PROCEDURE **PTT53101 MASSIVE TRANSFUSION PROTOCOL**	
Transfusion Service Manual	**Effective Date:** 11/14/2013

IMPORTANT NOTICE:
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.

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.

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 **3rd, 6th,9th 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 TS5024 Emergency Transfusion Request Uncrossmatched Blood.

6. A TS5109 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

c. LDR at x7-1765

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

EQUIPMENT AND MATERIALS

Equipment	
Coolers with blue ice packs	Cooler inserts or carriers

Materials

TS5109 Massive Transfusion Protocol Patient Worksheet (v.2)
TS5092 Blood Bank - Patient & Product Identification Form (PPI Form)
TS5150 Massive Transfusion Flow

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.

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 **Plateletpheresis and pooled CRYO (8 units) with the 3rd, 6th, 9th 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).

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.

POLICY

Title: Massive Transfusion Event Protocol Policy: Clinical Manual/General Clinical

Home Department: Inpatient Nursing and Transfusion Medicine

I. POLICY:

Massive Transfusion Event (MTE) Protocol:

The MTE Protocol is initiated at the request of the anesthesiologist, surgeon or physician when rapid infusion of large volumes (> 6 units) of blood/blood components is urgently needed for an acutely bleeding patient.

The use of cryoprecipitate will be based on clinical assessment of the patient and current laboratory values. In an acute setting with ongoing active bleeding, initiation of this protocol assumes patients will receive PRBC's and FFP in an approximate 1:1 ratio.

Nursing will call Transfusion Medicine (TM) and request the initiation of the MTE Protocol and will ensure effective communications. He/she will provide:

- Patient name and MRN
- Verbal orders for any blood products that are needed

  Note: Orders for MTE protocol must be entered into CS-Link as soon as possible.
- STAT blood sample for cross match or confirming ABO (second sample) if required.
- Name and telephone number for the nursing contact person for the event.

Provision of Blood / Blood Components:

The patient requiring this protocol is given the highest priority over all other blood orders being concurrently processed.

Transfusion Medicine ensures the immediate availability of all required blood/blood components necessary for optimal patient management.

First MTE cooler will include:

- 6 units of uncross matched group O RBCs,
- 4 units of thawed AB plasma and
- 1 unit of plateletpheresis.

Subsequent MTE coolers will include (unless ordered otherwise by the physician):

- Six (6) units of uncrossmatched group O RBCs,
- Six (6) units of thawed AB plasma or type-specific plasma if specimen available
- One (1) unit of plateletpheresis

	6 Units RBC O **negative**	6 Units RBC O **positive**	4 Units AB Plasma	1 Platelets	Immediate Availability
Females ≤ 50 yrs or whose age is unknown	✓		✓	✓	• The immediate need for uncross matched blood may be met by using the O positive or O negative blood stored in the "uncross matched blood" refrigerators. • The Blood Bank will continue to meet the patient's clinical needs with uncross matched O positive and O negative blood until the event is over or the physician requests cross matched blood.
All pediatric patients 15 years of age or under	✓		✓	✓	
Men and Postmenopausal Women		✓	✓	✓	

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.

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 the event.

The Blood Bank will prepare additional components (plasma, platelets, and cryoprecipitate) as ordered by the physician and maintain 6 RBC and 6 FFP "to be available" at all times until the event is over.

Communication

One person from each area/department will be designated to communicate with the Technologist-in-Charge (TIC). This designated person must communicate with the TIC when the next set of blood components will be needed.

The TIC serves as the Transfusion Medicine contact person for **all** communication with the patient care area during this event and will only communicate with the designated patient care area contact person (nurse or physician).

To resolve any patient problems or questions:

- Trauma

- OR
- L & D
- Blood Bank Hotline

The TIC is responsible for reconciling the transfused/returned blood products with the inventory and coolers at the end of the event and for recording completion and any unexpected findings in the comments section of the MTE Worksheet.

Terminating the MTE

The physician in charge is responsible for halting the protocol and communicating this to the nurse in charge who in turn must notify the Blood Bank.

Return of Unused Blood/Blood Components

The charge nurse will assume the responsibility for returning all unused units of blood to the Blood Bank within 30 minutes.

II. PURPOSE:

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

III. PROCEDURE (see also Attachment 1):

A. Notify the Blood Bank of the MTE declared by the physician.

B. Obtain Equipment / Materials

Equipment

- Cooler with blue ice packs
- Cooler inserts or carriers

Materials

- TS5109 Massive Transfusion Protocol Patient Worksheet
- TS5092 Blood Bank - Patient & Product Identification Form (PPI Form)

C. Obtain/receive blood/blood components immediately from the Blood Bank (see page 1 - **Provision of Blood / Blood Components)**:

- The first cooler will include 4 units of group AB plasma regardless of patient blood type.
- ABO-compatible plasma will be provided if the patient's ABO/Rh type has been determined on a sample collected during the current admission.
- The Blood Bank will thaw additional group AB plasma as needed until a blood type is determined.

D. Sign the "Uncross matched Blood Form" that lists all the RBC units in the cooler and return to Blood Bank (see Attachment 2).

E. Warm fluids and blood via rapid warmer infuser or other appropriate fluid warming device where possible to avoid hypothermia:

1. Place patient on hypothermia mattress on the OR table and use a warming air-low blanket (e.g., "Blair Huggar" as per MD order)
2. Provide environmental temperature control, e.g., warm room
3. Warm saline for irrigation
4. Use fluid warmers for blood and fluid (e.g. Level One or Rapid Infuser)
5. Provide humidified O_2 for those patients on a ventilator

F. Continue to use uncross matched group O blood until the event is over or the patient's physician requests cross matched blood.

Note: Blood Bank will:

- Notify a TM physician when more than 6 units of uncross matched blood are issued for a massive transfusion event.
- Perform a **STAT** type and screen if not already done, using tube test for ABO/Rh typing and manual gel test for antibody screening.
- Tube to the unit a copy of the RBC unit tag for placement in the patient's medical record.
- Keep at least six (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.

IV. RELATED POLICIES AND PROCEDURES

- Blood and Blood Components: Administration (Transfusion) and Management

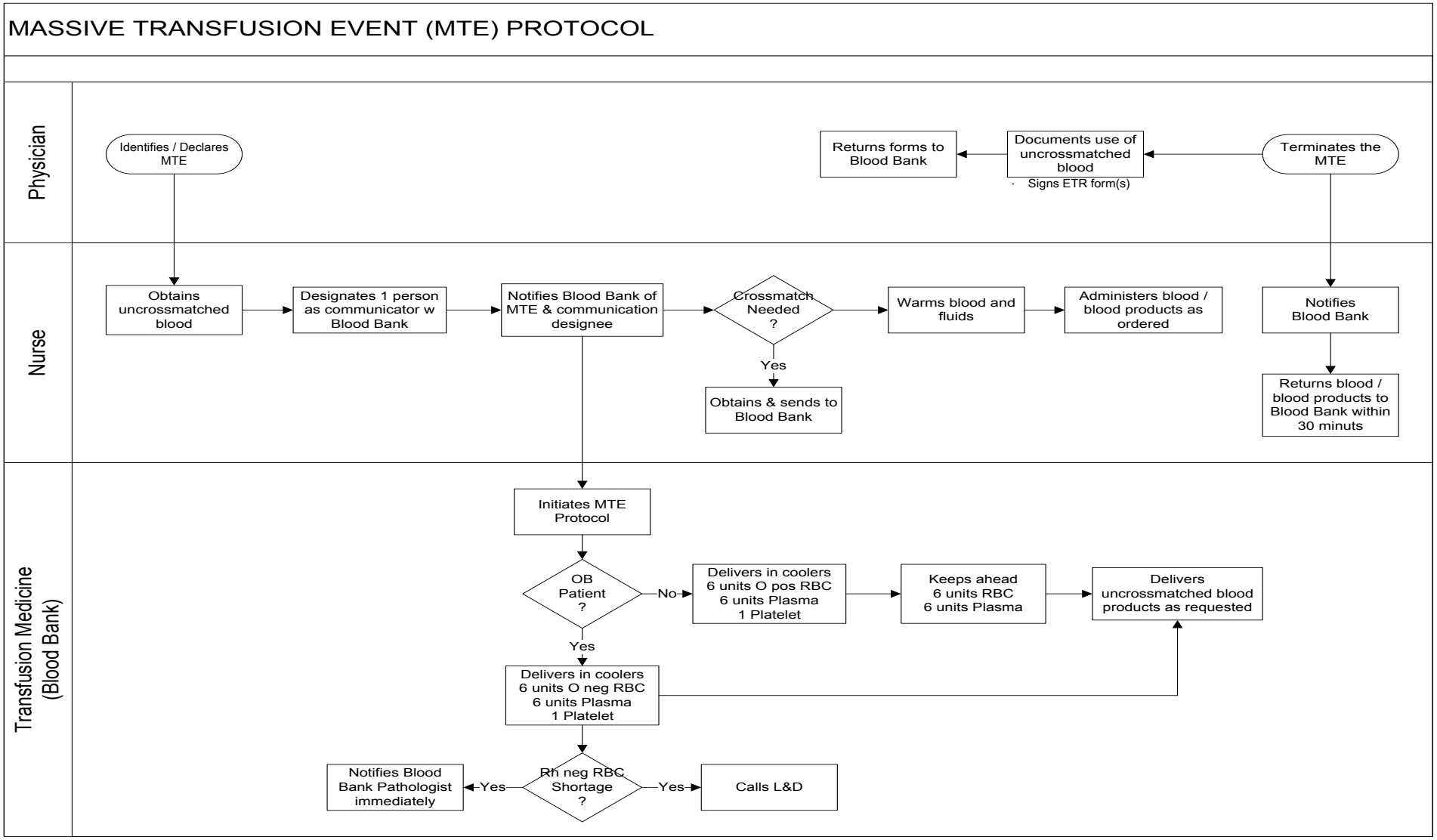
- ABO Grouping (Tube Test)
- Rh (D) Typing and Weak D Testing (Tube Test)
- Antibody Screening by ID-MTS Gel Test

V. REFERENCES

- Technical Manual, 17th Edition, AABB, Bethesda, MD, 2011.
- Standards for Blood Banks and Transfusion Services, 28th Edition, AABB, Bethesda, MD, 2012.

Original Effective Date: 5/2010

ATTACHMENT 1



ATTACHMENT 2

PATHOLOGY AND LABORATORY MEDICINE
DIVISION OF TRANSFUSION MEDICINE

EMERGENCY TRANSFUSION REQUEST FOR UNCROSSMATCHED BLOOD

CALL EX. 35411 IMMEDIATELY

Trauma Pack # _____

Patient Name:
Medical Record number:
Diagnosis / Indication:
Patient ABO/Rh (if known):
BLOOD PRODUCTS REQUESTED:

DONOR (UNIT) NUMBERS	ABO/Rh	LOCATION	ISSUED			DISPOSITION
			DATE, TIME	TO	BY	

RETURN SIGNED FORM TO TRANSFUSION SERVICE TUBE STATION 112

I believe the patient requires an emergency transfusion, and cannot wait for completion of routine compatibility testing. I understand that Transfusion Medicine personnel will perform routine compatibility testing as soon as possible, and they will report any incompatibility that they find to me immediately.

Signature of Physician
Requesting Emergency Transfusion: Date:

BLOOD BANK USE ONLY

Specimen Received
Date, Time: Reviewed By: Date:

PROCEDURE PTT61001 EMERGENCY TRANSFUSION OF UNCROSSMATCHED BLOOD AND BLOOD PRODUCTS	
Transfusion Service Manual	**Effective Date:** 01/23/2014

PURPOSE

To describe policies for the release of uncrossmatched blood for emergency transfusion from the Blood Bank (BBT), Emergency Department (ERT), 4th,5th Floor and 6th Saperstein Critical Care Tower (4SAP, 5SAP and 6SAP), 6 Cath. Lab (6CLT), 3Labor and Delivery (3LDT) , 5OR (5ORT), 7OR (7ORT), and 310 Building (310S).

POLICIES

1. **Group O red blood cells** are to be issued in an "Emergency" without crossmatch.
   1.1 Females of childbearing age (≤ 50 years) or age unknown and children (≤ 15 years old) are to receive O Negative packed cells uncrossmatched until patient's current blood type is confirmed. If patient's current blood type confirmed as Rh positive, use O positive RBC.
   1.2 All other patientscan receive group O Rh positive packed cells uncrossmatched.
2. Trauma pack **Group AB plasma** should be used for the first delivery requiring plasma.

   NOTE: Patients with a historical blood type must receive AB plasma until the blood type is confirmed with a current admition sample.
3. Trauma pack **Non-group O plateletpheresis** should be used for the first delivery requiring platelets. For additional request, issue plasma ABO-compatible platelets.
4. In emergency, **uncrossmatched pooled cryoprecipitate of random ABO group** is given to all patients when patient's blood type is not available.
5. **For Code Brain**, 2 bags of uncrossmatched pooled cryoprecipitate shall be issued within 30 minutes.
6. Group O uncrossmatched red blood cells will be transfused to any non-group O patient who has a pending confirmatory ABO test (test code ABRH2) on the original TYSC or XM battery.
7. **For Pediatric cardiac surgery patients**, one unit of group O RBC (Un-irradiated, < 7 days old) is available in Blood Bank refrigerator located in 4S SCCT (see attachment).
8. No whole blood may be transfused uncrossmatched.
9. **Only group O** uncrossmatched blood will be issued.

10. When transfusion of non RBC component ABO incompatible plasma will exceed approximately 1000 cc within a day, approval from the pathologist must be obtained prior to issue. In addition, a post transfusion specimen must be requested for performing DAT and visual inspection of hemolysis.
11. Trauma packs of O Negative packed cells will be available at all times from the blood bank and 3LDT. (Refer to SOP: PTT61031 Preparation, Stocking and Inspection of Trauma Packs.)
12. At least one carrier containing six (6) units of uncrossmatched O positive and O negative blood, 4 units of AB plasma and 1 unit of non- group O plateletpheresis will be stored in the blood bank for use during a massive transfusion event.

    NOTE: Massive Transfusion Protocol will be initiated by a patient's physician if it appears that the patient will require large amounts of uncrossmatched blood. (Refer to SOP: PTT53101 Massive Transfusion Protocol).
13. Additional trauma packs for immediate use can be prepared without completing the Preparation of Trauma Packs log (TS5060 Preparation of Trauma Packs). All other requirements for trauma unit preparation must be completed prior to issue.
14. Four (4) units of group O uncrossmatched blood will be sent to the 310 Building each weekday using the Red Shield Express (RSX) cooler for transport and storage during the day. The units are returned at the end of the day.
15. If blood released as uncrossmatched is subsequently found to be incompatible upon completion of the crossmatch and/or antibody screen, a Division of Transfusion Medicine physician and the patient's physician should be notified immediately. (*TM physician is defined as Resident, Fellow or pathologist.)
16. All requests for emergency release of uncrossmatched blood must include a physician's signature on the Emergency Transfusion Request for Uncrossmatched Blood (ETR-Uncrossmatched Blood) form (TS5024 Emergency Transfusion Request Uncrossmatched Blood).
17. Each unit of uncrossmatched blood must have a red label attached indicating "Crossmatch Not Complete."
18. All uncrossmatched blood and blood products issued from the Blood Bank must be inspected at time units are dispatched and returned.
19. The following must be verified by second person and document on ETR form (TS5024) before releasing any uncrossmatched blood/blood components for

emergency transfusion(Refer to SOP PTT61031 Preparation, Stocking and Inspection of Trauma Packs).

19.1 Unit number

19.2 ABO/Rh

19.3 Component type

19.4 Expiration date/time

SPECIMEN REQUIREMENTS

Minimum Volume	Specimen Type	Stability	Comments
1 (6ml) tube	EDTA – anticoagulated blood	3 days	Test as soon as possible after collection. Fresh RBCs from unrefrigerated samples give optimal results. (Refer to SOP: PTT01011 Suitability of Specimens for Testing).

EQUIPMENT AND MATERIALS

Materials	
TS5024 Emergency Transfusion Request Uncrossmatched Blood	"CROSSMATCH NOT COMPLETE" labels
Trauma pack(s)	RSX blood carrier
Computer terminal ED Trauma log book	Coolers

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. Issue of Uncrossmatched blood and blood products from the Transfusion Service

1.1 Upon receiving a request for uncrossmatched red blood cells and blood products, select the appropriate trauma pack or carrier. (refer to policy section)

1.2 4 units of thawed AB plasma (Trauma pack "MP") and 1 unit of non-group O plateletpheresis (Trauma pack "MT") will be available in the blood bank at all times.

1.3 Remove the Emergency Transfusion Request ETR form(s) (TS5024 Emergency Transfusion Request Uncrossmatched Blood) from the bag or carrier.

1.4 Complete the appropriate section of the ETR form including the date, time, location, and technologist releasing the blood.

1.5 If a cooler is required, pack units as described in procedure. (Refer to SOP: PTT65021 Transportation of Allocated Blood and Blood Components). Place the completed form (TS5024 Emergency Transfusion Request Uncrossmatched Blood) in the outside pouch of the cooler.

1.6 Take blood to the patient care area requesting uncrossmatched blood.

1.7 Obtain the signature of physician requesting uncrossmatched blood on the ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood).

- **Note**: Only one signature is required for each uncrossmatched blood transfusion event.

1.8 Continue to issue uncrossmatched blood and blood products (either trauma packs or coolers) as requested until crossmatched blood is available or until the massive transfusion event is over.

2. Issue of Uncrossmatched blood and blood products from the Emergency Department (ED) Laboratory

2.1 An ED staff person will come to the ED laboratory and request blood for a patient. The ED must provide the lab with the approximate age and sex of the

patient; other information can be documented as soon as it becomes available.

NOTE: It is critical that the Blood Bank receives adequate information to determine exactly which patient has received blood products.

2.2 An ED laboratory staff person will select the appropriate number of unit(s) of blood from the refrigerator as determined by the physician order.

2.3 When the requested number of uncrossmatched units is removed from the refrigerator, the ETR form(s) (TS5024 Emergency Transfusion Request Uncrossmatched Blood) will be removed from the bags containing the donor blood.

2.4 ED laboratory staff will fill in the ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood) indicating the date and time the unit(s) were issued, the initials of the ED staff person receiving the blood, and his/her laboratory identification number.

a. The name of the patient and the patient's medical record number must be filled in as soon as the information is available.

b. The form is then sent with the blood to the patient's bedside for MD signature.

c. The patient's name, MRN, date/time of issued (and returned), and trauma pack number(s) shall be recorded in the log book by ED laboratory staff as soon as possible.

d. The signed ETR form(s) will be placed in the log book when returned to the ED laboratory. If the ETR form(s) is not returned, contact the ED staff for assistance.

2.5 As soon as uncrossmatched blood has been released to the ED, the ED laboratory staff will notify the Transfusion Service that blood has been dispensed. Information required will be the patient's name and medical record number (if available), sex, the number of units issued and the trauma pack numbers.

2.6 As the blood is being readied for infusion, a physician must sign the ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood).

a. The signed release form must be returned to the ED laboratory as soon as possible.

b. If more than one trauma pack is used, only one of the uncrossmatched blood forms needs to be signed but all forms must be returned to the laboratory.

2.7 A clinical partner or other ED staff member must deliver or send via the pneumatic tube a blood sample and orders for crossmatched blood to the Transfusion Service as soon as it is collected (South Pro Tower Room 1655,).

2.8 Until crossmatched blood is available, the ED laboratory will continue to dispense uncrossmatched blood as needed.

NOTE: If it appears that the patient will need a massive volume of uncrossmatched blood, the ED staff is to notify the Blood Bank via the direct phone line and a cooler with additional blood and plasma (six or more units) will be provided from the Blood Bank. (Refer to PTT53101 Massive Transfusion Protocol.)

2.9 Two units of AB plasma (Trauma pack "EP") will be available in ED at all time ABO specific plasma can only be issued with a current blood type on file for additional request.

2.10 The Transfusion Service will restock the refrigerator as soon as possible and pick up the completed form(s) (TS5024 Emergency Transfusion Request Uncrossmatched Blood).

2.11 All units listed on the returned forms will be crossmatched by a technologist as soon as possible. The chart copies (with a comment indicating the unit was issued uncrossmatched) of the crossmatch-completed transfusion tags will be sent to the patient's current location for filing as soon as possible.

2.12 Any unused blood that is returned to the ED laboratory will be placed in the quarantine box in the uncrossmatched blood refrigerator and these units must be evaluated to determine if it can be returned to the regular blood inventory or discarded. This information must be recorded on the release form.

3. Issue of Uncrossmatched Packed Red Blood Cells from the 7ORT, 5ORT, 6CLT, 4SAP or 3LDT Refrigerator

3.1 An OR/LDR/4SAP/Cath Lab staff will select the appropriate trauma pack(s) from the uncrossmatched blood refrigerator as directed by the surgeon. The entire pack (including blood and paperwork) will be immediately taken to the OR location for transfusion.

3.2 As the units are being prepared for transfusion, the nurse will record the patient's name and medical record number (MRN), signature of the person who picked up, date and time on the ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood).

3.3 The anesthesiologist or other available MD will sign the form as soon as possible and the completed paperwork will be sent to the blood bank or returned to the uncrossmatched refrigerator in 3LDR, 4 SAP, 6CLT, 7OR or 5OR. (All forms will be kept together until the Transfusion Service picks them up).

3.4 The operating room will notify the Transfusion Service whenever uncrossmatched blood has been used.

a. Information required will be the name and MRN of the patient, the trauma pack number(s) used, the current location of the patient, and the telephone extension of the operating room.

b. The operating room will check with the Transfusion Service to be sure that the laboratory is processing a crossmatch order.

c. If there are no orders in the lab, a crossmatch request and patient sample must be sent for immediate testing.

3.5 If it appears that the patient will need a massive volume (greater than four units) of uncrossmatched blood, the Transfusion Service will be notified and additional blood will be provided in a cooler. (See: PTT53101 Massive Transfusion Protocol.)

3.6 If plasma is ordered, 4 units of AB plasma (trauma pack "MP") will be sent to the patient care area as soon as possible. For additional request, ABO group specific plasma can only be issued with a current inpatient blood type on file. .

3.7 The patient care area will be notified as soon as crossmatched blood becomes available. Until then continue to use trauma packs as needed.

NOTE: During a massive transfusion event, only uncrossmatched blood will be sent to the patient care area. As soon as the physician terminates the protocol, crossmatched blood will be issued.

3.8 All units listed on the returned ETR forms (TS5024 Emergency Transfusion Request Uncrossmatched Blood) will be crossmatched by a technologist as soon as possible. The chart copies (with a comment indicating the unit was issued uncrossmatched) of the crossmatch-completed transfusion tags will be sent to the patient's location for filing as soon as possible.

3.9 Any unused blood that is returned to the uncrossmatched blood refrigerator must be evaluated to determine if it can be returned to the regular blood inventory or discarded. This information must be recorded on the release form.

4. Issue of Uncrossmatched Packed Red Blood Cells from 5 SAP and 6SAP

4.1 Uncrossmatched blood from a Blood Track refrigerator (room 5N SCCT or 6N SCCT) can only be removed by authorized and trained nurses using his/her assigned user identification.

4.2 See SOP: PTT91081 Operation of the Blood Track Courier to remove blood from the kiosk.

4.3 The Blood Track will alert the transfusion service when uncrossmatched blood is removed from the refrigerator.

a. If more uncrossmatched blood is needed than is available, uncrossmatched blood will be supplied by the transfusion service.

b. The transfusion service will supply uncrossmatched blood as requested until crossmatched blood becomes available for the patient.

c. The transfusion service will restock the refrigerator as soon as possible after uncrossmatched blood has been removed.

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5. Issue of Uncrossmatched Packed Red Blood Cells from 310 Building for Outpatient Surgeries

5.1 On each day of scheduled surgeries, the Red Shield Express cooler will be packed with uncrossmatched blood, four (4) units in the plastic carrier . (Refer to PTT61021 Uncrossmatched Blood for CSMC 310 Building).

5.2 If blood is needed emergently during surgery, the nursing staff will use the uncrossmatched blood while preparing to transport the patient to the CSMC emergency department.

5.3 The enclosed ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood) will be signed by the physician and the unit(s) of blood transfused will be documented on the form.

5.4 The nurse or physician will notify the Transfusion Service that uncrossmatched blood is being used. They will provide the name and medical record number of the patient being transfused.

5.5 The RSX, including paperwork, will be transported with the patient to the emergency department where it will be picked up by the Transfusion Service.

6. Transfusion Service Responsibilities

6.1 If the Emergency Department or ED lab notifies the blood bank that uncrossmatched blood is being used but no sample has been received in the BB for testing, check the ED Extra Samples rack for a sample from ED. If a sample is found, order a TYSC and request the ED to follow up with an order for crossmatch in CS Link.

6.2 Process blood specimen for patient STAT.

a. Begin ABO/Rh and antibody screening STAT using tube testing method for the ABO/Rh and manual gel technique for the antibody screen (Refer to: PTT41031 ABO Grouping (Tube Test), PTT41032 Rh (D) Typing and Weak D Testing (Tube Test), and PTT31201 Antibody Screening by ID-MTS Gel Test.)

b. Continue to issue emergency, uncrossmatched group O packed cells only, while testing is in progress.

c. If a massive transfusion protocol has been activated, uncrossmatched group O packed cells will be issued until the event is over.

6.3 If the antibody screen is negative and the ABRH2 sample (if required) has been tested, proceed with compatibility testing using ABO group specific packed cells.

6.4 Crossmatch all units that were issued as uncrossmatched using segments that were retained at the time of trauma pack preparation.

a. If the antibody screen is negative refer to PTT43021 Electronic Crossmatch.

b. If the antibody screen is positive or the patient's history indicates an alloantibody, an antiglobulin (AHG) crossmatch must be performed. (Refer to PTT43011 Immediate Spin and Antiglobulin Crossmatch).

6.5 **The patient's physician and a Transfusion Medicine physician must be notified immediately if incompatible or potentially incompatible blood was issued uncrossmatched.** (TM physician is defined as Resident, Fellow or pathologist.)

6.6 Add a unit tag comment to each Blood Bank Record of Transfusion (see attachment) indicating:

a. IEMR – Issued to ER Uncrossmatched.

b. IOR – Issued to OR Uncrossmatched.

c. UXM – Issued Uncrossmatched.

6.7 Following allocation and crossmatch, issue previously uncrossmatched units in computer; using the date and time of issue from ETR form(s) (TS5024 Emergency Transfusion Request Uncrossmatched Blood) (Refer to PTT63011 Issuing Blood and Blood Products)

6.8 Retain ETR form(s) (TS5024 Emergency Transfusion Request Uncrossmatched Blood) at Technologist-In-Charge (TIC) bench until units are confirmed as transfused or are returned from transfusion location.

6.9 Indicate the disposition of each product next to the corresponding unit number on ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood) (e.g. Transfused, Returned, Discarded, Out Too Long).

6.10 If the uncrossmatched blood from the Transfusion Service has been out of the lab for 20 to 25 minutes, call the patient care area to verify whether the units have been transfused, and arrange the immediate return of any untransfused products.

a. Evaluate all uncrossmatched products upon return to Transfusion Service for possible return to inventory. (Refer to SOP: PTT63211 Blood Status Update: Return, Ship Out, Quarantine, Discard.) After determining that units were transfused, write "Transfused in (location)" on unit tags, separate chart and Transfusion Service copies, send chart copies to the patient care area and file the TS copy.

b. If unable to ascertain transfusion status of any uncrossmatched units, write a note in the communication book for the next TIC to resolve and leave ETR form (TS5024 Emergency Transfusion Request Uncrossmatched Blood) and unit tags at TIC bench.

c. Following resolution of any outstanding units, all ETR form(s) (TS5024 Emergency Transfusion Request Uncrossmatched Blood) shall be reviewed and signed off by next TIC or team leaders and filed in the binder.

PROCEDURE PTT61001 EMERGENCY TRANSFUSION OF UNCROSSMATCHED BLOOD AND BLOOD PRODUCTS	
Transfusion Service Manual	Effective Date: 01/23/2014

TECHNICAL NOTES

1. If a clerical review of the patient's Blood Bank file reveals a known antibody, proceed as follows:
   - 1.1 Continue to provide blood for emergency transfusion as requested. If possible, provide group O antigen-negative products until type and screen and crossmatch are completed.
   - 1.2 Immediately notify both the patient's physician and Transfusion Medicine physician of patient's antibody problem.
2. **If incompatibility or positive reactions are found upon completion of the standard crossmatch and/or antibody screen, the following steps must be taken:**
   - 2.1 If the antibody screen is positive and units are incompatible, notify both the Transfusion Medicine physician and patient's physician at once (TM physician is defined as Resident, Fellow or pathologist).
     a. Begin antibody identification procedures as soon as possible.
     b. Complete appropriate antibody identification panels. Evaluate.
     c. Consult Pathologist and Team Leaders or Manager.
   - 2.2 If unit or units are found to be incompatible and the antibody screen is negative, perform a Direct Antiglobulin Test (DAT) on unit(s). If the DAT is negative, notify a pathologist immediately.
3. No whole blood will be transfused uncrossmatched, due to possible reactions caused by passively transferred ABO antibody(ies).

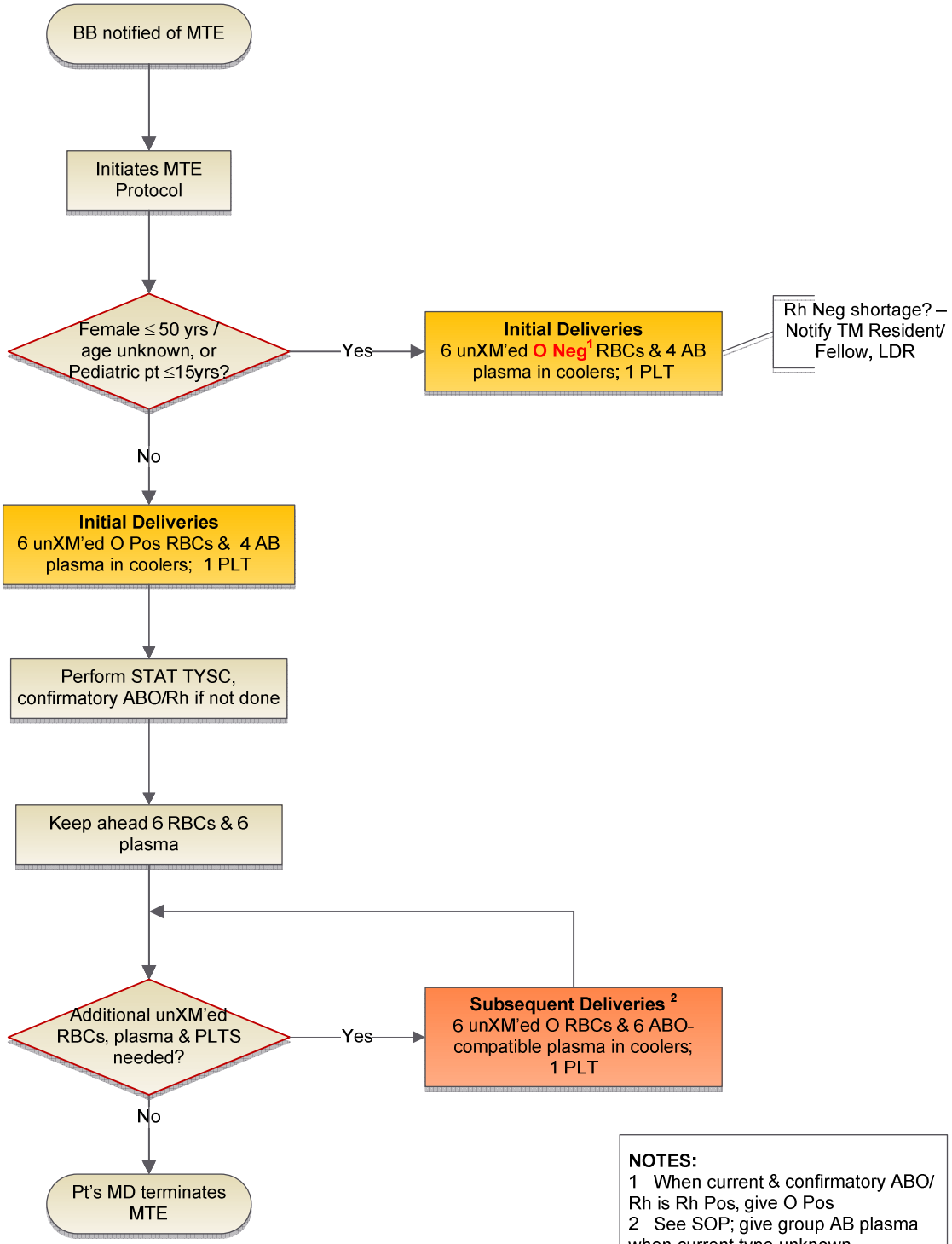
REFERENCES

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

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

Ellen Klapper, M.D., Medical Director and Holli Mason, M.D., Associate Medical Director, Division of Transfusion Medicine, Department of Pathology and Laboratory Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, 2012.

Massive Transfusion Event (MTE) Protocol



NOTES:
1 When current & confirmatory ABO/ Rh is Rh Pos, give O Pos
2 See SOP; give group AB plasma when current type unknown