TuftsMedicine
Lowell General Hospital

Hospital Policy and Procedure Manual, Maternal Child Health

Title: *OB Hemorrhage Protocol*
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IMPORTANT NOTICE: The official version of this policy is contained in Ellucid and may have been revised since the document was printed.

I. PURPOSE:

To reduce morbidity and mortality related to obstetric (OB) hemorrhage through standardization of care.

- Promote best outcomes and avoid errors
- Reduce variation
- Improve team efficiency and communication
- Identify necessary resources, equipment and roles/responsibilities
- Standardize treatment provided and interventions performed
- Utilize checklists and algorithms
- Perform cumulative quantitative estimation of blood loss
- Institute a stage-based protocol
- Improve prevention, identification, recognition and response

II. SCOPE:

Licensed Independent Practitioners (LIPs), Registered Nurses, LPNs, Delivery Room Techs, Scrub Techs, Nursing Assistants, Unit Secretaries, Lab and Blood Bank personnel caring for a patient experiencing an OB hemorrhage regardless of the physical location of the patient

II. DEFINITIONS:

1. Also referred to as Postpartum Hemorrhage (PPH), OB Hemorrhage (OBH) is an obstetric emergency. Timely diagnosis, appropriate resources, and appropriate management are critical for preventing death.
2. American College of Obstetricians and Gynecologists (ACOG) defines OB hemorrhage as a cumulative blood loss ≥ 1000 ml or bleeding associated with signs/symptoms of hypovolemia within 24 hours of the birth process regardless of delivery route.

3. Placenta Accreta Spectrum (PAS): formerly referred to as morbidly adherent placenta, encompasses the full extent of pathologic adherence of he placenta, including placenta accreta, placenta increta, and placenta percreta. The risk of placenta accreta is highest

in patients with both prior cesarean *and* placenta previa. Hemorrhage associate with PAS can be severe and life-threatening.

4. Quantitative Blood Loss (QBL): Estimate of blood loss by various methods which may involve formal training with visual estimation, gravimetric techniques involving weighing items, and/or colorimetric (photometric) methods using specialized equipment which estimates blood volumes on sponges and in canisters. These techniques are meant to provide a more accurate measure of the quantity of blood lost but are still approximations.

5. HELLP: a lab diagnosis including Hemolysis Elevated Liver enzymes and Low Platelets. This pregnancy complication may be associated with preeclampsia and increased risk for bleeding.

6. DIC: Disseminated Intravascular Coagulopathy, a rare but serious condition that causes abnormal blood clotting throughout the body's blood vessels.

7. **California Maternal Quality Care Collaborative (CMQCC) staging system —** The CMQCC OB Hemorrhage Protocol describes the following stages of PPH:

   Stage 0: All births, prevention & recognition of OB Hemorrhage

   Stage 1: *Continued bleeding* with Cumulative QBL > 1500 mL *or* > 2 units PRBCs given *or* abnormal VS *or* suspicion of DIC

   Stage 2: Continued bleeding w/ CBL < 1500 mL or VS remain abnormal

   Stage 3: Continued bleeding with CBL > 1500mL or > 2 units PRBCs given or abnormal VS or Suspicion of DIC

III. POLICY:

1. Management of the patient during an OB Hemorrhage will vary depending on the cause of the hemorrhage.

2. **Risk Factors**: Many risk factors for OB Hemorrhage have been reported and are often interdependent. Only a small proportion of at-risk women develop OB Hemorrhage (Placental Accreta Spectrum is an exception) and many patients without risk factors experience OB Hemorrhage.

Risk factors for OB Hemorrhage include, but are not limited to:	**Additional Delivery and Ongoing Postpartum Risk Factors include but are not limited to:**
• Prolonged (greater than24 hours), rapid or augmented labor • Prior Cesarean or uterine surgery • Chorioamnionitis • History of previous OB Hemorrhage • Platelets less than 100,000 (greater risk if <50,000) • Hematocrit less than 30% (greater risk if less than 24%) • Gestational age less than 37 or greater than 41 weeks • Preeclampsia • Over-distended uterus (twins, macrosomia, polyhydramnios, fibroids) • 4 or more prior deliveries • Magnesium Sulfate therapy • Placenta previa, low lying placenta • Suspected or known Placenta Accreta Spectrum • Abruption of active bleeding (more than show) • Known coagulopathy • HELLP Syndrome • Fetal demise	• Cesarean birth during this admission (especially if urgent/2nd stage) • Operative vaginal delivery • Lacerations including 3rd and 4th degree • Cumulative QBL greater than 500mL with vaginal delivery or greater than 1000mL for any delivery • Treatment for hemorrhage • Received general anesthesia • Uterine rupture

3. All patients will be assessed for risk factors upon using the OB Hemorrhage Risk Assessment Tool to facilitate prevention and early recognition of hemorrhage:
    a. Upon admission
    b. At the start of second stage of labor
    c. at transfer to postpartum care
    d. ***and any time the patient's condition changes.***

    Results will be classified as low, medium, or high risk.

4. Patients may present with Secondary PPH, which occurs 24 hours to 12 weeks after birth. ED staff should identify if patients complaining of vaginal bleeding have had a pregnancy in the last 6 weeks and assess such patients immediately.

5. In order to effectively prepare and plan for patients who decline the use of blood products, discussions regarding alternatives should occur in advance of emergencies. Non-whole blood products may be an option and efforts should be focused on prenatal hemoglobin optimization, inpatient hemorrhage prevention, and aggressive medical/surgical treatment of hemorrhage instead of relying mainly on blood substitutes. Cell saver technology may be considered.

6. Patients and families who experience an OB Hemorrhage will be supported by staff by prioritizing support people in the room been during emergencies, providing information about the medical condition as it changes, and providing resources for those experiencing acute stress disorder.

IV. PROCEDURE: Staff will have the knowledge and training to recognize OB hemorrhage and respond by activating the OB Hemorrhage Protocol. Simulations and training will be ongoing and focus on: Risk Factor Identification, Etiology, Quantitative Measurement of Blood Loss, Use of Equipment (Blood warmer, Rapid Infuser, Bakri Balloon, Bair Hugger), Blood Product Replacement, Surgical Interventions, Event Manager Training, Communication, and Performing OB Hemorrhage Protocol Drills.

OB Hemorrhage Stage O: All Births Prevention & Recognition of OB Hemorrhage			
Prophylactic Oxytocin, Quantitative Cumulative Blood Loss & Close Monitoring			
Nursing	*OB Provider*	*Anesthesia*	*Blood Bank*
• Assess all patients for OB hemorrhage risk factors using the OB Hemorrhage Risk Assessment Tool: -on admission -at start of 2nd stage of labor -at transfer to postpartum care -with change in condition Notify OB Provider and Anesthesia of any identified risk factors • Active Management of Third Stage of Labor • Oxytocin IV or 10 units IM Ongoing quantitative cumulative evaluation of blood loss • Ongoing evaluation of vital signs • Recognize OB hemorrhage and activate the OB Hemorrhage Protocol	• Awareness of OB Hemorrhage Risk Assessment score • Identify and prepare for high risk patients through advanced planning with Anesthesia and Blood Bank • Active Management of Third Stage of Labor • Recognize OB hemorrhage and activate the OB Hemorrhage Protocol	• Awareness of OB Hemorrhage Risk Assessment score • Identify and prepare for high risk patients through advanced planning with OB provider and Blood Bank	• Active Type & Screen on all patients • If prenatal or current antibody screen positive- Type & Crossmatch for 2 units • Develop a plan of care as to what blood products should be prepared or ordered for high risk patients in collaboration with OB Provider and Anesthesia

Cumulative QBL should not be used in isolation to confirm or rule out obstetric hemorrhage. It is *one* parameter of many that should be given equal emphasis as key changes occur in vital signs over time (↑ HR, ↓ BP, ↓ urine output) and alterations in key hematological and biochemical indices. Patient or family concerns should be part of the criteria to identify concealed hemorrhage.

OB Hemorrhage Stage 1: Activate Hemorrhage Protocol **Blood Loss >500mL Vaginal Birth *or* >1000mL Cesarean *with continued bleeding* *or* signs of concealed hemorrhage: VS abnormal or trending (HR 110 or higher, BP 85/45 or lower, O2 Sat < 95%, *or* Confusion**					
Nursing	*Event Manager*	*OB Provider*	*Anesthesia*	*Blood Bank*	*Administrative Coordinator*
• Recognize the need to activate the OB Hemorrhage Protocol Stage 1 • Call for extra help • Notify charge nurse • Heightened surveillance of clinical triggers = Assess vital signs including O2 sat and level of consciousness (LOC) every 5-15 minutes. • Perform vigorous fundal massage • Establish IV access 18 gauge preferred • Increase IV fluid rate of Lactated Ringers and Pitocin as ordered • Administer additional medications, as ordered • Empty patient's bladder • Administer O2 to maintain O2 Sat above 95% • Initiate warming measures • Calculate and record cumulative, quantitative blood loss every 5-15 min	• Identify Event Manager • Inform OB Provider, Anesthesia, and Administrative Coordinator (AC) • Notify Blood Bank that OB Hemorrhage Stage 1 has been activated • Obtain orders for STAT CBC, PT/PTT, Fibrinogen • Assign someone to type and cross 2 Units of RBCs STAT	• Order hemorrhage medications- Pitocin and Methergine are first line drugs • Attempt to locate the etiology of the bleeding (atony, trauma/laceration, retained placenta, amniotic fluid embolism, coagulopathy, PAS) • Perform bimanual uterine massage • If intra-op, inspect for uncontrolled bleeding at all levels, esp. broad ligament, posterior uterus, and retained placenta.	Recognize need for backup Anesthesia and/or additional help	Type and Crossmatch for 2 units of RBCs STAT	Secure an open OR and OR team

Once stabilized: Postpartum management with increased surveillance.

Triggers to proceed to STAGE 2: Continued bleeding with Cumulative QBL <1500mL *or* vital signs remain abnormal.

OB Hemorrhage Stage 2: Mobilize Team and Blood Bank Support					
Continued Bleeding *or* Vital Sign Instability, *and* <1500ml Cumulative Blood Loss					
Nursing	*Event Manager*	*OB Provider*	*Anesthesia*	*Blood Bank*	*Administrative Coordinator*
• Establish 2nd IV site, 18g preferred • VS and QBL every 5-15 min • Consider moving patient to OR • Have blood administration set and Blood Warmer ready and at bedside • Give blood products and hemorrhage meds as ordered • IV pitocin and LR as ordered • Consider Foley Catheter • Initiate/continue warming measures	• Call OB provider and Anesthesia to bedside if not already present. Consider need for 2nd OB Provider • Call AC to floor • Notify Blood Bank that Stage 2 OB Hemorrhage Protocol has been initiated • Assign nurse to help Anesthesia • Consider activation of Massive Transfusion Protocol	• To patient bedside • Order hemorrhage meds (methergine & carboprost are 2nd line drugs - misoprostol if hypertensive or asthmatic; also consider tranexamic acid) • Perform bimanual uterine massage • Consider Intrauterine Vacuum Device • Order STAT labs • 2 units of PRBCs to bedside • Transfuse PRBCs based on clinical signs, patient response and judgement. **DO NOT WAIT** for lab results. • Consider uterine	• To patient bedside • Transfuse PRBCs based on clinical signs, patient response and judgement. **DO NOT WAIT** for lab results.	• Prepare for Massive Transfusion Protocol if needed • Determine availability of thawed plasma, fresh frozen plasma, and platelets at both campuses • Order Platelets and initiate delivery if none present on site.	• To floor to assess availability of additional staff • Assign/reassign staff as needed • Secure OR availability • Assign a family support person • Communicate with patient as able

		• tamponade balloon • Consider possibility of concealed hemorrhage, especially if VS inconsistent with QBL			
Once stabilized: Postpartum management with increased surveillance.					

Triggers to proceed to STAGE 3: Continued bleeding with Cumulative QBL >1500mL *or* >2 units PRBCs given *or* abnormal VS *or* suspicion of DIC.

OB Hemorrhage Stage 3: Initiate Massive Transfusion Protocol & Surgical Approaches					
***Continued bleeding* with Cumulative QBL > 1500 mL *or* > 2 units PRBCs given *or* abnormal VS *or* suspicion of DIC**					
Nursing	*Event Manager*	*OB Provider*	*Anesthesia*	*Blood Bank/Lab*	*Administrative Coordinator*
• Move patient to OR if not there • VS and QBL every 5-15 min • Primary nurse will circulate in OR, assist OB providers • If assigned, Anesthesia Assist Nurse will help prepare patient for general anesthesia and assist with transfusion of blood products and patient care • Apply upper body warming blanket in OR	• Call Blood Bank to activate Massive Transfusion Protocol and obtain order • Provide Ascom number to blood bank for direct communication. • Assign Anesthesia Assist nurse if needed • Assign recorder • Maintain order, be gate keeper to room • Assign/reassign staff and roles as needed • ***Immediate debrief and***	• Order Massive Transfusion Protocol with aggressive transfusion based on VS and blood loss (near equal FFP and PRBC for MTP) • Consider ICU Admission • Consider emergent consultation with hospitalist or critical care subspecialis	• Order and administer Massive Transfusion Protocol • Backup en route if necessary • Consider ABG's • Ongoing monitoring of VS and communication with team • Consider central lines, intubation, vasopressor support, electrolyte monitoring	• Initiate Massive Transfusion Protocol • Phlebotomist to bedside to collect labs every 30 minutes until patient is stable and Massive Transfusion Protocol has been cancelled. • Blood bank will automatically deliver all blood products to the bedside.	• Mobilize additional staff as needed. • Continue patient and family support

• Apply sequential compression device	***automatic Quality Improvement review are required after any stage 3 hemorrhage or maternal death***	t to discuss further intervention (ex: IR for uterine artery embolization)	• Prevent hypothermia and acidemia	• Lab will call all results to Event Manager • Will stay ahead of issuing blood products	
Once stabilized: Postpartum management with increased surveillance; consider ICU.					

III. REFERENCE(S):

1. American Academy of Pediatrics, The College of Obstetrics and Gynecology. (2017). Intrapartum Care of the Mother, Maternal Hemorrhage in *Guidelines for Perinatal Care 8th Edition* (pp272-274). American Academy of Pediatrics and The College of Obstetrics and Gynecology.
2. Committee on Practice Bulletins-Obstetrics. Practice Bulletin No. 183: Postpartum Hemorrhage. Obstet Gynecol 2017; 130:e168.
3. Lagrew D, McNulty J, Sakowski C, Cape V, McCormick E, Morton CH. Improving Health Care Response to Obstetric Hemorrhage, a California Maternal Quality Care Collaborative Toolkit, 2022.
4. Harvey, C.J & Dildy, G. (2012). AWHONN Monograph: Obstetric hemorrhage. http://www.awhonn.org
5. Jacobs, A.J. (2013) Management of postpartum hemorrhage at vaginal delivery. http://www.uptodate.com
6. Guidelines for Oxytocin Administration after Birth: AWHONN Practice Brief Number 2 Nursing for Women's Health, Volume 19 , Issue 1 , 99 – 101. 2015

VI. ATTACHMENTS:

A: Obstetric Emergency Management Plan: Flow Chart Format
B: Medications for Postpartum Hemorrhage

VII. POLICY TRACKING RECORD:

REVIEW/REVISION: 02/07; 7/11; 2/19; 11/20; 11/23
This Protocol replaces: Management of the Post-Partum Hemorrhage

VII. ENDORSEMENT:

Perinatal Committee, Policy Review Committee, Nurse Practice Council, VP PCS/CNE