Obstetric Readiness in the Emergency Department (ObRED) Manual

Indian Health Service

2024

Page intentionally left blank.

Dedicated to the communities that we serve in the Indian Health Service:

We thank you for the privilege of walking alongside families,
Learning from elders and wisdom-keepers,
Holding space for stories,
Honoring those who bear new life into the world,
And giving back to the community,
For generations to come.

This manual was developed across many sovereign Native lands and territories.
We encourage you to learn more at Native Land Digital and connect with your local Indigenous communities.

Table of Contents

This manual can be printed in entirety, placed in a binder with tabs, and opened to view materials side by side. For training or laminated protocols, some sites choose to print individual sections front and back.

Welcome & Purpose

Thank you and your teams for the important work that you do to provide safe, quality maternal and newborn care to American Indian and Alaska Native (AI/AN) communities. **This manual is intended for teams that provide care to pregnant patients and newborns but may not have immediate access to Labor & Delivery or obstetric specialists.**

- From 2010 to 2022, more than 500 hospitals closed their labor and delivery units, leaving many rural hospitals and more than a third of urban hospitals without obstetric care (*JAMA 2024*)
- Over one-third of counties (35%) are now considered maternity care deserts with no access to OB/GYNs, midwives, family practice providers or labor and delivery units. In 2022, nearly 1 in 10 babies were born to AI/AN women living in areas without access (*March of Dimes 2024*)
- While there are IHS and tribal planned birth facilities in seven states, 41% percent of IHS Emergency Departments report having no obstetric services available. (*IHS internal survey 2014*)

The Obstetric Readiness in the Emergency Department (ObRED) manual is intended to provide you with readiness checklists, clinical protocols, training curriculum, and resources for safe triage, stabilization, and transfer of pregnant patients and newborns in the emergency setting. This was a collaborative effort across Indian Health Service (IHS) Areas and providers, midwives, nurses, and staff from OB/GYN, Emergency Medicine, Pediatrics, Pharmacy and Quality departments. We have been in your shoes.

How to use this manual:

- As Labor & Delivery units continue to close, we ask that your teams **continue to prioritize safe, quality maternity care with the resources you have available**, including this manual.
- Identify champion(s) for obstetric readiness at your facility, ideally from nursing and provider staff:
  1. MCH Champion 1: _____
  2. MCH Champion 2: _____
- Assess your facility's obstetric readiness using **Part 1: Supplies and Preparedness Checklists**
- Review **Part 2: Clinical Protocols** with your staff, incorporate them into your policies, and print them out and post in your patient care areas.
- Identify and involve your next level of care transfer facility and a point of contact for consultation:
  1. Facility for transfer: _____
  2. Point of contact for consultation: _____
- Practice drills, drills, drills, especially if you do not routinely provide obstetric care
  1. Review **Part 3: Education and Simulation Materials**
  2. Practice simulations *as a multidisciplinary team*
  3. Ask for help! See **Part 4: Technical Support** and reach out to us for assistance and training
- Send us your feedback as we continue to grow: IHSMCH@ihs.gov

Thank you again for the work that you do every day.
From the IHS ObRED Team

Acknowledgements

Thank you to those who contributed their time and expertise to put this resource manual together.

- Ardith Aspaas, RN – Nurse Consultant, Emergency Readiness Services for Children, IHS Headquarters
- Emily Bartlett, MD – Emergency Medicine, Gallup Indian Medical Center
- Kelly Bogaert, MD – OB/GYN, UCSF Heal Fellow, Northern Navajo Medical Center
- Tricia Capo, MD – Deputy OB/GYN Chief Clinical Consultant, Alaska Native Medical Center
- LCDR Sunny Rae Carranza, BSN, RN, CEN - Emergency Department Supervisory Clinical Nurse, Phoenix Indian
- Medical Center
- Paul Charlton, MD – Emergency Medicine Chief Clinical Consultant, Gallup Indian Medical Center
- Loretta Christensen, MD, MBA, MSJ, FACS – Chief Medical Officer, IHS Headquarters
- Carly Dahl, MD – Maternal Fetal Medicine, University of Utah
- Stacey Dawson, PhD, MSN, CNM – Women's Health Nurse Consultant, IHS Headquarters
- Michelle Debbink, MD, PhD – Maternal Fetal Medicine, University of Utah
- CAPT Suzanne England, DNP, APRN – MCH Consultant, Great Plains Area
- Anne Erickson, MD – OB/GYN, UCSF HEAL Fellow, Northern Navajo Medical Center
- John Everett, MD – Emergency Medicine, Providence Kodiak, Alaska
- CAPT Tom Faber, MD, MPH – Pediatric Chief Clinical Consultant, Chief Medical Officer, Albuquerque Area
- CDR Angela Fallon, MBA, RN – Deputy Director, Office of Clinical and Preventive Services, IHS Headquarters
- Nicole Flom, MSA, BSIS, CHC – Quality Assurance Coordinator, Office of Quality
- CAPT Kailee Fretland, PharmD, BCPS – Principal Pharmacy Consultant, IHS Headquarters
- CAPT Cynthia A. Gunderson, PharmD – Chair, IHS National Committee on Heroin, Opioids, and Pain Efforts
- Natalie Holt, MD, MPH – Chief Medical Officer, Great Plains Area
- Jean Howe, MD, MPH – OB/GYN Chief Clinical Consultant, Northern Navajo Medical Center
- Allison Huebert, MD – Chief of OB/GYN, Claremore Indian Hospital
- LCDR Kenneth Knutson, PharmD – Pharmacist, Quentin N Burdick Memorial Health Care Facility
- LCDR Lia Jasperse, PharmD, BCPS – Pharmacist, Whiteriver Service Unit
- Vijay Kannan, MD, MPH – Emergency Medicine, Director, Office of Clinical Performance and Health Impact, IHS Headquarters
- Glen Kishi, MD – Chief of OB/GYN, Phoenix Indian Medical Center
- CDR Jonathan Lau, MD – Emergency Medicine, Phoenix Indian Medical Center
- Amy Lebbon MSN, CNM – MCH Consultant, Phoenix Area
- CDR Gayle Lundberg, BPharm, MS – Pharmacist, Phoenix Indian Medical Center
- Lisa Majewski, PhD, RN, MSN – Director, Office of Quality, IHS Headquarters
- Claire Nechiporenko, MD – Chief of Pediatrics, Phoenix Indian Medical Center
- CDR Tina Pattara-Lau, MD – Maternal Child Health Consultant, IHS Headquarters
- John Rozehnal, MD – Emergency Medicine, Eagle Butte
- Kerena Saltzgiver, MSN, CNM – Chief Clinical Consultant for Midwifery, Northern Navajo Medical Center
- Monique Summers, MSN, RN, CLC – Nurse Educator, Crow Northern Cheyenne Hospital
- Rachel Trippett, MD – Women's Health/OB Director, Zuni Comprehensive Health Center
- CAPT Holly Van Lew, PharmD, BCPS, AAHIVP – HIV/STI/HCV and Communicable Disease Consultant
- Ouida Vincent, MD, FACOG, CPHQ, CPPS – Clinical Director, Northern Navajo Medical Center

Thank you to sites who helped develop and test the ObRED manual and training: Crow/Northern Cheyenne Hospital, Crownpoint Healthcare Facility, Kayenta Health Center, Northern Navajo Medical Center, Phoenix Indian Medical Center, Rosebud Comprehensive Health Care Facility, and Pine Ridge Hospital.

Disclaimer

This manual is intended to be used as a guide and is not a substitute for any applicable IHS policy or clinical judgment.

Page intentionally left blank.

Part 1: Supplies & Readiness Checklists

Obstetric Emergency Readiness Checklist

This checklist is intended for use by sites who do not have an on-site Labor and Delivery unit to ensure that supplies and systems are available for providing essential obstetric care. This list does not include basic supplies for the treatment of non-pregnant adult patients, which may also be necessary. ***For sites that are not designated as "Peds ED Ready", utilize the Neonatal Emergency Readiness Checklist.***

Infrastructure and Personnel

- ☐ **Dedicated OB space.** Room or area set aside for the care of obstetric patients, with supplies and protocols
- ☐ **Dedicated ObRED Champions**. Individuals (RN or MD) tasked to ensure appropriate systems and education are in place for management of obstetric emergencies

Systems and Protocols

- ☐ **OB Emergency Treatment protocols** are accessible in OB space and have been updated to fit the site
- ☐ **Transfer protocols** are in place and updated
- ☐ **Ob/Gyn consultation protocols** are in place and updated
- ☐ **Data collection protocols** exist for OB patients. May be a component of quality improvement data collection.
- ☐ **Establish agreement with Pharmacy** regarding storage of OB emergency medications (see Medications below)

Education

- ☐ **Education and simulation activities** take place annually, at orientation, or when a policy or procedure changes
- ☐ **ObRED curriculum is available** to all staff

Medications - Readily available in at least initial dose. Recommend keeping medications for postpartum hemorrhage (PPH) or for hypertension (HTN) in a single box or category

HTN medications:

- ☐ Nifedipine 10mg PO (IR)
- ☐ Hydralazine 5-10mg IV
- ☐ Labetalol 20mg IV
- ☐ Magnesium sulfate
  - IV: 4-6g 10% in 100ml over 20m, followed by 1-2g/hr continuous infusion
  - IM: 10g of 50% solution (5g in each buttock)

  Calcium gluconate 10mL 10% solution IV

PPH medications:

- ☐ Oxytocin 10U IM or 10-40U/1000mL IV
- ☐ Methergine 0.2mg IM
- ☐ Hemabate 0.25mg IM
- ☐ Misoprostol 1000mcg PR or 600 mcg PO
- ☐ TXA 1g IV

Fetal distress:

- ☐ Terbutaline 0.25 mg SQ

Blood Products - Availability will vary by institution

- ☐ **2 units of O negative Packed Red Blood Cells** (PRBCs) available for emergencies if blood type unknown
- ☐ **Ability to type and cross** for further PRBCs
- ☐ **Institutional massive transfusion protocol** OR protocol for obtaining additional blood products outside of hospital exists

Equipment - Stored in a dedicated OB area or OB cart and routinely checked for expiration and integrity. Some supplies may be inside a premade sterile precipitous delivery kit.

- ☐ **Fetal monitoring equipment**. Fetal heart rate (doppler) and/or contraction monitors with ability to record
- ☐ **Obstetric ultrasound**. With curvilinear probe and OB setting
- ☐ **Foley catheter** | Straight catheter
- ☐ **Sterile gloves** in multiple sizes
- ☐ **Vaginal packing**
- ☐ **Balloon tamponade**. Intrauterine tamponade system for PPH
- ☐ **Sterile scissors**. For cutting umbilical cord
- ☐ **Sterile scalpel**. For cutting umbilical cord or perimortem Cesarean section; separate from precipitous delivery kit and easily accessible (i.e. taped to wall)
- ☐ **Sterile umbilical cord clamps** x2. For clamping umbilical cord
- ☐ Refer to example Obstetric Emergency cart for additional supplies

Neonatal Emergency Readiness Checklist

This checklist is intended for use by sites that do not have an on-site Labor and Delivery unit and have not been certified as Pediatric ED Ready to ensure that supplies and systems are available for providing essential neonatal care. This list does not include basic supplies for the treatment of pediatric patients, which may also be necessary.

Infrastructure

- ☐ **Dedicated OB space.** Neonatal Warmer set aside for the care of neonatal patients, with supplies and protocols

Personnel

- ☐ **Dedicated ObRED Champion**. Individuals (RN or MD) tasked to ensure appropriate systems and education are in place for management of neonatal resuscitation

Systems and Protocols

- ☐ **Neonatal Resuscitation Program (NRP) algorithm** is accessible in the dedicated OB area
- ☐ **Neonatal transfer protocols** are in place and updated
- ☐ **Pediatric consultation protocols** are in place and updated
- ☐ **Establish agreement with Pharmacy** regarding storage of neonatal emergency medications (see Medications below)

Education

- ☐ **Education and simulation activities** take place annually, at orientation, or when a policy or procedure changes
- ☐ **NRP certification is required** for all staff

Medications - Readily available in at least initial dose.

Newborn care:

- ☐ Erythromycin ointment
- ☐ Vitamin K 1mg neonatal concentration
- ☐ Hepatitis B vaccine

Neonatal resuscitation:

- ☐ Epinephrine 0.1mg/ml
- ☐ Oral Glucose 40% gel and 10% dextrose in water (D10W) IV fluid
- ☐ Normal saline (100-mL or 250-mL bag) or prefilled syringes
- ☐ Table of pre-calculated emergency medication dosages for babies weighing 0.5 to 4 kg

Equipment - Stored in dedicated OB area or Neonatal cart. Some supplies may exist inside a premade sterile precipitous delivery kit or are listed in OB readiness checklist.

Basics:

- ☐ Warm towels/blankets
- ☐ Hat
- ☐ Plastic bag or wrap
- ☐ Bulb syringe

Monitors:

- ☐ Temperature sensor
- ☐ Cardiac monitor/leads
- ☐ Pulse oximeter
- ☐ Carbon dioxide detector

Resuscitation materials:

- ☐ 10F or 12F suction catheter
- ☐ Flowmeter
- ☐ Meconium/tracheal aspirator
- ☐ PPV device with manometer
- ☐ Term & preterm masks
- ☐ Laryngeal mask with 5mL syringe
- ☐ 5F or 6F orogastric tube
- ☐ Laryngoscope with size 0 and size 1 straight blades
- ☐ Endotracheal tubes (sizes 2.5, 3.0, 3.5)
- ☐ 8F feeding tube
- ☐ Measuring tape and/or endotracheal tube insertion depth table
- ☐ Waterproof tape or tube-securing device
- ☐ Umbilical venous catheterization tray
- ☐ Umbilical line catheter sizes 3.5 French, 5 French*
- ☐ Peripheral IV catheters and supplies *not all facilities or providers may have this capability or training

Obstetric Emergency Readiness Self Evaluation

	Bronze	*Silver*	*Gold*
Infrastructure - Dedicated OB Area (if no L&D unit available)		✔	✔
Personnel - Dedicated ObRED Coordinator (MD & RN)		One	Both
Systems and Protocols			
OB Emergency Treatment protocols accessible	✔	✔	✔
Transfer protocols in place and updated	✔	✔	✔
Ob/Gyn consultation available (Gold - 24/7)		✔	✔
Data collection protocols in use (Gold - QI projects exist)		✔	✔
Education			
Education and simulation activities at least once per quarter			✔
Education and simulation activities at least twice per year		✔	
Education and simulation activities at least once per year	✔		
ObRED Curriculum available to staff	✔	✔	✔
Medications *(must be immediately available in the ED)*			
Magnesium sulfate, calcium gluconate, and at least 2 anti-hypertensives	✔	✔	
Magnesium sulfate, calcium gluconate, and all 3 anti-hypertensives (labetalol, hydralazine, nifedipine)			✔
Oxytocin and at least one (Hemabate, methergine, or TXA)	✔	✔	
Oxytocin and at least 2 (Hemabate, methergine, or TXA)			✔
Blood products			
2U uncrossmatched PRBCs available for emergency release in the ED	✔	✔	✔
Ability to T&C and/or MTP		✔	✔
Equipment			
Sterile scalpel, scissors, umbilical cord clamps, gloves, foley catheter	✔	✔	✔
Vaginal packing, balloon tamponade, fetal monitoring equipment		✔	✔
Obstetric ultrasound (abdominal and vaginal probes)			✔

Page intentionally left blank.

Obstetric Emergency Cart Example

Utilize for monthly supply checks and staff orientation. Some sites print and paste on front of drawers.

OB Triage Drawer		
DESCRIPTION	Quantity	Initials
1000ml NS or LR	2	
IV start kit and tubing	2	
Lavender, pink, gold blood tubes	1 each	
Surgilube packs	10	
Vaginal speculum (2 sizes)	2	
Sterile gloves, different sizes	4	
Single sterile gloves	4	
Non-sterile gloves	1 box	
Foley catheter and leg bag	1	
Straight catheter	1	

OB Delivery Drawer		
DESCRIPTION	Quantity	Initials
L&D pack *or:*	1	
Sterile scissors	1	
Sterile umbilical cord clamps	2	
Sterile scalpel (#10)	1	
Sterile gown	1	
Sterile towels	4	
Sterile lap sponges	10	
Sterile basin	1	
Shoe covers		
Under buttocks drape with fluid collection pouch to measure blood loss	1	
Peri-pad	1	
Bulb syringe	1	
0-Vicryl CT or CTX suture	2	
Needle driver	1	
Suture scissors	1	
Mask with shield	1	

OB Hemorrhage Drawer		
DESCRIPTION	Quantity	Initials
Blood tubing	1	
Pressure bag	1	
STAT lab bag	1	
Placeholder for Med Kit	1	
Bakri balloon	1	
Urine Bag (for use with Bakri)	1	
Normal Saline 500 ml (for use with Bakri)	1	
60 ml Syringe (for use with Bakri)	1	
Oxygen mask and tubing	1	

Obstetric Medication Box

(whole box refrigerated or shaded meds below refrigerated separately with placeholder)

	DESCRIPTION	Quantity	Initials
Normal labor	Oxytocin 10U IM or 10-40U/1000mL IV	1	
	Terbutaline 0.25 mg SQ	1	
Hemorrhage	Misoprostol 1000mcg	1	
	TXA 1g IV	1	
	Methergine 0.2mg IM or Hemabate 0.25mg IM	1	
Hypertension	Magnesium sulfate IV: 4-6g 10%, IM: 10g of 50%	1	
	Nifedipine 10mg PO (IR) or, Hydralazine 5-10mg IV or, Labetalol 20mg IV doses	1	
	Calcium gluconate 10mL 10% solution IV	1	

Neonatal Emergency Cart Example

Utilize for monthly supply checks and staff orientation. Some sites print and paste on front of drawers.

Radiant Warmer

DESCRIPTION	Initials
Ensure that the warmer is accessible, clean, operational, stocked with supplies listed below, and connected to oxygen and suction	

Warm the Baby

DESCRIPTION	Quantity	Initials
Preheated warmer	1	
Warm towels or blankets	8	
Temperature sensor (ensure operational)	1	
Hat	1	
Plastic bag or plastic wrap (< 32 weeks' gestation)	1	

Clean Airway

DESCRIPTION	Quantity	Initials
Bulb syringe	2	
10F or 12F suction catheter attached to wall suction, set at 80 to 100 mm Hg	1	
Meconium/tracheal aspirator	2	

Ventilate

DESCRIPTION	Quantity	Initials
Flowmeter set to 10 L/min		
Oxygen blender set to 21% (21% - 30% if < 35 weeks' gestation)	1	
Term- and preterm-sized masks	4	
8F feeding tube and 20-mL syringe	2	
Laryngeal mask (size 1) and 5-mL syringe (if needed for inflation)	1	
5F or 6F orogastric tube if insertion port is present on laryngeal mask	1	
Cardiac monitor and leads	2	

Oxygenate

DESCRIPTION	Quantity	Initials
Equipment to give free-flow oxygen	2	
Pulse oximeter with sensor and cover	2	
Meconium/tracheal aspirator	2	

Intubate

Description	Quantity	Initials
Laryngoscope with size 0 and size 1 straight blades (size 00, optional)		
Stylet (optional)	1	
Endotracheal tubes (sizes 2.5, 3.0, 3.5)	2 each	
Carbon dioxide (CO2) detector	2	
Measuring tape and/or endotracheal tube insertion depth table	1	
Waterproof tape or tube-securing device	1	

Neonatal Medication Box

	DESCRIPTION	Quantity	Initials
Normal delivery	Erythromycin ophthalmic ointment	1	
	Vitamin K 1mg neonatal concentration	1	
Neonatal resuscitation	Epinephrine 0.1mg/ml	1	
	Normal saline (100-mL or 250-mL bag) or prefilled syringes	2	
	Oral Glucose gel and Dextrose 5% in 0.45% normal saline	1	
	Table of pre-calculated emergency medication dosages for babies weighing 0.5 to 4 kg	1	
	Supplies for placing emergency umbilical venous catheter and administering medications	2	

This page intentionally left blank.

Part 2: Clinical Protocols

Ob Triage: Pre-Hospital (Field or EMS) or In-Hospital

Questions	Notes
1) Are you currently pregnant or have you been pregnant in the last year? - If pregnant, how many weeks gestation? - If postpartum, how many weeks since delivery?	If unknown gestational age, palpate uterine fundus: - 20 weeks = uterus at umbilicus - Add 1 cm for each week after
2) Pregnancy History: - Have you had any other pregnancies? - If yes, did you have any complications or deliver by Cesarean section?	G (ravida) = number of pregnancies P (ara) = number of deliveries
3) Has any doctor told you this pregnancy is high-risk? Why?	Note history: - Diabetes- concern for fetal macrosomia - Asthma- use methergine* for hemorrhage - Hypertension- use Hemabate* for hemorrhage (HHH) - Prior C-section- integrity of uterine scar
4) Abdominal/back pain or contractions?	Palpate maternal abdomen for tightening
5) Bleeding? - If yes, how many large pads are you soaking in an hour? - For how many hours?	Estimated volume: - 1 large pad/hour = 300 cc - 1 large kidney basin = 500 cc
6) Leaking fluid? - When did it start? - Color?	
7) Fetal movement?	Around 20 weeks = daily movement Around 28 weeks = at least 10 movements over 2 hours
8) Headaches, vision changes, right upper quadrant or epigastric pain, swelling, or shortness of breath?	If symptomatic, evaluate for maternal hypertension, pre-eclampsia

Examination	Pre-Hospital	In Hospital
Vital signs – Maternal	Position in left lateral (rolled towel or pillow under right hip) Appropriate size BP cuff on right arm	Same, use wedge under right hip if available
Vital signs – Fetal	Doptones if available Normal = 110-160 beats per minutes (bpm)	At 12 weeks = obtain doptones At 28 weeks = obtain doptones, NST (Non-Stress Test) if available*
Abdominal Exam	Measure fundal height Palpate maternal abdomen for tightening or pain	Same
Ultrasound* (<u>if available</u>)		Use to confirm intrauterine pregnancy and number, FHR (fetal heart rate), presentation, and location of placenta
Pelvic Exam	General evaluation (i.e. crowning) <u>DO NOT</u> perform a digital cervical exam without knowing the location of the placenta	Same, Speculum: look for bleeding, fluid, cervix

* If available at the site

Normal Delivery

Steps:

1. Call for help! Gather supplies.

2. Make sure to feel for any remaining cervix all the way around the fetal head before you encourage the patient to push

3. Encourage pushing when contractions are happening. Feel the patient's abdomen for a firm fundus to know when a contraction occurs.

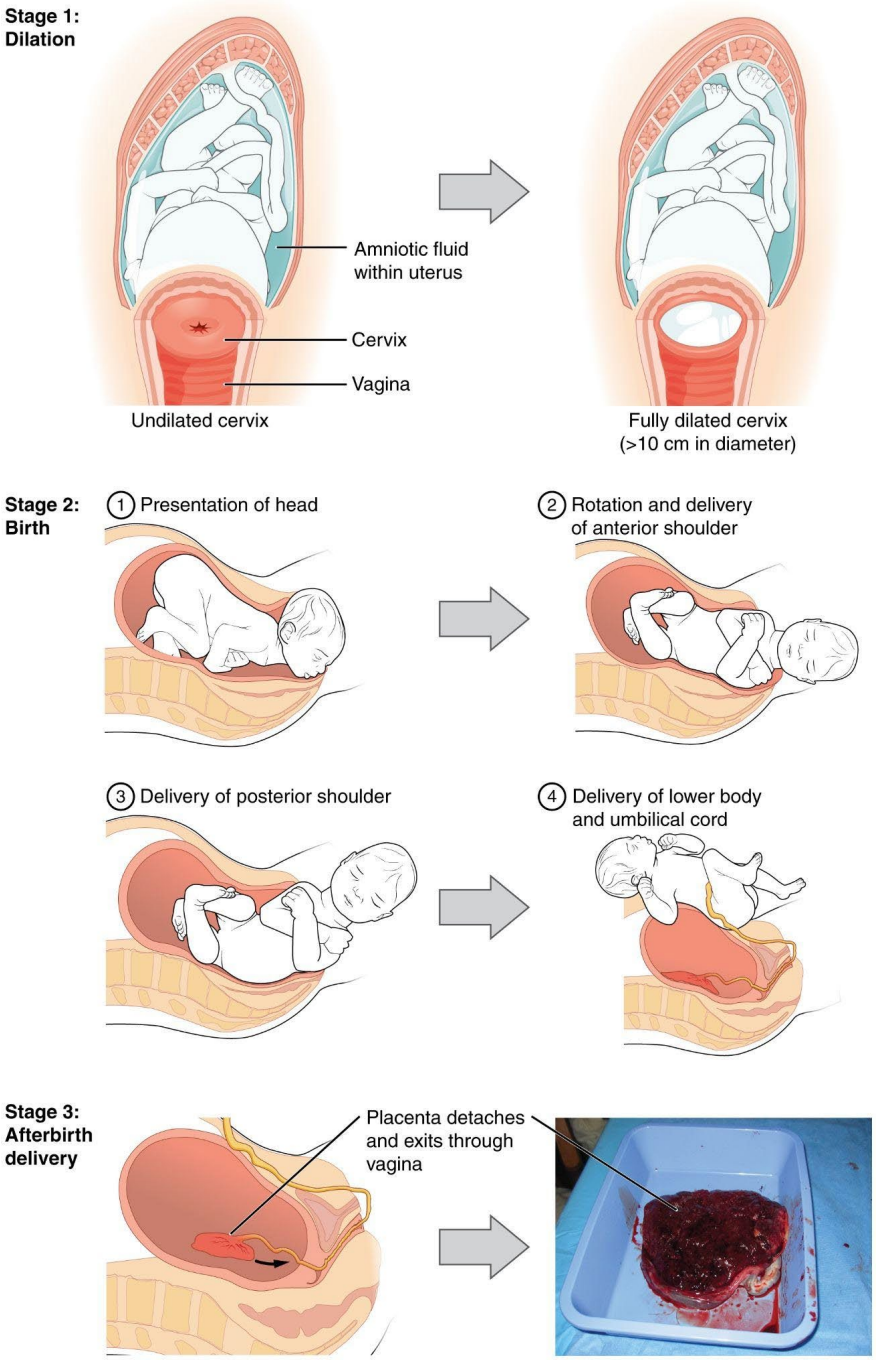
4. Once the head has crowned, take your hands off to allow the head to restitute in the right direction. Check for a nuchal cord.

5. Place your hands on the baby's head with your fingers facing towards the face and apply gentle downward traction to deliver the anterior shoulder. The posterior shoulder and body should follow.

6. If baby looks OK, wait up to 60 seconds before clamping the cord and then immediately place baby on mom's chest. If not, immediately clamp the cord and initiate NRP.

7. Give oxytocin (after infant delivers) - 10U IM or 10-40U/1000mL IV.

8. When delivering the placenta ALWAYS apply suprapubic countertraction if you are pulling on the cord. Remember, the placenta gets up to 30 minutes to deliver before you become concerned!



9. Inspect the placenta to ensure it is intact. Inspect the perineum for bleeding and for tears. Repair any tears as needed

Image: https://upload.wikimedia.org/wikipedia/commons/3/32/2920_Stages_of_Childbirth-02.jpg OpenStax College, CC BY 4.0 <https://creativecommons.org/licenses/by/4.0>, via Wikimedia Commons

Abnormal Deliveries

Shoulder Dystocia

1

Identify

Fetal head retracts against perineum. Gentle axial traction does not lead to delivery.

Call for help
Tell patient to stop pushing.
Delegate roles.
Start a timer.

2

McRobert's

Flex maternal hips and bring knees to chest.

Suprapubic Pressure

Apply firm downward pressure just above the pubic symphysis in the direction of the infant's face.

3

Posterior Arm

Reach hand into vaginal canal, grasp posterior fetal arm, sweep across fetal chest and deliver arm.

Rotational Maneuver

Reach hand into vaginal canal, push in opposite directions forwards or backwards on anterior and posterior shoulder to attempt to rotate shoulder beneath pubic bone.

Episiotomy: Consider mediolateral episiotomy for additional exposure/room if needed.

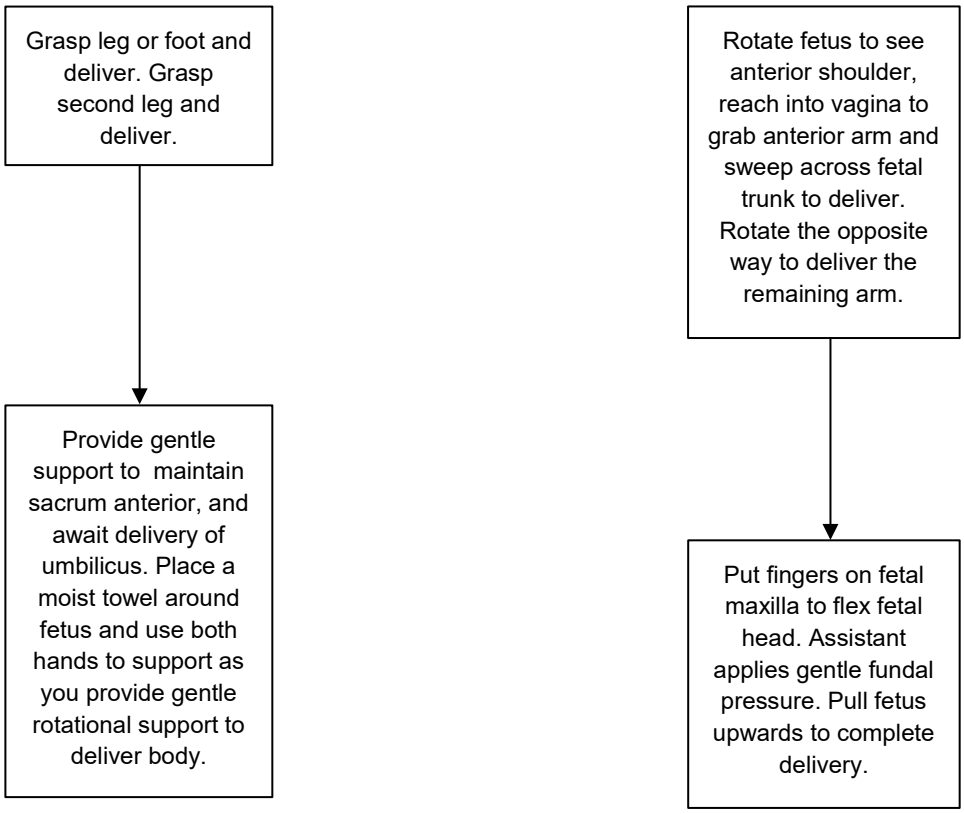
Attempt each maneuver for 30-60 seconds

If unsuccessful, repeat all maneuvers on hands and knees

After delivery, prepare for postpartum hemorrhage and neonatal resuscitation

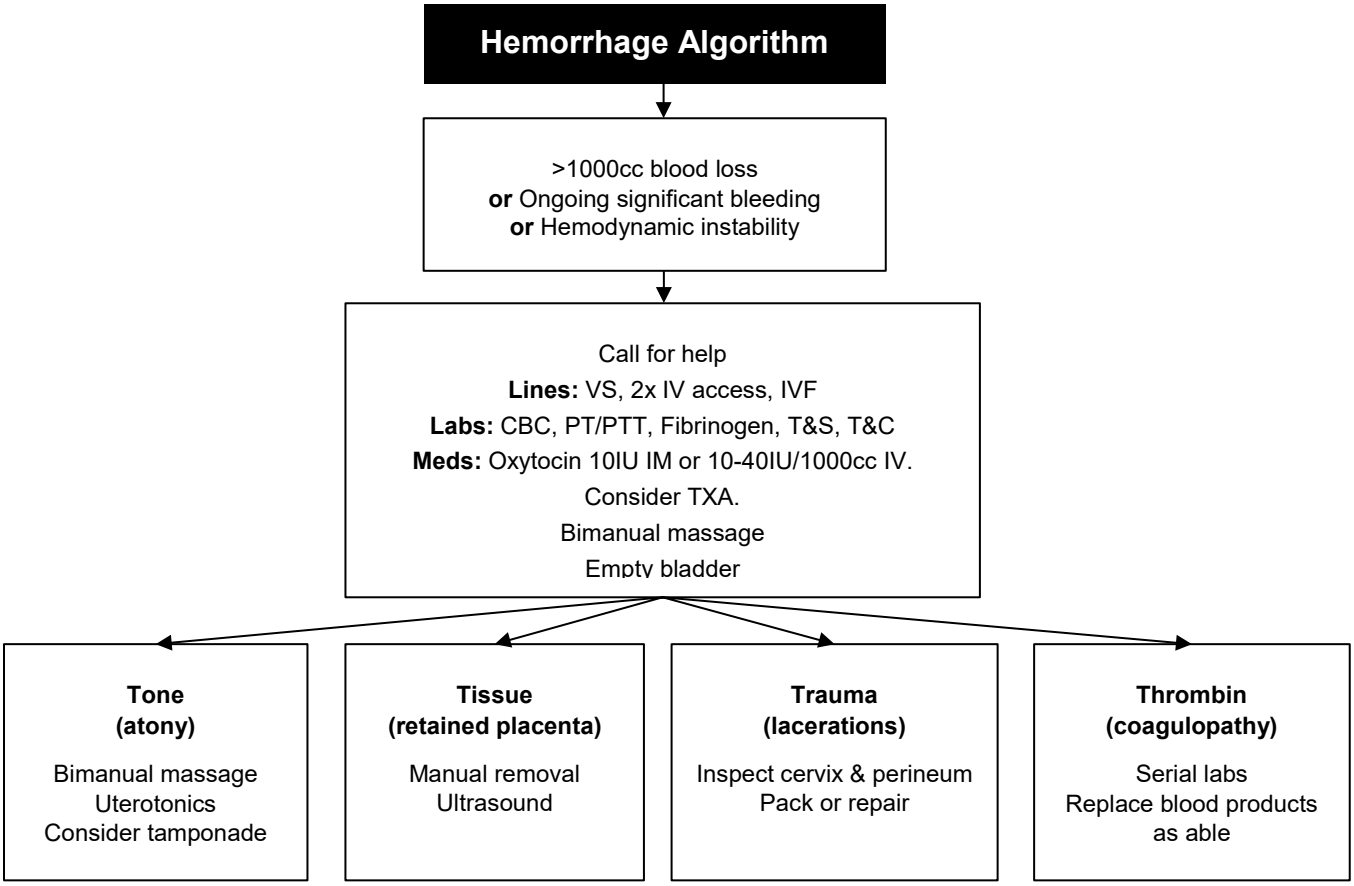
Additional education and images available from American Family Physician: Shoulder Dystocia: Managing an Obstetric Emergency <https://www.aafp.org/pubs/afp/issues/2020/0715/p84.html>

Breech Delivery



Additional education and videos available from Alaska Native Medical Center: Breech Birth Guidelines <https://anmc.org/files/BreechBirth.pdf >

Hemorrhage



Uterotonics	**Oxytocin**	**Methergine (Methylergonovine)**	**Hemabate (Carboprost)**	**Misoprostol**	**TXA**
Dose & Route	IM: 10U IV: 10-40U per ~1000cc	IM: 0.2mg q2-4h	IM: 0.25mg q15 min (max 8 doses)	SL: 800mcg PO: 600mcg PR: 1000 mcg	IV: 1g over 10m
Contraindications		Hypertension Pre-eclampsia Cardiovascular disease	Asthma		Known VTE Hx coagulopathy
Side effects	Overdose > hyponatremia	Hypertension +/- GI	Diarrhea Bronchospasm	Fever +/- GI	Hypotension +/- GI

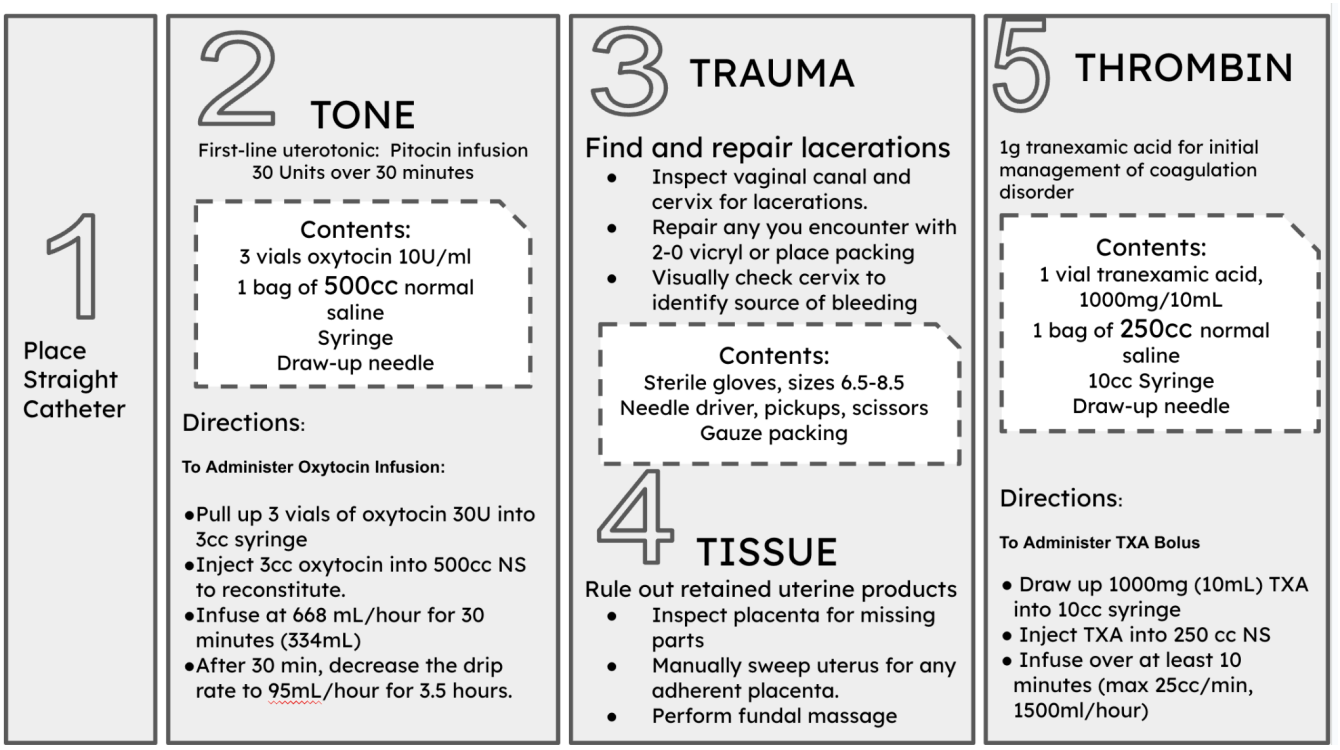
Causes	**Tone**	**Trauma**	**Tissue**	**Thrombin**
Identifying	Fundus feels soft/boggy (common, 70%)	Exam with lacerations of cervix or vagina	Persistent atony Heterogeneous material on US	No other identifiable cause Oozing from multiple sites (vaginal tears, IV)
Initial management	Uterotonics Uterine balloon tamponade *(if uterine inversion give tocolytic, attempt to replace uterus)*	Repair Pack	Manual removal Uterotonics	Products Uterotonics/resolve atony
Definitive management	Hysterectomy	Repair under anesthesia	D&C	Products! 1:1 PRBC to FFP 1 Plt + Cryo every 4-6u

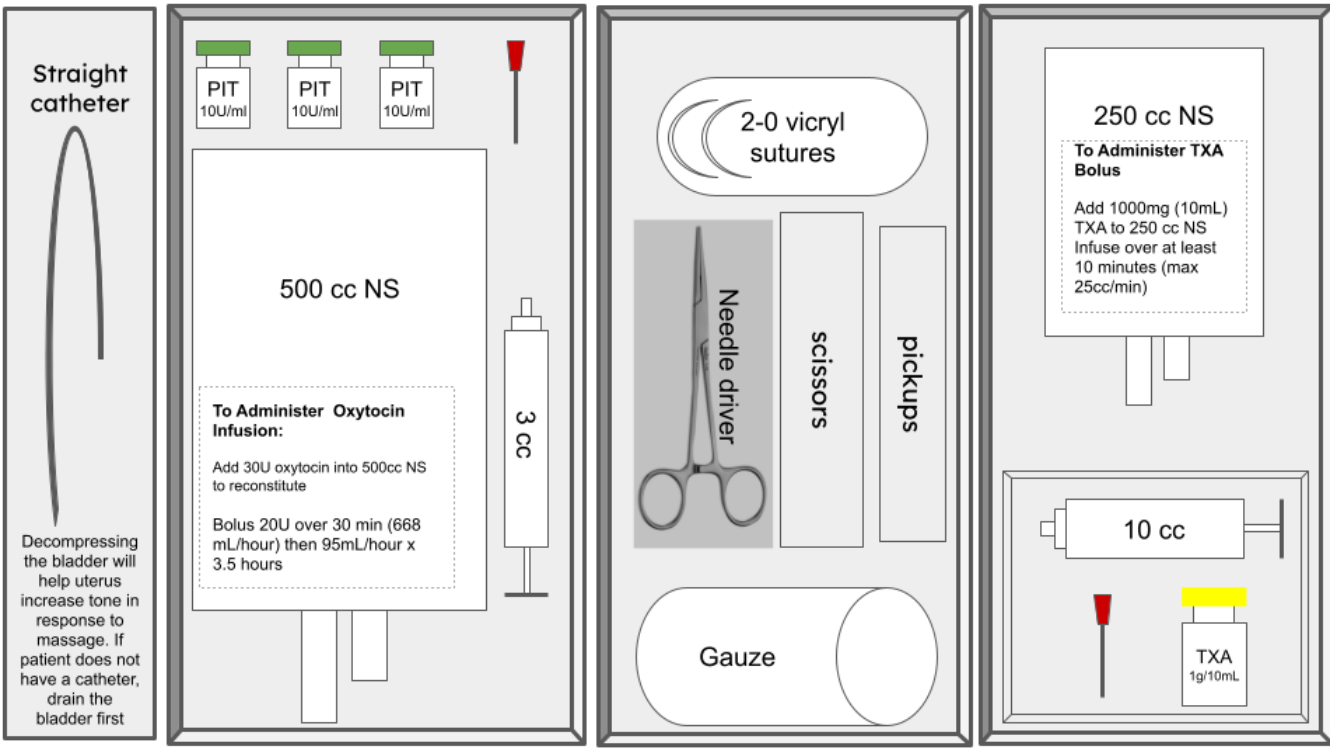
Quantitative Blood Loss (QBL) Calculations

(Post Placenta volumes -Preplacental volumes)+ 1.05 X(Weight blood-soaked item(s) -Dry weight items) = weight of blood loss in mL
Density of blood = 1.05 g/ml

- Perinatology.com QBL Calculator
- Email IHSMCH@ihs.gov to request a fillable Excel QBL calculator

Example Mockup of PPH Box: Level 1 (Moderate)





Example of Hemorrhage Kit: Level 2 (Severe)

6 TONE

Second-line uterotonics:
Carboprost (Hemabate) or
Methergine IM injections

Contents:
1 ampulle carboprost or methergine
1 cc Syringe
Draw-up needle
25g needle for injection
Alcohol swab

Directions:

To Administer carboprost Injection:

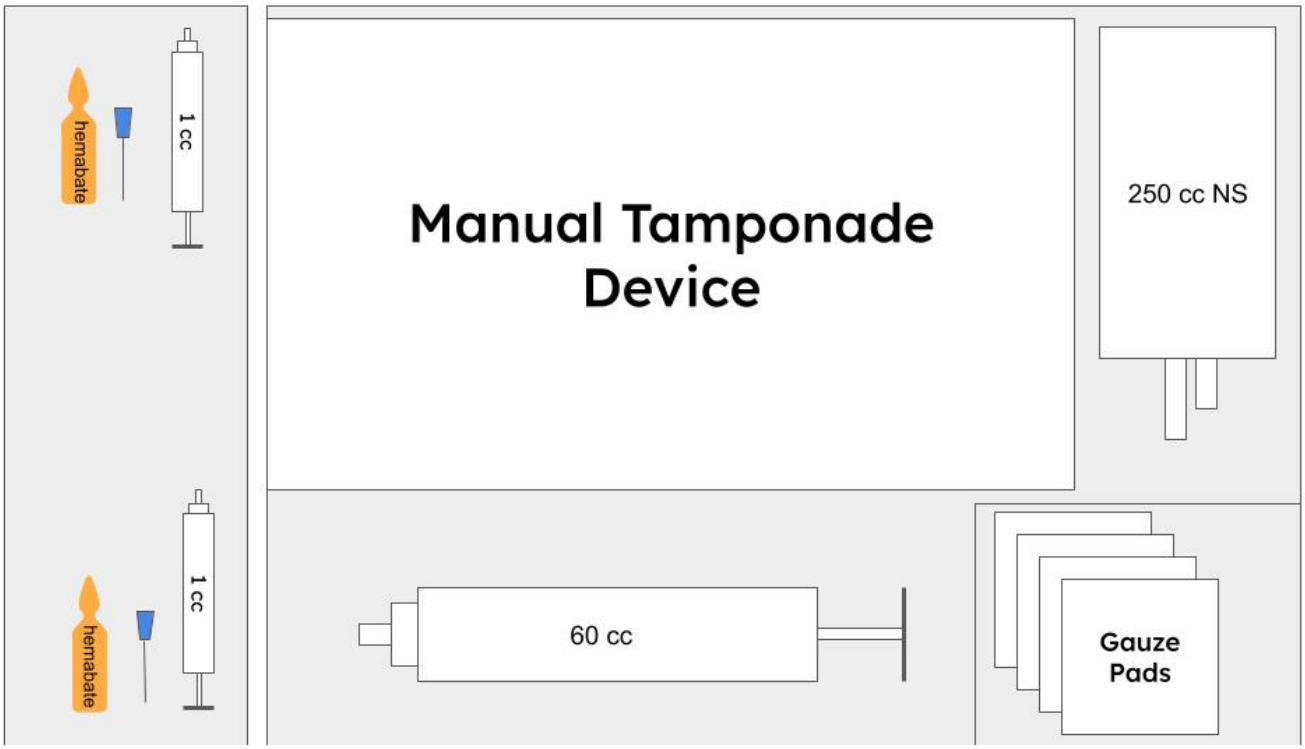
- Use gauze to safely break ampulle at the neck
- Draw up 1cc (0.25mg) of carboprost or 1cc (0.2mg) of methergine
- Use alcohol to swab injection site
- Administer 1cc deep intramuscular injection

7 Manual Tamponade Device
(Refractory hemorrhage)

Before starting **confirm**: no retained tissue, no lacerations, no arterial bleed (should have already done this in steps 3-4)

TO PLACE BALLOON

1. Place the tip of the catheter into the uterus, confirming the whole balloon is past the cervix
2. Spike the bag of 500cc NS with the Bakri tubing
3. Connect the **red** luer lock on the IV tubing to the **red** port on the three-way stopcock
4. Connect the remaining ends of the stopcock to the 60cc syringe and the bakri balloon tubing.
5. SLOWLY Pull and push on the syringe to draw fluid in and send it to the balloon
6. Do not overinflate! The balloon maximum is 500cc but your patient may not need that much. Go slowly.
7. Connect the other port to a bag to monitor bleeding



Email IHSMCH@ihs.gov to request a text version of these examples.

Hypertension

Hypertension Algorithm

Pregnant patient >20w or within 6w postpartum **with** new elevated blood pressure >140/90 **and/or** new symptoms (unremitting headache, RUQ/epigastric pain, vision changes)

Serial BP monitoring
Fetal monitoring/ultrasound
Lines: VS, 2x IV access, IVF
Labs: CBC, CMP, T&S

Gestational (gHTN)
Two BPs >140/90 ("mild") at least 4hrs apart, but <160/110

Normal labs

No symptoms

Preeclampsia without severe features

gHTN **plus** proteinuria (protein:creatinine ratio >/= 0.3, or Udip 2+)

Preeclampsia with severe features*

Two BPs > 160/110 ("severe") within 15-60mins

or BPs >140/90 **plus any:**
Plt <100k
Cr >1.1 or 2x baseline
LFTs 2x upper limit normal
Persistent symptoms

Eclampsia

New onset seizure in pregnancy w/o another cause

<37w: Short-interval outpatient OB follow-up if fetal wellbeing reassuring. Give home BP cuff if available.

>37w: Refer/transfer for delivery.

Consult OB and arrange for transfer ASAP!

Anti-hypertensives (for BP >160/110 persistent for >15 mins):
Labetalol IV: 20mg over 2m→repeat in 10m→ severe, 40mg→ repeat in 10m→severe, 80mg→repeat in 10m→severe, switch agents
avoid with asthma

Hydralazine IV: 5 or 10mg over 2m→repeat in 20m→severe, 10mg→repeat in 20m→severe, switch agents

Nifedipine PO (immediate release): 10mg→ repeat in 20m→ severe, 20mg→repeat in 20m→severe, 20mg→repeat in 20m →severe, switch agents

Goal <160/110
If definitive care for delivery is far away/requires transfer, consider giving Labetalol PO 200 mg or long-acting Nifedipine PO 30 mg

Start magnesium sulfate:

IV: 4-6g 10% in 100ml over 20m, followed by 1-2g/hr continuous infusion
IM: 10g of 50% solution (5g in each buttock)

Magnesium toxicity

Signs/sxs: decreased patellar reflexes > respiratory depression > cardiac arrest

Tx: Calcium gluconate 1g IV over 3m

For persistent seizures:
Lorazepam (Ativan) 4mg IV, repeat in 10-15m
Diazepam (Valium) 5-10mg IV, repeat in 5-10m

***HELLP**
Symptoms: RUQ pain, malaise, N/V
Labs: LDH > 600, LFTs 2x ULN, Plt <100k
May present without hypertension.
Treat: magnesium**,** anti-hypertensives if indicated, trend labs

Example of Hypertension Kit

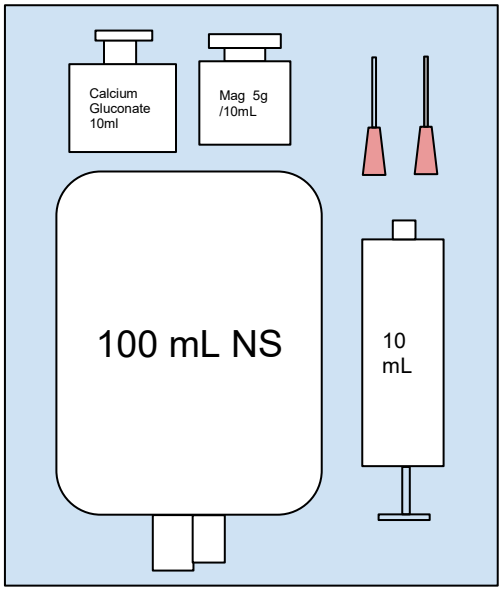
MAGNESIUM SULFATE
IV: 4g 10% in 100ml over 20m, followed by 1-2g/hr continuous infusion
IM: 10g of 50% solution (5g in each buttock)

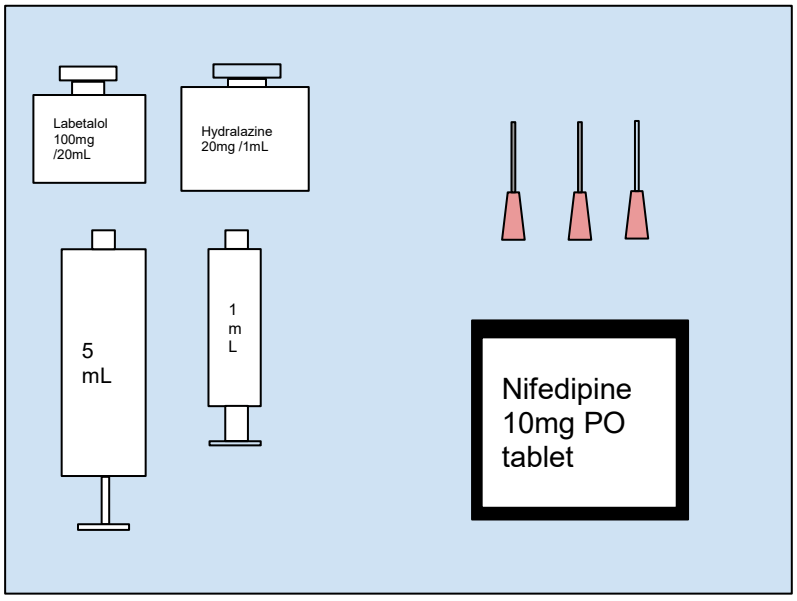
CALCIUM GLUCONATE
10%, 10mL over 3min IV
(for magnesium toxicity)

ANTI-HYPERTENSIVES
(for BP >160/110 persistent for >15 mins)
Labetalol IV: 20mg over 2m→repeat in 10m→ severe, 40mg→ repeat in 10m→severe, 80mg→repeat in 10m→severe, switch agents
avoid with asthma

Hydralazine IV: 5 or 10mg over 2m→repeat in 20m→severe, 10mg→repeat in 20m→severe, switch agents

Nifedipine PO *(immediate release)*: 10mg→ repeat in 20m→ severe, 20mg→repeat in 20m→severe, 20mg→repeat in 20m →severe, switch agents





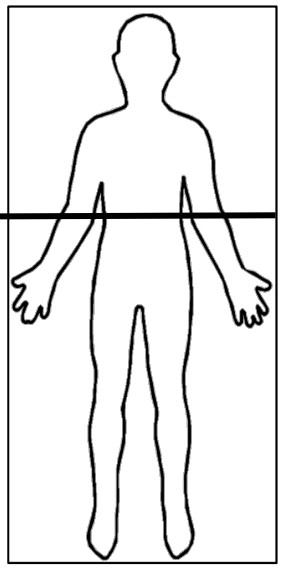
Maternal Cardiac Arrest

Maternal cardiac arrest confirmed

Start high-quality CPR
Defibrillation as indicated
Assign teams & roles

Above diaphragm team:

- CPR: Hand placement and defibrillation the same
- Airway - consider supraglottic airway, avoid excess ventilation, monitor ETCO2 for signs of ROSC
- Access - place above diaphragm, consider humeral IO if difficult
- Stop magnesium and give calcium gluconate if applicable
- Cardiopulmonary US to guide resuscitative interventions



Below diaphragm team:

- Remove fetal monitors
- Prepare for perimortem CS - see box to right
- Uterine displacement: Manual (one or two hand) left lateral uterine displacement, don't tilt!

Neonate team

- Prepare for potential neonatal resuscitation
- After delivery, bring infant to neonatal warmer in separate room/resuscitation bay

Perimortem C/S

Get prepared:

- Aim to perform by 4 minutes after arrest or start of CPR
- Perform if uterine size >20w
- Do not move the patient.
- Continue CPR throughout.
- Don't spend excess time prepping/cleaning the patient. Place urinary catheter if time permits

Perform:

- Make a vertical (or pfannenstiel if more comfortable) incision from umbilicus to above pubic bone
- Make a vertical incision on the uterus to the fundus (can extend with bandage scissors if you have them)
- Deliver fetus.
- Place urinary catheter if unable to do so during prep.

ROSC + hemodynamic stability

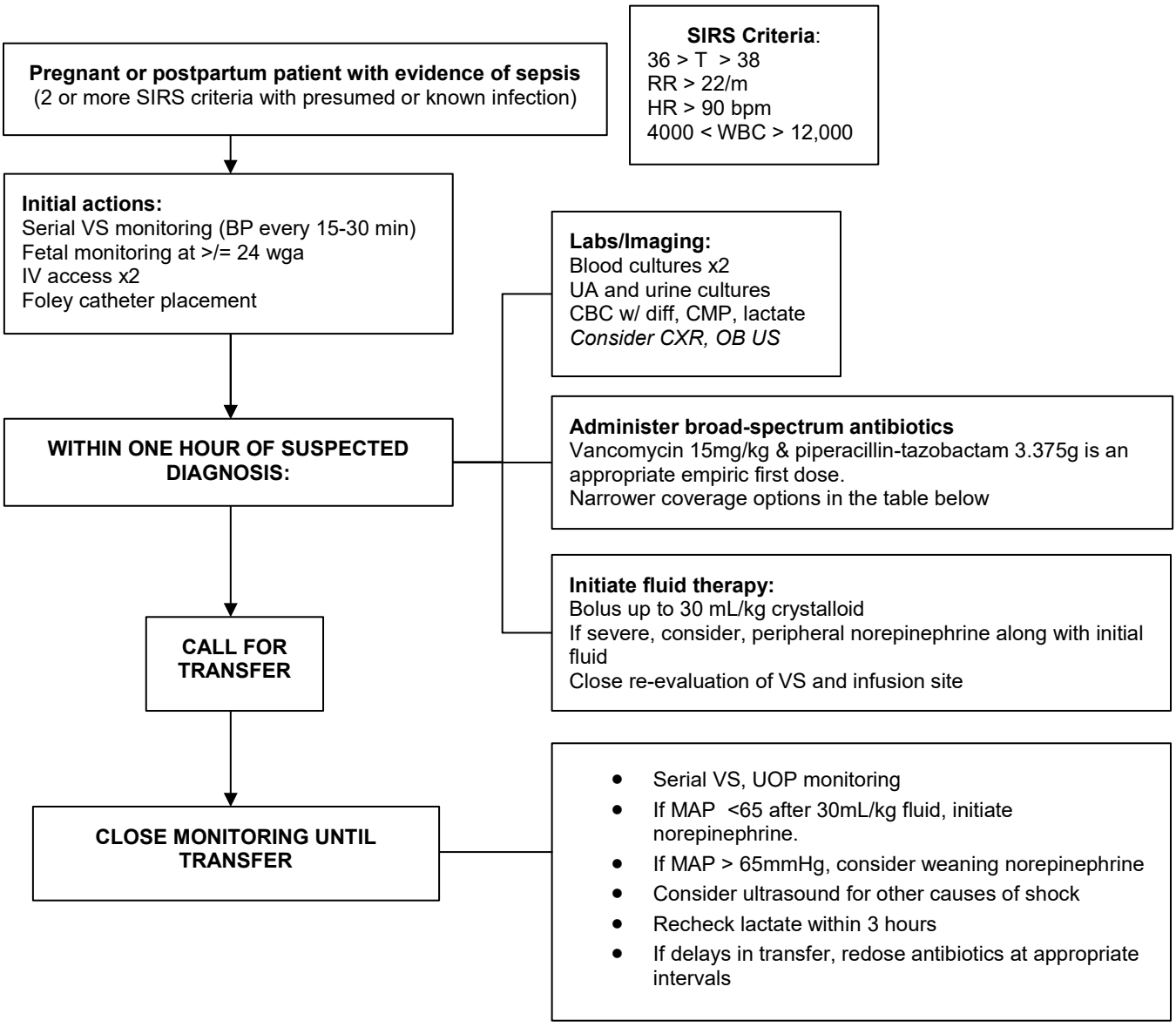
- Remove placenta
- Pack abdomen w/ moist laps & cover (heat loss)
- Get to an OR
- Cooling may aggravate coagulation dysfunction

No ROSC

- Consider closing uterine and skin incisions in situ. Use delayed absorbable sutures.
- Consider aortic compression.

Page intentionally left blank.

Maternal Sepsis



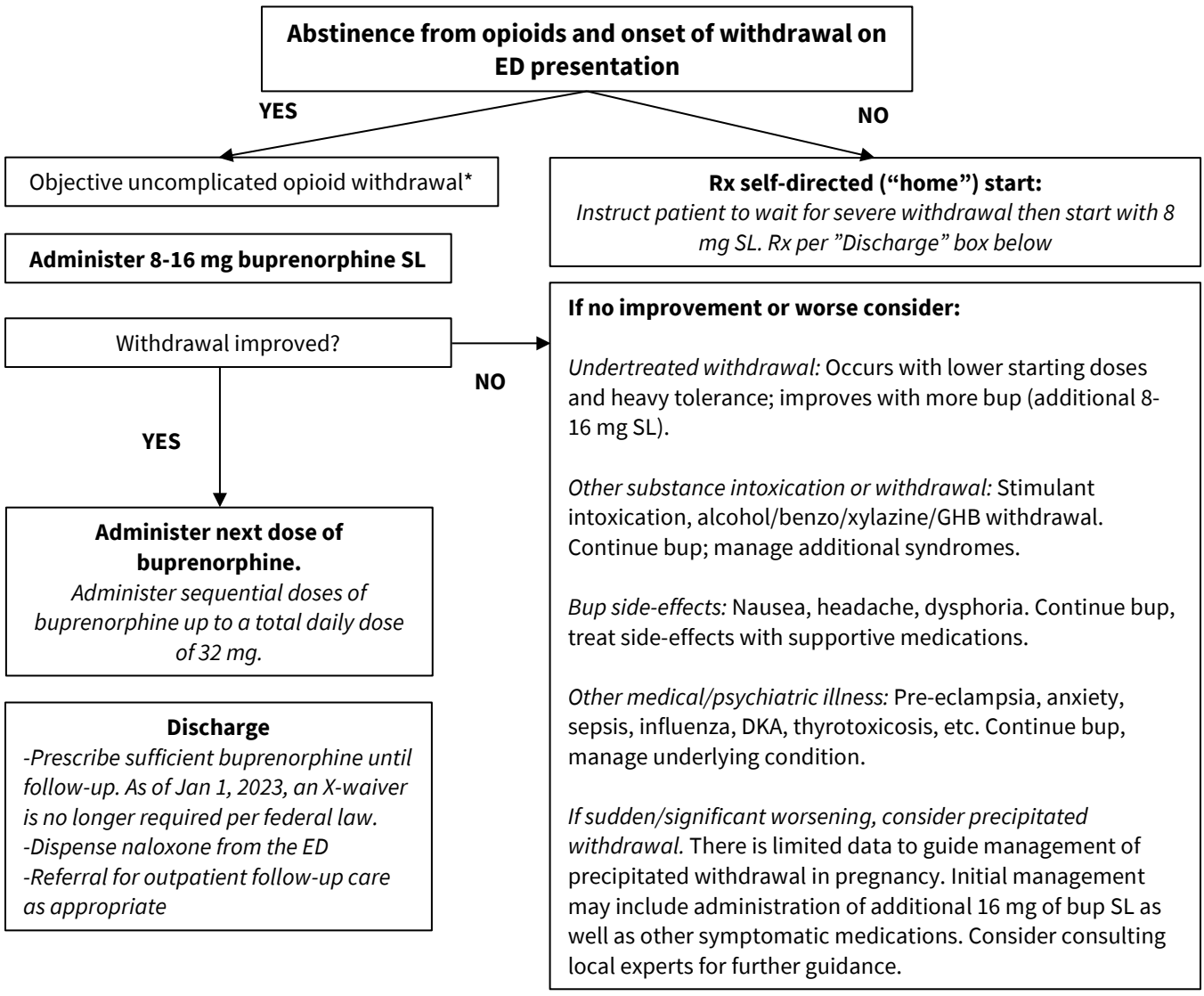
Source	Antibiotic	Considerations
Pneumonia	Cefotaxime, ceftriaxone, or ertapenem	Hospital-acquired - use Zosyn, meropenem, or cefepime. Add vancomycin if high-risk.
Intraamniotic Infection	Ampicillin and gentamicin	
Endometritis	Ampicillin, gentamicin, and clindamycin	
Cystitis	Ampicillin and gentamicin	Or Zosyn
Abdominal infection	Ceftriaxone, cefotaxime	
Skin/SSI	Vanc and Zosyn	If GAS or clostridium, use Pen G + clindamycin

Page intentionally left blank.

Maternal Substance Use

Opioid Use Disorder

Buprenorphine Initiation for Opioid Use Disorder in Pregnancy



*Opioid Withdrawal:

- *At least one clear objective sign (prefer ≥2):* Tachycardia, mydriasis, yawning, rhinorrhea, vomiting, diarrhea, piloerection. *Ask the patient if they are in bad withdrawal* and if they feel ready to start buprenorphine. If they feel their withdrawal is mild, it is too soon.
- *If unsure, use COWS (clinical opioid withdrawal scale).* Start if COWS ≥ 8 AND objective signs.
- *Typical withdrawal onset* >12 hours after last short acting opioid use (excluding fentanyl); variable after last use of fentanyl or methadone (may be >72 hours).

Continued on next page.

- *Start protocol may vary for complicating factors:*
    - Altered mental status, delirium, intoxication
    - Severe acute pain, trauma, or planned large surgery
    - Organ failure or other severe medical illness (decompensated heart failure, respiratory distress, hemodynamically unstable, etc.)
    - Recent methadone use
    - Minimal opioid tolerance (consider lower dosing)
- *If patient has already completed withdrawal (no longer symptomatic withdrawal, often >72 hrs from last use of opioids) and wants to start bup:* give bup 8 mg SL q6h PRN cravings, usual dose 16-32mg/day. After first day, consolidate dosing to daily.
- *All patients with decision-making capacity should be counseled on the risks and benefits associated with alcohol withdrawal treatment medications and should provide informed consent prior to treatment.*
- *Inpatient treatment may be considered if necessary or available to initiate opioid agonist therapy with methadone or buprenorphine and monitor medication response.*

Medication for Addiction Treatment for Opioid Use Disorder in Pregnancy: Key Facts

- Buprenorphine is a high-affinity partial agonist opioid that is SAFE in pregnancy and highly effective for treating opioid use disorder.
- Buprenorphine monoproduct or buprenorphine/naloxone formulations have both been demonstrated to be safe in pregnancy.
- Fetal monitoring is not required to start buprenorphine in normal pregnancy, regardless of gestational age.
- Admission for observation is NOT required for buprenorphine starts.
- Due to increased buprenorphine metabolism in dosing, split dosing (i.e. more than once per day dosing) and total daily dosing of buprenorphine may need to be adjusted during pregnancy.
- If patient is stable on methadone or prefers methadone, recommend continuation of methadone as first-line treatment.

Peripartum management for patients taking buprenorphine (for labor, or acute pain):

- Continue patient's normal buprenorphine dose in combination with multimodal analgesia that may include opioids.
- Buprenorphine is safe for breastfeeding.
- Buprenorphine reduces neonatal abstinence syndrome (NAS) severity. Dose does not correlate to NAS severity.

Postpartum: Bup dose reduction should be gradual and per patient cravings.

Consultation and follow-up

- An obstetrician must be consulted when managing opioid withdrawal in a pregnant patient. Fetal monitoring may be recommended due to the risk of abruption, preterm delivery as well as fetal distress or demise.
- Following management of acute withdrawal, pregnant patients should be offered ongoing treatment for opioid use disorder.

Medico-legal considerations

Clinicians must consult with the Department of Health and Human Services, Office of the General Counsel regarding applicable law and legal risks pertaining to the treatment of patients suspected of using illegal substances or legal substances illegally during pregnancy. Such concerns may pertain to mandatory reporting of child abuse and neglect in accordance with federal law and the medical providers' state license.

Alcohol Use Disorder

Management of Alcohol Withdrawal in Pregnant Patients

Treatment setting

Inpatient treatment should be considered for all pregnant patients with alcohol use disorder (AUD) who require management of alcohol withdrawal due to the risks of fetal alcohol spectrum disorder and pregnancy complications with continued alcohol use during pregnancy.

Diagnosis

The CIWA-Ar is the recommended symptom assessment scale to use with pregnant patients.

Medications

All patients with decision-making capacity should be counseled on the risks and benefits associated with alcohol withdrawal treatment medications and should provide informed consent prior to treatment.

- Benzodiazepines and barbiturates are the medications of choice for treatment of pregnant patients with alcohol withdrawal. *These medications may have a small risk of teratogenicity during the first trimester. However, this low risk is outweighed by the risk of fetal alcohol spectrum disorder from ongoing alcohol use and the risks to the pregnant patient and fetus if severe alcohol withdrawal develops.*
- Valproic acid is not recommended due to high teratogenic risk.
- For patients at risk for pre-term delivery or in the late third trimester: a short-acting benzodiazepine is recommended to minimize the risk of neonatal benzodiazepine intoxication.

Consultation and follow-up

- An obstetrician must be consulted when managing alcohol withdrawal in a pregnant patient. Fetal monitoring may be recommended due to the risk of abruption, preterm delivery as well as fetal distress or demise.
- Following management of acute withdrawal, pregnant patients should be offered ongoing treatment for alcohol use disorder.

Medico-legal considerations

Clinicians must consult with the Department of Health and Human Services, Office of the General Counsel regarding applicable law and legal risks pertaining to the treatment of patients suspected of using illegal substances or legal substances illegally during pregnancy. Such concerns may pertain to mandatory reporting of child abuse and neglect in accordance with federal law and the medical providers' state license.

Consultation and Transfer Guidelines

The Indian Health Service follows the U.S. Centers for Medicare & Medicaid (CMS) guidance for Emergency Medical Treatment & Labor Act (EMTALA) to ensure public access to emergency services regardless of ability to pay. Section 1867 of the Social Security Act imposes specific obligations on Medicare-participating hospitals that offer emergency services to provide a medical screening examination (MSE) when a request is made for examination or treatment for an emergency medical condition (EMC), including active labor, regardless of an individual's ability to pay. Hospitals are then required to provide stabilizing treatment for patients with EMCs. If a hospital is unable to stabilize a patient within its capability, or if the patient requests, an appropriate transfer should be implemented. (See CMS Emergency Medical Treatment & Labor Act, EMTALA)

Page intentionally left blank.

Part 3: Education and Simulation Materials

Basic Obstetrics Education

Fetal Monitoring

1. Knowledge

Discuss normal fetal heart rate (110-160) and variability (6-25 bpm). Briefly discuss accelerations and decelerations. Have participants brainstorm ways to obtain fetal heart rate in their setting (may include external fetal monitor, ultrasound with M-mode, or fetal scalp electrode). Discuss importance of comparing fetal heart rate to maternal heart rate.

2. Application

Have participants demonstrate where to apply EFM device if available. Have providers demonstrate usage of M-mode to obtain FHR from ultrasound.

Fetal Resuscitation

1. Knowledge

Have participants brainstorm options for management of a non-reassuring fetal heart rate (including: Verify heart rate, check cervix, maternal repositioning, IV fluids, terbutaline).

2. Application

If a patient or model is available, have participants demonstrate the above interventions in a brief simulation (Say: “Imagine that your patient is having a deceleration right now. What do you want to do next?”).

OB Ultrasound

1. Knowledge

Discuss the components of a basic third-trimester ultrasound, including confirmation of an intrauterine pregnancy and assessment of fetal cardiac activity, fetal presentation, placental location, and amniotic fluid.

2. Application

If a patient or model is available, have participants demonstrate the above components. If not, review the videos (see Further Resources below) demonstrating these components and have participants follow along with an ultrasound probe.

Normal Vaginal Deliveries

1. Knowledge

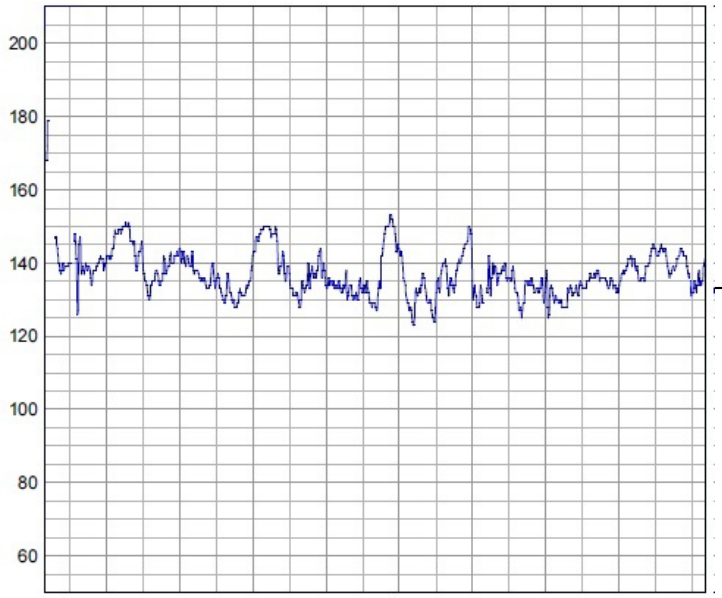
Have participants discuss and put in order the steps of a normal vaginal delivery (which should include: complete cervical dilation to >10cm, presentation of the fetal head, rotation and delivery of the anterior shoulder, delivery of the posterior shoulder and then body, and delivery of the placenta).

2. Application

If available, demonstrate a normal delivery using mannequins. Allow participants to each practice the movements of a normal delivery. If not, have participants verbalize with you and demonstrate the normal steps.

Fetal Heart Rate Basics

Normal fetal heart rate baseline: 110-160 bpm
Normal ("moderate") variability: 6-25 bpm
Concerning deceleration: FHR <90 for more than 2 minutes
Concerning tachycardia: FHR >160 for more than 10 minutes



Baseline 135, moderate variability

(Jmarchn, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons)

Fetal Resuscitation

If a concerning fetal heart rate is noted, consider the following steps:

1. Verify heart rate. Ensure you are recording the true fetal heart rate, and not the maternal heart rate.

2. Check cervix. Use a sterile glove to assess for bleeding, umbilical cord prolapse, or fetal parts that could explain the abnormal heart rate. Do NOT do this exam if there is concern for placenta previa (placenta over the cervix). Assess cervical dilation and progress towards delivery. Decelerations may be more common right before delivery.

3. Maternal repositioning. If the patient is not about to deliver, position the patient on either side, in a seated position, or on hands and knees, observing for fetal heart rate recovery in each position before moving to a new one.

4. IV Fluids. Administer an IV fluid bolus and assess for fetal heart rate improvement. Be aware that pregnant patients are at risk for fluid overload.

5. Terbutaline. For a prolonged deceleration in the setting of a contraction, consider administering terbutaline 0.25mg subcutaneously to temporarily relax the uterus.

OB Ultrasound

Five components of a basic third-trimester obstetric ultrasound:

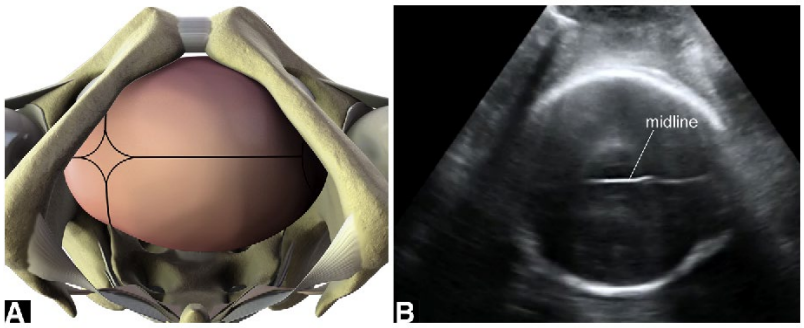
1. Confirm IUP. Place the curvilinear probe on the abdomen and adjust depth to view the whole uterus. Establish presence of an intrauterine pregnancy and confirm the number of fetuses.

2. FHR. Locate the fetal heart and establish presence of cardiac activity. Determine the fetal heart rate using a watch (count for 6 seconds and multiply by 10) or with M-mode if available.

3. Presentation. Place probe in a transverse orientation over the pubic bone to determine the presenting fetal part. Confirm by looking at the fetal part located at the uterine fundus.

4. Placenta. Look for the location of the placenta (away from or near/over the cervix).

5. Fluid. Evaluate the amount of amniotic fluid around the fetus. Place the probe in a vertical orientation, perpendicular to the bed, and measure the deepest vertical pocket of fluid that does not contain umbilical cord. Normal is between 2cm and 8cm.



Cephalic presentation

(Bellussi, F., Ghi, T., Youssef, A., Salsi, G., Giorgetta, F., Parma, D., Simonazzi, G., & Pilu, G. (2017). The use of intrapartum ultrasound to diagnose malpositions and cephalic malpresentations. American Journal of Obstetrics and Gynecology, 217, 633–641.)

Femur length and pocket of fluid

(© Nevit Dilmen, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons)

Precipitous delivery simulation

Objectives

Recognize and manage a precipitous vaginal delivery. Practice steps of a normal vaginal delivery.

Supplies

Patient actor, IV supplies, VS monitors, fetal monitors.

1. EMS Call

Read aloud: "We're bringing in a 38yo female G7P5 who is 38 weeks pregnant and appears to be in active labor. She ruptured her membranes in the ambulance 5 minutes ago with clear fluid. She reports having problems with bleeding in her prior pregnancies, but no other medical history. Her vital signs are: HR 101, BP 117/75, RR 20, SpO2 100% on RA. Our ETA is 2 minutes."

2. Allow 2 minutes for participants to prepare

- **Action**: Gather supplies
  Delivery kit, scissors, clamps, suction bulb, oxytocin, foley, infant warmer turned on and/or blankets, infant BMV, ultrasound or fetal monitoring device
- **Action**: Call for extra help.

3. Patient arrival

EMS reports: "Patient started pushing en-route, baby has not yet delivered. The last set of vitals we obtained was reported by phone."

- **Action**: Cervical exam 10/100/+2. Place patient on monitors. Check fetal heart rate. Ensure IV access.
- Patient starts to push.

4. Delivery

Baby delivers immediately.

- **Action**: Place infant on mom's chest and perform initial resuscitation there if needed, warm and dry baby
- **Action**: Allow 30-60 seconds before clamping cord
- **Action**: Note APGARSs
  - Report 1 & 5 minute APGARS of 8/9 if asked.
- **Action**: Deliver placenta with gentle downward traction, suprapubic pressure. Inspect placenta. Transabdominal uterine massage. Perineal inspection.
  - Report a second degree laceration on inspection
- **Action**: Administer oxytocin and neonatal medications
- **Action**: Update/debrief with patient. Inform for need to repair laceration and obtain appropriate supplies.

END CASE.

5. Resolution/Debrief

1. How did this experience feel for you?
2. What is one thing that went well for you or your team?
3. What would you change if you could?
4. Are there any systems gaps you see that emerged from this case? And any suggestions to fix them?

Abnormal Deliveries Education

Objective

Learn management of a shoulder dystocia. Practice steps of a breech vaginal delivery. Practice management of cord prolapse.

Shoulder Dystocia

1. Knowledge

Have participants brainstorm risk factors for shoulder dystocia (diabetes, macrosomia, history of shoulder dystocia). Emphasize that most shoulder dystocias are difficult to predict. Ask participants how shoulder dystocias are identified. Discuss with participants to identify complications of shoulder dystocia - maternal (higher degree lacerations, hemorrhage, nerve injury) and neonatal (brachial plexus injuries, clavicle/humerus fractures, neonatal encephalopathy, or death)

2. Application

Walk participants through management steps of a shoulder dystocia once it has been identified.

Breech Vaginal Deliveries

1. Knowledge

Discuss recommendation for breech singletons to undergo cesarean delivery. Discuss resources for transfer to a location for cesarean section at participants' institution. Discuss at what point to move forward with breech vaginal delivery (if imminent and no ability to transfer). Discuss maneuvers of breech vaginal delivery.

2. Application

If available, demonstrate a breech vaginal delivery using mannequins. Allow each participant to each practice the movements of a breech delivery. If not possible, have participants verbalize with you and demonstrate the normal steps.

Cord Prolapse

1. Knowledge

Discuss how to identify a cord prolapse. Discuss management (elevate fetal head, Trendelenburg, consider backfilling bladder). Emphasize that cord prolapse is always an indication for cesarean delivery. Discuss resources for emergent transfer at the participants' institution.

2. Application

If available, demonstrate a cord prolapse using mannequins. Allow participants to each practice management. If not, have participants verbalize with you and demonstrate management.

Abnormal Deliveries Simulation

Objectives	Supplies
Recognize and manage shoulder dystocia. Practice steps of a breech vaginal delivery.	Patient actor, IV supplies, VS monitors, fetal monitors.

1. EMS Call

Read aloud: "We're bringing in a 28yo female G1P0 who is 41 weeks pregnant and appears to be in active labor. She has no PMH and this pregnancy has only been complicated by gestational diabetes. She has no other obstetric complaints. Her vital signs are: HR 91, BP 124/79, RR 18, SpO2 100% on RA. Our ETA is 2 minutes."

2. Allow 2 minutes for participants to prepare

- **Action**: Gather supplies
  Delivery kit, scissors, clamps, suction bulb, oxytocin, foley, infant warmer turned on and/or blankets, infant BMV, ultrasound or fetal monitoring device
- **Action**: Call for extra help.

3. Patient arrival

EMS reports: "Patient started pushing en-route, baby has not yet delivered. The last set of vitals we obtained was reported by phone."

- **Action**: Cervical exam 10/100/+2. Place patient on monitors. Check fetal heart rate. Ensure IV access.
- Patient starts to push.

4. Shoulder dystocia

While pushing, head begins to crown, then appears stuck at the perineum.

- **Action**: Recognize shoulder dystocia. Call for help. Start timer.
- **Action**: Resolve dystocia
  - McRoberts
  - Suprapubic pressure (participant instructs direction)
  - Posterior arm or Woodscrew – leads to delivery of infant.
- **Action**: Quickly clamp cord and pass infant to staff who should be assigned to resuscitation. Note total time of dystocia.
  - Report 1 & 5 minute APGARS of 6/9 if asked.
- **Action**: Deliver placenta with gentle downward traction, suprapubic pressure. Inspect placenta. Transabdominal uterine massage. Perineal inspection.
- **Action**: Update/debrief with patient.

END CASE.

5. Resolution/Debrief

1. How did this experience feel for you?
2. What is one thing that went well for you or your team?
3. What would you change if you could?
4. Are there any systems gaps you see that emerged from this case? And any suggestions to fix them?

Hemorrhage Simulation

Objective

Understand the main etiologies of postpartum hemorrhage and risk factors for each. Identify a postpartum hemorrhage and manage a scenario with atony as the main cause.

Supplies

Patient actor and or pelvis mannequin, fake blood, IV supplies, VS monitors, fetal monitors, medications, delivery kit, foley, infant BMV, +/- ultrasound, dry blankets, infant warmer

1. EMS call

Read aloud: "We have a 24yo female G2P1 who reports being 40 weeks pregnant and appears to be in active labor. PMH of asthma and one normal delivery 3 years ago. She reports a small amount of bleeding and strong contractions starting 2 hours ago. She is currently feeling contractions every minute and feels the urge to push. We see a small amount of hair. Her vital signs are: HR 105, BP 112/75, RR 20, SpO2 100% on RA. Our ETA is 2 minutes."

2. Allow 2 minutes for participants to prepare

- **Action**: Gather supplies
  Delivery kit, scissors, clamps, suction bulb, oxytocin, foley, infant warmer turned on and/or blankets, infant BMV, ultrasound or fetal monitoring device
- **Action**: Call for extra help.

3. Patient arrival

EMS reports: "Patient started pushing en-route, baby has not yet delivered. The last set of vitals we obtained was reported by phone."

- **Action**: Deliver baby
- **Action**: Cut cord, dry & warm baby
  - Report 1 & 5 minute APGARS of 8/9 if asked.
- **Action**: Place patient on monitors. Ensure IV access. Deliver placenta with gentle downward traction, suprapubic pressure. Inspect placenta. Transabdominal uterine massage.

4. Hemorrhage

Patient/mannequin starts bleeding (cover the bed in NS mixed with red food coloring). Patient says "I feel tired". If patient was placed on the monitors, updated VS: HR 132, BP 110/70.

- **Action**: Ensure 2 large bore IVs, start IVF bolus, obtain CBC/T&S, empty bladder.
  - VS after 1L NS: HR 128, BP 90/68. Continued bleeding.
- **Action**: Assess 4 T's: Tone, Tissue, Trauma, Thrombin
  - Vaginal exam >>> report no trauma seen
  - Uterine massage >>> report tone is boggy
  - Coags >>> report not back yet.
  - Bimanual exam >> report this removes small portion of placenta/membranes. Once done, tone significantly improved. VS: HR 115, BP 98/72. **END CASE.**
- **Action**: Give medications
  - Oxytocin IM: 10IU, IV: 10-40U per ~1000cc. If given >>> still bleeding/atony.
  - Methergine IM: 0.2mg. If given >>> still bleeding/atony.
  - Hemabate IM: 0.25mg. If given >>> still bleeding/atony.
  - Misoprostol 1000mcg PR. If given >>> still bleeding/atony.
  - TXA 1g IV. If given >>> still bleeding/atony.
    - If all given, report mild improvement in atony.
    - VS after all uterotonics: HR 122, BP 95/60
- **Action**: Call for blood. Blood arrives after 4 minutes.

- **Other actions:**
    - Consulting OB by phone for transfer/ICU availability. Tell participants recommendation is to stabilize patient prior to transfer, find source of bleeding.
    - Obtaining analgesia (whether IV or local).

END CASE: After 20 minutes if no resolution.

5. Resolution/Debrief

1. How did this experience feel for you?
2. What is one thing that went well for you or your team?
3. What would you change if you could?
4. Are there any systems gaps you see that emerged from this case? And any suggestions to fix them?

Hypertension Simulation

Objectives	Supplies
Recognize different hypertensive disorders of pregnancy. Practice management of pre-eclampsia and eclampsia.	Patient actor, IV supplies, VS monitors, fetal monitors, medications, +/- ultrasound.

1. Nurse Triage Call

Read aloud: "I have a 21yo female G1P0 in triage who reports being 34 weeks pregnant and is presenting with new-onset headache and blurry vision. She has a PMH of asthma and this pregnancy has been uncomplicated. She has no obstetric complaints. Her vital signs are: HR 85, BP 165/105, RR 18, SpO2 100% on RA. Can you come evaluate her?"

2. Provider evaluation

- **Action**: Brief H&P, physical exam
  - Patient: Report headache started around 2 hours ago, tried Tylenol with minimal improvement. Uncomplicated first pregnancy, no history of high blood pressures before or during pregnancy.
  - Exam: 2+ pitting edema in bilateral lower extremities, no other significant findings.
- **Action**: Fetal evaluation
  - Provider and RN should place fetal monitors on patient if available. If done, report FHR is in the 150s, moderate variability, no contractions.
  - During provider evaluation, nurse reports BP now 180/112.

3. Management of pre-eclampsia

- **Action**: Get help, ensure IV access, get labs (CBC, CMP, UA)
- **Action**: Request antihypertensives and magnesium
  - If antihypertensive given: RN asks when BP should be retaken.
  - If magnesium given: patient reports feeling flushed.

4. Seizure

Prior to BP recycling, patient starts seizing.

- **Action**: Ensure patient safety – side rails up, protect airway, left lateral decubitus position, O2 monitoring/supplemental O2
- **Action**: Administer magnesium if not already done, if no IV access was obtained, administer IM
  - IV infusion: 4-6g 10% magnesium sulfate in 100ml solution over 20 minutes, followed by 1-2g/hr continuous infusion
  - IM: 10g of 50% solution (5g in each buttock)
- **Action**: Administer further anti-hypertensives
  - Labetalol IV: 20/40/80/switch, check Q10 min, contra-indicated in asthma
  - Nifedipine PO: 10/20/20/switch, check Q20 min
  - Hydralazine IV: 5 or 10/10/switch, check Q20 min
  - After 1 minute, patient stops seizing, asks "Where am I? Is my baby OK?". VS: BP 163/104, HR 125, RR 30, SpO2 100% if on oxygen, 94% on RA. FHR: 90s, recovers to 120s after 2 minutes.
- **Action**: Administer further anti-hypertensives
  - If done, report BP now 141/90.

5. Recognize need for delivery

- **Action**: Page OB or initiate transfer once patient stabilized.
  END CASE.

6. Resolution/Debrief

1. How did this experience feel for you?

2. What is one thing that went well for you or your team?
3. What would you change if you could?
4. Are there any systems gaps you see that emerged from this case? And any suggestions to fix them?

Maternal Resuscitation Education

Objectives

Understand pregnancy physiology and how it relates to maternal resuscitation. Practice steps of a perimortem cesarean section. Discuss ethics surrounding these cases.

1. Brainstorm etiologies for maternal cardiac arrest (MCA)

Anesthesia, Accidents, Bleeding, Cardiovascular, Drugs, Embolism, Fever, Hypertension. Rates have more than doubled in the last 30 years.

2. Discuss physiologic changes in pregnancy

In third trimester:

	⬆	⬇
Cardiovascular	Plasma volume Stroke volume Cardiac output (40%) Afterload (compression)	Peripheral vascular resistance Venous return (compression)
Pulmonary	Oxygen consumption/requirement (20%) Minute volume (by increased tidal volume and respiratory rate) Relaxin > inspiratory capacity/abdominal circumference	Thoracic compliance Functional residual capacity (because of less residual volume)

- Uterus and placenta take 20% of cardiac output in the 3rd trimester
- By the second trimester, the uterus compresses great vessels decreasing venous return and increasing afterload, decreasing CO by 2/3
- CPR in a pregnant patient produces 10% of normal cardiac output (compared to 30% outside pregnancy)
- Larynx/pharynx are engorged, changing landmarks and narrowing airways
- More intrapulmonary shunting leads to more rapid desaturations.
- Increased minute volume leads to respiratory alkalosis/compensatory metabolic acidosis >>> Changes make patients less tolerant of oxygen deprivation.

3. Discuss ACLS for pregnant patients

1. CPR

- Hand placement and defibrillation the same
- Manual (one or two hand) left lateral uterine displacement, don't tilt!
- If you start CPR, get prepared to do perimortem cesarean

2. Oxygenation/Ventilation

- 8-10 breaths per minute, avoid hyperinflation
- Advanced airway ASAP
- Smaller ET tube (6-7mm)

3. Fetal considerations

- Determine fetal age by US or fundal height (above umbilicus ~20 weeks)
- Remove fetal monitors

4. Meds/Lines

- IV access above diaphragm
- Meds: Epi 1mg IV/IO Q3-5min
- If you suspect amniotic fluid embolism, start massive transfusion protocol

4. Walk through steps of perimortem cesarean delivery.

1. Get prepared

- Perform by 4 minutes after arrest or start of CPR, deliver fetus by minute 5
- Perform if uterine size >20w
- Do not move the patient. Continue CPR throughout.
- Don't spend excess time prepping/cleaning the patient

2. Perform perimortem delivery

- Make a vertical (or Pfannenstiel if more comfortable) incision from umbilicus to above pubic bone
- Make a vertical incision on the uterus to the fundus (can extend with bandage scissors if you have them)
- Deliver fetus.
- Place urinary catheter

3. Check for ROSC (can palpate aorta)

- ROSC + hemodynamic stability
    - Remove placenta
    - Pack abdomen w/ moist laps & cover (heat loss)
    - Get to an OR
    - Cooling may aggravate coagulation dysfunction
- No ROSC
    - Consider closing incision in situ. Use delayed absorbable sutures.
    - Consider direct cardiac massage or aortic compression.

Some considerations:

- Bleeding not likely to be an issue until ROSC
- Condition of fetus does not guide decisions, decision to do PMCD is based on maternal ROSC
- Benefits: Decrease IVC compression, increase venous return, increase CO by 25%. Increase FRC, increase oxygenation.

Kit: Scalpel (10-blade), surgical gloves/gown, masks, skin prep, laparotomy sponges, suture scissors, retractor, umbilical cord clamps, needle driver, suture, neonatal resuscitation supplies.

Maternal Sepsis Education & Simulation

Objectives

Recognize and manage sepsis in the pregnant and postpartum patient.

Supplies

Patient actor, IV supplies, VS monitors, medications, fetal monitors.

Sepsis Education

1. Knowledge and Application

Brainstorm common causes: UTI/pyelonephritis, chorioamnionitis/endometritis, wound infections, non-OB (pneumonia, appendicitis). Emphasize that sepsis is a leading cause of maternal mortality.

Simulation

1. Nurse triage call

Read aloud: "I have a 32yo female G1P0 who reports being 30 weeks pregnant and is coming in with back pain and chills. She has no other complaints. Her vital signs are: T 38.5 C, BP 90/60 (MAP 70), HR 100, RR 24, SpO2 100% on RA. Can you come evaluate her?"

2. Provider evaluation

- **Action**: Brief H&P, physical exam
    - Patient: Reported that back pain started yesterday but has become worse throughout the day. Felt chills and took Tylenol this morning. She has no obstetric concerns, and her pregnancy has been uncomplicated.
    - Exam: Patient appears diaphoretic and has marked R-sided CVA and suprapubic tenderness. Visible gravid abdomen. No other notable findings.
- **Action**: Establish IV access and draw labs/blood cultures (UA/UCx, blood cultures, CBC, CMP, lactic acid).
- **Action**: Fetal evaluation.
    - Provider and RN should place fetal monitors on patient if available. If done, report FHR is in the 170s, minimal variability, no contractions.
    - During provider evaluation, nurse reports BP now 80/50 (MAP 60), HR 110.

3. Management of sepsis

- **Action**: Get help, insert Foley catheter
- **Action**: Initiate broad-spectrum antibiotics and IV fluids.
    - Appropriate antibiotics for suspected source (pyelonephritis): ceftriaxone or piperacillin-tazobactam
        - If antibiotics are initiated before drawing blood cultures, RN asks "Is there anything else you want to do first?"
    - Appropriate IV fluids: Initial 1-2 L crystalloid bolus (or 30 mL/kg) with frequent re-evaluation of volume status (further resuscitation may be overly aggressive in obstetric patients).
    - *Given MAP <65, depending on resources and setting, team should consider starting norepinephrine.*

4. Recognize need for

- **Action**: Page OB or initiate transfer.

Participants should practice presenting this patient over the phone to receiving

transfer	team. **END CASE.**
5. Resolution/Debrief	1. How did this experience feel for you? 2. What is one thing that went well for you or your team? 3. What would you change if you could? 4. Are there any systems gaps you see that emerged from this case? And any suggestions to fix them?

Maternal Substance Use Simulation

Objectives

- Recognize Opioid Use Disorder (OUD) as a life-threatening chronic disease with an effective treatment *(medication for addiction treatment (MAT))*
- *Acknowledge and begin to address stigma around patients with substance use disorder*

1. EMS call

29 yo G1P0 female was found unresponsive at home by her family members. Patient noted to have a RR of 8, Initial BG 120, pupils noted to be pinpoint. Family members at the scene reported that she is estimated to be at 14 weeks gestational age, confirmed by recent OB ultrasound at an outpatient appointment. Patient became responsive after receiving a dose of intranasal Narcan in the field. One episode of vomiting after naloxone administration, 4 mg Zofran IV given. Current vital signs are: HR 110, BP 118/75, RR 18, SpO2 100% on 2 L/min by NC. Our ETA is 5 min.

2. Provider Evaluation

- **Action**: Brief H&P, physical exam
  - Initial exam: patient appears uncomfortable, with diaphoresis, unable to sit still in stretcher. Piloerection noted and rhinorrhea.
  - Patient: complains of ongoing nausea and cramping abdominal pain. When informed that she had required naloxone after being found unconscious at home, she becomes tearful and states that she has been taking "pain pills" that she gets off the street to manage chronic back pain from a motor vehicle collision that occurred several years ago. She hasn't told her family or her clinic provider because she is afraid they will judge her, and asks that you not share this information with anyone. [1]
- **Action**: Fetal evaluation
  - Provider and RN should attempt to obtain doppler tones on patient if available. If done, report FHR is in the 150s.
  - During provider evaluation, nurse reports BP now 180/112.

3. Identification of opioid withdrawal syndrome

- **Action**: Calculate Clinical Opioid Withdrawal Severity (COWS) score

4. Counseling of patient and initiation of medication for addiction treatment

- **Action**: Describe medication for addiction treatment options for management of acute withdrawal symptoms and maintenance in care
- **Action**: Appropriately describe risks and benefits of management options, obtain informed consent for treatment from patient
- **Action**: Administer appropriate dose of buprenorphine while in the ED, reassess for improvement in symptoms
- **Action**: When symptoms are adequately controlled, develop an appropriate plan for discharge with buprenorphine and linkage to ongoing outpatient care.

5. Resolution/Debrief

1. How did this experience feel for you?
2. What is one thing that went well for you or your team?
3. What would you change if you could?
4. Are there any system gaps you see that emerged from this case? And any suggestions to fix them?

[1] IHS must comply with HIPAA and the Privacy Act and, therefore, cannot share patient information unless authorized to do so under both laws or unless it obtains the consent of the patient to share.

Neonatal Resuscitation Simulation

Objectives

1) Recognize the signs of neonatal distress
2) Provide rapid and effective escalation of NRP from warming/drying/stimulation to PPV, CPR and intubation as needed

Supplies:

Manikin, fetal pulse oximeter, PPV device, neonatal intubation equipment, intraosseous device, Umbilical vein catheter kit, neonatal radiant warmer

Case summary:

The team is called to the OB room in your rural ED where a woman just gave birth to a baby who now requires resuscitation. Mother is in distress and is unable to provide prenatal history. The baby is non-vigorous, After stimulation and drying, the baby will have a pulse in the 80s requiring PPV. After 1 minute, heart rate drops to 50s, at which point CPR must be initiated. After brief CPR, intubation and IV access, the case resolves favorably.

1. Initial Evaluation and Examination

26 yo G4P3 female at unknown GA delivers a baby that appears to be small for term. Mother did not have prenatal care and is unable to provide history, nor is there collateral information in the medical record. Labor was precipitous. There is no meconium staining. The baby appears distressed
Initial exam: non-vigorous baby, not crying. Poor tone, poor respiratory effort:

- VS: HR 83, RR 12, initial sat and bp not obtainable
- HEENT: shallow breaths RR 12.
- Skin grayish, not pink, no meconium staining.

2. Initial Interventions

- **Actions:**
  - Verbalize identification of sick infant, initiation of resuscitation
  - Stimulate, warm and dry
  - Check capillary glucose (89mg/dL)
  - Check pre-ductal saturation
  - Initiate PPV

3. 1st Re-evaluation (at 1 minute)

Vital signs are unchanged. If placed, preductal sat shows 65% and slowly climbing %

- **Actions:**
  - Troubleshoot PPV (MR SOPA mnemonic)
    - Check **M**ask fit, **R**eposition chin, **S**uction, **O**pen mouth, increase **P**ressure, move to advanced **A**irway (intubation)
  - Consider vascular access, +/- fluid 10cc/kg fluid bolus
  - Recheck heart rate q1m
- Trigger: PPV troubleshooting complete or 3 total minutes have passed

4. 2nd re-evaluation (3-4 min)

Spo2 still 75%, HR now 55. Skin is less gray but not yet pink

- **Actions:** initiate CPR. Maintain 3:1 ratio using two-thumb-encircling technique
- **Action:** obtain vascular access or IO if not already done

5. 3rd re-evaluation (5-6 min)

HR 125. skin pink. Moving limbs spontaneously

- **Actions**:
  - Call receiving hospital NICU and transfer service
  - Send blood work
  - Consider UVC insertion

6. Resolution/Debrief

1. How did this experience feel for you?
2. What is one thing that went well for you or your team?
3. What would you change if you could?
4. Are there any system gaps you see that emerged from this case? And any suggestions to fix them?

Page intentionally left blank.

Part 4: Technical Support

Patient Education Handouts

- Please refer to the IHS Maternal and Child Health website for updated links to patient education and resources

Implementation Strategies

- Identify an ObRED Champion(s) who can advocate for safe maternal care at your facility
- Form a multidisciplinary team to lead ObRED. Include advocates from the emergency department, maternal health, pediatrics, nursing, laboratory, pharmacy, patient transport, EMS
- Print out section(s) of this manual and store in a labeled binder in your department
- Provide protected time for your team(s) to practice drills and simulations
- Gather data on outcomes and use for a Quality Improvement project at your facility
- Share your best practices and lessons learned with the IHS ObRED team

Example ObRED Champion Role Description

Qualifications:

1. Provider or nurse with special interest and knowledge and skill in the emergency care of pregnant women
2. Maintains competency in ObRED emergency care program

Suggested Responsibilities:

1. Facilitating quality improvement activities for improved obstetric emergency care
2. Facilitates ED-based educational activities for continuing education in Obstetric care
3. Upholds clinical competencies for new employees with OB Readiness checklist
4. Maintains competencies for ED nursing staff relevant to OB patients
5. Maintains OB-relevant policies and procedures for the ED
6. Assists pre-hospital providers (e.g. Emergency Medical Services) with OB relevant education
7. Works with ED leadership to ensure adequate equipment, medications, and resources are available in the ED for OB emergencies

Page intentionally left blank.

Telehealth Guide

Hospital Numbers

Respiratory therapy _____
Pharmacy _____
Laboratory _____
House supervisor _____

Maternal Transfer

OB/GYN Consultation Number: _____
Anesthesia Consultation Number: _____
Pediatric Consultation Number: _____
Surgical Consultation Number: _____

Accepting hospital #1 Name: _____ Transfer request number: _____
Guidelines for transfer at this hospital_____

Accepting hospital #2 Name: _____ Transfer request number: _____
Guidelines for transfer at this hospital_____

Additional resources:

- University of California, San Francisco (USCF) National Clinician Consultation Center Substance Use Warmline
  M-F 6am-5pm; Voicemail 24/7: 1-855-300-3595
- Health Resources and Services Administration (HRSA) National Maternal Mental Health Hotline
  Free, confidential, 24/7 access to trained counselors by phone or text: 1-833-TLC-MAMA (1-833-852-6262)

Example Transfer Quick Reference Card

Receiving Hospitals for OB Transfer						
Name	Phone	Equipped for:				
		L&D/ Post-partum	NICU	Gyn Surg	ICU	ECMO

Transport Personnel

Name	Phone	Fixed Wing or Helicopter	Equipped for:		
			Critical Care	Transfusion	Neonatal Care

Competency Assessments

Obstetric Basic ED Equipment Preparation + Skills Competency Assessment

SKILLS	INITIAL VALIDATION	REMEDIATION AND/OR COMMENTS	OBJECTIVE MET & INITIALS
OB Triage Questions ● Weeks pregnant? ● Number pregnancy? ● Pain, bleeding, loss of fluid, fetal movement? ● Headaches or vision changes?	☐ Observation of Daily Work **OR** ☐ Simulated Practice ☐ See remediation column	☐ Review: ☐ Clinical Skills: ☐ See Action Plan	
OB Triage Exam ● Maternal vitals and position ● Fetal heart rate ● Maternal abdominal exam ● Maternal pelvic exam	☐ Observation of Daily Work **OR** ☐ Simulated Practice ☐ See remediation column	☐ Review: ☐ Clinical Skills: ☐ See Action Plan	
Locate OB Equipment ● OB hemorrhage and delivery cart ● Fetal monitor ● Pediatric warmer and kangaroo bag ● Neonatal crash cart ● Medications	☐ Observation of Daily Work **OR** ☐ Simulated Practice ☐ See remediation column	☐ Review: ☐ Clinical Skills: ☐ See Action Plan	
Precipitous Delivery ● Call for help ● Code OB ● Setup equipment ● Delivery maneuvers ● Placenta	☐ Observation of Daily Work **OR** ☐ Simulated Practice ☐ See remediation column	☐ Review: ☐ Clinical Skills: ☐ See Action Plan	
Neonatal Care ● Call for help ● Infant to warmer, positioning ● Warm, dry, stimulate ● Airway management	☐ Observation of Daily Work **OR** ☐ Simulated Practice ☐ See remediation column ☐	☐ Review: ☐ Clinical Skills: ☐ See Action Plan	
Postpartum Hemorrhage ● Identify ● Call for help ● Massive Transfusion Protocol ● Vitals, recording ● IV, IVF, Labs ● Foley catheter ● Fundal massage ● Medications	☐ Observation of Daily Work **OR** ☐ Simulated Practice ☐ See remediation column	☐ Review: ☐ Clinical Skills: ☐ See Action Plan	

SKILLS	INITIAL VALIDATION	REMEDIATION AND/OR COMMENTS	OBJECTIVE MET & INITIALS
Hypertension and Eclampsia ● Identify ● Call for help ● Vitals, recording ● IV, Labs ● Foley catheter ● Medications	□ Observation of Daily Work **OR** □ Simulated Practice □ See remediation column	□ Review: □ Clinical Skills: □ See Action Plan □	
Stabilization and Transfer ● Patient transfer process ● Team debriefing	□ Observation of Daily Work **OR** □ Simulated Practice □ See remediation column	□ Review: □ Clinical Skills: □ See Action Plan	

ACTION PLAN (If necessary)

COMMENTS (If necessary)

COMPETENCY VALIDATION

EMPLOYEE:_____ DATE: _____

OBSERVER: _____ DATE: _____

Neonatal Basic ED Equipment Preparation + Skills Competency Assessment

Name & Title: _____ Department: _____ Date: _____

SELF EVALUATION	HOW COMPETENCY/SKILL IS VALIDATED	OBSERVED EXPERIENCE LEVEL
1. Little or no experience with skill. 2. Knows principle, but haven't actually performed. Seeks/needs assistance. 3. Can perform independently & safely. 4. Proficient: Feels comfortable and competent in activity/skill. Can teach 5. Expert-can teach, know Evidence Based Practice (EBP).	Competency will be validated by: ● Demonstrated (DM) ● Verbalized (V) ● Test (T) ● Event (E ● Case Studies (CS) ● Discussion (DS) Use the appropriate letter in the column indicating how competence was validated.	1. Acquired some experience (may require practice, direct guidance/assistance) 2. Capable-familiar with skill but may need assistance, seeks help when needed=PASS 3. Competent. Performs independently, safely as a result of training & experience. 4. Proficient: extensive experience, able to teach and advise others 5. Expert, can teach.

	Self-evaluation	Validation method	Observed experience level & validator initials
Skills Competency: Proper set-up of resuscitation equipment and Panda warmer. Low risk, low volume. **Objective:** Demonstrate how to properly set-up and check resuscitation equipment. ● Set up Panda warmer, including ventilation resuscitation equipment (flow-inflating bag and T-piece resuscitator), suction, peep, pip ● Discuss which supplies are used for resuscitation, what they are used for, and where they can be found.			
Skills Competency: Effective use of positive pressure ventilation. High risk, low volume. **Objective:** Demonstrate how to competently perform positive pressure ventilation ● Discuss 3 indications for PPV in neonate ● Demonstrate proper technique for administering PPV ● Demonstrate the steps for assessing response to PPV ● Demonstrate the ventilation corrective steps (acronym: MR. SOPA)			

	Self-evaluation	Validation method	Observed experience level & validator initials
Skills Competency: Effective use of chest compressions. High risk, low volume. **Objective:** Demonstrate how to competently perform chest compressions ● Discuss when to start chest compressions on a neonate ● Identify correct oxygen concentration when chest compressions are required ● Demonstrate how to do chest compressions effectively (location of thumbs and fingers; correct compression depth; compression rate) ● Discuss how long chest compressions should be administered prior to checking a heart rate ● Discuss when chest compressions can be discontinued			
Skill Competency: Proper equipment set up for endotracheal intubation. High risk, low volume. **Objective:** Demonstrate competence in identifying and retrieving equipment required for intubation ● Identify location of necessary intubation equipment ● Demonstrate ability to name necessary equipment ● Demonstrate proper positioning of patient ● Discuss purpose of identified equipment ● Demonstrate proper preparation and delivery of ET tube to physician			
Skill Competency: Proper equipment set up for umbilical venous catheter placement. High risk, low volume. **Objective:** Demonstrate competence in identifying and retrieving equipment required for UV catheter placement ● Identify location of necessary UV placement equipment ● Demonstrate ability to name necessary UV placement equipment ● Discuss purpose of identified equipment ● Discuss indication for UV catheter placement			

Successful demonstration of the above was performed in the presence of an evaluator deemed competent to evaluate me.

***

Employee Name: _____ Date: _____

Employee Signature: _____

Evaluator Name: _____ Date: _____

Evaluator Signature: _____

Supervisor Name: _____ Date: _____

Supervisor Signature: _____

Quality Improvement (QI) Tracking Themes and Ideas

Quality Improvement is a long-term process that must take into consideration the specific conditions of each hospital setting. If your hospital already has a QI or QAPI program, the purpose is to include an OB readiness arm in that larger project, not to replace or duplicate existing QI projects. An ideal target for quality improvement should focus on real improvements in patient care, rather than simply change what is documented in the chart. It should maximize improvements in quality of care while minimizing documentation burden. It should encourage and facilitate good care but should not discourage or punish honest reporting of errors or deviations from ideal care.

We recommend a four-step model:

1. Information-Gathering and Analysis
2. Developing an Action Plan
3. Implementing Solutions
4. Monitoring and Evaluating Progress.

This is similar to widely-used Plan-Do-Study-Act (PDSA) models, with the notable difference that there is an initial period of open-ended information gathering, from which each site can identify its own needs.

1. Tracking all pregnant patients, duration at the hospital, interventions and dispositions, for example:
   - MRN
   - Time & Date of Arrival to this hospital
   - Disposition (transfer, discharge home)
   - Time of departure
   - Gravida/ Para, estimated gestational age?
   - Delivered here?
   - If transferred, brief description of events at outside hospital

2. A hospital without an OB/GYN provider may be interested in ensuring the quality of their diagnostic assessments, such as fetal heart rate monitoring, or cardio-tocometry. This institution might partner with a specialist who can interpret these readings asynchronously. Below is a sample tracking tool, to ensure the FHR is interpreted appropriately.

MRN	Date	FHR start time	FHR duration	Interpreter	Interpretation	QC (name)	QC interpretation

3. A rural hospital might benefit from a central tool to track the destinations of patients transferred for specialty obstetric care. A tool such as the one below might be helpful to identify patterns in transfer outcomes between different hospitals:
    - MRN
    - Visit date
    - Name of first hospital called. Was patient accepted? If not, why not
    - Name of second hospital called. Was patient accepted? If not, why not
    - Time left our institution
    - Time arrived at destination
    - Method of transfer (ground, fixed wing, helicopter)
    - Interventions performed and brief clinical summary (i.e. ultrasound performed and discharged home vs admitted for c-section, vs transferred after delivery for post-partum care)

4. One target for clinical quality improvement might be the appropriate ordering and dosing of medication in pregnant and postpartum patients. A tool that tracks the timing of delivery and the timing and dosing of oxytocin, or the timing, sequence and dosages of the different medications in the post-partum hemorrhage or the maternal hypertension protocols may identify patterns that offer opportunities for systemic improvement. An example of such a tool is here with a brief excerpt below.

MRN	**Delivery Time & Date**	**Pitocin IM dose & timing**	**Pitocin IV rate and start time**	**TXA dose and start time**	**Hemabate dose and start time**	**Methergine dose and start time**	**Balloon tamponade placement time**	**Blood product start time**

obRED QI examples

[redacted]

IHS Mission*: To raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level.*