**Clinical Protocol**

<table>
<thead>
<tr>
<th>Approved:</th>
<th>Next Review:</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2017</td>
<td>June 2020</td>
</tr>
</tbody>
</table>

**Clinical Area:** Perinatal Services, Perioperative Services

**Population Covered:** All recently delivered women

**Campus:** Ballard, Edmonds, First Hill, Issaquah

**Implementation Date:** May 2005

### Related Procedures, Protocols, Job Aids, and Order Sets

- Blood Management: Blood Administration (Adult)
- Bloodless Program: Adult
- Code Blue: Adult
- Post-Incidence Team Debriefing
- Postpartum Uterine/ Fundal Assessment (addendum to *PACU Postoperative Care: Phase I and PACU*)
- Uterine Tamponade Balloon: Insertion for OB Hemorrhage
- Hemorrhage Orders for OBG patients Order Sets [2636]

**Go Directly To:**
- Description of OB Hemorrhage Staging
- Active Management of Third Stage of Labor
- OB Hemorrhage Management
- Mobilize
- Act
- Stabilize
- OB Hemorrhage Medication Pack: Uterotonics
- OB Hemorrhage Risk Factors Evaluation Guidelines
- Stage 1: OB Hemorrhage
- Stage 2: OB Hemorrhage
- Stage 3: OB Hemorrhage

### Purpose

To guide staff and licensed independent practitioners (LIPs) in managing an obstetric hemorrhage.

### Policy Statement

Swedish Medical Center (SMC) caregivers will evaluate for risk factors on admission, throughout labor and postpartum at least at every shift change or each patient handover. (See Addendum: *OB Hemorrhage Risk Factors Evaluation Guidelines*)

On admission, verify if patient is enrolled in *Bloodless Program: Adult*. 
Active management of third stage of labor (AMTSL) will be performed as clinically appropriate to prevent obstetric hemorrhage.

**LIP Order Requirement**

Elements of this protocol require a licensed independent practitioner’s order.

**Responsible Persons**

Registered nurse (RN), LIP, health unit coordinator (HUC), licensed practical nurse (LPN), nursing assistant-certified (NAC), Respiratory care therapy (RCP), surgical technician, anesthesia technician

**Prerequisite Information**

A postpartum hemorrhage is defined as estimated or QBL/cumulative greater than 500 mL for a vaginal delivery or greater than 1000 mL for a cesarean delivery.

Primary postpartum hemorrhage occurs in the first 24 hours following delivery.

Secondary postpartum hemorrhage occurs after 24 hours, but before 6-12 weeks postpartum.

**Table 1: Description of OB Hemorrhage Staging**

<table>
<thead>
<tr>
<th></th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QBL</strong></td>
<td>QBL &gt;500 ml vaginal delivery</td>
<td>&lt;1500 ml cumulative blood loss</td>
<td>QBL &gt;1500 ml cumulative blood loss and/or</td>
</tr>
<tr>
<td></td>
<td>QBL &gt;1000 ml cesarean delivery</td>
<td></td>
<td>Continued bleeding</td>
</tr>
<tr>
<td><strong>Vital Signs</strong></td>
<td>HR &gt; 110</td>
<td>AND</td>
<td>Continued vital sign instability</td>
</tr>
<tr>
<td></td>
<td>Blood Pressure ≤ 85/45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>or &gt;15% drop</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxygen Saturation 95%</td>
<td></td>
<td>Suspicion for disseminated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>intravascular coagulopathy (DIC)</td>
</tr>
<tr>
<td><strong>Additional Signs and/or Symptoms</strong></td>
<td>Anything outside of within defined limits (WDL)</td>
<td>Continued bleeding or continued vital sign instability</td>
<td></td>
</tr>
<tr>
<td><strong>Link to CMQCC Table</strong></td>
<td>Addendum CMQCC Stage 1</td>
<td>Addendum CMQCC Stage 2</td>
<td>Addendum CMQCC Stage 3</td>
</tr>
</tbody>
</table>

Reference: Modified from California Maternal Quality Care Collaborative V. 2.0 approved by W/C OB Hemorrhage Workgroup September 2016
OB Hemorrhage Emergency Response (per campus resources):

Notify:
- LIP
- Charge nurse
- House Supervisor as needed
- HUC

For severe (>1000mLs/vaginal or >1500 mLs/cesarean) OB Hemorrhages also notify:
- Blood bank (Transfusion Lab Services) via phone call.
  - Order products in electronic medical record (EMR) as directed by LIP.
- Laborist and/or backup LIP
- Anesthesiologist/CRNA
- Scrub Tech/Surgical Team
- House supervisor
- Internal resource for arterial blood gas (ABG) collection as needed

**PROCEDURE: PREVENTION OF OB HEMORRHAGE**

**Responsible Person:** RN, LIP  
**Steps:**  
**Supplemental Guidance:**

- **ACTIVE MANAGEMENT OF THIRD STAGE OF LABOR (AMTSL)**
  - The following will be performed as clinically appropriate to prevent obstetric hemorrhage:
    - Oxytocin administration to uterine tone per LIP order
      (See: OB Hemorrhage Medication Pack: Uterotonics)
    - Evaluate uterine tone, fundal massage as necessary
    - Express uterus for blood and clots
    - Assess bladder; empty as indicated and per LIP order
    - Ongoing evaluation with quantitative of blood loss (QBL)
    - Weigh blood soaked materials (1gm = 1ml)
    - Ongoing evaluation of vital signs (VS). Notify charge RN and LIP for persistent abnormal VS.

  
  **PROCEDURE: ACTIVE HEMORRHAGE MANAGEMENT**

  **Responsible Person:** RN, LIP  
  **Steps:**  
  **Supplemental Guidance:**

  - **INITIAL HEMORRHAGE RESPONSE**
    - Notify LIP for bedside evaluation.
    - Activate “OB Hemorrhage Emergency Response” (listed above)
    - Bring:
      - Hemorrhage supply cart
      - Hemorrhage Med Kit

  - Consider potential etiology:
    - Uterine atony
    - Trauma/laceration
    - Retained placental fragments/membranes
    - Uterine inversion
    - Coagulopathy (acquired or preexisting)
    - Abnormally adherent placenta
    - Uterine rupture

**NOTE:** The following actions are not necessarily completed in order and will often need to happen concurrently.
**NOTE**: RN responsible for returning used med kits to the pharmacy. All med kits that have been out of the unit medication refrigerator for greater than 1 hour must be returned to the pharmacy. Unused med kits that have been out of the unit medication refrigerator for less than 1 hour must be returned to the unit medication refrigerator.

- Initiate OB Hemorrhage Worksheet
- ► Establish IV access with large bore (16-18 gauge) catheter if not present
- ► Consider 2nd IV access

- Obtain labs
  - ► Order blood products per LIP order STAT
  - ► Repeat OB Hemorrhage labs (STAT) every 30 minutes with ongoing bleeding
- ► Titrate IV Oxytocin infusion rate to uterine tone
- Apply vigorous fundal massage to uterine tone

**NOTE**: Administer uterotonics per LIP order see: [OB Hemorrhage Medication Pack: Uterotonics](#)

**NOTE**: If one dose of each uterotonic and bedside interventions do not control the bleeding, move patient to the operating room (O.R.).

- Monitor vital signs, including 02 sat & level of consciousness (LOC) q 5 minutes
  - ► Administer oxygen at 12-15 to maintain 02 sats at >95%
  - Maintain thermoregulation
- Weigh materials, calculate and record cumulative blood loss q 5-15 minutes
- ► Place indwelling bladder catheter with urimeter
- ► Per LIP order, prepare and transfuse blood products.

**NOTE**: Do not wait for lab results to transfuse. Transfuse for clinical signs/symptoms.

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Place 2nd IV catheter before vasoconstriction develops. Consider drawing labs with IV start: [OB Hemorrhage Risk Factors Evaluation Guidelines](#)

Consider concurrent administration of anti-diarrheal medication when treating the patient with hemabate.

*Any caregiver* can suggest moving to the O.R. based on clinical signs and symptoms.

Announce vital signs every 5 minutes and cumulative blood loss every 5-15 minutes

Keep patient warm: consider use of warming device.

Measuring the amount of bleeding is done by using a scale and weighing the blood-soaked materials. The weight of clean materials is subtracted from the weight of the blood-soaked materials. **One gram of blood is equal to one milliliter (mL).**

[Blood Administration: Adult](#)
### ONGOING HEMORRHAGE

#### ASSIGN ROLES
- Ensure team leader
- Assign 2nd RN and/or runner
- Assign single person to communicate with blood bank
- Assign support person for family, as needed

#### MOBILIZE AND ACT
- Ensure “OB Hemorrhage” Emergency Response is activated
- Ensure O.R. readiness:
  - Transfer the patient location to O.R. in EPIC
  - Notify surgical technician
  - Ensure open setup
  - Assign head-of-the-bed RN or anesthesia technician
- Call anesthesiologist/CRNA/anesthesia technician to bedside
- ►Activate Hemorrhage Orders for OBG patients [2636]
- Ensure OB Hemorrhage Worksheet is initiated
- ► Repeat uterotonics per LIP order See: OB Hemorrhage Medication Pack: Uterotonics
- ► Continue IV oxytocin and provide additional IV crystalloid solution as clinically indicated per LIP order

**NOTE:** Do not delay other interventions while waiting for response to medications

- If considering **selective embolization**, call-in interventional Radiology Team and second Anesthesiologist/CRNA/back-up OB coverage

### STABILIZE
- Once stabilized, modify postpartum management with increased surveillance according to LIP order.

### DEBRIEF
1. Review the following:
   a. Confirm procedure.
   b. Verify blood loss.
   c. Confirm and document vaginal packing count, if applicable.
   d. LIP to notify RN and oncoming LIP of the expected plan for removal of uterine balloon and/or vaginal packing. See Uterine Tamponade Balloon: Insertion for OB Hemorrhage.
   e. LIP to inform the patient and her significant other of vaginal packing placement and expected time of removal.
   f. Discuss concerns for recovery.
<p>| | | |</p>
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<tr>
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</table>
| 2. Perform Post-Incident Debrief  
   See: Post-Incident Team Debriefing and Post-Incident Team Debriefing, Addendum (Team Debriefing Tool). | A post-incident brief allows for reflection on team performance after critical events. |

**DOCUMENTATION**

1. Document all care in the electronic medical record (EMR).

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**Definitions**

*Swedish Bloodless Program (SBP).* Supports the patient’s right not to choose blood, blood components, or blood products. The patient is counseled by a program counselor and signs a durable power-of-attorney indicating her specific limitation on blood use.

**Forms**

None.

**Supplemental Information**

None.

**Regulatory Requirement**

None.

**References**


**Addenda**

- OB Hemorrhage Medication Pack (Uterotonics)
- OB Hemorrhage Risk Factors Evaluation Guidelines
- CMQCC Stage 1: OB Hemorrhage
- CMQCC Stage 2: OB Hemorrhage
- CMQCC Stage 3: OB Hemorrhage
STAKEHOLDERS

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Expert Consultants

OBQI (December 2016)
Perinatal Professional Practice Council (November 2016)

Sponsor

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Tanya Sorensen, MD, Executive Director of Women’s Services
Addendum 1.

OB HEMORRHAGE MEDICATION PACK

<table>
<thead>
<tr>
<th>Uterotonic</th>
<th>Route and Recommended Dose</th>
<th>Rate</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-Line Intervention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxytocin</td>
<td>30 units in 500 mL IV fluid * Or * 10 units IM (if no IV access)</td>
<td>Continuous IV; titrate to uterine tone.</td>
<td>DO NOT ADMINISTER IV PUSH. Potential fluid overload at total dose exceeding 80 units.</td>
</tr>
<tr>
<td><strong>Second-Line Intervention(s)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Methergine</td>
<td>0.2 mg IM</td>
<td>Every 2-4 hours, up to 5 doses Onset: 2-5 minutes</td>
<td>DO NOT ADMINISTER IV: Higher stroke risk for all. Contraindication: Hypertension, protease inhibitors (commonly used for HIV treatment) Potential for sudden hypertension and CVA.</td>
</tr>
<tr>
<td>Misoprostol</td>
<td>200-600 mcg PO 200-600 mcg SL 800 mcg PR</td>
<td>One Time Dosing</td>
<td>Rare Contraindication: Allergy to prostaglandins. Common side effects: shivering, nausea and vomiting, headache, fever (6-30% dose related), diarrhea. Most effective when used with other uterotonics.</td>
</tr>
<tr>
<td><strong>Third-Line Intervention</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hemabate</td>
<td>250 micrograms IM or intramyometrial</td>
<td>Every 15-90 minutes, up to 8 doses</td>
<td>DO NOT ADMINISTER IV Relative contraindication: Asthma</td>
</tr>
</tbody>
</table>
## Table 4: OB Hemorrhage Risk Factors Evaluation Guidelines

Increase risk level to the next risk level if the following *additional risk factors* develop during labor:

- ☐ Prolonged 2nd Stage of more than 4 hours
- ☐ Prolonged labor (with or without oxytocin) more than 24 hours
- ☐ Active bleeding
- ☐ Chorioamnionitis
- ☐ Magnesium sulfate therapy
- ☐ Precipitous delivery

<table>
<thead>
<tr>
<th>Low (obtain hold tube)</th>
<th>Medium (obtain Type &amp; Screen)</th>
<th>High (obtain Type &amp; Screen)</th>
<th>Extreme (Obtain Type &amp; 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, previa with prior cesarean delivery, anterior or central previa</td>
<td>Suspected or known accreta, increta, or percreta</td>
</tr>
<tr>
<td>Singleton pregnancy</td>
<td>Multiple gestation</td>
<td>Hematocrit below 30 and other risk factors</td>
<td>Positive antibody screen (if not low-level anti-D from Rhogam)</td>
</tr>
<tr>
<td>Less than or equal to 4 previous vaginal births</td>
<td>More than 4 previous vaginal births</td>
<td>Platelets less than less than 100,000</td>
<td></td>
</tr>
<tr>
<td>No known bleeding disorder</td>
<td>Chorioamnionitis</td>
<td>Active bleeding (greater than show) on admission</td>
<td></td>
</tr>
<tr>
<td>No history of PPH</td>
<td>History of previous postpartum hemorrhage</td>
<td>Known coagulopathy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tocolytic therapy within 48 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prenatal hematocrit below 30</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Large uterine fibroids</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Hemorrhage risk screening-associated “hold or “type & screen” ordering will be done according to the protocol, unless there are extenuating circumstances that would warrant a different approach on a particular campus.
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

<table>
<thead>
<tr>
<th>MOBILIZE</th>
<th>ACT</th>
<th>THINK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary nurse, Physician or Midwife to:</td>
<td>- Establish IV access if not present, at least 18 gauge</td>
<td>- Consider potential etiology:</td>
</tr>
<tr>
<td>□ Activate OB Hemorrhage Protocol and Checklist</td>
<td>- Increase IV Oxytocin rate, 500 mL/hour of 10-40 units/500-1000 mL solution;</td>
<td>- Uterine atony</td>
</tr>
<tr>
<td></td>
<td>- Titrate infusion rate to uterine tone</td>
<td>- Trauma/Laceration</td>
</tr>
<tr>
<td></td>
<td>- Apply vigorous fundal massage</td>
<td>- Retained placenta</td>
</tr>
<tr>
<td></td>
<td>□ Notify obstetrician or midwife (in-house and attending)</td>
<td>- Amniotic Fluid Embolism</td>
</tr>
<tr>
<td></td>
<td>□ Notify charge nurse</td>
<td>- Uterine Inversion</td>
</tr>
<tr>
<td></td>
<td>□ Notify anesthesiologist</td>
<td>- Coagulopathy</td>
</tr>
<tr>
<td>Charge nurse:</td>
<td>- Vital Signs, including O2 sat &amp; level of consciousness (LOC) q 5 minutes</td>
<td>- Placenta Accreta</td>
</tr>
<tr>
<td>□ Assist primary nurse as needed or assign staff member(s) to help</td>
<td>- Weigh materials, calculate and record cumulative blood loss q 5-15 minutes</td>
<td>Once stabilized: Modified Postpartum management with increased surveillance</td>
</tr>
<tr>
<td></td>
<td>□ Administer oxygen to maintain O2 sat &gt;95%</td>
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<tr>
<td></td>
<td>□ Empty bladder: straight cath or place Foley with urinometer</td>
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<td></td>
<td>□ Type and Crossmatch for 2 units Red Blood Cells STAT (if not already done)</td>
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<tr>
<td></td>
<td>□ Keep patient warm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Rule out retained Products of Conception, laceration, hematoma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surgeon (if cesarean birth and still open)</td>
<td></td>
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<tr>
<td></td>
<td>□ Inspect for uncontrolled bleeding at all levels, esp. broad ligament, posterior uterus, and retained placenta</td>
<td></td>
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</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>MOBILIZE</th>
<th>ACT</th>
<th>THINK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary nurse (or charge nurse):</strong></td>
<td><strong>Team leader (OB physician or midwife):</strong></td>
<td><strong>Sequentially advance through procedures and other interventions based on etiology:</strong></td>
</tr>
<tr>
<td>Call ob/gyn or midwife to bedside</td>
<td>□ Additional uterotonics: Hemabate 250 mcg IM [if not contraindicated] OR Misoprostol 800 mcg SL</td>
<td><strong>Vaginal birth</strong></td>
</tr>
<tr>
<td>Call Anesthesiologist</td>
<td>□ Can repeat Hemabate up to 3 times every 20 min; (note-75% respond to first dose)</td>
<td><strong>If trauma (vaginal, cervical or uterine):</strong></td>
</tr>
<tr>
<td>Activate Response Team:</td>
<td>□ Continue IV oxytocin and provide additional IV crystalloid solution</td>
<td>• Visualize and repair</td>
</tr>
<tr>
<td>PHONE #:</td>
<td><strong>Do not delay other interventions</strong> (see right column) while waiting for response to medications</td>
<td><strong>If retained placenta:</strong></td>
</tr>
<tr>
<td>Notify Blood bank of hemorrhage; order products as directed</td>
<td><strong>Bimanual uterine massage</strong></td>
<td>• D&amp;C</td>
</tr>
<tr>
<td><strong>Charge nurse:</strong></td>
<td><strong>Move to OR</strong> (if on postpartum unit, move to L&amp;D or OR)</td>
<td><strong>If uterine atony or lower uterine segment bleeding:</strong></td>
</tr>
<tr>
<td>□ Notify Perinatologist or 2nd OB</td>
<td>□ Order 2 units PRBCs and bring to the bedside</td>
<td>• Intrauterine Balloon</td>
</tr>
<tr>
<td>□ Bring hemorrhage cart to the patient’s location</td>
<td>□ Order labs STAT (CBC/PLTS, Chem 12 panel, Coag Panel II, ABG)</td>
<td><strong>If above measures unproductive:</strong></td>
</tr>
<tr>
<td>□ Initiate OB Hemorrhage Record</td>
<td>□ Transfuse PRBCs based on clinical signs and response; do not wait for lab results; consider emergency O-negative transfusion</td>
<td>• Selective embolization (Interventional Radiology if available &amp; adequate experience)</td>
</tr>
<tr>
<td><strong>If considering selective embolization, call-in Interventional Radiology Team and second anesthesiologist:</strong></td>
<td></td>
<td><strong>C-section:</strong></td>
</tr>
<tr>
<td>□ Notify nursing supervisor</td>
<td><strong>Establish 2nd large bore IV, at least 18 gauge</strong></td>
<td>• B-Lynch Suture</td>
</tr>
<tr>
<td>□ Assign single person to communicate with blood bank</td>
<td><strong>Assess and announce Vital Signs and cumulative blood loss q 5-10 minutes</strong></td>
<td><strong>Intrauterine Balloon</strong></td>
</tr>
<tr>
<td>□ Assign second attending or clinical nurse specialist as family support person or call medical social worker</td>
<td><strong>Set up blood administration set and blood warmer for transfusion</strong></td>
<td><strong>If Uterine Inversion:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Administer med, blood products and draw labs, as ordered</strong></td>
<td>• Anesthesia and uterine relaxation drugs for manual reduction</td>
</tr>
<tr>
<td></td>
<td><strong>Keep patient warm</strong></td>
<td><strong>If Amniotic Fluid Embolism:</strong></td>
</tr>
<tr>
<td><strong>Secondary nurse (or charge nurse):</strong></td>
<td><strong>Place Foley with urimeter (if not already done)</strong></td>
<td>• Maximally aggressive respiratory, vasopressor and blood product support</td>
</tr>
<tr>
<td>□ Obtain portable light and OB procedure tray or Hemorrhage cart</td>
<td><strong>Obtain blood products from the Blood Bank (or send designee)</strong></td>
<td><strong>If vital signs are worse than estimated or measured blood loss:</strong></td>
</tr>
<tr>
<td>□ Assist with move to OR (if indicated)</td>
<td></td>
<td>• Possible uterine rupture or broad ligament tear with internal bleeding; move to laparotomy</td>
</tr>
<tr>
<td><strong>Blood Bank:</strong></td>
<td></td>
<td><strong>Once stabilized:</strong></td>
</tr>
<tr>
<td>□ Determine availability of thawed plasma, fresh frozen plasma, and platelets; initiate delivery of platelets if not present on-site</td>
<td><strong>Modified Postpartum management with increased surveillance</strong></td>
<td>• Modified Postpartum management with increased surveillance</td>
</tr>
<tr>
<td>□ Consider thawing 2-4 FFP (takes 30 min.), use if transfusing &gt; 2 units PRBCs</td>
<td></td>
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</tr>
<tr>
<td>□ Prepare for possibility of massive hemorrhage</td>
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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
### 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-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