Safety Action Series

Maternal Early Warning Signs: Preeclampsia
Speakers

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Disclosures

- Eleni Tsigas has no real or perceived conflicts of interest.

- Jessica Deeb, MS, RN, WHNP-BC, LCCE, CLC has no real or perceived conflicts of interest.
Objectives

➢ Describe the Maternal Early Warning Signs (MEWS) in general and in the context of preeclampsia recognition and prevention.

➢ Discuss the role of patient factors in potential preventability and the significance of effective patient education related to early warning signs for preeclampsia.

➢ Identify materials and patient resources that should be included in every patient education plan and suggest implementation strategies for your institution.
What is Preeclampsia? HDP?

Hypertensive disorders of pregnancy

1. preeclampsia–eclampsia (includes HELLP)
2. chronic hypertension (of any cause)
3. chronic hypertension with superimposed preeclampsia
4. gestational hypertension

ACOG Hypertension in Pregnancy (2013)
What is Preeclampsia? HDP?

- BP: >140/90+ (2 readings 4-6 hrs apart) PLUS
- Proteinuria: 300 mg in 24 hr urine collection; 0.3 mg/dL from PCR; 1+ from dipstick AND/OR
- In association with (new onset):
  - thrombocytopenia
  - impaired liver function
  - renal insufficiency
  - pulmonary edema
  - cerebral or visual disturbances

ACOG Hypertension in Pregnancy (2013)
Symptoms

- Headache that won’t go away
- Visual disturbances (seeing spots or auras)
- Epigastric pain (upper right quadrant)
- Nausea/vomiting (2H pregnancy)
- Sudden weight gain
- Breathlessness (difficulty breathing)
- Swelling of the face or hands
- “just not feeling right”; unexplained “anxiety”

ACOG Hypertension in Pregnancy (2013)
Preeclampsia Foundation (www.preeclampsia.org)

Slide 7
Management

1. Recognize signs and symptoms
2. BP control
3. Seizure prevention
4. Delivery (34 weeks, 37 weeks)
5. Postpartum surveillance

Only 5 Things!!
Identify specific triggers for responding to changes in the mother’s vital signs and clinical condition and use protocols for responding to these changes.
Have a process for recognizing and responding as soon as a patient’s condition appears to be worsening.

Develop written criteria describing early warning signs of a change or deterioration in a patient’s condition and when to seek further assistance.

Based on the hospital’s early warning criteria, have staff seek additional assistance when they have concerns about a patient’s condition.

Inform the patient and family how to seek assistance when they have concerns about a patient’s condition.
CONCLUSION: Pregnancy-related mortality should not be considered a single clinical entity. Reducing mortality requires in-depth examination of individual causes of death. The five leading causes exhibit different characteristics, degrees of preventability, and contributing factors, with the greatest improvement opportunities identified for hemorrhage and preeclampsia. These findings provide additional support for hospital, state, and national maternal safety programs.

*(Obstet Gynecol 2015;125:938–47)*

*DOI: 10.1097/AOG.0000000000000746*

*LEVEL OF EVIDENCE: II*
## Contributing Factors

<table>
<thead>
<tr>
<th></th>
<th>Preeclampsia or Eclampsia</th>
<th>Obstetric Hemorrhage</th>
<th>Cardiovascular Disease</th>
<th>Venous Thromboembolism</th>
<th>Amniotic Fluid Embolism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed Response to Triggers</td>
<td>92%</td>
<td>85%</td>
<td>63%</td>
<td>75%</td>
<td>67%</td>
</tr>
<tr>
<td>Ineffective Care</td>
<td>69%</td>
<td>75%</td>
<td>45%</td>
<td>45%</td>
<td>50%</td>
</tr>
<tr>
<td>Misdiagnosis</td>
<td>42%</td>
<td>40%</td>
<td>31%</td>
<td>50%</td>
<td>–</td>
</tr>
<tr>
<td>Failure to Consult</td>
<td>8%</td>
<td>25%</td>
<td>10%</td>
<td>25%</td>
<td>6%</td>
</tr>
<tr>
<td>Lack of Continuity of Care</td>
<td>39%</td>
<td>30%</td>
<td>27%</td>
<td>25%</td>
<td>–</td>
</tr>
</tbody>
</table>

> 15% to 30  > 30% to 60%  > 60%

Main EK et al. Pregnancy-related mortality in California: Causes, characteristics, and improvement opportunities
Patient Factors

FL-PAMR 2009-2013    CA-PAMR 2002-2004

Maternal Recognition Improves Outcomes

“The best way to diagnose preeclampsia is to listen to your patients.”
~ Dr. Baha Sibai
Scenarios

➢ A busy hospital with woman lying in bed with her husband or family member nearby. She clutches her head and complains of an excruciating headache. What does she do about it? Does her husband lovingly stroke her arm and tell her ‘she’s tough, she can do this’?

➢ A nurse takes a mother’s BP. She looks puzzled and takes it again. Slightly better. What does the patient do or say in response? Will the nurse come back to take it again? When?

Recently in the news...
The Last Person You’d Expect to Die in Childbirth

The U.S. has the worst rate of maternal deaths in the developed world, and 60 percent are preventable. The death of Lauren Bloomstein, a neonatal nurse, in the hospital where she worked illustrates a profound disparity: The health care system focuses on babies but often ignores their mothers.

1, ProPublica, and Renee Montagne, NPR May 12, 2017

Story was co-published with NPR.

Lauren McCarthy Bloomstein
What are Early Warning Signs?

*Early warning signs are* “ . . . a set of predetermined ‘calling criteria’ (based on periodic charting of vital signs) as indicators of the need to escalate monitoring or call for assistance”

Maternal Early Warning Criteria
Immediate Action Required

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP (mm Hg) &lt; 90 or &gt; 160</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Diastolic BP (mm Hg) &gt; 100</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Heart rate (beats per min) &lt; 50 or &gt; 120</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Respiratory rate (breaths per min) &lt; 10 or &gt; 30</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Oxygen saturation on room air at sea level &lt; 95%</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Oliguria mL/hr for 2 hours &lt; 35</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Maternal agitation, confusion, or unresponsiveness</td>
<td>Immediate action</td>
</tr>
<tr>
<td>Patient with HTN reporting a non-remitting headache or shortness of breath</td>
<td>Immediate action</td>
</tr>
</tbody>
</table>

*Note: These triggers cannot address every possible clinical scenario that could be faced by an obstetric clinician and must not replace clinical judgment. As a core safety principle, bedside nurses should not hesitate to escalate their concerns at any point.*

Urgent bedside evaluation is usually indicated if:

- Any value persists for more than one measurement
- Values present in combination with additional abnormal parameters
- Value recurs more than once
Effective Escalation Policy

An abnormal parameter would require:

1) Prompt **reporting** to a physician or other qualified clinician

2) Prompt bedside **evaluation** by a physician or other qualified clinician with the ability to activate resources in order to initiate emergency diagnostic and therapeutic interventions as needed
Why Bedside Evaluation

- Maternal mortality reviews repeatedly identify the **lethal consequences** of phone-based management in women developing critical illness

- Stop * Look * Listen
  - Message to really pay attention to women’s concerns/complaints, create safe & positive experience for all mothers
Evaluating Clinician

- RRT
- Anesthesia Provider
- Obstetric Provider
- ED Physician
- MFM
- Patient
- Family Doctor
- Bedside Nurse
- Hospitalist
- Nurse Midwife
- COUNCIL ON PATIENT SAFETY
- IN WOMEN'S HEALTH CARE
- safe health care for every woman
Local Implementation

Need to define:

1) Who to notify
2) How to notify them
3) How rapidly to expect a response
4) When and how to activate the clinical chain of command in order to ensure an appropriate response

What is the role of the patient or family member in this process? Is it clear from admission how and when patients or family should engage staff?
Encouraging Patient & Family Activation

“The hospital recognizes and responds to changes in a patient’s condition,” and “informs the patient and family how to seek assistance when they have concerns about a patient’s condition.”

✓ Patients and Families are partners at every level of care
✓ Patient and Family awareness of risks, signs and symptoms
✓ Patient and Family know how to seek help when they have concerns
When you hear Lamaze what do you think?
The mission of Lamaze International is to advance safe and healthy pregnancy, birth and early parenting through evidence-based education and advocacy.
Lamaze
for parents
SIX HEALTHY BIRTH PRACTICES

1. Let Labor Begin On Its Own
2. Walk, Move, Change Positions
3. Continuous Labor Support
4. Avoid Routine Interventions
5. Upright and Spontaneous Pushing
6. Keep Mother and Baby Together

supports good outcomes

Visit lamaze.org/HealthyBirthPractices for information and to watch videos demonstrating each healthy birth practice.
Active or Passive Participant?

Consider how you approach the patient

– Do you present her with options or tell her what needs to be done?
– Do you give informed consent or engage in shared decision making?

*Pregnant women are the ideal population to participate in the shared decision making programs because for many decisions they have plenty of time to think about their preferences and learn the options*”

Maureen Corry
Executive Director, Childbirth Connection
## Adult Learners

<table>
<thead>
<tr>
<th>Agenda</th>
<th>I have my own agenda. I appreciate having input into the agenda, so my questions will be answered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>I come to class with my own knowledge and life experiences. Let me discuss my thoughts that pertain to the subject, if I wish.</td>
</tr>
<tr>
<td>Understand my needs</td>
<td>Give me choices, and let me use what works for me. Make me feel welcome.</td>
</tr>
<tr>
<td>Learning preferences</td>
<td>Use a variety of visual, auditory, and kinesthetic teaching strategies to keep me involved and interested.</td>
</tr>
<tr>
<td>Time</td>
<td>My time is valuable. Don’t waste it.</td>
</tr>
<tr>
<td>Setting</td>
<td>The setting should be as welcoming and as comfortable as possible.</td>
</tr>
</tbody>
</table>
Concepts for Educators

- Students want to know, “What’s in it for me?”
- 60–70% of the instruction should be student-driven.
- Adults can listen for understanding for 90 minutes, but retain only 20 minutes of information.
- Repetition aids retention.
- Present information in lists of three for better recall.
General Tips

• Greet the woman and her family
• Ask her how she learns best
• Share your enthusiasm for the topic
• Repetition aids retention
Research

OBSTETRICS

Improving patient understanding of preeclampsia: a randomized controlled trial

Whitney B. You, MD, MPH; Michael S. Wolf, PhD, MPH; Stacy C. Bailey, PhD, MPH; William A. Grobman, MD, MBA

OBJECTIVE: We developed a standardized educational tool to inform women about preeclampsia. The objective of this study was to assess whether exposure to this tool led to superior understanding of the syndrome.

STUDY DESIGN: This was a randomized controlled trial in which 120 women were assigned to (1) a newly developed preeclampsia educational tool, (2) a standard pamphlet addressing preeclampsia that had been created by the American College of Obstetricians and Gynecologists, or (3) no additional information. Preeclampsia knowledge was assessed with the use of a previously validated questionnaire.

RESULTS: There were no demographic differences among the groups. Patients who received the tool scored significantly better on the preeclampsia questionnaire than those who received the American College of Obstetricians and Gynecologists pamphlet or no additional information (71%, 63%, 49%, respectively; \( P < .05 \)). This improved understanding was evident equally among women with and without adequate health literacy (interaction: \( P > .05 \)).

CONCLUSION: Patients who were exposed to a graphics-based educational tool demonstrated superior preeclampsia-related knowledge, compared with those patients who were exposed to standard materials or no education.

Key words: education, literacy, preeclampsia

Preeclampsia is a pregnancy-specific condition that affects between 5% and 8% of the pregnant population. The...
Patient Education Toolkit

Video available in English and Spanish on YouTube™ or for adding to your website
English views: 100,000
Spanish views: 210,000

These and other patient education materials are available in multiple languages and can be ordered from www.preeclampsia.org/store
Your Patient Education Toolkit

Preeclampsia & Heart Disease
Pregnancy history is significant to future heart health

Preeclampsia
Conozca los síntomas.
Confie en sí misma.

Preeclampsia
Know the symptoms.
Trust yourself.

HELLP Syndrome
A severe variant of preeclampsia
More Resources

Preeclampsia Awareness Month: Four Facts Childbirth Educators Can Share with Families About Preeclampsia

By Laney Poye, Preeclampsia Foundation Director of Community Relations

May is National Preeclampsia Awareness Month and the Preeclampsia Foundation has focused this year's campaign on "Faces of Preeclampsia: Any Woman, Any Pregnancy" to focus on the many myths that exist around this life-threatening disorder of pregnancy. Preeclampsia is one of the top perinatal causes of maternal and infant death in the United States. Today on Science & Sensibility, Preeclampsia Foundation Director of Community Relations Laney Poye provides a look at four important things that childbirth educators can share to educate families about preeclampsia. You can also "Test Your Preeclampsia IQ" and show off how much you know about the disease. Have you checked out the information available at the Preeclampsia Foundation's website? There is a great short video, class tear sheets, and even information en español (including this video in Spanish - "7 Symptoms Every Pregnant Woman Should Know/7 Síntomas Que Toda Mujer Embarazada". How do you cover preeclampsia with the families that you work with? Let us know in the comments sections what your favorite
Symptoms of Preeclampsia - Preeclampsia Awareness Month

May is Preeclampsia Awareness Month, and the Preeclampsia Foundation has proclaimed this year’s theme “The Faces of Preeclampsia: Any Woman, Any Pregnancy.” As the name of the theme implies, any woman can develop preeclampsia, and any woman can develop preeclampsia during any pregnancy (whether or not she’s had it before). Lamaze wants to make sure women everywhere know the symptoms or preeclampsia and can help spread the word about this life-threatening but treatable illness. Even if you aren’t pregnant, helping another woman spot a potential symptom could save her and her baby’s life. In fact, research tells us that as one of the five leading causes of maternal death, preeclampsia is the most preventable. The most effective way to prevent death from preeclampsia is to seek timely care, and a woman will only do so if she knows and understands the symptoms. Take a look below and share this post and graphic with your community of friends and family on social media. You may save a life!
Lamaze International Resources


ACOG Positions Align with The Lamaze Six Healthy Birth Practices. Lamaze International.
Resources

- **Council on Patient Safety in Women’s Healthcare** (safehealthcareforeverywoman.org)
  - Bundles
    - Hypertension in Pregnancy
  - Training
  - Tools & resources
    - Maternal Early Warning Signs Protocol
  - Webinars
    - MEWS Criteria Overview
    - MEWS: Implementing Escalation Plan

- **Preeclampsia Foundation** (preeclampsia.org)
  - Patient support, education materials, online articles

- **Lamaze International** (lamaze.org)
  - Evidence based education, family support, empowerment
Summary

- Preeclampsia often presents with early warning signs, requiring bedside evaluation and escalation in hospital
  - Other Patient Safety Action Series webinars on Maternal Early Warning System (MEWS) address this in detail
- Symptoms of preeclampsia can be effectively explained to patient and her support system during prenatal, intrapartum, and postpartum care
- Patients should know how to escalate concerns; providers should “stop, look, listen”
- Useful and cost-effective patient education materials are available
- Adult learning techniques and presenting information multiple times, multiple ways increase comprehension and retention, leading to more empowered, engaged patients and family members.
Q&A Session

Press *1 to ask a question

You will enter the question queue
Your line will be unmuted by the operator for your turn

A recording of this presentation will be made available on our website:
www.safehealthcareforeverywoman.org
Please sign up [HERE](http://safehealthcareforeverywoman.org/sign-up-to-receive-council-updates/) to receive information on Patient Safety Bundle releases, Safety Action Series presentations, and updates on Council activities.