Obstetrical Massive Transfusion Protocol
(This protocol and call list should be updated every 6 months.)
Last update November 13, 2015

I. Principle:

A. When a provider is confronted with the severely hemorrhaging patient s/he should activate the Massive Transfusion Protocol (MTP) with the goal of rapidly restoring adequate blood volume and hemostasis.

B. When the MTP is activated, the Blood Bank will issue a "Massive Transfusion Pack." The Massive Transfusion Pack includes: 6 units RBCs (in a cooler), 4 units of thawed plasma (FFP, in a cooler) and 1 unit of apheresis platelets (at room temperature) and 1 cryoprecipitate (cryo, 5 pooled, room temp).

II. Procedures:

A. PHYSICIANS:

Step	Action
1	Determine if massive transfusion is necessary. Inform Charge Nurse to **"Activate the Massive Transfusion Protocol".**
2	Order STAT labs including: T&C, CBC, PT, INR, PTT, Fibrinogen, Chem 10. Repeat these at least after every 4 units of blood products are transfused or every 1-2 hours.
3	Consult anesthesia for assistance.
4	If uterine atony is a component of the bleeding, administer the following medications: • Oxytocin (Pitocin) – after all deliveries give rapid bolus 3 U over 3 minutes. May repeat x1 for atony. Then 300 mU/min for 1 hour then 60 mU/min for next 3 hours.If atony persists after 2nd 3U bolus then administer 2nd line agents. • Methylergonovine (Methergine) 0.2mg IM, may be repeated every 2-4 hours (avoid in hypertension and Raynaud's) • 15-methyl PGFα (Hemabate, Carboprost) 250 mcg IM, may repeat every 15 min, max 8 doses, (avoid in asthma, hepatic, renal, cardiovascular disease) • Misoprostol (Cytotec) 800-1000 mcg PR x1 Consider Uterine Compression sutures (B-Lynch) and / or Bakri Balloon Placement.
5	Evaluate the results of labs and treat patient accordingly. The following criteria may be helpful as a guide to transfusions: • FFP should be transfused if the INR is greater than 1.5. • Platelets should be transfused if less than 50 X 10^9 /L. • RBCs should be transfused for hemoglobin less than 7.0 g/dL. • Cryo should be transfused for fibrinogen less than 100 mg/dL (1 unit = 5 pooled).
6	If bleeding persists after uterotonics and surgical interventions (i.e. when FFP is needed/ being given and within the 1st 3 hours of hemorrhage): Give Transexamic Acid (TXA) 1 g IV over 10 minutes (should be given in a separate IV line from blood products). Repeat TXA 1g IV after 30 minutes if bleeding has not resolved.
7	Keep track of exact number of each product administered. Blood products will be numbered by the Blood Bank.
8	For every 4 units RBCs, give CaCl 10% 1g IV over 5 minutes.
8	If >10 units of RBCs are given, give Vitamin K 10mg in 50mL NS IV over 30 minutes.
9	Monitor core temperature closely and ensure that RBCs and FFP are delivered using a Level 1 rapid infuser/ fluid warming device. External heating devices (e.g. Bair Hugger) may also be necessary to maintain normothermia. Consider a 2nd Bair Hugger on legs if patient is supine.
10	Last line, after all other surgical and pharmacological interventions, a single dose of Prothrombin Complex Concentration (KCENTRA) may be beneficial: Give PCC 25units/kg IV, infused over 10-15 minutes on an infusion pump. Repeat dosing is not supported and increases risk for thrombus complications.
11	Two providers must decide and agree that the emergency is resolved and then call the Blood bank and inform them of resolution.

12	Sign any outstanding orders and perform necessary documentation.

B. NURSING:

Step	Action
1	**Call Blood Bank STAT (x_____). State "Activate the Massive Transfusion Protocol."** Have ready the patient's name and identifying information, the name of the physician activating the massive transfusion along with your name, location and phone extension. Request a "Massive Transfusion Pack" (6 RBCs, 4 FFP, 1 platelets, 1 cryo). Inform Blood Bank that the blood products will be picked up by the assigned L&D runner.
2	Assign a **"Runner"** to get all blood products until situation is resolved. Send runner to Lab STAT with a patient label to pick up blood products. This runner will get all blood products from here on.
3	Assign **"Callers"**: 1 or 2 person(s) to call Massive Transfusion Call List (see next page). They should document times and results of each call.
4	Assign a **"Recorder"** to record all events with times during the OB emergency (including when all meds given, interventions performed and blood products given).
5	Draw the ordered lab tests: T&C, CBC, PT, PTT, Fibrinogen, Chem 10. This requires 2 purple tops (T&S, CBC), 1 blue (INR, PT, PTT; fibrinogen), 1 green (Chem 10). Ensure that these blood specimens are sent STAT to the Lab with the appropriate requisition forms.
6	Move patient to L&D OR if not already in OR.
7	Perform proper verification of blood products and transfusion documentation per hospital policy.
8	Ensure that delivered RBCs and FFP remain in a cooler until they are administered. Ensure that platelets and cryo remain at room temperature.
9	External heating devices (e.g. Bair Hugger) may also be necessary to maintain normothermia. Consider a 2nd Bair Hugger on legs if patient is supine.
10	Place Foley catheter if not already in place.
11	Ensure that unused blood products are sent back to Blood Bank ASAP when the MTP is de-activated.
12	Perform necessary documentation.

Obstetrical Massive Transfusion Protocol Call List

Call persons listed in the order listed below. Document times and result of each call on this form. State on the phone ***"The Massive Transfusion Protocol has been activated on Labor and Delivery."***

1	Title	Reason	Name	Phone numbers	Time called	Result: not reached, aware, on their way/ ETA in min
2	**OB Attending on duty and Deck Supervisor**	*if they are not already involved*		*see phone list*		
3	**Blood bank**	*For awareness blood is needed*				
4	**OB Anesthesia on duty**	*if they are not already involved*				
5	**ER**	*(To announce overhead "Massive Transfusion Protocol on L&D"?)*				
6	**NICU**	*If infant not delivered*				
7	**Anesthesia Floor walker**	*For awareness*				
8	**NOD**	*For awareness, need for ICU bed*				
9	**Clinical Coordinator**	*For additional help in L&D OR*				
10	**MFM on duty**	*Check call schedule*	Monica Lutgendorf			
			John Richard			
11	**GYN ONC on duty**	*Check call schedule*	Addie Alkhas			
			Grainger Lanneau			
			Jessica Shank			
12	**GYN back up**	*Check call schedule*				
13	**Pharmacy**	*Notify of possible need for TXA or PPC*				
14	**Chaplain**	*To assist with family*				
15	**Social Worker**	*To assist with family*				
16	**General Surgery Red Team Chief Resident**	*Inform ICU bed will be needed and make Red team attending aware* (*No need to come in from home unless specifically requested by OB attending)				*
17	**Duty Pathologist**	*For awareness*				
18	**OB Chair**	*For awareness*	Amanda Simsiman			
19	**L&D Division Officer**	*For awareness*				
20	**Interventional Radiology**	*ONLY If requested by team, alert for possible uterine artery embolization* (*No need to come in from home unless specifically requested by OB attending)				*