

# **Massive Hemorrhage Protocol**

Leaders in Laboratory Medicine

## APPENDIX B: Less than 50kg Massive Hemorrhage Protocol Flowchart

#### **Appropriate Initial Interventions:**

- IV/IO access: 2 large bore IVs + CVC
- Crystalloid: as per attending physician
- Order MHP labs, Type and Screen (as needed), ABG
- Continuous Monitoring
- Use blood warmer for transfusions if available
- Prevent/reverse acidosis
- Correct hypocalcemia:
  - Adults: Ca gluconate 3 g IV slowly or Ca Chloride 1 g IV slowly \*\*
    - \*\* Calcium chloride is a vesicant. Infuse through central line if available.
  - Pediatrics: Ca gluconate 30 mg/kg/dose IV slowly
- Transfuse with unmatched RBCs if, needed

#### Other Considerations:

- Heparin reversal: Protamine 1 mg IV / 100 Units of heparin
- Warfarin reversal:
  - Vitamin K 10 mg IV
  - Prothrombin Complex as per TM protocol dosing for INR and weight
- Direct Factor X inhibitor bypass: 25-50 IU/kg PCC (to a max of 3000 units)
- Dabigatran reversal **Idarucizumab** 5 g over 20 minutes
- Consider antifibrinolytics: Tranexamic Acid 10-15mg/kg bolus (if not already administered) followed by 1mg-5mg/kg/h infusion

# General Guidelines for Blood Component and Product Replacement:

**RBCs** Aim for Hgb of at least 80 g/L in actively bleeding

patient

Dose: MD discretion (20 mL/kg reasonable start)

Plasma If INR>1.8

Dose: 10-20 mL/kg

Platelets If Plt  $<50 \times 10^9$ /L or  $<100 \times 10^9$ /L if CNS or ocular

iniurv

Dose: Adult: 1 platelet pool

Pediatric: 10-20 mL/kg to max of 1 platelet unit

**Fibrinogen** If Fibrinogen:

≤1.5 g/L (Trauma, GI, or surgical bleeding)≤ 2.0g/L (Obstetrical or CV bleeding)Dose: Fibrinogen: 30-60 mg/kg

# LESS than 50kg Massive Hemorrhage Protocol Flowchart

Massive Hemorrhage definitions: (1) Blood loss > 150 mL/min; (2) Replacement of 50% of blood volume in 3 h; or (3) Greater than one blood volume in < 24 h.

#### Identify & Manage Bleeding

- >10 mL/kg RBC transfused in ≤ 4 hours and ongoing major bleeding. Consider activating MHP
- >20 mL/kg RBC transfused in ≤ 4 hours and ongoing major bleeding. Activate MHP
- Coordinate with appropriate service intervention for definite hemorrhage control.

#### **Dedicated Porter or Runner**

- Arrange lab specimen transport and Kit #1 pick-up (with pick-up slip or equivalent)
- 2. Deliver Kit #1 to patient location
- Arrange transport of follow-up labs specimens and pick-up subsequent Kit(s) as appropriate
- 4. Remain assigned to patient until MHP is stopped regardless of change in location

#### Communicate

- TM physician will contact MRHP with actionable lab parameters and changes required to Kit contents
- MRHP/designate to contact TM physician with pertinent clinical info requiring changes to Kit contents and prior to requesting Kit #2.
- Notify TM lab if patient location is changing
- Call TM lab if additional blood components or products are required
- The TM physician can adjust Kits based on labs as needed

#### **Activate MHP**

- 1. Call Transfusion Medicine (TM) lab and provide:
  - Patient name/alias, pMRN/ULI, gender, weight, age/estimated age
  - Current patient location
  - Indication for MHP
  - · Name of clinical contact and MRHP
  - History of anticoagulant or antiplatelet agents, if known
- 2. Record name of TM contact
- Send dedicated porter or runner to TM lab (Clinical area or TM lab-coordinated per site practice)
- 4. Order MHP in Epic

# LESS than 25kg Kit #1 Contents\* GREATER than 25kg Kit #1 Contents\*

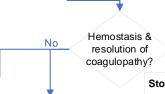
Red Blood Cells: 2 units Plasma: 2 units

### Fibrinogen:

1g (Pt weight: 10 kg or less)
2g (Pt weight: 10.1 kg – 25 kg)

Red Blood Cells: 4 units Plasma: 2 – 4 units (2 units if unmatched)

Fibrinogen: 4g



Q30 min

\*Cardiovascular and Vascular MHP activations receive platelets in Kit #1 instead of Kit #2.

Stop MHP:

Repeat MHP labs

Notify TM lab

- Return unused blood components and products ASAP
- Resume standard ordering practices