Disparities in Severe Maternal Morbidity and Mortality: Where Do We Go From Here?

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Presenter Disclosures

Elizabeth Howell, MD, MPP
I have no personal financial relationships with commercial interests relevant to this presentation

Objectives

• Describe racial and ethnic disparities in severe maternal mortality and morbidity
• Understand how delivery care may impact disparities in severe maternal morbidity and mortality
• Describe steps that institutions can take to address racial and ethnic disparities in severe maternal morbidity and mortality
Maternal Healthcare Crisis

Hospitals know how to protect mothers. They just aren’t doing it.

If Americans Love Moms, Why Do We Let Them Die?

By Nicole Knafel
New York Times


US Maternal Mortality Rises while it Declines Elsewhere

Disparities in Maternal Mortality

- Minorities represent half of US births and racial/ethnic minorities suffer higher maternal mortality rates
- Black women 3 to 4 times more likely to die than white women – largest disparity among population perinatal health measures
- Native Americans, some Asians, some Latinas also have elevated rates

CDC Pregnancy Mortality Surveillance System at: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html
United States Pregnancy-related Mortality by Race, Ethnicity, Nativity 2000-2006

Pregnancy-Related Mortality Ratios by Race-Ethnicity, 2011-2013

CDC US Pregnancy-related Mortality by Race
Maternal Mortality (per 100,000)


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
- Latinas 3x as likely to die

Severe Maternal Morbidity (SMM)

- For every maternal death, 100 women experience severe maternal 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

How Did We Get Here?
Hospital Quality and Disparities

- Sixty percent of severe events / maternal deaths preventable
- Hospital quality important contributing factor
- Site of care receiving increasing attention as mechanism for disparities
- Growing body of research suggests racial/ethnic women deliver in lower quality hospitals

Research on Delivery Hospital and US Disparities

- In US, 75% of all black women deliver in a quarter of all hospitals vs. 18% of white women
- Hospitals that disproportionately care for black women
  - have higher risk adjusted SMM rates for both blacks and whites
  - perform worse than other hospitals on delivery-related indicators


Methods

- Nationwide Inpatient Sample (2010 – 2011)
- Identified severe maternal morbidity (SMM)
- Ranked hospitals by proportion of black women who delivered in the hospital:
  - High (top 5%)
  - Medium (5-25%)
  - Low (remainder)
- Analyzed risks of SMM for black and white women by hospital category using logistic regression adjusting for patient comorbidities, hospital factors, and patient clustering

Distribution of Black and White Deliveries at Hospitals in US

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
New York City Hospitals*

- Mixed methods study to investigate hospital quality and disparities in SMM
- Examine hospital risk-adjusted SMM and racial/ethnic distribution of deliveries
- Conduct qualitative interviews to examine safety culture, QI, and other factors
- Conduct focus groups to explore receipt of high quality care

*Funded by NIH #R01MD007651
Phase 1 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

Severe Maternal Morbidity Rates in New York City

- Observed rates: 0.6% to 11.5%; Risk standardized rates: 0.8% to 5.7%

Hospital Rankings

- Hospitals ranked from lowest to highest
Hospital Rankings

- Observed rates: 0.6% to 11.5%; Risk standardized rates: 0.8% to 5.7%

Deliveries by Race / Ethnicity and Risk-standardized Hospital Morbidity

<table>
<thead>
<tr>
<th>Hospital Group by RSSMM*</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<td>Black (%)</td>
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Thought Experiment

• Differences in hospital of delivery may account for up to:
  – 48% of the black-white disparity
  – 37% of the Hispanic-white disparity

Summary

• Wide variation in risk-standardized maternal morbidity among NYC hospitals
• Higher rates of severe maternal morbidity among blacks and Latinas partially due to differences in delivery location
• Delivery location partially explains morbidity disparities
Next Steps

• Currently conducting hospital qualitative interviews
• Focus groups to explore patient barriers to receipt of high quality care
• Dissemination efforts to increase uptake of best practices

Qualitative Interview Topics

• Structural Characteristics (e.g. staffing, credentialing, capacity, resources, environment)
• Organization Factors (culture, leadership, feedback, communication, promotion of evidence-based practices, progress in QI and disparities reduction)
• L&D (use of evidence-based practices, teamwork, culture, errors, drills)

Types of Interviewees

• Directors of L&D
• Chairs of Ob/Gyn
• Nurse managers for L&D
• Front line nurses
• Chief Medical Officer or designee
• Quality leads in obstetrics
Where Do We Go From Here? Levers to Reduce Disparities

Levers to Reduce Racial and Ethnic Disparities in Severe Maternal Morbidity & Mortality

Outcomes
- Severe Maternal Morbidity & Mortality
- Preconception Care
- Antenatal Care
- Delivery & Hospital Care

Promote contraception
Optimize preconception health
Levers to Reduce Racial and Ethnic Disparities in Severe Maternal Morbidity & Mortality

- Preconception Care
  - Promote contraception
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- Antenatal Care

- Delivery & Hospital Care

- Postpartum Care

Outcomes
Severe Maternal Morbidity & Mortality

New models – Centering, Medical Homes, enhanced models for high risk women

QI, standardization, bundles, team training, simulations, reviews, protocols, disparities dashboard

Levers to Reduce Racial and Ethnic Disparities in Severe Maternal Morbidity & Mortality

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Outcomes
Severe Maternal Morbidity & Mortality

New models – Patient navigators, Case management

QI, standardization, bundles, team training, simulations, reviews, protocols, disparities dashboard

New models – Centering, Medical Homes, enhanced models for high risk women

QI, standardization, bundles, team training, simulations, reviews, protocols, disparities dashboard
ProPublica and NPR story - Nothing Protects Black Women From Dying in Pregnancy and Childbirth
Dec 7, 2017

“In the more than 200 stories of African-American mothers that ProPublica and NPR have collected over the past year, the feeling of being devalued and disrespected by medical providers was a constant theme. The young Florida mother-to-be whose breathing problems were blamed on obesity when in fact her lungs were filling with fluid and her heart was failing. The Arizona mother whose anesthesiologist assumed she smoked marijuana because of the way she did her hair. The Chicago-area businesswoman with a high-risk pregnancy who was so upset at her doctor’s attitude that she changed OB-GYNs in her seventh month, only to suffer a fatal postpartum stroke.

Over and over, black women told of medical providers who equated being African American with being poor, uneducated, noncompliant and unworthy. “Sometimes you just know in your bones when someone feels contempt for you based on your race,” said one Brooklyn woman who took to bringing her white husband or in-laws to every prenatal visit.”

Levers to Reduce Racial and Ethnic Disparities in Severe Maternal Morbidity & Mortality

- Eliminate Bias
- Enhance Communication
- New models – Patient navigators Case management
- New models – Centering, Medical Homes, enhanced models for high risk women
- Optimize preconception health
- QI, standardization, bundles, team training, simulations, reviews, protocols, disparities dashboard
- Promote contraception
- Outcomes – Severe Maternal Mortality & Mortality
- Antenatal Care
- Delivery & Hospital Care
- Postpartum Care
Alliance for Innovation on Maternal Health

- Cooperative agreement between ACOG and Maternal Child Health Bureau
- National data-driven maternal safety and quality improvement initiative
- Patient safety bundles to standardize delivery care
- Reaches over one-half US births by partnering with states, DOH, health systems

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
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– 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
– Cultural competent communication
– Literacy
– Language
– Fragmentation
– Bias
– Comorbidity
– Inter-institutional differences

Education

Poverty

Institutional racism

Environment
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
**REDUCTION**

- 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 preference (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:
  - Perinatal 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.

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**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).
  - Communicate to the patient, in a clear and simple format that summarizes information most pertinent to personal care and wellness.
  - Establish a mechanism for patients, families, and staff to report unacceptable care and episodes of mistreatment or disrespect.

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**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 woman’s reproductive life.
  - Establish a discharge navigation and coordination system 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 when to go if they have a question or concern.
  - Design discharge materials that meet patients’ health literacy, language, and cultural needs.
Key References

Reduction of Peripartum Racial/Ethnic Disparities

Consensus Statement
- Obstet Gynecol. 2018 May;131(5):770-782

THANK YOU

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