID-MTS Gel Test \(v. 7\)](#) ].
4. For additional blood/blood component requests, provide 6 uncrossmatched group O RBCs and 6 units of plasma.
  - 4.1 If the patient's blood type has been determined on a sample collected during the current admission and confirmed, provide:
    - a. 6 units of group O uncrossmatched RBCs as described in Policies #3 and #4
    - b. 6 units of ABO-compatible plasma
    - c. 1 unit of plasma ABO-compatible platelets and pooled cryo. (Refer to SOP [PTT51101 Selection and Allocation of Non-RBC Components for Patients](#) (v. 14).)
  - 4.2 Issue one unit of each component **Platelethpheresis and pooled CRYO (8 units) with the 3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup> set of coolers.**
  - 4.3 If the patient's current blood type has not yet been determined and confirmed, provide RBCs, plasma and platelets as described in Procedure step #1.  
NOTE: Give 6 units of group AB plasma.
5. Keep at least 6 units each of RBCs and thawed plasma allocated for the patient in the Blood Bank at all times until the bleeding episode is over.
6. The MTE is terminated when the patient's physician or designee communicates this to the Blood Bank.
  - 6.1 The Blood Bank will be informed that either crossmatched RBCs or no further transfusions are needed.
7. The TIC serves as the Blood Bank contact person during the event and will only communicate with the designated patient care area contact person (nurse or physician).

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8. The TIC is responsible for reconciling the transfused/returned blood products with the inventory and coolers at the end of the event. Complete all required information on [TS5109 Massive Transfusion Protocol Patient Worksheet \(v.2\)](#) and document any unexpected findings in the comments section.

## REFERENCES

Ellen Klapper, MD, Medical Director and Holli Mason, MD, Associate-Medical Director, Division of Transfusion Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, 2013.

Standards for Blood Banks and Transfusion Services, 28th Edition, AABB, Bethesda, MD, 2012.

Technical Manual, 17th Edition, AABB, Bethesda, MD, 2011.