



**IDENTIFY AND TREAT ACTIVE BLEEDING**  
(Obstetrical, Surgical, Trauma, Medical)

**STABILIZE AND TRANSPORT TO REFERRAL CENTRE**  
Care should be initiated within the resources and capabilities of the sending institution, which will vary depending on the hospital.

**ACTIVATE MTP** if patient is bleeding with anticipation of ongoing blood loss or bleeding requiring at least four (4) units of RBCs (adults) or 40 mL/kg (children) in four (4) hours.

- Establish or assign patient identification
- If the patient is transferred to another facility, the MTP will need to be activated in the second facility.

**CALL BLOOD TRANSFUSION SERVICE/BLOOD BANK (BTS/BB) TO ACTIVATE MTP**

- Provide contact information of physician leading the MTP
- Provide patient information
- BTS will notify the BTS/BB Medical Director as appropriate

## MEDICAL-SURGICAL INTERVENTIONS

- Prior to initiation of treatment, send STAT:
  - CBC, INR/PTT, Fibrinogen, Electrolytes, Creatinine, Mg<sup>++</sup>, Ionized Ca<sup>++</sup>, serum lactate, Group and Screen, Blood Gas (blood work done based on facility's capabilities)
- Consider cell salvage
- Warm all fluids
- Perform surgical/interventional radiology interventions as appropriate
- If treatment is within 3 hours of injury, consider tranexamic acid - 1 gram IV over 10 minutes followed by 1 gram IV over 8 hours.
- Anticoagulant reversal
  - Oral vitamin K<sub>1</sub> antagonists - (e.g. Warfarin/Acencoumarol)
    - INR 1.7 to 5.0 - PCC 40 mL IV and
      - vitamin K<sub>1</sub> (Phytonadione) 10 mg IV
    - INR ≥ 5.1 or Intracranial Hemorrhage or unknown INR
      - PCC 80 mL IV and
        - vitamin K<sub>1</sub> (Phytonadione) 10 mg IV
  - Heparin - Protamine 1 mg IV for every 100 units of Heparin
  - Direct thrombin inhibitors/direct factor Xa inhibitors (Apixaban/Dabigatran/Rivaroxaban) - no known antidote. Replace fluid loss with appropriate fluid replacement. Transfuse RBCs, plasma and/or platelets as needed. *Plasma will not reverse the anticoagulant effects of these drugs.*

## INITIAL TRANSFUSION MANAGEMENT

### ADULTS:

- RBCs 6 units *and*
- Plasma 1500 mL *and*
- Platelets\* 1 adult dose

### PEDIATRICS:

- RBC 15 mL/kg *and*
- Plasma 10-15 mL/kg *and*
- Platelets\* 5-10 mL/kg

\*In hospitals where platelets are not inventoried and the patient will be managed on site, consider requesting platelets from CBS.

## REASSESS

- CBC, INR/PTT, fibrinogen, blood chemistries as appropriate

## MAINTAIN

**Ionized calcium**  
greater than 1.13 mmol/L

**Urine output**  
greater than 0.5 mL/kg/h

**Systolic blood pressure**  
greater than 70 mmHg

**Temperature**  
greater than 35°C

**pH**  
greater than 7.10

## MAINTAIN

**Hemoglobin above 70 g/L with RBCs:**  
Adults: 2-10 units  
Pediatrics: 15 mL/kg

**Platelet count above 75x 10<sup>9</sup>/L OR above 100 x 10<sup>9</sup>/L (CNS injury) with Platelets:**  
Adults: 1 adult dose  
Pediatrics: 5-10 mL/kg

**INR below 1.7 with Plasma:**  
Adults: 500-1500 mL  
Pediatrics: 10-15 mL/kg

**Fibrinogen above 1.5 g/L with Cryoprecipitate:**  
Adults: 10 units  
Pediatrics: 1 unit/10 kg

## CONSIDER DISCONTINUING BLOOD COMPONENT THERAPY WHEN

- Shock has resolved
- Bleeding is under control

*Inform BTS when MTP is terminated*

## FOR ONGOING BLEEDING

- Reassess for the source of bleeding
- Repeat blood components based on lab results and in consultation with BTS, consider other Prohemostatic Drugs:

**DDAVP**

- Adults: 10.0 mcg/m<sup>2</sup> IV (max 20 mcg)
- Pediatrics: 0.3 mcg/kg

## rFVIIa WARNING

rFVIIa should only be considered in rare circumstances *after* all other measures have been carried out and there is a likelihood the patient will survive.

- rFVIIa dosing is 0.020 - 0.050 mg/kg IV Direct