

<b>Clinical Practice Title:</b> Postpartum Hemorrhage: Readiness, Recognition, Response, Reporting	
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<b>Brief Description of Clinical Practice</b>
<p>The pillars of reducing maternal morbidity and mortality from postpartum hemorrhage rest upon Readiness, Recognition, Response, and Reporting.</p> <p><b>Readiness:</b> Obstetrical patients will undergo risk stratification for postpartum hemorrhage in the ambulatory setting and throughout their hospital admission. Prior to admission, patients will be treated for modifiable conditions (i.e. iron deficiency anemia). When extremely high-risk factors are present (i.e. placenta accreta spectrum, inherited bleeding disorders, those who decline blood products) care coordination and location/timing of delivery will occur through multidisciplinary collaboration. Teams caring for obstetrical patients will receive ongoing education and simulation training and will be provided resources to manage postpartum hemorrhage effectively.</p> <p><b>Recognition:</b> Teams caring for obstetrical patients will actively manage the third stage of labor, recognize abnormal blood loss by using quantitative blood loss measures, accurately define the stage of postpartum hemorrhage, and initiate the appropriate treatment.</p> <p><b>Response:</b> Teams caring for obstetrical patients will rapidly respond to postpartum hemorrhage using the appropriate checklists, order sets, and treatment modalities. In addition, they will provide ongoing communication to patients, families, and team members.</p> <p><b>Reporting/System Learning:</b> Teams will debrief cases of postpartum hemorrhage, provide formal review of selected cases for learning opportunities, and will support metrics reporting and reviews regularly to improve patient outcomes.</p>

<b>Reviewed History</b>			
<b>Reviewed by (name/group):</b>	<b>Original Date:</b>	<b>Revision Date:</b>	<b>Revision Date:</b>
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<b>Clinical Leadership Team (CLT) Resources</b>			
<b>CLT</b>	Original Approval Date: November 17, 2011	Revision Approval Dates:	October 23, 2024 July 1, 2017
<b>Go-Live</b>	Original Go-live Date:	Revision Go-live Date:	March 5, 2025
<b>Toolkit link:</b>			

<b>Associated Documents</b>		
<b>Type</b>	<b>Number</b>	<b>Name</b>
Policy		
Protocol		

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## ***Postpartum Hemorrhage: Readiness, Recognition, Response, Reporting***

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### **PRACTICE APPROACH:**

Expected

### **PRACTICE STATEMENT:**

Teams caring for obstetrical patients will be prepared (Readiness) to identify (Recognition) and treat (Response) postpartum hemorrhage and provide ongoing follow up (Reporting) using evidence-based guidelines.

### **RATIONALE:**

Among developed countries, the United States has one of the highest maternal mortality rates. In the United States nearly 11% of maternal deaths are associated with postpartum hemorrhage (Centers for Disease Control and Prevention, 2024). From 1993 to 2014 the postpartum hemorrhage rate requiring blood transfusion rose from 8 cases per 10,000 deliveries to 40 per 10,000 deliveries (Centers for Disease Control and Prevention, 2024). Postpartum hemorrhage has been recently redefined as a blood loss of 1000 ml or more *or* blood loss associated with clinical signs and symptoms due to hypovolemia regardless of the route of delivery (hypotension and tachycardia may represent a blood loss of as much as 25% of the patient’s total blood volume, ~1500 ml or more) (American College of Obstetricians and Gynecologists Committee on Practice Bulletins-Obstetrics, 2017). It should also be noted that blood loss greater than 500 ml for vaginal delivery should be considered abnormal and requires further evaluation and perhaps treatment (American College of Obstetricians and Gynecologists Committee on Practice Bulletins-Obstetrics, 2017).

In a nonpregnant individual, the normal rate of blood flow in the uterus is 60 ml per minutes as compared to the term gravid uterus which is closer to 600 ml per minute (Dobiesz & Robinson, 2017). The causes of postpartum hemorrhage can be any (or any combination) of the four “T’s”: tone (uterine atony), trauma (lacerations or uterine rupture), tissue (retained placenta or clots), and thrombin (clotting-factor deficiency) (American College of Obstetricians and Gynecologists Committee on Practice Bulletins-Obstetrics, 2017). However, uterine atony is the leading cause of postpartum hemorrhage, accounting for 70-80% of cases (Bateman, et al., 2010). There are many clinical factors that can increase the risk of uterine atony such as chorioamnionitis, magnesium sulfate, prolonged labor, and polyhydramnios to name a few (Beinstock, et al., 2021). The primary means by which postpartum blood loss is controlled is by uterine contraction (Beinstock, et al., 2021). Importantly, several studies have linked embedded and structural racism in medicine to higher rates of hemorrhage, maternal morbidity, and mortality among Black, Indigenous, and People of Color (Tucker et al., 2007; Hardeman et al., 2016; Bailey et al., 2017; Gyamfi-Bannerman et al., 2018; Chambers et al., 2020; Hardeman et al., 2020). Individuals and teams caring for pregnant people who are Black, Indigenous, and People of Color should be aware of their own implicit biases and the resultant differences in care and outcomes (Main et al., 2020). Racial disparities and race related inequalities can be reduced through implementation of standardized approaches to care such as a Postpartum Hemorrhage Clinical Practice (Main et al., 2020).

System-level interventions to improve management of postpartum hemorrhage include the implementation of standardized protocols for evaluation and response (Shields, et al., 2011). Use of these standardized approaches, or safety bundles, is associated with earlier intervention and resolution of maternal hemorrhages (Lappen et al., 2013). The American College of Obstetricians and Gynecologists, along with several other professional organizations, recommends that every hospital implement an organized and coordinated system for postpartum hemorrhage care that includes: “1) *readiness* to respond to maternal hemorrhage, 2) *recognition and prevention* measures in place for all patients, 3) a *multidisciplinary response* to excessive maternal bleeding, and 4) a system-based quality improvement process to improve responsiveness through *reporting and system learning* (American College of Obstetricians and Gynecologists Committee on Practice Bulletins-Obstetrics, 2017).

**CLINICAL APPROACH:**

**READINESS: Postpartum Hemorrhage Risk Assessment**

**1. AMBULATORY (PRIOR TO ADMISSION)**

- a. Screening for and treating iron deficiency anemia
  - i. 1<sup>st</sup> trimester screening (i.e. 10-12 weeks gestational age)
  - ii. 3<sup>rd</sup> trimester screening (i.e. 24-28 weeks gestational age)
  - iii. Treat for hemoglobin <12.0mg/dL and ferritin <30mcg/L (some use <50mcg/L)
    - 1. 1<sup>st</sup> line therapy is oral iron (provide patient education regarding proper use)
    - 2. 2<sup>nd</sup> line therapy is IV iron for failed oral iron or with severe anemia (avoid in first trimester due to concern for teratogenicity)
  - iv. Follow up hemoglobin prior to term to assess response to iron therapy
    - 1. May require IV iron if anemia persists
  - v. Consider screening for hemoglobinopathies in appropriate patient profiles that do not fit an iron deficiency anemia
  
- b. Screening for inherited bleeding disorders or high-risk medical conditions (i.e. connective tissue disorders)
  - i. Assess at intake OB appointment/admission
  - ii. Refer/consult to Maternal Fetal Medicine or Hematology
  - iii. Multidisciplinary delivery planning including Anesthesia
  - iv. Delivery at appropriate level of care facility (i.e. level III or IV)
  
- c. Patients who decline blood products
  - i. Assess at intake OB appointment/admission
  - ii. Multidisciplinary delivery planning including Anesthesia and Blood Bank/Transfusion Services (i.e. cell saver)
  - iii. Optimization of hemoglobin prior to delivery (i.e. IV iron)
  - iv. Delivery at appropriate level of care facility (i.e. level III or IV)
  
- d. Placenta Accreta Spectrum
  - i. Risk factor assessment (i.e. prior cesarean deliveries)
  - ii. Delivery at Placenta Accreta Spectrum center
  
- e. Lower-Resource and Smaller Hospitals
  - i. Screening for patients at higher risk for PPH (i.e. OB delivery list preview)
    - 1. Placenta Accreta Spectrum
    - 2. Placenta Previa
    - 3. Multiple prior cesarean deliveries
    - 4. History of PPH
  - ii. Delivery at appropriate level of care facility (i.e. level III or IV)

**2. ADMISSION AND INTRAPARTUM** (Shaded risk factors may develop intrapartum or postpartum)

ADMISSION and LABOR RISK FACTORS <sup>6</sup>		
LOW RISK	MEDIUM RISK	HIGH RISK
MONITOR FOR HEMORRHAGE <i>Routine obstetric care</i>	NOTIFY CARE TEAM <i>Personnel that could be involved in response are made aware of patient status and risk factors</i>	NOTIFY CARE TEAM MOBILIZE RESOURCES <i>Consider anesthesia attendance at birth</i>
<i>Specimen hold or Type &amp; Screen</i>	<i>Type &amp; Screen</i>	<i>Type &amp; cross, 2 units on hold</i>
No previous uterine incision	Prior cesarean(s) or uterine surgery	Placenta previa, low lying placenta
Singleton pregnancy	Multiple gestation	Suspected/known placenta accreta spectrum
≤ 4 vaginal births	> 4 vaginal births	Abruptio or active bleeding (greater than show)
No known bleeding disorders	Chorioamnionitis	Known coagulopathy
No history of PPH	History of previous postpartum hemorrhage	History of > 1 prior postpartum hemorrhage
	Large uterine fibroids	HELLP Syndrome
	Platelets 50-100,000	Platelets < 50,000
	Hematocrit < 30% (Hgb < 10)	Hematocrit < 24% (Hgb < 8)
	Polyhydramnios	Fetal demise
	Gestational age < 37 weeks or > 41 weeks	2 or more medium risk factors
	Preeclampsia	
	Prolonged labor/Induction (> 24 hours)	

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May not be current once printed.

### 3. POSTPARTUM

*\*The Joint Commission requires that an assessment using an evidence-based tool for determining maternal hemorrhage risk be completed on admission to labor and delivery and on admission to postpartum. The birth and ongoing postpartum factors should be included in addition to admission factors in the risk assessment.*

*This table was adapted from the Improving Health Care Response Obstetric Hemorrhage: A California Quality Improvement Toolkit, funded by the California Department of Public Health, 2015; supported by Title V funds*

ADDITIONAL BIRTH and ONGOING POSTPARTUM RISK FACTORS*	
INCREASED SURVEILLANCE POSTPARTUM CARE TEAM ASSESSES RESPONSE READINESS	
Cesarean during this admission – especially if urgent/emergent/2nd stage	Active bleeding soaking > 1 pad per hour or passing a ≥ 6 cm clot
Operative vaginal birth	Retained placenta
Genital tract trauma including 3rd and 4th degree lacerations	Non-lower transverse uterine incision for cesarean
Quantitative cumulative blood loss 500-1000 mL with a vaginal birth	Quantitative cumulative blood loss ≥ 1000 mL or treated for hemorrhage
	Received general anesthesia
	Uterine rupture

Blood bank recommendations should be highly localized, refer to facility practice regarding hold clot versus type and screen for low-risk patients.

*Every* patient’s postpartum hemorrhage risk assessment should occur at time of admission, at 6cm dilation (or greater) and after delivery. Appropriate readiness modifications should occur at team huddles and with clinical changes.

#### **RECOGNITION: Active Monitoring and Management**

##### **1. ACTIVE MANAGEMENT OF THE THIRD STAGE OF LABOR (AMTSL)**

- a. **Administer uterotonic:** Oxytocin IV infusion or 10 Units IM
- b. **Controlled Cord Traction:** To deliver the placenta
- c. **Massage of the Uterine Fundus:** After the placenta is delivered

##### **2. CUMULATIVE QUANTITATIVE BLOOD LOSS**

- a. **Cumulative QBL:**
  - i. Standardized protocols for collecting and reporting of ongoing blood loss throughout the intrapartum and postpartum course of care
- b. **Vaginal Delivery:**
  - i. Immediately assess the amount of fluid in the under-buttock drape. This becomes the baseline, and all subsequent fluid represents blood loss.
  - ii. At the completion of the delivery/recovery period, weigh all blood clots and blood-soaked materials to determine cumulative volume.
  - iii. If stable, move to routine postpartum care
- c. **Cesarean Delivery:**
  - i. After birth of the baby, suction all amniotic fluid and stop to assess the amount of collected fluid before delivery of the placenta. This value is the baseline
  - ii. In addition to counting lap sponges, the circulating nurse should assess volume of blood loss by weight or saturation assessment techniques. Measure blood loss by weight, subtract the dry weight of absorbing materials from the weight of blood-containing materials and use the conversion 1 gm= 1 ml to quantify the blood volume contained in the materials
  - iii. Subtract from total volume any additional fluids such as saline for irrigation
- d. **Alert Triggers:**
  - i. **Vaginal Delivery:** Blood loss >500 ml
  - ii. **Cesarean Delivery:** Blood loss >1000 ml
  - iii. **Heightened Surveillance for continued bleeding**

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### 3. ASSESS FOR CLINICAL SIGNS OF HYPOVOLEMIA

- a. Systolic Blood Pressure <85
- b. Diastolic Blood Pressure <45
- c. Pulse >110
- d. MAP < 60
- e. Palpitations, dizziness, diaphoretic, weakness, pale, restless, mental status changes
- f. Decreased urine output

### 4. COMMUNICATION

- a. Post delivery, consider additional risk factors from table above and include in communication at team member handoffs and huddles
- b. Add type and screen or type and crossmatch if indicated

### **RESPONSE: Rapid Assessment and Response to Hemorrhage**

Administer appropriate uterotonics and interventions as ordered

Add link to PPH Checklist (once final)

### **REPORTING: Improve System Learning**

1. Teams will debrief cases of postpartum hemorrhage,
2. Teams will provide formal review of selected cases for learning opportunities
3. Teams will support metrics reporting and reviews regularly to improve patient outcomes

*There will be times that a need to vary from the clinical practice will exist based on individual patient variability and clinical evaluation, documentation in the medical record may be needed to account for this difference.*

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**KEYWORDS AND KEYWORD PHRASES:**

Postpartum hemorrhage

Massive transfusion

PPH