

# Preeclampsia: Impacting Mothers, Infants and Families

## Webinar:

Healthy Start Strategies for  
Improving Pregnancy Outcomes  
Dec. 13, 2016

*Eleni Tsigas, Executive Director*  
*[eleni.tsigas@preeclampsia.org](mailto:eleni.tsigas@preeclampsia.org)*

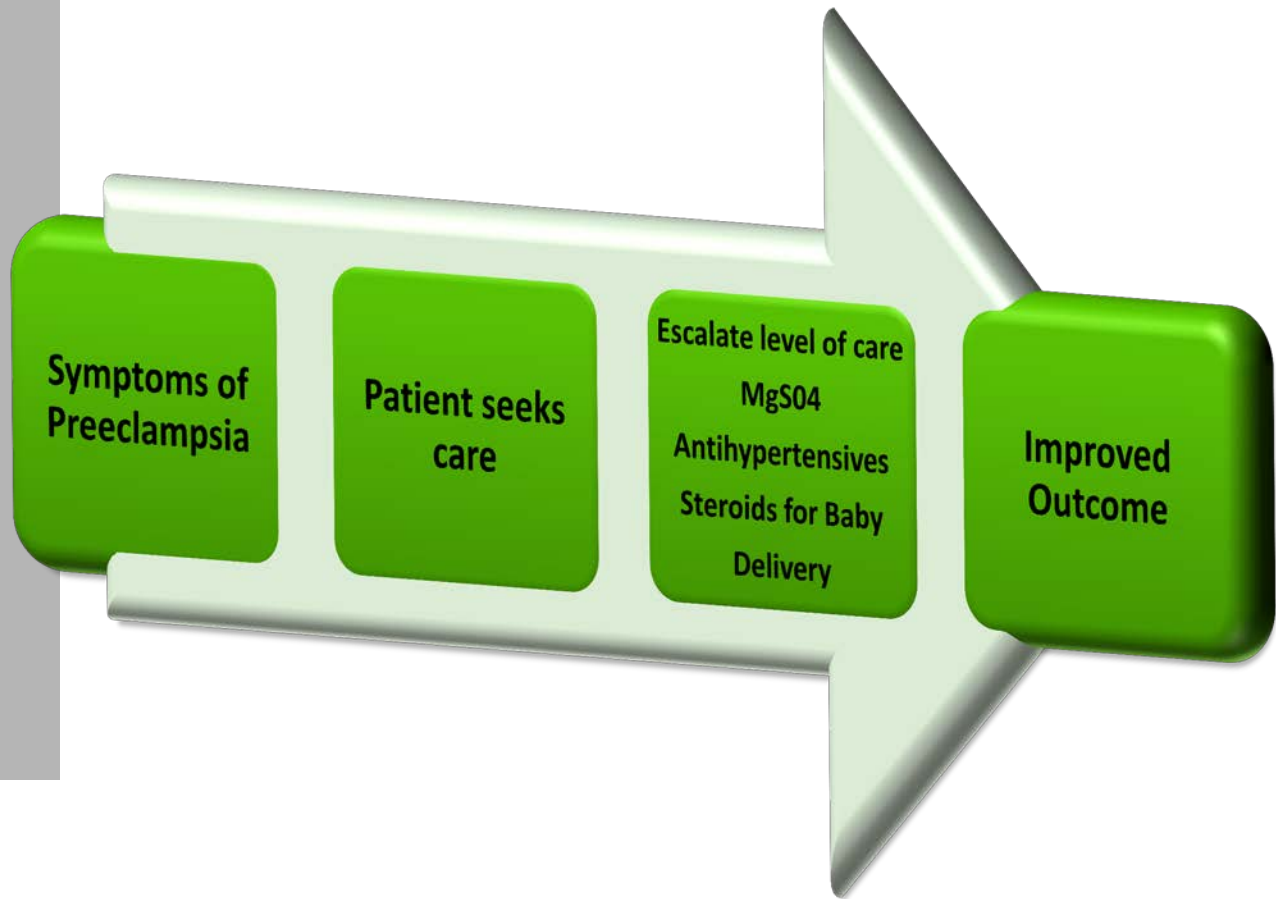


@Eleni\_Z\_Tsigas



**Why do we need patient education?**

# Maternal Recognition Improves Outcomes

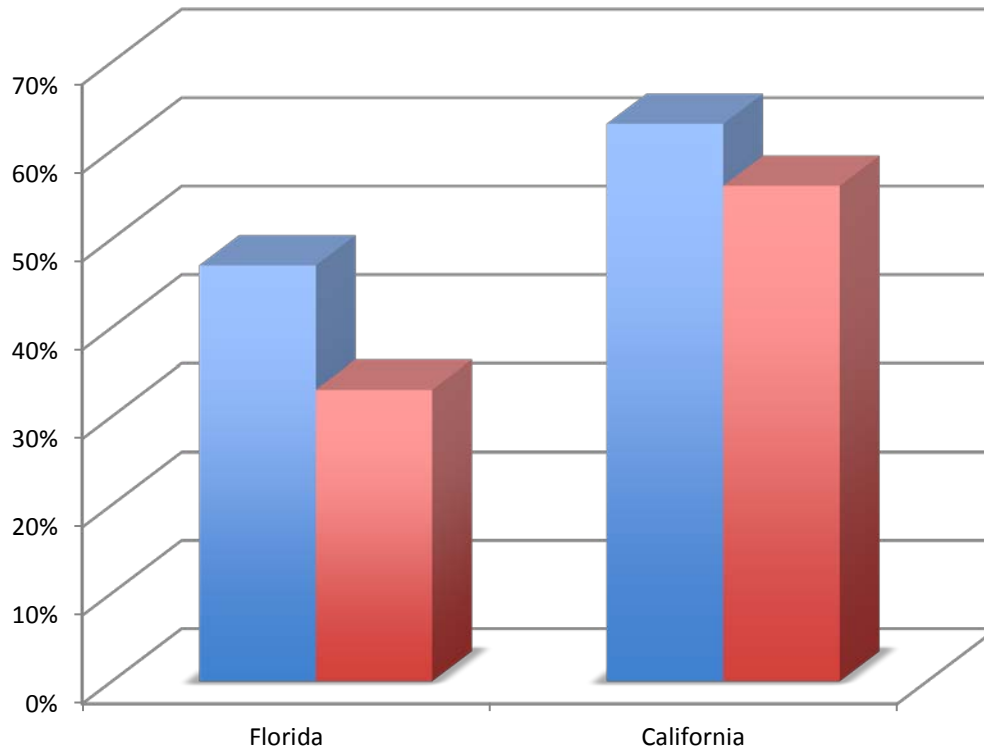


***“The best way to diagnose preeclampsia is to listen to your patients.”***

**~ Dr. Baha Sibai**

# Where are the gaps in care?

## Community factors in MM from HDP



- Personal Decisions (delay in seeking care)
- Lack of Knowledge (regarding the severity of a symptom)



FL-PAMR 2009-2013

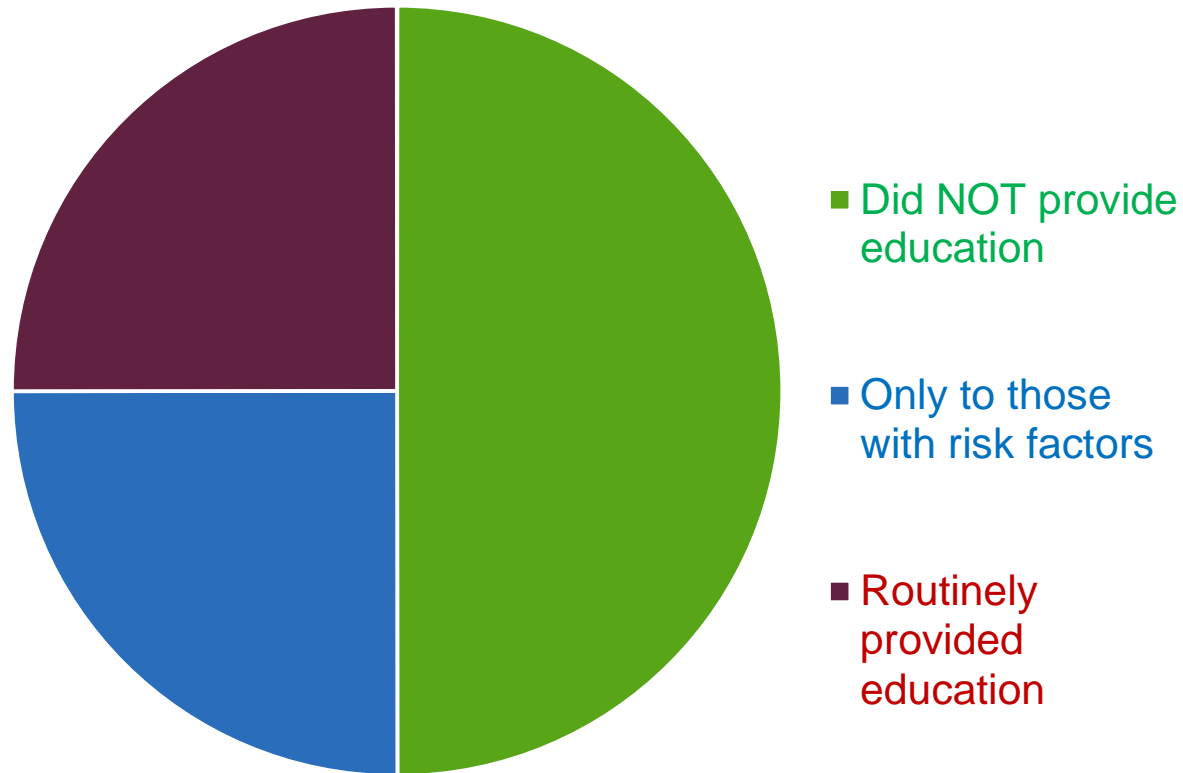


CA-PAMR 2002-2004



# Healthy Start Experiences with Patient Education in PE

## HEALTHY START PILOT STUDY (2015)



BARRIERS: *"I don't know exactly what to teach or what information to provide."*

# Patient Education: Does it Really Matter?

- Pregnant mom is often the first responder; can speed time to diagnosis, impact outcomes
- What she needs to know is not obvious (in preeclampsia)
- With greater understanding of seriousness, greater compliance and reporting
- Knowledgeable clients are more empowered to speak up, more apt to ask questions or challenge lackadaisical practices
- Although risk factors can help to identify those at *higher* risk, not having any of the risk factors does not mean a woman won't get preeclampsia

**That's why. Now how...?**

# Key Strategies for Effective Patient Communication

- Use non-medical **plain language**
- Organize information into 2 or 3 components (“**chunk & check**”)
- Use “**teach back**” to confirm understanding with open-ended Q’s
- Do not assume patients’ literacy levels or understanding by appearance
- Stop, look and listen!
- Use **proven tools** that support consistent message
- Messages must be repeated to be remembered
- Use multiple teaching strategies to accommodate learning styles





## RESEARCH

www.AJOG.org

### 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 or (2) a standard American College of Obstetricians and Gynecologists (ACOG) pamphlet.

Women who received the ACOG 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:  $P > .05$ ).



Video available in English and Spanish on YouTube™ or for adding to your website

*These and other patient education materials are available in multiple languages and can be ordered from [www.preeclampsia.org/store](http://www.preeclampsia.org/store)*

**Ask Your Doctor or Midwife**

# Preeclampsia

**What Is It?**  
Preeclampsia is a serious disease related to high blood pressure. It can happen to any pregnant woman.

**Risks to You**

- Seizures
- Stroke
- Organ damage
- Death

**Risks to Your Baby**

- Premature birth
- Death

**Signs of Preeclampsia**

- Stomach pain
- Headaches
- Feeling nauseous; throwing up
- Seeing spots
- Swelling in your hands and face
- Gaining more than 5 pounds in a week

**What Should You Do?**  
Call your doctor right away. Finding preeclampsia early is important for you and your baby.

For more information go to [www.preeclampsia.org](http://www.preeclampsia.org)  
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**Look out for**

# Preeclampsia

**It's serious. Any pregnant woman can get it.**

**What is it?**  
Preeclampsia is a serious disease related to high blood pressure. It can happen to any pregnant woman during the second half of her pregnancy, or up to 6 weeks after delivery.  
Finding preeclampsia early is important for you and your baby.

**Warning signs**  
If you have any of these warnings signs or just don't feel right, tell your doctor or midwife right away.

- Severe headache
- Stomach pain
- Swelling in your hands and face
- Seeing spots (or other vision changes)
- Difficulty breathing or chest pain
- Feeling nauseous or throwing up

**Routine tests during pregnancy**  
These tests are done during regular prenatal care to check for preeclampsia.

- Blood pressure test to make sure it isn't too high
- Urine test (pee sample) to make sure your kidneys are healthy
- Tracking your weight to make sure you haven't gained too quickly (no more than 3-5 pounds in a week)

**Risks to you**

- Seizures
- Stroke
- Organ damage
- Death

**Risks to baby**

- Premature birth
- Death

For more information, go to [www.preeclampsia.org](http://www.preeclampsia.org)

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# Your Patient Education Toolkit



[www.preeclampsia.org/store](http://www.preeclampsia.org/store)



**Is delivery the cure?**



“...the cure for preeclampsia is delivery.”



Joan, Max and Sophie



Joan and Max  
July 16, 2010



# Joan Donnelly

May 24, 1967 – August 6, 2010



# Is Late Postpartum Eclampsia Preventable?

**Table III.** Prodromal symptoms in patients with late postpartum eclampsia

<i>Symptom</i>	<i>Late postpartum eclampsia (No.)*</i>	<i>Before delivery or early postpartum (No.)†</i>	<i>OR (95 % CI)</i>
Headache	20 (87.0%)	41 (62.1%)	4.1 (1.1, 15.1)
Visual symptoms	10 (43.5%)	15 (22.7%)	2.6 (1.0, 7.2)
Nausea or vomiting	5 (21.7%)	17 (25.8%)	0.8 (0.3, 2.5)
Epigastric pain	2 (8.7%)	9 (13.6%)	0.6 (0.1, 3.0)
At least 1	21 (91.3%)	46 (69.7%)	4.6 (1.0, 21.4)

\*n = 23.

†n = 66.

- 91% had at least 1 prodromal symptom
- 52% had more than one prodromal symptom
- Only 33% (7/21) sought care for their symptoms

**AUTHOR'S CONCLUSION:** "...efforts should be directed to the education of the health care providers and patients regarding the importance of prompt reporting and evaluation of symptoms of preeclampsia during the postpartum period."

Parrish Obstetrics: Phone #: 269-8565  
 Call office for staple removal appointment  
 CLINIC: Brevard County Health Department Phone #: 637-7300

**MEDICATIONS:** Motrin Percocet Pre-Natal Vitamins FeSO4 Tylenol #3  
(Per Prescription) Other: Over the Counter:

**SPECIAL INSTRUCTIONS:**

- You must remember that you delivered a baby/had surgery and must give special care to yourself.
- No douching, tampons, or intercourse for 6 weeks. NOTHING inside the vagina. Vaginal stitches will dissolve within 7 to 10 days.
- You may shower/tub bathe.
- **If you are a smoker, you are advised to stop smoking as it can be harmful to your health.**
- You may ride in an automobile, however, DO NOT DRIVE for \_\_\_\_\_ weeks.
- Diabetes teaching as applicable.

**DIET:** Eat a variety of healthy foods as desired. Breastfeeding moms should not harshly restrict their diets fearing colic in their babies. Most babies do fine even when mom eats spicy and gas producing foods. If baby seems sensitive to a certain food, eliminate it for one week to see if there is improvement. Consult your baby's pediatrician or lactation consultant as needed.

**ACTIVITY:** Do not assume full household duties for \_\_\_\_\_ weeks. Gradually increase activities, do not over exert yourself. Rest both morning and afternoon. Do not lift anything heavier than your baby.

**SYMPTOMS TO:** Report any excessive bleeding or temperature over 101. You may expect vaginal bleeding and  
**CALL MD** discharge for 3 – 6 weeks, gradually becoming lighter in color.

**BOTTLE FEEDING:** If bottle feeding, continue to use a well fitting bra (sports bras are excellent) at all times for two weeks. May use ice packs to breasts if engorged as needed.

**DISCHARGE DIAGNOSIS:**

**DISCHARGE H&H**

**REVIEW WITH PATIENT:**

**FOR SURGERY PATIENTS:** Bring staple remover and steri strips to office on: \_\_\_\_\_  
(day of week)

**Symptoms to report:** Call your doctor if unusual pain, fever, redness, swelling or drainage

PHYSICIAN SIGNATURE:

RN SIGNATURE:

DATE & TIME:

I have read the above, understand it, and acknowledge receipt of a copy. I will arrange for follow-up as instructed.



# Key Clinical Pearl

- Early follow-up for **all patients** with preeclampsia or eclampsia
  - within 3-7 days if medication was used during labor and delivery OR postpartum
  - within 7-14 days if no medication was used
- Discharge instructions should always include preeclampsia symptoms

**How does Preeclampsia affect our mental health?**

## **Postpartum depression after mild and severe preeclampsia**

[J Psychosom Obstet Gynaecol](#). 2011 Sep;32(3):126-34. doi: 10.3109/0167482X.2011.599460.

## **Symptoms of post-traumatic stress after preeclampsia.**

[J Psychosom Obstet Gynaecol](#). 2004 Sep-Dec;25(3-4):183-7.

## **Posttraumatic stress disorder following preeclampsia**

[Gen Hosp Psychiatry](#). 2002 Jul-Aug;24(4):260-4.

## **Posttraumatic stress disorder after pre-eclampsia**

[BMC Pregnancy Childbirth](#). 2012 Nov 10;12:125. doi: 10.1186/1471-2393-12-125.

## **A systematic review of the relationship between severe preeclampsia and posttraumatic stress disorder.**

[Psychosomatics](#). 2009 Mar-Apr;50(2):131-7.

## **The relationship between acute stress disorder and posttraumatic stress disorder in neonatal intensive care unit.**

[J Turk Ger Gynecol Assoc](#). 2013

## **Increased psychological distress in women with preeclampsia**

[Reprod Sci](#). 2011 Jul;18(7):

## **Posttraumatic stress disorder symptoms in women 6 months follow-up after preeclampsia**

[Arch Gynecol Obstet](#)

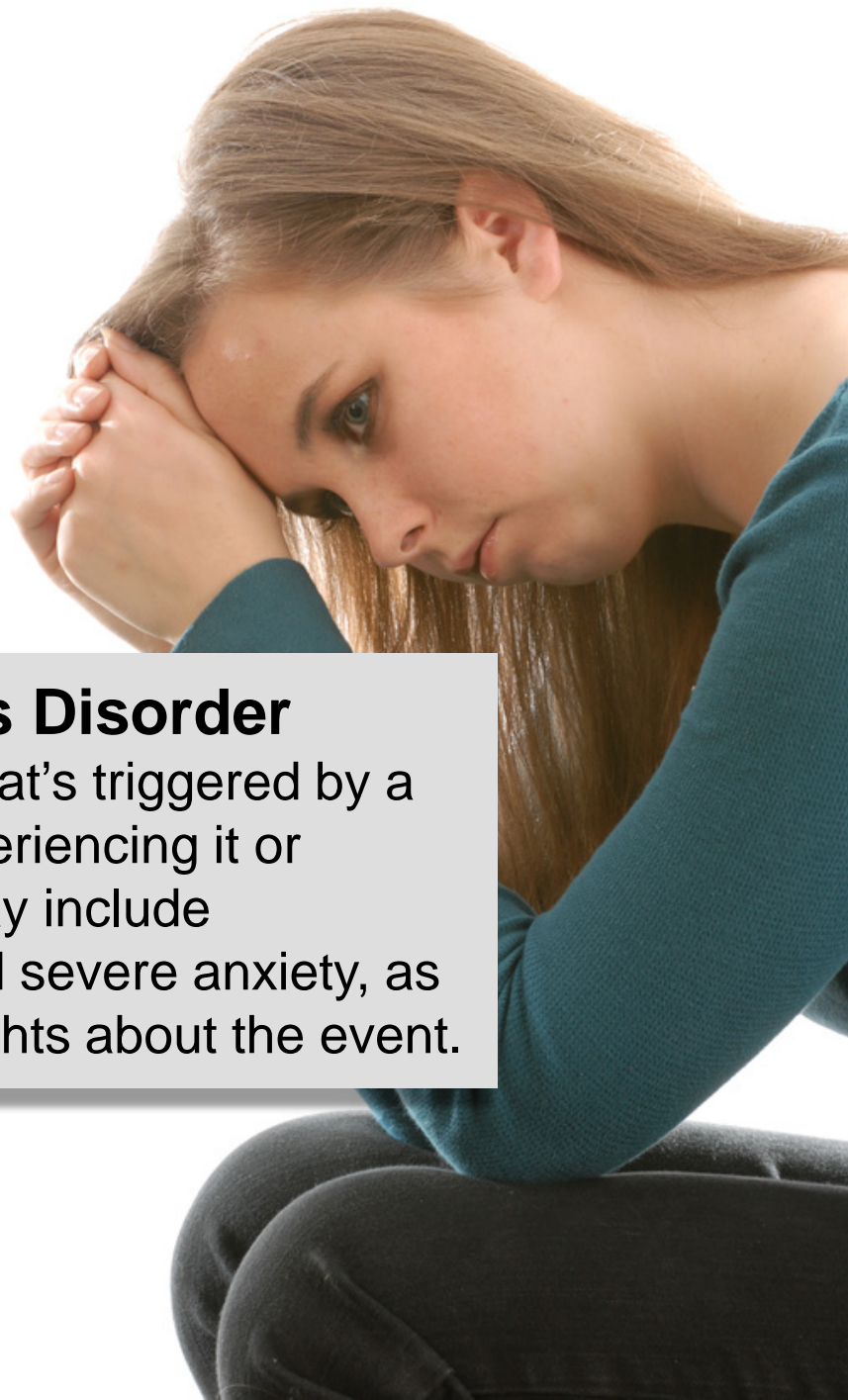
## **Fathers with PTSD and depression in pregnancy**

[J Dev Behav Pediatr](#). 2009 Feb;30(1):50-6.

## **Acute posttraumatic stress symptoms among urban neonatal intensive care unit: a preliminary study.**

[Acta Obstet Gynecol Scand](#). 2013 Jul;92(7):746-61. doi: 10.1111/aogs.1

## **Anxiety and depression following preeclampsia syndrome. A systematic review.**



# **Post Traumatic Stress Disorder**

A mental health condition that's triggered by a terrifying event – either experiencing it or witnessing it. Symptoms may include flashbacks, nightmares, and severe anxiety, as well as uncontrollable thoughts about the event.



*“I suffered with the anxiety and stress for 9 months after my [son] was born. I didn’t get any medical help until I was taken to the ER from work due to an anxiety attack. (I thought I was having a stroke.)”*

~ Jennifer Donaghy  
Riverside, NJ



*Regular dialysis or kidney transplant?*

~ Tia D., Miami, FL





**TIME OUT**  
Identify patient using two identifiers & compare to signed order.





# Birth Trauma? Get Help!

Failure

Anger

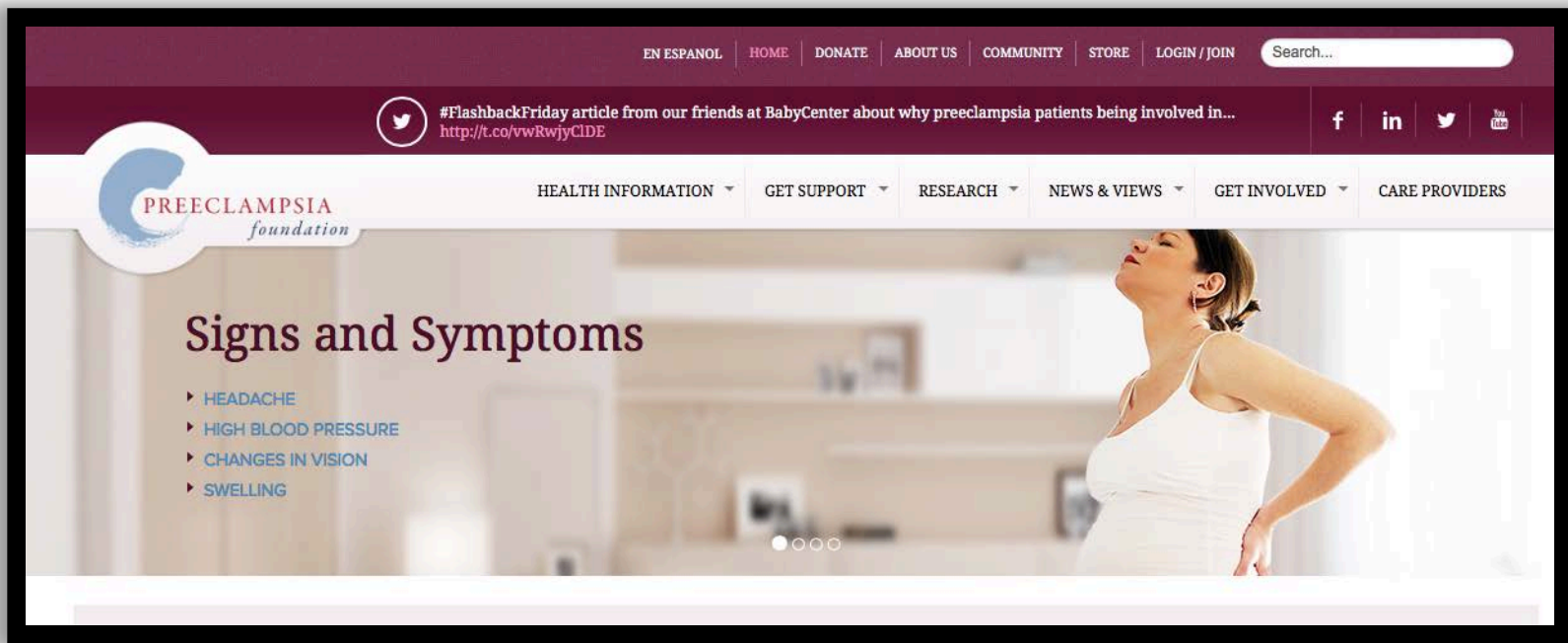
Guilt

Depression

Anxiety

- Affirm her current and future emotions
- May be more than just PPD (the "baby blues")
- Breslau Short Screening Scale (7 Qs) for PTSD or Edinburgh Postnatal Depression Scale
- Psychological assessment & treatment
- Chaplain or spiritual leader
- Local or online support groups (PEER support)
- Grief counselor, specializing in perinatal loss
- Patient, Family and Staff Support Bundle





# [www.preeclampsia.org](http://www.preeclampsia.org)

*A trusted resource for your patients*



# [www.preeclampsiaregistry.org](http://www.preeclampsiaregistry.org)

*A trusted resource for researchers*



# Learning Objectives

- Review basic information about preeclampsia, a leading cause of maternal death and illness, premature births and neonatal death.
- Utilize proven methods and tools for supporting prenatal and postpartum patient education regarding preeclampsia signs & symptoms, to reduce patient factors contributing to preventable maternal and neonatal deaths.
- Gain appreciation and resources for addressing mental health impact of maternal events.

*Developed with the assistance of  
Healthy Start directors & case workers*









Nikonia Evangelia Tsigas

BORN TO HEAVEN  
MARCH 24, 1998

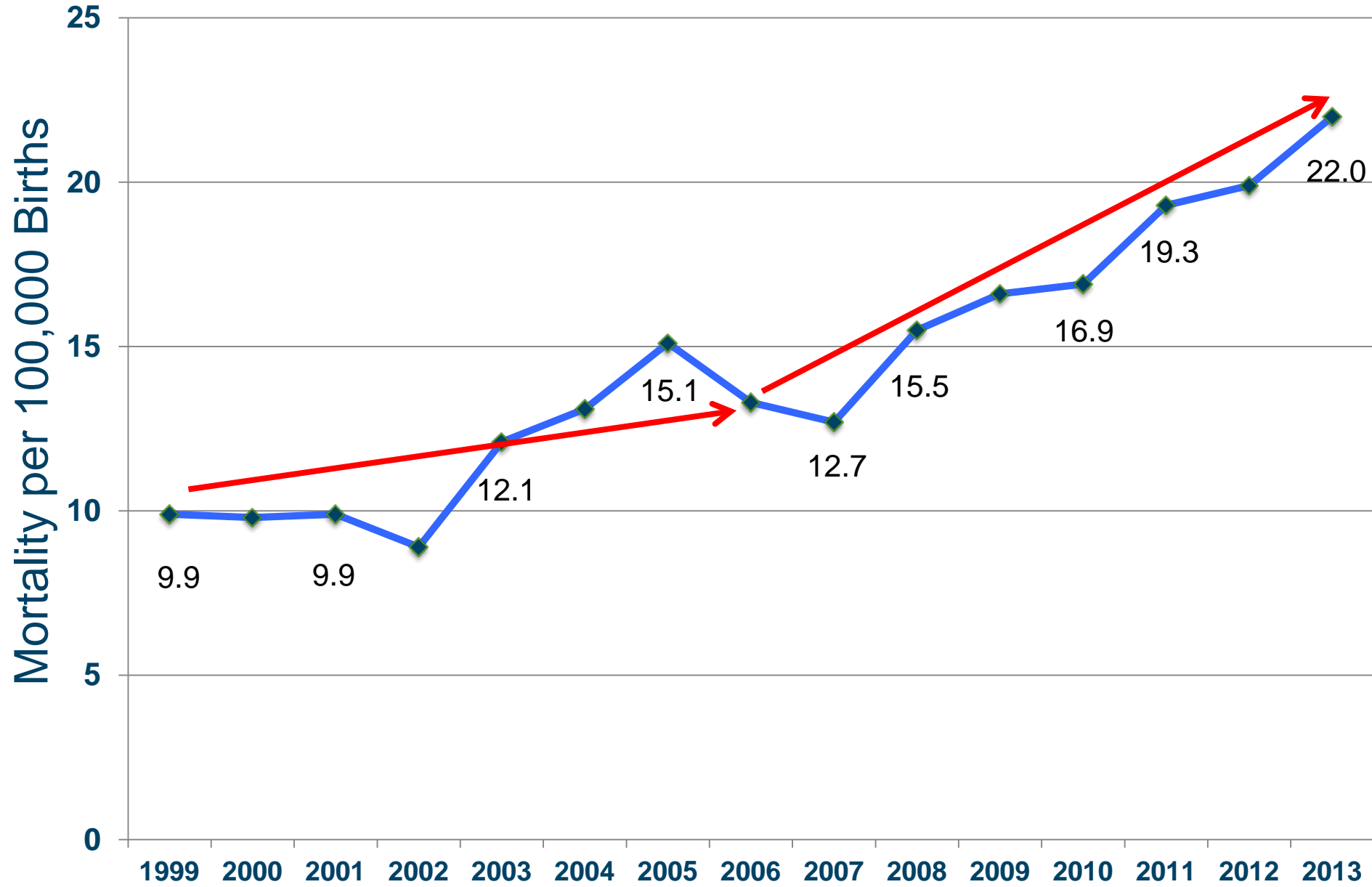
*Preparing our way and dancing  
with the radiant joy of God's love*

# What if...?

1. My doctor had ever told me *why* my BP was being checked and I was peeing in a cup?
2. I knew that, for my body, BP of 140/90 was reason enough to go directly to the hospital?
3. The nurse didn't skip my urine dip on my last prenatal visit?
4. The nurse on the phone took a more cautious approach when I reported severe swelling and asked me to come in to be checked -- since I hadn't been seen in 3 weeks?
5. I or others around me stopped to notice and comment on my puffy red face during my birthday dinner 3 weeks earlier?
6. I'd had an accurate and immediate diagnosis when I arrived at the hospital by a doctor who appreciated the acute dangers of a headache, nausea, and visual disturbances on top of an elevated BP and proteinuria, and acted with *urgency*?
7. I wasn't left in the radiology department several floors away for two hours after the tech recorded a BPP of 2 – indicating a fetus in distress? There was U/S equipment in L&D?

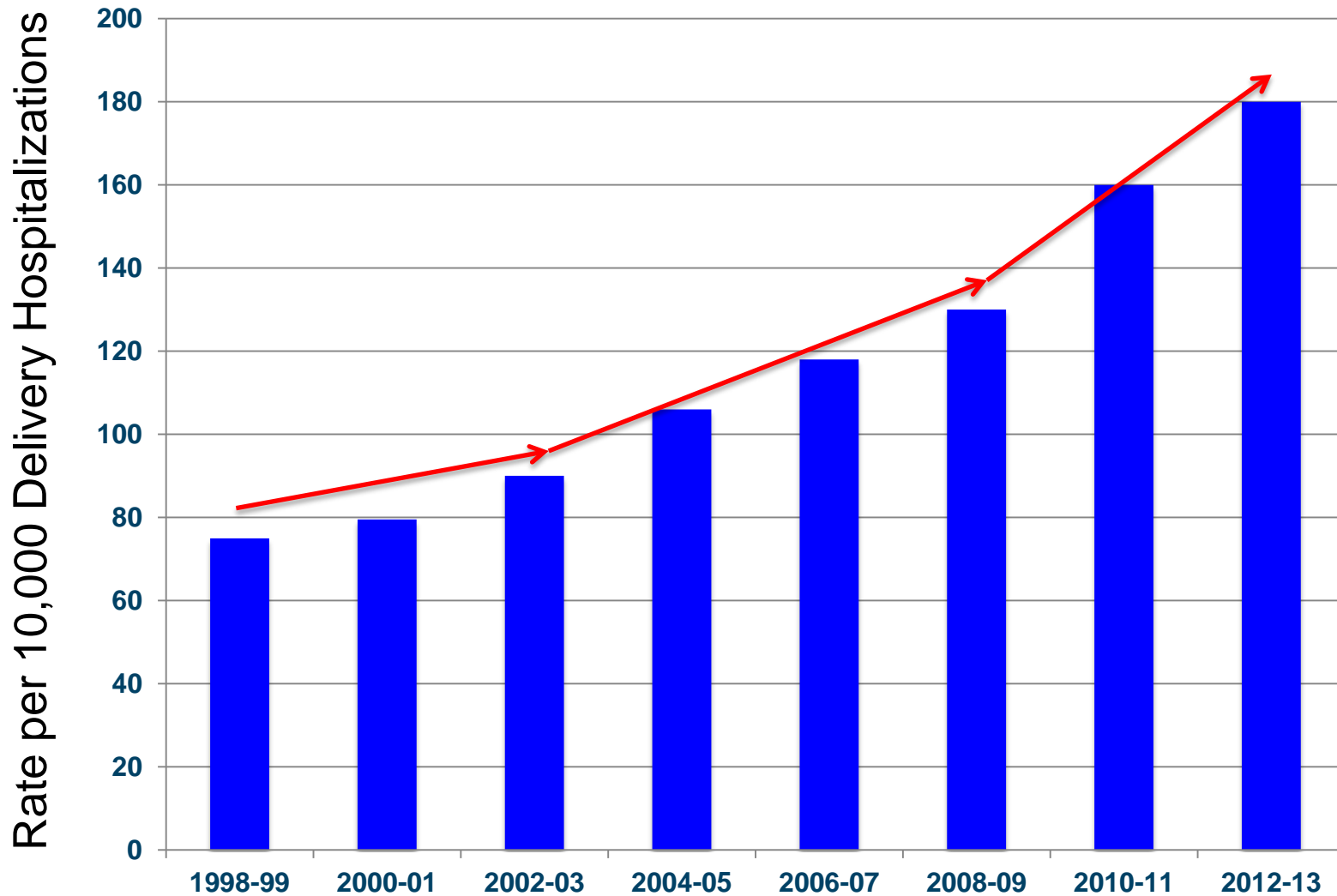
**What's the problem we're trying to solve?**

# Maternal Mortality USA



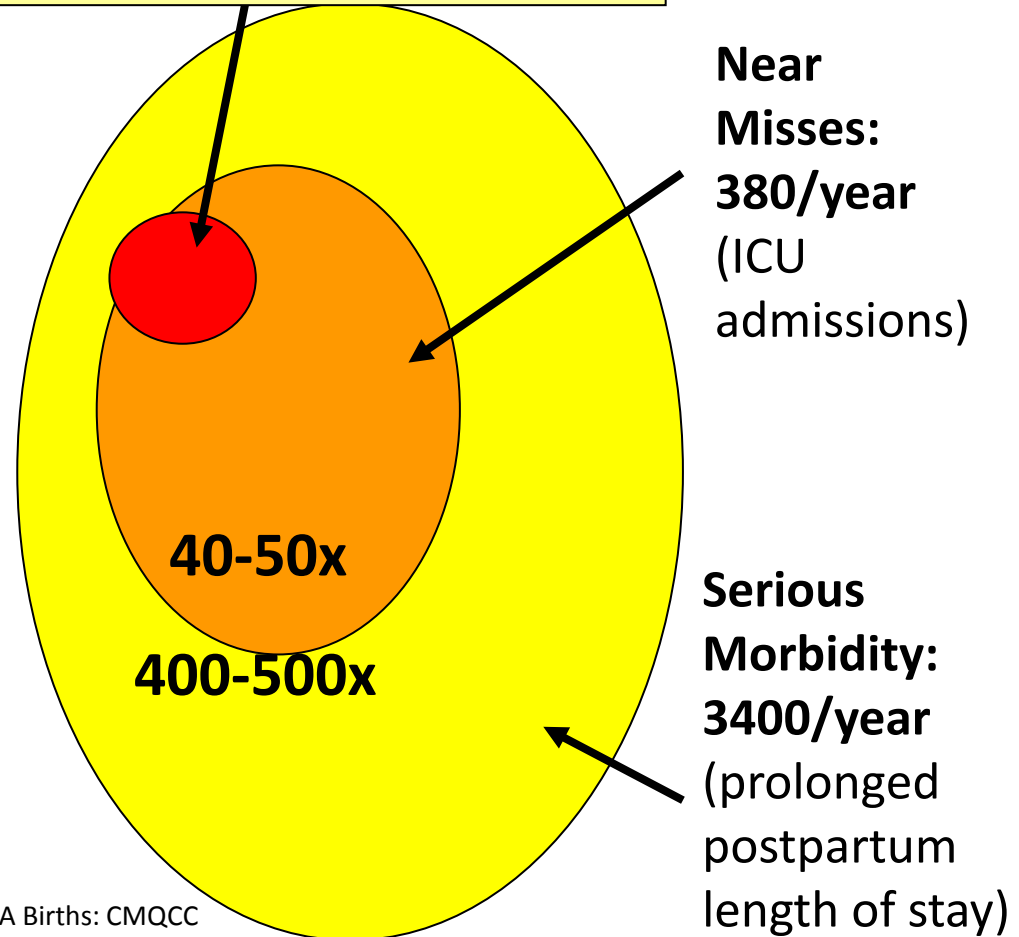


# Severe Maternal Morbidity: USA 1998-2013



# Maternal Morbidity and Mortality: Preeclampsia

About 8 Preeclampsia Related Mortalities/2007 in CA



Source: 2007 All-California Rapid Cycle Maternal/Infant Database for CA Births: CMQCC

# Critical Pathway to Poor Outcome



Maternal Death



Near Miss - ICU Admission



Serious Morbidity



Symptoms Not Recognized  
Assumption That Symptoms Are  
Not Significant  
Delayed Diagnosis  
Delayed Treatment

# CA-PAMR: Chance to Alter Outcome

## Grouped Cause of Death; 2002-2004 (N=145)

Grouped Cause of Death	Chance to Alter Outcome			Total N (%)
	Strong / Good (%)	Some (%)	None (%)	
Obstetric hemorrhage	<b>69</b>	<b>25</b>	6	16 (11)
Deep vein thrombosis/ pulmonary embolism	53	40	7	15 (10)
Sepsis/infection	50	40	10	10 (7)
<b>Preeclampsia/Eclampsia</b>	<b>50</b>	<b>50</b>	<b>0</b>	<b>25 (17)</b>
Cardiomyopathy and other cardiovascular causes	25	61	14	28 (19)
Cerebral vascular accident	22	0	78	9 (6)
Amniotic fluid embolism	0	87	13	15 (10)
All other causes of death	46	46	8	26 (18)
<b>Total (%)</b>	<b>40</b>	<b>48</b>	<b>12</b>	<b>145</b>



# Preeclampsia: A leading cause of premature births

**Fig 3. Risk factors for preterm birth across four countries and one comparator U.S. state.**

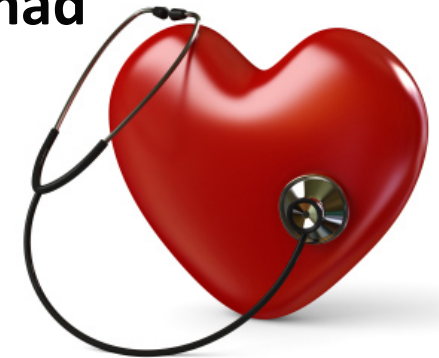
Ferrero DM, Larson J, Jacobsson B, Di Renzo GC, Norman JE, et al. (2016) Cross-Country Individual Participant Analysis of 4.1 Million Singleton Births in 5 Countries with Very High Human Development Index Confirms Known Associations but Provides No Biologic Explanation for 2/3 of All Preterm Births. PLoS ONE 11(9): e0162506. doi:10.1371/journal.pone.0162506

	Countries				Comparator US state
	Czech Rep.	New Zealand	Slovenia	Sweden	California
Previous PTB	5.2 (5.1-5.4)**	5.7 (5.3-6.1)**	4.6 (4.2-5.0)**	6.0 (5.8-6.2)**	5.0 (4.7-5.2)**
Preeclampsia	4.8 (4.6-5.0)**	3.4 (3.3-3.6)**	2.8 (2.4-3.2)**	5.7 (5.4-5.9)**	4.2 (4.1-4.3)**
Diabetes (chronic)	3.4 (3.0-3.7)**		1.9 (1.4-2.5)**	3.6 (3.4-3.9)**	
Hypertension (chronic)			2.1 (1.8-2.5)**	1.7 (1.4-2.0)**	3.0 (2.9-3.2)**
Maternal Age					
Age > 40	1.8 (1.7-1.9)**	1.3 (1.1-1.4)**	1.6 (1.4-1.9)**	1.4 (1.3-1.5)**	1.5 (1.5-1.6)**
Age 35-40	1.4 (1.3-1.4)**	1.2 (1.1-1.2)**	1.4 (1.3-1.5)**	1.2 (1.2-1.2)**	1.3 (1.2-1.3)**
Age < 20	1.1 (1.0-1.1)**	1.1 (1.0-1.2)	1.1 (1.0-1.3)	0.9 (0.8-1.0)*	1.0 (1.0-1.0)
Nulliparous	1.5 (1.5-1.6)**	1.4 (1.4-1.5)**	1.6 (1.5-1.7)**	2.1 (2.1-2.2)**	1.2 (1.1-1.2)**
ART			1.7 (1.5-1.9)**	1.3 (1.3-1.4)**	1.7 (1.5-1.9)**
Drug use (illicit)	1.7 (1.5-1.9)**				
Ethnicity					
Ethnicity (other)					1.7 (1.6-1.7)**
Ethnicity (Non-Hispanic Black)					1.6 (1.6-1.6)**
Ethnicity (Asian)		1.0 (0.9-1.0)			1.3 (1.2-1.3)**
Ethnicity (Hispanic)					1.2 (1.2-1.2)**
Ethnicity (Pacific P)		0.9 (0.8-1.0)**			
Ethnicity (MELAA)		1.1 (1.0-1.2)			
Ethnicity (Maori)		1.0 (1.0-1.0)			
Smoking	1.3 (1.3-1.3)**	1.6 (1.5-1.7)**	1.3 (1.2-1.4)**	1.3 (1.3-1.4)**	1.4 (1.3-1.4)**
Diabetes (gestational)	1.3 (1.3-1.4)**	1.9 (1.8-2.1)**	1.3 (1.2-1.5)*	0.9 (0.8-1.0)*	1.3 (1.3-1.3)**
Hypertension (gestational)	1.3 (1.2-1.3)**		1.6 (1.4-1.8)**	0.6 (0.5-0.7)**	
BMI					
BMI (underweight)			1.4 (1.3-1.6)**	1.3 (1.2-1.4)**	1.3 (1.2-1.3)**
BMI (overweight)			0.9 (0.9-1.0)	1.0 (1.0-1.1)**	1.0 (1.0-1.0)
BMI (obese – class I)			0.9 (0.8-1.0)	1.1 (1.1-1.2)**	1.0 (1.0-1.1)**
BMI (obese – class II & III)			0.8 (0.7-0.9)	1.3 (1.3-1.4)**	1.1 (1.1-1.1)**
Education					
Less than high school grad	1.4 (1.4-1.5)**		1.2 (1.1-1.3)**	1.2 (1.2-1.3)**	1.3 (1.3-1.4)**
High school grad but no college	1.1 (1.0-1.1)**		1.0 (1.0-1.1)	1.1 (1.1-1.1)**	1.3 (1.2-1.3)**
Some college	1.0 (1.0-1.1)		0.9 (0.9-1.0)	1.1 (1.0-1.1)**	1.2 (1.2-1.3)**
Previous CS	1.2 (1.2-1.3)**	1.2 (1.1-1.3)**	1.2 (1.1-1.3)**	1.3 (1.3-1.4)**	1.3 (1.3-1.3)**
Male baby	1.2 (1.2-1.2)**	1.2 (1.2-1.3)**	1.2 (1.1-1.2)**	1.1 (1.1-1.2)**	1.2 (1.2-1.2)**
No prenatal care before 20 wk	1.7 (1.7-1.8)**	1.1 (1.0-1.2)	1.1 (1.0-1.3)		1.1 (1.1-1.2)**
Single	1.2 (1.1-1.2)**		0.9 (0.9-1.0)	1.0 (1.0-1.1)	
Unemployed				1.0 (1.0-1.0)*	
Migration foreign born				1.0 (1.0-1.0)	0.8 (0.8-0.9)**
Poverty					
Poverty Q5		1.1 (1.0-1.1)			
Poverty Q4		1.1 (1.0-1.1)			
Poverty Q3		1.0 (1.0-1.1)			
Poverty Q2		1.0 (1.0-1.1)			

■ p < 0.05    ■ Not significant



**2.6 Million women in the US today who had preeclampsia will die from heart disease**



**What is being done about it?**

# Multi-pronged efforts

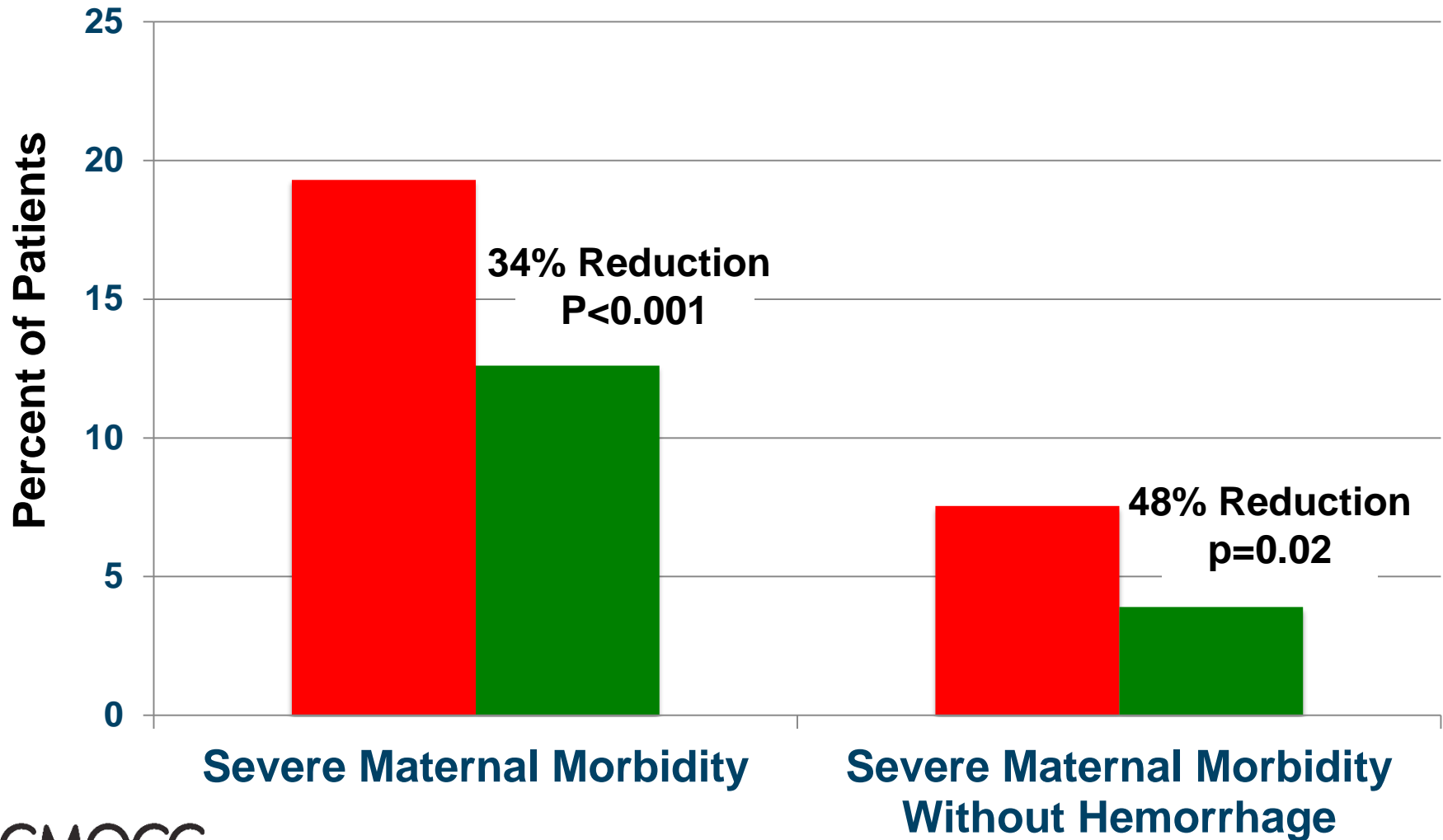
- National
  - Bundles
  - Toolkits
  - E-learning modules, webinars, coaching
  - Guidelines
- State(s)
  - Toolkits
  - Guidelines
  - Hospital Collaboratives
  - Quality Improvement Programs
  - Implementation Results



[safehealthcareforeverywoman.org](http://safehealthcareforeverywoman.org)



# Severe Maternal Morbidity Pre- and Post-Toolkit Implementation



## **Preeclampsia – What is it?**

# Hypertensive Disorders of Pregnancy



# Poll

# How is Preeclampsia Diagnosed?

- BP: 140/90+ (2 readings 4-6 hrs apart)

PLUS

- Proteinuria: 300 mg in 24 hr urine collection (dipstick: 1+)

AND/OR

- In association with (new onset):

- thrombocytopenia
- impaired liver function
- renal insufficiency
- pulmonary edema
- cerebral or visual disturbances

thrombocytopenia | ,THräm̄bō,sītə'pēnēə |  
noun Medicine  
deficiency of platelets in the blood. This causes bleeding into the tissues, bruising, and slow blood clotting after injury.

American College of Obstetricians and Gynecologists *Hypertension in Pregnancy Guidelines* (2013)

# Symptoms

- Swelling of the face or hands
- Headache that won't go away
- Visual disturbances
- Epigastric pain (URQ)
- Nausea/vomiting (2H pregnancy)
- Sudden weight gain
- Breathlessness
- Mental confusion
- “just not feeling right”; unexplained “anxiety”

# Who gets it? Risk factors include...

- History of preeclampsia (self, family)
- Chronic hypertension
- Diabetes
- Obesity
- Multiple gestation
- IVF (infertility)
- Extremes of age (<18 + >40)
- Autoimmune disorders (e.g., lupus)
- Polycystic Ovarian Syndrome (PCOS)
- African American
- Sickle cell disease
- First pregnancy

# Do Healthy Start clients get preeclampsia?

- **53.7% - Black or African American**
  - 69% - Entered prenatal care visit in the first trimester
  - 20.7% - Entered prenatal care in second trimester
  - 5.8% - Entered prenatal care in third trimester
- **7.5% - 17 or younger**
  - 45.8% of teens were Black or African American
- **7.4% - 35 or older**
  - 48.8% of older pregnant women were Black or African American\*

\* grantees report age by 35-44 years old and 45 years old and above



# Healthy Start Quality Improvement Measures

- Performance Measure 22 – The degree to which Healthy Start programs facilitate health providers' screening of women participants for risk factors
  - **58%** of grantees reported facilitating health providers' screening of women participants for risk factors
  - Risk factors that matter for preeclampsia include hypertension, gestational diabetes, and overweight or obese

## *Management:*

Only 5 things

- 1) Recognize Symptoms
- 2) BP control
- 3) Seizure prevention
- 4) Delivery - 34 wks, 37wks.
- 5) Postpartum surveillance

*Original Research*

# **Pregnancy-Related Mortality in California**

*Causes, Characteristics, and Improvement Opportunities*

*Elliott K. Main, MD, Christy L. McCain, MPH, Christine H. Morton, PhD, Susan Holtby, MPH,  
and Elizabeth S. Lawton, MHS*