# Assessment of the OB Patient Presenting to the ED

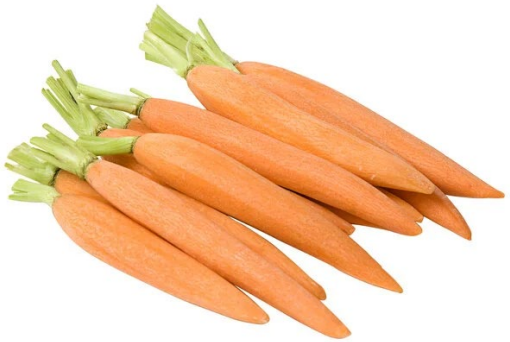
# Hypertensive Disorders of Pregnancy

Jill Henkle RNC-OB

April 18, 2022

IOWA Maternal Quality Care Collaborative

OBSTETRICS MOBILE SIMULATION UNIT



# Support acknowledgement:
# HRSA State Maternal Health Innovation Program

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- This deck includes screen captures of sample algorithms, a case study, and additional slides appropriate for use to certain audiences.

# Note on Terminology

- Throughout this presentation, the terms “mother” or “maternal” or “she or “her” are used in reference to the birthing person. Recognition that not all birthing people identify as mothers or women.  We believe all birthing people are equally deserving of patient-centered care that helps them attain their full potential and live authentic health lives.

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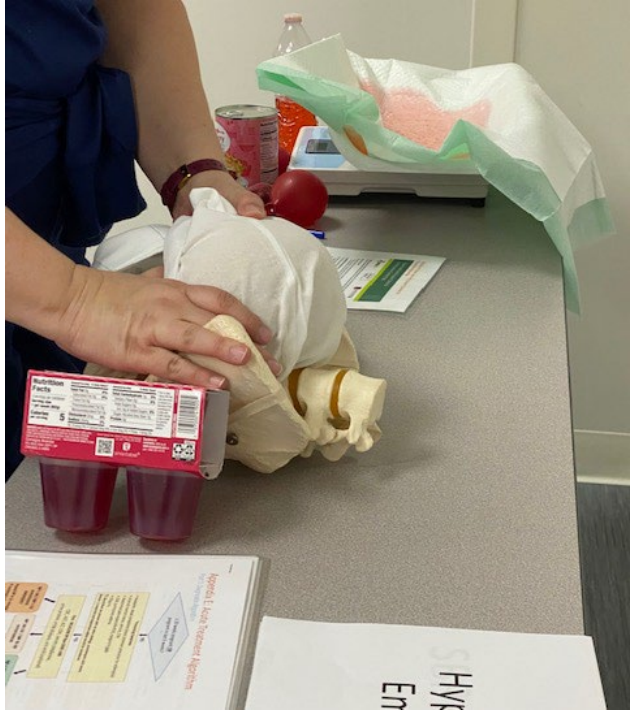
# Upcoming Topics

- May 16th – TBD
- June 20th - TBD

Open to any and all suggestions !




# Simulation Updates

- Henry County (Mt Pleasant )
- April 13th 2022

Photographs used with permission


Henry County
Mt Pleasant

# •Simulation Room

Photographs used with permission

# Objectives

- Know the impact of Hypertensive Disorders of Pregnancy (HDP) on morbidity and mortality
- Define the current terminology and understand the updated diagnostic criteria for HDP
- Describe the management guidelines for HDP
- Discuss AWHONN Post Birth Warning Signs Brochure

# Values to Remember

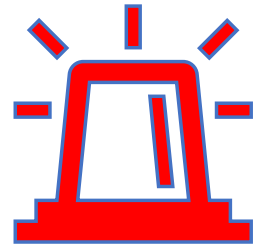
- Systolic BP ≥ 140
- Diastolic BP ≥ 90
- Systolic BP ≥ 160
- Diastolic BP ≥ 110

# Hypertensive Disorders of Pregnancy

- Chronic hypertension
- Gestational hypertension
- Preeclampsia
- Chronic hypertension with superimposed preeclampsia
- These disorders are among the leading causes of maternal and fetal mortality and morbidity
- Often misdiagnosed

Wilkerson RG, Ogunbodede AC. Hypertensive Disorders of Pregnancy. Emerg Med Clin North Am. 2019 May;37(2):301-316. doi: 10.1016/j.emc.2019.01.008. PMID: 30940374.

# Hypertensive Emergency



- Severe Hypertension that is accurately measured using standard techniques and is persistent for 15 minutes  or more is considered a hypertensive emergency .
- Severe Hypertension:
  - SBP ≥ 160

    OR
  - DBP ≥ 110

# Accurate Blood Pressure Measurement

- Accurate blood pressure (BP) measurement is essential to guide management decisions in order to avoid over- or under-treatment leading to adverse outcomes.
- Minimize factors that decrease the accuracy of BP measurements, and be consistent: same arm, same position, and correct cuff size.
- A severe-range BP obtained with an automated BP device should be validated with a manual measurement for accuracy.
- Evaluate BP trends vs. isolated values.

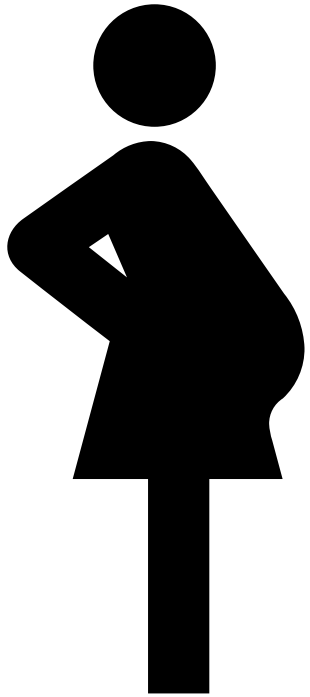
| Steps |
| --- |
| 1. Prepare equipment |
| 2. Prepare the patient |
| 3. Take measurement |
| 4. Record measurement |

# Guidelines for Management of HDP

## 5 Key Elements

1. Recognize symptoms and diagnose HDP
2. Blood pressure control
3. Seizure prevention
4. Delivery
   - 34 weeks – preeclampsia with severe features
   - 37 weeks – preeclampsia without severe features *or* gestational hypertension
5. Postpartum surveillance

# Critical Questions



# Appendix G: Stop Sign for Patient Information


*Improving Health Care Response to Hypertensive Disorders of Pregnancy, a CMQCC Quality Improvement Toolkit, 2021.*

# 4 Rs of Quality Improvement
# AIM Patient Safety Bundle: Severe Hypertension

**Readiness:**

***Every Unit***

- Preparations (e.g., rapid availability of meds)
- Education
- Simulations

**Recognition & Prevention:**

***Every Patient***

- Screening
- Diagnosis and classification
- Prevention approaches

**Response:**

***Every Event/Case***

- Management and treatment
- Patient education

**Reporting and Systems Learning:**

***Every Unit***

- Debriefs and multidisciplinary reviews
- QI measures
- Documentation and coding

Bernstein PS etal. Obstet Gynecol 2017 130:347-357.

| The Maternal Early Warning Criteria | |
|---|---|
| Measure | Value |
| Systolic Blood Pressure (mm Hg) | <90 or >160 |
| Diastolic Blood Pressure (mm Hg) | >100 |
| Heart rate (beats per minute) | <50 or >120 |
| Respiratory rate (breaths per min) | <10 or >30 |
| Oxygen saturation on room air, at sea level % | <95 |
| Oliguria, mL/hr for ≥2 hrs | <35 |
| Maternal agitation, confusion, or unresponsiveness | |
| Woman with [redacted] reporting a non-remitting headache or shortness of breath | |

# Quality Improvement Opportunities to Improve Recognition of HDP

| Recognition: Missed Symptoms or Misdiagnosed | |
|---|---|
| **Missed Symptoms: (didn't see it)** | **Misdiagnosed: (saw it as something else)** |
| • **Headache**<br>• **Elevated blood pressures**<br>• **Abnormal fetal heart rate tracings**<br>• **Blurred vision**<br>• **Low oxygen saturation**<br>• **Severe pain, epigastric pain, chest pain**<br>• **Altered behavior (confusion, combative)**<br>• **Tea colored urine, oliguria**<br>• **Bleeding, anemia, coagulopathy**<br>• **Cough, wheezing, shortness of breath**<br>• **Proteinuria**<br>• **Abnormal lab values** | • Seizure disorder<br>• Gallstones<br>• Chronic hypertension<br>• New onset asthma<br>• Postpartum psychosis |

Morton CH, et al. Journal of Obstetric, Gynecologic and Neonatal Nursing. https://doi.org/10.1016/j.jogn.2019.02.008

# Clinical Pearl

Forty percent of patients with
**new-onset** hypertension or
**new-onset** proteinuria
will develop preeclampsia.

Barton JR, Sibai BM. Obstet Gynecol. 2008;112(2 PART 1): 359-372

# ACOG Diagnostic Criteria for Preeclampsia in Pregnancy/Postpartum

**Gestational Hypertension and Preeclampsia, ACOG Practice Bulletin #222, 2020**

## Blood Pressure AND Proteinuria

- Systolic blood pressure of ≥ 140 mm Hg OR diastolic blood pressure of ≥ 90 mm Hg on two occasions at least 4 hours apart after 20 weeks of gestation in a woman with a previously normal blood pressure

***OR***

- Systolic blood pressure of 160 mm Hg or more or diastolic blood pressure of 110 mm Hg or more. (Confirmed within a short interval [15 minutes] to facilitate timely hypertensive therapy.)

- 300 mg or more per 24-hour urine collection

***OR***

- Protein/creatinine ratio of 0.3 or more

***OR***

- Dipstick reading of 2+ (used only if other quantitative methods not available)

*Note:* The **total** amount of proteinuria > 5g in 24 hours has been eliminated from the diagnosis of preeclampsia with severe features as an indication for immediate delivery

# Laboratory Evaluation of Preeclampsia

- Complete blood count (CBC) with platelet count
- Aspartate aminotransferase (AST)
- Alanine aminotransferase (ALT)
- Lactate Dehydrogenase (LDH)
- Creatinine
- Bilirubin
- Glucose
- Comprehensive metabolic panel (CMP)
- Uric acid (optional)

For patients with acute abdominal pain add:
Serum amylase, lipase, and ammonia

# Diagnosis of Preeclampsia with Severe Features

**Gestational Hypertension and Preeclampsia, ACOG Practice Bulletin #222, 2020**

- Thrombocytopenia
- Impaired liver function
- Renal insufficiency
- Pulmonary edema
- New onset headache unresponsive to medication and not accounted for by alternative diagnoses
- Visual disturbances
- Systolic blood pressure of 160 mm Hg or more *or* diastolic blood pressure of 110 mm Hg or more on two occasions at least 4 hours apart “unless antihypertensive therapy is initiated before this time”

**ANTIHYPERTENSIVE TREATMENT SHOULD BE INITIATED WITHIN THE HOUR IF SEVERE BP IS CONFIRMED IN 15 MINUTES**

For example: A confirmed BP ≥ 160/110 should be treated with an antihypertensive within one hour and magnesium sulfate started immediately following antihypertensive therapy.

# Diagnosis of Chronic Hypertension and Superimposed Preeclampsia

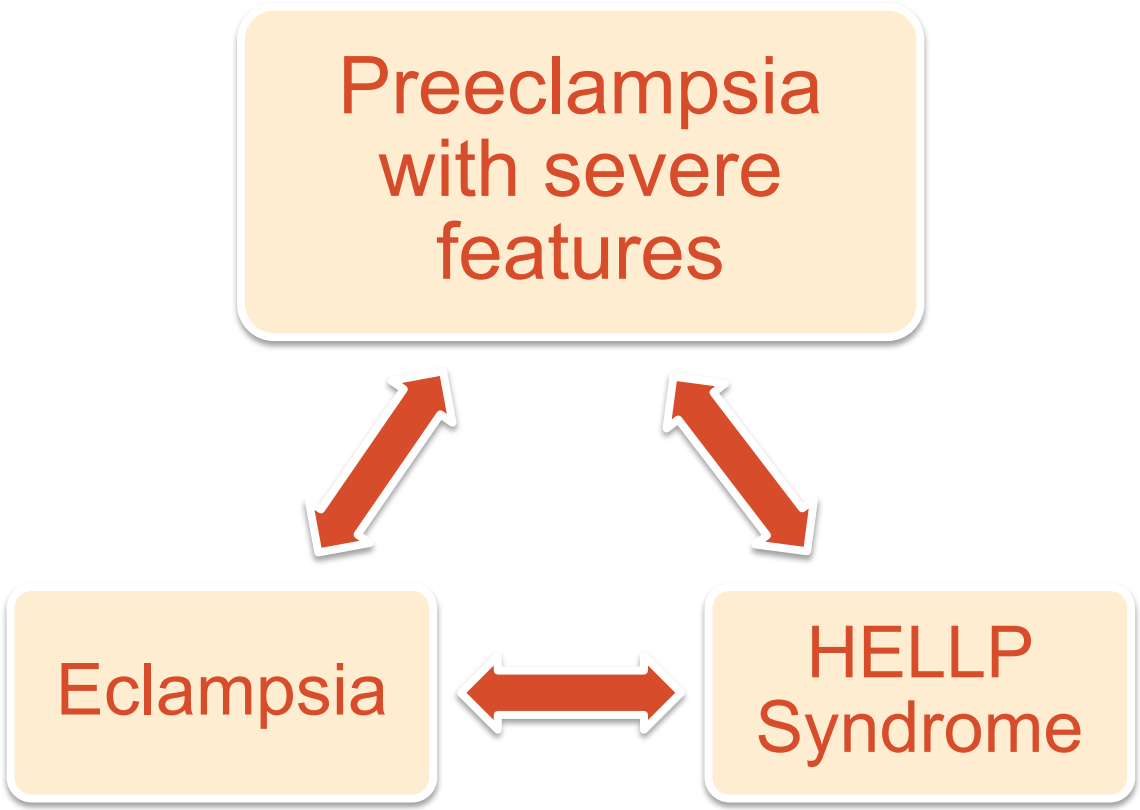
- Chronic HTN
  - Hypertension diagnosed or present before pregnancy or before 20 weeks of gestation

OR

  - Hypertension diagnosed for the first-time during pregnancy and does not resolve in the postpartum period
- Superimposed preeclampsia
  - Preeclampsia with a history of hypertension before pregnancy or before 20 weeks gestation

*NOTE: Preexisting proteinuria prior to 20 weeks gestation would be suggestive of chronic renal disease, often associated with longstanding hypertension and/or diabetes, or autoimmune disease*

# The Spectrum of Preeclampsia is Variable




ACOG Practice Bulletin #222 Gestational Hypertension and Preeclampsia, 2020

## HELLP Syndrome

- Hemolysis, Elevated Liver enzymes, Low Platelets
- Preeclampsia with severe features develops hepatic and hematologic manifestations

*Note: HELLP syndrome can occur without hypertension or proteinuria*

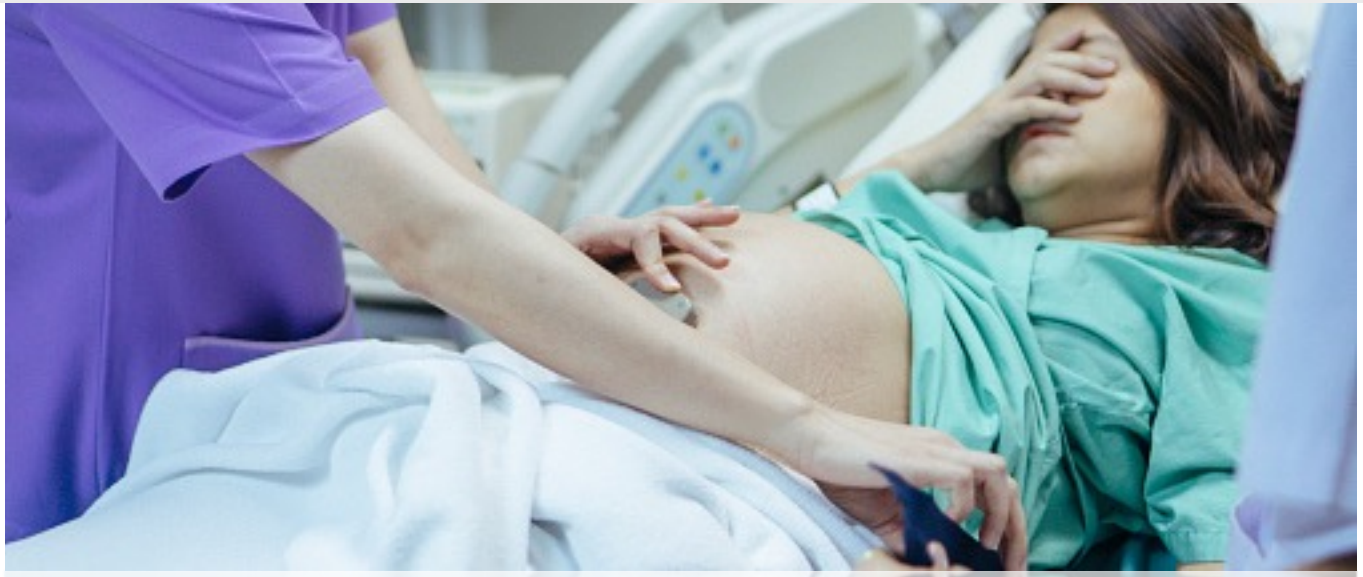
# Hypertensive Emergency in Pregnancy/Postpartum

Applies to all forms of HDP: chronic, gestational, and preeclampsia with or without severe features

| Systolic | Diastolic | Action |
|---|---|---|
| ≥ 160 | ≥ 110 | Repeat BP within 15 minutes.<br>If BP remains within severe-range - treat within 30-60 minutes (ideally ASAP). |

***DO NOT WAIT TO TREAT THE HYPERTENSIVE EMERGENCY***

ACOG Practice Bulletin #222, June 2020



# Response

- Blood Pressure Control
- Seizure Prophylaxis and Management
- Delivery and Expectant Management
- Postpartum Surveillance

# Clinical Pearl

Controlling blood pressure is the optimal intervention to prevent deaths due to stroke in women with preeclampsia.

# Addressing Critical Maternal Blood Pressure

- ***At the time of presentation*** whether the patient has preeclampsia with severe features, severe gestational hypertension, superimposed CHTN or an exacerbation of CHTN is *not* known
- The ***initial stabilization*** of the patient should be timely treatment of BP (labetalol, hydralazine or nifedipine) and prevention of seizure (magnesium sulfate)

# Medication Protocols: First Line Agents in Preeclampsia

| Medication Agents | Labetalol IV[A] | Hydralazine IV[B,C] | Nifedipine (Immediate release) |
|---|---|---|---|
| **Route** | IV | IV | PO |
| **Initial therapy** | 20 mg | 5-10 mg | 10 mg |
| **Onset[E,F,G]** | 2-5 minutes | 5-20 minutes | 5-20 minutes |
| **Peak[E,F,G]** | 5 minutes | 15-30 minutes | 30-60 minutes |
| **Max dose[D]** (Before switching agents) | 140 mg | 20 mg | 50 mg |
| **Mechanism of action** | • Combined α and β-blocking agent<br>• Arteriolar dilator<br>• Decreases heart rate | • Arteriolar dilator | • Calcium channel blocker<br>• Arterial smooth muscle dilator |
| **Side effects** | • Use with caution in patients with known asthma<br>• Flushing, light headedness, palpitations and scalp tingling<br>• Safe for use after cocaine and amphetamine use (including methamphetamine)[A] | • Tachycardia, headache[E]<br>• Upper abdominal pain (rare)<br>• Flushing<br>• Nausea[B] | • Reflex tachycardia<br>• Headache<br>• Flushing<br>• Nausea<br>• Vomiting |

A: (Richards, Hollander et al. 2017) B: (Raheem, Saaid et al. 2012) C: (Duley, Meher et al. 2013) D: (ACOG 222 2020) E: (Cohan and Checcio 1985) F: (Cheng, Cheng-Lai et al. 2005) G: (Raheem, Saaid et al. 2012)

# Preventing Stroke from Preeclampsia

## Significance of Systolic Hypertension and Alternative Blood Pressure Triggers

| Measure | Judy et al. Pre-stroke (mm Hg) Women with maternal mortality from stroke and preeclampsia N=26 | Martin et al. Pre-stroke (mm Hg) Women with strokes N=28 | Total N=54 |
|---|---|---|---|
| Systolic BP range | 134-238 mm Hg | 159-198 mm Hg | |
| Systolic BP % ≥ 160 | 96% (n=25) | 95.2% (n=27) | N= 52 / 54 **(< 160, n=2)** |
| Diastolic BP range | 79-148 mm Hg | 81-113 mm Hg | |
| Diastolic BP % ≥ 110 | 65% (n=17) | 12% (n=3) | n= 20 / 54 |
| Diastolic BP % ≥ 105 | 73% (n=19) | 20.8 (n=5) | n= 24 / 54 **(105-110, n=4)** |

Martin JN, et a;/ OG 2005;105-246. Judy AE, et al. Obstet Gynecol 2019; 133; 1151-1159. Judy AJ et al. Obstet Gynecol 2019;1133:1151-9.

# Borderline Severe-Range Blood Pressure Recommendations

- Physician notification of borderline severe BPs
- Physician evaluation of the patient
- Continuous electronic fetal monitoring
- Inpatient observation for a minimum of **24-48 hours**
- Vital signs and symptom assessment every **2 hours** for a minimum of **24 hours**
- Serial assessment of serum labs at least daily for **2 days**

**Consider antihypertensive therapy and magnesium sulfate at ≥ 155-159/ ≥ 105-109 mm Hg**

*Refer to Toolkit Section: Borderline Severe-range Blood Pressures: A Clinical Conundrum

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# 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

[smi-hypertension-bundle-labetalol-algorithm.pdf (acog.org)]

# Hydralazine 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. Administer hydralazine[§] 5 mg or 10 mg IV over 2 minutes
2. Repeat BP in 20 minutes
3. If SBP ≥ 160 or DBP ≥ 110, administer hydralazine 10 mg IV over 2 minutes
4. Repeat BP in 20 minutes
5. If SBP ≥ 160 or DBP ≥ 110, administer labetalol 20 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 labetalol 40 mg IV over 2 minutes, and obtain emergency consultation from specialist in MFM, internal medicine, anesthesiology, or critical care
8. Give additional antihypertensive medication per specific order as recommended by specialist
9. Once BP thresholds are achieved, repeat BP:
10. - 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
11. 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
- There may be adverse effects and contraindications.
- Clinical judgement should prevail.

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§ Hydralazine may increase risk of maternal hypotension.

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Revised February 2020

[smi-hypertension-bundle-hydralazine-algorithm.pdf (acog.org)]

# Immediate-Release Oral Nifedipine 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. **Immediate-Release Oral nifedipine[§] 10 mg**
2. **Repeat BP in 20 minutes**
3. **If SBP ≥ 160 or DBP ≥ 110, administer oral nifedipine 20 mg; If below threshold, continue to monitor BP closely**
4. **Repeat BP in 20 minutes**
5. **If SBP >/=160 or DBP >/=110, give additional round of oral nifedipine 20 mg**
6. **Repeat BP in 20 minutes**
7. **If SBP ≥ 160 or DBP ≥ 110, administer IV labetalol[†] 20 mg.**
8. **If either BP threshold is still exceeded, administer labetalol (20mg IV for more than 2 minutes) and obtain emergency consultation from maternal-fetal medicine, internal medicine, anesthesia, or critical care subspecialists.**
9. **If SBP >/=160 or DBP >/=110, give additional antihypertensive medication per specific order as recommended by specialist**
   **Obtain emergency consultation from specialist in MFM, internal medicine, anesthesiology, or critical care.**
10. **Once BP thresholds are achieved, repeat BP:**
11. **- 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**
12. **Institute additional BP monitoring per specific order**

- Notify provider after one severe BP value is obtained
- Institute fetal surveillance if viable
- Capsules should be administered orally and not punctured or otherwise administered sublingually
- There may be adverse effects and contraindications. Clinical judgement should prevail.

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

§ Immediate-release oral nifedipine has been associated with an increase in maternal heart rate and may overshoot hypotension.

† **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.

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Revised February 2020

[smi-hypertension-bundle-oral-nifedipine-algorithm.pdf (acog.org)]

# Magnesium Sulfate

Magnesium sulfate for seizure prophylaxis is indicated for:

- Preeclampsia with **severe features** and **severe gestational hypertension**
- All cases of severe (≥ 160 mm Hg / ≥ 110 mm Hg), sustained (lasting 15 minutes or more) hypertension ***regardless of classification***

Magnesium Sulfate is ***not*** universally recommended for preeclampsia without severe features

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# Magnesium Sulfate

Magnesium sulfate is **not** an **antihypertensive** medication

- Primary effect is via CNS depression
- Improves blood flow to CNS via small vessel vasodilation
- Blood pressure after magnesium infusion of 4-6 gm loading, then 2 gm/hour

| | sBP mm Hg | sBP 30 min | sBP 120 min | dBP mm Hg | dBP 30 min | dBP 120 min |
|---|---|---|---|---|---|---|
| Mild Group | 145 ±10 | 143 ±13 | 141 ±14 | 87 ±10 | 79 ±9 | 82 ±9 |

Belfort M, et al. Hypertens Pregnancy. 2008;27(4):315-27; ACOG Practice Bulletin 222 Gestational Hypertension and Preeclampsia 2020.

# Eclampsia

**Gestational Hypertension and Preeclampsia, ACOG Practice Bulletin #222, 2020**

- Eclampsia is defined as NEW ONSET tonic-clonic, focal, or multifocal seizures in absence of other causative conditions, such as epilepsy, cerebral arterial ischemia, intracranial hemorrhage, or drug use
- U.S. Incidence - 1 in 1,000 deliveries
- Mortality from eclampsia ranges from ~1% in the developed world, to as high as 15% in the developing world

# Characterization of Symptoms Immediately Preceding Eclampsia

- 3,267 deliveries with 46 cases of eclampsia (1.4%)
- Most common prodromal neurological symptoms--regardless of the degree of hypertension OR whether the seizure occurred antepartum or postpartum
  - **Headaches (80%)**
  - **Visual disturbance (45%)**
- 20% of women with eclampsia reported no neurologic symptoms before the seizure

Cooray SD, Edmonds SM, Tong S, et al. Obstetrics & Gynecology, Vol 118(5):1000-1004, November 2011.

# Key Points

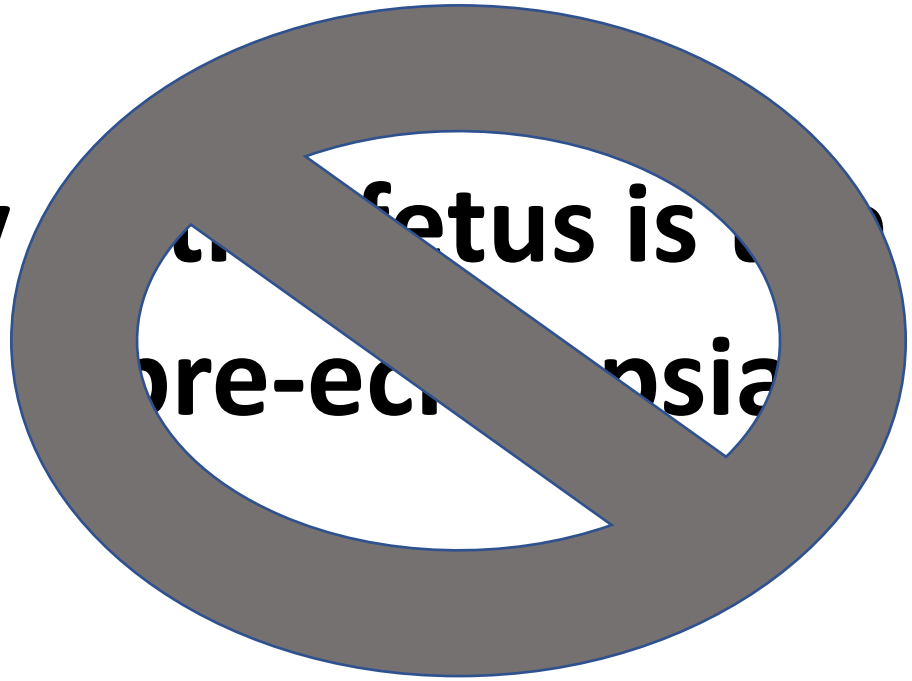
- Hypertensive disorders of pregnancy are on of the leading causes of maternal morbidity and mortality
- The most important first step when a patient presents to the ED is to identify whether they are or have been pregnant in the last 6 weeks
- Critical or “trigger” BP ≥ 160 systolic OR ≥ 110 diastolic (these values are typically lower than values used for hypertensive emergencies in non-ob patients
- These patients can deteriorate rapidly – transfer to an appropriate level of care is priority

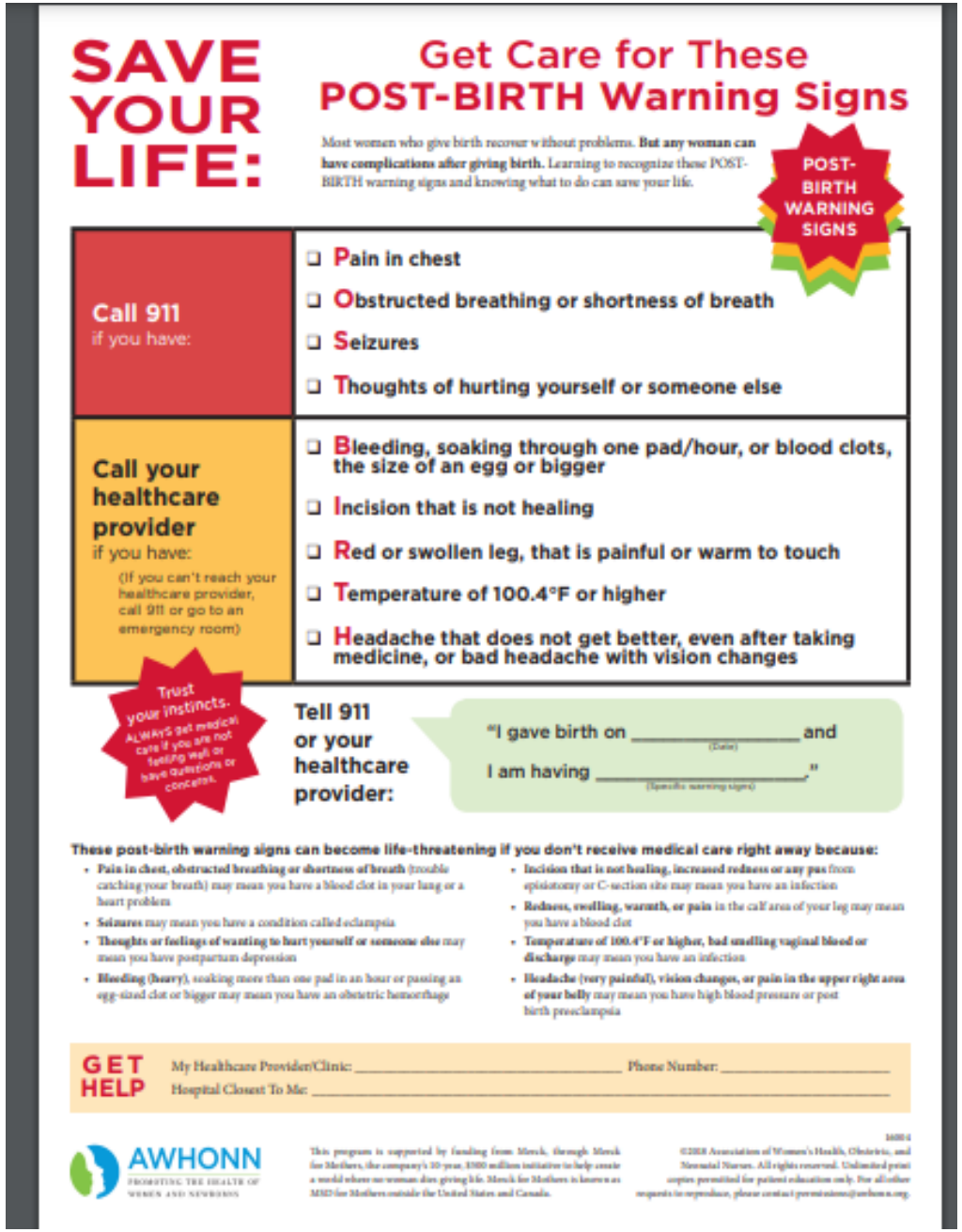
# Preeclampsia in the Emergency Department

- The "trigger" BP in pregnancy/postpartum (≥ 160/110) is lower than values for hypertensive emergencies in non-OB patients
- ED personnel should be familiar with risk factors and signs and symptoms of postpartum preeclampsia and eclampsia
- Develop a workflow for your hospital between ED and OB teams

ED clinicians should focus on:
Maternal resuscitation
BP management
Seizure prophylaxis
Notifying OB team

Delivery [illegible] fetus is [illegible] cure for [illegible]re-ec[illegible]nsia





SAVE YOUR LIFE:

Get Care for These POST-BIRTH Warning Signs

Most women who give birth recover without problems. **But any woman can have complications after giving birth.** Learning to recognize these POST-BIRTH warning signs and knowing what to do can save your life.

POST-BIRTH WARNING SIGNS

**Call 911** if you have:

- ❑ Pain in chest
- ❑ Obstructed breathing or shortness of breath
- ❑ Seizures
- ❑ Thoughts of hurting yourself or someone else

**Call your healthcare provider** if you have:

(If you can't reach your healthcare provider, call 911 or go to an emergency room)

- ❑ Bleeding, soaking through one pad/hour, or blood clots, the size of an egg or bigger
- ❑ Incision that is not healing
- ❑ Red or swollen leg, that is painful or warm to touch
- ❑ Temperature of 100.4°F or higher
- ❑ Headache that does not get better, even after taking medicine, or bad headache with vision changes

Trust your instincts. ALWAYS get medical care if you are not feeling well or have questions or concerns.

**Tell 911 or your healthcare provider:**

"I gave birth on _____ (Date) and I am having _____ (Specific warning signs)."

**These post-birth warning signs can become life-threatening if you don't receive medical care right away because:**

- **Pain in chest, obstructed breathing or shortness of breath** (trouble catching your breath) may mean you have a blood clot in your lung or a heart problem
- **Seizures** may mean you have a condition called eclampsia
- **Thoughts or feelings of wanting to hurt yourself or someone else** may mean you have postpartum depression
- **Bleeding (heavy)**, soaking more than one pad in an hour or passing an egg-sized clot or bigger may mean you have an obstetric hemorrhage
- **Incision that is not healing, increased redness or any pus** from episiotomy or C-section site may mean you have an infection
- **Redness, swelling, warmth, or pain** in the calf area of your leg may mean you have a blood clot
- **Temperature of 100.4°F or higher, bad smelling vaginal blood or discharge** may mean you have an infection
- **Headache (very painful), vision changes, or pain in the upper right area of your belly** may mean you have high blood pressure or post birth preeclampsia

**GET HELP**

My Healthcare Provider/Clinic: _____ Phone Number: _____

Hospital Closest To Me: _____

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PROMOTING THE HEALTH OF WOMEN AND NEWBORNS

This program is supported by funding from Merck, through Merck for Mothers, the company's 10-year, $500 million initiative to help create a world where no woman dies giving life. Merck for Mothers is known as MSD for Mothers outside the United States and Canada.



- Available in
  - English
  - Spanish
  - Arabic
  - Mandarin Chinese

https://www.awhonn.org/education/hospital-products/post-birth-warning-signs-education-program/

# Post Partum Preeclampsia

- Delivery is not the cure for preeclampsia it is a treatment


# What is Postpartum Preeclampsia

- Serious condition related to high blood pressure
- Can happen to **any** woman who just had a baby
- Has most of the same features of preeclampsia or other hypertensive disorders of pregnancy
- Can be more dangerous than preeclampsia during pregnancy because it can be hard to identify

# Signs and Symptoms

- Changes in vision
- Headache that doesn’t go away
- Nausea, vomiting or dizziness
- Pain in the upper right belly area or in the shoulder
- Swelling in the legs, hands or face
- Trouble breathing
- Decreased urination
- Blood Pressure > 140/90
- Too much protein in the urine

# What Causes Post Partum Preeclampsia?

Like preeclampsia, no definitive cause

Delivery, in most cases, is the acute treatment, not a cure

Possible that this condition begins during pregnancy but doesn’t show signs or symptoms until after the baby has arrived

# When does postpartum preeclampsia occur?

Most commonly withing the first seven days after delivery

At risk for up to six weeks after delivery

Can still manifest if no preeclampsia during pregnancy

# Late Postpartum Eclampsia

- > 48 hours following delivery, up to 6 weeks PP
- Accounts for approximately 26% of cases of eclampsia
- 78% had no antepartum hypertensive diagnosis
- The magnitude of blood pressure elevation does not appear to be predictive of eclampsia
- The most common presenting symptom was headache, occurring in ~ 70% of patients
  - Other prodromal symptoms included shortness of breath, blurred vision, nausea, vomiting, edema, neurological deficit, and epigastric pain

Al-Safi Z, Imudia A, Filetti L, et al. Obstet Gynecol. 2011;118(5):1102-1107.

# Long-Term Risk after Hypertensive Disorders of Pregnancy

- Patients with a history of HDP during pregnancy or the postpartum period are at increased risk for:
  - **Pulmonary edema**
  - **Cardiomyopathy**
- Those with low oxygen saturation, shortness of breath, or dyspnea should be evaluated and treated
  - BNP, EKG, CXR, cardiac echo, cardiology consultation
- Patients should be counseled that HDP increases risk of future cardiovascular disease and their primary care provider should be made aware of their pregnancy history

# Clinical Pearl

Postpartum women who present to the emergency department and have “trigger or critical hypertension” or suspected preeclampsia should be assessed by and/or admitted to obstetrical service.

# Resources

- Hypertensive Disorders of Pregnancy Toolkit | California Maternal Quality Care Collaborative (cmqcc.org)

# References


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- Gestational Hypertension and Preeclampsia: ACOG Practice Bulletin Summary, Number 222. Obstet Gynecol. 2020 Jun;135(6):1492-1495. doi: 10.1097/AOG.0000000000003892. PMID: 32443077.
- Home - Preeclampsia Foundation

# Thank You !

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