

Guideline for Management of Postpartum Hemorrhage

For hemorrhage of more than 500 mL (1000 mL for cesarean) estimated blood loss, but less than 1000 mL (1500 mL for cesarean):

- Start intravenous (IV) line if not present[†]
- Increase IV fluid rate
- Increase IV oxytocin by increasing infusion rate, or by increasing concentration to 40-80 international units/L
- Empty bladder[†]
- Conduct vigorous fundal massage
- Administer 0.2 mg of methylergonovine intramuscularly every 2-4 hours if patient is not hypertensive
- Make sure type and screen is current: if antibody positive, crossmatch 2 units
- Evaluate for retained product of conception, lacerations, uterine atony, and uterine inversion
- Administer 0.25 mg of 15-methyl prostaglandin F_{2α} intramyometrially or intramuscularly (may repeat every 15-90 minutes for a maximum of eight doses), or 800-1000 micrograms of misoprostol rectally

If no response by 1000 mL (1500 mL for cesarean) estimated blood loss:

- Call for help – second obstetrician, anesthesia, blood bank, and nursing supervisor and consider gyn-oncologist
- Initiate massive transfusion protocol**
- Assign transfusion point person to talk with blood bank (anesthesia)
- Assign Red Hat to manage checklist (charge RN)
- Red Hat identifies and assigns and sends runner to blood bank for green cooler
- Send labs in green bag (comes with blood in cooler). Blood bank orders labs and sends back blood and products.
- Begin blood product transfusion based on clinical signs and judgment
- Establish second large-bore IV line
- Administer oxygen as needed to maintain oxygen saturation greater than 95%
- Consider move to operating room for dilation and curettage* or laceration repair[†]
- Have OB hemorrhage chart moved to OR from anesthesia work room
- Consider intrauterine balloon or uterine packing

- Consider warm blanket to prevent hypothermia
- Place Foley catheter with urometer[†]
- Determine disposition of patient (PACU, SCU, LDR)

If no response by 1500 mL (2000 mL for cesarean) estimated blood loss:

- Decision made between transfusion point person and blood bank for further blood products and labs
- Consider uterine artery ligation, B-Lynch sutures, hypogastric artery ligation or hysterectomy. Consider cell-saver only if readily available.
- Notify blood bank when massive transfusion over

[†]typically prerequisite for cesarean delivery

*ultrasound should be performed to evaluate for retained placental tissue before uterine instrumentation is undertaken

**refer to attached

Table 1: Medical Management of Postpartum Hemorrhage¹

Drug*	Dose/Route	Frequency	Comment
Oxytocin (Pitocin)	IV: 10-40 units in 1 liter normal saline or lactated Ringer's solution IM: 10 units	Continuous	Avoid undiluted rapid IV infusion, which causes hypotension
Methylergonovine (Methergine)	IM: 0.2 mg	Every 2-4 h	Avoid if patient is hypertensive
15-methyl PCF _{2α} (Carboprost) (Hemabate)	IM: 0.25 mg	Every 15-90 min, 8 doses maximum	Avoid in asthmatic patients; relative contraindication if hepatic, renal, and cardiac disease. Diarrhea, fever, tachycardia can occur.
Dinoprostone (Prostin E ₂)	Suppository: vaginal or rectal 20 mg	Every 2 h	Avoid if patient is hypotensive. Fever is common. Stored frozen, it must be thawed to room temperature
Misoprostol (Cytotec, PGE ₁)	800-1000 mcg rectally		

IV, intravenously; IM, intramuscularly; PG, prostaglandin

*all agents can cause nausea and vomiting

Table 2: Tamponade Techniques for Postpartum Hemorrhage¹

Technique	Comment
Uterine tamponade	
- Packing	- 4-inch gauze; can soak with 5000 units of thrombin in 5 mL of sterile saline
- Foley catheter	- Insert one or more bulbs; instill 60-80 mL of saline
- Sengstaken-Blakemore tube	
- SOS Bakri tamponade balloon	- Insert balloon; instill 300-500 mL of saline

Table 3: Blood Component Therapy¹

Product	Volume (mL)	Contents	Effect (per unit)
Packed red cells	240	Red blood cells, white blood cells, plasma	Increased hematocrit 3 percentage points, hemoglobin by 1 g/dL
Platelets	50	Platelets, red blood cells, white blood cells, plasma	Increase platelet counts 5,000-10,000 mm ³ per unit
Fresh frozen plasma	250	Fibrinogen, antithrombin III, factors V and VIII	Increased fibrinogen by 10 mg/dL
Cryoprecipitate	40	Fibrinogen, factors VIII and XIII, von Willebrand factor	Increase fibrinogen by 10 mg/dL

Reference:

1. ACOG Practice Bulletin #76. Postpartum Hemorrhage. October 2006

MASSIVE TRANSFUSION PROTOCOL

SEE FLOW CHARTS FOR SPECIFIC AREAS:

ED, OR, EAST TOWER, SCU/CTICU



IF YOU ANTICIPATE EMERGENT NEED FOR LARGE AMOUNTS OF BLOOD IN A SHORT PERIOD OF TIME
Call Blood Bank 662-2121 As Soon As You Know
Identify a contact person to communicate with Blood Bank!



When You Call Blood Bank To Start The Massive Transfusion Process
TELL THEM: Pt name, dx, current location, next location, contact person
Keep them Informed Throughout the Whole Process
The More the Blood Bank Knows, the Better Things Will Go



ROUND #1

4 u uncrossmatched RBC's (Type O Rh neg) or crossmatched (if available)
If necessary, 2u AB plasma (emergency release type AB plasma already thawed)



ALL SUBSEQUENT ROUNDS

1:1 RBC:FFP
(or as close to that ratio as possible)
4 u crossmatched RBC's
4 units FFP

RE-IDENTIFY CONTACT PERSON WHEN YOU HAND OFF PATIENT TO THE NEXT LOCATION!
(e.g. ED to OR, SCU or other destination)
AND Communicate to Blood Bank!

TALK to the Blood Bank with anticipated end of MT and again at the end of MT



OTHER RECOMMENDATIONS



Each cooler will come with green bags containing the proper tubes and instructions for labs to be drawn after each round of products

FIRST SET OF LABS

- Type & Screen (if not already done)
- Massive Transfusion Coag Panel (INR, PTT, Fibrinogen, Plat Ct)
- CBC
- CMP
- Mg⁺⁺
- Ionized Ca⁺⁺
- ABG

LABS AFTER EACH ROUND OF BLOOD PRODUCTS

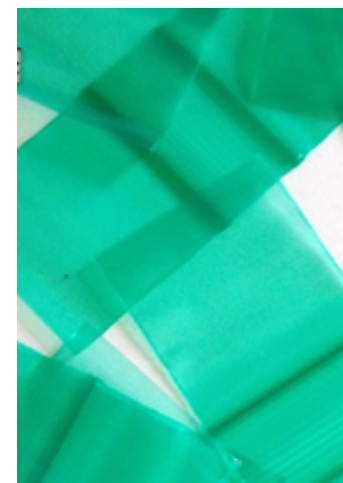
- CBC
- Massive Transfusion Coag Panel (INR, PTT, Fibrinogen, Plat Ct)
- Ionized Ca⁺⁺
- ABG's
- TEG (currently available in OR 6AM to 6PM M-F @ 662-4556)

PLATELETS

1 dose every 10 -12 units RBC in consultation with Blood Bank
(contingent upon platelet inventory and control of hemorrhage)

1. If INR >2.0: Give 3 additional units FFP
2. If fibrinogen < 100 mg/dL: give 10 units cryoprecipitate
3. CALCIUM: After the first 4 units RBC's give with each 1-2 units:
Calcium gluconate: 10 ml (~5 meq)
Calcium chloride: 3 ml (~5 meq)
4. If pH <7: give NaHCO₃ 50 meq
5. Permissive hypotension
6. Normosol R: OK with blood products and is associated with less hyperchloremic acidosis than NS
7. Recombinant Factor VIIa
Dose = 30 mcg/kg
Ideal variables for rFVIIa therapy include:
pH >7.2
Platelet count > 100,000
Body Temp >36°C
Fibrinogen >100 mg/d
8. Consider use of cell saver

Green Zip-Lock bags



RK:14May12