

USF HEALTH COLLEGE OF PUBLIC HEALTH UNIVERSITY OF SOUTH FLORIDA Chiles Center Women, Children & Families

## Maternal Mortality: *What Can a Perinatal Quality Collaborative Do?*

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Professor & Director  
Florida Perinatal Quality Collaborative  
The Chiles Center

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## Conflicts of Interest

1. *No reportable conflicts*
2. *Contract/Grant funding from:*
  - *Florida Department of Health*
  - *Centers for Disease Control and Prevention*
  - *American Congress of Obstetrics & Gynecology*

## Learning Objectives

1. *Describe the current maternal mortality crisis in the United States and Florida.*
2. *Summarize why maternal mortality reviews are necessary to address the crisis in the U.S. and Florida.*
3. *Explain how maternal mortality findings can effectively guide and direct prevention efforts in Florida.*

## U.S. Has The Worst Rate Of Maternal Deaths In The Developed World

May 10, 2017 - 10:28 AM ET

NINA MARTIN, PROPUBLICA

RENEE MONTAGNE

npr



The story of Lauren Bloomstein illustrates a disparity in our nation's health care system, where primary focus is given to newborn babies, but often ignores the mothers.

Continued on the Document Library

PROPUBLICA

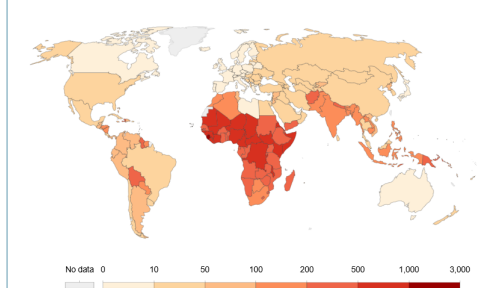
Graphics & Data Newsletter About



**Nothing Protects Black Women From Dying in Pregnancy and Childbirth**

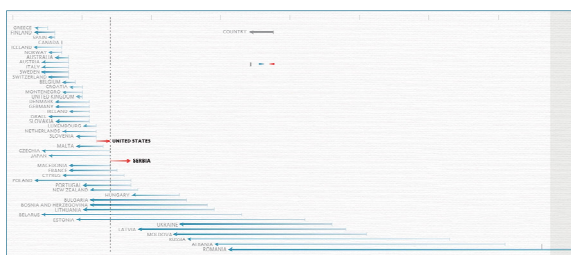
## Maternal Mortality, 2015

Maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births.



Max Roser and Hannah Ritchie (2019) - "Maternal Mortality". Published online at OurWorldInData.org. Retrieved from: <https://ourworldindata.org/maternal-mortality> [Online Resource]

## Maternal Mortality, Developed Countries, 1990-2015



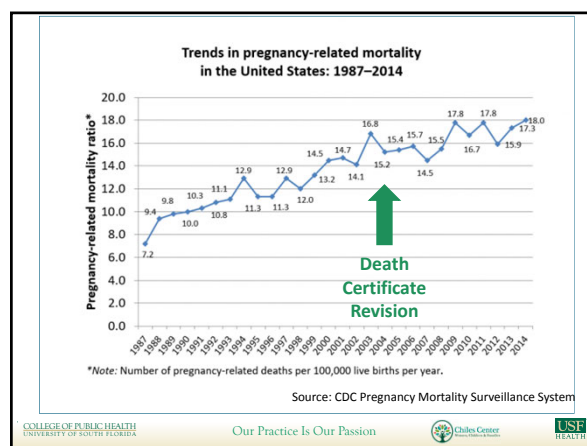
Source: National Geographic, December 2018

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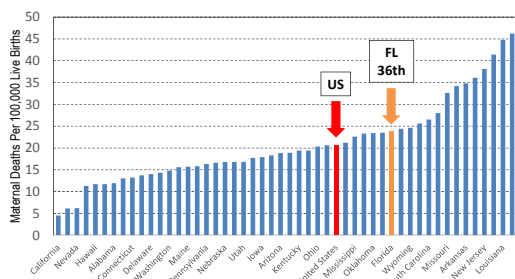
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## Maternal Mortality by US States, 2011-15



Source: America's Health Rankings, United Health Care

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## What is the Difference Between

Maternal Mortality

&

Pregnancy-Related Mortality

?

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## Definitions

**Maternal Mortality:** Death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

**Pregnancy-Associated Mortality:** Death of a woman, from any cause, while she is pregnant or within one year of pregnancy.

**Pregnancy-Related Mortality:** Death of a woman which resulted from:

- 1) complications of the pregnancy;
- 2) the chain of events initiated by pregnancy, leading to death; or
- 3) aggravation of an unrelated condition by effects of the pregnancy, resulting in death.

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## Identification of Maternal Mortality Based on Death Certificates

Table A. Maternal death cause-of-death codes by the International Classification of Diseases (ICD) Revision

Revision	ICD Codes
First	151-159
Second	134-141
Third	143-150
Fourth	140-150
Fifth	140-150
Sixth	640-689
Seventh	640-689
Eighth	630-678
Ninth	630-676

Starting with ICD-9, switched coding from limiting to one year to 42 days.

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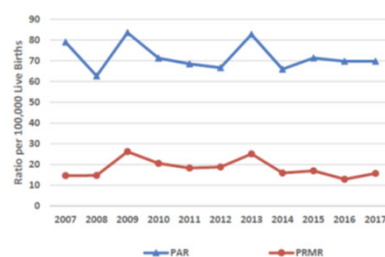
### Accuracy of Maternal Death Reporting From Death Certificates

Florida 2006-2009		Pregnancy-Related Death (PAMR)		Total
		Yes	No	
Maternal Death (Vitals)	Yes	104	62	166
	No	60	13,498	13,558
Total		164	13,560	13,724

Predictive Value Positive  
63% = 104 / 166

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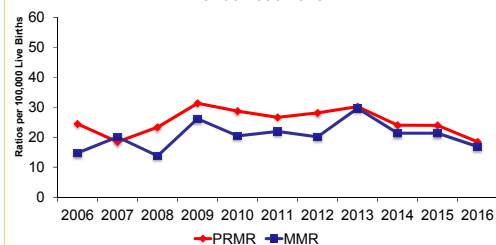
Figure 1. Pregnancy-Associated Mortality Ratios (PAR) and Pregnancy-Related Mortality Ratios (PRMR), Florida 2007-2017



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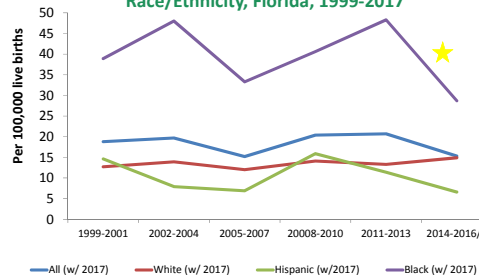
Figure 2. Florida Pregnancy-Related Mortality (PAMR) and Maternal Mortality Ratios (CHARTS) Florida 2006-2016



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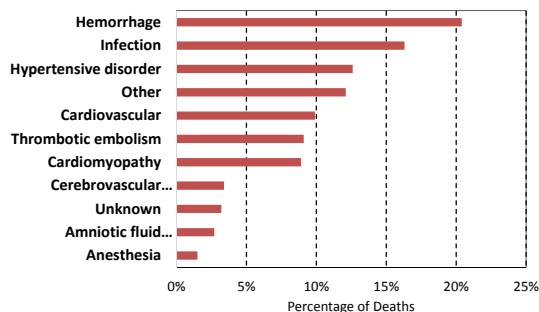
3-year Pregnancy-Related Mortality Ratios by Race/Ethnicity, Florida, 1999-2017



★ Difference between two time periods  $p < 0.05$

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### Distribution of Pregnancy-Related Causes of Death Florida (2008-2017)



Source: CDC website and FDOH data request

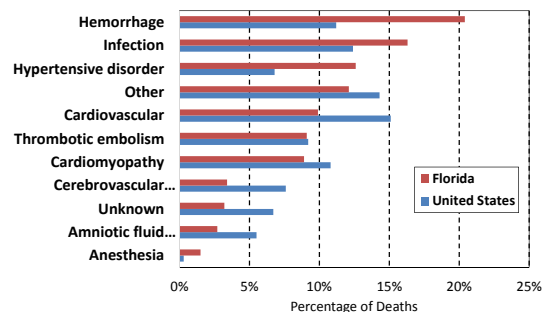
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### Distribution of Pregnancy-Related Causes of Death United States (2011-2015) and Florida (2008-2017)



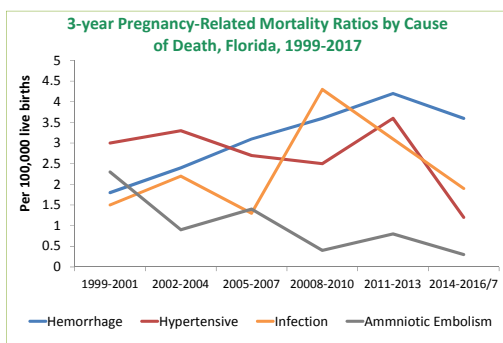
Source: CDC website and FDOH data request

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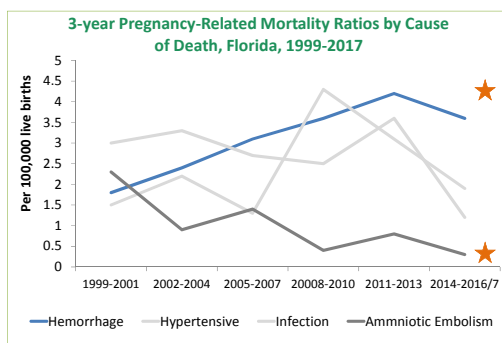
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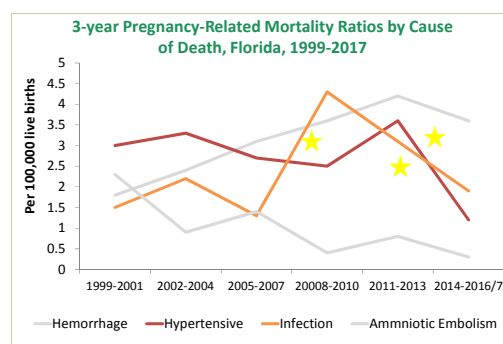
★ Time trend from 1999-2017  $p < 0.05$

25



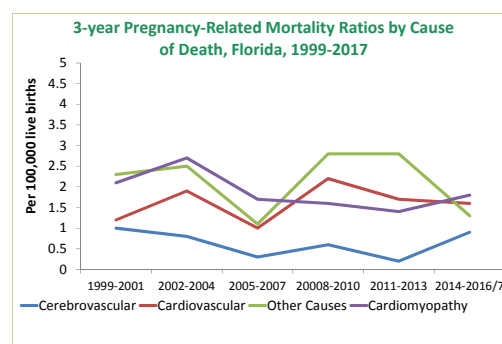
★ Time trend from 1999-2017  $p < 0.05$

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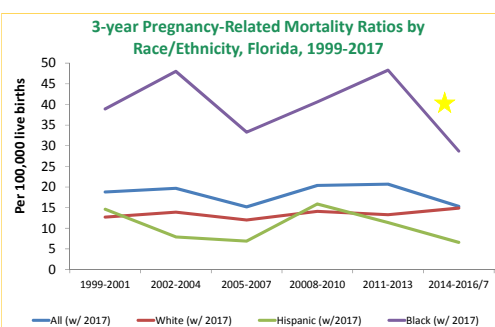


★ Difference between two time periods  $p < 0.05$

27



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★ Difference between two time periods  $p < 0.05$

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## What Do We Learn From Reviews?



Florida's Pregnancy-Associated Mortality Review  
2017 Update

Prepared by:

Leticia Hernandez, PhD, MS  
MCH Epidemiologist, MCH Section

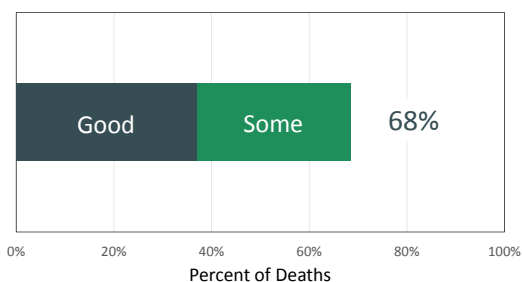
Angela Thompson, RN, BSN  
Community Health Nursing Consultant and PAMR  
Coordinator, MCH Section

Division of Community Health Promotion  
Florida Department of Health

March 2019

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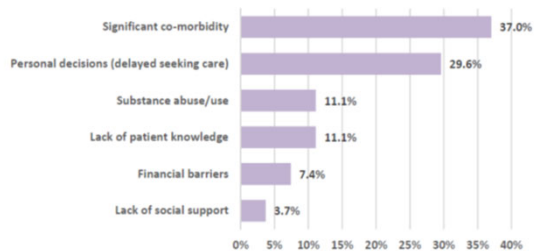
### Preventable Pregnancy-Related Deaths Florida, 2017

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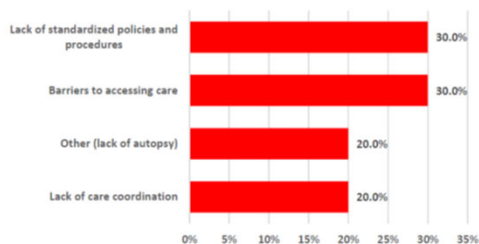
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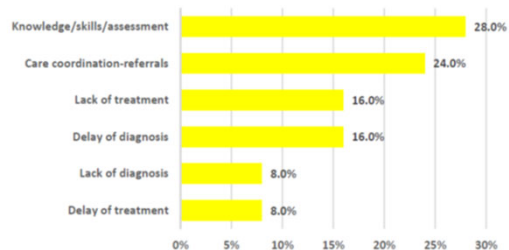
### 10.a - Contributing Individual/Community Factors



### 10. b - Contributing System Factors

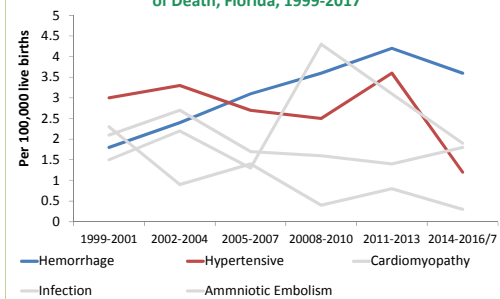


### 10.c - Contributing Clinical Factors



### Urgent Maternal Mortality Messages

### 3-year Pregnancy-Related Mortality Ratios by Cause of Death, Florida, 1999-2017



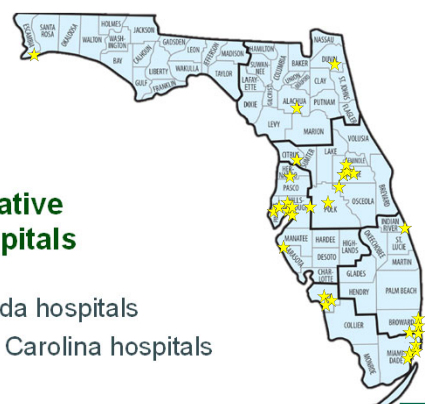


## Obstetric Hemorrhage Initiative—OHI



## OHI Initiative Hospitals

- 31 Florida hospitals
- 4 North Carolina hospitals



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## Key OHI QI Elements

### Readiness

- Develop an Obstetric Hemorrhage Protocol
- Develop a Massive Transfusion Protocol
- Construct an OB Hemorrhage Cart
- Ensure Availability of Medications and Equipment

### Recognition

- Antepartum Risk Assessment
- Quantification of Blood Loss
- Active Management of the Third Stage of Labor

### Response

- Perform Interdisciplinary Hemorrhage Drills
- Debrief after OB Hemorrhage Events

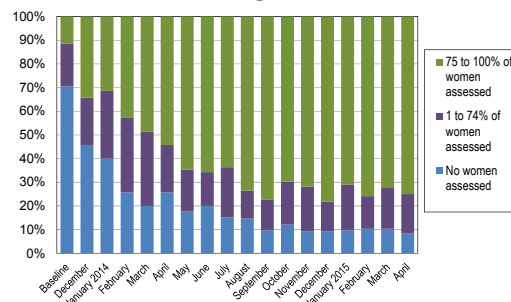


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## Percent of Hospitals Assessing for Risk of Obstetric Hemorrhage at Birth Admission

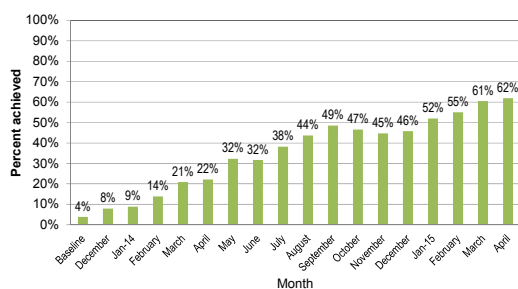


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## Percent of Vaginal Deliveries Where Blood Loss Was Quantified



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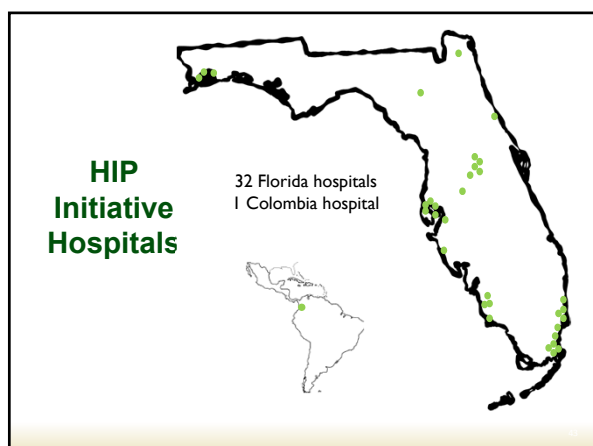


## Hypertension in Pregnancy Initiative—HIP



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS



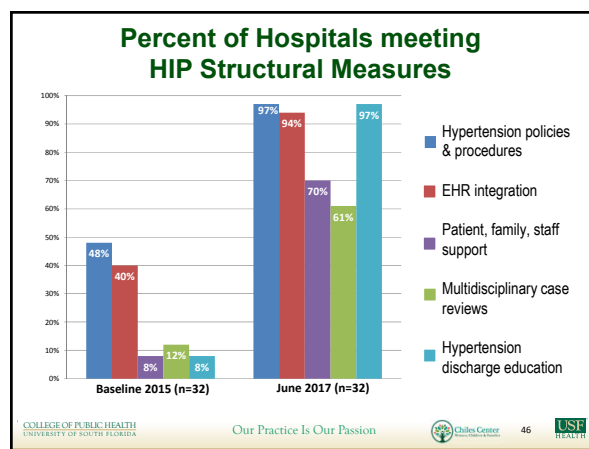
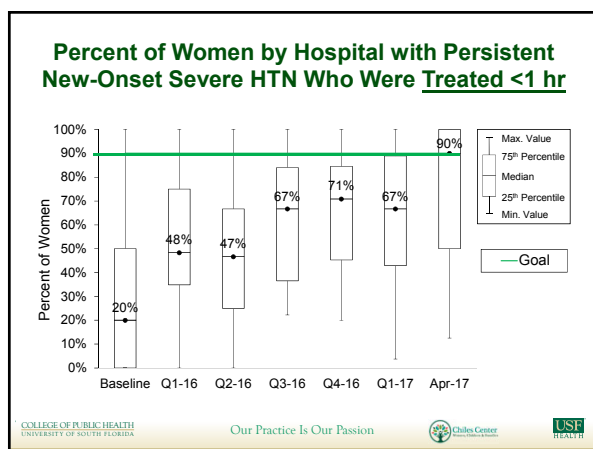


**COUNCIL ON PATIENT SAFETY**  
IN WOMEN'S HEALTH CARE  
safe health care for every woman

**ALLIANCE FOR INNOVATION**  
ON MATERNAL HEALTH

### Hypertension Patient Safety Bundle

- Readiness**
  - Every unit
- Recognition / Prevention**
  - Every patient
- Response**
  - Every case of severe hypertension/preeclampsia
- Reporting / Systems Learning**
  - Every unit



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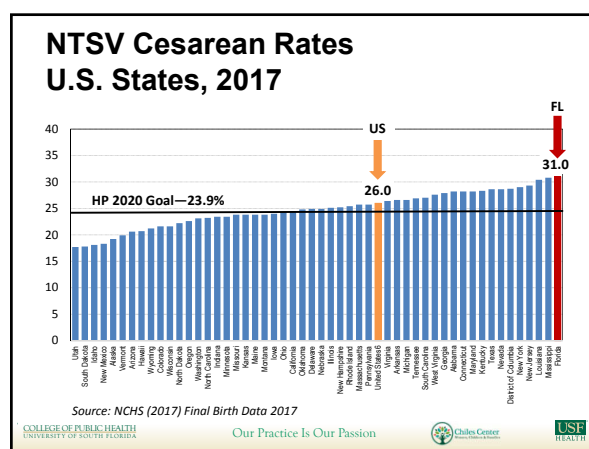
Partnering to Improve Health Care Quality  
for Mothers and Babies

## PROVIDE 2.0

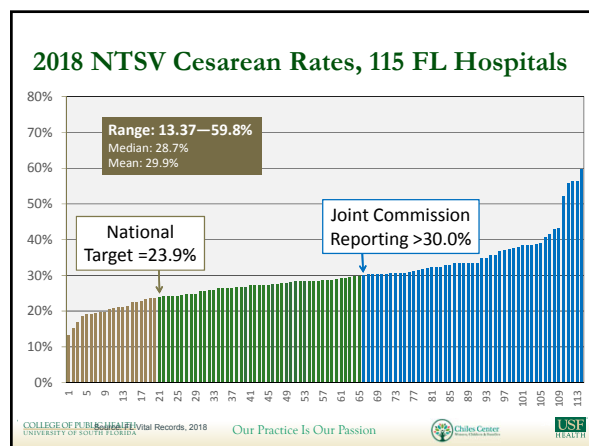
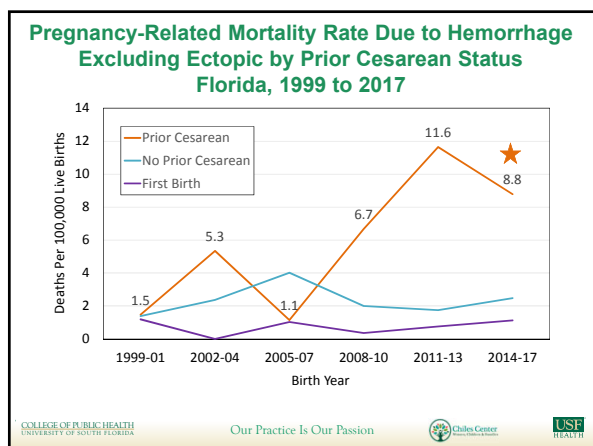
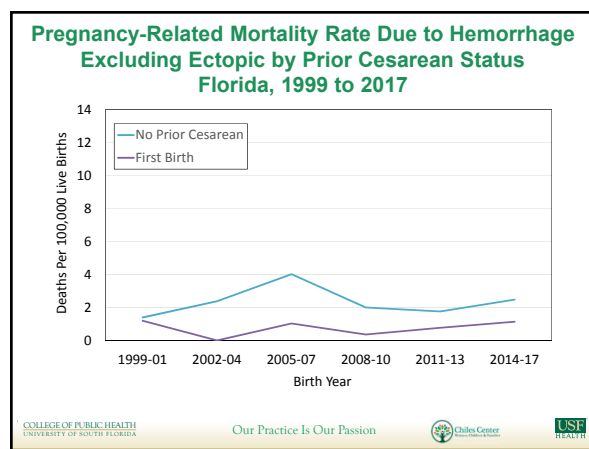
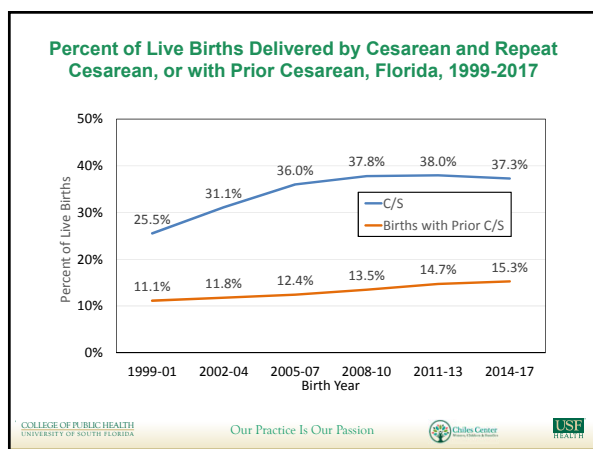
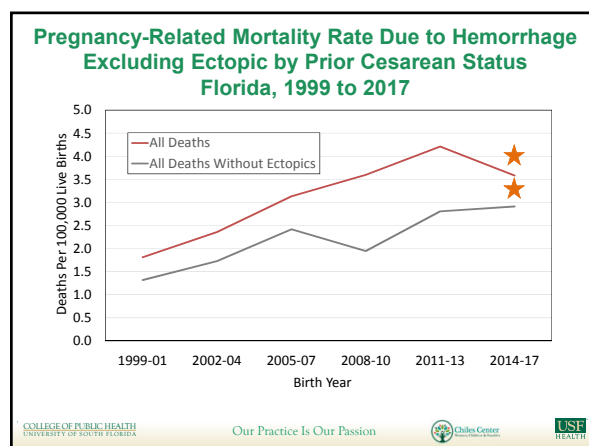
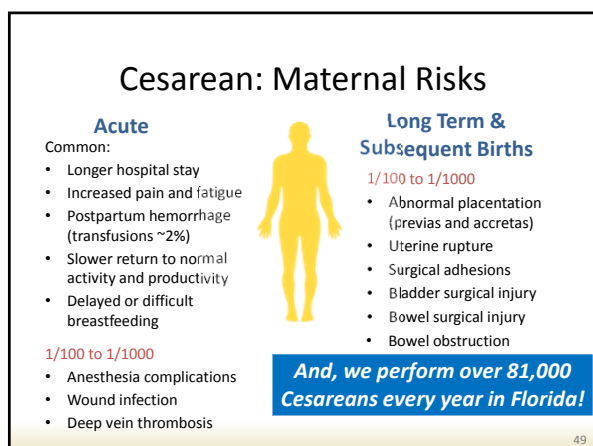
*Extend, Enhance & Expand*

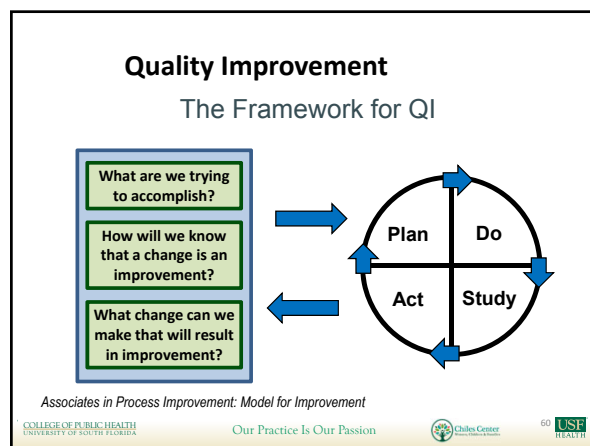
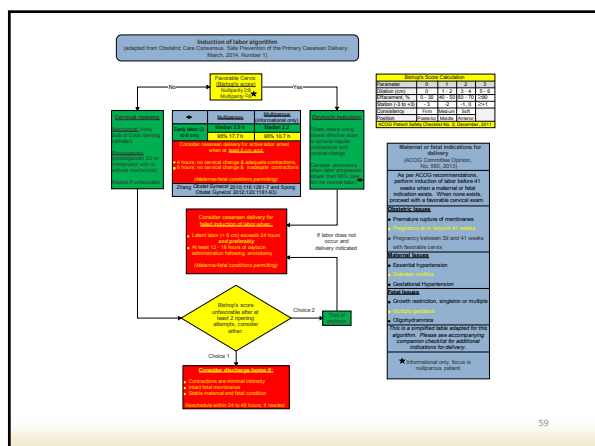
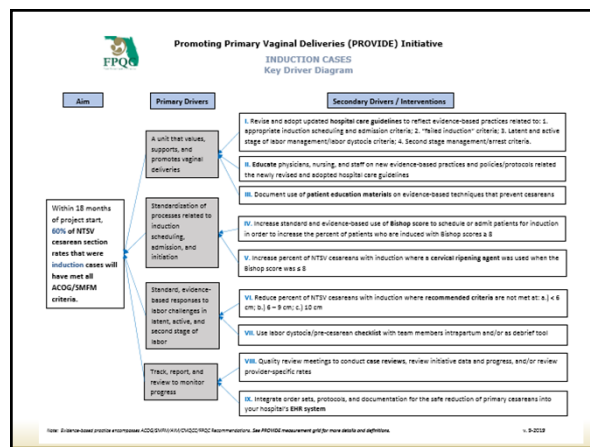
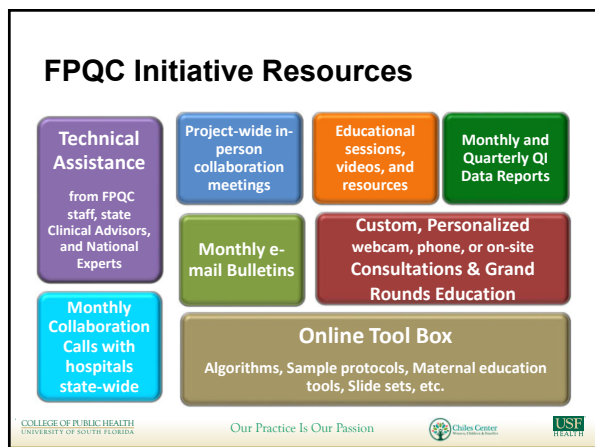
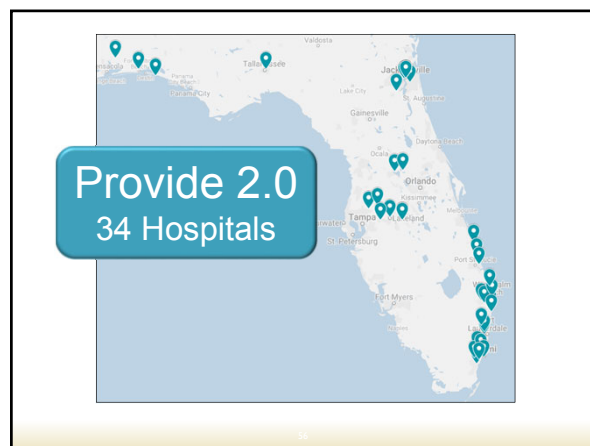
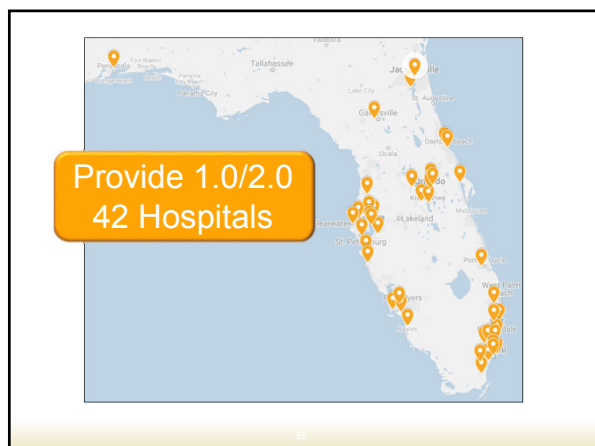
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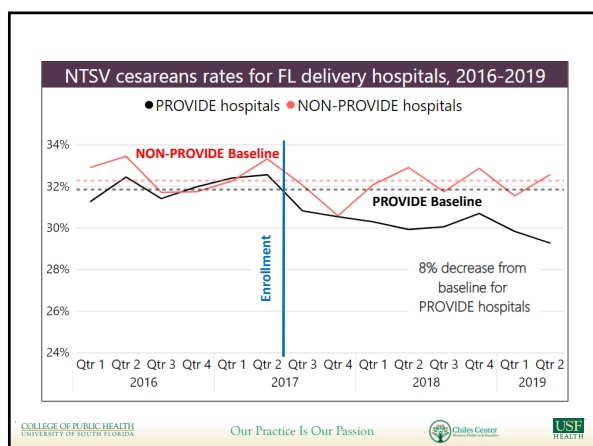
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## Conclusions

- U.S. and Florida are having a maternal mortality crisis: High rates and no improving.
- There are better ways in the US to measure maternal mortality.
- State pregnancy mortality reviews provide valuable information in reducing mortality and morbidity.
- Quality of health care contributes to these deaths.
- State-wide quality improvement initiatives can assist in reducing mortality and morbidity.

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## Save the Date: April 16-17, Tampa FPQC 2020 Conference

- Reducing Cesarean Deliveries – Elliott Main, MD  
Clinical Professor, Obstetrics & Gynecology-Maternal Fetal Medicine,  
Stanford University; Medical Director, California Maternal Quality Care  
Collaborative
- Antibiotic Stewardship – Martin J. McCaffrey, MD  
Professor, University of North Carolina; Director, Perinatal Quality  
Collaborative of North Carolina
- Shared Decision-Making in Perinatal Care – Neel  
Shah, MD, MPP, FACOG  
Assistant Professor, Obstetrics, Gynecology and Reproductive Biology,  
Harvard Medical School; Director, Delivery Decisions Initiative



For More Information, go to [www.fpqc.org](http://www.fpqc.org)

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