

## **OPERATIONAL GUIDELINES: BLOOD AND BLOOD PRODUCT TRANSFUSION**

### OBJECTIVE:

To provide a guideline for the transfusion of blood and blood products into trauma patients.

### GUIDELINES:

1. Resuscitation in the ED will be begun with NaCl solution infused through large-bore IV catheters. In hypotensive patients, blood should be given as soon as available as the primary resuscitation fluid and 2 units of O negative blood are available immediately in the emergency room. Un-cross matched blood can and should be considered early. Fluid warmers should be used.
2. Upon initiating resuscitation, send blood sample to the Blood Bank for immediate type and cross. If blood requirements will be excessive or patient is in Class IV hemorrhagic shock, activate the Massive Transfusion Protocol for Trauma (MTP).
3. If the patient is not in shock, NaCl may be administered until type and cross-matched blood is available. However, situations will arise when O-negative or type-specific blood will be necessary.
4. Due to limited supply of O-negative blood, consider O, Rho (D) positive blood for males and sterile or post-menopausal females.
  - a. Indications:
    - i. To be used in severe life-threatening hemorrhage while activating the MTP.
    - ii. Obvious major bleeding during transport with subsequent impending cardiac arrest due to anemia (not hypovolemia).

Risks: there is risk that the patient may have a clinically significant antibody other than anti-D or for transfusion reaction as well as other risks. Risks are increased with uncrossmatched blood.

### **The following guidelines apply to patients.**

5. Uncross-matched, ABO, Rho (D) compatible blood: available in 20-30 minutes after sample *received* in the Blood Bank; requires signed release form.
  - a. Indications:
    - i. Hypotensive with systolic blood pressure <90 and:
      - Cross-matched blood not yet available
      - Ongoing bleeding
    - ii. Depletion of typed and crossed blood with further emergency transfusion requirement.
6. Type and cross-matched: Available in one hour after sample *received* in the Blood Bank.
  - a. Indications:
    - i. Usual transfusion indications.

- ii. Remember: blood loss does not stop immediately after the patient arrives in the hospital. Occult hemorrhage into contusions, hematoma and fractures will continue.
  - iii. Risks: same as routine cross-match.
- 7. Consider cell-saver:
  - a. Chest tubes with exsanguinating hemorrhage.
    - i. Set up cell-saver compatible chest drainage system (see Practice Guideline: Autotransfusion).
    - ii. Add 13 ml of citrate anticoagulant for every anticipated 100 ml of salvaged blood.
  - b. Clean injuries with exsanguinating bleeding.
    - i. Call OR to have available when patient arrives.
- 8. Fresh frozen plasma: available in 30-45 minutes after sample received in the Blood Bank.
  - a. Absolute indications:
    - i. Massive Transfusion (within cooler)
    - ii. Documented coagulopathy due to dilution or DIC.
    - iii. 4 units thawed are available immediately outside of MTP if needed.
  - b. Relative indications:
    - i. Elevated PT.
- 9. Platelets: available in 30-45 minutes after sample *received* in the Blood Bank or uncrossmatched within 20 minutes.
  - a. Absolute indication: evidence of bleeding with a platelet count <50,000.
  - b. Relative indications:
    - i. Potential bleeding with platelet count <20,000.
- 10. Cryoprecipitate: available in 30-45 minutes (for thawing).
  - a. Absolute indication: bleeding with documented fibrinogen <100 mg/dL.
  - b. Relative Indication: patient has received massive transfusion protocol.

**PROCESS FOR BLOOD AVAILABILITY AT THE University Hospital:**

1. Two units of red blood cells are kept in the Trauma room refrigerator. An emergency release form will need to be signed by the ordering physician.
2. Blood for type and cross match will be drawn (per policy CM, B-08 [http://www.upstate.edu/policies/documents/intra/CM\\_B-08.pdf](http://www.upstate.edu/policies/documents/intra/CM_B-08.pdf))
3. Once blood is used, ED/Trauma personnel will notify Blood Bank if more than 2 units of uncrossmatched blood is needed. The request should include the type of blood needed (O-Neg or Type Specific). The physician, or their designee, requesting the uncrossmatched blood, must complete an Emergency Release Form provided by the Blood bank
4. Blood should not be stored Trauma room refrigerator (policy LAB, B-02) except for the O negative units specified by the blood bank.
5. Unused blood should be returned to the Blood bank as soon as possible, within 30 minutes if not cooled.
6. Type Specific Blood and/or full crossmatched blood should be used as soon as it is available. Close contact with the Blood Bank regarding status of blood units is essential. If

the patient is transferred to another nursing unit/department with any blood components unused, notify Blood Bank so they are aware of blood locations.

Blood will usually be infused with 0.9% NaCl but may be administered with Lactated Ringers as long as rapid flow rates are used.

**PRACTICE GUIDELINES: MASSIVE TRANSFUSION PROTOCOL (MTP)**

[http://www.upstate.edu/policies/documents/intra/CM\\_T-25.pdf](http://www.upstate.edu/policies/documents/intra/CM_T-25.pdf)