RESPONSE

OBSTETRIC HEMORRHAGE EMERGENCY MANAGEMENT PLAN CHECKLIST

CMOCC Obstetric Hemorrhage Emergency Management Plan: Checklist Format

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 Hb level, 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 RhoGAM)
  - Order Type & Crossmatch 2 units PRBCs
  - 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 OI Anesthesia
  - Identify women who may decline transfusion
  - Notify OB provider for plan of care
  - Early consult with OI anesthesiologist
  - 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

<table>
<thead>
<tr>
<th>Low (Cloth only)</th>
<th>Medium (Type and Screen)</th>
<th>High (Type and Crossmatch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No previous uterine incision</td>
<td>Prior cesarean birth(s) or uterine surgery</td>
<td>Placenta previa, low lying placenta</td>
</tr>
<tr>
<td>Simplex pregnancy</td>
<td>Multiples gestation</td>
<td>Suspected Placenta accreta or percreta</td>
</tr>
<tr>
<td>≤ 4 previous vaginal births</td>
<td>&gt; 4 previous vaginal births</td>
<td>Hematocrit &lt; 30 AND other risk factors</td>
</tr>
<tr>
<td>No known bleeding disorder</td>
<td>Chorioamnionitis</td>
<td>Patients &lt; 100,000</td>
</tr>
<tr>
<td>No history of PPH</td>
<td>History of previous PPH</td>
<td>Large uterine fibroids</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Known coagulopathy</td>
</tr>
</tbody>
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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

Primary nurse, Physician or Midwife:

- Activate OB Hemorrhage Protocol and Checklist
- 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

Primary nurse or designee:

- Establish IV access if not present, at least 18 gauge
- Increase IV oxytocin rate, 500 mL/hr of 10-40 units/500-1000 mL solution
- Titrates 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 IV
  - (If Misoprostol standard, misoprostol 600 mcg q8 hours per protocol)
- Vital Signs, including O2 sat & level of consciousness (LOC) q 5 minutes
- Weigh patient, calculate and record cumulative blood loss q 5-10 minutes
- Administer oxygen to maintain O2 sat at >95%
- Empty bladder; straight cath or place Foley with urinary
- 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
  - Signs of cesarean birth and still open
  - Inspect for uncontrolled bleeding at all levels, esp. broad ligament, posterior uterus, and retained placenta

Primary nurse or designee:

- Consider potential etiology:
  - Uterine atony
  - Trauma/Laceration
  - Retained placenta
  - Annomic Fluid Embolism
  - Uterine Inversion
  - Coagulopathy
  - Placenta Accreta

Primary nurse or designee:

- Notify OB or Labor & Delivery of patient’s condition
- 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

**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: 75-75 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.0-10 minutes
  - Set up blood administration set and blood warmer for transfusion
  - Administer meds, blood products and draw labs, as ordered
  - Keep patient warm

- Secondary 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, cervicat 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
  - 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

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**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

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### STAGE 3: OB Hemorrhage

**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 2nd 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 peri-anesthesiologist and/or intensivist):
    - Order Massive Hemorrhage Pack
      - PRBCs + 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):
    - Recorders

**THINK**
- Selective Embolization (IR)
- Interventions based on etiology not yet identified
- Prevent hypothermia, academia
- Conservative or Definitive Surgery:
  - Uterine Artery Ligation
  - Hysterectomy

**For Resuscitation**
- Aggressively Transfuse
- Based on Vital Signs, Blood Loss
- Near equal FFP and RBC for massive hemorrhage:
  - 4-6 PRBCs: 4 FFP: 1 apheresis Platelets

- Unresponsive Coagulopathy:
  - Role of r-Plasma is very controversial
  - After 6-10 units PRBCs and coagulation factor replacement with ongoing hemorrhage, may consider risk/benefit of r-Plasma in consultation with hematologist or trauma surgeon

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