NEED A MASSIVE HEMORRHAGE PROTOCOL?

NO
NOT YET

1. ORDER 4 UNCROSSMATCHED RBC
2. REASSESS NEED FOR MHP

YES
NEED IT NOW

1. MASSIVE BLOOD LOSS
2. HYPOTENSION
3. LIKELY NEED PLASMA

Or based on hospital activation criteria

ANTICOAGULATION REVERSAL	
Warfarin	PCC 2000 units IV over 10 min Vitamin K 10mg IV over 10 min
Dabigatran (Pradaxa)	Idarucizumab 5g IV over 10 min
Apixaban (Eliquis) Rivaroxaban (Xarelto) Edoxaban (Lixiana)	PCC 2000 units IV over 10 min Repeat in 1 hour if bleeding continues
Heparins	Call pharmacy for dosing

MHP COOLER DELIVERY SEQUENCE	
Cooler 1	4 units ONeg RBC for women < 45 *All others receive OPos*
Cooler 2+	4 units RBC 2000 IU PCC 4 g fibrinogen concentrate

PLATELETS order if <50 or on antiplatelets
FIBRINOGEN CONCENTRATE order 4g IV if <1.5

Laboratory transfusion targets
(once results available and rate of bleeding controlled)

Value	Transfuse
Hgb < 80	RBC 2 units
INR ≥ 1.8	Plasma 4 units
Fibrinogen < 1.5 *Less than 2.0 for postpartum hemorrhage	Fibrinogen concentrate 4g
Platelets < 50	Platelets
Ionized calcium < 1.15	$CaCl_2$ 1g

PATIENT STABLE AND HEMORRHAGE CONTROLLED

1. Deactivate as per local policy
2. Perform bedside termination checklist
3. Inform family member and SDM of needing MHP
4. Return unused MHP components to blood bank

CALL FOR EARLY TRANSFER TO TERTIARY CARE CENTER

CALL XXXX:
INITIATE CODE TRANSFUSION

1. Control rapidly bleeding site (tourniquet?)
2. IV/IO access
3. Tranexamic acid total dose of 2g IV / IO
4. 4U RBCs with rapid infuser
5. Limit use of crystalloids
6. Calcium chloride 1g IV
7. Keep patient temperature above 36°C
8. Obtain trauma blood work
9. Reverse anticoagulation
10. Transfer patient via EMS/Ornge for definitive bleeding control

EVERY HOUR REASSESS

1. **Can MHP be turned off for lab directed transfusion?**
   Is bleeding controlled?
   Stable hemodynamics?
2. Do we need to call for the next cooler?
3. Is patient temperature >36°C
4. Is q1h blood work being collected?
5. $CaCl_2$ 1g IV for every 4 RBC or if ionized calcium < 1.15
6. Monitor for complications (hyperkalemia, volume overload)
7. Is resuscitation adequate (hemodynamics, lactate, VBG)
8. Switch to group specific blood products, when able