OLIVE VIEW-UCLA MEDICAL CENTER
POLICY & PROCEDURE

NUMBER: 3586
VERSION: 6

SUBJECT/TITLE: **OBSTETRIC HEMORRHAGE CARE GUIDELINES**

POLICY: All patients will be assessed for risk factors associated with obstetrical/ postpartum hemorrhage (PPH) on an ongoing basis. The 3rd stage of labor will be actively managed. There will be a standardized proactive and systematic approach to the management of PPH, including the use of pharmacological agents, quantification of blood loss, the use of blood products and procedures/ surgical interventions. Clear communication and interdisciplinary teamwork will be used.

PURPOSE: To reduce maternal mortality and morbidity associated with obstetric hemorrhage by assessing for risk and implementing a multidisciplinary team approach to the rapid management of massive blood loss. To define response triggers necessary to recognize the different 'stages' of hemorrhage and their optimal management.

DEPARTMENTS: **ALL**

DEFINITIONS: For the purposes of this policy, Obstetric hemorrhage and Postpartum hemorrhage will be used interchangeably.

Maternal hemorrhage is defined as a cumulative blood loss of greater than or equal to 1,000 mL or blood loss accompanied by signs or symptoms of hypovolemia within 24 hours after the birth process. Maternal hemorrhage remains the leading cause of maternal mortality worldwide.

Deaths due to PPH have declined, but PPH-related morbidities have remained constant and include massive transfusions, secondary surgical procedures, loss of fertility, and ICU admissions. The risk of hemorrhage associated with childbirth is unavoidable, but early identification creates the potential for early interventions and reduction of the risk of evolution into major hemorrhage.

GUIDELINES:

1. PRENATAL ASSESSMENT:

A. Upon initial prenatal intake, assess all obstetric patients for their hemorrhage risk using Prenatal Assessment and the OB Hemorrhagic Risk Factor Evaluation criteria outlined below (see Tables 1, 2).
B. Initiate interventions based on risk assessment, including measures for Jehovah's Witnesses.
C. Perform ongoing hemorrhage risk reassessment throughout pregnancy.

Table 1: Antenatal Assessment

Prenatal Assessment	Prenatal Intervention
• Screen for anemia • Type and antibody screening • Identify conditions which increase risk for hemorrhage • Identify patients who will refuse blood products	• Optimize hemoglobin/hematocrit • Educate patient regarding transfusion risks, benefits, and alternatives • Document transfusion counseling and acceptance or refusal • Develop follow-up and intrapartum care plan

2. ADMISSION TO L&D ASSESSMENT:

A. Upon admission to L&D all patients will undergo risk assessment using Prenatal Assessment and the OB Hemorrhagic Risk Factor Evaluation criteria outlined below (see Tables 1, 2).
B. The Anesthesiologist will be informed of all admissions, including patient's hemorrhage risk level.
C. Obtain baseline CBC and T&S upon admission.
   1. If no prenatal T&S, anticipate need for a second "check type" clot.
   2. If positive antibody screen, ensure that appropriate blood is available.
   3. T&C 2 units PRBCs for patients with a positive anti-body screen, except for low level anti-D from Rhogam
D. Consent for transfusion on all admissions.

3. RISK SCORE TRIGGERED PREPARATION UPON L&D ADMISSION: (see Table 2)

Table 2: **Obstetric Hemorrhage Risk Factor Evaluation**

Low **All** factors must be present	**Medium** **Any one** factor present indicates at least medium risk	**High** **Any one** factor present indicates high risk
1. Type & Screen	**1. Type & Screen** 2. Review Guidelines	**1. Crossmatch PRBCs** 2+ units 2. Review Guidelines 3. Notify backup attending

		4. Notify Blood Bank of "potential" of serious bleeding
• No previous uterine incision • Singleton pregnancy • ≤ 4 previous vaginal births • No known bleeding disorders • No history of PPH	• Prior c-section or uterine surgery • Multiple gestation, macrosomia, polyhydramnios • > 4 previous vaginal births • Chorioamnionits • History of previous PPH • Large uterine fibroids • Morbid obesity (BMI ≥ 35) • Prolonged induction of labor • Use of magnesium sulphate • Low lying placenta	• Placenta previa • Suspected placenta accreta or percreta • Hct <30% and ≥ medium risk factors • Platelets <100,000 • Active bleeding • Known coagulopathy • Therapeutic anti-coagulant medication use • ≥ 3 medium risk factors

4. WOMEN DECLINING BLOOD TRANSFUSION

A. Every effort should be made to identify these patients early.
B. Notify OB attending and OB Anesthesia.
C. Counsel patient and ensure that Transfusion Refusal Consent Form signed
D. Review and complete with patient blood products acceptance/refusal form. Refer to "Blood Transfusion Consent Form and Addenda" (**OV2289**) listed on OVMC Intranet under Medical Record Forms.
E. Clarify acceptance of Blood Salvage Systems (Cell Saver technology)
F. Consider antepartum interventions to maximize pre-delivery hemoglobin (i.e. enhanced iron supplementation, erythropoetic growth factors, etc)

5. ONGOING ASSESSMENT IN L&D

A. Evaluate for developing risk factors:
   1. Prolonged labor and/or 2nd Stage
   2. Prolonged oxytocin use
   3. Active bleeding
   4. Chorioamnionitis
   5. Magnesium Sulfate treatment
B. Prepare for higher risk level as indicated.

6. POSTPARTUM ASSESSMENT: Hemorrhage Triggers

A. Obstetrical hemorrhage has been classified into stages based on progressive clinical deterioration which suggests the foundation for early recognition and response.
B. Objective techniques to estimate blood loss include measuring by

volume, weight and percent saturation.

C. Measure collected blood in graduated containers when available; consider amniotic fluid volume.

D. Weight of blood soaked items can be converted to ml. Subtract known dry weight of item from total weight to obtain Quantitative Blood Loss. Each 1 mg = 1 mL.

Table 3. Summary of Stages of Obstetric Hemorrhage & Primary Treatment Goals

TABLE 3: CMQCC RECOMMENDATION 2009			
STAGE	**Cumulative blood loss**	**Vital Signs**	**Bleeding**
0 **All births: Prevention & Recognition**	Vaginal ≤ 1000ml* C/S ≤ 1000ml	Ongoing evaluation	Ongoing quantitative evaluation of blood loss
1	Vaginal > 1000ml* C/S > 1000ml	> 15% change or HR ≥ 110 bpm BP ≤ 85/43 SPO2 < 95%	Increased bleeding during recovery or postpartum
2	< 1500ml	Continued VS instability	Continued bleeding
3	> 1500ml > 2 units PRBCs given	VS instability	Suspicion of DIC

or and or or or

*Taken from CMQCC 2015 Obsterical Hemorrhage guidelines. Revised 2019 to ACOG Practice Bulletin #183: Postpartum Hemorrhage.

7. MANAGEMENT OF OBSTETRICAL HEMORRHAGE

A. STAGE 0 for All Births: Prevention & Recognition of OB Hemorrhage

1. IV access shall be established in all laboring patients with #18g catheter
2. Active Management of Third Stage of Labor
   a) Oxytocin IV (20-40 units/liter) or IM (10 units) with delivery of infant or placenta
   b) Controlled cord traction
   c) Vigorous fundal massage for at least 15 seconds
3. Continue ongoing quantitative evaluation of blood loss (QBL)
4. Using formal methods, such as graduated containers, visual

comparisons and weight of blood soaked materials (1gm=1ml)

5. Continue ongoing evaluation of vital signs.

B. STAGE 1 OB Hemorrhage:

ACTIVATION OF OB HEMORRHAGE PROTOCOL INCLUDES THE FOLLOWING:

1. Call for assistance: this should include senior resident and Attending MD, but can include back-up OB attending and OB Anesthesia if patient is High Risk
2. Have RN bring Hemorrhage Cart
3. Assign RN to be responsible for tabulating EBL and giving updates.
4. Apply O2 Mask to improve O2 saturation
5. Ensure large bore IV access.
6. Notify Blood Bank of potential hemorrhage.
7. Type and Cross for 2 units PRBCs
8. Increase IV Oxytocin concentration to 30-40 units/liter.
9. Empty bladder, perform vigorous fundal massage
10. Assess for uterine atony, vaginal and cervical lacerations or expanding hematoma, retained POC.
    a) Request Deep Vaginal Laceration Tray if needed
    b) At time of C/S, inspect for uncontrolled bleeding at all levels, especially broad ligament, posterior uterus, and retained products of conception.
11. Consider other etiologies: Amniotic Fluid Embolism, Uterine Inversion, Coagulopathy, Placenta Accreta
12. Anticipate, and order if needed, 2nd line uterotonics: (see Table 4).
13. Keep pt. warm
14. After bleeding is controlled and patient is stable, consider level of care & monitoring required
15. If bleeding continues or have VS instability and <1500ml cumulative blood loss, move to OR and proceed to STAGE 2 hemorrhage steps.

C. STAGE 2 OB Hemorrhage:

Call for back-up OB attending and Anesthesiologist if not already present.

1. Identify team leader & assign roles:
    a. Scrub tech
    b. Runner to transport labs and blood
    c. RN as a blood manager (to quantify blood loss, track blood transfused)
    d. Clerk or equivalent to communicate with ANO, family

2. Move to the OR
3. Order CBC with platelets, coags, chem panel, ABG as STAT.
4. Notify Blood Bank of Stage 2 OB hemorrhage.
5. Transfuse 2-3 Units PRBC's (using blood warmer device) based on clinical signs. Do not wait for lab results.
6. Crossmatch 2 more units PRBCs and 2 units FFP.
7. Ensure 2nd large bore IV.
8. Place Foley w/ urine meter (if not already done).
9. Keep patient warm.
10. Sequentially give 2nd line uterotonics: (see Table 4). Do not delay other interventions while waiting for response to medications.
11. Continue vigorous bimanual massage.
12. Set up for possible surgical interventions:
    a. Deep Vaginal Laceration Tray
    b. D&C Tray /Suction Curettage
    c. C/S & Hysterectomy Trays
13. As in Stage 1, systematically advance through interventions based on etiology:
    a. Vaginal birth, consider:
        (1) Trauma to vagina, cervix or uterus. Re-inspect & repair.
        (2) If retained products of conception suspected, proceed to D&C.
        (3) Uterine atony or lower uterine segment bleeding consider Bakri Balloon.
        (4) If vaginal hematoma, consider packing.
        (5) May consider IR uterine artery embolization.
    b) Cesarean birth consider:
        (1) O'Leary stitch.
        (2) Uterine or Internal Iliac Artery ligation.
        (3) B-Lynch uterine compression stitch.
        (4) Bakri Balloon.
    c) Uterine Inversion
        (1) Immediate manual reduction
        (2) Uterine relaxants. Options include SL Nitroglycerine 400 mcg or IV Nitroglycerine 200 mcg (to be administered by Anesthesiologist)
    d) Suspected Amniotic Fluid Embolism:
        (1) Cardiopulmonary support
        (2) Blood product support
14. If vital signs worse than QBL consider uterine rupture or broad ligament tear with internal bleeding. Move to exploratory laparotomy.
15. After bleeding is controlled and patient is stable, consider

level of care & monitoring required.

16. Reevaluate bleeding and vital signs. If cumulative blood loss >1500ml, >2 units PRBCs given, VS unstable or suspicion of DIC, proceed to STAGE 3 hemorrhage steps.

D. **STAGE 3 OB Hemorrhage:**

1. **Call Blood bank x74062 to ACTIVATE MASSIVE TRANSFUSION PROTOCOL (MTP)**
   a. Tell them you are activating the MTP
   b. They will ask for:
      i. Patient MRN and name
      ii. Ordering physician
2. Print Blood Product Pick Up Slip – MTP
   a) Place order for 'Blood Product Pick Up Slip – MTP'
   b) Select 'No Cosign Required'
3. Send runner to blood bank with Blood Product Pick Up Slip
4. Blood Bank will give runner
   a) 4 units of PRBSs in a cooler: Unmatched type O blood or type-specific cross matched blood
5. Send runner back to Blood Bank in 20 minutes to pick up 2 units of thawed plasma
6. Notify Blood Bank of continued need for blood products
7. Send Type and Cross specimen STAT
   a) Have MD order in ORCHID
   b) Have a runner bring the specimen down to Blood Bank
8. Notify Blood Bank of continued need for blood Products
9. Consider labs that help assess bleeding status and response to treatments: CBC w/Plt, Coags, Wall Clot, Chem panel
10. Unresponsive Coagulopathy: After multiple units PRBCs and coagulation factor replacement (FFP and Cryoprecipitate), may consider risk/benefit of using rFactor VIIa.
11. Call MD Consults as needed: Gyn-Oncology Surgeon, Maternal-Fetal Medicine, Interventional Radiology.
    a. As in prior stages, systematically advance through interventions based on etiology.
    b. Consider invasive surgical approaches for control of bleeding such as uterine artery ligation, hysterectomy

E. **SURVEILLANCE POST HEMORRHAGE**

1. **Stage 0:** Standard Post Partum management
2. **Stage 1:** Increased Post Partum Surveillance

3. **Stage 2:** Increased Post Partum Surveillance
4. **Stage 3:** Consider ICU care.

8. PATIENT/FAMILY EDUCATION

A. The obstetrical team shall inform the patient of her individual risks for hemorrhage.

B. The patient shall be counseled on the available treatment options, their risks vs. benefits, and the recommended plan of care.

C. Hemorrhage risk education, treatment options and the plan of care shall be documented in the patient's electronic medical record

9. PATIENT TRANSPORT

Hemorrhage or G Suit (Gravity Suit) is available for use:

- in patients with persistent clinical evidence of shock,
- in pts. with known or suspected ongoing internal hemorrhage,
- for transport of mothers to higher level of care.

Table 4: Uterotonic Agents for Postpartum Hemorrhage

UTEROTONIC AGENTS for POSTPARTUM HEMORRHAGE					
Drug	**Dose**	**Route**	**Frequency**	**Side Effects**	**Contraindications**
Pitocin (Oxytocin) 10 units/ml	10-40 unit per 1000 ml, rate titrated to uterine tone	IV infusion	Continuous	Usually none N&V, Hypernatremia with prolonged IV administration Hypotension, tachycardia with high doses, esp. IV Push	Hypersensitivity to drug
	10 units (1ml vial)	IM	X1		
Methergine (Methyl-ergonivine) 0.2 mg/ml	0.2mg	IM (not given IV Push)	- Q 2-4 hours - If no response after 1st dose, unlikely that additional doses will work	N&V, Severe hypertension, esp. with rapid administration or in pt's with HTN or Preeclampsia	HTN, Preeclampsia, heart disease, drug hypersensitivity **Caution:** if multiple ephedrine doses have been given, may amplify hypertension, risk of CVA
Hemabate (15-Methyl PGF2a) 250mcg/ml	250mcg	IM or intramyometrial (not given IV)	-Q 15-90 min -Not to exceed 8 doses/24 hrs. -If no response after several doses, unlikely that additional	N&V , Diarrhea, Fever (transient), HA, Chills, Shivering, HTN Bronchospasm	**Caution** in with hepatic Dz, asthma, HTN, Pulmonary Dz, Active Cardiac Dz or hypersensitivity to drug

			doses will work		
Cytotec (Misoprostol) 100 or 200 mcg tabs	800 mcg. SL/ 1000mcg. PR	SL or PR	One time	N/V/diarrhea Shivering, transient fever, headache	Rare Known allergy to prostaglandin or hypersensitivity to drug

References:

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