# OB Resource Binder

## Care of the Obstetric Patient in the ED of a Non-birthing Facility

Materials generated and/or compiled by the

Maine Perinatal Outreach Program

MaineHealth

# Table of Contents



**Questions/Concerns:** Contact the Perinatal Outreach Program Coordinators
Emily Watson Emily.watson@mainehealth.org
Ann Boomer aboomer@northernlight.org

# Emergency Department Obstetrical Readiness Checklist

## Education/Training:

☐ Formulate plan to enroll all staff in appropriate trainings and keep certifications up to date. Recommended trainings include:

-Neonatal Resuscitation Program (NRP) **or** Neonatal Advanced Life Support (NALS)
-Basic Life Support in Obstetrics (BLSO) **or** comparable skills-based training.

☐ Formulate a plan for in situ simulation to help staff with new patient populations and workflows

## Equipment/supplies:

☐ Review equipment needed, obtain all items and consider creating kits that fit your workflow.

☐ Review common OB medications (listed in the OB Triage & Transfer Document) and crosscheck with your pharmacy's stocked medications. Pay special attention to concentrations as OB dosing often differs from non-OB dosing.

☐ If a GYN cart already exists, consider adding OB specific supplies/equipment and transition the cart to an OB/GYN cart. Keep other frequently utilized items where they are as your team will know where to find them.

## ED Workflow:

☐ Consider implementing a process for assigning the highest level of acuity to triage patients who are pregnant or recently pregnant to ensure rapid assessment and transfer.

☐ Review the resources/policy provided to you and fit to your department. Publish protocols in your hospital's official protocol database (along with keeping a printed copy in your OB Readiness Binder)

☐ Anticipate the need to send an RN with OB transfers and consider need to backfill ED staff

## Transporting Patients:

☐ Communicate with regional facilities and form agreements for future OB transfers. Use this information and contact information to edit the 'Example Plan for Transfer Destination' (pg 14), or generate your own. Your Plan for Transfer Destination should be immediately available in the ED for all clinicians. Of note: all obstetric facilities have a designated Level of Care that guides the acuity and gestational age they can safely care for; this will need to be considered in your transfer plan. Ensure that the receiving facility is aware and in agreement that they may be asked to take a transfer that is outside their designated level of care if there is not time to reach the appropriate level of care.

☐ Communicate with local EMS services to formulate clear plans for OB transfers and identify potential barriers to timely transfers

CLINICAL OBSTETRICS AND GYNECOLOGY
*Volume 65, Number 4, 829–838*


# *Obstetrical Readiness: Preparing Rural Emergency Departments Without Hospital-Based Obstetrical Services*

**JEANA FORMAN, MSN, RNC-OB, C-EFM, C-FMC,* and JILL HENKLE, RNC-OB†**

*Departments of *Nursing; and †Obstetrics and Gynecology, University of Iowa, Iowa City, Iowa*

**Abstract:** In rural states, hospitals that provide birthing services are closing at an alarming rate, increasing the distance birthing people are traveling, rural Emergency Departments play a vital role in reducing maternal morbidity and mortality. An interdisciplinary education and simulation with debriefing program was created to improve the care by non-obstetric providers for routine and emergent obstetrical care. The program includes monthly lectures, hands on skills training, and in-situ interdisciplinary simulations with debriefings to build a foundation of knowledge and skill for rural Emergency Department staff statewide.

**Key words:** obstetrics, emergency department, rural, postpartum, training

*Correspondence: Jeana Forman, MSN, RNC-OB, C-EFM, C-FMC, Department of Nursing, University of Iowa, Iowa. City, Iowa. E-mail: jeana-forman@uiowa.edu*

*This project was supported by the Health Resources and Services Administration of the US Department of Health and Human Service, Maternal Health Innovation Grant.*

*The authors declare that they have nothing to disclose.*

## *Introduction*

Over the past 2 decades rural hospitals in the state of Iowa have closed their Obstetric (OB) service lines. Since 1999, Iowa has experienced a closure of over 40 birthing units statewide.[1] In rural areas pregnant and postpartum patients are presenting to hospitals without birthing services for routine care, precipitous birth, or other OB emergencies. The response to this problem is to prepare these rural emergency departments (EDs) to be ready in order to improve the quality of care delivered in these rural sites by non-OB providers. Readiness includes knowledge and competency in standardized OB care and quick response to emergencies. Among birthing people who died from pregnancy-related causes,

two-thirds received care in an ED at some time in the prenatal or postpartum period, with nearly 40% having more than two visits to the ED.[2]

In the state of Iowa, the Emergency Medical Technicians (EMTs), Paramedics, and ED staff identified a need for education and training to improve readiness to care for pregnant and postpartum patients in rural EDs. The Iowa Statewide Obstetric Mobile Simulation Program designed and implemented an OB education and training program for staff working in rural EDs. The program includes 12 didactic sessions followed by an on-site visit to facilitate hands on skills training and interdisciplinary OB simulations and debriefings.

## *Background*

The Iowa Statewide Obstetric Mobile Simulation Program was originally designed to improve maternal outcomes in Iowa hospitals with birthing services by providing simulation and debriefing. While building the obstetrical simulation program and utilizing a statewide needs assessment, the unexpected needs of rural EDs without birthing facilities surfaced. Rural EDs were not expecting to manage an increased volume of OB patients. EDs were urgently requesting help in the form of didactics and simulations for routine, as well as low frequency/high-risk obstetrical situations.

The increased burden for OB services in EDs is because of the closure of birthing units. Not only is the distance between hospitals providing OB services increasing, so is the distance to tertiary centers. Although over 28 million reproductive-age women live in rural US counties, 43% of rural counties in the United States had no hospital-based OB services in 2002.[3] As evidenced by the 2020 March of Dimes study, *Nowhere to Go: Maternity Care Deserts Across the United States*, access to obstetrical care in rural areas is declining, creating an increased burden for rural EDs to care for this complex patient population.[4] Since the last March of Dimes report in 2018, there has been an increase in the areas without OB services. A recent study in the state of Iowa showed birthing people may travel up to 120 miles to deliver in their intended birthing facility.[5] The consequences of losing these services in more rural counties include reduction in prenatal care, increases in preterm birth, births in the EDs, out of hospital births and cesarean births.[3] As pregnant and postpartum patients are traveling further distances, when there is severe weather, other travel obstacles, or lack of time to make it to the intended delivery hospital, the nearest rural ED is readily available to them. Rural EMTs and ED staff can take action to be prepared and ready to care for this special patient population.

### PROGRAM DESIGN AND PLANNING

Initial interdisciplinary project planning and development began with a group that included 2 rural Registered Nurses (RNs), an OB anesthesiologist, and a family medicine physician. The team met at regular intervals to build didactic content and design the program before implementation.

It was imperative to understand the specific needs of the rural EDs. A needs assessment was sent through e-mail to all disciplines working in EDs in hospitals without birthing facilities. One of the questions was "What aspect of the OB patient walking into your ED is the most daunting, scary, or unsettling for you and your team?" Many answers were related to the lack of readiness, while others referenced clinical scenarios such as precipitous delivery, and skills to safely deliver care to the OB patient. As the needs assessment was analyzed, it was clear that education and preparation to facilitate their readiness was essential. Rural hospitals that close their OB services but continue to operate an ED must recognize that births can still occur at these hospitals.[6] The needs assessment results were consistent with current literature. A study by Kozhimannil and colleagues identified information from ED

administrators regarding births in their departments and what type of training would benefit the staff. Their results showed 28% of rural hospitals without OB units had births in their ED; of these, 32% had unanticipated adverse birth outcomes, 22% experienced a delay in urgent transport, and 80% reported a need for additional training and/or resources for emergencies, which included neonatal resuscitation, precipitous childbirth, and management of serious complications such as postpartum hemorrhage.[7]

The Iowa Statewide Obstetric Mobile Simulation Program used traditional components of competency as a structure for the program. The three components include knowledge, skills, and attitudes. The didactic content provided evidenced based content to expand the knowledge base for staff working in rural EDs. The specially designed skills training offered the opportunity to reinforce information from the online didactic sessions, and to practice low frequency skills the learners then utilized in the same day in situ simulations. Teamwork is an added benefit of simulation. Simulation is one type of training where attitudes, behaviors, and teamwork are actively practiced.[8]

## DIDACTICS

The didactic sessions were offered virtually, once a month for 12 months. The intended audience included all staff working in the rural EDs. Continuing education credit was offered for each specialty attending live training. After each session the recording was uploaded and housed on the state's quality improvement website for future viewing and training.

Distributing the didactic program information through the state infrastructure was a key element to consider. The state quality collaborative listserv, Iowa Department of Public Health contact list, and the social media page for the Emergency Medical Service were all channels to distribute program information. Emails and information were sent and updated monthly, along with reoccurring calendar invites. This helped to build interest in the program and to increase attendance. Each facility made the decision if the education was required or optional.

The goal was to provide a strong foundation of knowledge. Therefore, it was essential to begin with an introduction to OB, including physiology and why pregnant and postpartum patients are different compared with the general population. From this point, additional content was selected using the needs assessment, current trends in OB morbidity and mortality, and the experience of the RNs on this project. Content was created and presented by the project team and by expert faculty from the University of Iowa through collaboration through the Maternal Health Innovation Grant from the Department of Health Resources and Services Administration of the United States (HRSA). A complete list of content and objectives is listed in Table 1. Didactic topics went beyond pregnancy and birth. Specifically, information was included about racial disparities in OB and postpartum complications as both are associated with morbidity.

A resource used to support the didactic content was the Improving Health Care Response to Hypertensive Disorders of Pregnancy Quality Improvement Toolkit from the California Material Quality Care Collaborative (CMQCC).[2] This toolkit specifically identifies the importance of education for staff working in EDs and emphasizes the need to identify postpartum patients. Included in the toolkit is a poster for EDs to post in patient rooms as a visual reminder for both patients and staff to consider pregnancy status for all childbearing patients. The Center for Disease Control (CDC) states from 2011 to 2015 about 33% of deaths happened 1-week to 1-year postpartum.[9] Contributing factors to these deaths included 1) access to care, 2) missed or delayed diagnosis, 3) not recognizing warning signs.

***TABLE 1. Obstetric Emergency Department Didactic Education Content***

| Session | Title | Objectives |
|---|---|---|
| 1 | Introduction to OB in the ED | Identify terminology specific to obstetrics<br>Create a binder specific to the OB patient |
| 2 | Maternal Early Warning Signs | Identify common obstetric warning signs and symptoms<br>Outline a transfer plan to a facility with OB service |
| 3 | Triage and Assessment | Describe triage for spontaneous rupture of membranes<br>Describe common pregnancy discomforts |
| 4 | Preterm Labor and Assessment | Define terminology related to labor assessment<br>Apply terminology to assessment of patient |
| 5 | Trauma—Triage and Transfer | When managing pregnant trauma patients, participants will be able to:<br>Delineate incidence of trauma<br>Describe the mechanism of trauma<br>Describe assessment and triage of trauma patients<br>Describe steps in patient stabilization |
| 6 | Maternal and Fetal Transport | Review the following related maternal and fetal transport:<br>Background need for Maternal and Neonatal Transport<br>Neonatal and Maternal Levels of Care<br>Emergency Medical Treatment and Labor Act<br>Indications and barriers to transport<br>Stabilization and transport<br>Key interventions in special situation |
| 7 | Managing the Third Stage of Labor | Describe preparation needed for a vaginal delivery in a rural emergency room<br>Describe supplies needed for vaginal delivery<br>Discuss proper technique to assist with a vaginal delivery<br>Identify medication and dosages used to manage third stage of labor<br>Explain initial newborn assessment |
| 8 | Implicit Bias and Culturally Responsive Care | Identify how implicit bias is manifested in the health care setting<br>Recognize and identify strategies to mitigate one's own implicit biases |
| 9 | History of Racism in Gynecology | Define systemic racism<br>Discuss the historical context for required documented informed consent for sterilization and other operations in the United States<br>Describe how social opinions and eugenics have influenced contraception options in the United States |
| 10 | Postpartum Hemorrhage | Identify the causes of Postpartum Hemorrhage<br>Describe management options for postpartum hemorrhage |
| 11 | Hypertensive Disorders of Pregnancy | Know the impact of Hypertensive Disorders of Pregnancy (HDP) on morbidity and mortality<br>Define terminology and understand the diagnostic criteria for HDP<br>Describe the management guidelines for HDP.<br>Discuss Association of Women's Health, Obstetrical and Neonatal Nursing (AWHONN) Post-Birth Warning Signs Brochure |
| 12 | Fetal Movement—Count the Kicks | Identify benefits of fetal movement counts and resources available |

Racial disparities and outcomes were also covered in the didactic session. The report from CDC in 2020, shows the maternal mortality rate for non-Hispanic Black women was 2.9 times the rate for non-Hispanic White women.[10] This report

highlights the disproportionate increase in maternal mortality in the non-Hispanic Black and Hispanic maternal population especially from 2019 to 2020.[10] The purpose for including this content was to identify the history of racism in health care, how bias manifests in the health care setting, and identify strategies to mitigate one's own implicit biases.

## ED OB RESOURCE BINDER

During each didactic session, facilities were encouraged to create an OB Resource Binder with content from the current session as well as add their own guidelines, protocols, and checklists to facilitate access to information when needed. Many of the resources recommended for the OB resource binder were readily available from professional organizations or existing quality collaboratives. The recommended content for the pregnancy, delivery, and postpartum sections are listed in Table 2. Health care has learned from the aviation industry about using safety checklists. Flight preparation in aviation is a well-known example, as pilots and air-traffic controllers follow pretakeoff checklists regardless of how many times they have conducted the tasks involved. A checklist is defined as "a list of items required, things to be done, or points to be considered, used a reminder."[11] A checklist has also been defined as an algorithmic listing of actions to be performed in a given clinical setting, the goal being to ensure that no step will be forgotten. Although a seemingly simple intervention, checklists have a sound theoretical basis in principles of human factors engineering and have played a major role in some of the most significant successes achieved in the patient safety movement.[12] The ACOG Committee Opinion Summary, Number 792 states:

(1) Protocols and Checklists have been shown to reduce patient harm through improved standardization and communication.
(2) The use of checklists and protocols have clearly been demonstrated to improve outcomes and their use is strongly encouraged.
(3) Refinement and sophistication of checklists has shown decreased morbidity and mortality by meeting standard of care.[13]

One toolkit recommended for the binder was the Post-Birth Warning Signs from Association of Women's Health, Obstetrical and Neonatal Nursing (AWHONN).[14] The warning sign document helps postpartum patients know when to seek routine or emergent medical care. Including

***TABLE 2. Suggested Content for Emergency Department Obstetric Resource Binder***

| Pregnancy | Delivery | Postpartum |
|---|---|---|
| Labor | Vaginal Delivery Steps | Bleeding |
| Fetal Heart Rate and Contractions | Complications | Preeclampsia |
| Preeclampsia | Nuchal cord | Signs/Symptoms |
| Assessment | Shoulder dystocia | Labs |
| Labs | Placenta delivery | Treatment |
| Treatment | Fundal Assessment | Mental Health issues: |
| Backpain | Hemorrhage | Depression |
| Nausea/Vomiting | Management | Anxiety |
| Mental health issues | Medications available | Documentation checklist |
| | Newborn Assessment | |
| | Vital signs values | |
| | APGAR | |
| | Thermoregulation | |
| | Documentation checklist | |

this content allowed the ED staff to be aware when postpartum patients present with these signs and symptoms. The OB Resource Binder with facility specific guidelines, protocols, and checklists were designed to have information readily available and improve care during high stress, low frequency, and high-acuity events.

## HANDS ON TRAINING

The final component of the curriculum was a site visit. The faculty for the site visit included 1 rural critical access RN, 2 tertiary RNs, an OB anesthesiologist, and a family medicine physician. This consisted of a previsit virtual meeting, site visit including skills training and simulation, and postvisit follow-up.

In November 2020, the Emergency Nurses Association (ENA) and AWHONN released a consensus statement regarding OB emergency simulations. They noted OB emergencies are rarely practiced in the ED which leads to chaotic care. They recommended practice as the solution to improve safety and coordinated care the ED for pregnant and postpartum patients.[15] In addition, The University of Minnesota Rural Health Research Center completed a survey in November 2020 the key findings were ED staff required better resources and training and simulation with skills training was the most requested method of training. Both of these publications supported the design of using skills training and simulation to prepare the EDs to care for pregnant and postpartum patients. The site visit faculty choose to simulate the most common types of events and emergencies the ED might experience and previously covered in the didactic sessions.

## PREVISIT

The previsit meeting format was adapted from the Iowa Statewide Obstetric Mobile Simulation Program. This meeting with the rural ED leadership allowed for introductions, planning, review of the agenda, program objectives, and set expectations for both the ED staff and the site visit faculty. A previsit checklist was reviewed (Table 3). After the initial meeting, additional communication occurred to seek clarification as needed from both the rural ED and the site visit faculty. The previsit meeting was the beginning of the working relationship and helped to set the tone for a successful event.

## SITE VISIT

On-site visits were developed for 2 different ED groups to attend at 1 site visit. During each 3-hour site visit, an interdisciplinary group completed skills training and the corresponding simulation a for a total of twice. The full site visit agenda is outlined in Table 4.

## SET UP

During set up, the site visit faculty and ED leadership prepared skills stations and the simulation room. This allowed for identification of any additional resources and troubleshooting of audiovisual equipment. De-bugging is when the scenario and simulator are practiced to work out any

***TABLE 3. Previsit Checklist***

| Topic | Details |
|---|---|
| Emergency Department (ED) Simulation Teams | Include staff from all disciplines working on any given shift |
| Prework | Review recorded didactics<br>Provide ED guidelines and management plans to site visit facilitators |
| Training Location | In situ preferred; conference room needed for debrief |
| Skills Stations | Required space, equipment, and supplies |

***TABLE 4. Site Visit Agenda***

| Time | | Session Details |
|---|---|---|
| 9:30–10:30 AM | | Set up |
| 10:30–11:30 AM | | De-bug with local facilitators |
| 11:30–12:00 PM | | Lunch |
| 12:00–1:30 PM | Session 1 | Vaginal delivery and hemorrhage skills station<br>Simulation and debrief |
| 1:30–3:00 PM | | Warning Signs and medication skills station<br>Simulation and debrief |
| 3:00–3:15 PM | | Break |
| 3:15–4:45 PM | Session 2 | Vaginal delivery and hemorrhage skills station<br>Simulation and debrief |
| 4:45–6:15 PM | | Warning Signs and medication skills station<br>Simulation and debrief |
| 6:15–6:30 PM | | Wrap up, tear down |

technical difficulties. This is typically done when building new simulation scenarios. This de-bugging was to guarantee everything was working properly in situ. Having the ED leadership participate in the simulation de-bugging gave them an understanding of the experience their staff would have and allowed the site visit faculty to test the high-fidelity simulator and set the recording equipment appropriately. In addition, other equipment and resources were gathered and potential issues were discussed.

## SKILLS TRAINING

The skills training was accomplished by dividing attendees into groups of 5 to 6 people. Each group rotated through the various skills training stations spending about 20 minutes at each. The skills stations provided hands on training by expert faculty. Task trainers, medication administration and various OB skills were practiced. A complete list of skills, objectives and trainers and props are listed in Table 5. While engaging in the skills training, the site visit faculty noted a benefit in this intimate setting. The ED staff took the opportunity to seek clarification, share experiences, and ask questions about caring for pregnant and postpartum patients.

Simulations to begin, the teams were given an orientation to the birthing simulator, the environment, expectations were reviewed, roles were assigned, report was given, and the simulation began. All ED staff attending the site visit program participated in four OB simulated events. These included precipitous delivery, hemorrhage, hypertensive crisis, and eclampsia. The case scenarios and learning objectives are outlined in Table 6. Following the skills training, the ED staff was divided into 2 teams, 1 to provide care to the simulated patient and 1 to actively observe the simulation. Because of the number of ED staff attending each session, the role of active observer was utilized. The active observers were given the simulation scenario. They were instructed to virtually assume their role throughout the simulation, actively anticipate, and plan what they would do next in this situation. Both teams were included in the debriefing.

The first simulation was a term precipitous vaginal delivery followed by a hemorrhage. The ED staff were able to put knowledge and skills into practice in a safe simulated environment. After the learning objectives were met the site visit faculty stopped the simulation and everyone proceeded to the conference room to participate in debriefing using the video recording. Site visit faculty who are trained in debriefing techniques led the debriefing. The ED staff

***TABLE 5. Skills Training***

| Clinical Scenario | Skills Station | Objectives | Trainers and Props |
|---|---|---|---|
| Vaginal Delivery | Cervical exam | Demonstrate cervical exam | Cervical exam model<br>Dilation guide<br>Gloves<br>Lubricant/powder |
| | Delivery | Complete a simulated vaginal delivery using correct hand positioning and techniques | Birthing simulator<br>Gloves<br>Lubricant/powder<br>Transport cart/table |
| Hemorrhage | Fundal Assessment | Demonstrate fundal assessment and massage and will accurately weigh blood loss | Cantaloupe<br>Balloon<br>Pillowcases<br>Pelvis<br>Blood clots<br>Pads<br>Fake blood |
| | Blood Loss Assessment | Identify benefit of weighing compared with estimating blood loss | Visual blood loss activity<br>Scale<br>Premeasured items |
| | Medications | Identify medications and doses for hemorrhage | Hemorrhage management plan<br>Medications<br>Dose reference cards |
| Post-Birth Warning Signs Hypertension Eclampsia | Warning Signs | Identify the steps outlined in facility protocol for treating an OB patient with severe hypertension | Algorithms references<br>Interactive activity |
| | Medications | Associate the correct medication with the dosage while verbalizing use and contraindications | Hypertension treatment plan<br>Medications<br>Dose reference cards |

OB indicates obstetrics.

identified how the objectives were met or not met, gaps in practice, issues, and opportunities for improvement. The site visit faculty tracked these items to share with the ED leadership for future improvements during the planned follow-up contact.

After the first debriefing was finished, the second set of skills training was started. As the skills training was finishing, the ED staff was notified their previous OB patient from 2 weeks ago was being readmitted with a headache and not feeling well. The ED staff switched between care team and active observers and the second simulation began. The same debriefing format was followed this simulation.

At this point the first session was over. This group was asked to complete an electronic evaluation. The site visit faculty reset the skills training stations and simulation equipment and the entire process was repeated with a new group of ED staff.

## EVALUATION

Evaluations for the didactic and hands on learning were distributed after each session electronically. Improvements were made throughout to increase the number of participants providing feedback, such as adding a QR codes to flyers and emailing ED leadership the survey for them to distribute the evaluation. Overall,

***TABLE 6. Simulation Scenarios and Objectives***

| Clinical Case | Precipitous Term Delivery and Hemorrhage | Hypertension Eclampsia |
|---|---|---|
| Case Scenario Stem | Gravida 5 Para 4 was in route to birthing facility in labor but suddenly felt a gush of clear fluid, immediately started having strong contractions and didn't think there was time to make it any further so decided to stop at your emergency department for care.<br>It is now 30 minutes after delivery and is time for your next assessment. Patient states, "I feel like there is more fluid coming out that is normal" | Same patient, now Gravida 5 Para 5, presents to your ED after delivering 2 days ago. She is complaining of an increased headache. States "I just don't feel right" |
| Objectives | Complete the vaginal delivery while supporting the patient and family<br>Recognize and treat postpartum hemorrhage using facility protocol<br>Identify when patient condition is stable and appropriate transfer to an OB unit | Identify signs and symptom of preeclampsia and seizure risk<br>Implement treatment for hypertension using the facility protocol<br>Identify when patient condition is stable and appropriate transfer to an OB unit |

ED indicates emergency department; OB, obstetrics.

the program was well received by ED leadership and staff attending the program. One didactic participant said "It was great! I find it very helpful in many ways. Being in the ER you lose contact with OB skills so it's nice to have refreshers especially when everyone gets terrified of the thought of an OB coming in." The site visit comments and ratings were favorable as well. All who completed the survey reported agreeing or strongly agreeing to the statement "Based on what I learned during this educational activity, I am better skilled as an ED team member in the care of pregnant patients."

## Conclusion

Preparation of and readiness for rural ED teams to care for pregnant and postpartum patients is a critically essential in health care today. The closure of birthing units is causing maternity desserts and longer distances to birthing facilities. This along with rising morbidity and mortality in the OB population means that ED teams must be ready to provide emergent, critical OB care despite the lack of delivery service in many rural hospitals. In this chapter, we describe the Iowa Statewide Obstetric Mobile Simulation Program comprehensive framework and program to prepare rural teams with knowledge, skill training and practice, and simulation to ready the rural EDs to better care for pregnant and postpartum patients.

## Acknowledgments

Many training materials were adapted from the Maternal Health Learning & Innovation Center. The authors thank to the Maternal Health Learning & Innovation Center for sharing these resources. Special thanks to Kokila Thenuwara, MD, Amy Dunbar BSN, Jeff Quinlan MD, and Stephanie Stewart PhD for their support of this program and with this article.

## References

1. Iowa Department of Public Health. Access to Obstetrical Cre in Iowa: A Report to the Iowa State Legislatrue-2020. OBCareinIowa_2020LegislativeReport.

2. Druzin M, Shields L, Peterson N, et al Improving Health Care Response to Hypertensive Disorders of Pregnancy, a California Maternal Quality Care Collaborative Quality Improvement Toolkit, 2021.
3. Access to Obstetric Services in Rural Communities (ruralhealthresearch.org).
4. Healthy Moms. Strong Babies 2020-Maternity-Care-Report-eng.pdf (marchofdimes.org).
5. Carrel M, Keino BC, Ryckman KK, Radke s. Labor & delivery unit closures most impact travel times to birth locations for micropolitan residents in Iowa. *J Rural Health*. 2022; Epub ahead of print. PMID: 34978349. doi:10.1111/jrh.12643.
6. Kozhimannil KB, Interrante JD, Tuttle MS, et al. Local capacity for emergency births in rural hospitals without obstetrics services. *J Rural Health*. 2021;37:385–393.
7. Kozhimannil KB, Interrante JD, Admon LK, et al. Rural hospital administrators' beliefs about safety, financial viability, and community need for offering obstetric care. *JAMA Health Forum*. 2022;3: e220204. 25 Mar. 2022. doi:10.1001/jamahealthforum.2022.0204
8. Gaba DM. The future vision of simulation in healthcare. *Simul Healthc*. 2007;2:126–135.
9. Pregnancy-related Deaths. *Centers for Disease Control and Prevention*. 14 May 2019. http://www.cdc.gov/vitalsigns/maternal-deaths/index.html.
10. Maternal Mortality Rates in the United States, 2020 (cdc.gov).www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm. Accessed May 31, 2022
11. Checklist. *The Merriam-Webster.com Dictionary* www.merriam-webster.com/dictionary/checklist. Accessed May 31, 2022.
12. Checklist *PSNet*, 7 Sep. 2019, psnet.ahrq.gov/primer/checklists.
13. Clinical Guidelines and Standardization of Practice to Improve Outcomes. ACOG Committee Opinion, Number 792. *Obstet Gynecol*. 2019;134:e122–e125.
14. POST-BIRTH Warning Signs Education Program – AWHONN 2 Sep. 2022. http://www.awhonn.org/education/hospital-products/post-birth-warning-signs-education-program.
15. Emergency Care for Patients During Pregnancy and the Postpartum Period: Emergency Nurses Association and Association of Women's Health, Obstetric and Neonatal Nurses Consensus Statement *AWHONN*, 1 Aug. 2020. http://www.awhonn.org/news-advocacy-and-publications/awhonn-position-statements.

# TRIAGE OF PREGNANT PATIENTS IN EMERGENCY DEPARTMENT (WITHOUT OBSTETRIC COVERAGE)

**Pregnant patient presents to emergency department**

**Obtain patient's EDD (due date) to determine gestational age (GA)**

**AND**

**Symptoms that could be pregnancy-related?**
(headache, visual changes, shortness of breath, abdominal pain, cramping, contractions, abdominal trauma, vaginal bleeding/discharge, decreased fetal movements)

**GA < 20 weeks with/without possible Pregnancy-related symptoms**

Usual ED care

**GA ≥ 20 weeks WITH possible Pregnancy-related symptoms**

**Prompt evaluation should include:**
OB history ($G_?P_?$)
Vital signs
Fetal heart rate via handheld Doppler or US
Pelvic exam for cervical dilation
*Digital exam is acceptable in absence of vaginal bleeding, rupture of membranes, known vasa previa, or known placenta previa*
+/- Labs (including CBC and CMP if hypertension)
+/- POCUS for fetal presentation

**Ideally within 15 minutes of patient's arrival**

Call appropriate transfer center for higher level of obstetric/neonatal care

**Call should NOT be delayed for labs, US**

**OneCall for MaineHealth Maine Medical Center:** (207) 662-6632
for transfer to MMC Portland or consultation with Maternal-Fetal Medicine

**Northern Light Integrated Transfer Center for Eastern Maine Medical Center:** (207) 973-9000
for transfer to Northern Light EMMC or consultation with OB/GYN

**may be suitable for transfer to local hospital with OB coverage at later GA*

**GA ≥ 20 weeks Without possible Pregnancy-related symptoms**

Usual ED care

*Clinical guidelines translate best evidence into best practice. If concurrent conditions and/or special circumstances exist, patient care can, **and** should be, individualized. Please consider this guidance as only suggestions for clinical care, not mandates.*

**POSTPARTUM patients:**
If within **6 weeks** of delivery with: fever/chills, breast pain, chest pain, SOB, abdominal pain, heavy vaginal bleeding, BP ≥160/110 mmHg, dehiscence or infection of perineal laceration or cesarean incision

Call appropriate transfer center above for OB/GYN consultation and/or transfer (if indicated)

Revised 11.8.2024

**For treatment of hypertension, refer to Hypertensive Disorders in Pregnancy guideline available at: https://www.mainehealth.org/health-care-professionals/clinical-guidelines-protocols/obstetrical-perinatal-guidelines**

## POTENTIAL ANTEPARTUM MEDICATIONS
**Only administer if advised to do so by MFM or OB/GYN**

**FOR fetal lung maturity:**
Betamethasone 12 mg IM for single dose **(preferred)**
**OR** Dexamethasone 6 mg IM for single dose

**FOR tocolysis of contractions:**
Indomethacin 50 mg PO for single dose **(only if < 32w0d)**
**OR** Nifedipine 20 mg PO for single dose

**FOR Group B strep (GBS):**
Penicillin G 5 million units IV **OR** Ampicillin 2 grams IV for single dose
**IF low-risk penicillin allergy (e.g., isolated rash without urticaria)**
Cefazolin 2 g IV x 1 dose
**IF high-risk penicillin allergy (e.g., urticaria, anaphylaxis)**
Clindamycin 900 mg IV x 1 dose

**FOR neuroprotection:**
for GA < 32w0d to
↓risk of cerebral palsy
Magnesium sulfate 4 gm bolus, followed by 1 gm/hour
**Bolus:** 4 gm in 100 mL NS, infuse once (over 15-20 minutes)
**Maintenance:** 2 gm in 500 mL NS, infuse at rate of 25 mL/hr

**FOR seizure prophylaxis:**
for preeclampsia/eclampsia
Magnesium sulfate 4 gm bolus, followed by 2 gm/hour
**Bolus:** 4 gm in 100 mL NS, infuse once (over 15-20 minutes)
**Maintenance:** 2 gm in 500 mL NS, infuse at rate of 50 mL/hr

**Calcium gluconate 10% (1 gm) available for magnesium toxicity**

Alternative: Magnesium sulfate 10 gm, intramuscular
*Administer 5 gm in each buttock. Mix with 1 mL 2% xylocaine.*

## Potential POSTPARTUM Medications
**Recommend discussion with OB/GYN prior to administration**

**FOR postpartum hemorrhage:**
*May include one or more of the following options:*
Methergine 0.2 mg IM for single dose **(avoid with hypertension)**

Carboprost 250 mcg IM for single dose **(avoid with asthma)**

Misoprostol 800 mcg per rectum for single dose

Tranexamic acid (TXA) 1 gm IV for single dose

**FOR seizure prophylaxis:**
for preeclampsia/eclampsia
Magnesium sulfate 4 gm bolus, followed by 2 gm/hour
**Bolus:** 4 gm in 100 mL NS, infuse once (over 15-20 minutes)
**Maintenance:** 2 gm in 500 mL NS, infuse at rate of 50 mL/hr

**Calcium gluconate 10% (1 gm) available for magnesium toxicity**

Alternative: Magnesium sulfate 10 gm, intramuscular
*Administer 5 gm in each buttock. Mix with 1 mL 2% xylocaine.*

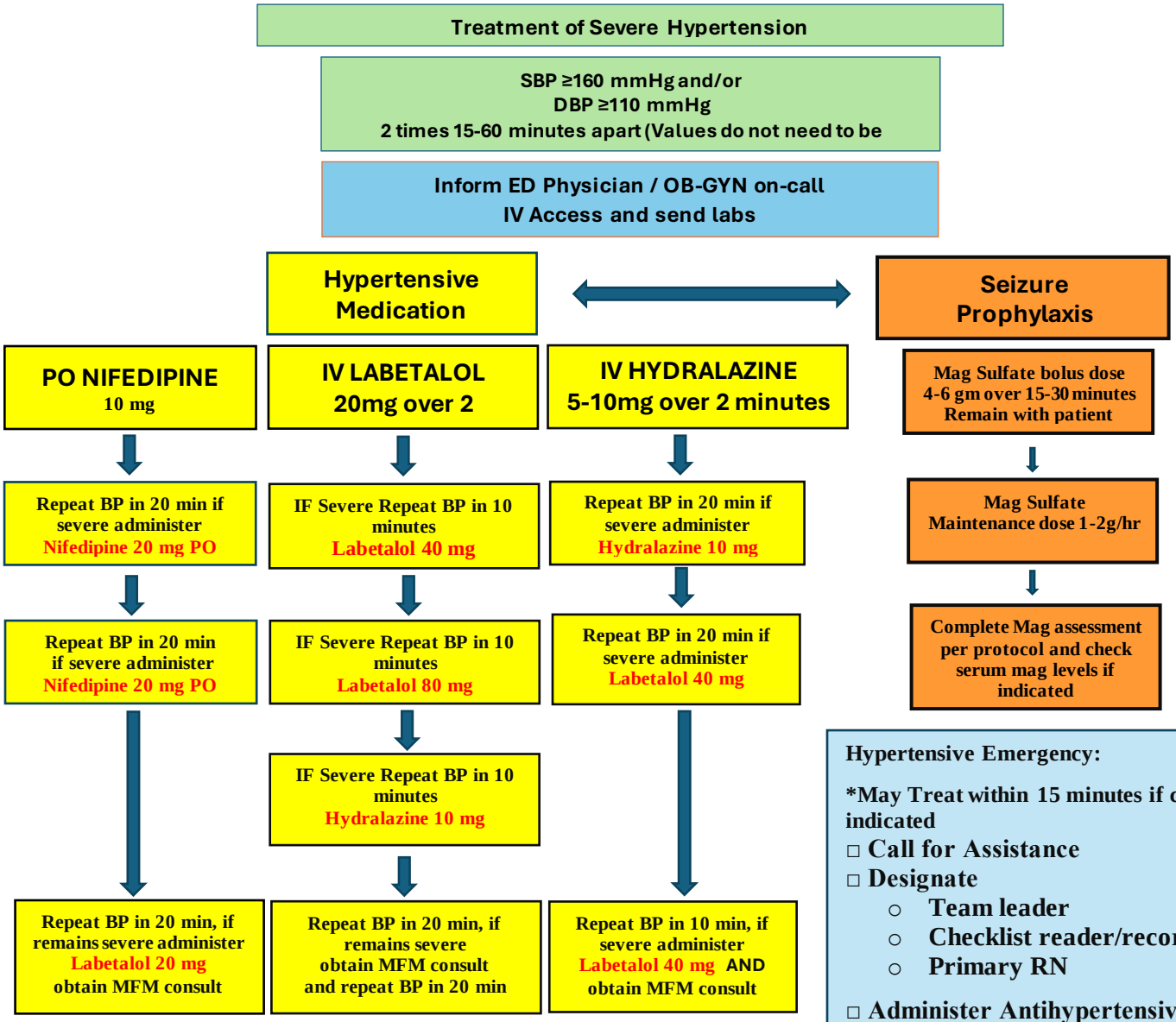
# OB Patients Requiring Transfer

| | |
|---|---|
| ≥36 weeks OR likely to delivery prior to reaching higher level of care | • [Hospital name]<br>• [contact #] |
| ≥34 weeks OR likely to delivery prior to reaching higher level of care | • [Hospital name]<br>• [contact #] |
| ≥20 weeks | • [Hospital name]<br>• [contact #] |

*Hypertensive OB Emergency*

**Hypertensive Emergency:**

*Persistent hypertension that can occur antepartum, intrapartum, or postpartum, defined as 2 severe blood pressures SBP≥ 160 or DBP≥110 taken 15-60 minutes apart in which severe values don't need to be consecutive*. **Please note: This is considered an emergency in the OB population- the following algorithm should be IMMEDIATELY applied.**




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

***Note: If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended***

**Hypertensive Emergency:**

***May Treat within 15 minutes if clinically indicated**

- □ **Call for Assistance**
- □ **Designate**
  - **Team leader**
  - **Checklist reader/recorder**
  - **Primary RN**
- □ **Administer Antihypertensive therapy within 1 hour for persistent severe range BP**
- □ **Administer seizure prophylaxis (*magnesium sulfate* first line agent, unless contraindicated)**

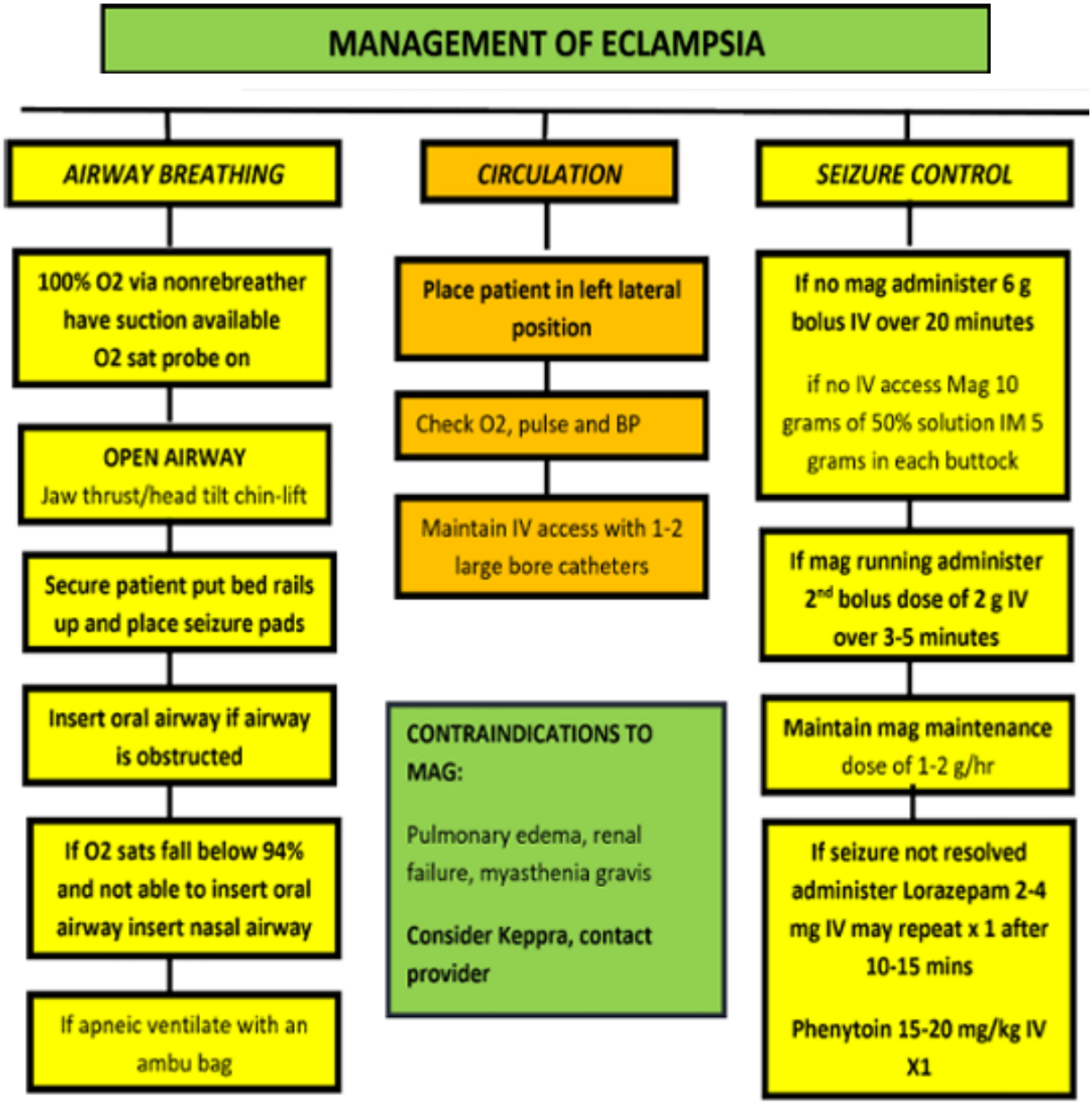
**Ensure Side rails up / padded**

**Ensure O2 and suction readily available**

- ☐ **Doppler fetal heart tones**
- ☐ **Place IV/draw Preeclampsia labs**
- ☐ **Strict I&O (place catheter)**

**Eclamptic Seizure:**

Once a patient with preeclampsia or severe range blood pressures seizes, they now meet criteria for eclampsia. **Manage as below and contact OB immediately.**




-Eclamptic seizures tend to be self-limiting and last around 90-120sec

-If you choose to check the fetal heart rate after a seizure it is likely to be low until after the pregnant patient has fully reoxygenated

***For magnesium toxicity give calcium gluconate 1 gram IV over 3 minutes or calcium chloride 500 mg of 10% calcium chloride IV given over 5 – 10 minutes.***

# OB/Newborn Care Guide

## If transfer is not feasible and delivery is to occur in the ED:

### Labor Assessment

| | | |
|---|---|---|
| Gain IV access (18g recommended) | | **In the event of an obstetrical emergency or deteriorating patient status:**<br><br>**Reconsult OB for immediate guidance AND**<br><br>**Anticipate need for rapid critical care transport to NEAREST OB facility**<br><br>Plan to send RN on transport |
| VS Q1hr if stable (BP, HR, RR, T, SaO2): if BP≥160/110 consult hypertensive crisis guide, maintain SaO2>95% | | |
| Assess bleeding Q1hr: bloody mucous and small amounts of bleeding is normal | | |
| Assess amniotic fluid Q1hr if membranes are ruptured: clear/yellow is normal, green/brown indicates meconium, pink/red indicates blood | | |
| **DO** | Encourage PO hydration | |
| | Consider IV hydration of LR or NS @125mL/hr if pt unable to tolerate PO | |
| | Allow patient to position themselves for comfort | |
| | Support patient in controlled breathing | |
| | Perform cervical exam (provider) after rupture of membranes to rule out cord prolapse | |
| **AVOID** | Cervical exams that won't change management | |
| | Flat supine positioning | |
| | Administering anesthesia or IV analgesics | |
| | Continuous monitoring of fetal heart rate by handheld doppler or US | |

### Prepare for Delivery

| | | |
|---|---|---|
| Delivery Personnel | Provider | |
| | 2 RNs ideal (one to support patient, one to document and assist provider) | |
| Delivery Equipment/Supplies | Delivery pack (minimum 10 raytecs, underbuttock drape, 2 blue sterile towels, PPE) | Hemorrhage medications (see PPH guide for dosing and administration): 10units IM **pitocin**, 1g IV **TXA**, 0.2mg IM **methylergonovine**, 250 mcg IM **carboprost**, 800mcg **misoprostol** |
| | Instrument kit (minimum 2 kellys, 1 bandage scissor, 1 mayo scissor, 1 needle driver, 1 ring forcep) | |
| | Sutures 3-0 vicryl | |
| Newborn Personnel | At least 2 clinicians with current NRP provider status (consider hospital wide resources including RT, anesthesia, clinical supervisors) | |
| Newborn Equipment/Supplies | Radiant warmer (turned on and set up)<br>Newborn stethoscope<br>Bulb suction open and available<br>Warm blankets (4-5)<br>Newborn hat (2 in case first gets soiled)<br>10F suction catheter & suction tubing<br>Oxygen tubing<br>BVM device and tubing (T-piece, self inflating bag, flow-inflating bag)<br>Newborn mask<br>Pulseox probe<br>Laryngeal mask airway (LMA) | |

# OB/Newborn Care Guide

| | | |
|---|---|---|
| **Time of Delivery** | | Place underbuttock drape under patient |
| | | Allow patient to push when cervix is 10cm dilated (cervix should not be palpable at all) |
| | | Coach patient to push only with contractions (normal duration of pushing ranges from a couple pushes to 4 hrs) |
| | | Note and document time of fetal head delivery |
| | | Note and document time of fetal body delivery (this is the official time of birth if the two times are different) |
| | | Place newborn immediately on birthing patient's abdomen (or wherever the length of the umbilical cord will allow without undue strain on the cord) |

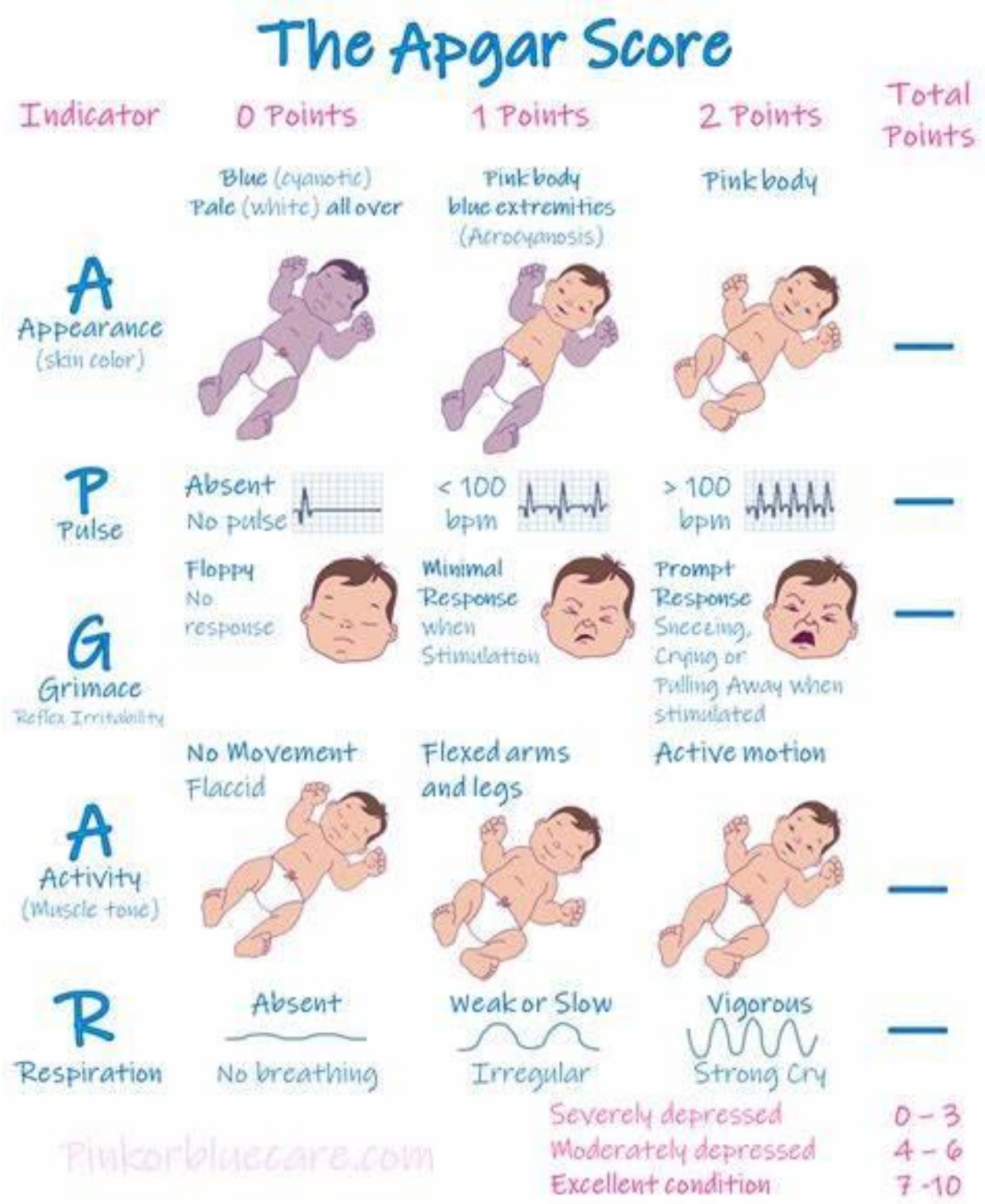
**TURN PAGE FOR IMMEDIATE NEWBORN CARE**

| | | |
|---|---|---|
| **Post Delivery Care** | Provider | Apply gentle traction to clamped & cut umbilical cord (just the weight of the hand on clamp is adequate) |
| | | Request administration of 10units IM Oxytocin (Pitocin) |
| | | Provide Fundal massage to encourage placental detachment |
| | | Deliver placenta slowly, ensuring complete & intact delivery |
| | | Assess perineum for lacerations, repair as needed |
| | RN | Administer 10units IM Oxytocin (Pitocin) |
| | | Assess VS Q15 x2hrs |
| | | Massage fundus Q15 min x 2hrs |

If fundus is NOT firm, active bleeding continues, or patient becomes symptomatic for hypovolemia, reference the Obstetric Hemorrhage Checklist for guidance

# OB/Newborn Care Guide

<table>
<tr><td rowspan="7">Birth→ 5 min</td><td colspan="2">Dry & Stimulate Newborn</td><td rowspan="3">Normal Vitals:<br>Respiratory rate: 30-60 (auscultation)<br>Heart Rate: 120-160 (auscultation)<br>Temperature: 36.5-37.5°C<br><br>Blood Glucose:<br>≥40 within 4hrs of birth<br>≥45 after 4hrs of life</td></tr>
<tr><td colspan="2">Assess for breathing:</td></tr>
<tr><td rowspan="2">NOT Breathing<br>Or weak respiratory effort</td><td>Clamp/cut cord<br>Move newborn to warmer<br>STOP→ Move to NRP algorithm</td></tr>
<tr><td rowspan="3">Breathing/ crying</td><td>Keep infant skin to skin<br>Delay clamping cord for 60 seconds</td></tr>
<tr><td colspan="2">Assess HR (crying typically ensures a HR >100)</td></tr>
<tr><td colspan="2">Continue routine newborn care- maintain skin to skin as much as possible</td></tr>
<tr><td rowspan="3">Within 15 minutes</td><td colspan="3">Asses full set of VS (RR, HR and Temp): initial elevations in HR and RR can be normal and transient- continue to monitor</td></tr>
<tr><td colspan="3">Assign APGAR scores at 1 and 5 minutes of life (guide on page 4)<br>This can be done retrospectively as it should not be prioritized over initial assessment</td></tr>
<tr><td colspan="3">Ensure continued skin to skin (dry infant and parent if needed, apply hat and dry linens)</td></tr>
<tr><td rowspan="4">30-45 minutes</td><td colspan="3">Assess VS Q30 minutes x 2hrs- see page 6 if temp <36.5°C</td></tr>
<tr><td colspan="3">Review indications for checking blood glucose (page 5)</td></tr>
<tr><td colspan="3">Feed infant by parent's preferred method (breast or formula)- see guidance below</td></tr>
<tr><td colspan="3">Maintain skin to skin contact as continuously as possible</td></tr>
<tr><td rowspan="5">60-90 minutes</td><td colspan="3">Perform heelstick for blood glucose check if indicated (ideally AFTER feeding)</td></tr>
<tr><td colspan="3">Weigh infant (in grams)</td></tr>
<tr><td colspan="3">Administer IM Vitamin K and erythromycin (ophthalmic ointment)</td></tr>
<tr><td colspan="3">Place identification on newborn</td></tr>
<tr><td colspan="3">Ensure the birth certificate worksheet has been signed by provider</td></tr>
<tr><td></td><td colspan="3"></td></tr>
<tr><td rowspan="3">Feeding Guidance</td><td colspan="2">Breastfeeding:</td><td>Formula feeding:</td></tr>
<tr><td colspan="2">Allow infant to breastfeed as long as they like (typical feeds range from 15-30 minutes)</td><td rowspan="2">5-10mL per feed<br>Separate volume into bottle or syringe to ensure not overfeeding</td></tr>
<tr><td colspan="2">If unable to latch infant or unsure of effectiveness of latch/feed, consider offering a one-time formula feed until additional feeding support can be offered at receiving facility</td></tr>
</table>




To be assigned at 1 and 5 minutes of life

# OB/Newborn Care Guide

## Blood Glucose Assessment Guide

| | |
|---|---|
| Indications for Blood Glucose Monitoring | Diabetic birth parent (Gestational diabetes, Type 1 and Type 2)<br>\<37 weeks gestational age<br>\<2.5kg or \<10 %ile for weight<br>>4kg or > 90%ile for weight<br>Any newborn resuscitation<br>Birth parent taking beta blockers<br>Any of the below symptoms |
| Frequency of assessment | Make all attempts to feed PRIOR to heelstick<br>Perform heelstick by 90 minutes of life (or sooner if symptoms noted)<br>Perform heelstick Q3hrs thereafter |
| Symptoms of neonatal hypoglycemia<br>(Neonatal hyperglycemia is unlikely and not the primary concern) | Hypothermia (\<36.5)<br>tremors, jitteriness, irritability<br>lethargy, limpness<br>eye-rolling, seizures, myoclonic jerks, coma<br>weak or high-pitched cry, poor feeding/suck or refusal to feed<br>cyanosis,<br>tachypnea, apnea, tachycardia, bradycardia<br>repeated vomiting |
| Normal Values | ≥40 within 4hrs of birth<br>≥ 45 after 4hrs of life |
| Treatment (if below target values) | Feed infant– Feeding guide located on page 1 in yellow<br>Contact receiving facility for additional guidance |

# OB/Newborn Care Guide

Axillary temp <36.5°C?

Place newborn skin to skin with parent (ensure both newborn and parent are dry), cover with warm, dry blankets, ensure dry hat is placed on newborn

Recheck axillary temp in 30 min

<36.5

Consult receiving facility

Move newborn to warmer

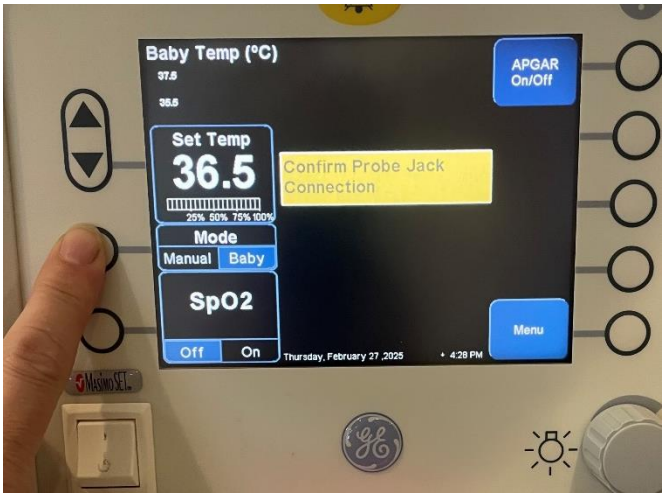
>36.5?

Continue to monitor and maintain skin to skin contact with parent as much as possible

Locate these items on your warmer

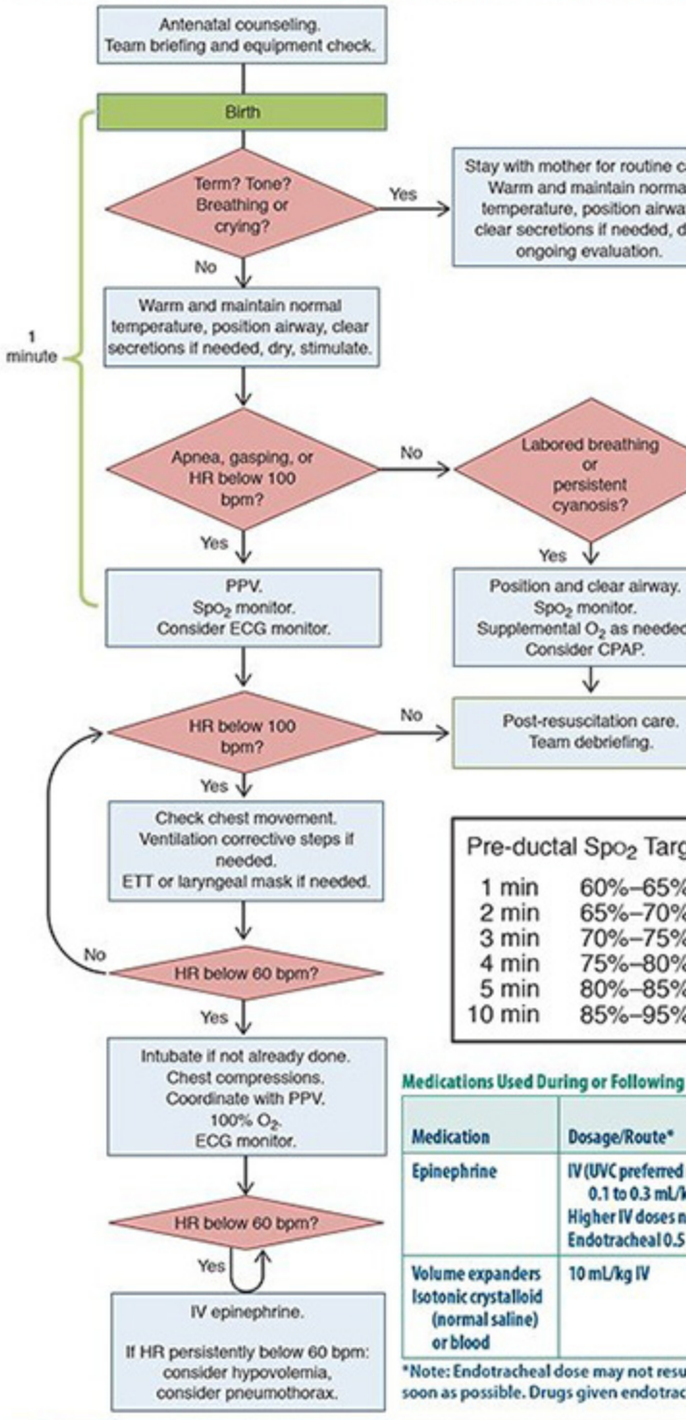
Connect probe cord to warmer. Place sticker over skin probe. Place sticker with probe on RUQ of newborn abdomen. Newborn should be in only diaper and hat-no blankets at this time.

On warmer screen: Select 'Baby' under mode, and set target temp to 37.0 °C



# Neonatal Resuscitation Program® - Reference Chart

## The most important and effective action in neonatal resuscitation is ventilation of the baby's lungs.




### Airway
- Put baby's head in "sniffing" position
- Suction mouth, then nose
- Suction trachea if meconium-stained and NOT vigorous

### B Breathing
- PPV for apnea, gasping, or pulse <100 bpm
- Ventilate at rate of 40 to 60 breaths/minute
- Listen for rising heart rate, audible breath sounds
- Look for slight chest movement with each breath
- Use $CO_2$ detector after intubation
- Attach a pulse oximeter

### C Circulation
- Start compressions if HR is <60 after 30 seconds of effective PPV
- Give (3 compressions: 1 breath) every 2 seconds
- Compress one-third of the anterior-posterior diameter of the chest

### D Drugs
- Give epinephrine if HR is <60 after 45 to 60 seconds of compressions and ventilation
- Caution: epinephrine dosage is different for ET and IV routes

### Corrective Steps

| | |
|---|---|
| M | Mask adjustment. |
| R | Reposition airway. |
| S | Suction mouth and nose. |
| O | Open mouth. |
| P | Pressure increase. |
| A | Airway alternative. |

### Pre-ductal $Spo_2$ Target

| | |
|---|---|
| 1 min | 60%–65% |
| 2 min | 65%–70% |
| 3 min | 70%–75% |
| 4 min | 75%–80% |
| 5 min | 80%–85% |
| 10 min | 85%–95% |

### Endotracheal Intubation

| Gestational Age (weeks) | Weight (kg) | ET Tube Size (ID, mm) | Depth of Insertion* (cm from upper lip) |
|---|---|---|---|
| <28 | <1.0 | 2.5 | 6-7 |
| 28-34 | 1.0-2.0 | 3.0 | 7-8 |
| 34-38 | 2.0-3.0 | 3.5 | 8-9 |
| >38 | >3.0 | 3.5-4.0 | 9-10 |

*Depth of Insertion (cm) = 6 + weight (in kg)

### Medications Used During or Following Resuscitation of the Newborn

| Medication | Dosage/Route* | Concentration | Wt (kg) | Total IV Volume (mL) | Precautions |
|---|---|---|---|---|---|
| Epinephrine | IV (UVC preferred route)<br>0.1 to 0.3 mL/kg<br>Higher IV doses not recommended<br>Endotracheal 0.5 to 1 mL/kg | 1:10,000 | 1<br>2<br>3<br>4 | 0.1-0.3<br>0.2-0.6<br>0.3-0.9<br>0.4-1.2 | Give rapidly.<br>Repeat every 3 to 5 minutes if HR <60 with chest compressions. |
| Volume expanders<br>Isotonic crystalloid (normal saline) or blood | 10 mL/kg IV | | 1<br>2<br>3<br>4 | 10<br>20<br>30<br>40 | Indicated for shock.<br>Give over 5 to 10 minutes.<br>Reassess after each bolus. |

*Note: Endotracheal dose may not result in effective plasma concentration of drug, so vascular access should be established as soon as possible. Drugs given endotracheally require higher dosing than when given IV.

American Heart Association®
life is why™

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®


Supported in part by Fisher & Paykel Healthcare
NRP326

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

# Appendix R: Medications for Postpartum Hemorrhage

| Medications for Postpartum Hemorrhage | | | | | | |
|---|---|---|---|---|---|---|
| **Drug** | **Dose** | **Route** | **Frequency** | **Side Effects** | **Contraindications** | **Special Storage Considerations** |
| Oxytocin (Pitocin™) 10 units/mL | 10-40 units per 500-1000 mL, rate titrated to uterine tone | IV infusion | Continuous | Usually none Nausea, vomiting, hyponatremia ("water intoxication") with prolonged IV admin. ↓ BP and ↑ HR with high doses, especially IV push | Hypersensitivity to drug | None |
| Methyler-gonovine (Methergine®) 0.2 mg/mL | 0.2 mg | IM (**not** given IV) | -q2-4 hours -If no response after first dose, it is unlikely that additional doses will be of benefit | Nausea, vomiting, severe hypertension, especially with rapid administration or in patients with HTN | Hypertension, Preeclampsia, Heart disease Hypersensitivity to drug **Caution** if multiple doses of ephedrine have been used, may exaggerate hypertensive response w/ possible cerebral hemorrhage | Refrigerate Protect from light |
| Carboprost (Hemabate®) (15-methyl PG F2a) 250 mcg/mL | 250 mcg | IM or intra-myometrial (**not** given IV) | -q15-90 min -If no response after 3 doses, it is unlikely that additional doses will be of benefit | Nausea, vomiting, diarrhea, fever (transient), headache, chills, shivering, hypertension, bronchospasm | Caution in women with hepatic disease, asthma, hypertension, active cardiac or pulmonary disease Hypersensitivity to drug | Refrigerate |
| Misoprostol (Cytotec®) 100 or 200 mcg tablets | 600-800 mcg | SL or PO | One time | Nausea, vomiting, diarrhea, shivering, fever (transient), headache | Rare Known allergy to prostaglandin Hypersensitivity to drug | None |
| Tranexamic Acid (TXA) | 1 gram | IV infusion (over 10 min) | -One dose within 3 hrs of hemorrhage recognition -A 2nd dose may be administered if bleeding continues after 30 min or if bleeding stops and then restarts within 24 hrs of completing the 1st dose | Nausea, vomiting, diarrhea, hypotension if given too rapidly | A known thromboembolic event in pregnancy History of coagulopathy Active intravascular clotting | None |

# Obstetric Hemorrhage Checklist

EXAMPLE

**Complete all steps in prior stages plus current stage regardless of stage in which the patient presents.**

**Postpartum hemorrhage is defined as cumulative blood loss of greater than or equal to 1,000mL or blood loss accompanied by signs or symptoms of hypovolemia within 24 hours. However, blood loss >500mL in a vaginal delivery is abnormal, and should be investigated and managed as outlined in Stage 1.**

## RECOGNITION:

☐ Call for assistance (Obstetric Hemorrhage Team)

Designate: ☐ Team leader _____ ☐ Checklist reader/recorder ☐ Primary RN

Announce: ☐ Cumulative blood loss ☐ Vital signs _____ ☐ Determine stage

**STAGE 1: Blood loss >1000mL after delivery with normal vital signs and lab values. Vaginal delivery 500-999mL should be treated as in Stage 1.**

## INITIAL STEPS:

☐ Ensure 16G or 18G IV Access
☐ Increase IV fluid (crystalloid without oxytocin)
☐ Insert indwelling urinary catheter
☐ Fundal massage

## MEDICATIONS:

☐ Ensure appropriate medications given patient history
☐ Increase oxytocin, additional uterotonics

## BLOOD BANK:

☐ Confirm active type and screen and consider crossmatch of 2 units PRBCs

## ACTION:

☐ Determine etiology and treat
☐ Prepare OR, if clinically indicated (optimize visualization/examination)

**Oxytocin (Pitocin)**:
10-40 units per 500-1000mL solution

**Methylergonovine (Methergine)**:
0.2 milligrams IM (may repeat);
**Avoid with hypertension**

**15-methyl $PGF_2\alpha$ (Hemabate, Carboprost)**:
250 micrograms IM (may repeat in q15 minutes, maximum 8 doses); **Avoid with asthma; use with caution with hypertension**

**Misoprostol (Cytotec)**:
800-1000 micrograms PR
600 micrograms PO or 800 micrograms SL

**Tone** (i.e., atony)
**Trauma** (i.e., laceration)
**Tissue** (i.e., retained products)
**Thrombin** (i.e., coagulation dysfunction)

**STAGE 2: Continued Bleeding (EBL up to 1500mL OR ≥ 2 uterotonics) with normal vital signs and lab values** *(*two or more uterotonics in addition to routine oxytocin administration; or ≥ 2 administrations of the same uterotonic)*

## INITIAL STEPS:

☐ Mobilize additional help
☐ Place 2nd IV (16-18G)
☐ Draw STAT labs (CBC, Coags, Fibrinogen)
☐ Prepare OR

## MEDICATIONS:

☐ Continue Stage 1 medications; consider TXA

**Tranexamic Acid (TXA)**
1 gram IV over 10 min (add 1 gram vial to 100mL NS & give over 10 min; may be repeated once after 30 min)

## BLOOD BANK:

☐ Obtain 2 units PRBCs (DO NOT wait for labs. Transfuse per clinical signs/symptoms)
☐ Thaw 2 units FFP

## ACTION:

☐ For uterine atony --> consider uterine balloon or packing, possible surgical interventions
☐ Consider moving patient to OR
☐ Escalate therapy with goal of hemostasis

**Possible interventions:**
- Bakri balloon
- Compression suture/B-Lynch suture
- Uterine artery ligation
- Hysterectomy

**Huddle and move to Stage 3 if continued blood loss and/or abnormal VS**

**Safe Motherhood Initiative**

ACOG The American College of Obstetricians and Gynecologists District II

Revised September 2020

## Stage 3: Continued Bleeding (EBL › 1500mL OR › 2 RBCs given OR at risk for occult bleeding/ coagulopathy OR any patient with abnormal vital signs/labs/oliguria)

### Initial Steps:

- ☐ Mobilize additional help
- ☐ Move to OR
- ☐ Announce clinical status (vital signs, cumulative blood loss, etiology)
- ☐ Outline and communicate plan

### Medications:

- ☐ Continue Stage 1 medications; consider TXA

### Blood Bank:

- ☐ Initiate Massive Transfusion Protocol (If clinical coagulopathy: add cryoprecipitate, consult for additional agents)

### Action:

- ☐ Achieve hemostasis, intervention based on etiology
- ☐ Escalate interventions

**Oxytocin (Pitocin):**
10-40 units per 500-1000mL solution

**Methylergonovine (Methergine):**
0.2 milligrams IM (may repeat);
**Avoid with hypertension**

**15-methyl $PGF_2\alpha$ (Hemabate, Carboprost):**
250 micrograms IM
(may repeat in q15 minutes, maximum 8 doses)
**Avoid with asthma;**
**use with caution with hypertension**

**Misoprostol (Cytotec):**
800-1000 micrograms PR
600 micrograms PO or 800 micrograms SL

**Tranexamic Acid (TXA)**
1 gram IV over 10 min (add 1 gram vial to 100mL NS & give over 10 min; may be repeated once after 30 min)

**Possible interventions:**

- Bakri balloon
- Compression suture/B-Lynch suture
- Uterine artery ligation
- Hysterectomy

## Stage 4: Cardiovascular Collapse (massive hemorrhage, profound hypovolemic shock, or amniotic fluid embolism)

### Initial Step:

- ☐ Mobilize additional resources

### Medications:

- ☐ ACLS

### Blood Bank:

- ☐ Simultaneous aggressive massive transfusion

### Action:

- ☐ Immediate surgical intervention to ensure hemostasis (hysterectomy)

### Post-Hemorrhage Management

- Determine disposition of patient
- Debrief with the whole obstetric care team
- Debrief with patient and family
- Document

Revised September 2020

# Emergent Vaginal Breech Delivery

## CAREFUL

**C** **C**heck for presenting part, dilation, and cord prolapse

**A** **A**sk for help
**A**wait delivery of umbilicus

**R** **R**otate the body for delivery of arms if needed

**E** **E**nter vagina to perform Mauriceau-Smellie-Veit (MSV) maneuver

**F** **F**lex the fetal head

**U** Back **U**p (maintain sacrum anterior)

**L** **L**ift baby onto abdomen

A

R

R

E

F


Revised July 2023 | CME2305560 | AAFP.org/Also

# Shoulder Dystocia

## HELPER$^4$

**H** Call for **H**elp early!

**E** **E**valuate and **E**xplain the clinical situation

**L** **L**egs – McRoberts maneuver

**P** Suprapubic **P**ressure

**E** **E**nter the birth canal posteriorly and assess the need for an **E**pisiotomy

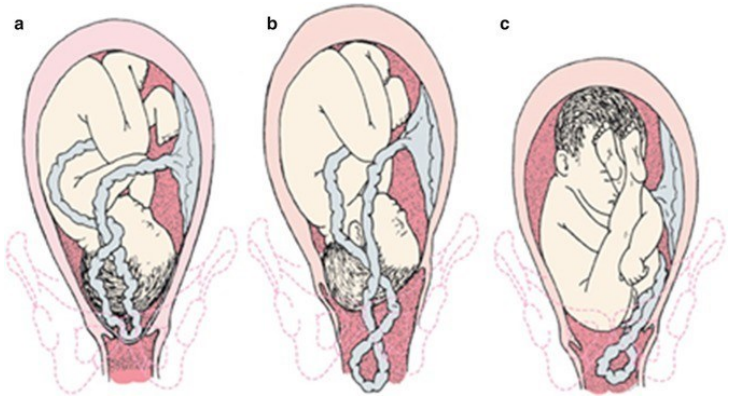
**R$^4$** **R**emove the posterior arm
**R**otational maneuvers
**R**oll the patient to hands and knees
**R**epeat

# Umbilical Cord Prolapse

## A True Obstetric Emergency

When the umbilical cord falls below the presenting part. This can cause cord compression between the fetus and maternal pelvis, cutting oxygen supply to the fetus.

If the cord protrudes from the vagina, cold and touch can cause the cord to spasm further occluding blood flow through the cord




## ED Management

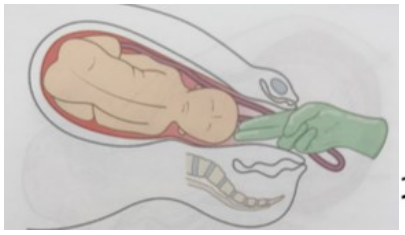
Contact OB and Pediatrics **immediately if available**

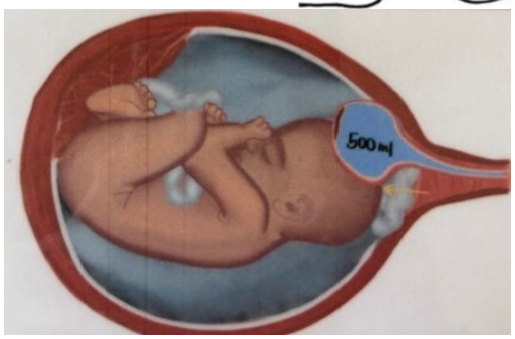
### Imminent Delivery

Cervix fully dilated, head visible, strong urge to push

**START PUSHING**

Anticipate the need for neonatal resuscitation upon delivery






### Not Imminent Delivery

Apply upward pressure on fetal head (pushing towards maternal head)

**Request IMMEDIATE transfer of patient to OB facility**

Keep cord in vagina but handle as little as possible

Consider warm damp cloth to cover cord if outside vagina

Consider placing indwelling urinary catheter and back-filling bladder with 500mL NS to lift fetal head off cord

Position patient in either:

- Deep trendelenberg
- Knee chest position

Consider giving 0.25mcg Terbutaline SC

[Insert Hospital Name and Logo]

☒ **POLICY** ☐ **PROCEDURE** ☐ **GUIDELINE**

| | |
|---|---|
| **Author:** | **Review Date:** |
| **Approver:** | **Next Review Date:** |
| **Executive Sponsor:** | |

**DEPARTMENT: Emergency Department**

**TITLE: Consultation and Care for Obstetrical Patients in the Emergency Department (ED)**

**SCOPE: MD, APP, PA, RN**

**POLICY SUMMARY:** The objective of this policy is to give direction to the **[HOSPITAL NAME]** ED clinical team in the assessment, care, and transport of obstetrical patients arriving to a non-obstetrical hospital.

**DEFINITIONS:**

**Insert Links to the following documents:**

**Appendix A ED Triage Algorithm**

**Appendix B OB Transfer Plan**

**Appendix C OB Care Guide**

**Appendix D Newborn Care Guide**

**Appendix E Management of OB Hypertensive Crisis**

**Appendix F Optimizing Patient and Fetal Status in OB Emergency**

**PROCEDURE:**

Upon arrival of a pregnant patient to the ED, regardless of time of day or day of week, the ED physician is to quickly assess the patient using the OB Triage Algorithm (Appendix A) and consult the appropriate OB service. The appropriate OB service is primarily

determined by gestational age and should be guided by the **[HOSPITAL NAME]** Transfer Plan (Appendix B)

In the event that a pregnant patient cannot be transferred out prior to delivery due to imminent birth, care should be provided in accordance with the OB Care Guide (Appendix C) and the Newborn Care Guide (Appendix D).

In the event that a pregnant patient cannot be transferred out due to medical instability, consultation with the OB service at the receiving facility should occur. Once stabilization has occurred, transport should be initiated.

If the instability is a hypertensive *crisis, care should be provided in accordance with the 'Management of OB Hypertensive Crisis' (Appendix E).'*

In the event that a pregnant patient experiences an obstetric emergency that can only be resolved with obstetric surgical intervention **immediate** consult to the appropriate OB service should occur, steps should be taken to optimize patient and fetal status (See Appendix F) and immediately arrange transport. Transport will require an RN.