POLICY STATEMENT

The Massive Transfusion Protocol (MTP) provides a systematic approach and a standardized process for safe, rapid ordering, preparation, and delivery of blood and blood components and coagulation factors for the patient experiencing massive hemorrhage.

SCOPE

CHS RN’s, CHS Blood Bank Associates, and Physicians who participate in the treatment of the patient

DEFINITION

Massive transfusion – The replacement of one (1) blood volume (equivalent to ten (10) units of blood) in any 24-hour period, or half of the blood volume (five (5) units of blood) in any four (4)-hour period. (American Association of Blood Banks)
ACTION STEPS

A. The physician caring for the patient determines if massive transfusion is necessary and initiates the Massive Transfusion Protocol (MTP).

B. The Registered Nurse obtains and documents order for MTP and immediately contacts Blood Bank (CHM x4810 / CHW x3823).

C. The patient is immediately drawn for type and screen (T&S), CBC, PT, PTT, fibrinogen, CMP, and lactic acid by lab.

D. The Blood Bank delivers weight/age-appropriate MTP blood component packs in a designated cooler with appropriate release/transfusion forms:

**Transfuse MTP packs as rapidly as ordered in the sequence listed.**

**Adult (greater than 50 kg) MTP pack:**

1. Four (4) units packed red blood cells (PRBC)
   a. Emergency release of O negative blood is sent if patient’s blood type has not been performed
   b. Type-specific blood is sent if patient’s blood type has been performed
2. Four (4) units fresh frozen plasma (FFP). The FFP will be thawed when MTP order is received. Notify Blood Bank as soon as estimated transfusion time is known.
3. One (1) single donor platelet
4. Cryoprecipitate (5 donor units per pooled unit) are included and transfused last in every second Adult MTP pack. The cryoprecipitate will not be thawed automatically. Notify Blood Bank as soon as estimated transfusion time is known.

**Older Child (26 – 50 kg) MTP pack:**

1. Three (3) units PRBC
   a. Emergency release of O negative blood is sent if patient’s blood type has not been performed
   b. Type-specific blood is sent if patient’s blood type has been performed
2. Three (3) units FFP. The FFP will be thawed when MTP order is received. Notify Blood Bank as soon as estimated transfusion time is known.
3. One (1) single donor platelet
4. Cryoprecipitate (4 donor units per pooled unit) are included and transfused last in every second Pediatric MTP pack. The cryoprecipitate will not be thawed automatically. Notify Blood Bank as soon as estimated transfusion time is known.

**Younger Child (11 – 25 kg) MTP pack:****
1. Two (2) units PRBC
   a. Emergency release of O negative blood is sent if patient’s blood type has not been performed
   b. Type-specific blood is sent if patient’s blood type has been performed
2. Two (2) units FFP. The FFP will be thawed when MTP order is received. Notify Blood Bank as soon as estimated transfusion time is known.
3. One (1) single donor platelet
4. Cryoprecipitate (3 donor units per pooled unit) are included and transfused last in every second Pediatric MTP pack. The cryoprecipitate will not be thawed automatically. Notify Blood Bank as soon as estimated transfusion time is known.

**Infant (6 – 10 kg or less) MTP pack:**
1. One (1) unit PRBC
   a. Emergency release of O negative blood is sent if patient’s blood type has not been performed
   b. Type-specific blood is sent if patient’s blood type has been performed
2. One (1) unit FFP. The FFP will be thawed when MTP order is received. Notify Blood Bank as soon as estimated transfusion time is known.
3. One-half (½) single donor platelet
4. Cryoprecipitate (2 donor units per pooled unit) are included and transfused last in every second Pediatric MTP pack. The cryoprecipitate will not be thawed automatically. Notify Blood Bank as soon as estimated transfusion time is known.

E. The weight/age-appropriate MTP packs are delivered in a designated cooler by Blood Bank as needed until the physician makes the decision that MTP is no longer necessary.

F. The blood is transfused through blood tubing and fluid warmer according to manufacturer recommendations. (See Nursing Policy CHS F-12: Transfusion of Blood Products.)
G. The current MTP pack is continued if the patient is moved to another location (ED, ICU, OB, OR). The Blood Bank is notified of the move.

H. A new blood sample including a PT, PTT, fibrinogen, CBC, CMP, and lactic acid is collected every 30 minutes after initial test results to reflect patient’s current coagulation/resuscitation status until the MTP is discontinued.

I. The Blood Bank will determine when and if a new T&S specimen is to be drawn after eight (8) units PRBC have been transfused to the adult and four (4) units PRBC to the pediatric patient.

J. The Blood Bank is notified when MTP is discontinued and all unused blood products in the designated cooler are returned.

K. The blood from the chest in patients with isolated thoracic injuries may be autotransfused if available and not contraindicated.

L. The physician’s orders, blood product administration, and patient response are documented in the medical record.

REFERENCES:

1. Centegra Health System Department of Pathology and Laboratory Medicine Massive Transfusion Protocol (MTP) Procedure #B4.4080: 12/30/09

