

NEED A MASSIVE HEMORRHAGE PROTOCOL?



NO NOT YET	<ol style="list-style-type: none"> ORDER 4 UNCROSSMATCHED RBC REASSESS NEED FOR MHP
-----------------------	---

YES NEED IT NOW	<ol style="list-style-type: none"> MASSIVE BLOOD LOSS HYPOTENSION 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 of protamine

MHP COOLER DELIVERY SEQUENCE	
Cooler 1	4 units ONeg RBC for women < 45 <i>All others receive OPos</i>
Cooler 2	4 units RBC 4 plasma
Cooler 3	4 units RBC 2 plasma 4g fibrinogen concentrate
Cooler 4+	4 units RBC 2 plasma

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

PATIENT STABLE AND HEMORRHAGE CONTROLLED
<ol style="list-style-type: none"> Deactivate as per local policy Perform bedside termination checklist Inform family member and SDM of needing MHP Return unused MHP components to blood bank

Laboratory transfusion triggers
(once results available or rate of bleeding controlled)

Value	Transfuse
Hgb < 80	RBCs
INR ≥ 1.8	Plasma 4 units
Fibrinogen < 1.5 <i>*Less than 2.0 for postpartum hemorrhage</i>	Fibrinogen concentrate 4g
Platelets < 50	Platelets 1 adult dose
Ionized calcium < 1.15	CaCl ₂ 1g

If available, ROTEM triggers

Value	Transfuse
EXTEM CT > 80	Plasma 4 units
EXTEM A10 < 35	Platelets 1 adult dose
FIBTEM A10 < 8-10	Fibrinogen concentrate 4g

**CALL XXXX:
INITIATE CODE TRANSFUSION**

- Control rapidly bleeding site (tourniquet)
- IV/IO access
- Tranexamic acid total dose of 2g IV / IO
- 4U RBCs with rapid infuser
- Limit use of crystalloids
- Calcium chloride 1g IV
- Keep patient temperature above 36°C
- Obtain MHP blood work
- Reverse anticoagulation
- Call for definitive bleeding control (OR, angio, endoscopy)

EVERY HOUR REASSESS

- Can MHP be turned off?**
Can laboratory guided transfusion be used instead?
 Is bleeding controlled?
 Stable hemodynamics?
- Do we need to call for the next cooler?
- Patient temperature >36°C
- Collect q1h blood work
- CaCl₂ 1g IV for every 4 RBC or ionized calcium < 1.15
- Monitor for complications (hyperkalemia, volume overload)
- Is resuscitation adequate? (hemodynamics, lactate, VBG)
- Switch to group specific blood products, when able

