TITLE: Massive Transfusion Protocol (MTP)

PURPOSE: 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. All areas must have blank Physician Order forms (#270005 Adult and #27009 Neonate/Pediatric) and Typenex armbands readily available for this emergent event at all times. The form provides a place to write the name of the Attending physician and document the MTP order.

DEFINITIONS:

A. 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.

B. Massive Transfusion (Child): the presumed need for the transfusion of 5 packed red blood cells in 2 hours or less.

PROCEDURE:

I. Initiate Massive Transfusion Protocol

A. The Attending physician verbally commands the Charge RN or the patient’s RN to initiate the MTP

1. The MTP can be initiated in any patient care area.

2. The MTP can only be requested by an Attending physician.

B. Collect blood sample for the following Laboratory tests:

<table>
<thead>
<tr>
<th>Test</th>
<th>Order Code(s)</th>
<th>Tube type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC with platelet count</td>
<td>1060</td>
<td>Small purple top</td>
</tr>
<tr>
<td>PT/PTT, Fibrinogen</td>
<td>1420, 1430, 1220</td>
<td>Light blue top</td>
</tr>
<tr>
<td>BMP, Ionized Ca++, Magnesium, Phosphorous</td>
<td>2208, 2140, 2600, 2650</td>
<td>Light green top</td>
</tr>
<tr>
<td>Lactic Acid</td>
<td>2530</td>
<td>Light green top on ice</td>
</tr>
</tbody>
</table>

Repeat tests every 60 minutes (preferably 30) during MTP.

II. Notify the Transfusion Service

A. The RN immediately telephones the Transfusion Service with the following information (or as much as is known)

1. **Typenex number (3 letters, 4 numbers) – REQUIRED Patient Identification**

   a. A Typenex number 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 number is used throughout the entire MTP event.

   2. Name of **Attending** ordering the MTP
The information below must be obtained at a later time during or after the MTP:

- Patient's first and last name (required)
- Medical record number (required)
- Gender
- Age (approximate)
- Location and phone number of patient care area

B. The Transfusion Service will notify the RN if a current sample is already available or if a new Type and Screen sample is required.
   1. Follow routine procedure for collection and labeling of sample.
      a. See N-01-064.
      b. The Transfusion Service will not issue ABO/Rh type-specific blood components based on historical records. Group O-Negative will be issued until a current sample can be tested.
      c. If the patient is male, it is acceptable to issue O-Positive.

C. The Transfusion Service staff will document the phone call on the MTP Issue Form
   1. This form is used by the Transfusion Service to document the issue and return of blood components during the MTP event.
   2. At the end of the event, the 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 Transfusion Service computer system (HCLL).

III. Issue Blood Components
A. A runner from the patient care area will be dispatched to pick up blood from the Transfusion Service.
   1. The runner must present a copy of the Physician’s Order for Transfusion (#270005 in Forms Fast).
   2. The form must have:
      a. Typenex number
      b. The name of the Attending physician ordering the MTP
   3. Check “MTP” under Section 2.
B. For immediate use, the Transfusion Service will keep available at all times
   1. 5 units of O-Negative packed red blood cells
   2. 5 units Group AB Fresh Frozen Plasma or Thawed Plasma
   3. This batch of components is partially tagged for ready issue.
   4. A blank MTP form is kept with Batch 1 with the donor information already completed.
C. Until time allows for a blood component to be entered in HCLL, the Transfusion Service staff will use the Emergency Transfusion Release tag (manual tag) in an abbreviated manner:
   1. Check “Uncrossmatched”
      a. The units will not be crossmatched until after issue.
   2. Check product type (add ISBT product code)
   3. Donor ABO/Rh
   4. Donor expiration date/time
   5. Patient’s Typenex number
   6. Date/time of issue
   7. Transfusion Service initials
D. At issue, the Transfusion Service will:
   1. Pull a segment from the packed cell for crossmatch.
   2. Retain a copy of the Release Tag.
   3. Pack RBCs and FFP in a cooler with appropriate amount of ice.
   4. Instruct the runner to sign the MTP Issue Form.
      a. Write the unit numbers after the runner has left.

E. At every issue, the runner **must** present the Physician Order form to ensure accurate patient identification, especially during multiple MTP events.
   1. Donor and issue information is written on the MTP form, bypassing the Blood Bank computer until time allows.

IV. **Schedule of blood components**
   A. Batch #1 will be issued immediately to the runner:
      1. 5 Group O-Negative RBC uncrossmatched (UNXM) packed red blood cells
      2. 5 Group AB thawed plasma (FFP)
      3. This batch will be issued regardless if the patient has a current sample, units already crossmatched, or previous history.

   B. Batch #2 will issued within 30 minutes:
      1. 5 RBC (uncrossmatched, O-Neg or type specific)
      2. 5 FFP (Group AB or type specific)
      3. If patient already has crossmatched units already tagged, these can replace some or all of the 5 RBC.

   C. Batch #3 will be issued within the next 30 minutes:
      1. 5 RBC (may be crossmatched and type-specific)
      2. 5 FFP (may be type specific)
      3. 1 plateletpheresis
         a. Issue platelets in a “soft cooler” to maintain Room Temperature.
         b. Do not refrigerate platelets.

   D. Batch #4
      1. 5 RBC (may be crossmatched and type-specific)
      2. 5 FFP (may be type specific)

   E. Platelets will be issued every 3rd batch. Cryoprecipitate is ordered as needed, and must be called to the Transfusion Service.

   F. The amount of blood components can vary dependent upon patient need. Open communication between the physician and the Transfusion Service is critical.

   G. If required, it is appropriate for blood products to follow the patient from Surgery to the ICU provided they are transported in the blood cooler. The Surgery charge nurse must notify the Transfusion Service that the cooler went with the patient.

V. Technical notes for Transfusion Service
   a. It is appropriate to issue type-specific before the antibody screen is completed, but you must perform 2 separate blood types per routine procedure (2 separate cell suspensions) before issue. Continue to transfuse Group O until ABO is confirmed.

   b. If the antibody screen is positive, notify the Attending and the Transfusion Service Medical Director immediately. Document physician approval to continue with abbreviated crossmatch.
c. As soon as the Transfusion Service has been notified of a MTP:
   i. Start thawing the 2nd batch of FFP, even if before the 1st batch is issued.
   ii. Determine which tech will manage RBC and which will manage components and issue
   iii. Fax order for additional blood products to TBA

V. End of MTP

Attending physician will notify the Transfusion Service when the MTP event has ended. The patient RN may call the Transfusion Service. The call will be documented on the MTP Issue Form.

All unused blood components must be returned to the Transfusion Service as soon as possible.

All transfusions must be documented in the computer system and the patient record.

Notify the Transfusion Service medical director regarding any variances in procedure.

VI. References:


Reviewed by Trauma, Anesthesia, and Nursing July 2008.