Bridging the Gap:
Caring for Rural Georgia Moms

Preparing for Rural Obstetrical Emergencies

Phoebe

Southwest Georgia AHEC
Area Health Education Center

AUGUSTA UNIVERSITY
MEDICAL COLLEGE OF GEORGIA
Center for Telehealth

GEORGIA STATEWIDE AHEC NETWORK
becoming the best state to practice primary care

Bridging the Gap: Caring for Rural Georgia Moms

Beth Young, RN, BSN, RNC-OB/IAP, C-EFM, C-ONQS
Perinatal Nurse Manager
Wellstar MCG Health Medical Center

Bailey Creamer, PharmD
Director of Pharmacy
Emanuel Medical Center

Angie James, MSc, RRT, RRT-NPS
Wellstar MCG Health Medical Center

Phoebe

Southwest Georgia AHEC
Area Health Education Center

AUGUSTA UNIVERSITY
MEDICAL COLLEGE OF GEORGIA
Center for Telehealth

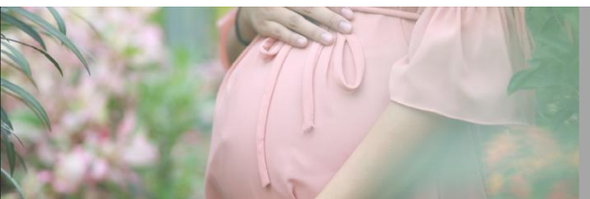
GEORGIA STATEWIDE AHEC NETWORK
becoming the best state to practice primary care

We are going to talk about OB Emergency Preparedness!

- Preparing your staff, equipment and processes to “Care For Mom”
- Awareness of preventable causes of maternal and fetal morbidity and mortality

Tomorrow

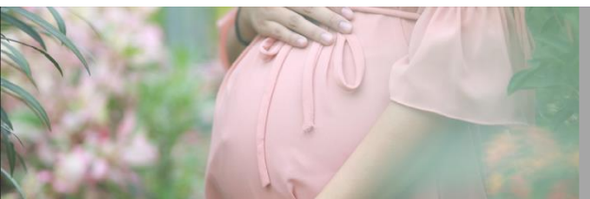
Hands-on sessions will help you with skills to take care of mom and baby!



24-year-old female presenting to the ED with a chief complaint of:

- Worsening abdominal pain starting 4 hours ago
- Intermittent and associated with pelvic pressure and nausea

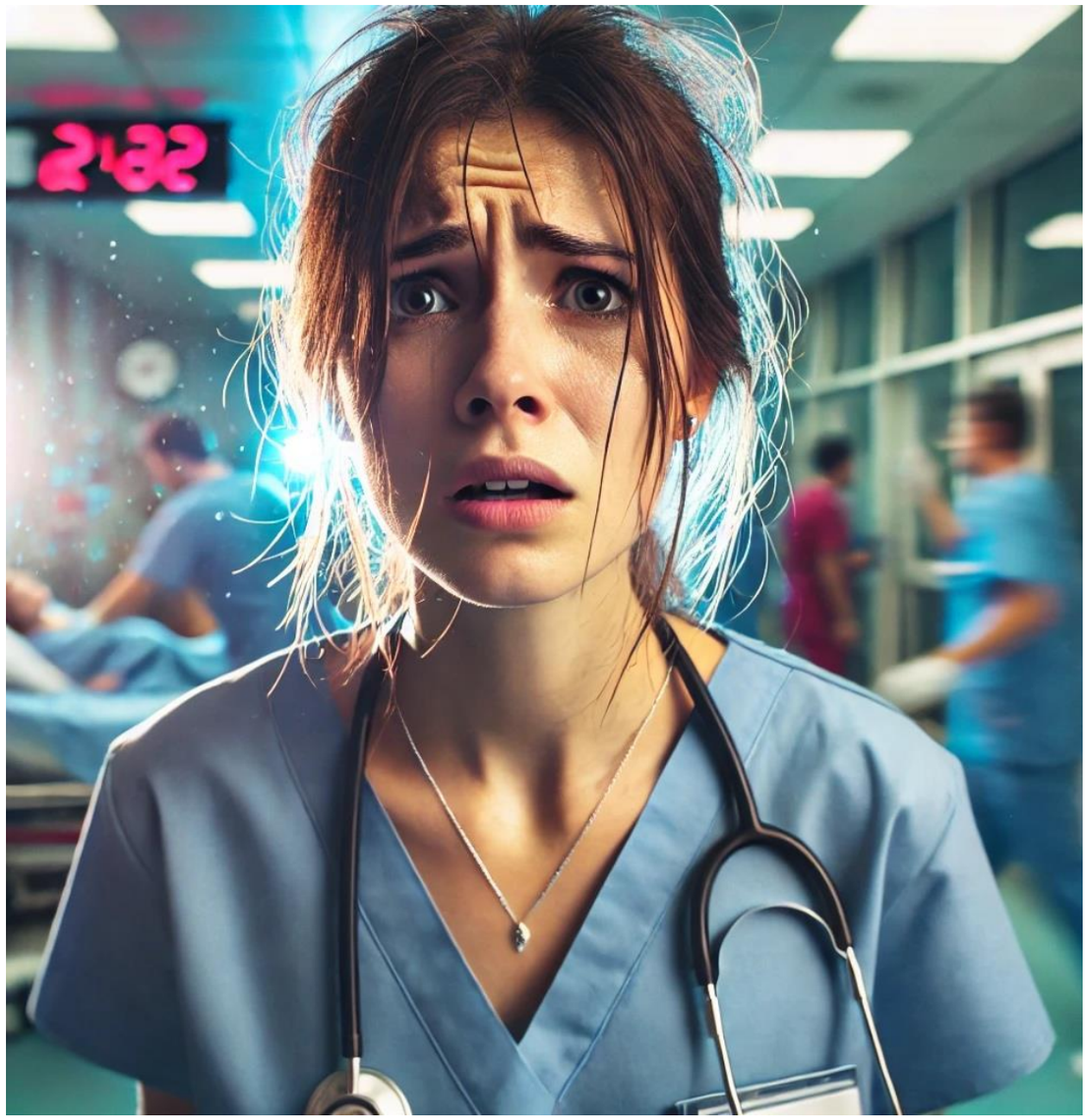
She reports that she has only recently learned about her pregnancy and has had no prenatal care.



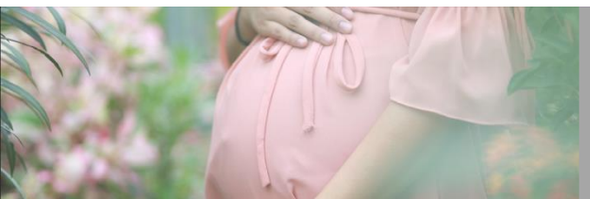
Is This Pre-Term Labor?

What is important for Mom's evaluation?

- ❑ Vital signs, including FHTs?
- ❑ Dating/gestational age?
- ❑ Associated signs/symptoms?
- ❑ OB history?
- ❑ Medical/surgical history?
- ❑ Fetal status/presentation?
- ❑ Pelvic examination?

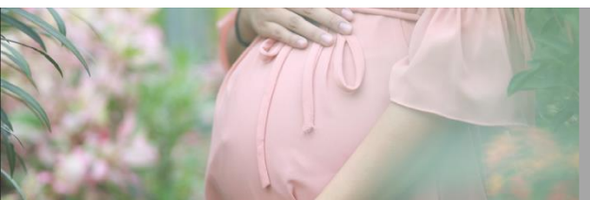


- Fetal heart tones are 142 bpm.
- Per patient stated EDC, she is approximately 23 4/7 EGA.
- She continues to have intermittent pain 7/10 every 4-7 minutes
- She is a G3P1011. Last delivery was 25 months ago at 34 weeks and occurred within 2 hours after arrival to ED.



Preterm Labor

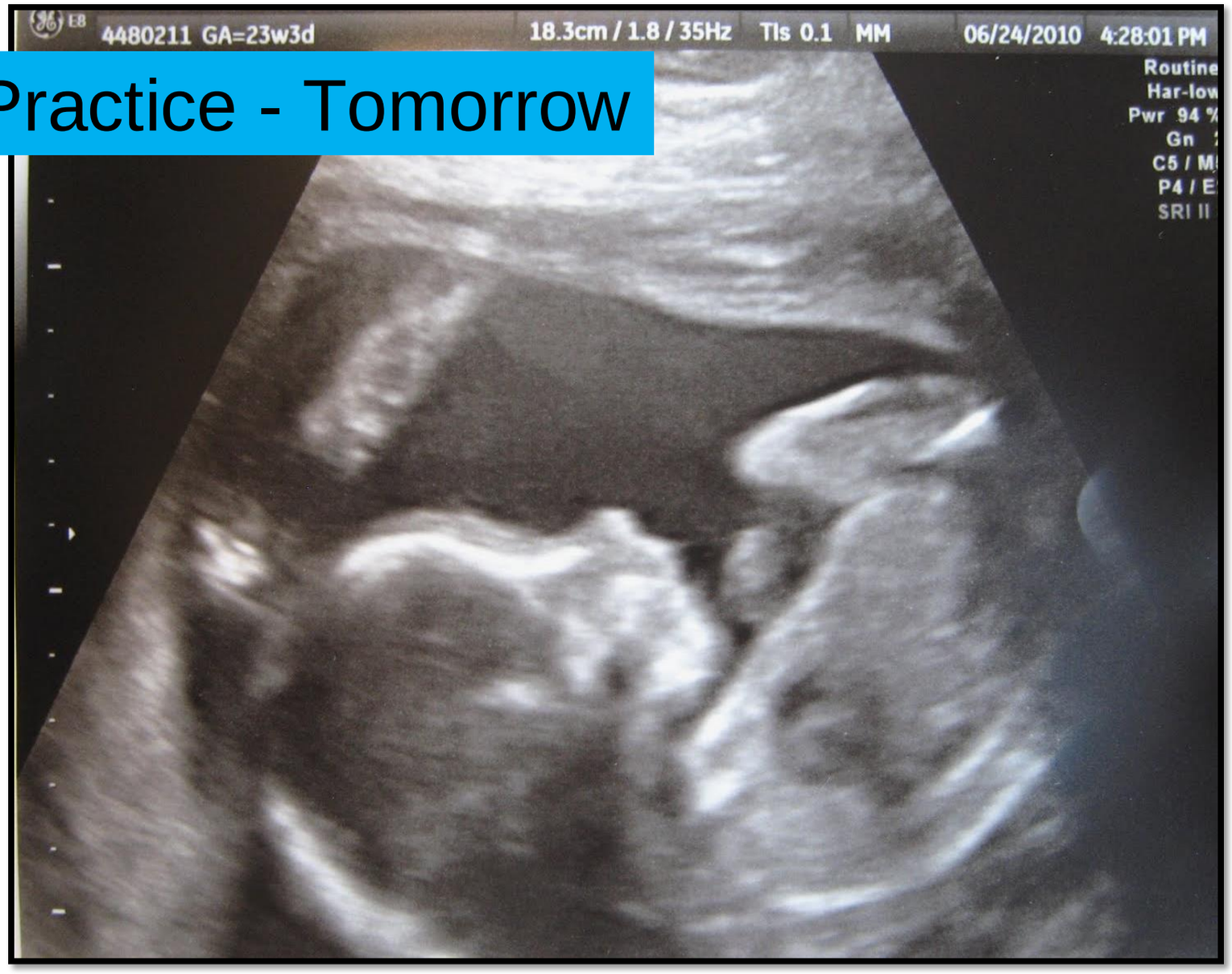
- Critical Evaluation Steps
  - Fetal Hear Tones – with doppler listen for greater than 60 secs – baseline
  - Assess contraction pattern
  - Assess for bleeding
  - Assess for fluid leakage
    - Nitrazine paper



Bedside Ultrasound

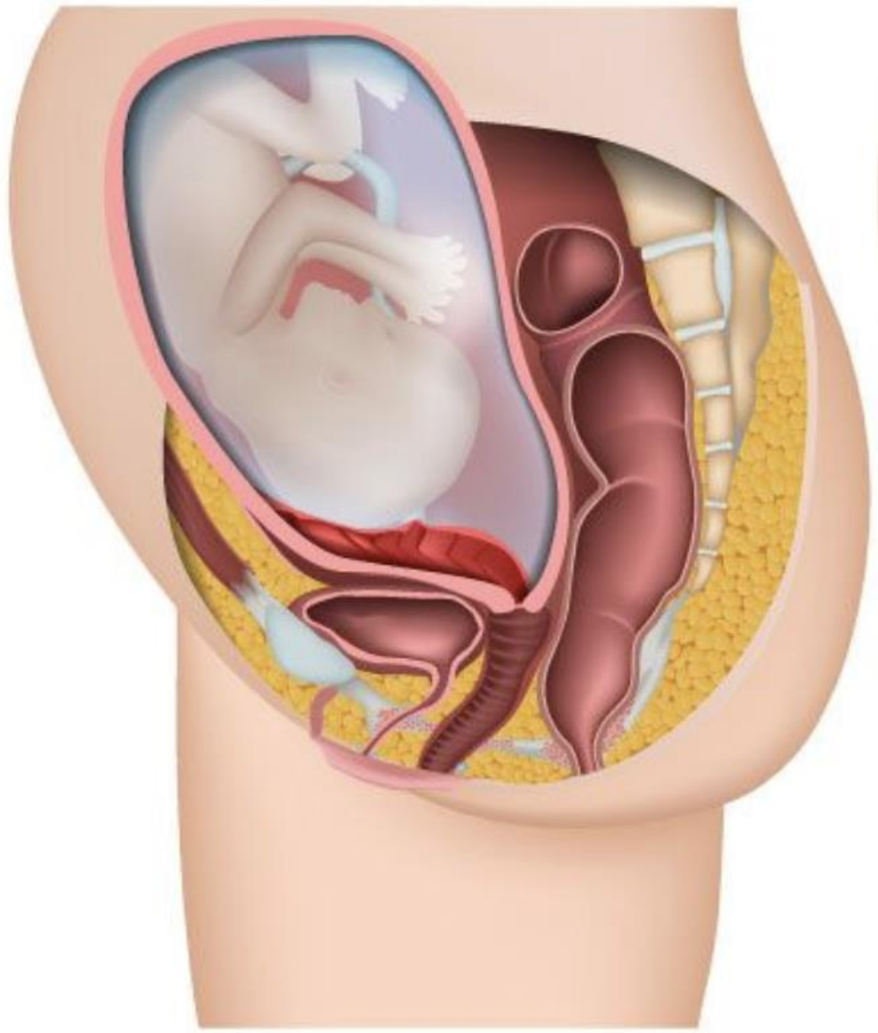
- Imaging can be very useful

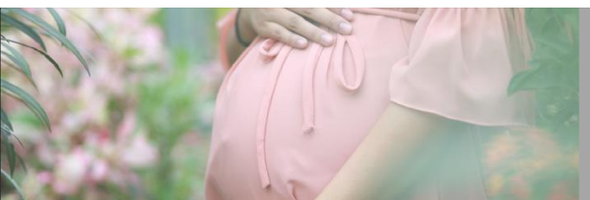
Hands on Practice - Tomorrow



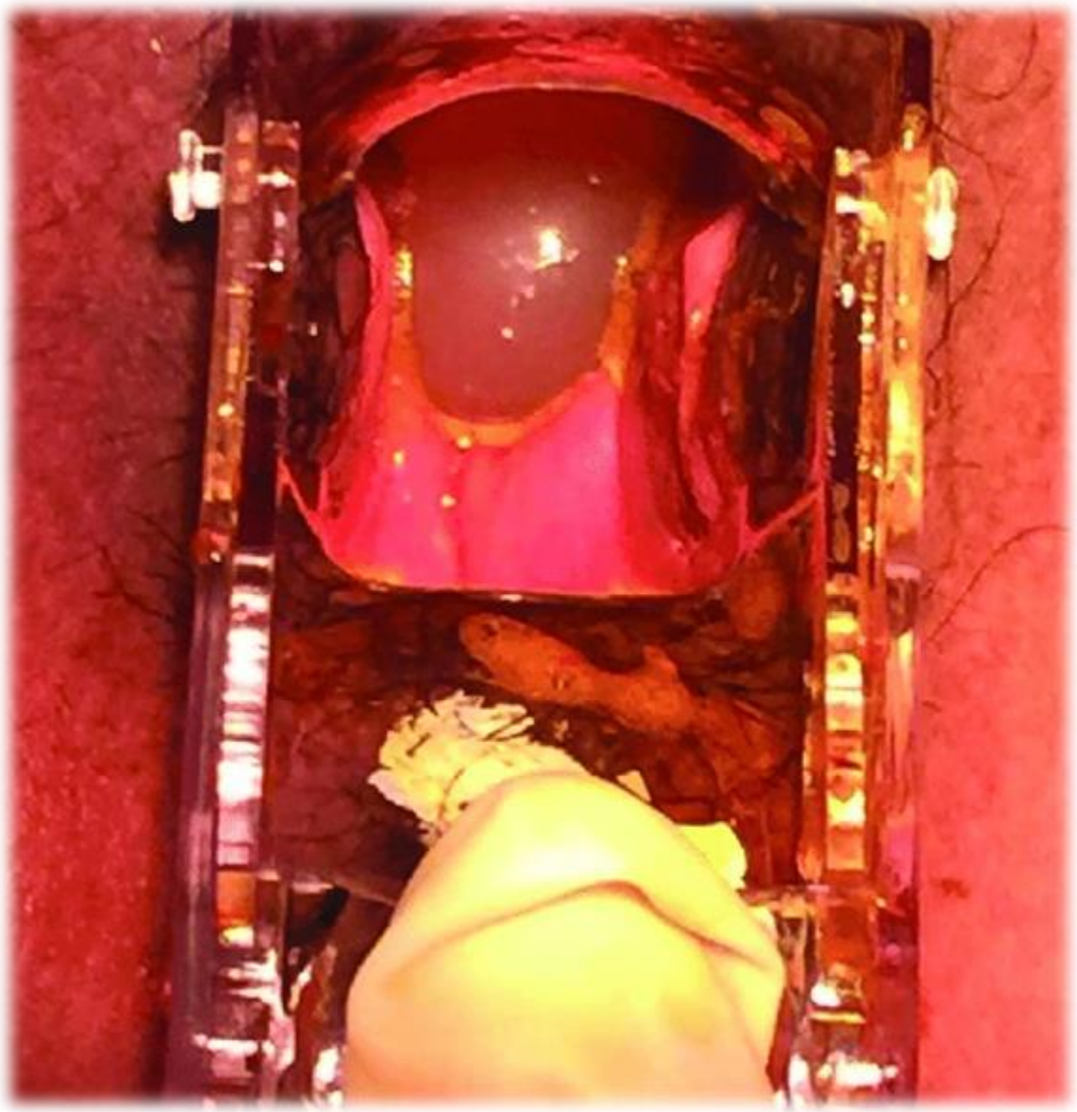
Speculum Exam?

- Should you do a **pelvic exam**?
- Should you do a **speculum exam**?





Speculum Exam



- **On speculum exam**, you see a bulging bag and cervix is visibly 4 cm dilated

Next Steps

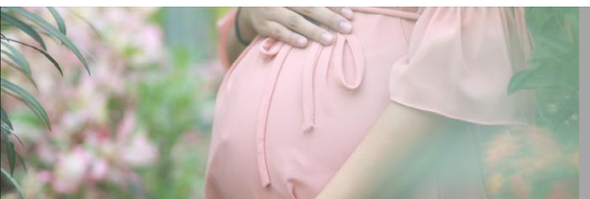
- What is your diagnosis?
- Can you manage in the ED?
  - What are the next steps?
- What should you consider for management in the interim?
- Is the delivery imminent?

Case Continued

- You diagnose preterm labor and request transfer to a regional Labor and Delivery with a minimum level 3 NICU, due to gestational age.
- You discuss management with the accepting Ob-Gyn

Transport is on the way ……

Is there anything else you need to do before she leaves your hospital?



Consider Prior to Transport

Tocolytics: to delay labor, giving time for transfer and antenatal corticosteroids to take effect.

Antenatal Corticosteroids: to enhance fetal lung maturity if the gestational age is 24-34 weeks (and up to 36 weeks in certain cases)

- **Betamethasone** 12mg IM

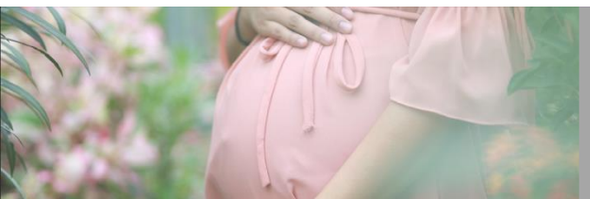
Magnesium Sulfate: for neuroprotection to reduce the risk of cerebral palsy if delivery is anticipated before 32 weeks

- **Magnesium Sulfate** 4-6 gm IV load followed by 2 gm/hr after ensuring normal renal function

Antibiotics: Administer antibiotics if Group B Streptococcus (GBS) status is unknown or positive

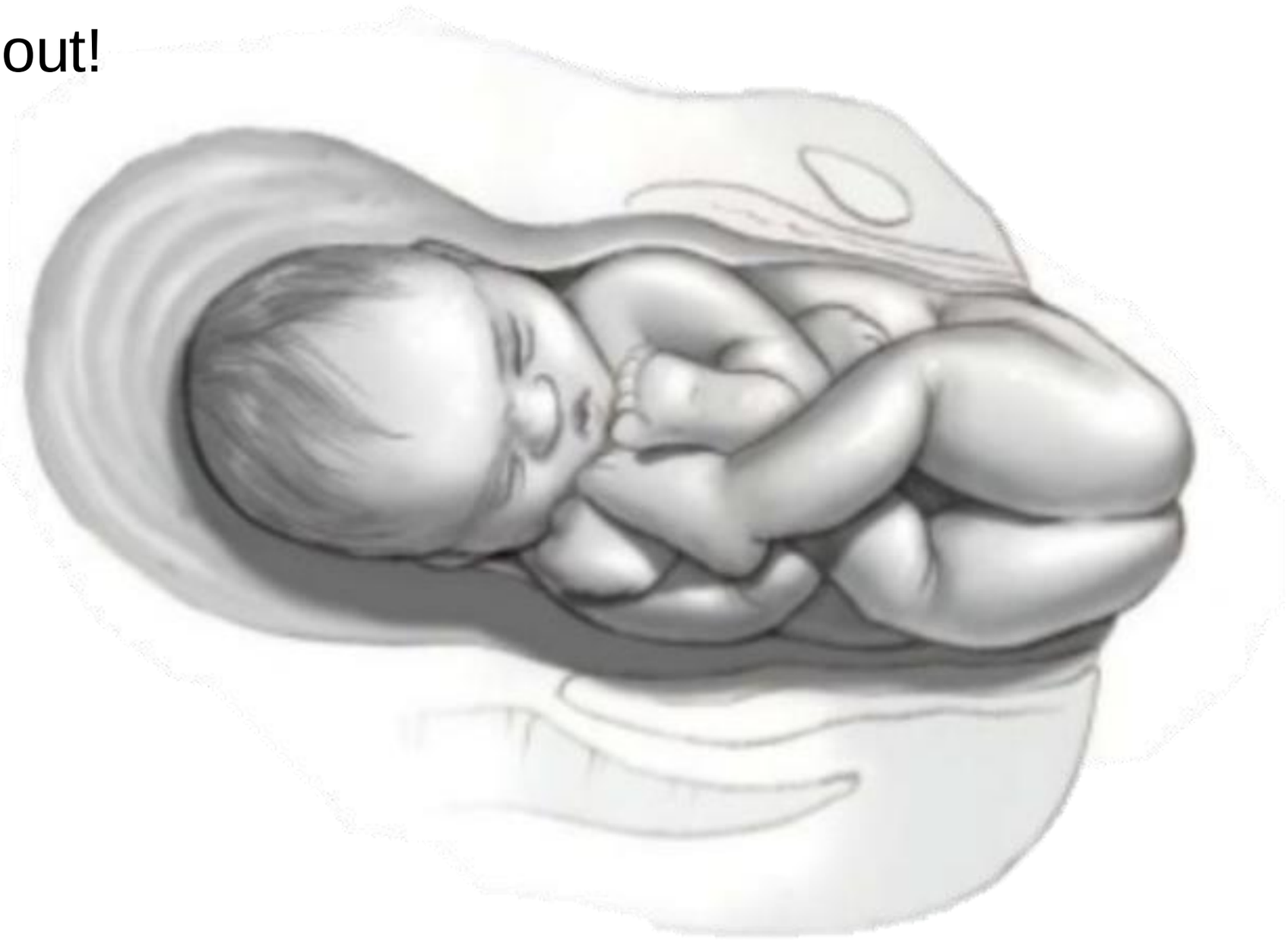
- **Penicillin G** IV

Hydration and Pain Control: IV fluids and manage pain or contractions as appropriate



How Would Your Care Differ is She is FULL-TERM?

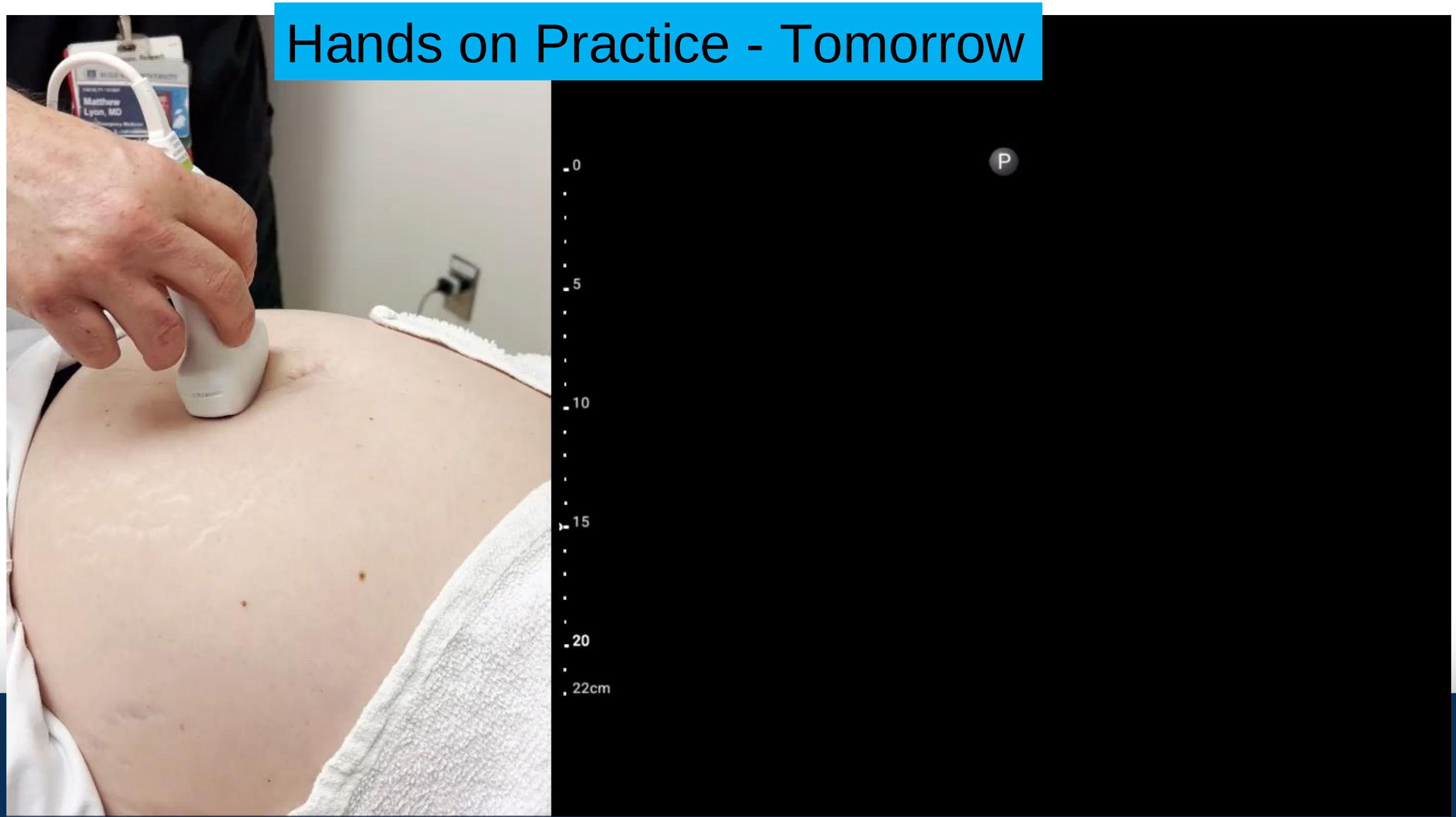
The baby is coming out!



Bedside Ultrasound

- Imaging can be very useful!
  - Head of the Baby should be the opposite direction as Mom

Hands on Practice - Tomorrow



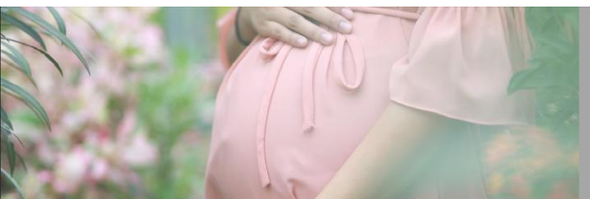
Breech Presentations

Frank

Complete

Footling

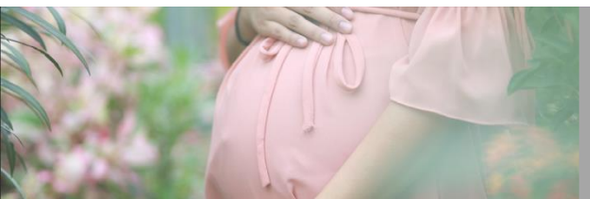
Hands on Practice - Tomorrow



Imminent Delivery

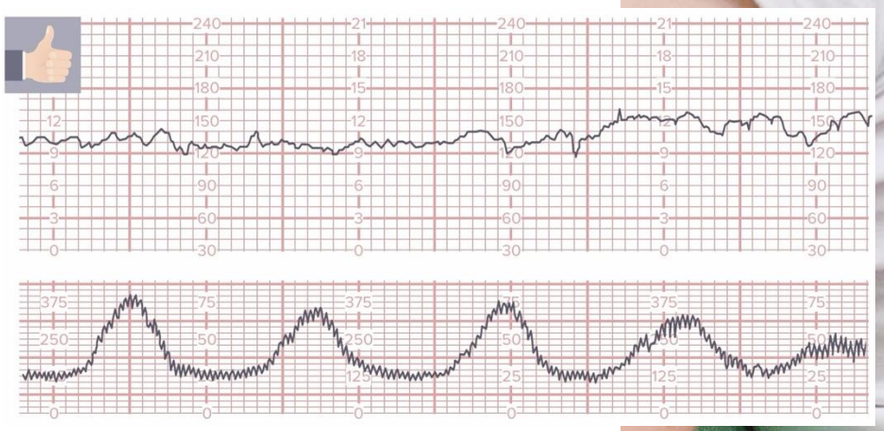
Controlled As Possible!

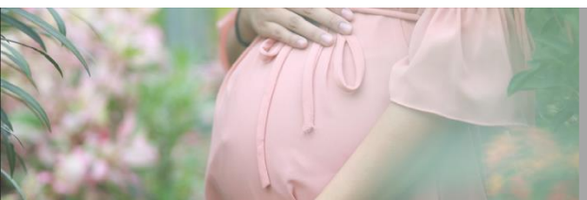
- Things go QUICKLY – Preparation is the Key!
  - Create a safe area
  - Work for Mom’s comfort
  - Stretcher with stirrups
  - Care Partner at Bedside



Imminent Delivery

- Monitoring
  - Monitoring of fetus is critical

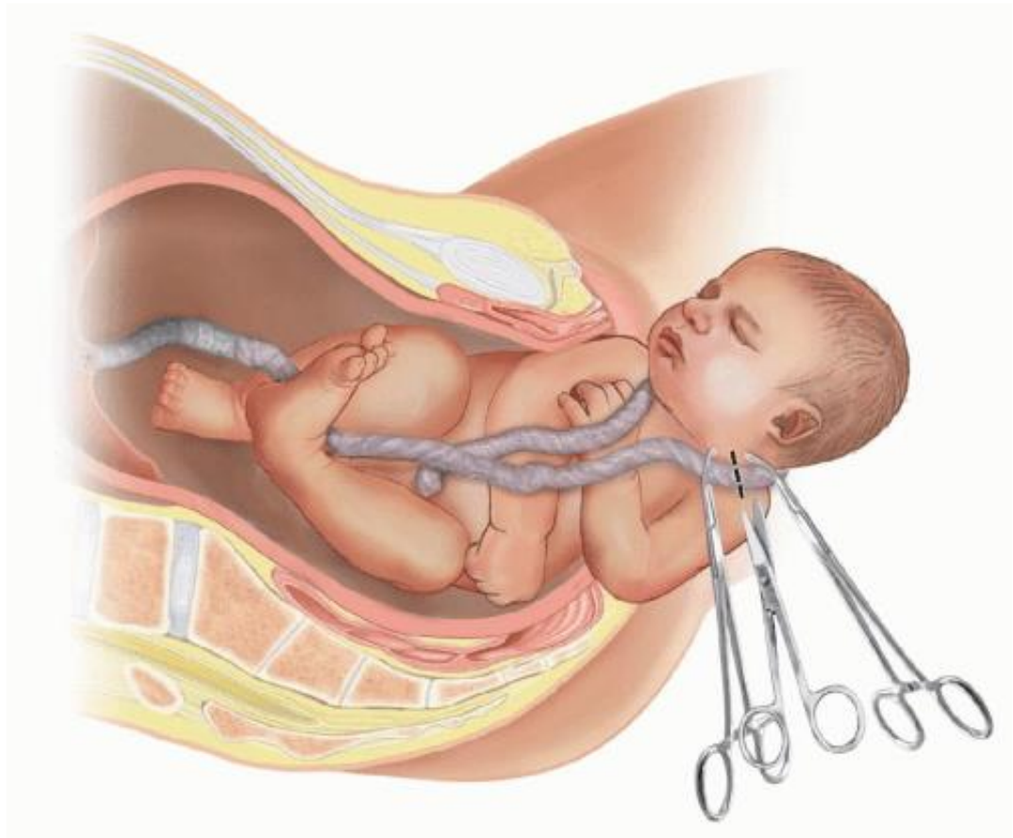


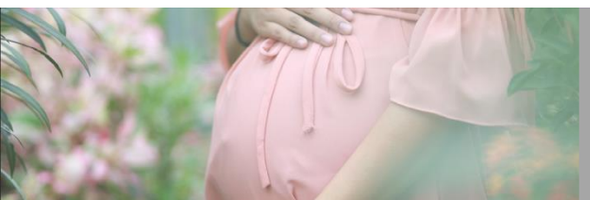


Bridging the Gap: Caring for Rural Georgia Moms

Imminent Delivery

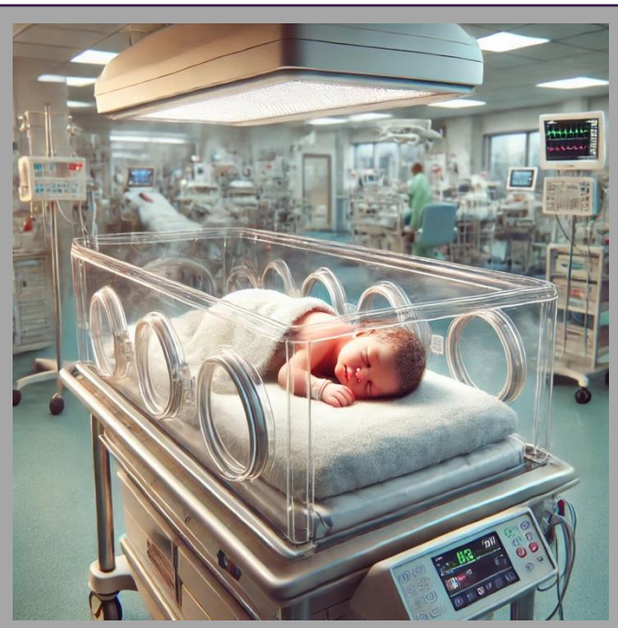
- Recognize Nuchal Cord
  - Assess cord tightness
    - Gently loop the cord over the baby's head using your fingers
    - Avoid excessive pulling
  - If Too Tight
    - Support the baby's head while guiding their body to deliver under the cord
    - Double clamp and cut the cord
    - BE READY for Rapid Delivery!





Now we have 2 patients!

- Umbilical cord clamped and cut.
- Assess uterine tone and manage hemorrhage
  - More in next lecture
- Perineal Care



- Immediately dry and stimulate
- The baby needs to placed on a transwarmer pad and a placed in a neowrap to help regulate neonate temperature.
- Newborn vitals & Apgars

First 60 Seconds!

Is the baby full-term?
Is the baby crying?
Does the baby have good muscle tone?

If the answers to these questions are **yes** ….

…..the baby typically does not need resuscitation.

Continue with

- Dry and promote skin to skin contact
- Cut and clamp the umbilical cord.

First 60 Seconds!

Is the baby full-term?
Is the baby crying?
Does the baby have good muscle tone?

If the answers to these questions are **NO** ….

….. then proceed with NRP guidelines.

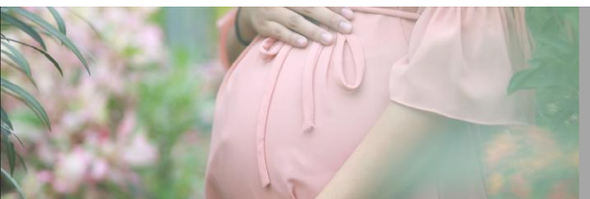
First 60 Seconds!

NRP guidelines

- Dry, Warm and Stimulate
- Clear the Airway using a bulb syringe and/or a NP Catheter.
  - Always suction the mouth first and then the nose.
- Position baby flat with a neutral head position and the shoulders slightly elevated (a rolled washcloth will help here).
- Place leads, temperature probe and pulse ox on right arm (preductal) if available.

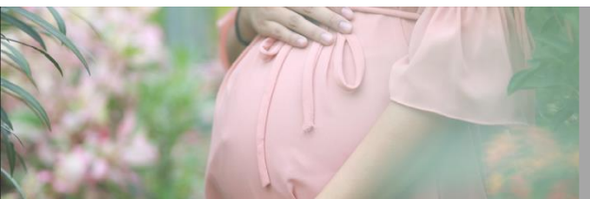
Targeted Preductal SpO2 are

1 minute	60-65%	4 minutes	75%-80%
2 minutes	65-70%	5 minutes	80%-85%
3 minutes	70-75%	10 minutes	85%-95%



First 60 Seconds!

- Listen for and count heart rate. **You want a HR of >100.**
- If signs of distress are present such as **grunting, nasal flaring, retractions** apply CPAP if available via the Neopuff starting at 5 cmH2O.
- If HR is <100 bpm - >60 bpm **positive pressure ventilation should be initiated** with Neopuff or Ambu and a pressure of 20 cmH20 with a target ventilation rate of 40 -60 bpm.
    - Flow Rate of 10 L
    - Fio2 start at 21% unless doing compressions and then increase to 100%
- **If HR is < 60 bpm intubate with ETT or LMA and start compressions** and check HR at 60 seconds.
    - If HR is > 60 bpm stop compressions
    - Reassess need for PPV when HR is > 100 bpm



NRP for the Non-Neonatologist

Term?
Tone?
Crying?

Warm
Dry
Stimulate

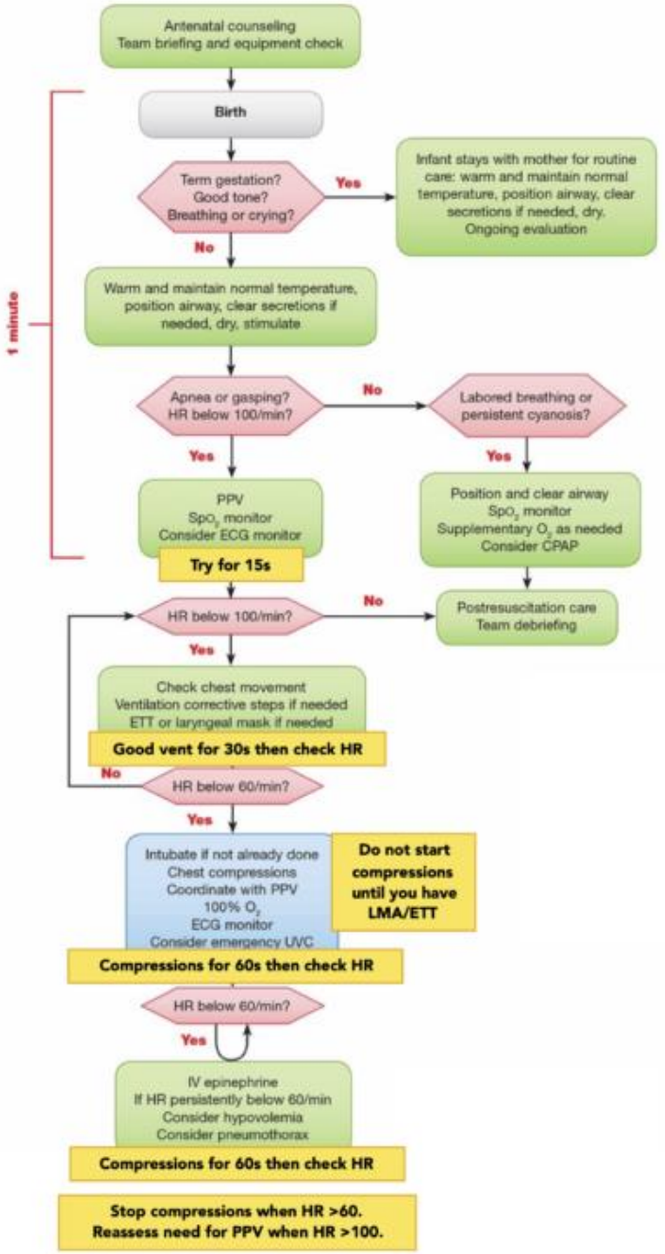
Rate 40-60
Breathe Baby Breathe Baby ♫

MR. SOPA
Mask Adjust
Reposition Airway
Suction
Open mouth
Pressure increase
Alternate: LMA/ETT
(NG first)

Compressions
Thumbs on sternum
1/3 chest diameter

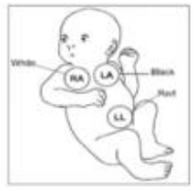
3 Comp:1 Vent
1 and 2 and 3 and bag ♫

Epi
0.01mg/kg IV
0.1mg/kg ETT
q3-5min

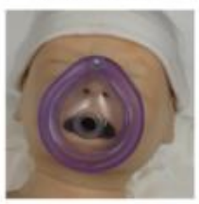


Pulse Ox
Pre-ductal
(R arm)

ECG Leads



Mask Fit



Compressions

Triggers
HR <100 first min → PPV
HR <60 after good PPV → Comp + ↑ FiO2

Timing
Try PPV for 15s then check HR, then corrective
Good vent for 30s then HR check
Compressions for 60s then HR check

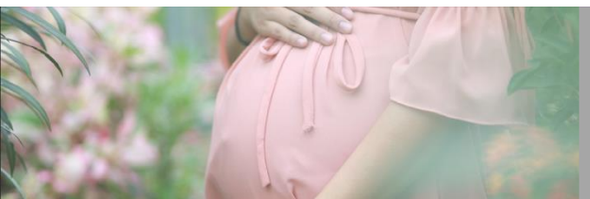
Ventilation Numbers
Flow Rate 10L
FiO2 start at 21%
- If Preterm: 21-30%
- When start comp: ↑ to 100%

PEEP 5
PIP 20. Max 40.

Targeted Preductal SpO_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

1 - 3 - 5 min : 60 - 70 - 80%

Post-Resus Targets
STABLE
Sugar (4-6)
Temp (36.5-37.5)
Airway
Breathing
Labs (CO2 45-55)
Emotional support

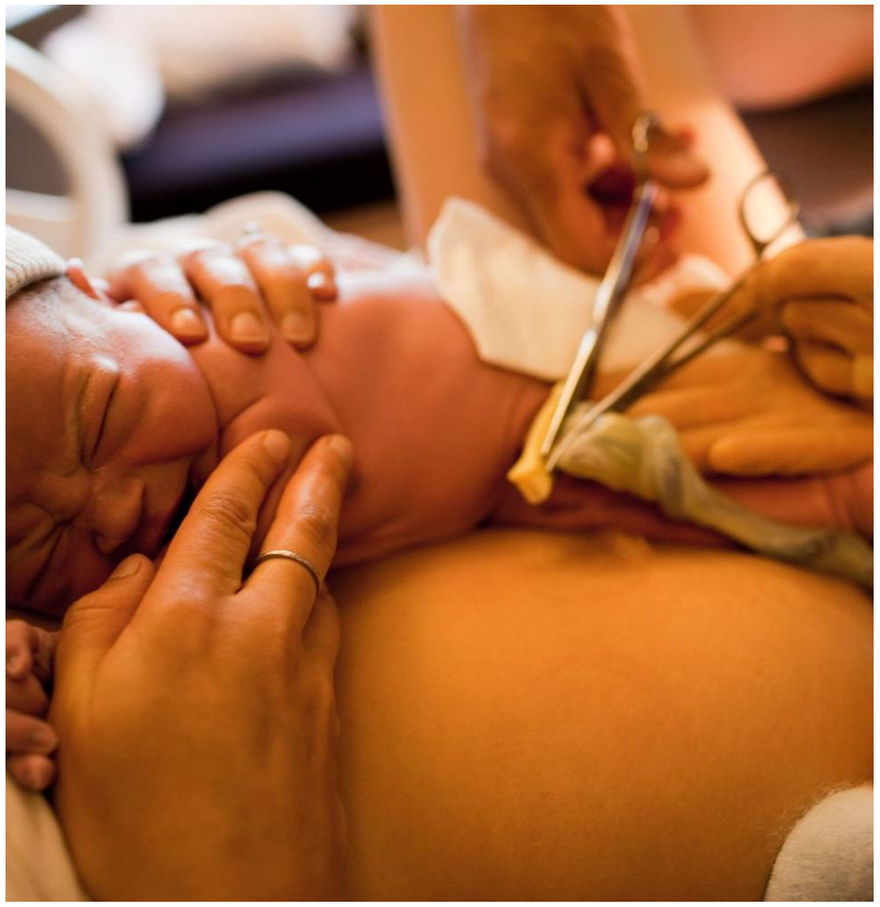


Supplies to Have on Hand

- Towels for Drying
- Blankets
- Hat
- Suction : Bulb Syringe and 6, 8, 10 French catheters
- BVM or Neopuff
- Appropriate mask size
- Miller Blades size 00, 0 and 1
- Laryngoscope Handle
- Supraglottic Airways
- Scissors and Clamp for Cord

Management of a Term, Stable Newborn

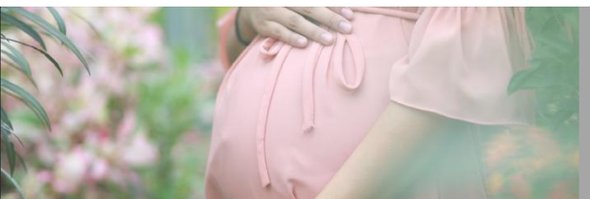
- Dry and stimulate on mother's chest, if feasible delay cord clamping for 60-seconds
- Maintain skin-to-skin contact to help with newborn thermoregulation, heart-rate and blood glucose regulation.



- Assess newborn respiratory effort, apical heart rate for 60 seconds, rectal temperature if rectal thermometer is available.
- Assess newborn and assign Apgar's at 1 and 5 minutes of life, continue assessing every 5 minutes for 20 minutes if score is <7.
- Wrap mom and baby in warm blanket and offer encouragement to mom if she desires to breastfeed and baby crawls to latch and nurse.
- Continue to assess newborn vitals every 30 minutes and complete full assessment of infant while waiting for transport team to arrive.
- Notate and report any newborn voids or stools

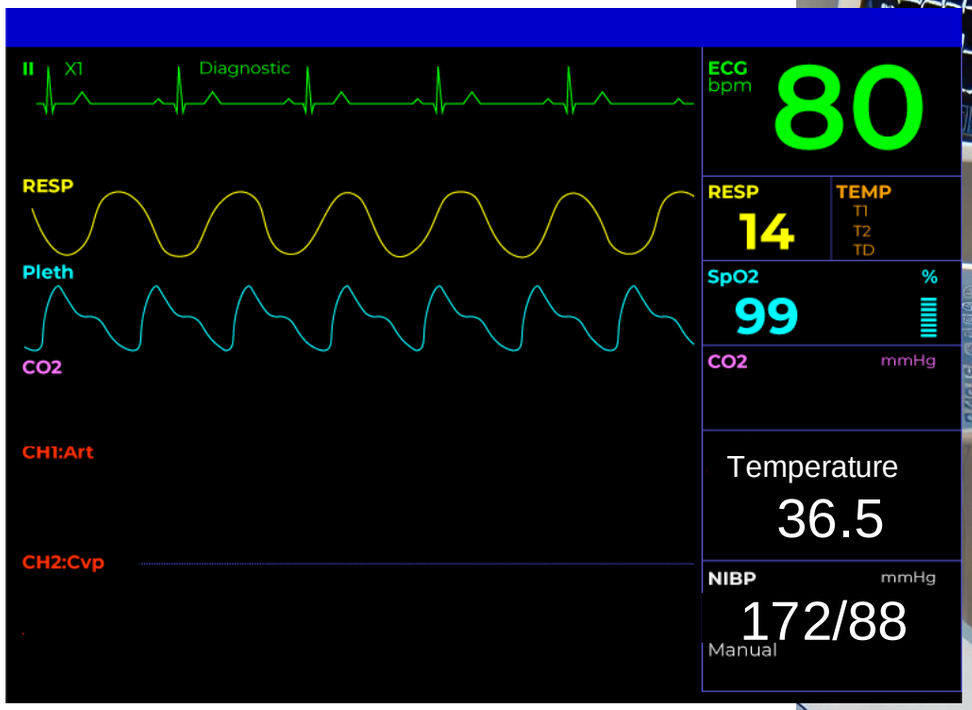
Apgar Scoring

SIGN/SCORE	0	1	2
Appearance	Blue/pale	Body pink, extremities blue	Pink
Pulse Rate	None	< 100	> 100
Grimace	None	Grimace	Cries
Activity	Limp	Some	Active
Respiration	Absent	Slow/irregular	Strong cry

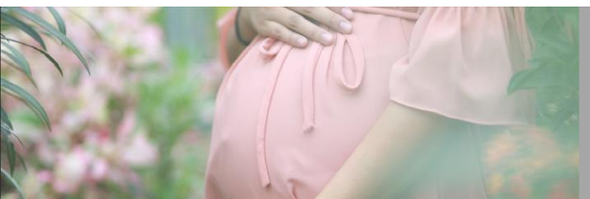


24-year-old female presenting to the ED with a chief complaint of:

- Worsening abdominal pain starting 4 hours ago
- Intermittent and associated with headache & nausea, vomiting



…… During evaluation, she begins shaking all over



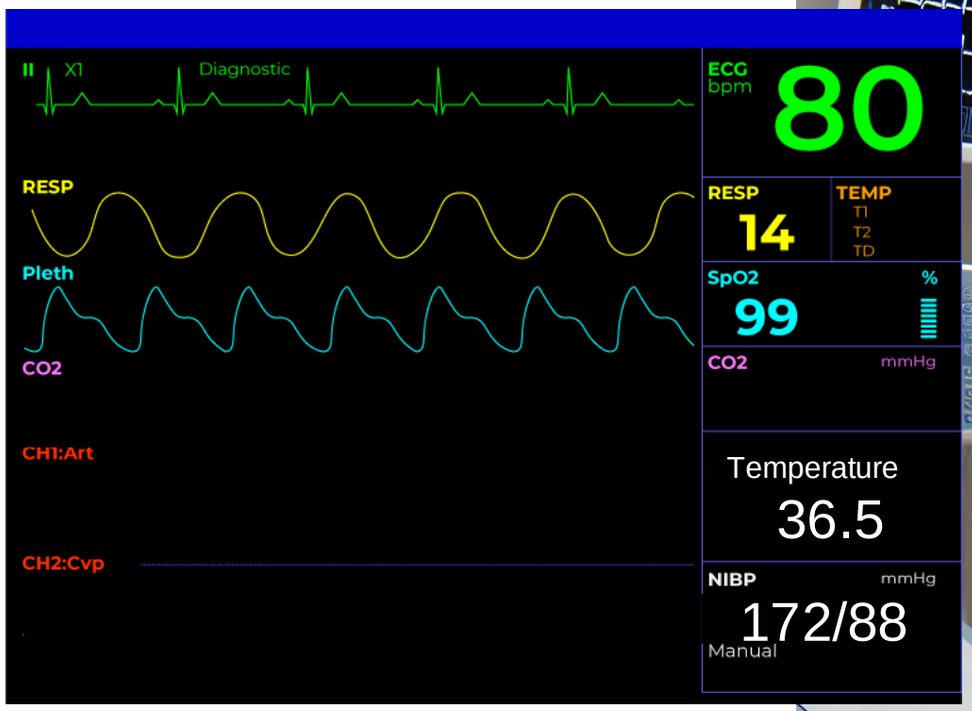
Why is Mom shaking?

Differential Diagnosis

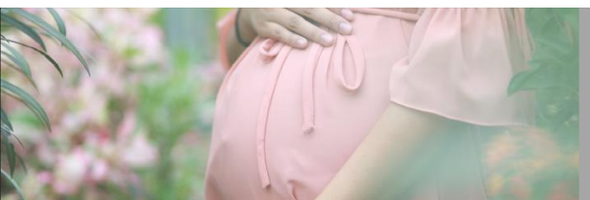
- **Postpartum chills-** common post-vaginal or cesarean delivery
  - When can it happen?
    - Shivering can begin to occur during transitional labor, during delivery, and within 1 to 2 hours after delivery.
    - The shivering usually lasts approximately 30 minutes and resolve on their own.
- Hemorrhage
- Trauma – Domestic Violence
- Epilepsy
- Eclampsia

24-year-old female presenting to the ED with a chief complaint of:

- Worsening abdominal pain starting 4 hours ago
- Intermittent and associated with headache & nausea, vomiting



…… During evaluation, she begins shaking all over

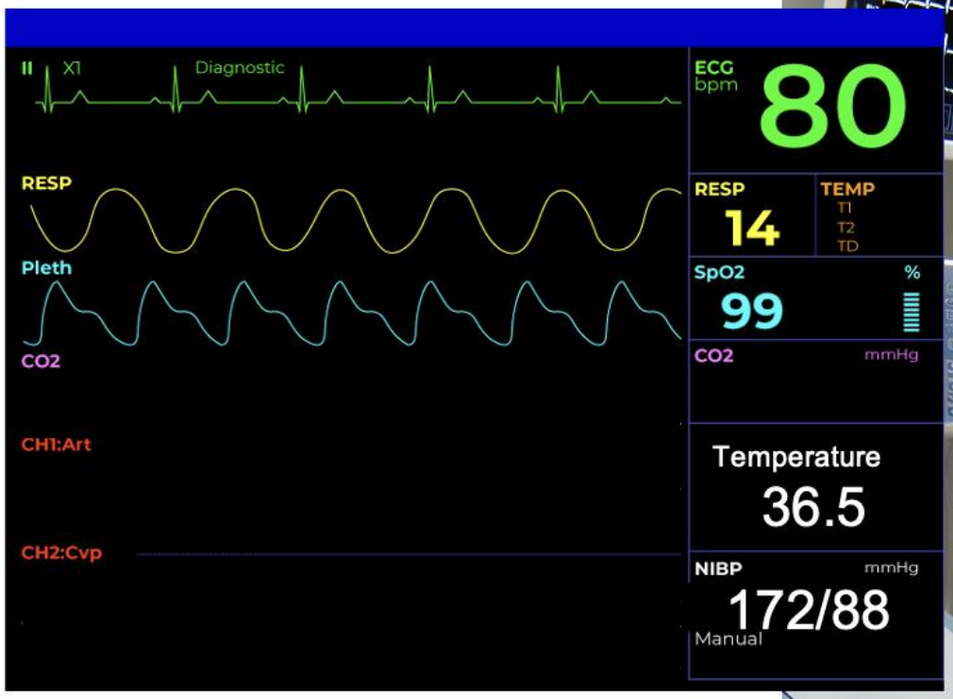


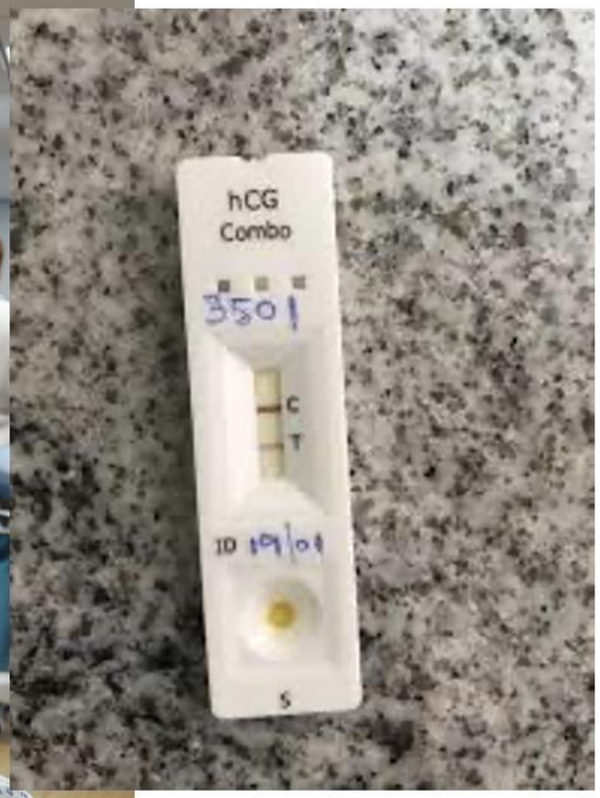
What do you need to do?

RAPID ASSESSMENT

- ❑ Vital signs?
- ❑ Medical/Surgical history?
- ❑ Gyn history?
- ❑ Associated signs/symptoms?
- ❑ Abdominal/Pelvic examination?
- ❑ POC testing?

Is this a worrisome Blood Pressure?





Bridging the Gap: Caring for Rural Georgia Moms

Preeclampsia/Eclampsia Considerations

- **Early recognition of signs/symptoms**
- **Blood pressure management**
- **Seizure prophylaxis** (or treatment)
- **Transport**
  - Consider transfer to higher maternal/neonatal levels of care

Hypertensive Disorders in Pregnancy

Chronic Hypertension:

- Elevated BP (≥140/90 mmHg) before pregnancy or diagnosed **before** 20 weeks.

Gestational Hypertension:

- New-onset BP elevation (≥140/90 mmHg) **after** 20 weeks, **no proteinuria/signs of preeclampsia.**

Preeclampsia:

- New-onset BP elevation (≥140/90 mmHg) **after** 20 weeks, with proteinuria or organ dysfunction.

Hypertensive Disorders in Pregnancy

Preeclampsia with Severe Features:

- Severe hypertension (**≥160/110 mmHg**)
- Severe proteinuria, thrombocytopenia, Impaired liver/renal function, pulmonary edema
- Cerebral or visual disturbances

Eclampsia:

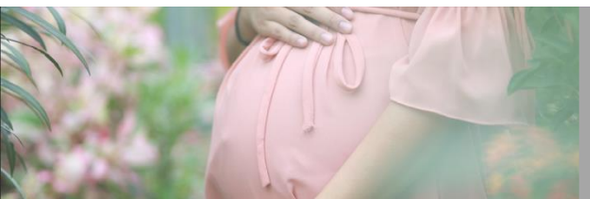
- Seizures in a patient with preeclampsia not due to other causes.

HELLP Syndrome:

- Hemolysis (H)
- Elevated liver enzymes (EL)
- Low platelet count (LP)

Complications:

- Liver rupture, organ failure, placental abruption, preterm birth, fetal demise.



Definitions (and when to treat)

The American College of Obstetricians and Gynecologists

SEVERE HYPERTENSION

SBP ≥ 160 **or** DBP ≥ 110

- Repeat BP every 5 min for 15 min
- Notify physician after one severe BP value is obtained

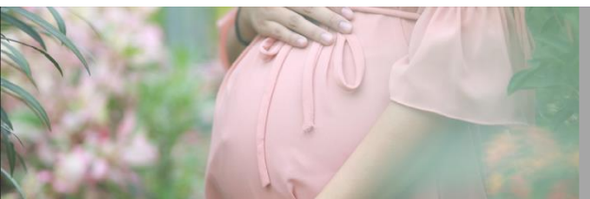
HYPERTENSIVE EMERGENCY

Persistent, severe hypertension that can occur antepartum, intrapartum, or postpartum

Two severe BP values (≥ 160/110) taken 15-60 minutes apart

Severe values do not need to be consecutive

- If severe BP elevations persist for 15 min or more, begin treatment ASAP. **Preferably within 60 min of the second elevated value**.
- If two severe BPs are obtained *within* 15 min, treatment may be initiated if clinically indicated



First Line Treatment

HYPERTENSIVE EMERGENCY

- **IV Labetalol** (initial dose: 20mg)
  - Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma
- **IV Hydralazine** (5 – 10 mg IV over 2 min)
  - May increase risk of maternal hypotension
- **Oral Nifedipine** (10 mg capsules)
  - Capsules should be administered orally, not punctured or otherwise administered sublingually

First Line Treatment

SEIZURE PROPHYLAXIS

- **IV access:**
  - **Load 4 - 6 grams 10% magnesium sulfate** in 100 mL solution over 20 min, followed by
  - **Magnesium sulfate maintenance** 1 – 2 gm/hour
- **No IV access:**
  - 10 grams of 50% **magnesium sulfate** solution **IM** (5 g in each buttock)

Education

Every ED should have a toolkit for management of OB emergencies

Sources for education, toolkits, and algorithms include ACOG, CMQCC, and AIM (bundles)

Georgia resources include GAPQC and DPH (RPCN)

Hypertensive Emergency Checklist

Hypertensive Emergency:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clnically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ○ Team leader
  - ○ Checklist reader/recorder
  - ○ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

ACOG
The American College of Obstetricians and Gynecologists

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** 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*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

Wellstar MCG Health
MEDICAL CENTER

Labetalol Algorithm

EXAMPLE

Trigger: If severe elevations (SBP ≥160 or DBP ≥ 110) persist* for 15 min or more **OR** If two severe elevations are obtained within 15 min and tx is clinically indicated

1. **Labetalol 20 mg† IV over 2 minutes**
2. **Repeat BP in 10 minutes**
3. **If SBP ≥ 160 or DBP ≥ 110, administer labetalol 40 mg IV over 2 minutes; If BP below threshold, continue to monitor BP closely**
4. **Repeat BP in 10 minutes**
5. **If SBP ≥ 160 or DBP ≥ 110, administer labetalol 80 mg IV over 2 minutes; If BP below threshold, continue to monitor BP closely**
6. **Repeat BP in 10 minutes**
7. **If SBP ≥ 160 or DBP ≥ 110, administer hydralazine§ 10 mg IV over 2 minutes; If below threshold, continue to monitor BP closely**
8. **Repeat BP in 20 minutes**
9. **If SBP ≥ 160 or DBP ≥ 110 at 20 minutes, obtain emergency consultation from specialist in MFM, internal medicine, anesthesiology, or critical care**
10. **Give additional antihypertensive medication per specific order as recommended by specialist**
11. **Once BP thresholds are achieved, repeat BP:**
12. **- Every 10 minutes for 1 hour**
    - Then every 15 minutes for 1 hour
    - Then every 30 minutes for 1 hour
    - Then every hour for 4 hours
13. **Institute additional BP monitoring per specific order**

- Notify provider after one severe BP value is obtained
- Institute fetal surveillance if viable
- Hold IV labetalol for maternal pulse under 60
- Maximum cumulative IV-administered dose of labetalol should not exceed 300 mg in 24 hours
- There may be adverse effects and contraindications. Clinical judgement should prevail.

* Two severe readings more than 15 minutes and less than 60 minutes apart

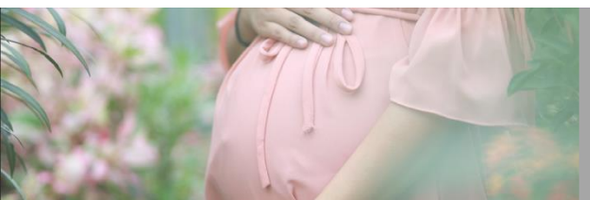
† **Avoid parenteral labetalol with active‡ asthma, heart disease, or congestive heart failure; use with caution with history of asthma. May cause neonatal bradycardia.**

‡ "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

§ Hydralazine may increase risk of maternal hypotension.

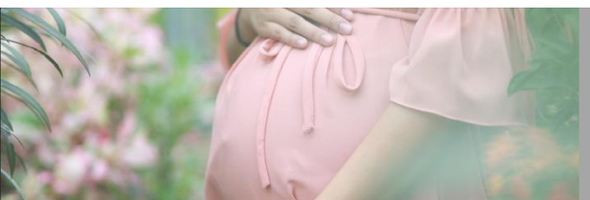
Safe Motherhood Initiative

ACOG
The American College of Obstetricians and Gynecologists
District II



Bridging the Gap: Caring for Rural Georgia Moms

While attempting IV access, she demonstrates generalized tonic-clonic activity



Bridging the Gap: Caring for Rural Georgia Moms

Stabilization

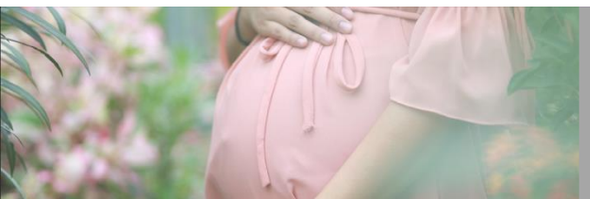
Protect airway and improve oxygenation

- Maternal pulse oximetry
- Supplemental oxygen (100% non-rebreather)
- Lateral decubitus position
  - Bag-mask ventilation available
  - Suction available
- **Fetal monitoring** (if available)
- **IV access and labs** (preeclampsia)
- **Pharmacotherapy** (seizures and hypertension)

Stabilization

ECLAMPSIA (SEIZURE) TREATMENT

- **IV access:**
  - **Magnesium sulfate** (load 4 - 6 grams followed by 1 – gm/hour maintenance)
- **No IV access:**
  - **Magnesium sulfate** 10 grams IM
- **Recurrent seizures or MgSO4 contraindicated**
  - **Lorazepam** 2 – 4 mg IV, may repeat once after 10 – 15 min
  - **Diazepam** 5 – 10 mg IV q 5 – 10 min to maximum dose 30 mg



Hub-and-Spoke Health Care

You Are Never Alone!

Strategies to improve geographic challenges may include

Telemedicine consultations (Tele-OBED)	Training programs for healthcare providers	Investment in obstetric emergency preparedness	Initiatives to improve access to prenatal care and support services

Collaborative efforts between rural hospitals, regional healthcare systems, public health agencies, and community organizations are needed to address geographic polarization and reduce disparities in maternal outcomes.