Peripartum Disparities and Quality

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Presenter Disclosures

Elizabeth Howell, MD, MPP

I have no personal financial relationships with commercial interests relevant to this presentation

Overview

- Racial/ethnic disparities in maternal mortality
- Severe maternal morbidity
- Research on quality and disparities in severe maternal morbidity in US and NYC Hospitals
- Current National Initiative – Alliance for Innovation on Maternal Health
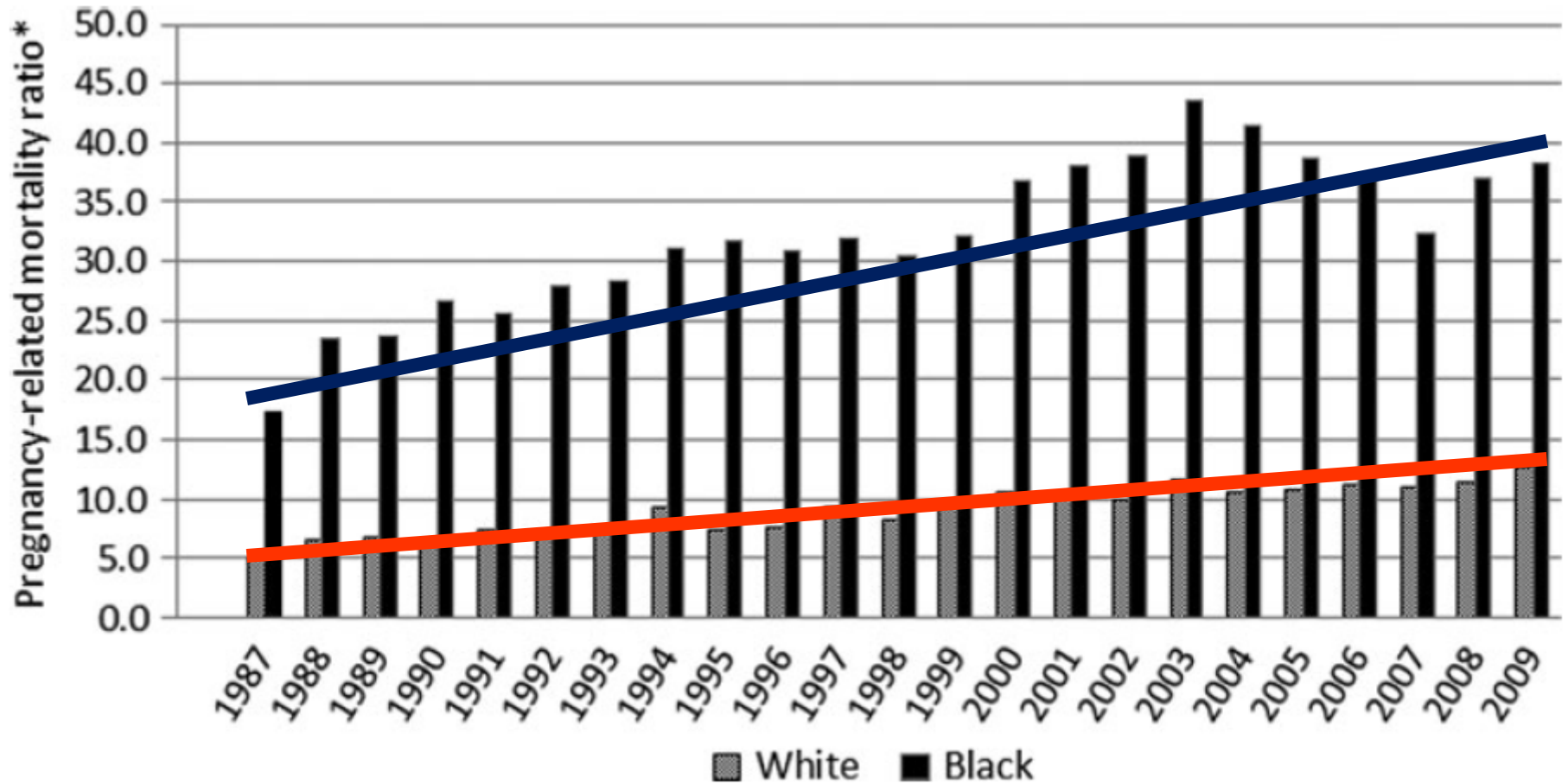
Disparities in Maternal Mortality

- Minorities represent half of all US births
- Racial/ethnic minorities suffer higher maternal mortality rates
- Blacks 3 to 4 times more likely to die than whites – largest disparity among population perinatal health measures
- Native Americans, some Asians, some Hispanics also have elevated rates

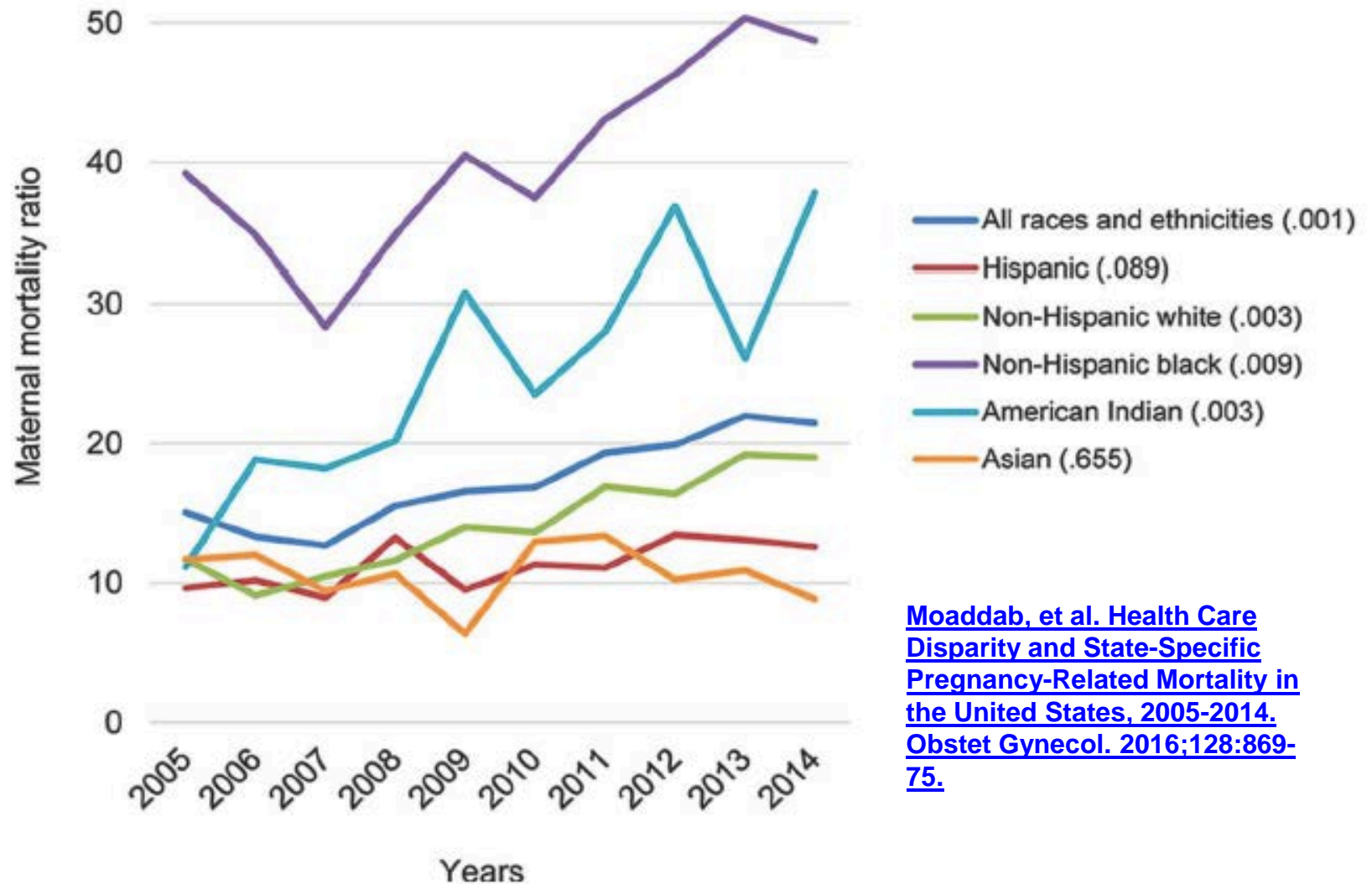Martin, Natl Vital Stat Rep 2010; Callaghan, Obstet Gynecol 2012

United States Pregnancy-related Mortality by Race, Ethnicity, Nativity 2000-2006

Creanga, Obstet Gynecol 2012

CDC US Pregnancy-related Mortality by Race

Creanga. J of Women's Hlth; 2014
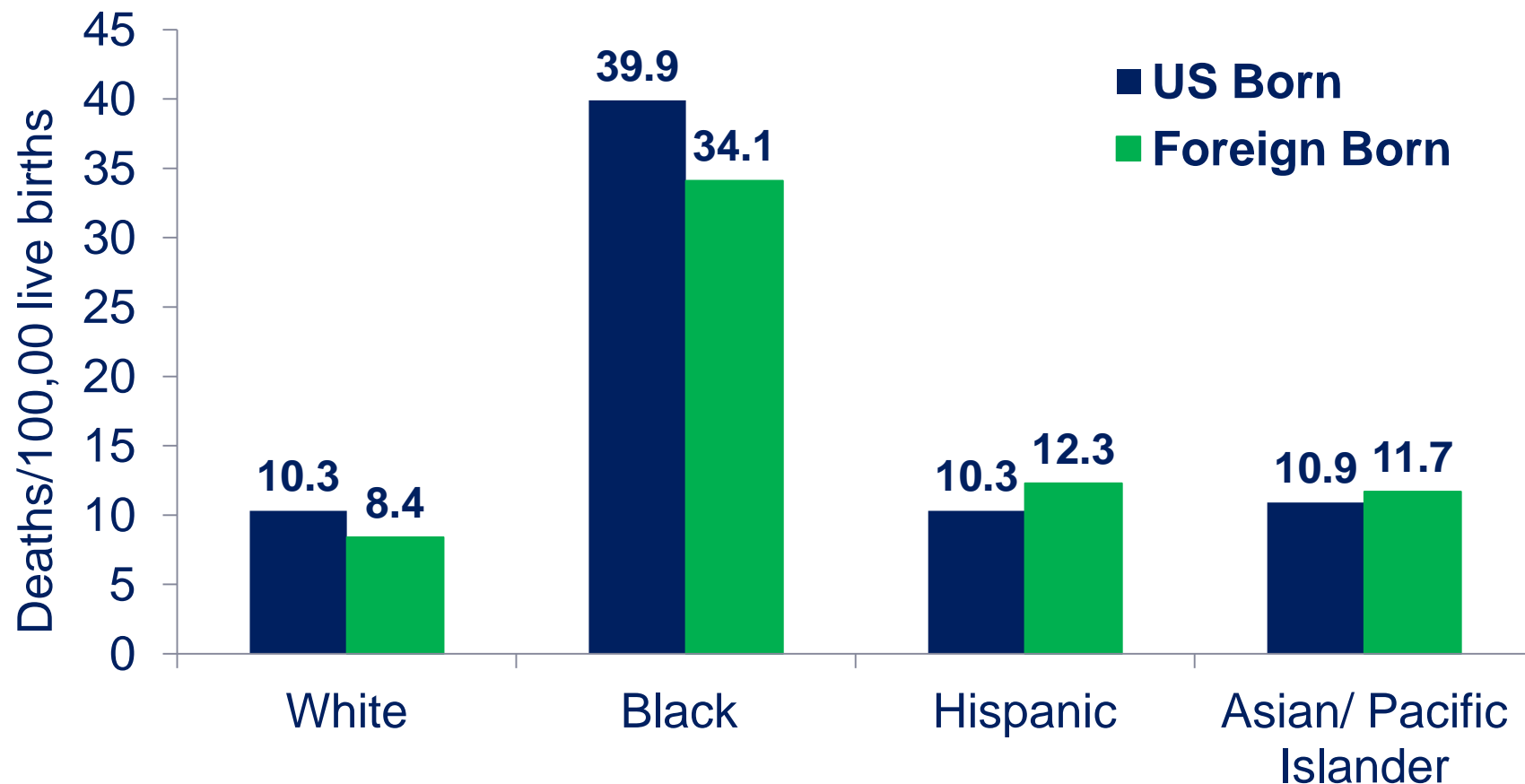
Maternal Mortality (per 100,000)

Moaddab, et al. Health Care Disparity and State-Specific Pregnancy-Related Mortality in the United States, 2005-2014. Obstet Gynecol. 2016;128:869-75.

Disparities More Pronounced in New York City

- Blacks 12 times more likely to die
  - **Widening of gap since 2001-2005**
  - **Increased gap driven by 45% decreased mortality among whites**
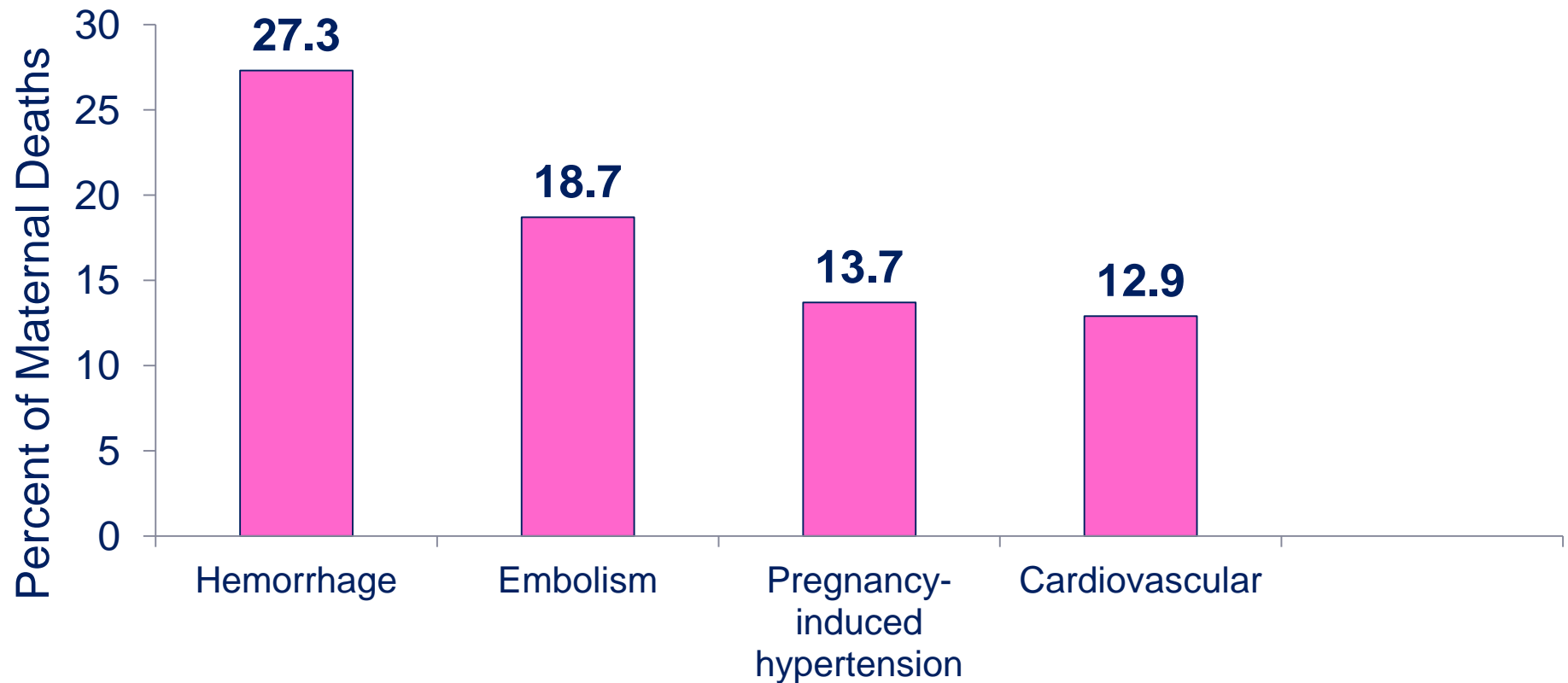- Asian/Pacific Islanders 4x as likely to die
- Hispanics 3x as likely to die

NYC DOHMH; 2006-2010

Figure 6. Pregnancy-Related Deaths and Live Births by Race/Ethnicity, New York City, 2006 to 2010

Pregnancy Associated Mortality, NYC 2006-2010. NYC DOHMH
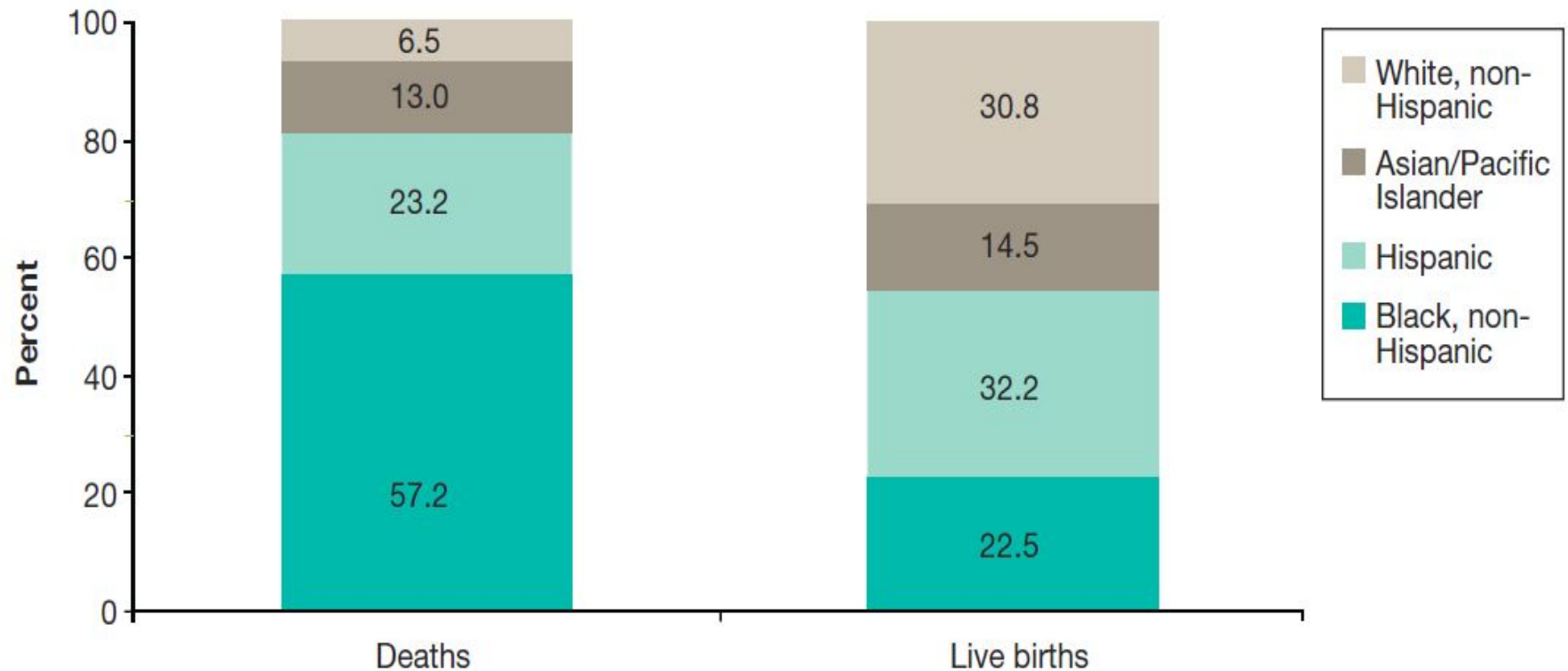
Leading Causes of Maternal Deaths in New York City, 2006-2010
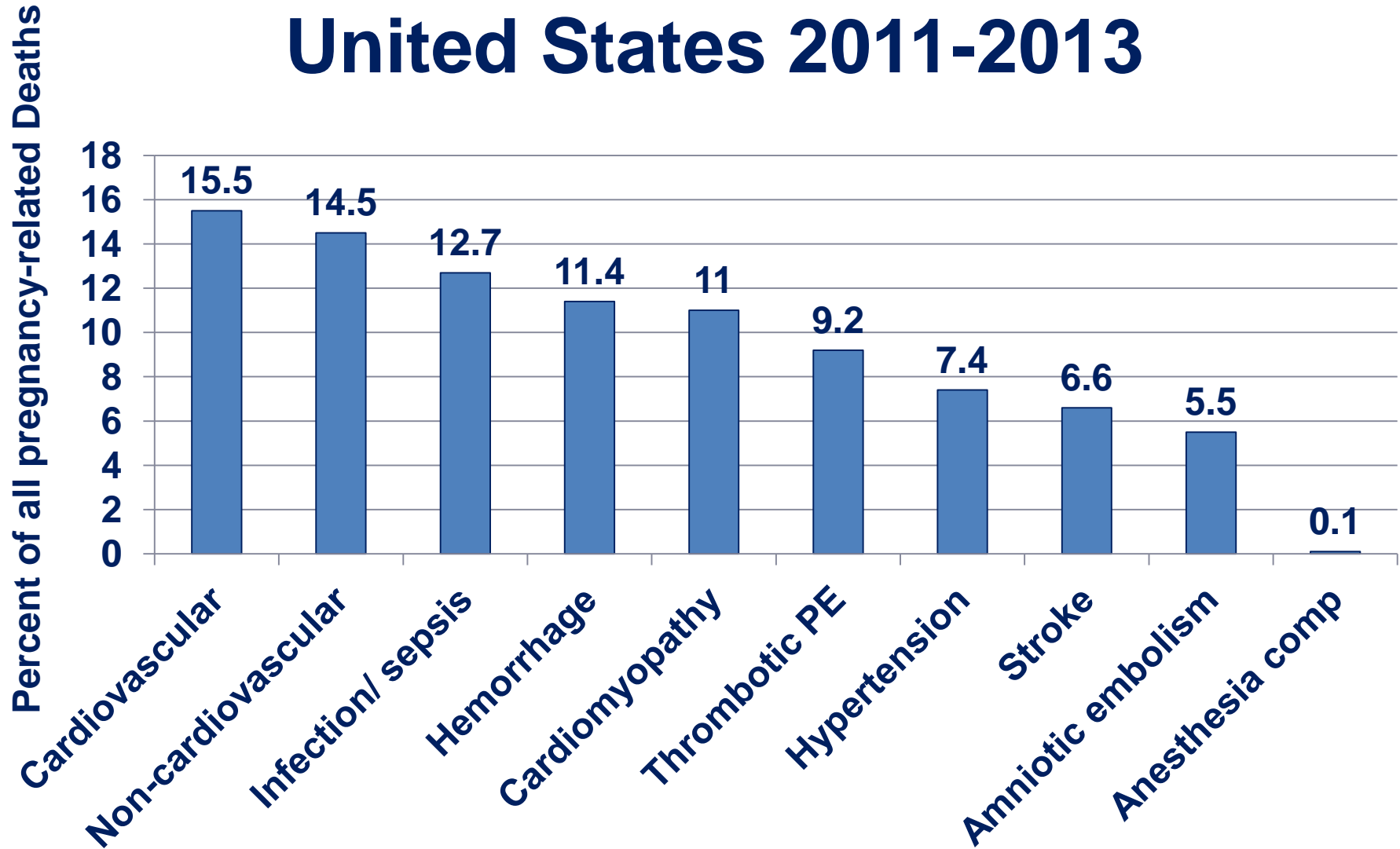

Pregnancy Associated Mortality, NYC 2006-2010. NYC DOHMH

Table 3. Cause of Pregnancy-Related Deaths by Race/Ethnicity, New York City, 2006 to 2010

Cause of Death	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/ Pacific Islander	
	N	%	N	%	N	%	N	%
Hemorrhage	1	11.1	20	25.3	10	31.3	7	38.9
Embolism	1	11.1	16	20.3	6	18.8	3	16.7
Pregnancy-induced hypertension	2	22.2	12	15.2	4	12.5	1	5.6
Cardiovascular condition	2	22.2	12	15.2	3	9.4	1	5.6
Infection	0	0.0	5	6.3	3	9.4	2	11.1
Anesthesia complication	0	0.0	3	3.8	0	0.0	0	0.0
Injury	1	11.1	0	0.0	1	3.1	1	5.6
Cancer	1	11.1	2	2.5	2	6.3	0	0.0
Other	1	11.1	9	11.4	3	9.4	2	11.1
Unknown	0	0.0	0	0	0	0.0	1	5.6

Table 3. Cause of Pregnancy-Related Deaths by Race/Ethnicity, New York City, 2006 to 2010

Cause of Death	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian/ Pacific Islander	
	N	%	N	%	N	%	N	%
Hemorrhage	1	11.1	20	25.3	10	31.3	7	38.9
Embolism	1	11.1	16	20.3	6	18.8	3	16.7
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Anesthesia complication	0	0.0	3	3.8	0	0.0	0	0.0
Injury	1	11.1	0	0.0	1	3.1	1	5.6
Cancer	1	11.1	2	2.5	2	6.3	0	0.0
Other	1	11.1	9	11.4	3	9.4	2	11.1
Unknown	0	0.0	0	0	0	0.0	1	5.6

Causes of Pregnancy-related Deaths, United States 2011-2013

Percent of all pregnancy-related Deaths

Cause	Percent
Cardiovascular	15.5
Non-cardiovascular	14.5
Infection/ sepsis	12.7
Hemorrhage	11.4
Cardiomyopathy	11
Thrombotic PE	9.2
Hypertension	7.4
Stroke	6.6
Amniotic embolism	5.5
Anesthesia comp	0.1

CDC Mortality Surveillance System -
https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html

Causes of Pregnancy-related Deaths, United States 2011-2013

CDC Mortality Surveillance System -
https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html
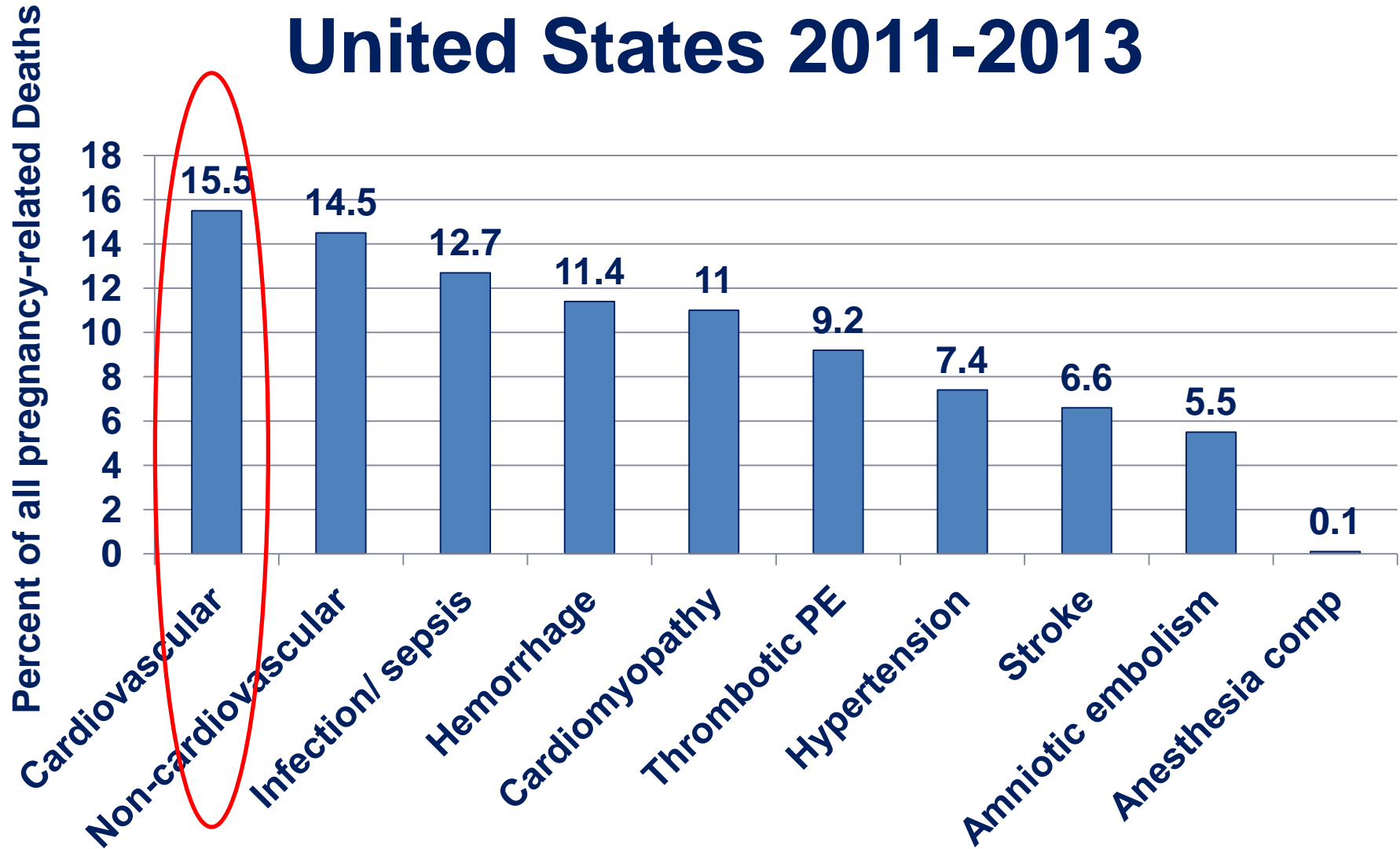
Severe Maternal Morbidity

- For every maternal death, 100 women experience severe obstetric morbidity
- Life-threatening diagnosis or life-saving procedure
  - organ failure (e.g. renal, liver), shock, amniotic embolism, eclampsia, septicemia, cardiac events
  - ventilation, transfusion, hysterectomy
- Significant racial/ethnic disparities exist

Callaghan. Obstet Gynecol 2012;120:1029-36.; Creanga. J. of Women's Health 2014

Trends in Severe Maternal Morbidity in the United States: 1998-2011

Severe Maternal Morbidity During Delivery Hospitalizations: United States, 1998-2011
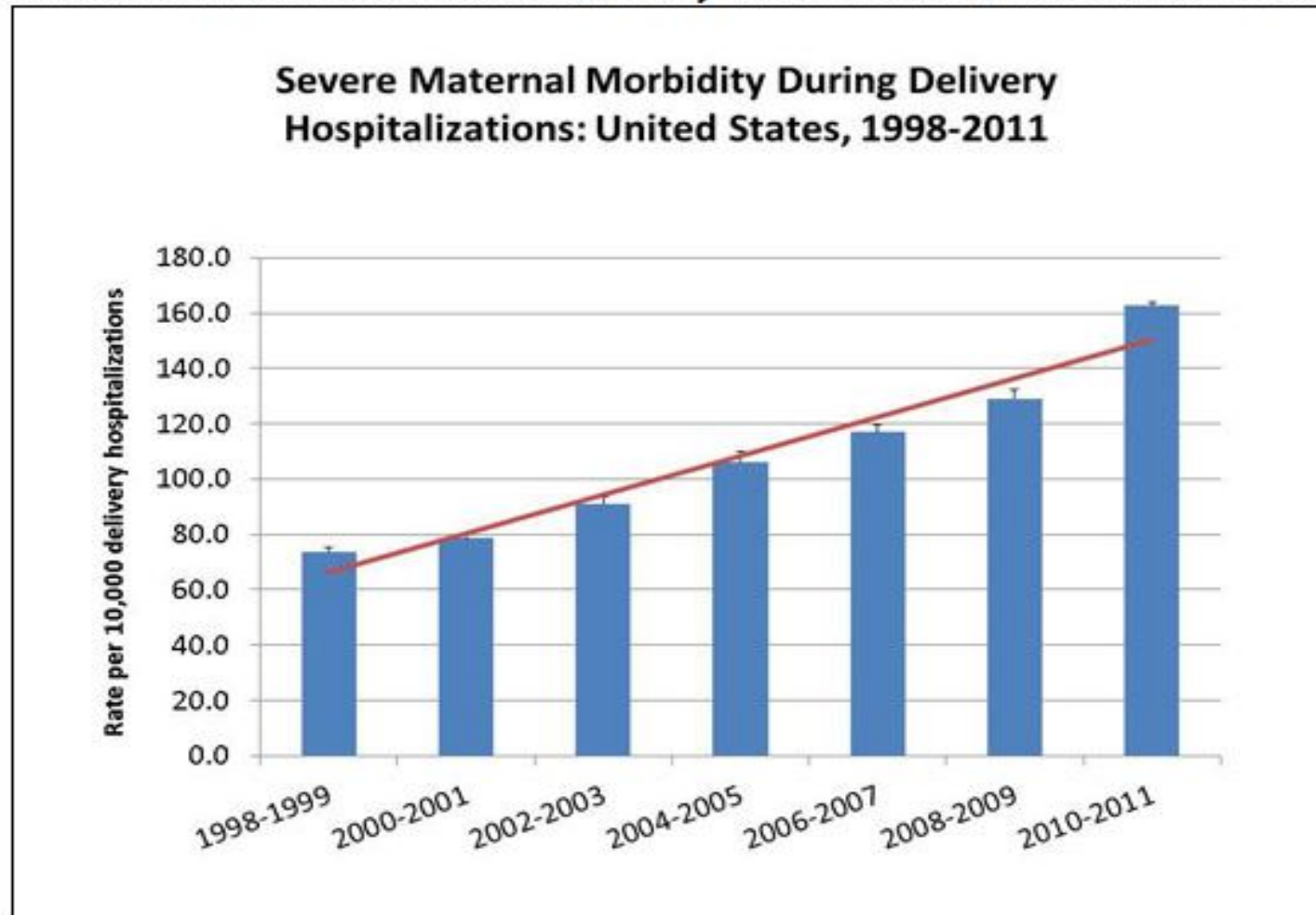
This graph shows the rates and standard errors of severe maternal morbidity during delivery hospitalizations in the United States in 2-year increments from 1998-2011.

CDC website: Severe Maternal Morbidity in the United States

Racial/Ethnic Disparities

- CDC called for systematic review of cases at state, facility, and national levels to guide quality improvement interventions to reduce disparities

Creanga, AJOG 2014

Role of Hospital Quality

- Nearly one-half of severe events / maternal deaths preventable

- Hospital quality important contributing factor

- Obstetric complications sensitive to quality of care at delivery
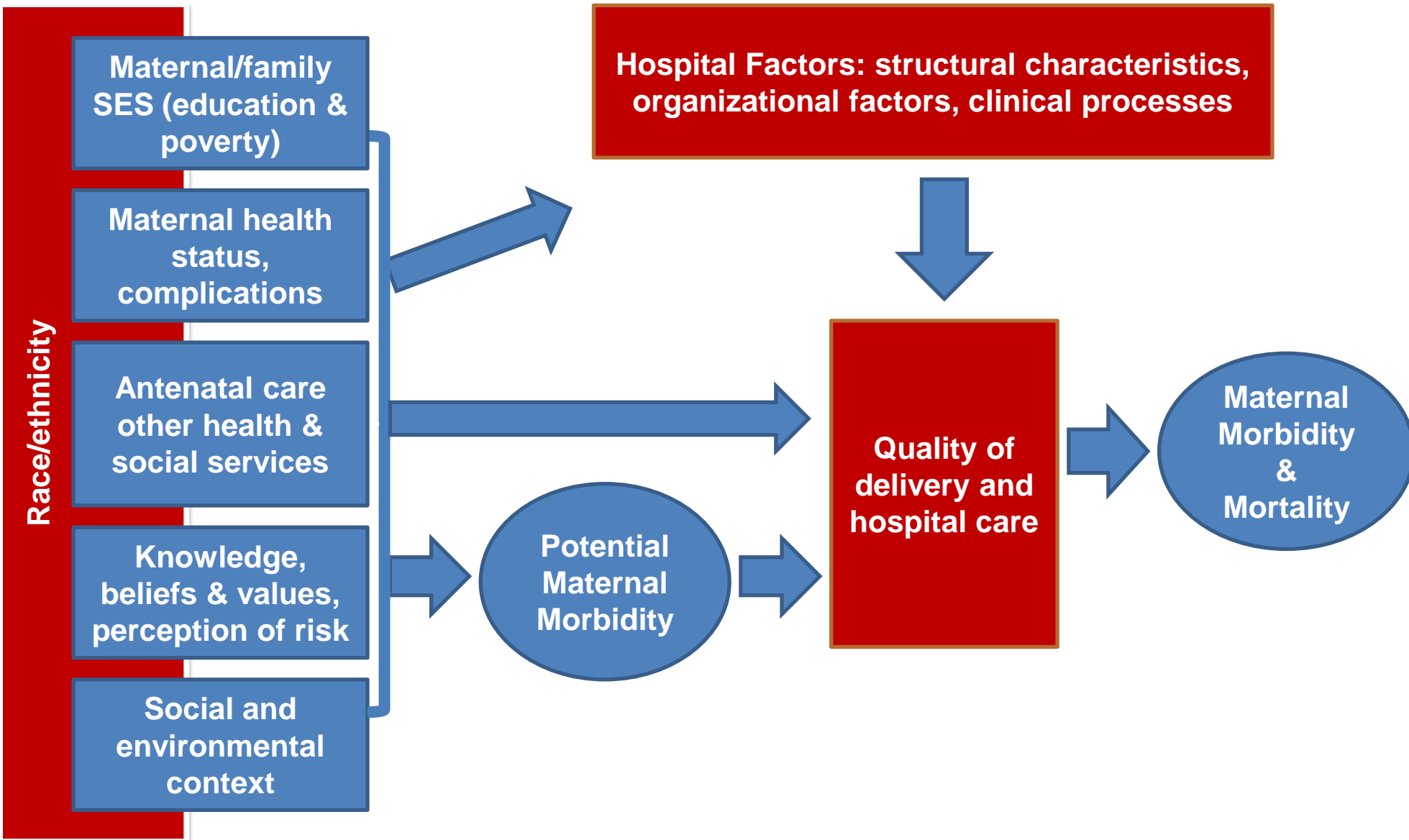
- Quality of maternal care varies widely

Geller. Womens Health Issues 2006; Lewis. Report on confidential enquiries into maternal deaths in the UK, 1997–1999. Asch DA. JAMA 2009; Arora et al. AJOG April 2016 Janakiraman V. Obstet Gynecol 2011

Quality of Care and Obstetric Disparities

- Contribution of quality to disparities less studied
- Few studies suggest racial/ethnic women deliver in lower quality hospitals
- Site of care receiving increasing attention as mechanism for disparities
- Whether hospital quality contributes to disparities in severe morbidity not known

Howell AJOG 2016; Howell Obstet & Gynecol 2017; Creanga AJOG 2014; Pediatrics. 2008; Cheng. Neurology 2012

Quality and Disparities in Severe Morbidity

Race/ethnicity

- Maternal/family SES (education & poverty)
- Maternal health status, complications
- Antenatal care other health & social services
- Knowledge, beliefs & values, perception of risk
- Social and environmental context

Hospital Factors: structural characteristics, organizational factors, clinical processes

Potential Maternal Morbidity

Quality of delivery and hospital care

Maternal Morbidity & Mortality

<u>OBSTETRICS</u>

Black-white differences in severe maternal morbidity and site of care

Elizabeth A. Howell, MD, MPP; Natalia Egorova, PhD, MPH; Amy Balbierz, MPH;
Jennifer Zeitlin, DSc, MA; Paul L. Hebert, PhD

BACKGROUND: For every maternal death, >100 women experience severe maternal morbidity, which is a life-threatening diagnosis, or undergo a life-saving procedure during their delivery hospitalization. Similar to racial/ethnic disparities in maternal death, black women are more likely to experience severe maternal morbidity than white women. Site of care has received attention as a mechanism to explain disparities in other areas of medicine. Data indicate that black women receive care in a concentrated set of hospitals and that these hospitals appear to provide lower quality of care. Whether racial differences in the site of delivery contribute to observed black-white disparities in severe maternal morbidity rates is unknown.

OBJECTIVE: The purpose of this study was to determine whether hospitals with high proportions of black deliveries have higher severe maternal morbidity and whether such differences contribute to overall black-white disparities in severe maternal morbidity.

STUDY DESIGN: We used a published algorithm to identify cases of severe maternal morbidity during deliveries in the Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project for 2010 and 2011. We ranked hospitals by their proportion of black deliveries into high black-serving (top 5%), medium black-serving (5% to 25% range), and low black-serving hospitals. We analyzed the risks of severe maternal

comorbidities, hospital characteristics, and within-hospital clustering. We then derived adjusted rates from these models.

RESULTS: Seventy-four percent of black deliveries occurred at high and medium black-serving hospitals. Overall, severe maternal morbidity occurred more frequently among black than white women (25.8 vs 11.8 per 1000 deliveries, respectively; $P < .001$); after adjustment for the distribution of patient characteristics and comorbidities, this differential declined but remained elevated (18.8 vs 13.3 per 1000 deliveries, respectively; $P < .001$). Women who delivered in high and medium black-serving hospitals had elevated rates of severe maternal morbidity rates compared with those in low black-serving hospitals in unadjusted (29.4 and 19.4 vs 12.2 per 1000 deliveries, respectively; $P < .001$) and adjusted analyses (17.3 and 16.5 vs 13.5 per 1000 deliveries, respectively; $P < .001$). Black women who delivered at high black-serving hospitals had the highest risk of poor outcomes.

CONCLUSION: Most black deliveries occur in a concentrated set of hospitals, and these hospitals have higher severe maternal morbidity rates. Targeting quality improvement efforts at these hospitals may improve care for all deliveries and disproportionately impact care for black women.
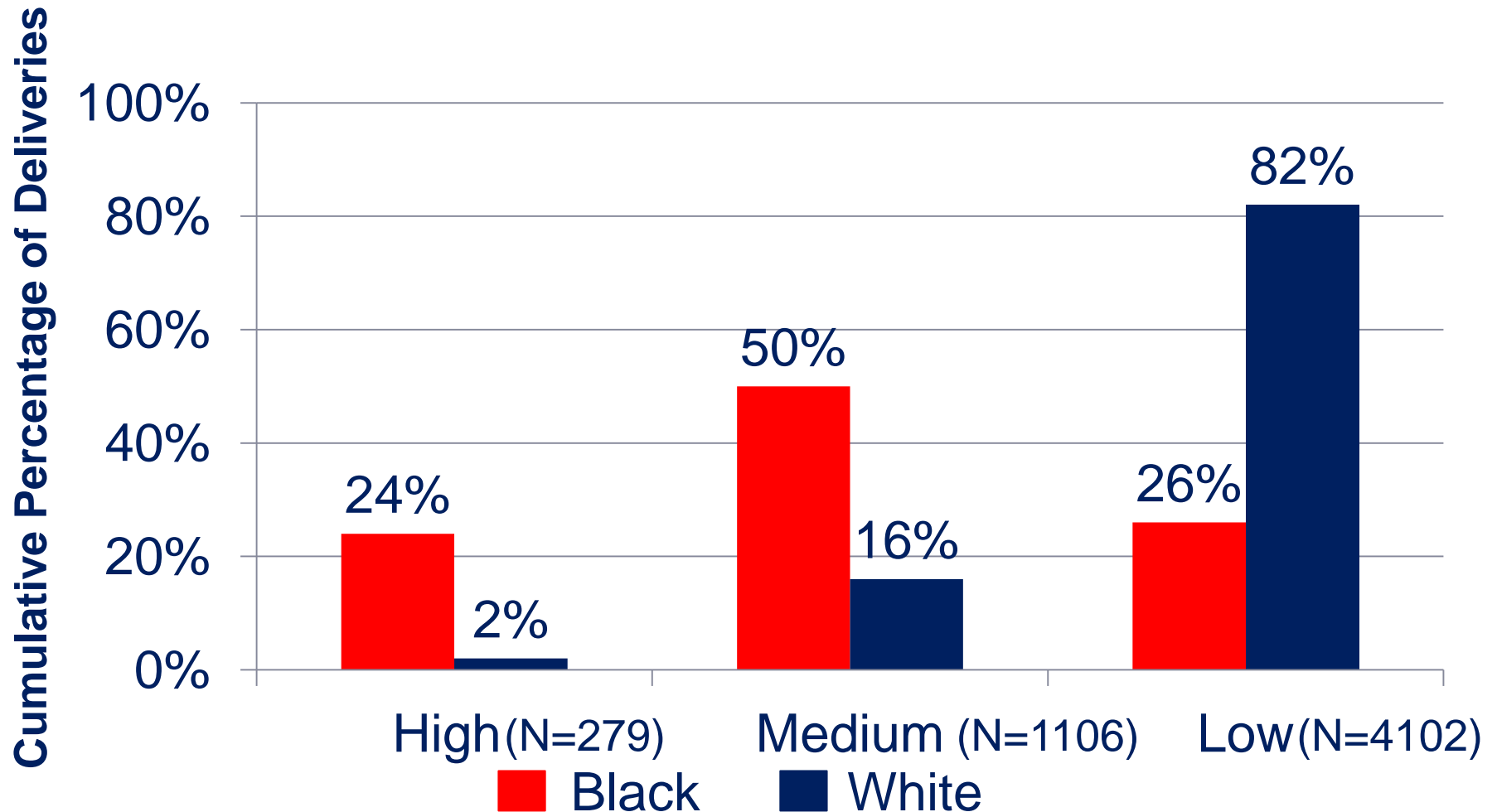
Methods

- Nationwide Inpatient Sample (2010 – 2011)
- Identified severe maternal morbidity (SMM)
- Ranked hospitals by proportion of black deliveries:
  - High (top 5%)   - Medium (5-25%)
  - Low (remainder)
- Analyzed risks of SMM for blacks and whites by hospital black-serving status using logistic regression adjusting for patient comorbidities, hospital factors, and patient clustering
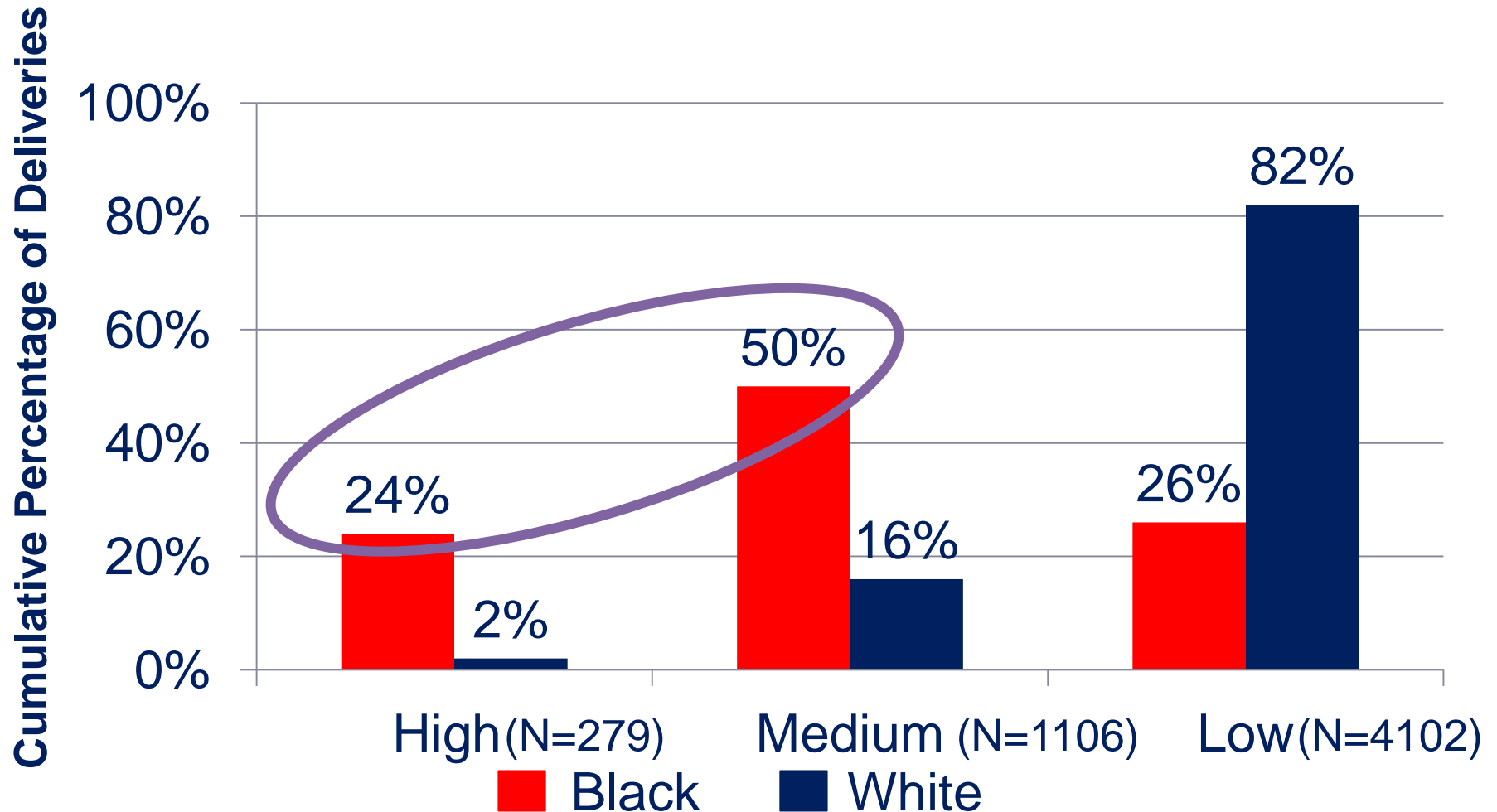
Major Findings

- Higher rates of severe maternal morbidity among blacks partially due to:
  - Elevated rates of comorbidities
  - Differences in site of care
- One quarter of all US hospitals provide care for 75% of all black deliveries
- Black-serving hospitals have higher morbidity rates for both black and white women

Distribution of Black and White Deliveries at Black-serving Hospitals

Cumulative Percentage of Deliveries

- 100%
- 80%
- 60%
- 40%
- 20%
- 0%

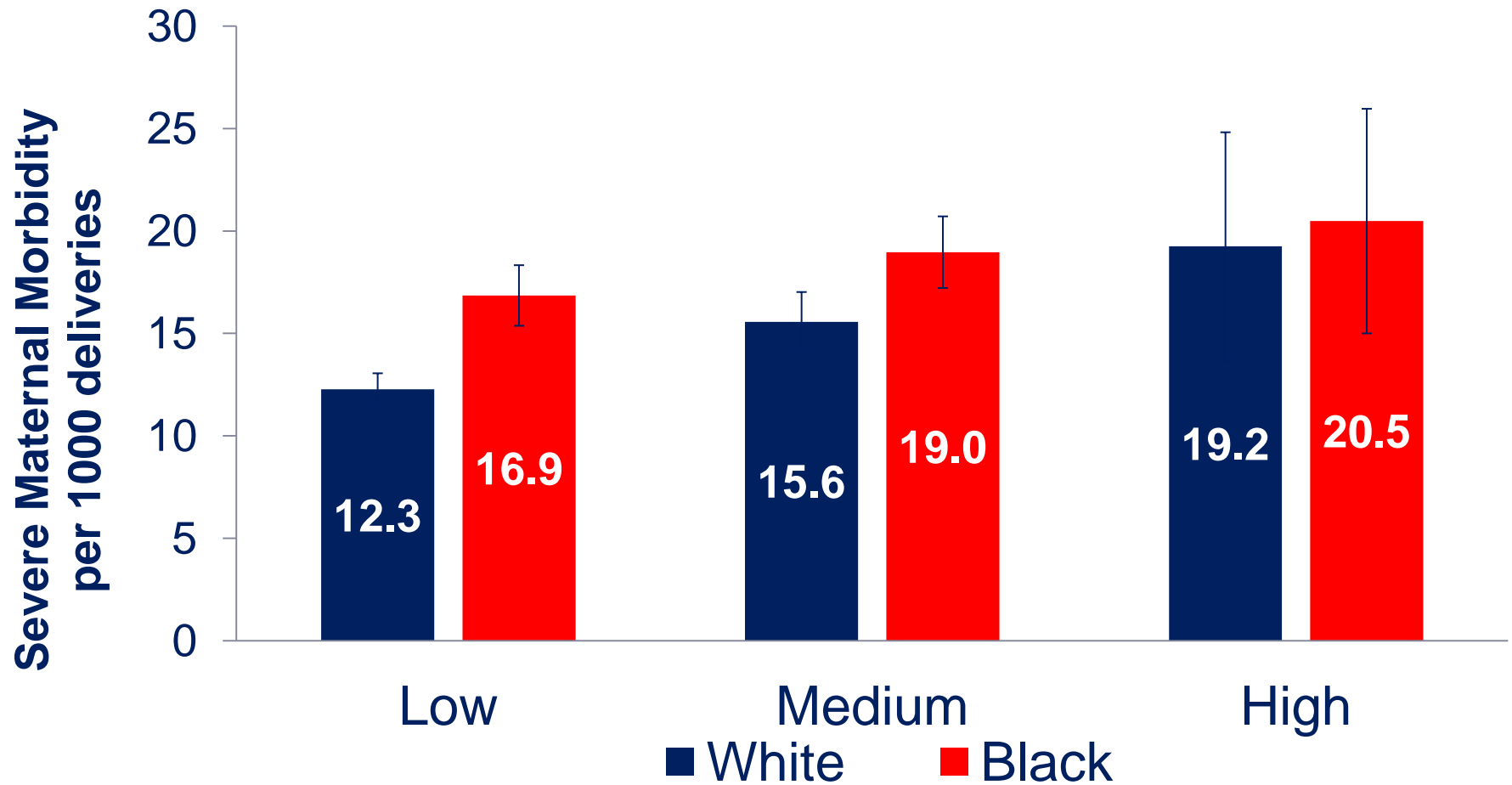|	High (N=279)	Medium (N=1106)	Low (N=4102)
Black	24%	50%	26%
White	2%	16%	82%

■ Black ■ White

Distribution of Black and White Deliveries at Black-serving Hospitals

Risk-adjusted Severe Maternal Morbidity Rates for Black and White Deliveries at Black-serving Hospitals

Severe Maternal Morbidity per 1000 deliveries

- Low: White 12.3, Black 16.9
- Medium: White 15.6, Black 19.0
- High: White 19.2, Black 20.5

Legend: ■ White ■ Black

Implications

- Differential access to higher quality hospitals may partially explain excess morbidity among black women

- Research needed to investigate clinical and hospital factors that contribute to disparities and severe morbidity

- Specific research needed to identify attributes of high performing hospitals

Next Steps in Our Research

- Focus on NYC Hospitals – funded by NIH*
- Mixed methods study to investigate hospital quality and disparities in severe maternal morbidity
- Qualitative interviews to examine safety and culture, quality improvement, and other factors associated with high quality care
- Focus groups to explore receipt of high quality care

*NIH R01MD007651; Howell EA AJOG 2016; Howell EA Obstet & Gynecol 2017

Study Aims

- Examine risk-adjusted severe maternal morbidity (SMM) and extent to which hospital quality contributes to racial disparities in SMM

- Use mixed methods to identify organizational factors, processes, and practice patterns that explain wide variation in hospital performance

- Explore patient barriers to receipt of high quality care

- Promote uptake of best practices

Site of delivery contribution to black-white severe maternal morbidity disparity

CrossMark

Elizabeth A. Howell, MD, MPP; Natalia N. Egorova, PhD, MPH; Amy Balbierz, MPH;
Jennifer Zeitlin, DSc, MA; Paul L. Hebert, PhD

BACKGROUND: The black-white maternal mortality disparity is the largest disparity among all conventional population perinatal health measures, and the mortality gap between black and white women in New York City has nearly doubled in recent years. For every maternal death, 100 women experience severe maternal morbidity, a life-threatening diagnosis, or undergo a life-saving procedure during their delivery hospitalization. Like maternal mortality, severe maternal morbidity is more common among black than white women. A significant portion of maternal morbidity and mortality is preventable, making quality of care in hospitals a critical lever for improving outcomes. Hospital variation in risk-adjusted severe maternal morbidity rates exists. The extent to which variation in hospital performance on severe maternal morbidity rates contributes to black-white disparities in New York City hospitals has not been studied.
OBJECTIVE: We examined the extent to which black-white differences in

generate risk-standardized severe maternal morbidity rates for each hospital (n = 40). We then assessed differences in the distributions of black and white deliveries among these hospitals.
RESULTS: Severe maternal morbidity occurred in 8882 deliveries (2.5%) and was higher among black than white women (4.2% vs 1.5%, $P < .001$). After adjustment for patient characteristics and comorbidities, the risk remained elevated for black women (odds ratio, 2.02; 95% confidence interval, 1.89—2.17). Risk-standardized severe maternal morbidity rates among New York City hospitals ranged from 0.8 to 5.7 per 100 deliveries. White deliveries were more likely to be delivered in low-morbidity hospitals: 65% of white vs 23% of black deliveries occurred in hospitals in the lowest tertile for morbidity. We estimated that black-white differences in delivery location may contribute as much as 47.7% of the racial disparity in severe maternal morbidity rates in New York City.

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Severe Maternal Morbidity Among Hispanic Women in New York City

Investigation of Health Disparities

Elizabeth A. Howell, MD, MPP, Natalia N. Egorova, PhD, MPH, Teresa Janevic, PhD, MPH, Amy Balbierz, MPH, Jennifer Zeitlin, DSc, MA, and Paul L. Hebert, PhD

OBJECTIVE: To investigate differences in severe maternal morbidity between Hispanic mothers and three major Hispanic subgroups compared with non-Hispanic white mothers and the extent to which differences in delivery hospitals may contribute to excess morbidity among Hispanic mothers.

METHODS: We conducted a population-based cross-sectional study using linked 2011–2013 New York City discharge and birth certificate data sets (n=353,773). Rates of severe maternal morbidity were calculated using a published algorithm based on diagnosis and procedure codes. Mixed-effects logistic regression with a random hospital-specific intercept was used to generate risk-standardized severe maternal morbidity rates for each hospital taking into consideration patient sociodemo-

were conducted after excluding isolated blood transfusion from the morbidity composite.

RESULTS: Severe maternal morbidity occurred in 4,541 deliveries and was higher among Hispanic than non-Hispanic white women (2.7% compared with 1.5%, *P*<.001); this rate was 2.9% among those who were Puerto Rican, 2.7% among those who were foreign-born Dominican, and 3.3% among those who were foreign-born Mexican. After adjustment for patient characteristics, the risk remained elevated for Hispanic women (odds ratio [OR] 1.42, 95% confidence interval [CI] 1.22–1.66) and for all three subgroups compared with non-Hispanic white women (*P*<.001). Risk for Hispanic women was attenuated in sensitivity analyses (OR 1.17, 95% CI 1.02–1.33). Risk-standardized morbidity across

Methods

- Vital Statistics linked with SPARCS for all New York City deliveries (2011-2013)
- CDC algorithm to identify severe morbidity
- Mixed-effects logistic regression to calculate risk-standardized severe maternal morbidity rates (SSMMR) for each hospital
- Ranked hospitals based on SSMMR
- Assessed black-white differences and Hispanic-white differences in delivery location

Outcome: Severe Maternal Morbidity

A. Diagnoses

- Acute renal failure
- Obstetric shock
- Liver failure
- Complications of anesthesia
- Eclampsia
- Cerebrovascular accident
- Septicemia
- Pulmonary embolism
- Respiratory failure
- Amniotic embolism

B. Procedures

- Transfusion
- Hysterectomy
- Mechanical ventilation
- Cardiac events procedures
- Invasive hemodynamic monitoring

C. LOS. Limited to hospitalizations with LOS >90th percentile for vaginal and c-section deliveries

Callaghan. Obstet Gynecol 2012;120:1029-36

Patient and Hospital-Level Factors

- Demographics (e.g. age, race and ethnicity, insurance, education, parity, prenatal care)
- Multiple comorbid and pregnancy factors (e.g. cardiac, pulmonary, HTN, DM, obesity, placental disorders)
- Hospital Factors: teaching status, ownership, level of nursery, delivery volume

New York City
Black, Hispanic, White Deliveries
2011-2013

Characteristics	Black N=72,849	Hispanic N=105,926	White N=110,200
Age <20	7%	9%	1%
Medicaid Insurance	72%	79%	35%
Born outside of US	42%	54%	27%
Obese (BMI≥30)	28%	21%	9%
Prior Cesarean	18%	18%	14%
Hypertension	14%	9%	5%
Diabetes	8%	7%	4%

All black-white and Hispanic-white comparisons significant at p<.001

New York City (2011-2013)

Race and Ethnicity	Deliveries N=353,773
White	31%
Black	21%
Hispanic	30%
Asian/ Pacific Islanders	17%
Other	2%

New York City Hospitals

Hospital Characteristics		N=40	%
Ownership	Public	11	27
	Private	29	73
Teaching Status	Teaching	38	95
	Non-Teaching	2	5
Nursery	Level II	7	17
	Level III/IV	33	83
Delivery Volume		range	
	Low/Medium	2,276-7,130	
	High/Very High	12,408-23,192	

Observed Severe Maternal Morbidity Rates
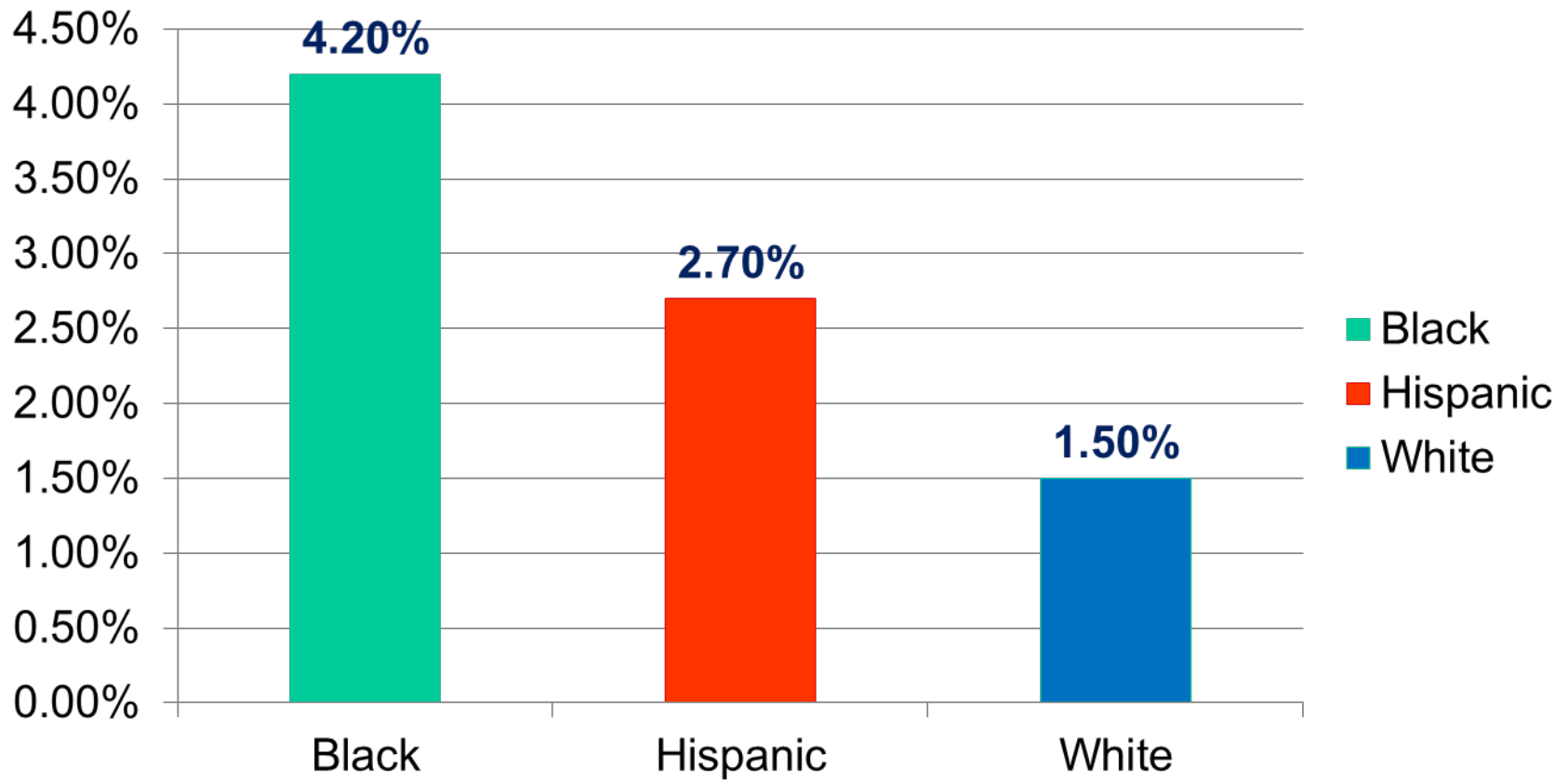
Multivariable Analyses
Severe Maternal Morbidity

Characteristic	Adjusted Odds Ratio (95% CI)
Hispanic	1.52 (1.42-1.63)
Black	2.02 (1.89-2.17)
White	Reference
Asian	1.08 (0.99-1.18)
Other	1.31 (0.85-2.04)

Other significant variables: education, age, parity, multiple, BMI, previous cesarean, comorbidities

Deliveries by Race and Risk-standardized Hospital Morbidity

Hospital Group by RSSMM*

	Low	Medium	High
Black (%)	23	39	37
White (%)	65	17	18
Hispanic (%)	33	38	29

Deliveries by Race and Risk-standardized Hospital Morbidity

Hospital Group by RSSMM*

	Low	Medium	High
Black (%)	23	39	37
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Hispanic (%)	33	38	29

Deliveries by Race and Risk-standardized Hospital Morbidity

Hospital Group by RSSMM*

	Low	Medium	High
Black (%)	23	39	37
White (%)	65	17	18
Hispanic (%)	33	38	29

The Effect of Delivery Hospital on Severe Maternal Morbidity

- We estimated that if blacks delivered in the same hospitals as whites black women would experience 940 fewer severe events

- Reduction in the black severe maternal morbidity rate from 4.2 to 2.9 per 100 deliveries

The Effect of Delivery Hospital on Severe Maternal Morbidity

- We estimated that if Hispanics delivered in the same hospitals as whites Hispanic women would experience 485 fewer severe events

- Reduction in the Hispanic severe maternal morbidity rate from 2.74 to 2.28 per 100 deliveries

Hospital Factors Associated with Severe Maternal Morbidity

- Volume of deliveries
- Teaching Status
- Ownership
- Nursery Level

Summary

- Wide variation in risk-standardized maternal morbidity among NYC hospitals
- Higher rates of severe maternal morbidity among blacks and Hispanics partially due to:
  - Elevated rates of comorbidities
  - Differences in delivery location
- Delivery location partially explains morbidity gap

Implications

- Differential access to higher quality hospitals may partially explain excess morbidity among black women

- Research needed to investigate clinical and hospital factors that contribute to disparities and severe morbidity

Next Steps

- Mixed methods to identify organizational factors, processes, and practice patterns that explain wide variation in hospital performance
  - Secondary data analysis
  - Qualitative interviews
- Focus groups to explore patient barriers to receipt of high quality care
- Dissemination efforts to increase uptake of best practices

COUNCIL ON PATIENT SAFETY
IN WOMEN'S HEALTH CARE

safe health care for every woman

REDUCTION OF PERIPARTUM RACIAL/ETHNIC DISPARITIES (+AIM)

Alliance for Innovation on Maternal Health: Focus on Disparities

- One of the first professional bodies to address disparities

- Unique perspective - addressing disparities under a patient safety umbrella

- Raises awareness among health systems, departments of health, hospitals, and clinicians who care for pregnant and postpartum women

Reduction of Peripartum Racial Disparities Patient Safety Bundle Development

Multidisciplinary Team

- William Grobman, MD, FACOG
- Elizabeth Howell, MD, MPP, FACOG
- Haywood Brown, MD
- Jessica Brumley, PhD, CNM
- Allison Bryant, MD, MPH
- Aaron Caughey, MD, PhD
- Andria Cornell, MSPH
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- Kimberly Gregory, MD, MPH
- Sue Gullo, RN, BSN, MS
- Pandora Hardtman, CNM
- Jill Mhyre, MD
- Katy Kozhimannil, PhD, MPA
- Jill Mhyre,MD
- Geeta Sehgal, DO
- Paloma Toledo, MD, MPH
- Robyn D'Oria, MA, RNC, APN

Bundle development

- Review of literature
  - Disparities frameworks
  - Drivers of disparities and relative contributions
    - Examples from all of medicine
  - Effective interventions to reduce disparities

Disparities Bundle Framework
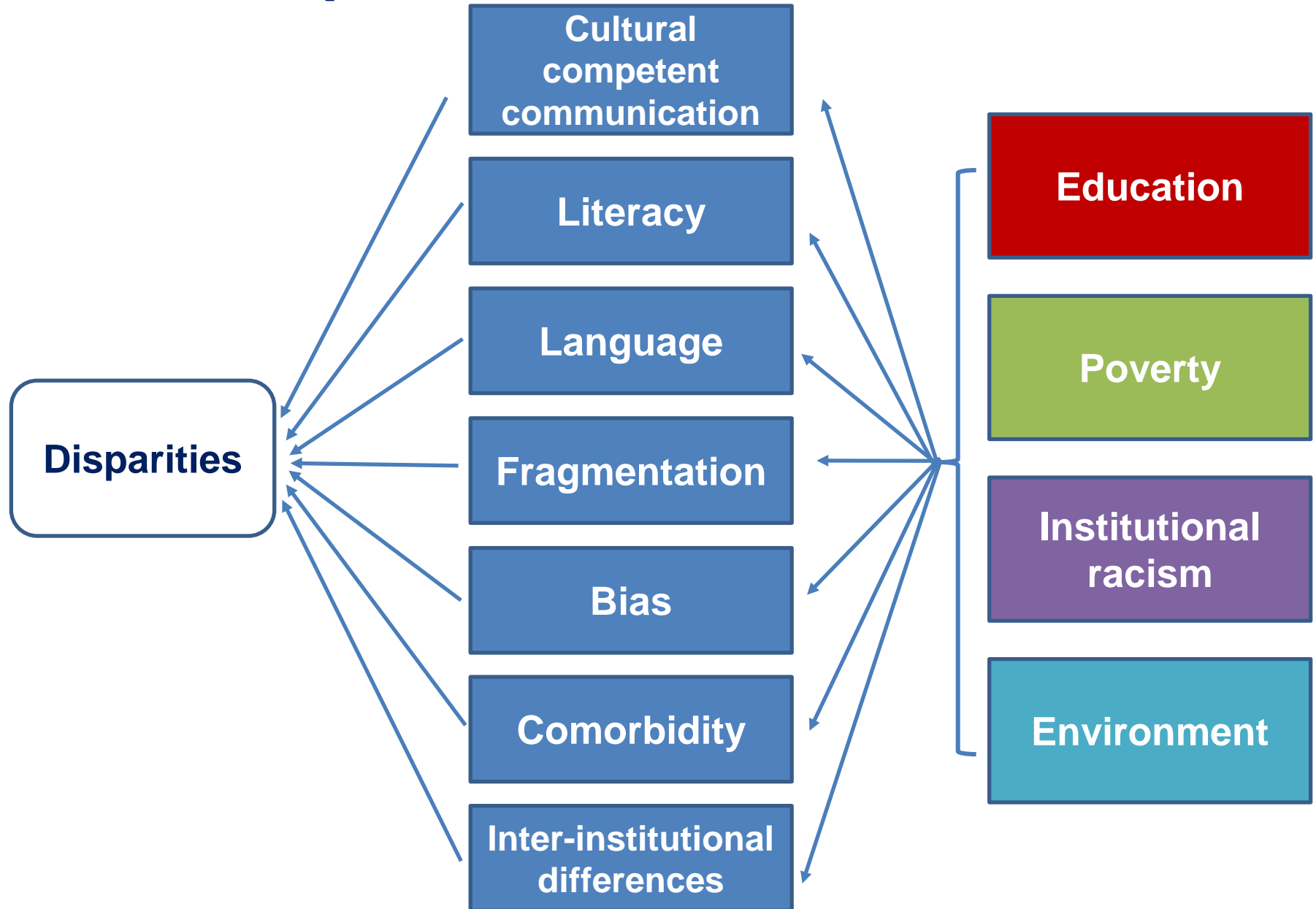
Disparities Bundle Themes

- Care fragmentation
  - Importance throughout reproductive life
- Communication
  - Patient education (culturally competent)
  - Shared decision-making
- Systemic racism
  - Implicit bias
- Lack of measurement and benchmarking
  - Disparity dashboard
  - Inter-hospital differences

Four Domains of Patient Safety Bundles

- **Readiness**

- **Recognition**

- **Response**

- **Reporting/Systems Learning**

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

READINESS

Every health system

- Establish systems to accurately document self-identified race, ethnicity, and primary language.
  - Provide system-wide staff education and training on how to ask demographic intake questions.
  - Ensure that patients understand why race, ethnicity, and language data are being collected.
  - Ensure that race, ethnicity, and language data are accessible in the electronic medical record.
  - Evaluate non-English language proficiency (e.g. Spanish proficiency) for providers who communicate with patients in languages other than English.
  - Educate all staff (e.g., inpatient, outpatient, community-based) on interpreter services available within the healthcare system.
- Provide staff-wide education on:
  - Peripartum racial and ethnic disparities and their root causes.
  - Best practices for shared decision making.
- Engage diverse patient, family, and community advocates who can represent important community partnerships on quality and safety leadership teams.

Readiness: Every Health System

- Establish systems to accurately document self-identified race, ethnicity, and primary language.
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Readiness: Every Health System

- Provide staff-wide education on:
  - Peripartum racial and ethnic disparities and their root causes.
  - Best practices for shared decision making.

Readiness: Every Health System

- Engage diverse patient, family, and community who can represent important community partnerships on quality and safety leadership teams.

RECOGNITION

Every patient, family, and staff member

- Provide staff-wide education on implicit bias.

- Provide convenient access to health records without delay (paper or electronic), at minimal to no fee to the maternal patient, in a clear and simple format that summarizes information most pertinent to perinatal care and wellness.

- Establish a mechanism for patients, families and staff to report inequitable care and episodes of miscommunication or disrespect.

Recognition: Every Patient, Family, and Staff Member

- Provide staff-wide education on implicit bias.

Recognition: Every Patient, Family, and Staff Member

- Provide convenient access to health records without delay (paper or electronic) at minimal to no fee to the maternal patient, in a clear and simple format that summarizes information most pertinent to perinatal care and wellness.

Recognition: Every Patient, Family, and Staff Member

- Establish a mechanism for patients, families, and staff to report inequitable care and episodes of miscommunication or disrespect.

RESPONSE

Every clinical encounter

- Engage in best practices for shared decision making.

- Ensure a timely and tailored response to each report of inequity or disrespect.

- Address reproductive life plan and contraceptive options not only during or immediately after pregnancy, but at regular intervals throughout a women's reproductive life.

- Establish discharge navigation and coordination systems post childbirth to ensure that women have appropriate follow-up care and understand when it is necessary to return to their health care provider.

  - Provide discharge instructions that include information about what danger or warning signs to look out for, who to call, and where to go if they have a question or concern.

  - Design discharge materials that meet patients' health literacy, language, and cultural needs.

Response: Every Clinical Encounter

- Engage in best practices for shared decision making.

Response: Every Clinical Encounter

- Ensure a timely and tailored response to each report of inequity or disrespect.

Response: Every Clinical Encounter

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  – Provide discharge instructions that include information about what danger or warning signs to look out for, who to call, and where to go if they have a question or concern.

  – Design discharge materials that meet patients' health literacy, language, and cultural needs.

COUNCIL ON PATIENT SAFETY
IN WOMEN'S HEALTH CARE

safe health care for every woman

REPORTING & SYSTEMS LEARNING

Every clinical unit

- Build a culture of equity, including systems for reporting, response, and learning similar to ongoing efforts in safety culture.

- Develop a disparities dashboard that monitors process and outcome metrics stratified by race and ethnicity, with regular dissemination of the stratified performance data to staff and leadership.

- Implement quality improvement projects that target disparities in healthcare access, treatment, and outcomes.

- Consider the role of race, ethnicity, language, poverty, literacy, and other social determinants of health, including racism at the interpersonal and system-level when conducting multidisciplinary reviews of severe maternal morbidity, mortality, and other clinically important metrics.

  - Add as a checkbox on the review sheet: Did race/ethnicity (i.e. implicit bias), language barrier, or specific social determinants of health contribute to the morbidity (yes/no/maybe)? And if so, are there system changes that could be implemented that could alter the outcome?

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Call to Action

- Maternal mortality / morbidity disparities are complex

- Growing evidence that hospital quality contributes to disparities

- Safety bundle relies on safety literature, health services principles

- First step to address racial/ethnic disparities

THANK YOU