Applies To: **UNM Hospitals** Responsible Department: Labor and Delivery Effective Date: 10/10/2019

Title: **UNM Hospitals Obstetric Hemorrhage Care**	**Procedure**

Patient Age Group:	( ) N/A	( ) All Ages	( ) Newborns	(X) Pediatric	(X) Adult

DESCRIPTION/OVERVIEW

To aid in the identification of patients at risk for obstetric hemorrhage as well as provide guidelines for optimal regime for postpartum hemorrhage (PPH) prophylaxis and active management of the third stage of labor for vaginal deliveries. This will also define methods for quantitative blood loss (QBL) calculation for every delivery or obstetric procedure. This staged response guideline will provide an optimal response of the multidisciplinary team in the event of an obstetric hemorrhage.

REFERENCES

Adnan, N., Conlan-Trant, R., McCormick, C., Boland, F., & Murphy, D. J. (2018) Intramuscular versus intravenous oxytocin to prevent postpartum haemorrhage at vaginal delivery: randomised controlled trial. Retrieved from https://www.bmj.com/content/362/bmj.k3546

Cochrane (2019). Delivering the placenta in the third stage of labour. Retrieved from https://www.cochrane.org/CD007412/PREG_delivering-pl

Blum J, Winikoff B, Raghavan S, Dabash R, Ramadan MC, Dilbaz B, et al. Treatment of post-partum haemorrhage with sublingual misoprostol versus oxytocin in women receiving prophylactic oxytocin: a double-blind, randomised, non-inferiority trial (2010). *Lancet*. 375(9710), 217-223.

Charles D, Anger H, Dabash R, Darwish E, Ramadam CM, Mansy A, Salem Y, Dzuba IG, Byrne ME, Breebaart M, and Winikoff B. (2019). Intramuscular injection, intravenous infusion, and intravenous bolus of oxytocin in the third stage of labor for prevention of postpartum hemorrhage: a three-arm randomized control trial. *BMC Pregnancy and Childbirth*,19-38.

Hofmeyr G.J., Abdel-Aleem H, Abdel-Aleem MA. (2013). Uterine massage for preventing postpartum haemorrhage. doi: 10.1002/14651858.CD006431.pub3.

Hofmeyr G.J., Mshweshwe N.T., Gülmezoglu A.M. (2015). Controlled cord traction for the third stage of labour. doi: 10.1002/14651858.CD008020.pub2.

Lyndon A., Lagrew D., Shields L., Main E., Cape V. (2015). Improving Health Care Response to Obstetric Hemorrhage. Retrieved from:http://health.utah.gov/uwnqc/documents/CaliforniaToolkittoTransformMaternityCare.pdf

Main E.K., Cape V., Abreo A., Vasher J., Woods A., Carpenter A. Gould J.B. (2017).Reduction of severe maternal morbidity from hemorrhage using a state perinatal quality collaborative. *American Journal of Obstetrics and Gynecology*. *216*(3), 298 e1-e11.

McDonald S.J., Middleton P., Dowswell T., Morris P.S. (2013) Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes. Cochrane Database System Review, *11* (7). doi: 10.1002/14651858.CD004074.pub3.

Morris J.L., Winikoff B., Dabash R., Weeks A., Faundes A., Gemzell-Danielsson K., et al. (2017). FIGO's updated recommendations for misoprostol used alone in gynecology and obstetrics. *Int J Gynaecol Obstet*. *138*, 363-366.

Mousa H.A., Blum J., Abou El Senoun G., Shakur H., Alfirevic Z. (2014). Treatment for primary postpartum haemorrhage. Cochrane Database Sys Rev. *13*(2). doi: 10.1002/14651858.CD003249.pub3.

Winikoff B., Dabash R., Durocher J., Darwish E., Nguyen T.N., Leon W., et al. (2010) Treatment of post-partum haemorrhage with sublingual misoprostol versus oxytocin in women not exposed to oxytocin during labour: a double-blind, randomised, non-inferiority trial. *Lancet*; *375*(9710), 210-6.

World Health Organization (2012). Recommendations for the prevention and treatment of postpartum haemorrhage. Retrieved from: https://www.who.int/reproductivehealth/publications/maternal_perinatal_health/9789241548502/en/

AREAS OF RESPONSIBILITY

All Clinical Staff for Labor & Delivery, OB Triage, Mother Baby Unit, and Women's Special Care

PROCEDURE

Recognition & Prevention:

1. **OB Hemorrhage Risk Assessment**
   - 1.1. On admission, the RN and Obstetric Care Provider will review and calculate the OB hemorrhage risk using the risk assessment tool (*Appendix A*). The risk will be recorded in the History and Physical and populated into the OB chalkboard.
   - 1.2. Actions determined by risk assessment are outlined in *Appendix B.*
   - 1.3. The risk assessment will be re-evaluated by the primary RN at least once per shift during labor, or as clinical situation warrants, and once per hour in the second stage.

2. **Quantitative Blood Loss**
   - 2.1. Quantitative Blood Loss (QBL) will be completed for all deliveries and surgeries during the admission according to *Appendix C.* QBL will be recorded in the patient medical record as "Output".

3. **Active Management of Third Stage**
   3.1. Active management of the third stage of labor will be followed as outlined in *Appendix D* for vaginal deliveries.
   3.2. Ongoing bleeding after administration of uterotonics for Active Management of Third Stage will be managed according to the OB Hemorrhage Treatment Pathway (See *Appendix D* and *Appendix E)*

Readiness:

4. **Hemorrhage Cart**
   4.1. An Obstetric Hemorrhage Cart is immediately available on the labor and delivery unit. The hemorrhage chart is brought to the patient's bedside if >500mls blood loss and ongoing bleeding for vaginal delivery. It is brought to the OR if >1000mls blood loss and ongoing bleeding for Cesarean delivery.
   4.2. The cart contents are checked routinely
   4.3. Hemorrhage cart supplies are listed in *Appendix F*.

5. **Ready Access to Uterotonic Medications**
   5.1. An hemorrhage pick kit of uterotonics is available in the pyxis.
   5.2. Pick Kit Contents: oxytocin (10 units), Methergine (0.2mg), Misoprostol (800 mcg tablets), carboprost (Hemabate 250mcg).

6. **Massive Transfusion Protocol**
   6.1. UNM Hospitals has developed an OB Specific Massive Transfusion Protocol that should be activated for severe, life threatening active hemorrhage in the parturient
   6.2. Details of the massive transfusion protocol can be found in **Obstetric Massive Transfusion Protocol Procedure and Information SOP**

Response:

7. **Checklist and multidisciplinary response for a hemorrhage**
   7.1. Women with an obstetric hemorrhage will be managed by a multidisciplinary team, according to a staged response as outlined in *Appendix E*.

8. **Support for patients/families for significant hemorrhage**
   8.1. Following a significant obstetric hemorrhage, the primary team will debrief with the family including updates on patient status, disposition, and resources for further information on obstetric hemorrhage.

Reporting:

9. Huddles/team review of severe hemorrhages
   9.1. Following all significant obstetric hemorrhage (i.e. QBL >1500, activation of the massive transfusion protocol, or hysterectomy) the team will conduct a structured debrief.
   9.2. Debriefs should be conducted the same day as the event and attendance of all the health care providers should be facilitated by other members of the team.
   9.3. Debriefs may be called by any team member after stabilization of the patient.

9.4. Significant system issues will be reported through the PSI system and the Debrief Form (*Appendix G*). The debrief form should be returned to the Unit Director.

10. Multidisciplinary review of severe hemorrhages
10.1. Debrief forms and PSIs will be reviewed by the L&D Steering Committee to track hemorrhage.

DEFINITIONS
None

SUMMARY OF CHANGES
Replaces *Obstetric Hemorrhage Guideline*, 2016

RESOURCES/TRAINING

Resource/Dept	Contact Information
Unit Based Educator, Labor and Delivery	505-272-5161

DOCUMENT APPROVAL & TRACKING

Item	Contact	Date	Approval
Owner	Medical Director, Labor and Delivery, UNM Hospitals		
Consultant(s)	Blood Bank		
Committee(s)	OB Steering Committee, OB Executive Committee, Medical Executive Committee, UNM Hospitals PP&G Committee		Y
Nursing Officer	Chief Nursing Officer, UNM Hospitals		N/A
Medical Director	Medical Director, Labor and Delivery, UNM Hospitals		Y
Official Approver	Senior Associate Dean, Clinical Affairs, UNM Hospitals		Y
Official Signature	**On SharePoint**	**Date: 10/10/2019**	
Effective Date	*date signed by Official Approver*	10/10/2019	

ATTACHMENTS
Appendix A: Risk Assessment Tool OB Hemorrhage
Appendix B: Interpretation and actions based on risk assessment
Appendix C: Quantification of Blood Loss (QBL)
Appendix D: Active Management of Third Stage and OB Hemorrhage treatment with uterotonics
Appendix E: Staged Response to Hemorrhage
Appendix F: Hemorrhage Cart & Kit Supplies
Appendix G: Obstetric Team Debrief Form

Appendix A: Risk assessment tool OB Hemorrhage

- All women admitted to L&D will be assigned an initial risk, reviewing both the antepartum and intrapartum risk factors.
- The risk score will be populated into the L&D chalkboard and should be included in the admission H&P.
- **The risk will be updated by the RN:**
    - **at least once per shift**
    - **every hour during the second stage**

RISK FACTOR	POINTS
History of prior uterine surgery	1
Multiple Gestation	1
Parity > 4	1
History or PPH	1
History of PPH requiring blood transfusion or D&C	2
Uterine fibroids	1
BMI >40	1
BMI >50	2
HCT <30	1
Suspected fetal macrosomia/Polyhyrdramnios	1
HTN disorder	1
Magnesium sulfate therapy	1
Oxytocin use >12 hours	1
Prolonged second stage >3 hrs	1
Triple I/Chorioamnionitis	1
Operative vaginal delivery	1
Shoulder dystocia	1
Abnormal placenta (i.e low lying, accreta, previa)	5
Coagulopathy/DIC	5
Suspected Abruption/Active bleeding on admission	5
Platelets <100,000	5

Appendix B: Interpretation and actions based on risk assessment

LOW RISK (GREEN)	Medium Risk (Yellow)	High Risk (Red)
0 Points	1-4 points	>4 points
• Type and Screen	• Type and Screen • Type and Cross, if antibodies • 2nd uterotonic in the room • Anesthesia Consult	• Type and Screen • Type and Cross 2 units • 2nd uterotonic in the room • 2nd IV access • Anesthesia Consult • Hemorrhage Cart outside LDR

Appendix C: Quantification of Blood Loss (QBL)

Research has shown that visual estimation of blood loss has significant underestimation as well as overestimation (Patel, 2006). QBL is an objective method used to evaluate excessive bleeding and has been reported to improve communication among physicians and nurses therefore advancing treatment decisions.

QBL Documentation

1. If there is bleeding prior to delivery, this blood loss will be recorded according to the plan for Quantitative Blood Loss (QBL).
2. The Delivery QBL should be documented by the nurse in the EMR. Currently this is recorded in the fetal monitoring system on the delivery blue sheets and in Powerchart on the OB Delivery Form.
3. Blood loss that occurs any time after the Delivery QBL is completed and prior to the patient being transferred to the postpartum unit should be documented as Postpartum QBL.
    a. For a vaginal delivery, this should be recorded on the Postpartum flowsheet in the fetal monitoring system.
    b. For a c-section, this should be recorded in Powerchart under the I&O section in the field labeled Quantified Blood Loss.

Quantified Blood Loss in Vaginal Delivery

1. Immediately after the baby is born, place a white chux under the patient. The chux should be placed well before the placenta is delivered in order to capture any bleeding that might occur prior to the placenta delivery.
2. After the placenta is delivered, keep the white chux under the patient during fundal massage, management of third stage bleeding, and until after the OB provider has checked for lacerations.
3. Continue to keep the white chux under the patient during any repairs that might occur.
4. Once repairs are completed and bleeding is stabilized, it is ok to remove the white chux and replace with a smaller blue chux for routine postpartum care.
5. Weigh the white chux and any other supplies or linens that have blood on them.
6. Enter the total weight into the CPN calculator. Enter the number of each type of item into the CPN calculator in the applicable fields.
7. The CPN calculator will automatically subtract out the dry weights from the total weight and give an accurate blood loss amount. 1 gram = 1 milliliter of blood.
8. This amount is considered the Delivery QBL and should be documented by the nurse in the EMR. Currently this is recorded in CPN on the delivery blue sheets and in PowerChart on the OB Delivery Form.
9. Any significant blood loss that occurs after the Delivery QBL, should be weighed and recorded as Postpartum QBL in CPN on the Postpartum flowsheet. The amount should be

communicated to the OB provider if it is of concern to the nurse and should be recorded in cerner flowchart upon transfer to MBU.

Quantified Blood Loss in the Labor and Delivery Operating Room

1. Open and pour 1 liter of normal saline for irrigation into basin (2nd liter will only be opened as needed). Pre-wetting of laps should no longer be done. Laps will be moistened upon request of a wet lap by the surgeon.
2. There is no longer a need to separate wet and dry laps. All laps will be placed into the lap holder and weighed together.
3. Upon amniotomy, the suction canister will be monitored and marked when all amniotic fluid is suctioned from uterus.
4. At the end of the case all blood soaked laps, linens, chux, and other soiled items (including lap holder) will be weighed and entered into the CPN calculator. The dry weights will automatically be subtracted when using the calculator.
5. The amount in the suction canister (minus amniotic fluid) will get entered into the CPN calculator.
6. The used irrigation fluid will also get entered into the CPN calculator to be subtracted out of the total amount.
7. Any laps/towels used for cleaning the patient with irrigation fluid must be weighed as well.
8. If fundal massage and expressing of blood is done with irrigation fluid, this must be either suctioned into the canister or added to the linens to be weighed.
9. The total calculation done in CPN will automatically subtract out dry weights and irrigation used.
10. Any significant blood loss that occurs in the PACU, should be weighed and recorded as Postpartum QBL in CPN on the Postpartum flowsheet. The amount should be communicated to the OB provider if it is of concern to the nurse and should be recorded in cerner flowchart upon transfer to MBU.

QBL Calculation Example:

[Total Weight (laps/linens/chux) + Total Volume] – [Dry weights + Irrigation used]

1500 + 800 -- 1000 + 500

2300 -- 1500

= 800 QBL

Dry Weight Measurements:

1 gram = 1 milliliter (mL)

Disposable Items	Linens
White Chux = 116 grams	Blue OR Towel= 56 grams
Blue Chux = 26 grams	Green OR Towel = 80 grams
Dry Lap = 19 grams	Beige OR Towel = 55 grams
Wet (rung out) Lap = 50 grams	Baby Blanket = 104 grams

Raytex = 4 grams	Blanket (Large) = 1165 grams
Lap Holder = 23 grams	Draw Sheet = 557 grams
Postpartum Peripad = 24 grams	Fitted Sheet = 427 grams
Pink Peripad = 11 grams	Gown (Blue) = 350 grams
Red Biohazard Bag = 75 grams	Gown (Pink) = 415 grams
Blue Linen Bag = 46 grams	Pillowcase = 95 grams
	Top Sheet = 493 grams
	Towel (Large) = 196 grams
	Washcloth = 25 grams

Appendix D: Active Management of Third Stage and OB Hemorrhage treatment with uterotonics

Active Management of Third Stage of Labor

Active management of the third stage of labor includes interventions to assist in the delivery of the placenta with the goal of decreasing blood loss. Components of active management of the third stage of labor reduce the risk of postpartum hemorrhage of greater than 1,000ml. The primary mediator of reduced postpartum hemorrhage is administration of prophylactic oxytocin. Controlled cord traction and prophylactic uterine massage, either before or after delivery of the placenta, does not reduce postpartum hemorrhage beyond the benefits of oxytocin administration, but may be considered.

Evidence based guidelines:

1. Prophylactic Uterotonics:
    a. Oxytocin 10 Units IV infused over 10 minutes after delivery of the anterior shoulder or within one minute of the delivery of the infant.
        i. Women who do not have an IV may be given 10 IU Oxytocin IM
    b. Women who are high risk for bleeding (yellow or red on risk assessment) continue Oxytocin IV infusion 3 Units/hr x 4 hours postpartum
    c. Women who are low risk (green on risk assessment) and who have minimal bleeding following delivery, Oxytocin IV infusion 3 Units/hr x 4 hours postpartum may be continued at provider's discretion.
2. Delay cord camping by 1 to 3 minutes (unless infant needs immediate resuscitation) and allowing mother-infant skin to skin for promotion of breastfeeding. Early cord clamping (within 1 minute of the infant's delivery) is not associated with a lower risk of severe postpartum hemorrhage when compared to delayed cord clamping.
3. Do not "drain" the placenta of blood
4. Consider "controlled cord traction" (CCT) with light tension on the cord with one hand while the other hand is placed just above the pubic bone for prevention of uterine inversion.
    a. Evidence suggests that in the setting of prophylactic oxytocin administration, CCT does not prevent postpartum hemorrhage, but may shorten the third stage of labor and reduce the need for manual removal of the placenta.
    b. DO NOT use controlled cord traction with known velamentous cord insertions.
5. Deliver the placenta with two hands, gently pulling and twisting.
    a. Remove trailing membranes with ring forceps.
6. Consider massaging the uterine fundus immediately after placental delivery until it contracts.
    a. Uterine massage prior to delivery of the placenta does not change the length of the third stage and does not prevent postpartum hemorrhage. Evidence suggests that in the setting of prophylactic oxytocin administration, CCT does not prevent PPH, but may shorten the third stage of labor and reduce the need for manual removal of the placenta.

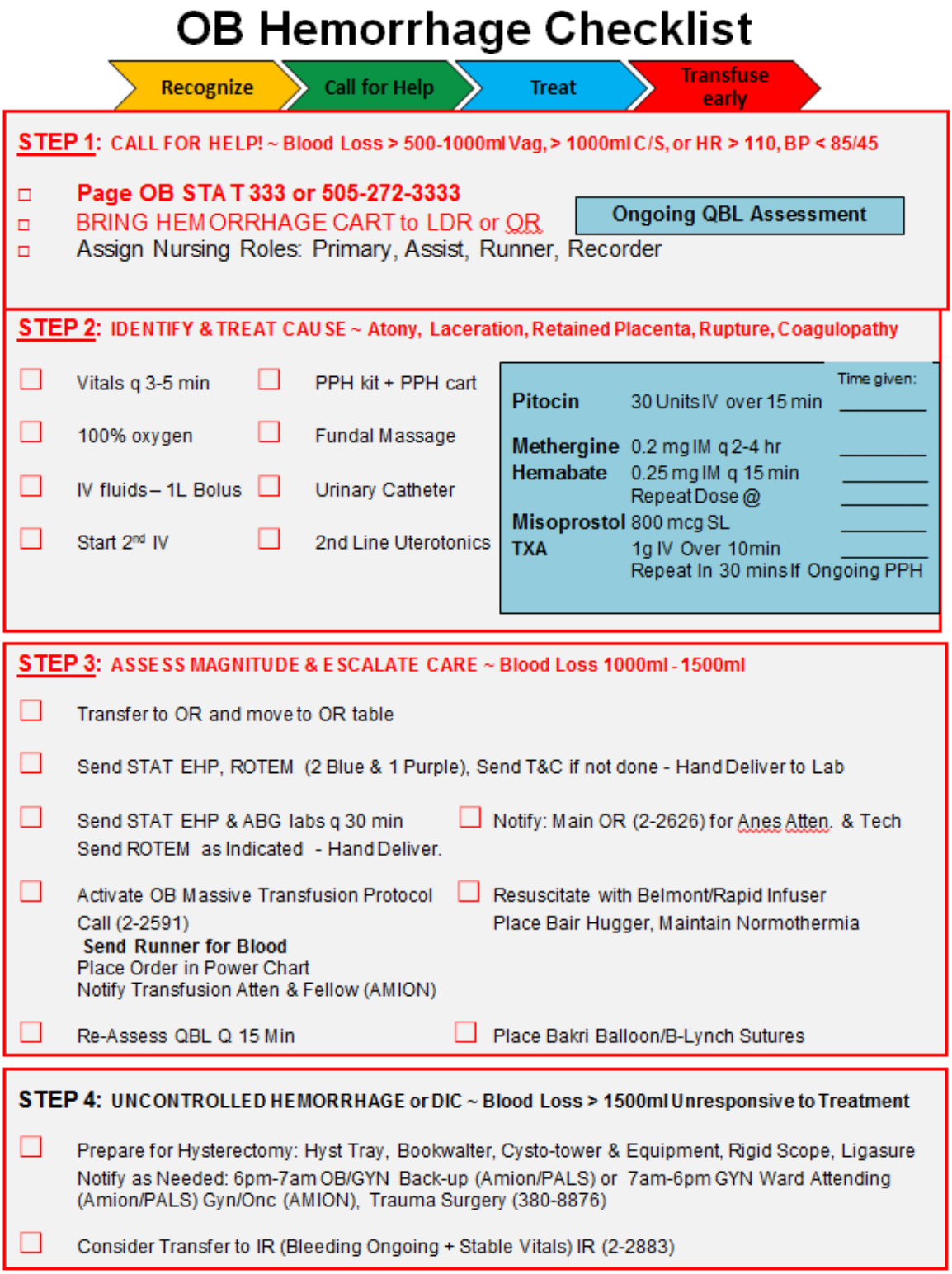
    b. Sustained uterine massage is not recommended as an intervention to prevent PPH in women who have received prophylactic oxytocin.
7. Do not intervene to accelerate placental delivery before 30-45 minutes.

OB hemorrhage treatment pathway (See Appendix E)

For ongoing bleeding:

1. Call OB STAT for OB Hemorrhage
2. Bring OB hemorrhage cart into the room
3. Place urinary foley
4. Place second IV line
5. Evaluate for cause of bleeding
6. Provide fundal massage
7. Activate activate the ***OB hemorrhage treatment pathway*** and administer additional or 2nd line uterotonics in women with ongoing uterine atony evidenced by ongoing bleeding:
    a. Oxytocin 30 units IV Infused over 15 minutes (30units/500ml pre-mixed bag)
    b. Methergine (methylergonovine) 0.2mg IM q 2-4 hours
        i. Contraindicated in women with HTN
    c. Hemabate (carboprost tromethamine) 250mcg IM q 15 min
        i. Contraindicated in women with Asthma
    d. Misoprostol 800mcg sublingual
8. Administer TXA
    a. TXA 1gram IV over 10 minutes
9. Transfer to the OR if ongoing bleeding and QBL>1000 cc or if patient becomes unstable at any point during the hemorrhage
10. Upon transfer to OR, transfer patient to OR bed to facilitate emergent anesthesia

Appendix E- Staged Response to Hemorrhage



Appendix F- Hemorrhage Cart & Kit Supplies

IV START SUPPLIES
IV extension tubing (4)
20g IV catheter (2)
18g IV catheter (5)
16G IV catheter (5)
14g IV catheter (2)
IV start kit (3)
Luerlock access device (2)
1 set of roll cards

BLOOD DRAW
Butterfly (5)
2X2 (5)
Access Device (5)
Roll of tourniquet (1)
Blue top (8)
Green top (5)
T&S (5)
SST (4)
Grey top (4)
Lavender top (5)
STAT lab bags (6)
10cc syringe (4)
Blunt needle (5)
Bandaids
Alcohol swabs

IV TUBING
IV administration set (2)
Space pump tubing (1)
Secondary tubing 15 drops/ml (2)
Secondary tubing 60 drops/ml (2)
Extension set (2)

BLOOD TUBING
Y-site tubing (3)
Filter (3)

LR/NS
LR (4)
NS (2)
Pressure bags (3)

URINE CATHS
16 F temperature sensing foley cath (1)
16 F foley cath (1)
14 F Red Robin (2)
12F straight cath (1)

OB SUPPLIES/BAKRI
Bakri (1)
Drainage bag (1)
Ring forceps (2)
Betadine solution (1)
Sterile lubrication (1)
Chromic gut suture (5)
Vaginal packing (3)
Misoprostol (4 tabs)
Pitocin (2 vials)

ANESTHESIA BACKUP SUPPLIES
Radial artery cath set (7)
Chloraprep (3)
Transpac IV monitoring kit (2)
4x4 dressing (1 pack)
Tegaderm (2 small, 2 large)
Statlock device (3)
RIC (3)
Central venous access kit (1)
ABG kit (4)
Arterial extension tubing (1)

TOOLKIT SUPPLY LIST

Labs

Primary labs: EHP (blue and Lavender), ROTEM (blue), ABG
Q 30 min labs: EHP (blue and lavender), ABG
Butterfly (3) adapters (3)

IV Supplies

18g cath (2), 16g cath (1)
10cc NS Syringe (2) Blunt needles (3)
IV start kit (2) pigtail (1)
ABG kit (2)
1 set of roll cards

Appendix G: Obstetric Team Debrief Form

DEBRIEF FORM : Patient Clinical Summary	
• A debrief should be initiated as soon as possible after any of the event types listed below or for any maternal or neonatal event that warrants a discussion. • The debrief should include as many team members involved in the case as possible. • Any member of the L&D team can initiate a debrief. • The RN Supervisor will help coordinate the debrief and will submit the completed form to the L&D Unit Director. • Debrief forms will be reviewed by a multi-disciplinary team.	
Patient Name	
MRN	
Date of Event	
Location of Event	
Attending Physician & Service	
PSI submitted	☐Yes Date Submitted: ☐No If no, why not:
Event Type	☐Severe PPH ☐ Activation of Massive Transfusion. ☐Hysterectomy. ☐Eclampsia ☐ Emergent/STAT C/S. ☐ Shoulder Dystocia ☐ Catastrophic Uterine Rupture ☐ Maternal ICU Admission ☐ Maternal Mortality ☐ Neonatal death. ☐ Other:_____

Clinical Events Notes

OB HEMORRHAGE SUMMARY		
Blood Transfusion	*Type of Blood Products*	☐ Red Blood Cells ☐Platelets ☐ FFP ☐ Cryo
	# of units	#___ Red Blood Cells #___ Platelets #___ FFP #___ Cryo
Adjuvant Therapy		☐ Methergine ☐ Hemabate ☐ Misoprostol ☐ Bakri ☐ B Lynch ☐ D&C ☐ D&E ☐ Artery Ligation ☐ TXA ☐ Factor VII ☐ Kcentra ☐ Cell Saver ☐ Bellmont
Medical Treatments		☐ Intubation ☐ Central Line ☐ Pressors ☐ Arterial Line

Team Present for debrief (Check all that apply)

□ Primary RN:_____ □ Charge RN: _____ □ Other RNs: _____
□ Attending MD: _____ □ Midwifery: _____ □ OB/FM Residents: _____
□ Attending Anes: _____ □ Anes Resident: _____ □ Neonatology: _____
□ OB/Surg Tech:_____ □ Unit Clerk: _____ □ Transfusion:_____
□ Other: _____

Think about how the obstetric emergency was managed:

Identify what went well: (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "human factors" (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "systems issue" (Check if yes)

- ☐ Equipment
- ☐ Medication
- ☐ Blood product availability
- ☐ Inadequate support (in unit or other areas of the hospital)
- ☐ Delays in transporting the patient (within hospital or to another facility)
- ☐ Other: _____

_____

Describe identified issues and actions to be taken for process improvement: