TITLE: MASSIVE TRANSFUSION PROTOCOL

PURPOSE:
To establish a transfusion protocol for Harris Health System patients whose blood loss necessitates emergent release of large volumes of Blood Products.

PROCESS:
The Massive Transfusion Protocol (MTP) is to be activated by on-site faculty members from the Emergency Department, Trauma Team and/or the Anesthesia/OR Teams. The initiating team will notify the Blood Bank immediately (713-566-5293) of the need for MTP.

Initiation of the MTP must be communicated, in writing, on either a Blood Request Form (280011), Downtime Requisition Form (280834), or on an Emergency Blood Release Form (HCHD 6465).

The documentation must include the following information:

1. Valid patient information (Name and medical record number, or a uniquely assigned number - ex. temporary unknown name/number)
2. Name and ID number of requesting physician
3. The statement “Massive Transfusion (or “MTP”) is requested.”

Verbal initiation by a member of the initiating team to a member of the Blood Bank staff by telephone (x65293 or x64615) or in-person is acceptable as long as the necessary written documentation is provided as soon as time and the clinical situation allows.
Red blood cells (RBC’s) will be issued as follows, unless requested differently by the initiating team:

1. O-negative, uncrossmatched RBC’s (available immediately in EC or Blood Bank)
2. Type-specific, uncrossmatched RBC’s (available within 5-10 minutes of receipt of a properly labeled patient sample)
3. Type-specific, crossmatch-compatible units (available within 45-60 minutes of receipt of a properly labeled patient sample)

Please note that full, pre-transfusion testing will begin upon receipt of a properly labeled patient sample and will be used to guide subsequent product release as results become available.

Please note that additional processing (irradiation, antigen-negative units, volume reduction, etc.) will not be performed while MTP is in progress.

The initiating team will be notified when full cross match is complete. Type-specific, cross match-compatible units will be traded out for any remaining un-crossmatched blood.

Additional staff will be utilized from other areas of the Laboratory to maintain continual Blood Bank support. If the patient is unable to be supported adequately with the MTP protocol, or the hospital blood supply is compromised, a decision must be made by the initiating team as to alternate patient options.

I. PROCEDURE
   a. A blood sample (specimen must be labeled per Blood Bank guidelines and contain the patient’s first name, last name and medical record number as well as time and date of collection) must be sent to Blood Bank for a Type & Cross. The collector’s initials must be on the sample label, and the requisition or the Blood Order Form that accompanies the sample.
b. A completed form (or verbal initiation as described above) must be provided with the patient’s name and number, the signature of the requesting physician/designee, and taken by a designated transporter to the Blood Bank. Units will not be issued without a medical record number.

c. Within 5-10 minutes of receipt of a “Massive Transfusion Protocol” directive, the Blood Bank will have a prepared cooler containing 4 units of RBCs, 4 units of type-compatible fresh frozen plasma (FFP), and 1 apheresis unit of platelets (4:4:1).
   i. If 4 type-compatible FFP units are not immediately available (based upon the blood type of the patient and Blood Bank inventory), the Blood Bank will issue any available units and notify the initiating team when the remaining units are available.
   ii. Initiate process to order additional blood products from blood supplier as needed.

d. The Blood Bank will inform the lab staff of MTP initiation, lab staff will start TEG controls. The Blood Bank staff will notify the Pathologist that the MTP has been initiated. The Pathologist will initiate contact with the responsible service for consult as needed.

e. With each instance of component issue, a Blood Issue Slip (281207) must be utilized to confirm patient identity.

f. After the initial 4 RBCs, 4 FFP, and 1 unit of platelets have been issued, the Blood Bank will prepare an additional 4 RBCs, an additional apheresis unit of platelets, and initiate the thawing of 4 additional type-compatible FFP units.

g. This process will be automatically repeated until the Blood Bank is informed by a member of the initiating team that the MTP is no longer needed.

h. The initiating team will order the following laboratory tests as clinically indicated:
Guidelines and Protocols

i. Fibrinogen to determine if cryoprecipitate is needed (see Empiric Guidelines below)

ii. TEG to assess for coagulopathy, platelet dysfunction, and fibrinolysis

i. Blood Products (with the exception of platelets) may be maintained in an assigned Blood Bank cooler for a maximum of 4 hours. After 4 hours have elapsed, the cooler must be returned to the Blood Bank for a current temperature check, and installation of new ice blocks.

j. Continual contact will be maintained between the Blood Bank and the blood supplier to ensure uninterrupted component supply.

k. Upon hemorrhage control and hemodynamic stability the clinical team will notify Blood Bank to discontinue MTP.
## II. EMPIRIC GUIDELINES FOR MASSIVE TRANSFUSION

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<tr>
<td><strong>FFP</strong></td>
<td>For every 4 RBCs, give 4 FFP (1:1 ratio)</td>
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<td><strong>Platelets</strong></td>
<td>For every 4 RBCs, give 1 apheresis unit of platelets.</td>
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<td><strong>Cryoprecipitate</strong></td>
<td>After first 12 to 16 RBCs, check fibrinogen level.</td>
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<td>If &lt;100 mg/dL, give 10 units cryo. Repeat as needed, depending on fibrinogen level, and request appropriate amount of cryo.</td>
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<td><strong>NOTE:</strong> FFP also contains fibrinogen.</td>
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<td><strong>For OB-GYN Patients:</strong> Administration of cryoprecipitate with first series of RBC’s and FFP is recommended.</td>
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Guidelines and Protocols

REFERENCE / BIBLIOGRAPHY:

OFFICE OF PRIMARY RESPONSIBILITY:

LYNDON B. JOHNSON HOSPITAL TRAUMA SERVICES

REVIEW / REVISION HISTORY

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