CMQCC

Obstetric Hemorrhage Emergency Management Plan: Checklist Format

Revision 9/10/14

Stage 0: All Births – Prevention & Recognition of OB Hemorrhage
Prenatal Assessment & Planning

☐**Identify and prepare for patients with special considerations:** Placenta Previa/Accreta, Bleeding Disorder, or those who Decline Blood Products

☐**Screen and aggressively treat severe anemia:** if oral iron fails, initiate IV Iron Sucrose Protocol to reach desired Hgb/Hct, especially for at risk mothers.

Admission Assessment & Planning

Verify Type & Antibody Screen from prenatal record

If not available,

☐ Order Type & Screen (lab will notify if 2nd specimen needed for confirmation)

If prenatal or current antibody screen positive (if not low level anti-D from Rho-GAM),

☐ Type & Crossmatch 2 units PRBCs

All other patients,

☐ Send specimen to blood bank

☐ Evaluate for ***Risk Factors*** on admission, throughout labor, and postpartum. (At every handoff)

If medium risk:

☐ Order Type & Screen

☐ Review Hemorrhage Protocol

If high risk:

☐ Order Type & Crossmatch 2 units PRBCs

☐ Review Hemorrhage Protocol

☐ Notify OB Anesthesia

Identify women who may decline transfusion

☐ Notify OB provider for plan of care

☐ Early consult with OB anesthesia

☐ Review Consent Form

Ongoing Risk Assessment

☐ **Evaluate for development of additional risk factors in labor**:

- Prolonged 2nd Stage labor
- Prolonged oxytocin use
- Active bleeding
- Chorioamnionitis
- Magnesium sulfate treatment

☐ **Increase Risk level** (see below) **and convert to Type & Screen or Type & Crossmatch**

☐ **Treat multiple risk factors as High Risk**

☐ **Monitor women postpartum for increased bleeding**

Admission Hemorrhage Risk Factor Evaluation

Low (Clot only)	**Medium** (Type and Screen)	**High** (Type and Crossmatch)
No previous uterine incision	Prior cesarean birth(s) or uterine surgery	Placenta previa, low lying placenta
Singleton pregnancy	Multiple gestation	Suspected Placenta accreta or percreta
≤ 4 previous vaginal births	> 4 previous vaginal births	Hematocrit < 30 AND other risk factors
No known bleeding disorder	Chorioamnionitis	Platelets < 100,000
No history of PPH	History of previous PPH	Active bleeding (greater than show) on admit
	Large uterine fibroids	Known coagulopathy

All Births – Prophylactic Oxytocin, Quantitative Evaluation of Blood Loss, & Close Monitoring

Active Management of Third Stage

☐ Oxytocin infusion: 10-40 units oxytocin/1000 ml solution titrate infusion rate to uterine tone; or 10 units IM; do not give oxytocin as IV push

Ongoing Quantitative Evaluation of Blood Loss

☐ Using formal methods, such as graduated containers, visual comparisons and weight of blood soaked materials (**1gm = 1ml**)

Ongoing Evaluation of Vital Signs

If: Cumulative Blood Loss > 500ml vaginal birth or > 1000ml C/S with continued bleeding -OR-
Vital signs > 15% change or HR ≥ 110, BP ≤ 85/45, O2 sat < 95% -OR- Increased bleeding during recovery or postpartum,
proceed to STAGE 1

STAGE 1: OB Hemorrhage

Cumulative Blood Loss >500ml vaginal birth or >1000ml C/S with continued bleeding -OR-
Vital signs >15% change or HR ≥110, BP ≤85/45, O2 sat <95% -OR-
Increased bleeding during recovery or postpartum

MOBILIZE

Primary nurse, **Physician or Midwife** to:

- ☐ Activate OB Hemorrhage Protocol and Checklist

Primary nurse to:

- ☐ Notify obstetrician or midwife (in-house and attending)
- ☐ Notify charge nurse
- ☐ Notify anesthesiologist

Charge nurse:

- ☐ Assist primary nurse as needed or assign staff member(s) to help

ACT

Primary nurse or designee:

- ☐ Establish IV access if not present, at least 18 gauge
  Increase IV Oxytocin rate, 500 mL/hour of 10-40 units/500-1000 mL solution; Titrate infusion rate to uterine tone
- ☐ Apply vigorous fundal massage
- ☐ Administer Methergine 0.2 mg IM per protocol (if not hypertensive); give once, if no response, move to alternate agent; if good response, may give additional doses q 2 hr (If Misoprostol standard, misoprostol 800 mcg SL per protocol)
- ☐ Vital Signs, including O2 sat & level of consciousness (LOC) q 5 minutes
- ☐ Weigh materials, calculate and **record** cumulative blood loss q 5-15 minutes
- ☐ Administer oxygen to maintain O2 sats at >95%
- ☐ Empty bladder: straight cath or place Foley with urimeter
- ☐ Type and Crossmatch for 2 units Red Blood Cells STAT (if not already done)
- ☐ Keep patient warm

Physician or midwife:

- ☐ Rule out retained Products of Conception, laceration, hematoma

Surgeon (if cesarean birth and still open)

- ☐ Inspect for uncontrolled bleeding at all levels, esp. broad ligament, posterior uterus, and retained placenta

THINK

Consider potential etiology:

- Uterine atony
- Trauma/Laceration
- Retained placenta
- Amniotic Fluid Embolism
- Uterine Inversion
- Coagulopathy
- Placenta Accreta

Once stabilized: Modified Postpartum management with increased surveillance

If: Continued bleeding or Continued Vital Sign instability, and < 1500 mL cumulative blood loss
proceed to STAGE 2

STAGE 2: OB Hemorrhage

Continued bleeding or Vital Sign instability, and < 1500 mL cumulative blood loss

MOBILIZE

Primary nurse (or charge nurse):

- ☐ Call obstetrician or midwife to bedside
- ☐ Call Anesthesiologist
- ☐ Activate Response Team:

PHONE #:_____

- ☐ Notify Blood bank of hemorrhage; order products as directed

Charge nurse:

- ☐ Notify Perinatologist or 2nd OB
- ☐ Bring hemorrhage cart to the patient's location
- ☐ Initiate OB Hemorrhage Record
- ☐ If considering selective embolization, call-in Interventional Radiology Team and second anesthesiologist
- ☐ Notify nursing supervisor
- ☐ Assign single person to communicate with blood bank
- ☐ Assign second attending or clinical nurse specialist as family support person or call medical social worker

ACT

Team leader (OB physician or midwife):

- ☐ Additional uterotonic medication: Hemabate 250 mcg IM [if not contraindicated] **OR** Misoprostol 800 mcg SL
  - Can repeat Hemabate up to 3 times every 20 min; (note-75% respond to first dose)
- ☐ Continue IV oxytocin and provide additional IV crystalloid solution

Do not delay other interventions (see right column) while waiting for response to medications

- ☐ Bimanual uterine massage
- ☐ Move to OR (if on postpartum unit, move to L&D or OR)
- ☐ Order 2 units PRBCs and bring to the bedside
- ☐ Order labs STAT (CBC/PLTS, Chem 12 panel, Coag Panel II, ABG)
- ☐ **Transfuse PRBCs based on clinical signs** and response, **do not wait** for lab results; consider emergency O-negative transfusion

Primary nurse (or designee):

- ☐ Establish 2nd large bore IV, at least 18 gauge
- ☐ Assess and announce Vital Signs and cumulative blood loss q 5-10 minutes
- ☐ Set up blood administration set and blood warmer for transfusion
- ☐ Administer meds, blood products and draw labs, as ordered
- ☐ Keep patient warm

Second nurse (or charge nurse):

- ☐ Place Foley with urimeter (if not already done)
- ☐ Obtain portable light and OB procedure tray or Hemorrhage cart
- ☐ Obtain blood products from the Blood Bank (or send designee)
- ☐ Assist with move to OR (if indicated)

Blood Bank:

- ☐ Determine availability of thawed plasma, fresh frozen plasma, and platelets; initiate delivery of platelets if not present on-site
- ☐ Consider thawing 2-4 FFP (takes 30 min), use if transfusing > 2 units PRBCs
- ☐ Prepare for possibility of massive hemorrhage

THINK

Sequentially advance through procedures and other interventions based on etiology:

Vaginal birth

If **trauma (vaginal, cervical or uterine):**

- Visualize and repair

If **retained placenta**:

- D&C

If **uterine atony** or lower uterine segment bleeding:

- Intrauterine Balloon

If **above measures unproductive:**

- Selective embolization (Interventional Radiology if available & adequate experience)

C-section:

- B-Lynch Suture
- Intrauterine Balloon

If **Uterine Inversion**:

- Anesthesia and uterine relaxation drugs for manual reduction

If **Amniotic Fluid Embolism**:

- Maximally aggressive respiratory, vasopressor and blood product support

If **vital signs are worse than estimated or measured blood loss**: possible uterine rupture or broad ligament tear with internal bleeding; **move to laparotomy**

Once stabilized: Modified Postpartum management with increased surveillance

Re-Evaluate Bleeding and Vital Signs
If cumulative blood loss > 1500ml, > 2 units PRBCs given, VS unstable or suspicion for DIC, proceed to STAGE 3

STAGE 3: OB Hemorrhage

Cumulative blood loss > 1500ml, > 2 units PRBCs given, VS unstable or suspicion for DIC

MOBILIZE

Nurse or Physician:

☐ Activate Massive Hemorrhage Protocol

PHONE #:_____

Charge Nurse or designee:

☐ Notify advanced Gyn surgeon (e.g. Gyn Oncologist)
☐ Notify adult intensivist
☐ Call-in second anesthesiologist
☐ Call-in OR staff
☐ Ensure hemorrhage cart available at the patient's location
☐ Reassign staff as needed
☐ Call-in supervisor, CNS, or manager
☐ Continue OB Hemorrhage Record (In OR, anesthesiologist will assess and document VS)
☐ If transfer considered, notify ICU

Blood Bank:

☐ Prepare to issue additional blood products as needed – **stay ahead**

ACT

Establish team leadership and assign roles

Team leader (OB physician + OB anesthesiologist, anesthesiologist and/or perinatologist and/or intensivist):

☐ **Order Massive Hemorrhage Pack** (RBCs + FFP + 1 apheresis pack PLTS—see note in right column
☐ **Move to OR** if not already there
☐ Repeat CBC/PLTS, Coag Panel II STAT and Chem 12 panel q 30-60 min

Anesthesiologist (as indicated):

☐ Arterial blood gases
☐ Central hemodynamic monitoring
☐ CVP or PA line
☐ Arterial line
☐ Vasopressor support
☐ Intubation
☐ Calcium replacement
☐ Electrolyte monitoring

Primary nurse:

☐ Announce VS and cumulative measured blood loss q 5-10 minutes
☐ Apply upper body warming blanket if feasible
☐ Use fluid warmer and/or rapid infuser for fluid & blood product administration
☐ Apply sequential compression stockings to lower extremities
☐ Circulate in OR

Second nurse and/or anesthesiologist:

☐ Continue to administer meds, blood products and draw labs, as ordered

Third Nurse (or charge nurse):

☐ Recorder

THINK

Selective Embolization (IR)

Interventions based on etiology not yet completed

Prevent hypothermia, academia

Conservative or Definitive Surgery:

- Uterine Artery Ligation
- Hysterectomy

For Resuscitation:
Aggressively Transfuse
Based on Vital Signs, Blood Loss
After the first 2 units of PRBCs use
Near equal FFP and RBC for massive hemorrhage:

4-6 PRBCs: 4 FFP: 1 apheresis Platelets

Unresponsive Coagulopathy:

- Role of rFactor VIIa is very controversial. After 8-10 units PRBCs and coagulation factor replacement with ongoing hemorrhage, may consider risk/benefit of rFactor VIIa in consultation with hematologist or trauma surgeon

Once Stabilized: Modified Postpartum Management with increased surveillance; consider ICU

UTEROTONIC AGENTS for POSTPARTUM HEMORRHAGE

Drug	Dose	Route	Frequency	Side Effects	Contraindications	Storage
Pitocin® (Oxytocin) 10 units/ml	10-40 units per 500-1000 ml, rate titrated to uterine tone	IV infusion	Continuous	Usually none Nausea, vomiting, hyponatremia ("water intoxication") with prolonged IV admin. ↓ BP and ↑ HR with high doses, esp IV push	Hypersensitivity to drug	Room temp
Methergine® (Methylergonivine) 0.2 mg/ml	0.2 mg	IM (**not** given IV)	-Q 2-4 hours -If no response after first dose, it is unlikely that additional doses will be of benefit	Nausea, vomiting Severe hypertension, esp. if given IV, which is not recommended	Hypertension, Preeclampsia, Cardiovascular disease Hypersensitivity to drug **Caution** if multiple doses of ephedrine have been used, may exaggerate hypertensive response w/possible cerebral hemorrhage	Refrigerate Protect from light
Hemabate® (15-methyl PG F2a) 250 mcg/ml	250 mcg	IM or intra-myometrial (**not** given IV)	-Q 15-90 min -Not to exceed 8 doses/24 hrs -If no response after several doses, it is unlikely that additional doses will be of benefit.	Nausea, vomiting, Diarrhea Fever (transient), Headache Chills, shivering Hypertension Bronchospasm	Caution in women with hepatic disease, asthma, hypertension, active cardiac or pulmonary disease Hypersensitivity to drug	Refrigerate
Cytotec® (Misoprostol) 100 or 200 mcg tablets	600-800 mcg	Sublingual or oral	One time	Nausea, vomiting, diarrhea Shivering, Fever (transient) Headache	Rare Known allergy to prostaglandin Hypersensitivity to drug	Room temp

BLOOD PRODUCTS

Packed Red Blood Cells (PRBC) (approx. 35-40 min. for crossmatch—once sample is in the lab and assuming no antibodies present)	Best first-line product for blood loss 1 unit = 200 ml volume If antibody positive, may take hours to days. for crossmatch, in some cases, such as autoantibody crossmatch compatible may not be possible; use "least incompatible" in urgent situations
Fresh Frozen Plasma (FFP) (approx. 35-45 min. to thaw for release)	Highly desired if > 2 units PRBCs given, or for prolonged PT, PTT 1 unit = 180 ml volume
Platelets (PLTS) Local variation in time to release (may need to come from regional blood bank)	Priority for women with Platelets < 50,000 Single-donor Apheresis unit (= 6 units of platelet concentrates) provides 40-50 k transient increase in platelets
Cryoprecipitate (CRYO) (approx. 35-45 min. to thaw for release)	Priority for women with Fibrinogen levels < 80 10 unit pack (or 1 adult dose) raises Fibrinogen 80-100 mg/dl Best for DIC with low fibrinogen and don't need volume replacement Caution: 10 units come from 10 different donors, so infection risk is proportionate.