HARRISHEALTH SYSTEM

ANSWERING THE CALL FOR IMPROVED MATERNAL SAFETY

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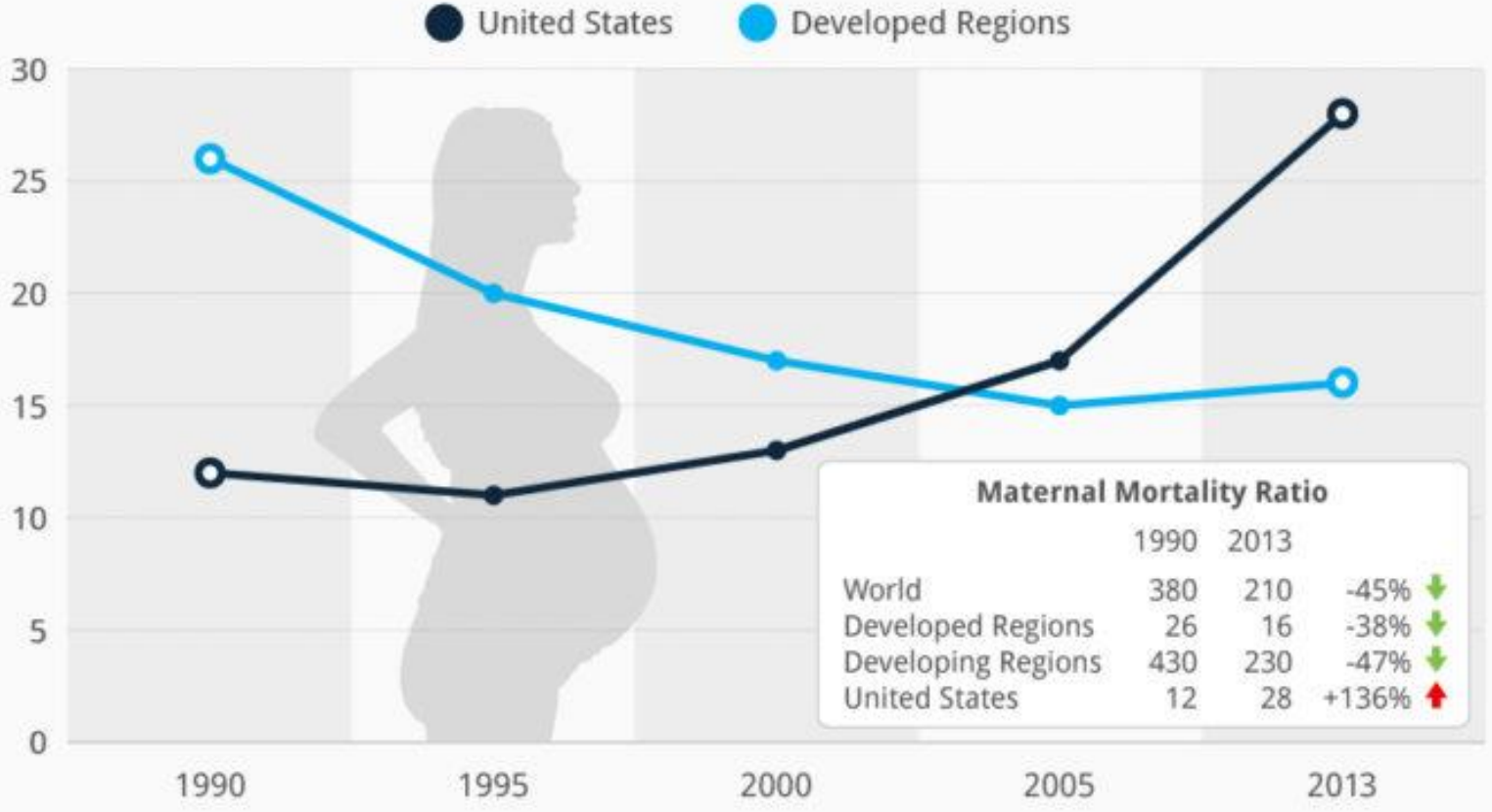
- Employer
  - Harris Health System
- Objectives:
  - Discuss current focus on improving maternal outcomes
  - Describe patient safety initiative:
    - Maternal Early Warning System (MEWS)
- Conflict of Interest, Sponsorship/Commercial Support
  - Not Applicable

Maternal Deaths in the U.S. Are on the Rise

Maternal mortality ratio (number of maternal deaths per 100,000 live births)



Maternal Mortality Ratio

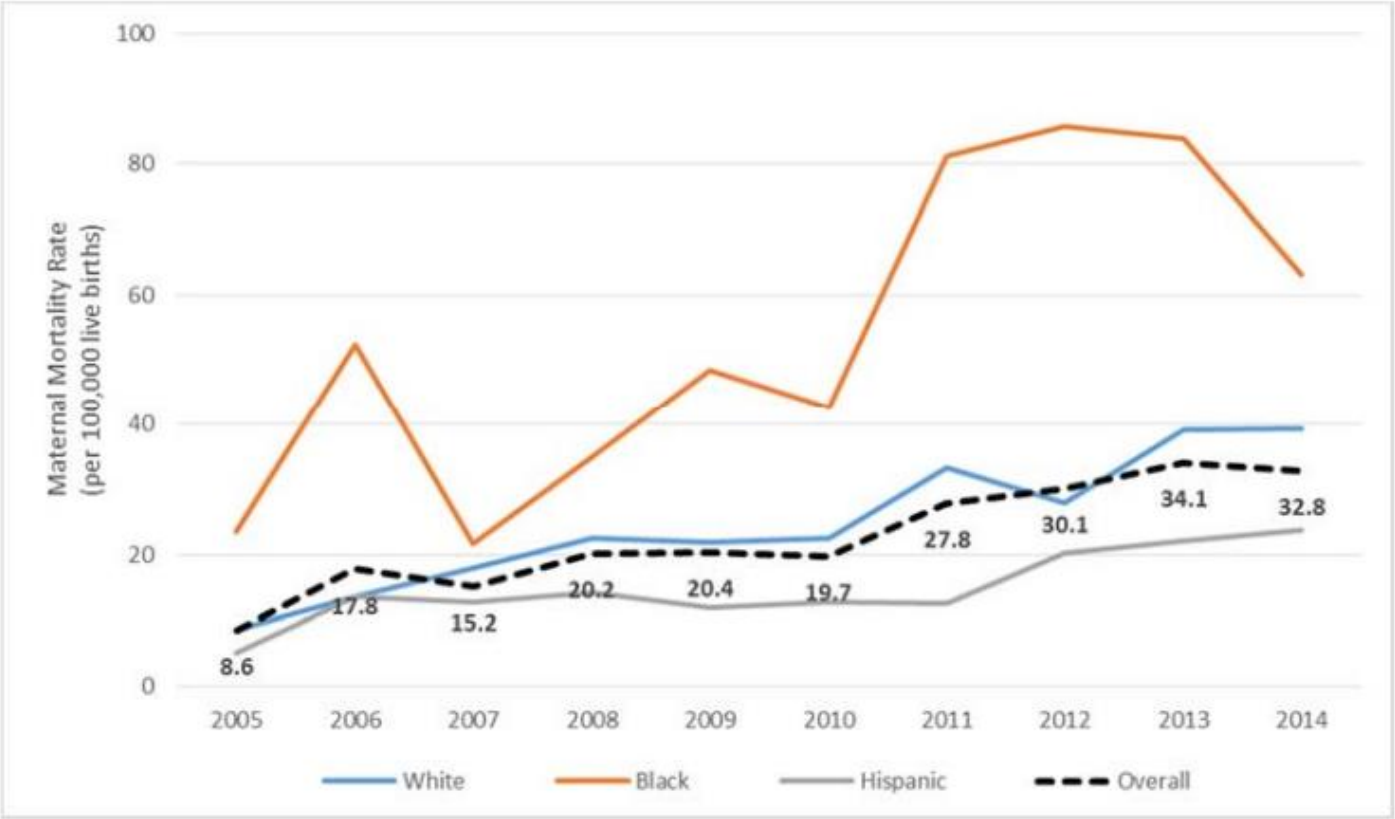
	1990	2013	
World	380	210	-45% ↓
Developed Regions	26	16	-38% ↓
Developing Regions	430	230	-47% ↓
United States	12	28	+136% ↑

Source: World Health Organization

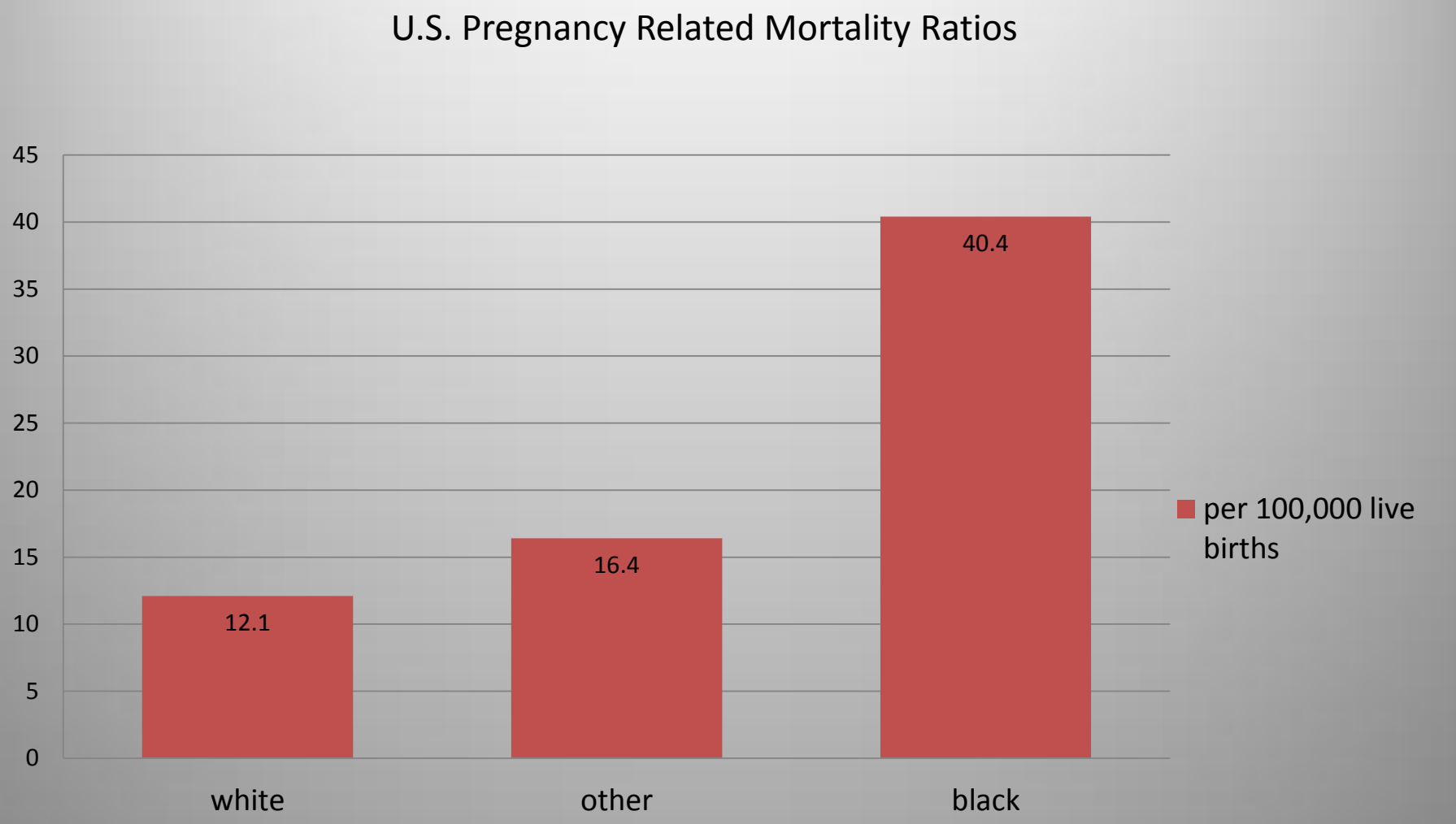
Mashable statista

Maternal Mortality Rate: Texas

Figure 1. **Maternal mortality rate by racial/ethnic group, 2005-2014.**



Racial Disparity

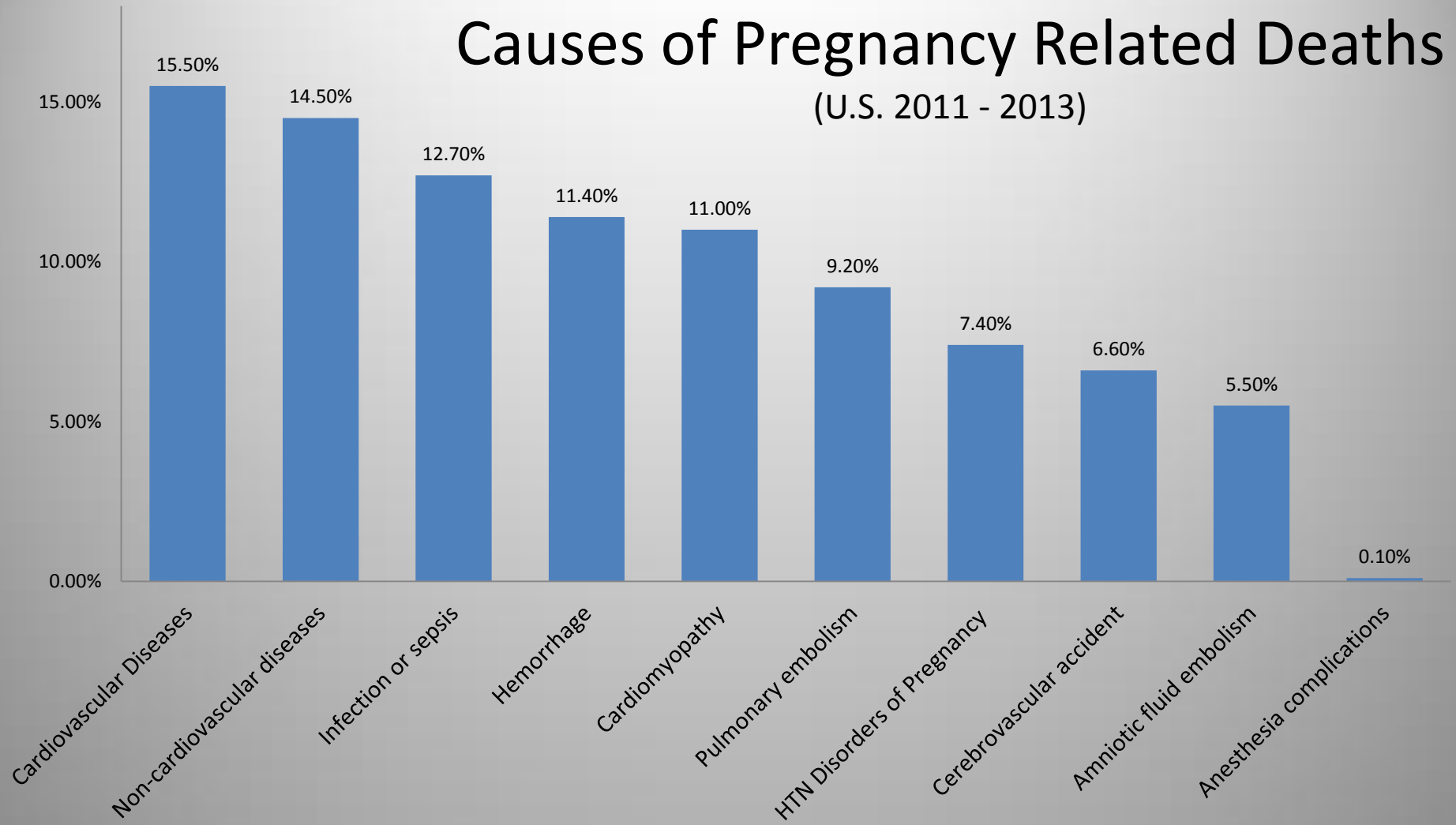


Black to White ratio – 3.4 - 4.0 : 1

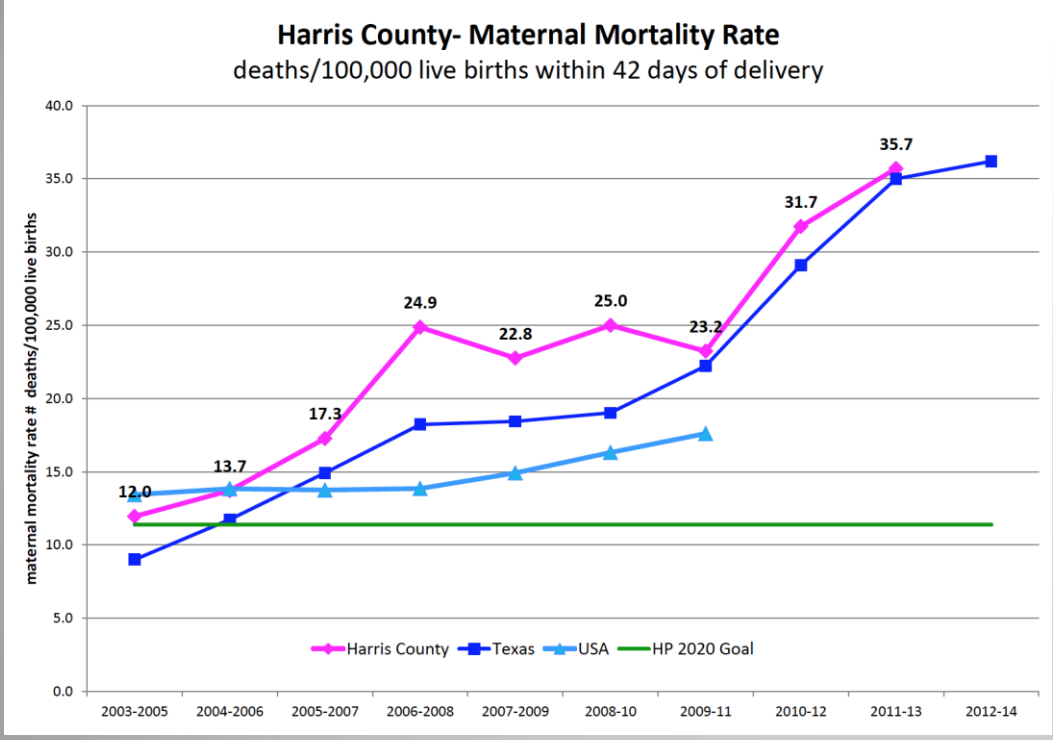
CDC, 2016

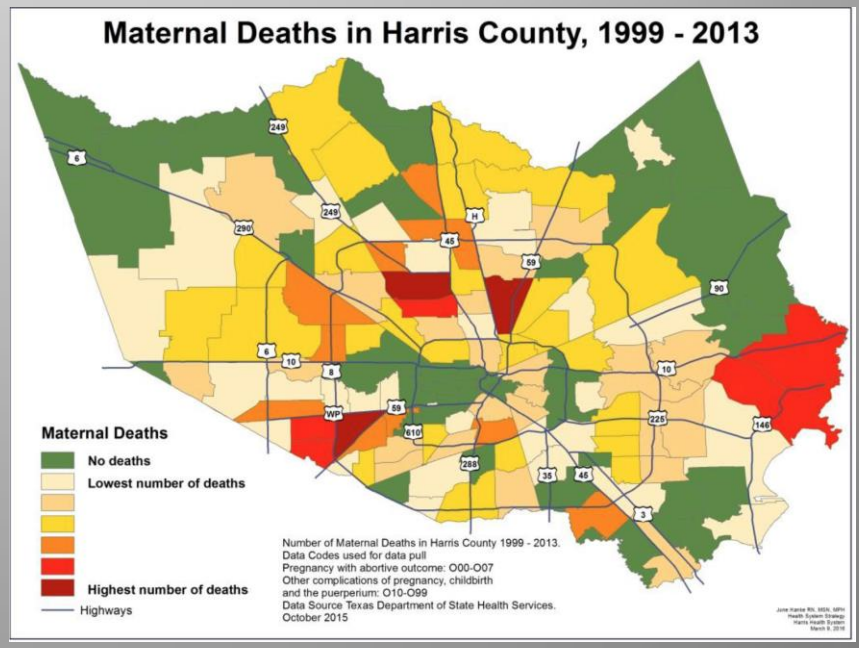
Causes of Pregnancy Related Deaths

(U.S. 2011 - 2013)

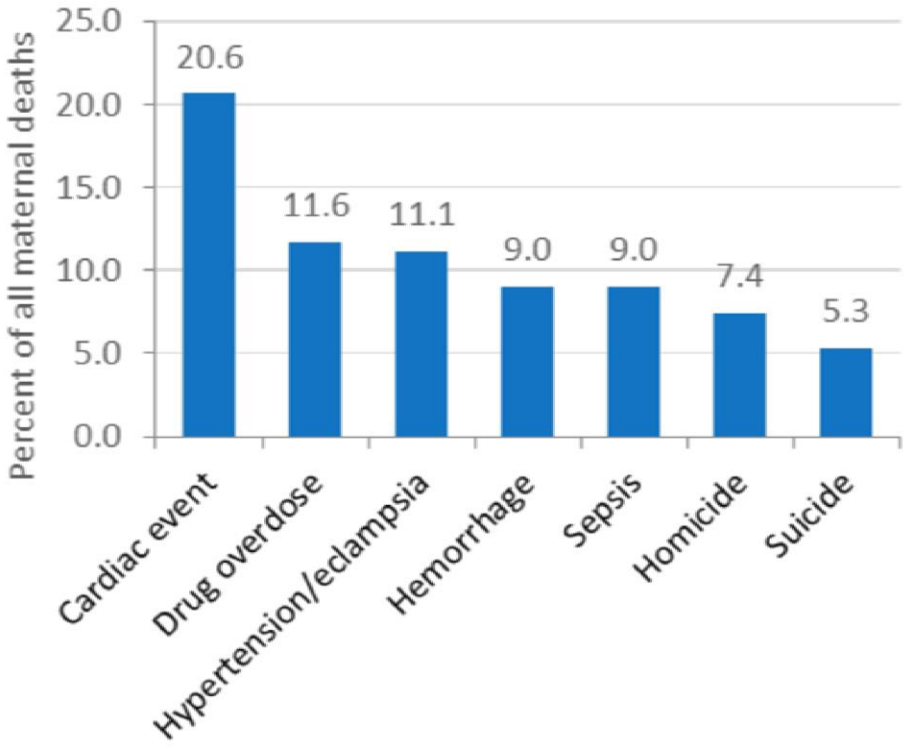


CDC, 2016


Harris County- Maternal Mortality Rate
deaths/100,000 live births within 42 days of delivery
maternal mortality rate # deaths/100,000 live births
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
12.0
13.7
17.3
24.9
22.8
25.0
23.2
31.7
35.7
Harris County
Texas
USA
HP 2020 Goal
2003-2005
2004-2006
2005-2007
2006-2008
2007-2009
2008-10
2009-11
2010-12
2011-13
2012-14


Maternal Deaths in Harris County, 1999 - 2013
Maternal Deaths
No deaths
Lowest number of deaths
Highest number of deaths
Highways
Number of Maternal Deaths in Harris County 1999 - 2013.
Data Codes used for data pull
Pregnancy with abortive outcome: O00-O07
Other complications of pregnancy, childbirth
and the puerperium: O10-O99
Data Source Texas Department of State Health Services.
October 2015

Causes of Pregnancy Related Deaths: Texas 2011-2012



Source: CHS Death File, 2011-2012
Prepared by: Office of Program Decision Support, FCHS, DSHS, 2016

Approximately **ONE HALF** of all Maternal Deaths are considered preventable

CDC opinion

Harris Health System
Ben Taub Hospital

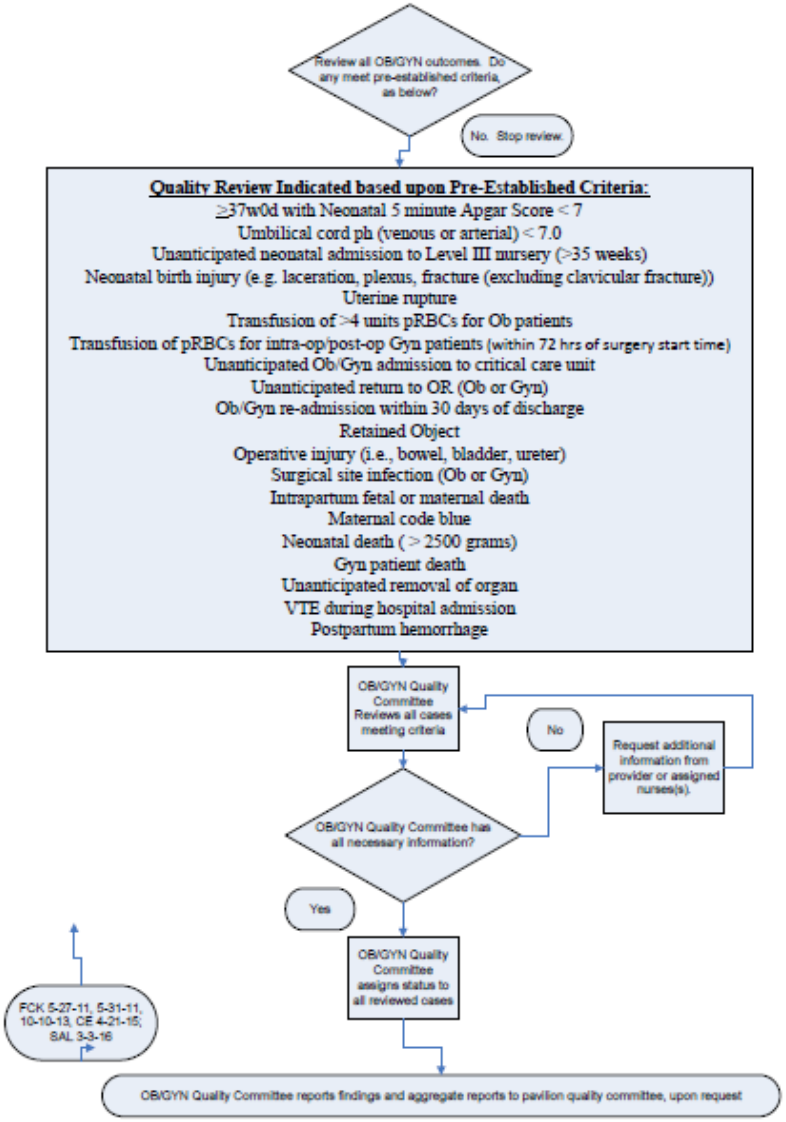
- Harris County: underserved, underinsured
- Deliveries 343/month; 3690 annually (2016)
- 5650 OB-Intake visits (2016)
- Baylor resident program (Obstetrics, Family Practice, Anesthesia)
- Certified Nurse Midwifery
- Level I, II and III Nurseries
- VBAC rate 77.4%

Obstetrics Quality Review Process

Adverse Events

- ERIS entered by RN
- All events reviewed by Nursing Leadership
  - Manager, Clinical Resource Nurse and DON
- All events reviewed by Physicians
  - Chief of Service, Director of Quality
    - Assigned for independent or full review
- Reviewed by Multi-disciplinary OB/GYN Quality Review Committee

BTH OB/GYN Quality & Safety Committee Review Process Flow



Heat Map

A B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	2015 Total
Total eIRS cases	21	17.0741	24.0968	7	7	13.0769	15.0313	7.03226	18	17.0488	5	13	164.36006
Maternal Events													
Death	0	0	0	0	0	0	0	0	0	0	0	0	0
Uterine Ruture	1	0	2	0	0	0	0	0	1	2	1	2	9
Unanticipated maternal admission to Critical Care unit	1	1	0	0	0	1	1	1	1	2	0	0	8
Unanticipated return	1	0	2	0	1	2	2	1	0	0	1	0	10
3rd & 4th Degree Lacerations	12	4	6	5	4	3	4	1	10	9	3	6	67
Transfusion of ≥ 4u PRBCs for ALL OB Patients	3	9	13	2	2	3	4	3	1	1	0	0	41
VTE - OB					0	0	0	0	0	0	0	0	0
Unanticipated removal of organ	1	0	0	0	0	1	1	1	3	0	0	1	8
Fetal Events													
Elective delivery <39 weeks	0.0%	7.4%	9.7%	0.0%	0.0%	7.7%	3.1%	3.2%	0.0%	4.9%	0.0%	0.0%	3.4%
Brachial plexus injury	0	1	0	0	0	0	0	0	0	0	0	0	1
≥37 weeks with 5 Min	2	2	1	0	0	3	3	0	2	3	0	4	20
Art/Vencord pH <7.15	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Deliveries	353	334	348	288	302	315	351	354	385	356	337	336	4059
OB Adverse Event Rate	5.95%	5.11%	6.92%	2.43%	2.32%	4.15%	4.28%	1.99%	4.68%	4.79%	1.48%	3.87%	4.05%
95% confidence level	3.16%	3.16%	3.16%	3.16%	3.16%	3.16%	3.16%	3.16%	3.16%	3.16%	3.16%	3.35%	3.23%
standard deviation	0.01613	0.01613	0.01613	0.01613	0.01613	0.01613	0.01613	0.01613	0.01613	0.01613	0.01613	0.0171	0.0164905

Maternal Early Warning System MEWS: 2014

- OB Adverse Events
  - Multi-disciplinary OB/GYN Quality Review Committee
  - Identified gap related to Maternal OB adverse Events
- Taskforce created

Taskforce

- Nursing and Providers: L&D and MBU
- Reviewed literature: Maternal Morbidity
- Met with MEWS content expert
- Conducted a retrospective review of incidents

National Partnership for Maternal Safety

"Committed to work together to establish, **at every facility that provides maternity care in the US**, protocols that address the leading causes of maternal harm or death, including hemorrhage, preeclampsia and thromboembolism prevention."

Obstet Gynecol 2013;122:735-6

Elliott Main, MD

SOAP · AWHONN Promoting the Health of Women and Newborns · CDC · HCA Hospital Corporation of America · American College of Nurse-Midwives

CMQCC
California Maternal Quality Care Collaborative

Our mission is to end preventable morbidity, mortality and racial disparities in California maternity care

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

Continually improve patient safety in women's health care through multidisciplinary collaboration that drives culture change

AWHONN
PROMOTING THE HEALTH OF WOMEN AND NEWBORNS

To improve and promote the health of women and newborns and to strengthen the nursing profession through the delivery of superior advocacy, research, education and other professional and clinical resources to nurses and other health care professionals

Dedicated to the advancement of women's health care and the professional and socioeconomic interests of its members through continuing medical education, practice, research, and advocacy

California Maternal Mortality Review 2002-2005

Delayed response to triggers	
Preeclampsia	92%
Postpartum hemorrhage	85%
Cerebrovascular disease	63%
Venous thromboembolism	75%
Amniotic fluid embolism	67%

The Joint Commission Sentinel Event Alert

#44

Preventing Maternal Death

Identify specific triggers for responding to changes in the mother's vital signs and clinical condition and develop and use protocols and drills for responding to changes.

January 26, 2010

MATERNAL EARLY WARNING SYSTEM

BEN TAUB HOSPITAL - WOMEN AND INFANT'S DEPARTMENT

MEWS TRIGGERS

The Maternal Early Warning Criteria

Systolic BP	**<90 or >160**
Diastolic BP	**>110**
Heart Rate (beats per minute)	**<50 or >120**
Respiratory Rate (breaths per minute)	**<10 or >30**
Oxygen saturation, on room air	**<95%**
Oliguria, mL/hr for ≥ 2 hours	**<35**
Vaginal Bleeding/PPH ≤ 2 hours	**500 mL (qBL)**
Maternal agitation, confusion, or unresponsiveness; patient with preeclampsia reporting a non-remitting headache or shortness of breath	

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 always feel comfortable to escalate their concerns at any point.

CE/MEWS taskforce 8/2016

MEWS workflow

Validate VS, inform primary RN, & document in MR

Notify resident w/in 5 min. of trigger

- senior resident: **281-262-0904**
- if 3C -antepartum resident: 3-9491

Notify Charge RN and Document

Escalate if no response w/in 5 min

- Attending – 3-9511

Escalate if not at bedside w/in 15 min:

- re-notify Attending; NCM/DON or ADON

Use “Check back” Communication and Document

NCM: Nurse Clinical Manager
DON: Director of Nursing
ADON: Administrative Director of Nursing

MEWS OB Flowsheet

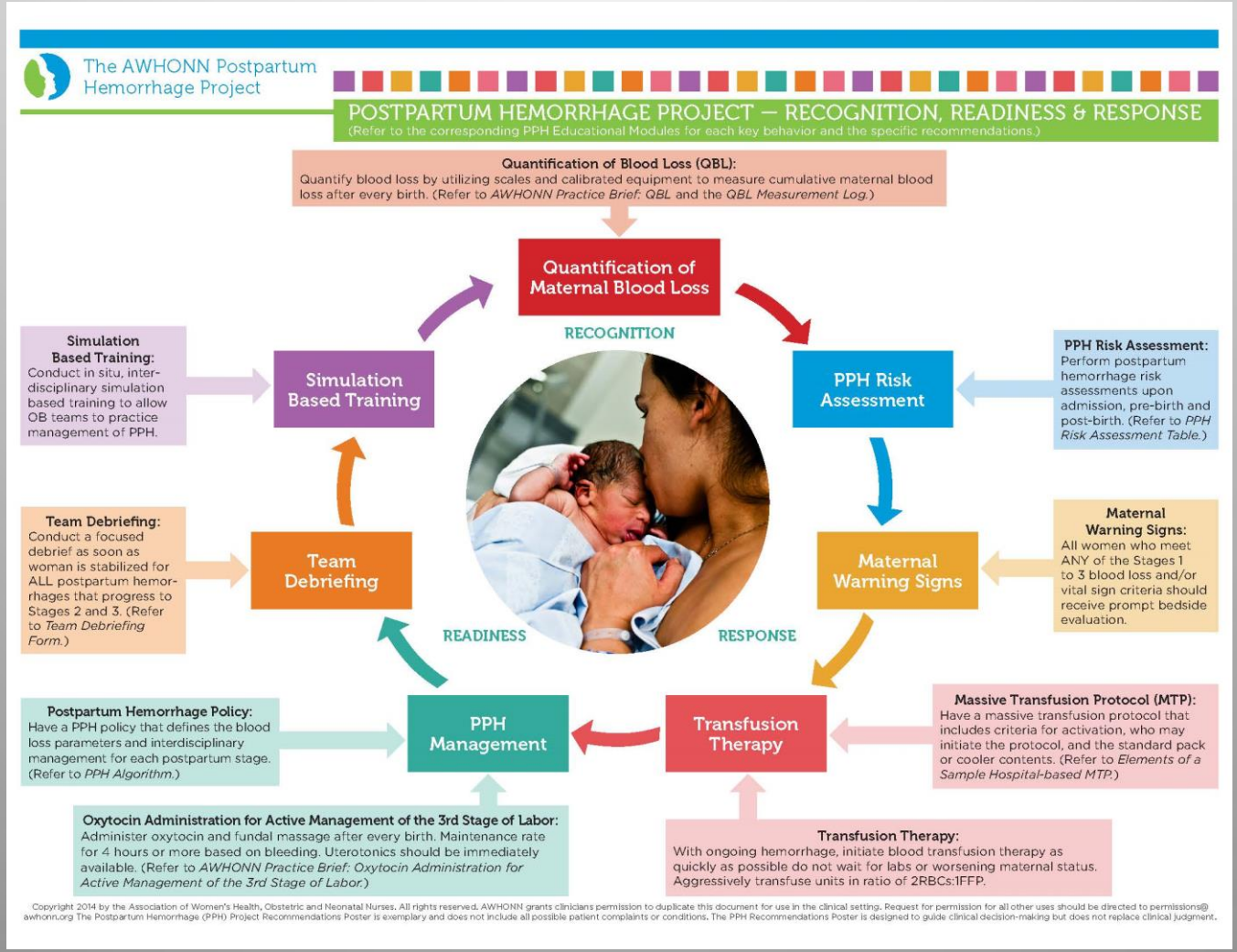
	1/10/17	1/13/17	1/14/17		1/18/17	1/21/17
	1700	0333	0058	2142	2115	1100
MEWS OB						
Time of Trigger	1700	0333	0045	2125	2104	
Vital Signs Validated?	Yes	Yes	Yes	Yes	Yes	
Type of Trigger	SBP>160	SBP>160	SBP>160	SBP>160	SBP>160	
Time Person/Provider Notified	1705	0333	0050	0030	2104	
Name of Person/Provider Notified						
Time Person/Provider at Bedside	1705	0342	0053	0042	2115	
Name of Person/Provider at Bedside						
Response	Orders ...	Orders ...	Orders ...	Orders ...	Orders ...	
Orders Received		Antihyp...	Other	Other	Antihyp...	

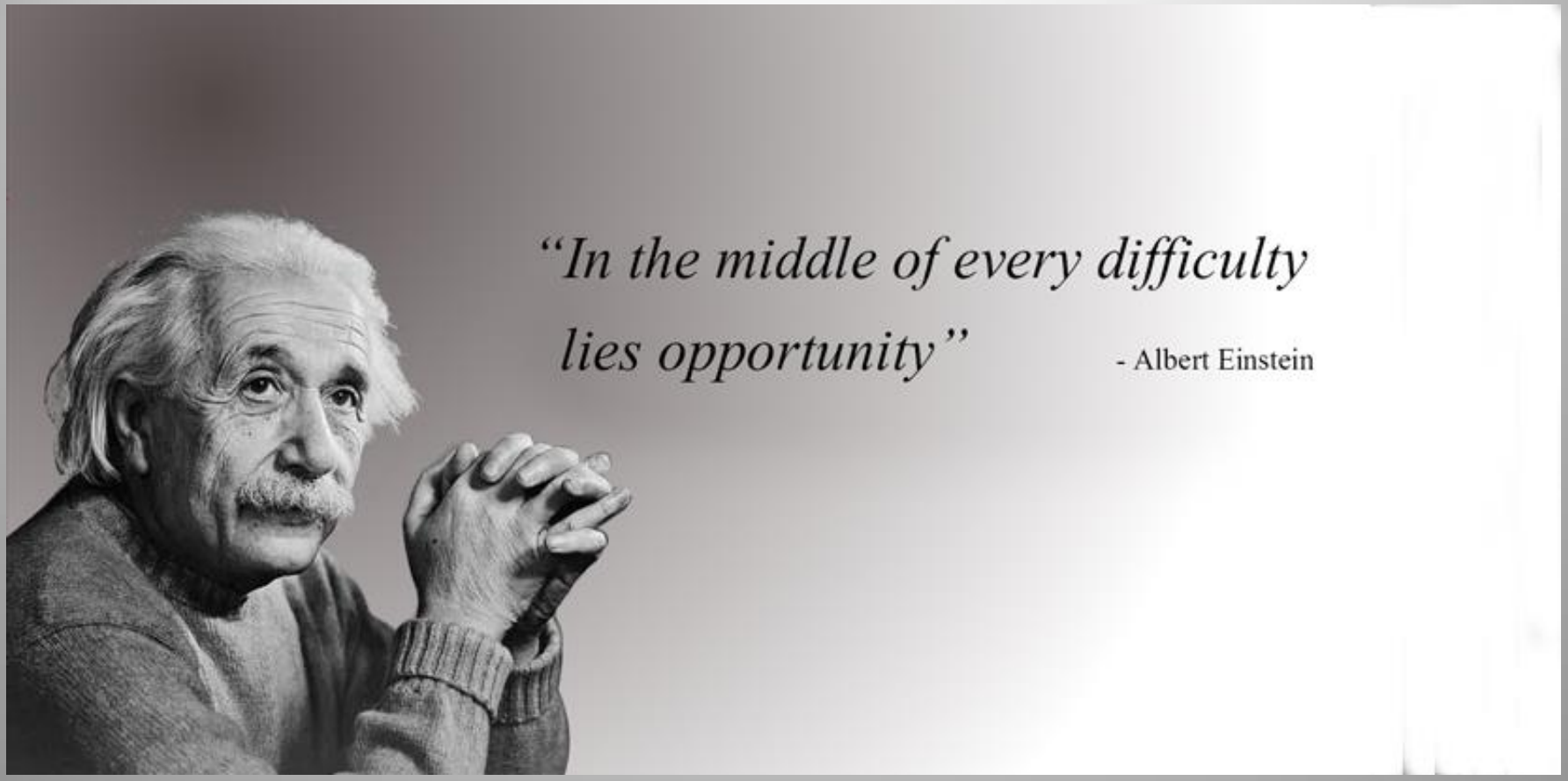
MEWS Outcomes

OB Adverse Event Rate	
PRE-MEWS	4.45%
POST-MEWS	2.35%
	P = 0.017

- Associated Clinical Significance
  - Anecdotal perceptions : change in culture – nursing and providers

Hemorrhage Project: 2016 Readiness, Recognition, Response




"In the middle of every difficulty
lies opportunity"
- Albert Einstein

Questions

References: Available upon request

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