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Education

Supporting Documents/Resources | Maternal Mortality & Morbidity Series

The following materials were provided for educational purposes by **Frank R. Kolucki, Jr.** M.D., FACOG, Chairman of the Department, Obstetrics & Gynecology, Moses Taylor Hospital, in support of the Maternal Mortality and Morbidity four-part series offered via live webinar for HealthTrust members.

PART 1 | “High Reliability & Safety in Obstetrics: A Life-saving Approach” | Nov. 29, 2018

PART 2 | “Code Crimson: Massive Transfusion Protocol” | Jan. 11, 2019

PART 3 | “Four Types of Hypertension in Obstetrics” | Feb. 15, 2019

PART 4 | “Thromboembolism” | March 28, 2019

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Vaginal Delivery Procedure Checklist

(Multiple gestations: complete 1 form for each infant delivered)

Vacuum-assisted Forceps-assisted

Pre-Procedure Evaluation for Vacuum or Forceps

Preoperative diagnosis (indication for use)

- Prolonged second stage
- Suspected fetal compromise
- Diminished maternal pushing effects
- Shortening 2nd stage for maternal benefit
- Other: _____

Fetal heart interpretation: Check all that apply

- Normal (Category 1)
- Indeterminate (Category 2)
- Abnormal (Category 3)
- Decelerations

Examination findings

Presentation _____
 Fetal Station _____
 Fetal Position _____
 EFW _____

- Cervix completely dilated & effaced
- Maternal-fetal size appropriate for application
- Gestational age > 34 weeks

Patient counseling

- Indications discussed
- Questions answered
- Patient consented to operative delivery

Cup placement (vacuum only)

- Flexion point identified
- Maternal tissue excluded from vacuum cup

Details of Procedure

Station at

Application

- Zero +4
- +1 +5
- +2
- +3

Anesthesia

- Local/Pudendal
- Epidural
- Spinal
- Other _____

Episiotomy/Laceration

- Episiotomy: Yes No
- Median
- Mediolateral

Laceration

- No
- Yes
- Degree: 1 2 3 4
- Repair: Suture _____

Forceps Assisted

Forceps Used

- Simpson Forceps Low/Small Simpsons
- Tucker-Mclean Forceps Piper
- Other (Describe) _____

Complete and check all categories

- Bladder catheterized prior to application of forceps
- Hinge/lock approximated without difficulty
- Advanced in station with each pull

Time applied _____ Time removed _____

Type of forcep delivery

- Outlet Low Mid

Rotation of fetal head: Forceps rotation

- None 0 - 45° > 45°

Vacuum Assisted

Vacuum used

- Kiwi Omnicup

Complete and check all categories

- Bladder catheterized prior to application of vacuum
- Total time of vacuum application _____ (minutes) (1st application to delivery)
- Maximum vacuum achieved _____ mmHg
- Number of pulls (contractions) _____
- Number of involuntary releases (pop-offs)
- Advancement in station with each pull

Rotation of fetal head: Vacuum autorotation

- None 0 - 45° > 45°

Post Procedure Evaluation

(Labor & Birth and Newborn Admission/Discharge Summaries)

Infant

- Male
- Female

Weight _____

Date of delivery: _____

Time of delivery: _____

Apgar Scores

- 1 min
- 5 min
- 10 min

Extraction Successful

- Yes
- No (indicate reason below)

- Live birth
- Stillborn

Newborn evaluation

- NRP certified personnel in attendance at delivery
- Neonatologist present

Additional notes dictated Yes No

Signature _____

Date _____ Time _____

Time head delivered _____

Time body delivered _____

Initial Traction:

Gentle attempt at traction, assisted by maternal expulsive forces

Explain if above box not checked _____

Any/all maneuvers that apply and the order in which they were utilized. The order is not specified by the standard of care.

Maneuvers utilized

In which order (check)

By whom

McRoberts 1 2 3 4 5 6 7 _____

Hyperflexion of the mother's hip against her abdomen

Suprapubic Pressure 1 2 3 4 5 6 7 _____

Posterolateral suprapubic pressure

Episiotomy 1 2 3 4 5 6 7 _____

Episiotomy Extension 1 2 3 4 5 6 7 _____

Posterior arm release 1 2 3 4 5 6 7 _____

Rubin's Maneuver 1 2 3 4 5 6 7 _____

Manual rotation of the posterior aspect of the anterior shoulder rotating it toward the fetal chest

Wood's Maneuver 1 2 3 4 5 6 7 _____

Manual progressive rotation of the posterior shoulder to release the opposite impacted anterior shoulder

Other (list) 1 2 3 4 5 6 7 _____

Verify that fundal pressure was not applied after the head delivered:

Not Applied Applied

If applied, by whom _____ If applied, reason: _____

The arm under the symphysis at the point the head was delivered was: Right Left

List other items of note _____

Primary Care Provider	Date	Time	Registered Nurse	Date	Time
Other Care Provider in Attendance	Date	Time	Other Care Provider in Attendance	Date	Time

Perinatal Safety Initiative

Pre-Oxytocin Checklist for Women with Term-Singleton Babies

Date, Time, Signature: _____

“This Pre-Oxytocin checklist represents a guideline for care; however, individualized medical care is directed by the physician”

If the following checklist cannot be completed, Oxytocin should not be initiated.

1. Physician order on chart
2. Current history and physical on chart*
3. Prenatal record on chart*
4. Indication for induction/augmentation is documented
5. Pelvis is documented by physician to be clinically adequate (should be on prenatal record)*
6. Estimated fetal weight within past week (clinical or ultrasound) less than 5000 grams in a non-diabetic woman or less than 4250 grams in a diabetic woman*
7. Gestational age documented
8. Consent signed (consent for vaginal/surgical birth)
9. Physician with C/Section privileges is aware of the induction/augmentation and readily available and this is documented in the medical record.
10.

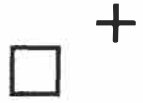
SIGN	POINTS				SCORE
	0	1	2	3	
POSITION	POSTERIOR	INTERMEDIATE	ANTERIOR		
CONSISTENCY	FIRM	INTERMEDIATE	SOFT		
EFFACEMENT	0-30%	31-50%	51-80%	>80%	
DILATION	0 cm	1-2 cm	3-4 cm	>5 cm	
STATION	-3	-2	-1, 0	+1, +2	
TOTAL BISHOP SCORE					

11. Presentation is assessed documented (physician required to come in if nurse unable to determine)
12. Fetal assessment completed and indicates: (complete below)
 - A minimum of 30 minutes of fetal monitoring is required prior to starting Oxytocin
 - At least 2 accelerations (15bpm x 15bpm) in 30 minutes are present or a biophysical profile of 8 of 10 is present within the past 4 hours or adequate or adequate variability**
 - No late decelerations in the last 30 minutes
 - No more than 2 decelerations exceeding 60 seconds and decreasing greater than 60 bpm from baseline within the previous 30 minutes prior to starting Oxytocin infusion

*May be delayed for non-elective admissions

** This document does not apply to a formal Oxytocin challenge test without the intent to induce or augment labor

**There will be some situations in which alternations in management from that described in the protocol are clinically appropriate. If, after reviewing the fetal heart rate strip and course of labor the responsible physician should feels that in his or her judgment, continued use of Oxytocin is in the best interest of the mother and baby, the physician should write or dictate a note to the effect and order the Oxytocin to continue. The RN will continue to provide safe, high quality nursing care



Suspected Chorioamnionitis Order Sheet

Generic - Chemical - Therapeutic Automatic Interchange and Protocols for specific drugs as approved by the Medical Staff are permitted for implementation for all applicable orders below

PROHIBITED ABBREVIATIONS	IU, qd, qod, MS, MgSO4, MSO4, A/A, Nitro, U, X __ D (define doses or days), zero after decimal (X.0), lack of zero before decimal (.X)
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ALLERGIES: Refer Allergy Verification Record	WEIGHT: _____ kg; HEIGHT: ____ inches
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Clinical Suspicion: <ul style="list-style-type: none"> ▪ Maternal Temperature > 38°C (100.4°F) Most sensitive indicator ▪ Maternal leukocytosis ▪ Maternal tachycardia ▪ Uterine tenderness ▪ Foul Smelling amniotic fluid ▪ Preterm Labor Prolonged Rupture of Membranes
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Nursing <ul style="list-style-type: none"> ▪ Consult Neonatology for Suspected Chorioamnionitis

Laboratory Orders <ul style="list-style-type: none"> ▪ CBC with diff ▪ Blood Culture ▪ Placenta to pathology Reason: Chorioamnionitis ▪ Aerobic Placenta Culture

Medications Regimens <ul style="list-style-type: none"> <input type="checkbox"/> Ampicillin 2 grams IV q6 hours Gentamicin 1.5 mg/kg IV q8 hours <ul style="list-style-type: none"> ▪ Bun ▪ Creatinine <input type="checkbox"/> Check Gentamicin peak and through level after 3 rd dose <input type="checkbox"/> Unasyn 3 grams IV q 6 hours <input type="checkbox"/> Timentin 3.1 grams IV q 4 hours <input type="checkbox"/> Ancef 2 grams IV q 6 hours <p>If C-Section And Patient Utilizing Ampicillin and Gentamycin Regimen Please Add Either</p> <ul style="list-style-type: none"> <input type="checkbox"/> Clindamycin 900 mg IV q 8 hours <input type="checkbox"/> Flagyl 500mg IV q 8 hours <p>If Patient Is Penicillin Allergic</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vancomycin 1 gram IV q 12 hour

PHYSICIAN SIGNATURE:	DATE:	TIME
NURSE NOTING ORDERS:	DATE:	TIME:

VTE Prophylaxis Assessment

To be completed by Nurse

This is to be completed on admission, upon transfer to Postpartum, and as needed based on patient course of care.

Please check the boxes as they are applicable to the patient and sum total Risk Factor Points based on patient history.

Antepartum Admission Assessment

Risk Factors	Points
<input type="checkbox"/> Immobility (bed rest greater than 3 days antepartum)**	4
<input type="checkbox"/> High risk Thrombophilia* (antithrombin deficiency; double heterozygous for prothrombin G20210A mutation and factor V Leiden; factor V Leiden homozygous or prothrombin G20210A mutation homozygous)	4
<input type="checkbox"/> Previous VTE	4
<input type="checkbox"/> Active cancer	4
<input type="checkbox"/> Medical condition (SLE, Sickle cell disease, heart disease)	2
<input type="checkbox"/> Active infection (e.g. chorio, endometritis, pyelo, etc.)	2
<input type="checkbox"/> BMI greater than or equal to 35 kg/m ²	2
<input type="checkbox"/> History of cancer (treated in past year)	2
<input type="checkbox"/> Low risk Thrombophilia* (factor V Leiden heterozygous; prothrombin G20210A heterozygous; protein C or protein S deficiency)	2
<input type="checkbox"/> Age greater than 40 years and above	2
<input type="checkbox"/> Multiple pregnancy	2
<input type="checkbox"/> Smoker (greater than 10 cigarettes/day)	2

Patient Label

Total Points:

**IF Total Points are greater than or equal to 4, and/or the patient has Thrombophilia notify provider immediately for prophylaxis!
*Refer to ACOG Bulletin Inherited Thrombophilias in Pregnancy #138
Hold for those at risk for immediate hemorrhage risk, such as placenta previa

Provider notified:

Date/Time notified:

Assessment completed by:

Date/Time completed:

Post-Delivery Transfer Assessment

Risk Factors	Points
<input type="checkbox"/> Immobility (bed rest greater than 3 days antepartum)**	4
<input type="checkbox"/> High risk Thrombophilia* (antithrombin deficiency; double heterozygous for prothrombin G20210A mutation and factor V Leiden; factor V Leiden homozygous or prothrombin G20210A mutation homozygous)	4
<input type="checkbox"/> Previous VTE	4
<input type="checkbox"/> Active cancer	4
<input type="checkbox"/> Medical condition (SLE, Sickle cell disease, heart disease)	2
<input type="checkbox"/> Active infection (e.g. chorio, endometritis, pyelo, etc.)	2
<input type="checkbox"/> BMI greater than or equal to 35 kg/m ²	2
<input type="checkbox"/> History of cancer (treated in past year)	2
<input type="checkbox"/> Low risk Thrombophilia* (factor V Leiden heterozygous; prothrombin G20210A heterozygous; protein C or protein S deficiency)	2
<input type="checkbox"/> Age greater than 40 years and above	2
<input type="checkbox"/> Multiple pregnancy	2
<input type="checkbox"/> Smoker (greater than 10 cigarettes/day)	2
<input type="checkbox"/> Cesarean Section	2

Total Points: _____

**IF Total Points are greater than or equal to 4, and/or the patient has Thrombophilia notify provider immediately for prophylaxis!
*Refer to ACOG Bulletin Inherited Thrombophilias in Pregnancy #138
Hold for those at risk for immediate hemorrhage risk, such as placenta previa

Provider notified:

Date/Time notified:

Assessment completed by:

Date/Time completed:

For Provider Use

Patient is _____ weeks pregnant / Patient is in the _____ trimester / The patient's VTE Prophylaxis Assessment score is _____

VTE Prophylaxis Exclusion Criteria (if no prophylaxis is ordered, reason must be specified)

- Therapeutic on Home Anticoagulation Therapy: Continue therapeutic therapy and send order to pharmacy
- Patient needs TREATMENT dosing:
 - Consult Hematology
 - Consult and send order to Pharmacy
- Low Risk for VTE: Pharmacologic Prophylaxis not indicated
- Contraindications to Pharmacologic Prophylaxis:
 - Allergy to Heparin products
 - Active Bleed
 - Active Stroke in previous 4 weeks
 - Thrombocytopenia
 - Increased risk of major hemorrhage
 - Other: _____
- Contraindications to Mechanical Prophylaxis
 - Injury to Lower Extremities
 - Other _____

Recommended ANTEPARTUM Prophylaxis Dosing (switch to Heparin Sodium if gestation greater than or equal to 35 weeks)

Enoxaparin (Lovenox®)

- BMI less than 40 kg/m2: Enoxaparin 40mg subcutaneous every 24 hours
- BMI greater than 40 kg/m2: Enoxaparin 40mg subcutaneous every 12 hours

Unfractionated Heparin (Heparin Sodium®)

- 1st Trimester: Heparin 5,000 units subcutaneous every 12 hours
- 2nd Trimester: Heparin 7,500 units subcutaneous every 12 hours
- 3rd Trimester: Heparin 10,000 units subcutaneous every 12 hours

Holding of Pharmacologic Therapy BEFORE Neuroaxial Anesthesia

Medication	Wait time post last dose prior to neuraxial blockade
Unfractionated Heparin Prophylaxis	8 hours
Unfractionated Heparin Therapeutic	8 hours
Enoxaparin Prophylaxis	12 hours
Enoxaparin Therapeutic	24 hours

Patient Label

Recommended POSTPARTUM Prophylaxis Dosing (Starting at: Date: _____ Time: _____)

Enoxaparin (Lovenox®)

- BMI less than 40 kg/m2: Enoxaparin 40mg subcutaneous every 24 hours
- BMI greater than 40 kg/m2: Enoxaparin 40mg subcutaneous every 12 hours

Unfractionated Heparin (Heparin Sodium®)

Heparin 5,000 units subcutaneous every 12 hours

Mechanical Prophylaxis

- Apply sequential compression device: Routine, UNTIL DISCONTINUED

Laboratory Orders

- CBC and SCr at baseline and routinely

Re-Starting Pharmacologic Therapy AFTER Neuroaxial Anesthesia

Medication	Wait time after epidural catheter removal or spinal needle placement
Unfractionated Heparin Prophylaxis (less than 10,000IU/day)	Greater than 2 hours
Unfractionated Heparin Therapeutic	Greater than 2 hours
Enoxaparin Prophylaxis	Greater than 4 hours
Enoxaparin Therapeutic	Greater than 24 hours

Table 4. Recommended Thromboprophylaxis for Pregnancies Complicated by Inherited Thrombophilias* SOURCE: ACOG Practice Bulletin Inherited Thrombophilias in Pregnancy #138, September 2013(Reaffirmed 2017).		
Clinical Scenario	Antepartum Management	Postpartum Management
Low-risk thrombophilia [†] without previous VTE	Surveillance without anticoagulation therapy	Surveillance without anticoagulation therapy or postpartum anticoagulation therapy if the patient has additional risks factors [‡]
Low-risk thrombophilia with a family history (first-degree relative) of VTE	Surveillance without anticoagulation therapy	Postpartum anticoagulation therapy or intermediate-dose LMWH/UFH
Low-risk thrombophilia [†] with a single previous episode of VTE—Not receiving long-term anticoagulation therapy	Prophylactic or intermediate-dose LMWH/UFH or surveillance without anticoagulation therapy	Postpartum anticoagulation therapy or intermediate-dose LMWH/UFH
High-risk thrombophilia [§] without previous VTE	Surveillance without anticoagulation therapy, or prophylactic LMWH or UFH	Postpartum anticoagulation therapy
High-risk thrombophilia [§] with a single previous episode of VTE or an affected first-degree relative—Not receiving long-term anticoagulation therapy	Prophylactic, intermediate-dose, or adjusted-dose LMWH/UFH regimen	Postpartum anticoagulation therapy, or intermediate or adjusted-dose LMWH/UFH for 6 weeks (therapy level should be at least as high as antepartum treatment)
No thrombophilia with previous single episode of VTE associated with transient risk factor that is no longer present—Excludes pregnancy- or estrogen-related risk factor	Surveillance without anticoagulation therapy	Postpartum anticoagulation therapy
No thrombophilia with previous single episode of VTE associated with transient risk factor that was pregnancy- or estrogen-related	Prophylactic-dose LMWH or UFH	Postpartum anticoagulation therapy
No thrombophilia with previous single episode of VTE without an associated risk factor (idiopathic)—Not receiving long-term anticoagulation therapy	Prophylactic-dose LMWH or UFH	Postpartum anticoagulation therapy
Thrombophilia or no thrombophilia with two or more episodes of VTE—Not receiving long-term anticoagulation therapy	Prophylactic or therapeutic-dose LMWH or Prophylactic or therapeutic-dose UFH	Postpartum anticoagulation therapy or Therapeutic-dose LMWH/UFH for 6 weeks
Thrombophilia or no thrombophilia with two or more episodes of VTE—Receiving long-term anticoagulation therapy	Therapeutic-dose LMWH or UFH	Resumption of long-term anticoagulation therapy
<p>Abbreviations: LMWH, low molecular weight heparin; UFH, unfractionated heparin; VTE, venous thromboembolism.</p> <p>*Postpartum treatment levels should be greater or equal to antepartum treatment. Treatment of acute VTE and management of antiphospholipid syndrome are addressed in other Practice Bulletins.</p> <p>[†]Low-risk thrombophilia: factor V Leiden heterozygous; prothrombin <i>G20210A</i> heterozygous; protein C or protein S deficiency.</p> <p>[‡]First-degree relative with a history of a thrombotic episode before age 50 years, or other major thrombotic risk factors (eg, obesity or prolonged immobility).</p> <p>[§]High-risk thrombophilia: antithrombin deficiency; double heterozygous for prothrombin <i>G20210A</i> mutation and factor V Leiden; factor V Leiden homozygous or prothrombin <i>G20210A</i> mutation homozygous.</p> <p>Surveillance without anticoagulation therapy is supported as an alternative approach by some experts.</p>		

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ONLY CHECKED ITEMS WILL BE ORDERED

Another brand of drug identical in form and content may be dispensed unless marked with an X

VTE Prophylaxis, OB (High Risk)

VTE Prophylaxis

- Communication order if NO neuraxial anesthesia used, restart pharmacological therapy 6 hours post vaginal delivery
- Communication order if NO neuraxial anesthesia used, restart pharmacological therapy 12 hours post cesarean delivery

ANTEPARTUM PROPHYLAXIS

- Consider switching to unfractionated heparin if gestation greater than or equal to 35 weeks
 - enoxaparin (e.g. Lovenox) 40 milligram subcutaneously every 24 hours (BMI less than 40)
 - enoxaparin (e.g. Lovenox) 40 milligram subcutaneously every 12 hours (BMI greater than 40)
 - heparin 5,000 unit subcutaneously every 12 hours (1st trimester)
 - heparin 7,500 unit subcutaneously every 12 hours (2nd trimester)
 - heparin 10,000 unit subcutaneously every 12 hours (3rd trimester)

POSTPARTUM PROPHYLAXIS

- Administer first dose of anticoagulation : _____(date) _____(time)
- enoxaparin (e.g. Lovenox) 40 milligram subcutaneously every 24 hours (BMI less than 40)
- enoxaparin (e.g. Lovenox) 40 milligram subcutaneously every 12 hours (BMI greater than 40)
- heparin 5,000 unit subcutaneously every 12 hours

Mechanical options

- Intermittent pneumatic compression

Laboratory

- Complete blood cell count without white blood cell differential now
- Complete blood cell count without white blood cell differential every 3 days (while on anticoagulation therapy)
- Creatinine (Cr), serum now

No VTE Prophylaxis Reasons

- VTE Prophylaxis Exclusionary Criteria therapeutic on home anticoagulation therapy: continuing home therapy
- VTE Prophylaxis Exclusionary Criteria patient at low risk for VTE
- VTE Prophylaxis Exclusionary Criteria patient needs treatment dosing-consult hematology
- No pharmacological prophylaxis ordered due to reasons identified below allergy to heparin products
- No pharmacological prophylaxis ordered due to reasons identified below ambulating
- No pharmacological prophylaxis ordered due to reasons identified below active bleed
- No pharmacological prophylaxis ordered due to reasons identified below thrombocytopenia
- No pharmacological prophylaxis ordered due to reasons identified below increased risk of major hemorrhage

Physician Initials

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ONLY CHECKED ITEMS WILL BE ORDERED

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No pharmacological prophylaxis ordered due to reasons identified below active stroke in previous 4 weeks

No pharmacological prophylaxis ordered due to reasons identified below other: _____

No mechanical prophylaxis ordered due to reasons identified below injury to lower extremities

No mechanical prophylaxis ordered due to reasons identified below other: _____

Consults

● Patients with high risk factor related to active cancer or known thrombophilic condition should automatically receive treatment (not prophylaxis), consider consult to hematology for dosing recommendations

Consult to hematology; Reason/Provider consulted: Active cancer or thrombophilic condition

Physician Signature

Date

Time

+



ONLY CHECKED ITEMS WILL BE ORDERED

Another brand of drug identical in form and content may be dispensed unless marked with an X

VTE Prophylaxis, OB

VTE Prophylaxis

- enoxaparin (e.g. Lovenox) 40 milligram subcutaneously every 24 hours (for creatinine clearance greater than or equal to 30 milliliters per minute)
- enoxaparin (e.g. Lovenox) 30 milligram subcutaneously every 24 hours (for creatinine clearance less than 30 milliliters per minute)
- heparin 5,000 unit subcutaneously every 8 hours

Laboratory

- Basic metabolic panel now (prior to initiation of prophylaxis treatment)
- Complete blood cell count without white blood cell differential now
- Complete blood cell count without white blood cell differential every other day (while on anticoagulation therapy)
- Creatinine (Cr), serum now
- Creatinine (Cr), serum every 3 days
- Notify provider if platelets less than 100,000 or decreased more than 50%

Mechanical options

- Intermittent pneumatic compression

Physician Signature

Date

Time

Hypertensive emergencies in OB – Severe Pre-eclampsia

Systolic BP \geq 160 mmHg and/or Diastolic BP \geq 110 mmHg

START

- 1 Inform OB team / Call for Help
- 2 Establish IV access if not present (at least 18 gauge) and monitor FHTs
 - Send Labs CBC, PT/aPTT, Fibrinogen, CMP, Uric Acid, LDH, Type and Screen, Urinalysis for protein/creatinine
 - Nifedipine PO can be used in absence or inability to get IV access
 - Labetalol PO Second line drug if Nifedipine not avail (and No IV access)

3 Start anti-hypertensive Meds → Start Seizure prophylaxis

- Labetalol **20 mg IV** over 2 min
- Check BP in 10 min if still ↑
Labetalol **40 mg IV** over 2 min
- Check BP in 10 min if still ↑
Labetalol **80 mg IV** over 2 min
- Check BP in 10 min if still ↑
Hydralazine **10 mg IV** over 2 min

OR

- Hydralazine **5 – 10 mg IV** over 2 min
- Check BP in 20 min if still ↑
Hydralazine **10 mg IV** over 2 min
- Check BP in 20 min if still ↑
Labetalol **20 mg** over 2 min
- Check BP in 20 min if still ↑
Labetalol **20 mg** over 2 min

AND

- 10% Magnesium Sulfate in 100 mL solution IV – bolus load dose **4-6 gm IV** over 20 min
 - Magnesium Sulfate – maintenance dose **1-2 gm IV** per hour continuous infusion
- Contraindications –*
- *Myasthenia gravis (bolus and maintenance)*
 - *Significant pulmonary edema (bolus and maintenance)*
 - *Renal Failure (maintenance only)*

DRUG DOSES and treatments

- Nifedipine PO**
- 10 mg every 20 – 30 minutes X 5 doses
- Labetalol PO**
- 100mg one time dose PO
- Labetalol IV**
- Max dose – 220mg IV
- Labetalol**
- Avoid in asthma or heart failure
 - Can cause Neonatal Bradycardia

- 4 IF BP still increased obtain emergency Critical Care Medicine, MFM, anesthesia, and/or internal medicine consult.

If seizures present or begin, go to next page "Hypertensive Emergencies – Seizures"

Eclampsia Checklist

PERSISTENT SEIZURE

- Neuromuscular block and intubate
- Obtain radiographic imaging
- ICU admission

Antihypertensive medications **SBP \geq 160** or **DBP \geq 110**

- **Labetalol** (20, 40, 80, 80 mg IV* over 2 minutes, escalating doses, repeat every 10 minutes or 200 mg orally if no IV access); avoid in asthma or heart failure, can cause neonatal bradycardia
- **Hydralazine** (5-10 mg IV* over 2 minutes, repeat in 20 minutes until target blood pressure is reached)
- Repeat blood pressure every 10 minutes during administration

* **Maximum cumulative IV administered doses should not exceed 25 mg hydralazine; 220 mg labetalol in 24 hours.**

AFTER SEIZURE

- Assess neurologic status every 15 minutes
- PEC labs: CBC, Chem 7, LFT, Uric Acid, LDH, T&S, PT/PTT, Fibrinogen, Magnesium
- Foley catheter (Hourly I&O. Report output < 30 ml/hour)

Strict I&O (no less than every 2 hours). Report urine output to the clinician if < 30 ml/hr. Foley catheter should be placed if urine output is borderline or strict I&O cannot be maintained. Urometer should be utilized if the urine output is borderline or < 30 ml/hr.

DELIVERY PLAN

- Ensure that there is an appropriate plan for delivery

MAGNESIUM TOXICITY

- Stop Magnesium maintenance
- Calcium gluconate 1 gram (10 ml of 10% solution) IV over 1-2 minutes

POSTPARTUM

- Oral antihypertensive medication postpartum if > 150/100.
- Blood pressure monitoring is recommended 72 hours after delivery and/or outpatient surveillance (e.g., visiting nurse evaluation) within 3 days and again 7-10 days after delivery or earlier if persistent symptoms.

DEBRIEF

- Debrief with the whole obstetric care team and document following the debrief

Maternal Early Warning Signs (MEWS)

Maternal Early Warning Criteria (2014)

- Systolic BP (mm Hg) < 90 or > 160
- Diastolic BP (mm Hg) > 100
- Heart Rate (beats per min) < 50 or > 120
- Respiratory Rate (breaths per min) < 10 or > 30
- Oxygen saturation on room air, % 95
- Oliguria, mL/hr for 4 hours < 120
- Maternal agitation, confusion, or unresponsiveness
- Patient with hypertension/preeclampsia reporting a non-remitting headache or shortness of breath

Protocol for Addressing High Blood Pressures in Pregnant or Postpartum Patients

(This protocol will be posted in the Labor Unit and Mom-Baby Unit)

1. Only measure initial blood-pressures after the patient has been sitting or resting for at least 5 minutes. Blood pressures should be taken with a correctly-fitted cuff placed at the level of the patient's heart.
2. For any measurement of severe hypertension* (systolic ≥ 160 and/or diastolic ≥ 110), the RN will:
 - a. Notify the physician
 - b. Perform a repeat blood pressure check 15 minutes after the initial reading.

*If the RN feels that the blood pressure was not accurate (for example: the patient was pushing or vomiting) this should be documented in the EMR and a repeat blood pressure check should be performed 15 minutes after the initial reading.

3. If the repeat blood pressure is again severe (systolic ≥ 160 and/or diastolic ≥ 110) nursing staff will immediately notify the physician. The following standard script should be used:

"Your patient, Mrs. _____, in room _____ has had two severe blood pressures of _____ and _____. Our unit protocol requests that you consider administering IV Labetalol, IV Hydralazine, or oral nifedipine. Would you like to order one of these?"

Standard doses of first-line medications include the following:

- a. Labetalol, 20mg, IV infused over 2 minutes
 - b. Hydralazine, 5mg or 10mg, IV infused over 2 minutes
 - c. Nifedipine, immediate release, 10mg, orally (appropriate if patient has no IV access)
4. All antihypertensive medications should be ordered as STAT and given as soon possible, preferably within 15 minutes of the second elevated BP.
 5. If the physician chooses not to treat the patient, the RN should document this in the EMR and the blood pressure should be repeated in 15 minutes. If the blood pressure is again in the severe range, repeat Step 3 (above).
 6. Continue to record blood-pressures every 10-20 minutes. Notify the physician for any measurement of severe hypertension* (systolic ≥ 160 and/or diastolic ≥ 110). Protocols for continued treatment are attached.

Management of Severe Hypertension with Labetalol:

1. Initial dose: **Labetalol**, 20mg IV, infused over >2 minutes.
 - a. Repeat BP in 10 minutes
2. If still elevated, administer **Labetalol**, 40mg, IV, infused over >2 minutes
 - a. Repeat BP in 10 minutes
3. If still elevated, administer **Labetalol**, 80mg, IV, infused over >2 minutes
 - a. Repeat BP in 10 minutes
4. If still elevated, administer **Hydralazine**, 10mg, IV, infused over >2 minutes
 - a. Repeat BP in 20 minutes
5. If still elevated, consider emergency consultation with MFM, internal medicine, anesthesia, or critical-care medicine

Management of Severe Hypertension with Hydralazine:

1. Initial dose: **Hydralazine**, 5 or 10mg IV, infused over >2 minutes.
 - a. Repeat BP in 20 minutes
2. If still elevated, administer **Hydralazine**, 10mg, IV, infused over >2 minutes
 - a. Repeat BP in 20 minutes
3. If still elevated, administer **Labetalol**, 20mg, IV, infused over >2 minutes
 - a. Repeat BP in 10 minutes
4. If still elevated, administer **Labetalol**, 40mg, IV, infused over >2 minutes
 - a. Repeat BP in 10 minutes
5. If still elevated, consider emergency consultation with MFM, internal medicine, anesthesia, or critical-care medicine

Management of Severe Hypertension with Nifedipine:

1. Initial Dose: **Nifedipine**, immediate-release, 10mg, orally
 - a. Repeat BP in 20 minutes
2. If still elevated, administer **Nifedipine**, immediate release, 20mg, orally
 - a. Repeat BP in 20 minutes
3. If still elevated, administer **Nifedipine**, immediate release, 20mg, orally
 - a. Repeat BP in 20 minutes
4. If still elevated, administer **Labetalol**, 40mg, IV, infused over >2 minutes
 - a. Repeat BP in 10 minutes
5. If still elevated, consider emergency consultation with MFM, internal medicine, anesthesia, or critical-care medicine

Blood Pressure in Pregnant or Postpartum Patient Competency

Name _____ Date _____

Measurable Behavior	Validator's Initials
<p>Prepare equipment:</p> <ul style="list-style-type: none"> a. Obtains blood pressure with either automated blood pressure machine or manual blood pressure sphygmomanometer and stethoscope. b. Checks blood pressure cuff for any defaults. c. Obtains correct size cuff: width of bladder 40% of circumference and encircles 80% of are. 	
<p>Prepare the patient:</p> <ul style="list-style-type: none"> a. Uses a sitting or semi-reclining position with back supported and arm at heart level. b. Instructs patient to sit quietly for 5 minutes prior to measurement. c. Bares arm of any restrictive clothing. d. Instructs patient feet should be flat, not dangling from examination table or bed, and legs uncrossed. e. Assesses for any recent (within previous 30 minutes) consumption of caffeine or nicotine. <i>If blood pressure is at the level requiring treatment, do not delay treatment based on consumption if blood pressures are at the level that requires treatment.</i> 	
<p>Take Measurement :</p> <ul style="list-style-type: none"> a. Supports patient's arm at heart level in a seated semi-fowlers position. b. Instructs patient not to talk during blood pressure measurement. c. Obtains blood pressure with either automated blood pressure machine or manual blood pressure cuff. d. Repeats blood pressure again in 15 minutes and reports the higher reading. e. If greater that 140/90 further evaluation for preeclampsia is warranted. 	

<p>Records Measurement: Documents BP, patient position, and arm in which blood pressure was taken.</p>	
<p>Severe Blood Pressure measurement (systolic \geq 160 and or diastolic \geq 110, :</p> <ul style="list-style-type: none"> a. Obtains the Hypertensive Crisis Critical Event Checklist b. Notifies the physician of elevated BP. c. Performs a repeat blood pressure check 15 minutes after the initial reading. d. If repeat BP is again severe, will immediately notify the MD and will anticipate antihypertensive treatment. e. Administers antihypertensive medication ASAP preferably within 15 minutes of the second elevated BP and will administer medication as ordered per algorithm. f. If the physician chooses not to treat the patient, the RN documents in the EMR and repeats BP in 15 minutes. If BP remains in severe range, RN will notify MD again. If BP not treated considers utilization of chain of command. g. Continues to record blood pressures every 10-20 minutes. Notify MD for any measurement of severe hypertension. 	

The undersigned has reviewed all policies and procedures included in this competency packet and is knowledgeable about the contents of this packet.

SIGNATURE NURSE _____

SIGNATURE INSTRUCTOR _____

Formulated 9/2017.

MASSIVE TRANSFUSION PROTOCOL CODE CRIMSON (OB)

Generic – Chemical – Therapeutic Automatic Interchange and Protocols for specific drugs as approved by the Medical Staff are permitted for implementation for all applicable orders below

Diagnosis: Post Partum HEMORRHAGE; ACTIVATE CODE CRIMSON		
<input type="checkbox"/>	LEVEL 1: LABS: Draw STAT Code Crimson Lab and Massive Transfusion Package 1 [MTP1]. Notify LAB of inbound blood work	
	<ul style="list-style-type: none"> <input type="checkbox"/> CBC <input type="checkbox"/> PT/INR <input type="checkbox"/> PTT <input type="checkbox"/> Fibrinogen <input type="checkbox"/> CMBP <input type="checkbox"/> D-dimer <input type="checkbox"/> Type and Screen <input type="checkbox"/> Type & Cross 3 Units Packed Red Blood Cells, 3 Units Fresh Frozen Plasma, 1 Unit Aphoresed Platelets 	
<input type="checkbox"/>	If ongoing bleeding, order and Prepare Massive Transfusion Package [MTP2] and 10 Units Cryoprecipitate <ul style="list-style-type: none"> <input type="checkbox"/> 6 Units Packed Red Blood Cells (RBC) <input type="checkbox"/> 6 Units Fresh Frozen Plasma (FFP) <input type="checkbox"/> 1 Unit Aphoresed Platelets (PLT) <input type="checkbox"/> 10Units Cryoprecipitate (CR10) 	
<input type="checkbox"/>	LEVEL 2: LABS: Draw STAT Code Crimson Lab and Massive Transfusion Package 2 [MTP2]. Notify LAB of inbound blood work	
	<ul style="list-style-type: none"> <input type="checkbox"/> CBC <input type="checkbox"/> PT/INR <input type="checkbox"/> PTT <input type="checkbox"/> Fibrinogen <input type="checkbox"/> D-dimer <input type="checkbox"/> CMBP <input type="checkbox"/> Type & Cross 6 Units Packed Red Blood Cells, 6 Units Fresh Frozen Plasma, 1 Unit Aphoresed Platelets, and 10 Units Cryoprecipitate 	
<input type="checkbox"/>	Insure two (2) large bore (#18) IV access	
<input type="checkbox"/>	If ongoing bleeding, order additional MTP2 (6 Units Packed Red Blood Cells, 6 Units Fresh Frozen Plasma, 1 Units Aphoresed Platelets)and 20 units Cryoprecipitate CR10, CR10. Further MTP2 packs will be dictated by clinical presentation and lab work.	
Medication:		
<input type="checkbox"/>	Tranexamic Acid 1 gram/ 100 ml in 0.9% NaCl; Infuse, infuse 100 ml bag over 20 minutes (ie. 300 ml/hr) for 2 doses	
<input type="checkbox"/>	Vitamin K 10mg in 50 mL of NSS IV once over 30 minutes	
<input type="checkbox"/>	Calcium Gluconate 2 grams STAT after every MTP2; Administer IV Push over 10 minutes (max rate: 200mg/min)	
Factors (SELECT ONE ONLY)		
<input type="checkbox"/>	RiaSTAP (fibrinogen concentrate) 2 grams for 1 dose STAT for fibrinogen level <200mg/dl. IV infusion over 20 minutes in separate line. Rate not to exceed 5ml/min. Pharmacy to Round dose to the nearest vial size. Document lot # in Electronic Health Record (Cerner)	
<input type="checkbox"/>	KCentra 50 units/kg based upon total body weight for 1 dose STAT, when the bleeding has not abated after administration of tranexamic acid , or immediately in a Factor Deficiency Patient or a low Fibrinogen result with cryopercipate or FFP administered. <ul style="list-style-type: none"> <input type="checkbox"/> Maximum Dose to be administered is 5000 units Factor IX <input type="checkbox"/> Doses will be rounded to the nearest 500 units Factor IX <input type="checkbox"/> Infuse at a rate of 0.12 mL/kg/minute (~3 units/kg/minute) in a separate line and do not mix with any other medications or blood products. Do not allow blood to enter syringe (to reduce risk of fibrin clot formation). <input type="checkbox"/> Do not exceed a rate of 8.4mL/minute (~210 units/minute) <input type="checkbox"/> Administered within 4 hours of reconstitution. <input type="checkbox"/> Document lot # in Electronic Health Record (Cerner) 	
<input type="checkbox"/>	(NovoSeven® RT) Coagulation Factor VIIa Room Temperature Stable IV Bolus over 2-5 minutes (stored in pharmacy in refrigerator or room temperature). Dose Coagulation Factor VIIa (NovoSeven® RT) based on weight below. (Dosing equals 60 mcg/kg rounded up to the nearest 1000 mcg, 2000 mcg, or 5000 mcg vial)	
For patient's weight of:		
<input type="checkbox"/>	50 kilograms or less, administer 3000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	67-83 kilograms, administer 5000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	101-116 kilograms, administer 7000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	134-150 kilograms, administer 9000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	166-180 kilograms, administer 11,000 mc	<input type="checkbox"/>
<input type="checkbox"/>	51-66 kilograms, administer 4000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	84-100 kilograms, administer 6000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	117-133 kilograms, administer 8000 mcg	<input type="checkbox"/>
<input type="checkbox"/>	151-165 kilograms, administer 10,000 mcg	<input type="checkbox"/>
Physicians signature:		
Nurse Noting signature:		
Date:	Date:	Time:
Time:	Time:	Time:

NovoSeven

Used for uncontrolled postpartum hemorrhage (Code Crimson).

Nursing and Pharmacy: treat all orders as STAT.

- NovoSeven activates coagulation factors to convert prothrombin to thrombin and fibrinogen to fibrin to induce hemostasis.
- Contraindicated in patients with known hypersensitivity to mouse, hamster, or bovine proteins.
- Prior to reconstitution, NovoSeven is stored in the refrigerator.

DOSE for Code Crimson is 60 mcg/kg; rounded up to the nearest 1200 mcg vial.

- 40 kilograms or less administer 2400 mcg
- 41-60 kilograms administer 3600 mcg
- 61-80 kilograms administer 4800 mcg
- 81-100 kilograms administer 6000 mcg
- 101-120 kilograms administer 7200 mcg
- 121-140 kilograms administer 8400 mcg

Pharmacy:

- Orders will be entered into the pharmacy computer STAT
- Do NOT tube. Pharmacy supply is limited to one dose and the situation does not allow for tube failure.
- If more medication is needed other than what is in stock, Pharmacy will contact New Life Homecare Inc. at 570 602-3093 or Mike Pajka at 570 696-8408 (cell). If NewLife has in stock, allow for ½ to 1 hour delivery during the day and 2 hours during the night. If not in stock, delivery can be expected to be 3-4 hours.
- Dispense Instructions for mixing with NovoSeven

LBR staff:

- Must pick up pick up NovoSeven from the pharmacy

LBR Nursing

Reconstitution: To be done in patient care area immediately prior to use

1. Use sterile water as diluent.
2. Bring NovoSeven and sterile water to room temperature.
3. Draw up 2.2 ml of sterile water for each 1200mcg vial of NovoSeven
4. Insert needle into NovoSeven vial. **Do NOT inject diluent directly into NovoSeven powder. Inject sterile water into the side of the vial.**
5. Gently swirl, (do not shake) until dissolved. Solution should be clear and colorless.
6. **Reconstituted vials contain approximately 0.6mg/mL (600mcg/mL) of NovoSeven.**
7. Keep reconstituted NovoSeven in vial until administration. Do not store in syringe.

Administration Guidelines:

- Administer as an intravenous bolus injection over 2-5 minutes.
- Do not mix with other infusion solutions.
- Dose could be given as often as every 2 hours.
- If not administered within 3 hours of reconstitution, discard.
- Do not waste! NovoSeven is expensive and supply is limited.

Code Crimson v19

Code Crimson – Level 1

For patients with potential / actual hemorrhage

FBS Staff- Notify Switchboard of Code Crimson for overhead page

Switchboard will alert Laboratory, Anesthesia, Ultrasound, Interventional Radiology, Nursing Supervisor, and Pharmacy to await further instructions

Draw the following STAT Labs and tube specimens to Laboratory for:

Code Crimson- CBC; PT / PTT; Fibrinogen; CMBP;

Type and Screen; and Type and Cross **Three (3) Units Packed Red Blood Cells, Three (3) Units Fresh Frozen**

Plasma, and One (1) Unit Aphoresed Platelets

Notify Lab () of inbound STAT Blood Work

Repeat Labwork every 60 minutes or after every completed MTP.

Ensure IV access & Patency

Confirm treatment with Tranexamic Acid 1 gm IV repeat in 30 minutes if bleeding continues

Obtain Uterine Tamponade Balloon

Prepare OR Hysterectomy pan

Notify CRNA to prepare Rapid Infuser/ Blood Warmer

Code Crimson – Level 2

For patients with a **life threatening** potential/actual hemorrhage

Notify Switchboard of Code Crimson for overhead page and alerts

Confirm treatment with Tranexamic Acid 1 gm IV repeat in 30 minutes if bleeding continues

FBS Staff – Draw the following **STAT** Labs and tube specimens to Laboratory for:

CBC; PT / PTT; Fibrinogen; Type and Screen; CMBP, and Type and Cross

Six (6) Units Packed Red Blood Cells, Six (6) Units Fresh Frozen Plasma, One (1) Unit Aphoresed Platelets, and

Ten (10) Unit Cryoprecipitate (only 1 unit plts in hospital; additional units will be procured by lab)

Notify Lab (x) and Blood Bank (x) of inbound STAT Blood Work

T/L will designate one person to be in contact with lab for blood products and to obtain when ready (blood runner).

Repeat Labwork every 60 minutes or after every completed MTP.

- **Ensure two (2) large bore (#18) IV access**

- **Prepare OR Hyster pan/Prepare Uterine Tamponade Balloon**

Ready Second MTP2 PACKAGE

- **6 Units RBCs**

- **6 Units FFP**

- **1 Unit Aphoresed Platelets**

- **10 Units Cryoprecipitate**

- **Administer 10 mg Vitamin K IV for 1 dose**

- **Calcium Gluconate 2 gm (4.65meq/ 1gm) IV**

(lab will procure any additional blood products as needed)

**Laboratory
may contact
the FBS-
Charge Nurse/**

Nursing Supervisor ()

Anesthesiologist

Anesthesia CRNA ()

*** Prepare Rapid Infuser/ Blood Warmer**

If necessary, Anesthesia will notify Cell Saver perfusionist -

Operating Room ()

Interventional Radiology () (OB/GYN Physician or designee must speak directly with Radiologist)

If necessary, **Notify Rapid Response Team (RRT)**

Dial # provide Switchboard Operator with Room Number / location for RRT response

Notify ICU of possible transfer ()

Notify second in-house OB physician of situation

IF ANTICIPATING ONGOING BLEEDING:

• **Repeat STAT LABS- CBC; PT / PTT; Fibrinogen;**

• **CMBP**

• **INITIATE ADDITIONAL MTP2 PACKAGES with 20 Units of Cryoprecipitate**

• **Consider For Continued Life Threatening Hemorrhage**

Prothrombin Complex Concentrate (Kcentra)

Factor 7 (NovoSeven)

RiaSTAP for consumptive coagulopathy/DIC; severe hypofibrinogenemia or volume overload

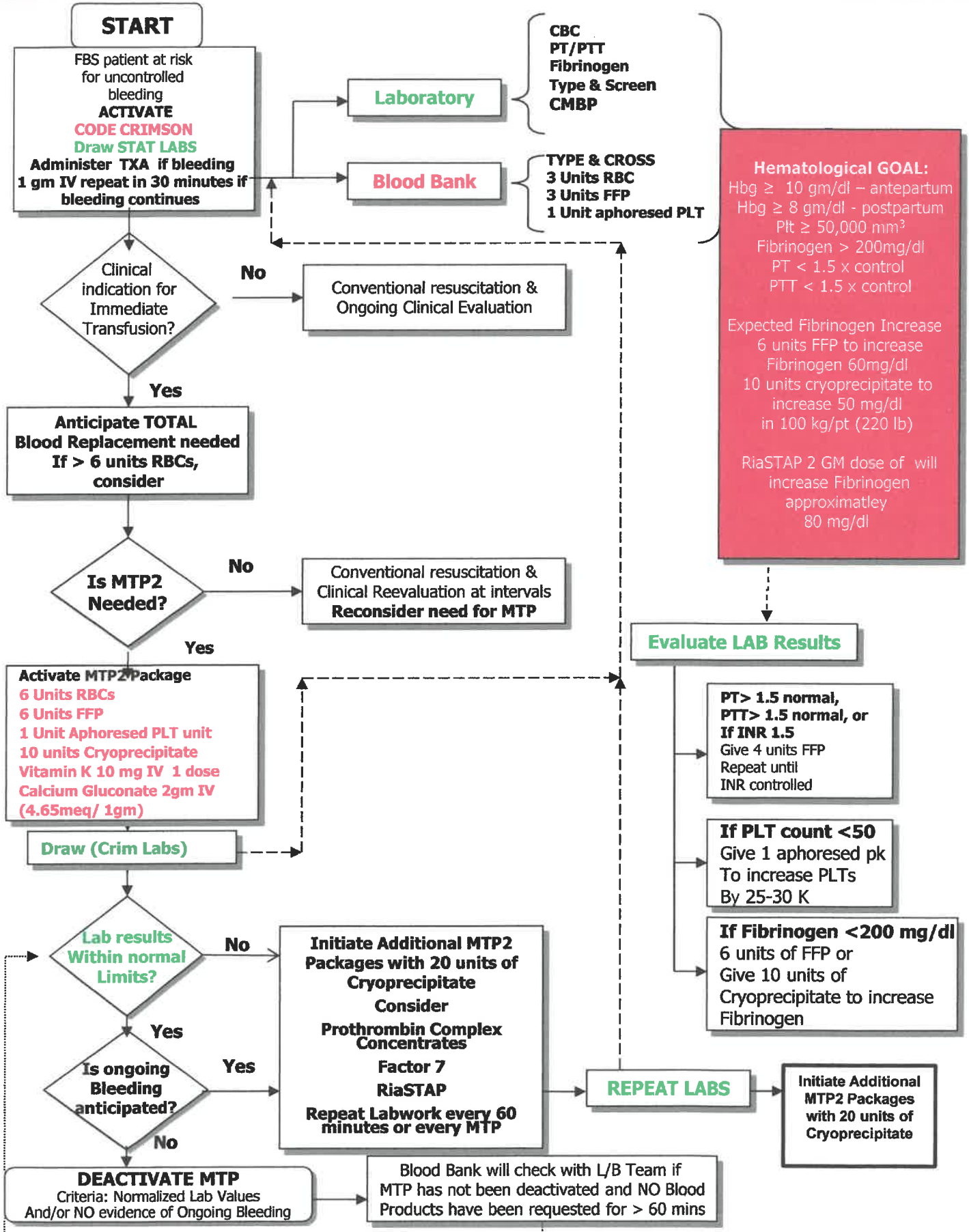
Calculating Corrected Calcium Equation

$4- [(0.8 \times \text{Albumin}) + \text{serum Ca} = \text{corrected Ca}$

*If AB plasma for
AB patient is not
available A
plasma may be
used*

MASSIVE TRANSFUSION PROTOCOL [MTP]

Updated 01./2018



Massive Transfusion/Code Crimson Worksheet
Level 1

PPID Label

Notify Switchboard ext.
Time: _____
(Switchboard will alert Laboratory, Anesthesia, Ultrasound, IR, Nursing Supervisor and Pharmacy to await further instructions)
Second In-House OB Physician

Type and Cross Total of three units packed RBCs, three units FFP, one unit of platelets

Lab Results (Repeat 60 min or every MTP)

Draw STAT Labs _____
(CBC, PT/PTT, INR, Fibrinogen, Type and Cross, CMBP)
Result Time _____

Draw STAT Labs _____
(CBC, PT/PTT, INR, Fibrinogen, Type and Cross, CMBP)
Result Time _____

Draw STAT Labs _____
(CBC, PT/PTT, INR, Fibrinogen, Type and Cross, CMBP)
Result Time _____

Vital Signs Q 5 Min including O2 sat _____

Ensure IV Access
Site 1 _____
Site 2 _____
Foley Catheter Insertion _____
Administer O2 to keep sats greater than 95%
Keep Patient warm
Apply SCDs
Continuous vigorous fundal massage

Prepare
Uterine Tamponade Balloon Cart _____
OR Hysterectomy Pan _____
Prepare Rapid Infuser/Blood Warmer _____

Blood Products Intake (Indicate in mLs)
RBCs: Unit 1 _____ Unit 2 _____ Unit 3 _____
FFP: Unit 1 _____ Unit 2 _____ Unit 3 _____
Platelets: _____ Cryoprecipitate: _____
Total Blood Product Intake: _____

Medications
Oxytocin 30 units/500mL at 500 mL/hr _____
Methergine 0.2 mg IM Q 2-4hrs _____
Hemabate 250mcg IM or intramyometrial (can be given every 15-90 minutes; do not exceed 8 doses in 24 hrs)
Dose 1 _____ Dose 2 _____
Dose 3 _____ Dose 4 _____
Misoprostol 600mcg- 1000mcg PR time 1 does _____
Or 400mcg- 900mcg SL times 1 dose _____
Tranexamic Acid 1 gm/100ml NSS IV over 20 min
Repeat in 30 min if bleeding not controlled.
Dose 1 _____ Dose 2 _____

Additional IV Intake
IV Fluids: _____

Output/ EBL (Record blood loss volume Q 15min)
(Weigh EBL 1gm= 1cc)
Delivery EBL: _____ Delivery Urine Output: _____
Additional blood loss: _____
Additional Hourly Output: _____

Signature:

Massive Transfusion/Code Crimson Worksheet
Level 2

PPID Label

Type and Cross Total of six units packed RBCs, six units FFP, one unit of platelets, ten units' cryoprecipitate, and additional MTP2 packages with 20 units of cryoprecipitate

Lab Results (Repeat every 60 min or every MTP)

Draw STAT Labs _____
(CBC, PT/PTT, INR, Fibrinogen, Type and Cross, CMBP)

Result Time _____

Draw STAT Labs _____
(CBC, PT/PTT, INR, Fibrinogen, Type and Cross, CMBP)

Result Time _____

Draw STAT Labs _____
(CBC, PT/PTT, INR, Fibrinogen, Type and Cross, CMBP)

Result Time _____

Output/ EBL (Record blood loss volume Q 15min)
(Weigh EBL 1gm= 1cc)

Delivery EBL: _____ Delivery Urine Output: _____

Additional blood loss: _____

Additional Hourly Output: _____

Blood Products Intake (Indicate in mLs)

RBCs: Unit 1 _____ Unit 2 _____ Unit 3 _____ Unit 4 _____ Unit 5 _____ Unit 6 _____

FFP: Unit 1 _____ Unit 2 _____ Unit 3 _____ Unit 4 _____ Unit 5 _____ Unit 6 _____

Platelets: _____ Cryoprecipitate: _____

Total Blood Product Intake: _____

Blood Products Intake (Indicate in mLs)

RBCs: Unit 1 _____ Unit 2 _____ Unit 3 _____ Unit 4 _____ Unit 5 _____ Unit 6 _____

FFP: Unit 1 _____ Unit 2 _____ Unit 3 _____ Unit 4 _____ Unit 5 _____ Unit 6 _____

Platelets: _____ Cryoprecipitate: _____

Total Blood Product Intake: _____

Medications (Refer to page 1)

Vitamin K 10 mg IV 1 dose _____

Prothrombin Complex Concentrates _____

Factor 7 _____

Additional IV Intake

IV Fluids: _____

Notes: _____

Signature: _____



**Preterm Premature Rupture of Membranes
Protocol-Physician Order Sheet**

Generic - Chemical - Therapeutic Automatic Interchange and Protocols for specific drugs as approved by the Medical Staff are permitted for implementation for all applicable orders below

PROHIBITED ABBREVIATIONS	IU, qd, qod, MS, MgSO4, MSO4, A/A, Nitro, U, x___ D(define doses or days), zero after decimal (X.0), lack of zero before decimal (.X)
WEIGHT: _____ kg; HEIGHT: _____ inches (required only on initial set of orders)	
ALLERGIES:	
Diagnosis: Preterm Premature Rupture of Membranes at _____ weeks; EDC: _____	
<ul style="list-style-type: none"> ■ No digital exams unless requested by physician ■ Vital signs per routine; Call physician for temperature greater than 100.4°F, MHR greater than 100, FHR greater than 160 ■ Continuous Fetal Monitoring ■ NST and BPP every day if not reactive ■ Sono EFW ■ If less than 34 weeks: pooled amniotic fluid for amnistat if available, ■ Consider induction/delivery at 34 weeks EGA 	
Activity: <input type="checkbox"/> Strict bedrest with bedpan <input type="checkbox"/> Bedrest with BRP <input type="checkbox"/> Bedrest with bedside commode	
Nutrition: <input type="checkbox"/> NPO <input type="checkbox"/> Clear liquids <input type="checkbox"/> Regular	
LABS: ■ GBS Cultures ■ Gen Probe ■ Type and Screen ■ CBC Diff	
Consults: <input type="checkbox"/> Anesthesia; re: _____ <input type="checkbox"/> Neonatology; re: _____ <input type="checkbox"/> Social Work; re: _____ <input type="checkbox"/> Maternal/Fetal medicine; re: _____ <input type="checkbox"/> Other: _____	
DVT Prophylaxis: Apply Sequential compression devices	
MEDICATIONS: <input type="checkbox"/> IV 18 guage line minimum with Lactated Ringers 1000ml at ___ milliliters/hour 12116 <input type="checkbox"/> IV lock flushed with saline every 8 hours <input type="checkbox"/> IF EGA<34 weeks BETAMETHASONE SUSPENSION 12mg IM, NOW and repeat in 24 hours for a total of 2 doses 12500 NOTE FOR PHYSICIAN Magnesium Sulfate: Complete separate Magnesium Sulfate Neuroprotection order sheet ; consider for potential delivery less than 32 weeks for neuroprotection Antibiotics: Choose one <input type="checkbox"/> NON ALLERGIC PENICILLIN OR MACROLIDE PATIENTS : (Ampicillin + Erythromycin) <ul style="list-style-type: none"> ■ 11480 Ampicillin 2 gram in 100ml 0.9%NaCl IV every 6 hours for 48 hours(START TIME _____) then BEGIN 18111 AMOXicillin 250mg orally every 8 hours for 5 days TIME ALL DOSES FROM 1st DOSE ■ 95116 Erythromycin 250mg IV piggyback over 60 minutes (Pharmacy must prepare) every 6 hours for 48 hours (START TIME _____) then BEGIN 13395 Ery-tab (erythromycin enteric coated delayed release) 333 mg orally for 5 days TIME ALL DOSES FROM 1st DOSE <input type="checkbox"/> Penicillin ALLERGIC PATIENTS (Vancomycin and Erythromycin) <ul style="list-style-type: none"> ■ 681 Vancomycin 1 gram over 90 minutes IV every 12 hours for 7 days (Pharmacy prepares; no load dose) (START TIME _____) TIME ALL DOSES FROM 1st DOSE ■ 95116 Erythromycin 250mg IV piggyback over 60 minutes (Pharmacy must prepare) every 6 hours for 48 hours (START TIME _____) then BEGIN 13395 Ery-tab (erythromycin enteric coated delayed release) 333 mg orally every 8 hours for 5 days TIME ALL DOSES FROM 1st DOSE <input type="checkbox"/> Macrolide (Erythromycin) ALLERGIC PATIENTS: (Ampicillin and Clindamycin and Amoxicillin) <ul style="list-style-type: none"> ■ 1148 Ampicillin 2 gram in 100ml 0.9%NaCl IV over 20 minutes (In Pyxis)every 6 hours for 48 hours (START TIME _____) then BEGIN 18111AMOXicillin 250mg orally every 8 hours for 5 days TIME ALL DOSES FROM 1st DOSE ■ #11501 Clindamycin 900 mg in 50ml D5%W IV over 20 minutes (In Pyxis) every 8 hours for 48 hrs (START TIME _____) then #15865 Clindamycin 150mg Take 2 caps po every 6hours for 5 days TIME ALL DOSES FROM 1st DOSE 	
Physicians signature:	Date: _____ Time: _____
Nurse Noting signature:	Date: _____ Time: _____

IF Erythromycin not available. may substitute with Azithromycin 1gm po x1 dose

PREVIA ALGORITHM

Evaluate all patients for placental location—
2nd trimester ultrasound

Neither “Previa” nor “Low Lying”—
Routine Care

Either “Previa” or “Low Lying”
Continue surveillance for location

“No Previa” on subsequent scan *and*
 No prior cesarean
--Routine Care

Persistent Previa *or*
Resolved Previa and a prior cesarean section

Repeat evaluation at 24-28 wks
 Repeat evaluation at 30-34 wks
Other ultrasounds as clinically indicated

Does the patient have one or more of the following?

- One or more prior c-sections
- Age > 40
- Prior abdominal, pelvic, or uterine surgery, including prior c-section
- Known history of Asherman’s Syndrome, postpartum D&C, accreta or retained placenta
- Signs of accrete/increta/percreta on imaging

All answers
“NO”

Any answer is
“YES”

Discuss hemorrhage & hysterectomy with patient
 Review any prior operative notes
 Antepartum anesthesia consult
 CBC and Type & Screen sent 24-72 hrs pre-op
 Attending for delivery can complete a gravid hysterectomy and manage PPH

Discuss hemorrhage, hysterectomy with patient
 Review any prior operative notes
 Antepartum anesthesia consult
 CBC and Type & Screen sent 24-72 hrs pre-op
 Deliver with an attending experienced at managing accrete who can complete hysterectomy
 Review operative planning with OR team
 Discuss likely accrete cases with MFM service

GRAVID HYSTERECTOMY PLANNING RELATED TO PREVIA

Anesthesia Staff

- Longer duration of surgery
- IV access
- Warming equipment
- Availability of blood

Surgical Staff

- Laparotomy kit, retractors, sutures

Nursing

- DVT prophylaxis
- Foley catheter
- Extra antibiotics, if needed
- Uterotonic agents

Blood Bank

- Blood and plasma available prior to incision
- Alert to possible need for ongoing transfusion

Physician

- Counseling and consent with placenta previa—risk of hemorrhage, transfusion, hysterectomy
- Discuss vertical incision
- Have a surgical plan prior to the day of delivery even if the goal is vaginal delivery

Postpartum Preeclampsia Checklist

EMERGENCY DEPARTMENT

TRIAGE PATIENTS LESS THAN 6 WEEKS POSTPARTUM AS FOLLOWS:

- Core evaluation and assessment
- If BP \geq 160/110 or 140/90 with:
 - Unremitting headaches
 - Visual disturbance
 - Epigastric pain
- Begin stabilization
- Call for Obstetric consult immediately
- OBS contact documented
- Call MFM/MICU consult immediately for refractory blood pressure
- Labs should include:
 - CBC
 - PT
 - PTT
 - Fibrinogen
 - CMP
 - Uric Acid
 - Hepatic function panel
 - Type and Screen
- Initiate Intravenous Access
- Assess neurologic status
 - LOC/arousal/orientation/behavior
 - Deep tendon reflexes
 - Speech
- Assess vital signs including oxygen saturation
- Assess complaints and report; unremitting headaches, epigastric pain, visual disturbances, speech difficulties, lateralizing neuro signs
- Place Foley catheter
- Strict I&O report output less than 30 ml/hr for 2 hours
- Plan brain imaging studies if:
 - Unremitting headache
 - Focal signs and symptoms
 - Uncontrolled high blood pressure
 - Lethargy
 - Confusion
 - Seizures
 - Abnormal neurologic examination

INITIAL MEDICATIONS

- Load 4-6 grams 10% magnesium sulfate in 100 ml solution IV over 20 minutes
- Magnesium sulfate on infusion pump
- Magnesium sulfate and pump labeled
- Magnesium sulfate 10 grams of 50% solution IM (5 grams in each buttock) if no IV access
- Magnesium sulfate maintenance 1-2 grams/hour continuous infusion

Contraindications: pulmonary edema, renal failure, myasthenia gravis

If magnesium sulfate is contraindicated:
Kepra 500 mg PO or IV every 12 hours

ANTIHYPERTENSIVE MEDICATIONS

- **Labetalol** (20, 40, 80, 80 mg IV* over 2 minutes, escalating doses, repeat every 10 minutes or 200 mg orally if no IV access); avoid in asthma or heart failure, can cause neonatal bradycardia
- **Hydralazine** (5-10 mg IV* over 2 minutes, repeat in 20 minutes until target blood pressure is reached)
- Repeat blood pressure every 10 minutes during administration

* Maximum cumulative IV administered doses should not exceed 25 mg hydralazine; 220 mg labetalol in 24 hours.



Patient Safety Checklist ✓

Number 6 • August 2012

DOCUMENTING SHOULDER DYSTOCIA

Date _____ Patient _____ Date of birth _____ MR # _____

Physician or certified nurse-midwife _____ Gravidity/Parity _____

Timing:

Onset of active labor _____

Start of second stage _____

Delivery of head _____

Time shoulder dystocia recognized and help called _____

Delivery of posterior shoulder _____

Delivery of infant _____

Antepartum documentation:

- Assessment of pelvis
- History of prior cesarean delivery: Indication for cesarean delivery: _____
- History of prior shoulder dystocia History of gestational diabetes
- Largest prior newborn birth weight _____ Estimated fetal weight _____
- Cesarean delivery offered if estimated fetal weight greater than 4,500 g (if the patient has diabetes mellitus) or greater than 5,000 g (if patient does not have diabetes mellitus)

Intrapartum documentation:

- Mode of delivery of vertex:
 - Spontaneous Operative delivery: Indication: _____
 - Vacuum Forceps
- Anterior shoulder:
 - Right Left
- Traction on vertex:
 - None Standard
- No fundal pressure applied
- Maneuvers utilized (1):
 - Hip flexion (McRoberts maneuver) Suprapubic pressure (stand on the side of the occiput)
 - Delivery of posterior arm All fours (Gaskin maneuver)
 - Posterior scapula (Woods maneuver) Anterior scapula (Rubin maneuver)
 - Abdominal delivery Zavanelli maneuver
- Episiotomy:
 - None Median Mediolateral Proctoepisiotomy
- Extension of episiotomy:
 - None Third degree Fourth degree
- Laceration:
 - Third degree Fourth degree
- Cord blood gases sent to the laboratory:
 - Yes: Results: _____
 - No

(continued)

(continued)

- Status of neonate prior to leaving delivery room or operating room:
 - Apgar scores _____
 - Evidence of injury _____
 - Birth weight (if available) _____
- Staff present _____
- Family members present _____
- Patient and family counseled Debriefing with appropriate personnel
- Postpartum/neonatal documentation:
 - Delivery discussed with family Perineal assessment if third or fourth degree laceration
 - Monitored for postpartum hemorrhage:
 - Yes: Results: _____
 - No
 - Communication with pediatrics department if there is evidence of injury or asphyxia
 - Coordination of follow-up care for mother and baby
 - Monitored for postpartum depression:
 - Yes: Results: _____
 - No

Procedural Elements for Shoulder Dystocia

The following steps should be taken when managing shoulder dystocia:

1. Call for help from pediatrics, anesthesia, and neonatal intensive care unit staff, and assign a timekeeper
2. Initiate maneuver (eg, McRoberts maneuver)
3. Re-evaluate course of actions, including using other maneuvers or repeating maneuvers if unsuccessful
4. Consider abdominal delivery
5. Document event—move to documentation checklist

Reference

1. Shoulder dystocia. ACOG Practice Bulletin No. 40. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2002;100:1045–50. [PubMed] [*Obstetrics & Gynecology*] ⇐

Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The American College of Obstetricians and Gynecologists has developed a series of Patient Safety Checklists to help facilitate the standardization process. This checklist reflects emerging clinical, scientific and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular checklist may be adapted to local resources, standardization of checklists within an institution is strongly encouraged.

How to Use This Checklist

The Patient Safety Checklist on Documenting Shoulder Dystocia should be used to guide the documentation process if a patient has experienced shoulder dystocia.

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Documenting shoulder dystocia. Patient Safety Checklist No. 6. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2012;120:430–1.



Patient Safety Checklist

Number 5 • December 2011
(Replaces Patient Safety Checklist No. 1, November 2011)

SCHEDULING INDUCTION OF LABOR

Date _____ Patient _____ Date of birth _____ MR # _____

Physician or certified nurse-midwife _____ Last menstrual period _____

Gravidity/Parity _____

Estimated date of delivery _____ Best estimated gestational age at delivery _____

Proposed induction date _____ Proposed admission time _____

Gestational age of 39 0/7 weeks or older confirmed by either of the following criteria (1):

Ultrasound measurement at less than 20 weeks of gestation supports gestational age of 39 weeks or greater

Fetal heart tones have been documented as present for 30 weeks of gestation by Doppler ultrasonography

Indication for induction: (choose one)

Medical complication or condition (1): Diagnosis: _____

Nonmedically indicated (1-3): Circumstances: _____

Patient counseled about risks, benefits, and alternatives to induction of labor (1)

Consent form signed as required by institution

Bishop Score (see below) (1): _____

Bishop Scoring System

Score	Factor				
	Dilation (cm)	Position of Cervix	Effacement (%)	Station*	Cervical Consistency
0	Closed	Posterior	0-30	-3	Firm
1	1-2	Midposition	40-50	-2	Medium
2	3-4	Anterior	60-70	-1, 0	Soft
3	5-6	—	80	+1, +2	—

*Station reflects a -3 to +3 scale.

Modified from Bishop EH. Pelvic scoring for elective induction. *Obstet Gynecol* 1964;24:266-8.

Pertinent prenatal laboratory test results (eg, group B streptococci or hematocrit) available (4, 5)

Special concerns (eg, allergies, medical problems, and special needs): _____

To be completed by reviewer:

Approved induction after 39 0/7 weeks of gestation by aforementioned dating criteria

Approved induction before 39 0/7 weeks of gestation (medical indication)

HARD STOP – gestational age, indication, consent, or other issues prevent initiating induction without further information or consultation with department chair

References

1. Induction of Labor. ACOG Practice Bulletin No. 107. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2009;114:386–97.
2. Caughey AB, Sundaram V, Kaimal AJ, Cheng YW, Gienger A, Little SE, et al. Maternal and neonatal outcomes of elective induction of labor. Evidence Report/Technology Assessment No. 176. (Prepared by the Stanford University-UCSF Evidence-based Practice Center under contract No. 290-02-0017.) AHRQ Publication No. 09-E—5. Rockville (MD): Agency for Healthcare Research and Quality; 2009.
3. Clark SL, Frye DR, Meyers JA, Belfort MA, Dildy GA, Kofford S, et al. Reduction in elective delivery <39 weeks of gestation: comparative effectiveness of 3 approaches to change and the impact on neonatal intensive care admission and stillbirth. *Am J Obstet Gynecol* 2010;203:449.e1–449.e6.
4. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Antepartum care. In: *Guidelines for perinatal care*. 6th ed. Elk Grove Village (IL): AAP; Washington, DC: ACOG; 2007. p. 83–137.
5. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Perinatal infections. In: *Guidelines for perinatal care*. 6th ed. Elk Grove Village (IL): AAP; Washington, DC: ACOG; 2007. p. 303–48.

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How to Use This Checklist

The Patient Safety Checklist on Scheduling Induction of Labor should be completed by the health care provider and submitted to the respective hospital to schedule an induction of labor. The hospital should establish procedures to review the appropriateness of the scheduling based on the information contained in the checklist. A hard stop should be called if there are questions that arise that require further information or consultation with the department chair.

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Scheduling induction of labor. Patient Safety Checklist No. 5. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:1473–4.



Patient Safety Checklist ✓

Number 4 • December 2011

PREOPERATIVE PLANNED CESAREAN DELIVERY

Reaffirmed 2014

Date _____ Patient _____ Date of birth _____ MR # _____

Physician _____ Gravidity/Parity _____

Best estimated gestational age _____ Indication _____

- Patient has a complete medical history and physical examination
 - Known allergies identified
 - Medical factors that could affect anesthetic choices identified
- Patient counseled about risks and benefits of cesarean delivery versus trial of labor and vaginal delivery (1, 2)
 - Consent form signed as required by institution
- Appropriate preoperative and pertinent prenatal laboratory test results (eg, group B streptococci or hematocrit) available (3)
- Antibiotic prophylaxis administered within 60 minutes before incision (4)
- Appropriate deep vein thrombosis prophylaxis administered (3, 5)
 - Yes
 - No: Reason: _____
- Presence of fetal heart tones documented before incision (6)
 - Yes
 - No: Reason: _____
- Risk factors identified:
 - If at risk of bleeding more than 1,000 mL, adequate intravenous access and fluids planned and packed cells and blood products available
 - Airway
 - Allergies
 - Notification of neonatal or pediatric departments if necessary
- A "time out" is conducted before the start of surgery to confirm the patient's name, allergies, and consent; to confirm the surgery to be performed; and to identify team member names and roles (7)
- Surgical counts performed before incision (surgical counts are reconfirmed postoperatively)

References

1. Vaginal birth after cesarean delivery. Practice Bulletin No. 115. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2010;116:786–90.
2. Surgery and patient choice. ACOG Committee Opinion No. 395. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2008;111:243–7.
3. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Intrapartum and postpartum care. In: *Guidelines for perinatal care*. 6th ed. Elk Grove Village (IL): AAP; Washington, DC: ACOG; 2007. p. 139–74.
4. Antimicrobial prophylaxis for cesarean delivery: timing of administration. Committee Opinion No. 465. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2010;116:791–2.

(continued)

References (continued)

5. Obesity in pregnancy. ACOG Committee Opinion No. 315. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2005;106:671–5.
6. Fetal monitoring prior to scheduled cesarean delivery. ACOG Committee Opinion No. 382. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2007;110:961–2.
7. Patient safety in the surgical environment. Committee Opinion No. 464. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2010;116:786–90.

Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The American College of Obstetricians and Gynecologists has developed a series of patient safety checklists to help facilitate the standardization process. This checklist reflects emerging clinical, scientific, and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular checklist may be adapted to local resources, standardization of checklists within an institution is strongly encouraged.

How to Use This Checklist

The Patient Safety Checklist on Preoperative Planned Cesarean Delivery should be completed by the health care provider during the patient's admission.

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Preoperative planned cesarean delivery. Patient Safety Checklist No. 4. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:1471–2.



Patient Safety Checklist ✓

Number 3 • December 2011

SCHEDULING PLANNED CESAREAN DELIVERY

Date _____ Patient _____ Date of birth _____ MR # _____
Physician or certified nurse-midwife _____ Last menstrual period _____
Gravidity/Parity _____
Estimated date of delivery _____ Best estimated gestational age (at admission) _____
Proposed cesarean delivery date _____

Indication (choose one):

- Medically indicated: Diagnosis: _____
- Repeat cesarean delivery (choose one) (1, 2):
 - Trial of labor not appropriate: Reason: _____
 - Trial of labor offered
 - Yes
 - No: Reason: _____
 - Patient counseled about risks and benefits of cesarean delivery versus trial of labor and vaginal delivery (1, 3)
 - Consent form signed as required by the institution
 - Repeat cesarean delivery for logistical reasons: Circumstances: _____
- Elective primary cesarean delivery at maternal request (4):
 - Patient counseled about risks and benefits of cesarean delivery versus vaginal delivery (1, 3)
 - Consent form signed as requested by institution
- Gestational age of 39 0/7 weeks or greater confirmed by either of the following criteria (5):
 - Ultrasound measurement at less than 20 weeks of gestation supports gestational age of 39 weeks or greater
 - Fetal heart tones have been documented as present for 30 weeks of gestation by Doppler ultrasonography

If this is an elective cesarean delivery and gestational age is 39 0/7 weeks or less, reason for variance: _____

Results of amniocentesis (if performed): _____

- Preoperative and pertinent prenatal laboratory test results (eg, group B streptococci or hematocrit) available (2)
- Special concerns (eg, allergies, medical problems, and special needs) _____
- Pertinent comorbid risk factors (maternal and fetal) _____

To be completed by reviewer:

- Approved cesarean delivery for gestational age equal to or greater than 39 0/7 weeks by the aforementioned dating criteria
- Approved cesarean delivery before 39 0/7 weeks of gestation (medical indication)
- HARD STOP** – gestational age, indication, consent, or other issues prevent initiating planned cesarean delivery without further information or consultation with department chair

References

1. Vaginal birth after cesarean delivery. Practice Bulletin No. 115. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2010;116:786–90.
2. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Intrapartum and postpartum care. In: *Guidelines for perinatal care*. 6th ed. Elk Grove Village (IL): AAP; Washington, DC: ACOG; 2007. p. 139–74.
3. Surgery and patient choice. ACOG Committee Opinion No. 395. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2008;111:243–7.
4. Cesarean delivery on maternal request. ACOG Committee Opinion No. 394. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2007;110:1501.
5. Fetal lung maturity. ACOG Practice Bulletin No. 97. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2008;112:717–26.

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How to Use This Checklist

The Patient Safety Checklist on Scheduling Planned Cesarean Delivery should be completed by the health care provider and submitted to the respective hospital to schedule a planned cesarean delivery. The hospital should establish procedures to review the appropriateness of the scheduling based on the information contained in the checklist. A hard stop should be called if there are questions that arise that require further information or consultation with the department chair.

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Scheduling planned cesarean delivery. Patient Safety Checklist No. 3. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:1469–70.