



Maternal Mortality and Racial Disparities: A Silent Epidemic Recognized in Our Community

Thursday, February 16th, 2023

**UC / UC Health
Clinical Research Orientation and Training
(CRO&T)**

**Thursday, March 9th, 2023
9:00 am - 3:00 pm
Virtual presentation**

**The last day of registration is
Friday, March 3rd, 2023**

Register [Here](#)

**Please reach out to Nate Harris,
nate.harris@uchealth.com for any questions**

February 2023 Study of the month:

Healthy Child and Teen Study

Volunteers Needed

What

A study to learn more about the differences between kids with and without anxiety. We need healthy volunteers to make these comparisons.

Who

Healthy children and adolescents, 8-17 years old, with no history of mental health conditions may be eligible to participate.

Pay

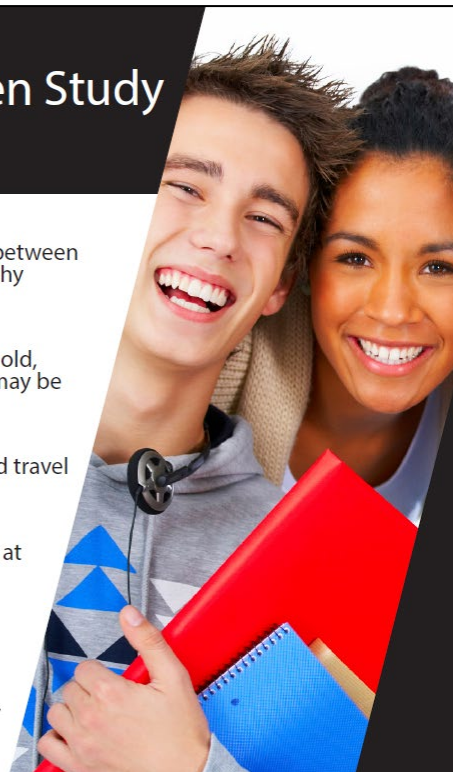
Participants will receive payment for time and travel for each completed study visit.

Details

For more information, contact Ashley Specht at 513-558-2868 or email huckabam@uc.edu or Heidi Schroeder at 513-558-4422 or email heysehk@uc.edu.

UC Health.

24-19 IRB # 2019-0642



SOCRA CRP CERTIFICATION EXAMINATION

Hosted by CCHMC

Monday, March 20th, 2023

The Registration Deadline was February 13th, 2023

Open review sessions:

CCHMC CRP will be hosting open review sessions prior to the exam date in February 2023

Study Review Session 1: Tuesday, February 21, 2023 at 3pm – Microsoft Teams Meeting

[Click here to join the meeting](#)

Study Review Session 2: Friday, February 24, 2023 at 10am – Microsoft Teams Meeting

[Click here to join the meeting](#)

Please join your fellow CRPs for a brief overview of SoCRA Exam studying tools, tips, and tricks!

For any questions or further information, please visit the [SOCRA website](#), contact the CCHMC CRP Group at CRP@cchmc.org or Nate Harris at harrisnl@ucmail.uc.edu



Friday, March 3rd, 2023

Women's Herstory Month Presentation:

**Discrimination and Diversity, Equity & Inclusion (DE&I):
Two Sides of Social Determinants of Health for Women**

Deborah Heater, JD

**Senior Director, Office of Diversity, Equity, and Inclusion
UC Health**

Compliance Reminders:

- **Scanning of Informed Consent Forms (ICFs) for Consented/Enrolled Subjects: Audits**
- **EPIC: Linking subjects to studies**
- **CURES Act: February 14th, 2023 Epic Research Notes will be released immediately**



Today's Presentation: **Maternal Mortality and Racial Disparities:** **A Silent Epidemic Recognized in Our** **Community**

Please join us for this presentation bringing awareness to obstetrical patients requiring higher levels of care, including critical care, while acknowledging and discussing ongoing racial disparities relating to maternal morbidity and mortality both nationally and at a local level. Work is being done to bridge bias at the bedside to the gap in research pertaining to pregnant and birthing women, especially those from marginalized or lower socioeconomic patient populations.

Nicole Marie King , MD
Physician, UC Health

Elizabeth Kopras, BS
Senior Research Associate
University of Cincinnati

**Beth Ann Clayton, DNP,
CRNA**
Professor, Director Nurse Anesthesia
Program
University of Cincinnati



Maternal Mortality/Morbidity & Racial Disparities

Recognition in our Community

*Nicole M. King, MD, EM-CQSL
Critical Care Anesthesiologist, UC Health*

*Beth Ann Clayton, DNP, CRNA, FAAN
Professor, Director Nurse Anesthesia Program, UC*

*Elizabeth Kopras, BS
Senior Research Associate, UC*

<https://www.youtube.com/watch?v=yRgAF5MQ5LE&feature=youtu.be>

We Are the Answer

- All of us, from the bedside to the lab
- Every specialty has a role in this, and my focus is on bringing light to our role
As anesthesia and critical care providers
- We treat pregnant women in this country as vessels that carry precious cargo
Forgetting that the vessel itself is precious and worth our care, pregnant or not
- We DON'T listen to women, especially Black women
We can do better



Case Conference

Extracorporeal Life Support for Cardiorespiratory Collapse After Delayed Diagnosis and Related Complications of Postpartum Preeclampsia

Nicole M. King, MD, EM-CQSL^{*,1}, Mary Roberts, MD^{*},
Pooneh Nabavizadeh, MD[†], Suzanne Bennett, MD^{*},
Louis B. Louis IV MD[‡], Jennifer L. Cook, MD[§]

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[†]Division of Cardiovascular Health and Disease, University of Cincinnati, Cincinnati, OH

[‡]Division of Cardiac Surgery, Department of Surgery, University of Cincinnati, Cincinnati, OH

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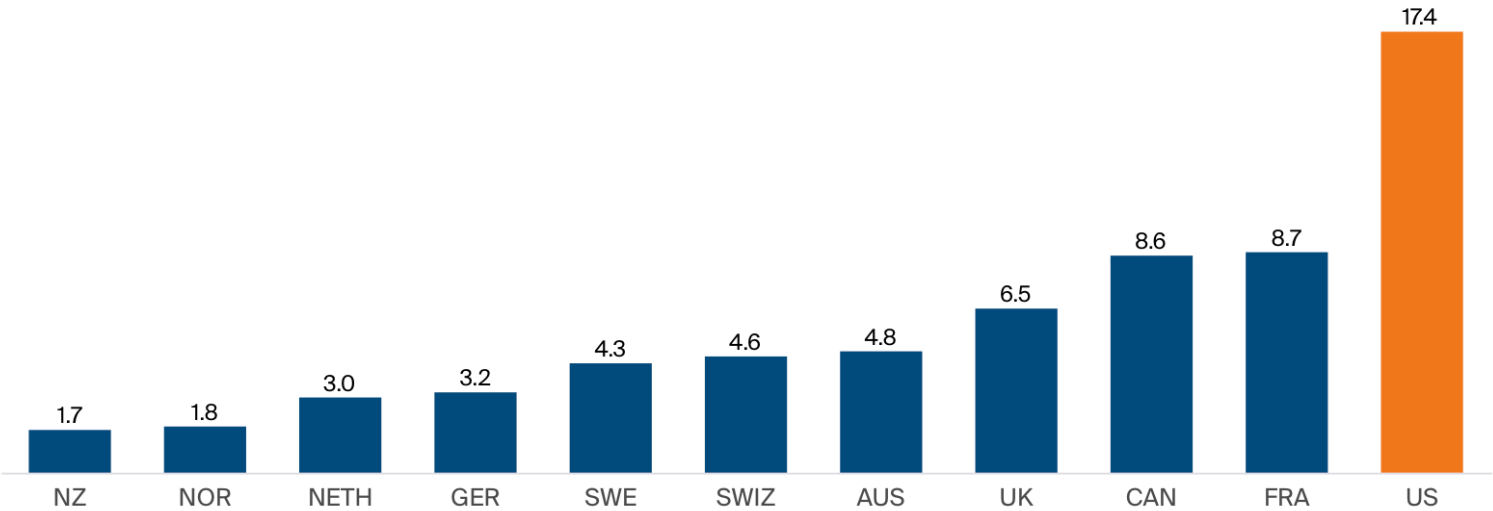
"The results of a recent Society for Maternal-Fetal Medicine survey demonstrated an inconsistency among providers' willingness to acknowledge disparities in their practices and their consideration of implicit bias, *'84% of respondents agreed that disparities affect their practice, but only 29% believed personal biases affected how they care for patients.'*"

- "*Hypertensive disorders of pregnancy* are associated with significant obstetric complications and are *one of the leading causes of death during the first 6 days of the postpartum period.*"
- "In this case, the authors' patient suffered from *undiagnosed preeclampsia*, resulting in an eclamptic seizure, aspiration, and profound respiratory and cardiogenic failure."
- "The diagnosis *could have been treated* with less-invasive medical management if diagnosed prior to decompensation."

National Maternal Mortality

Exhibit 1
Maternal Mortality Ratios in Selected Countries, 2018 or Latest Year

Deaths per 100,000 live births



Download data

Notes: The maternal mortality ratio is defined by the World Health Organization as the 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.

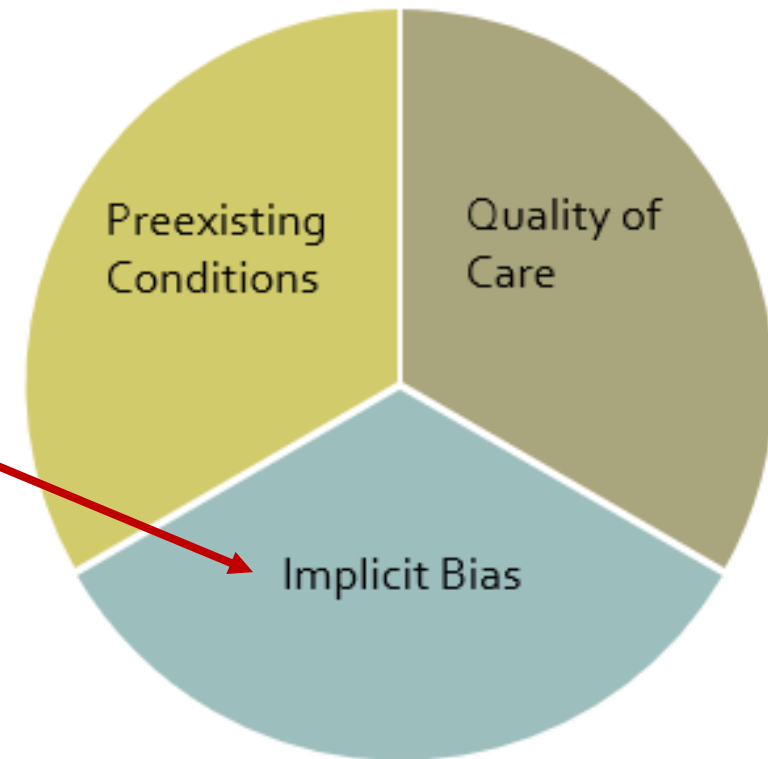
Data: OECD Health Data 2020, showing data for 2018 except 2017 for Switzerland and the UK; 2016 for New Zealand; 2012 for France.

Source: Roosa Tikkanen et al., *Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries* (Commonwealth Fund, Nov. 2020). <https://doi.org/10.26099/411v-9255>

Racial Disparity Facts

- Over 700 women die each year in the US from maternal complications
- Black women's risk of death is 3-4 times that of a White woman
 - **This rate does NOT change regardless of educational status**
- "PPCM, as well as eclampsia and preeclampsia, are the leading causes of maternal mortality, and are 5-times higher in non-Hispanic Black women compared with non-Hispanic White women" (King et al., 2022).

Factors for Maternal Disparities



Childbirth Is Deadlier for Black Families Even When They're Rich, Expansive Study Finds

By Claire Cain Miller, Sarah Kliff and Larry Buchanan
Produced by Larry Buchanan and Shannon Lin
Feb. 12, 2023

NBER WORKING PAPER SERIES
MATERNAL AND INFANT HEALTH INEQUALITY:
NEW EVIDENCE FROM LINKED ADMINISTRATIVE DATA

Kate Kennedy-Moulton
Sarah Miller
Petra Persson
Maya Rossin-Slater
Laura Wherry
Gloria Aldana

Working Paper 30693
<http://www.nber.org/papers/w30693>

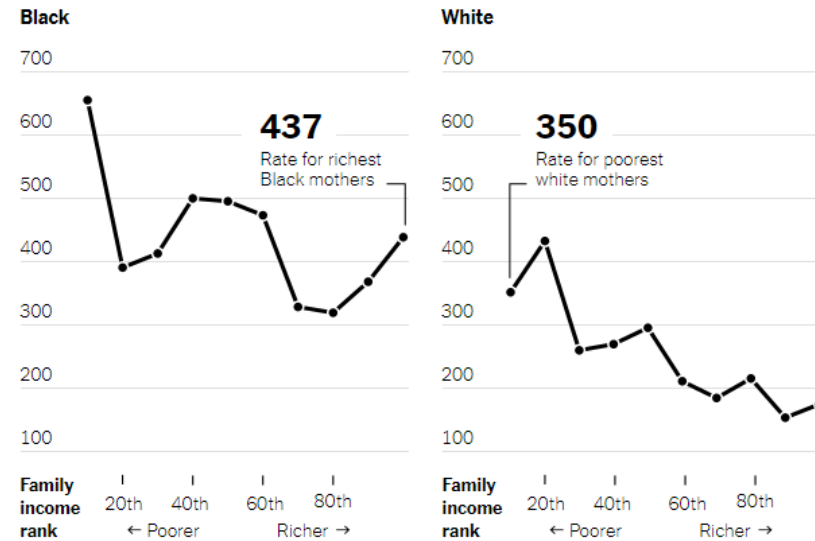
NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
November 2022

Money Protects White Mothers and Babies. It Doesn't Protect Black Ones.

The researchers found that maternal mortality rates were just as high among the highest-income Black women as among low-income white women. Infant mortality rates between the two groups were also similar.

The richest Black women have **infant mortality rates** at about the same level as the poorest white women.

Infant deaths per 100,000 for mothers who are ...



The [study](#), published last month by the National Bureau of Economic Research, includes nearly all the infants born to first-time mothers from 2007 to 2016 in California, the state with the most annual births. For the first time, it combines income tax data with birth, death and hospitalization records and demographic data from the Census Bureau and the Social Security Administration, while protecting identities.

Why Is This Topic So Important to Me As An Intensivist?

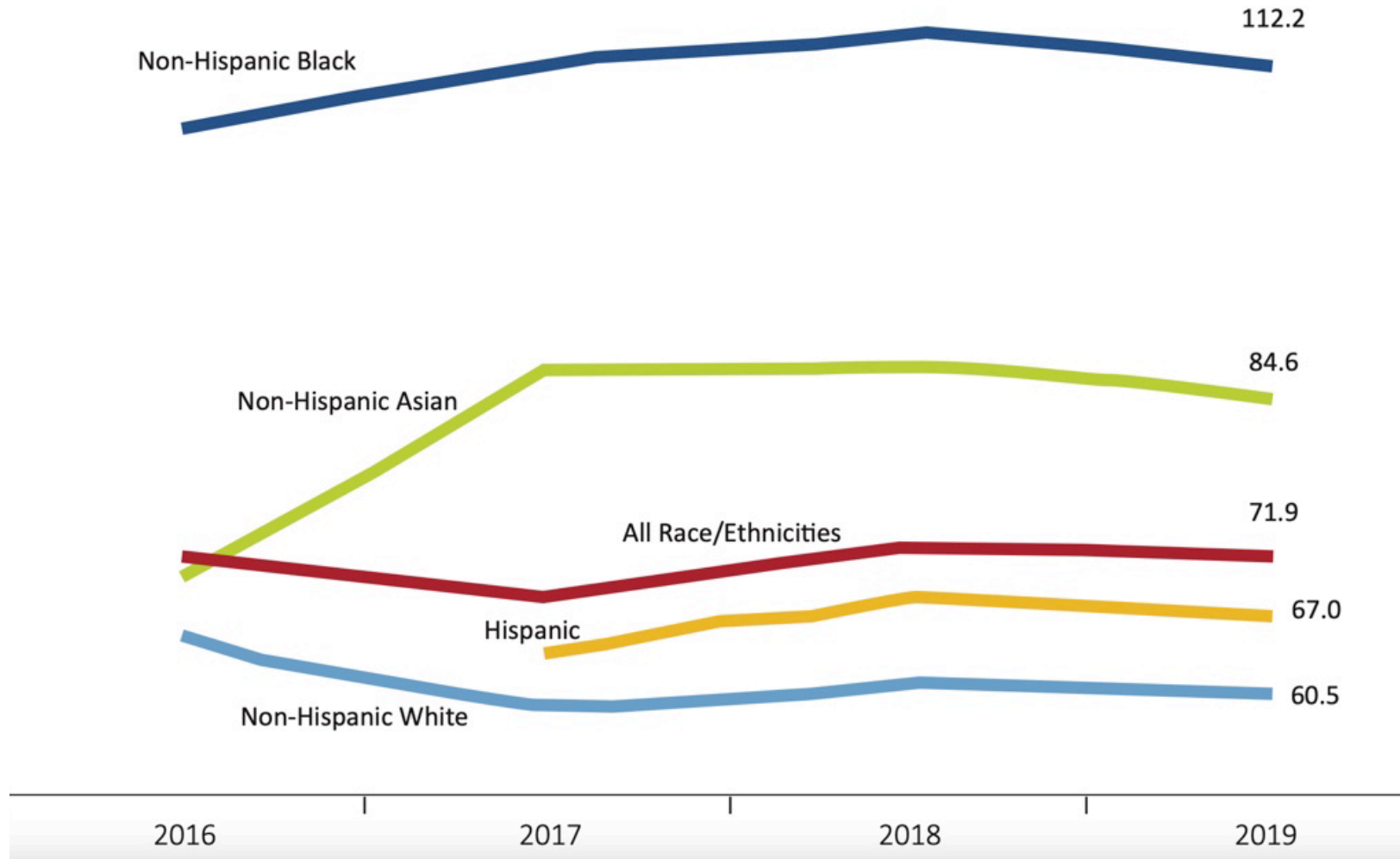
- *Because these are our patients.*
- *They deserve the same level of care afforded any other patient.*
- *Being “afraid” of them reflects lack of awareness and training.*
- *The insistence on taking the fetus into consideration (only), can lead us to fail to optimize the health of the mother*



This is Happening Here

- “Complex medical decision-making is required in the management of critically ill pregnant women. The decision regarding delivery needs to balance multiple risks and benefits, including the risks of prematurity to the fetus, the potential to improve or worsen maternal respiratory status with delivery, and the known maternal hemodynamic and inflammatory burden accompanying major surgery such as cesarean section” (Easter et al., 2021).
- Consider ethical and legal expertise if indicated
- You must know and operate within the state and federal laws
- You may be forced to watch providers have to choose between the law and their ethical obligation to their patient
- And Cincinnati demographics and statistics EXACTLY mirror the national trends.

Figure 2. Racial/Ethnic Disparities in Severe Maternal Morbidity, Ohio 2016-2019



National SMM rate ~ 160 per 100,000 deliveries

Figure 4: State Morbidity (ODH, 2020)

Ohio Goals->Reality?

- Reducing SMM (severe maternal morbidity) is one of the six priorities of Ohio's 2020-2022 State Health Improvement Plan (SHIP).
- The state has a goal of decreasing maternal morbidity by 6% by the end of this year.
- One of the first steps the state is focused on is improving recognition and response to hypertension in pregnancy.
- Deaths related to hypertension are the most preventable.
- ODH is using federal funding to implement the (Alliance for Innovation on Maternal Health) Severe Hypertension in Pregnancy Bundle to establish interventions in maternity care hospitals in Ohio



What do we See in Our Community

ORIGINAL ARTICLE

Racial, age, and community level maternal disparities at an academic health center

Candace N Holloway, Gordon Lee Gillespie,* Beth Ann Clayton

College of Nursing, University of Cincinnati, USA

Received: June 17, 2021

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DOI: [10.5430/ijh.v7n2p42](https://doi.org/10.5430/ijh.v7n2p42)

URL: <https://doi.org/10.5430/ijh.v7n2p42>

Racial, age and community level disparities at an Academic Health Center

Methods

- IRB review
 - Non-human subjects research
- Retrospective chart review
- Women who delivered in 2017
- 2500 delivers, 1620 met eligibility criteria
- Random sampling every 10th EMR
 - averaging 14 charts/month x 1 year)

(Holloway, Gillespie, & Clayton, 2021)

Racial, age and community level disparities at an Academic Health Center

Maternal
Population
at UCMC

Deliveries in 2017

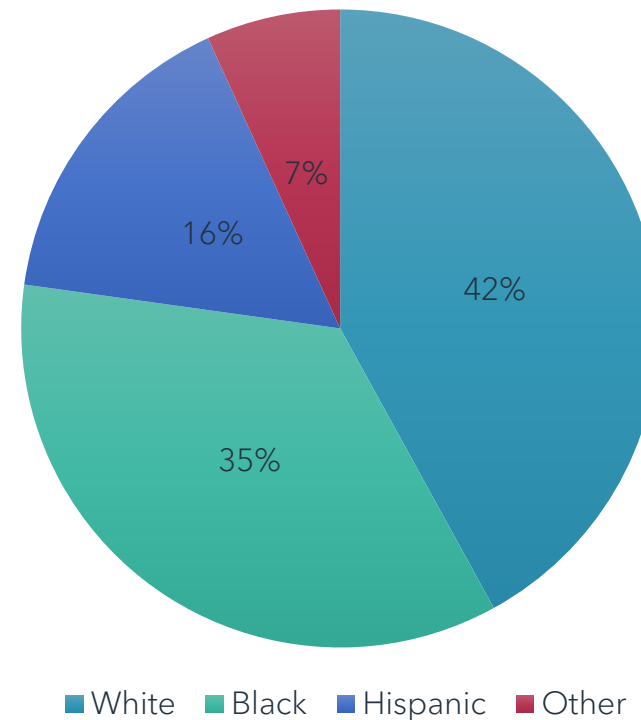


Figure 5: UCMC deliveries (Holloway, Gillespie, & Clayton, 2021)

Racial, age and community level disparities at an Academic Health Center

Predominate Results

- 17-34 years (mean age 27.4 years)
- Race
 - White, non-Hispanic (42%)
 - Black, non-Hispanic (35.2%)
 - Hispanic/Latino (16%)
- 1/3 births cesarean delivery
- Female head of household (65.4%)
- Housing occupied by renters (60.5%)
- Medicaid/Medicare (62.3%)

Table 1. Demographic characteristics of the study sample (N = 162)

Characteristics	n (%)
Age	
17-34 years	146 (90.1)
35 years or older	16 (9.9)
Race	
White, non-Hispanic	68 (42.0)
Black, non-Hispanic	57 (35.2)
Hispanic/Latino	26 (16.0)
Other racial groups, non-Hispanic	11 (6.8)
Maternal complications	
Cesarean section	53 (32.7)
Pre-eclampsia	22 (13.6)
Eclampsia	0 (0.0)
Hemorrhage, without intervention	1 (0.6)
Hemorrhage, with intervention	13 (8.0)
Mortality	4 (2.5)
Insurance	
Medicaid/Medicare	101 (62.3)
Private	61 (37.7)
Community characteristic (based on zip code)	
Female householder	
No husband present, 7.8%-14.1%	56 (34.6)
No husband present, 14.2%-49.6%	106 (65.4)
Housing occupied by renters	
10.3%-34.6%	64 (39.5)
34.7%-80.3%	98 (60.5)

(Holloway, Gillespie, & Clayton, 2021)

Racial, age and community level disparities at an Academic Health Center

Comparison of Relative Risk for Maternal Complications (N=162)

Non-Hispanic Black women and Hispanic/Latino women had disproportionate percentage of maternal complications

	Maternal Complications, RR (95% CI)			
	Cesarean section	Preeclampsia	Hemorrhage, with intervention	Mortality
Age				
17-34 years	1.000	1.000	1.000	1.000
35 years or older	2.877 (1.224-6.762)	1.425 (0.917-2.091)	1.057 (0.873-1.279)	0.973 (0.946-0.999)
Race				
White, non-Hispanic	1.000	1.000	1.000	1.000
African American, non-Hispanic	1.945 (1.427-2.651)	1.295 (1.125-1.492)	1.213 (1.076-1.367)	1.021 (0.964-1.081)
Hispanic/ Latino	1.304 (0.970-1.755)	1.444 (1.118-1.866)	1.040 (0.963-1.123)	1.025 (0.944-1.112)
Other racial groups, non-Hispanic	1.042 (0.776-1.401)	1.100 (0.913-1.326)	1.222 (0.925-1.615)	0.985 (0.957-1.014)
Community characteristic (based on zip code)				
Female householder, no husband present				
Low percentage	1.000	1.000	1.000	1.000
High percentage	1.233 (1.003-1.516)	1.153 (1.034-1.285)	0.985 (0.893-1.087)	0.983 (0.928-1.040)
Housing occupied by renters				
Low percentage	1.000	1.000	1.000	1.000
High percentage	1.251 (1.016-1.539)	1.115 (0.994-1.252)	0.976 (0.887-1.074)	0.989 (0.938-1.42)

(Holloway, Gillespie, & Clayton, 2021)

Racial, age and community level disparities at an Academic Health Center

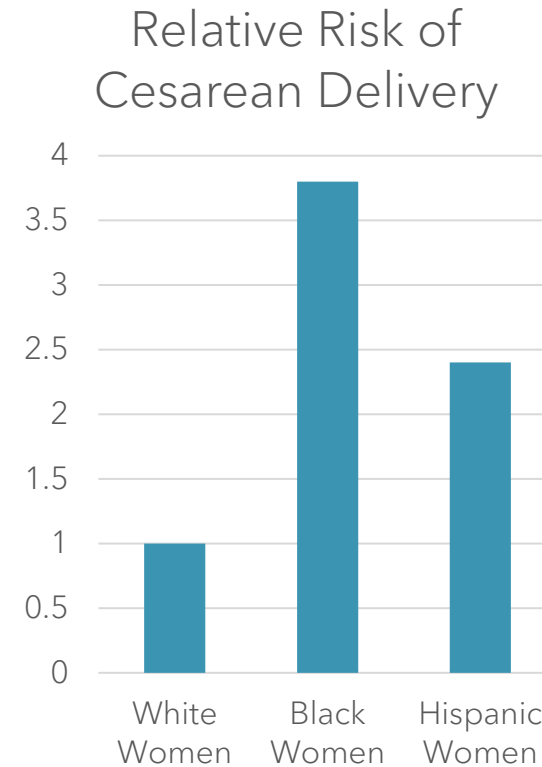
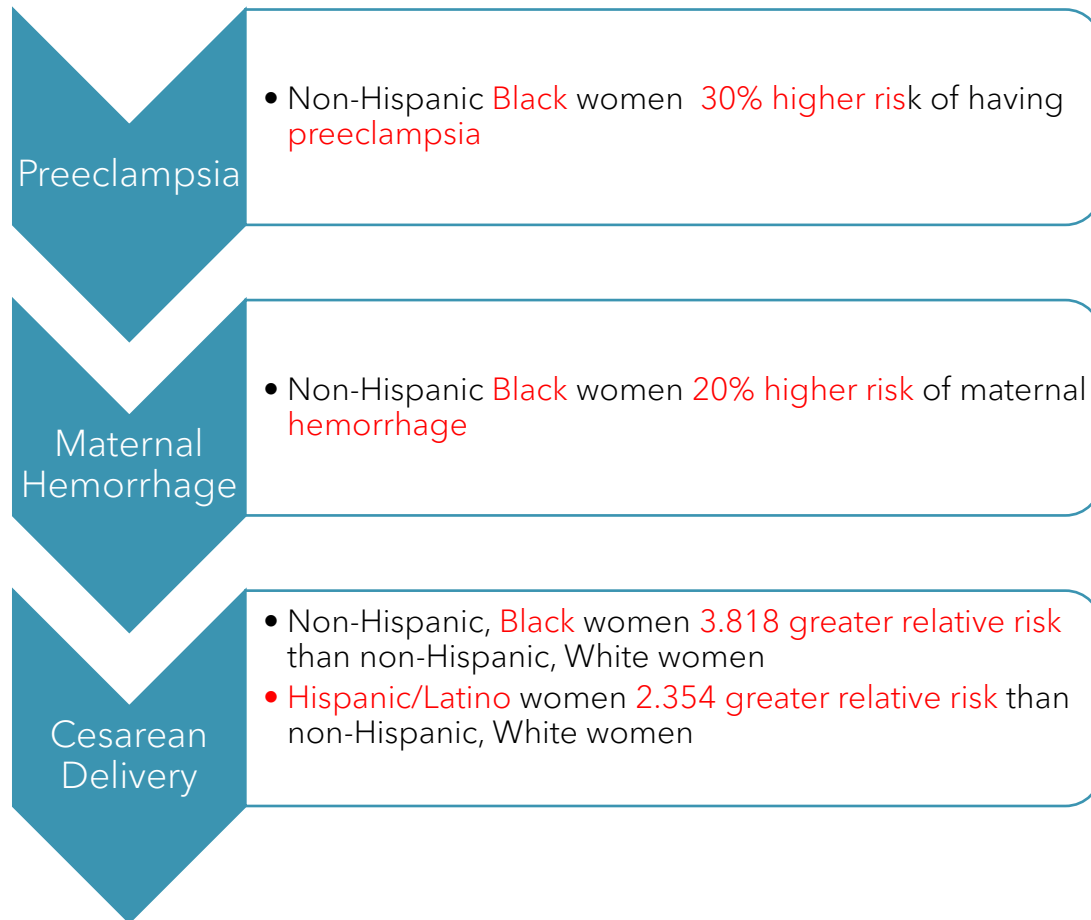


Figure 6 UCMC deliveries (Holloway, Gillespie, & Clayton, 2021)

Racial, age and community level disparities at an Academic Health Center

Insurance

- Distribution of private vs. Medicaid/Medicare approximately equal for non-Hispanic White women & non-Hispanic Black women
- Considerably **lower** when compared to **Hispanic/Latino women**

Table 2. Comparison of health equity by race

Characteristics	Racial/Ethnic Group			
	White, non-Hispanic, n (%)	Black, non-Hispanic, n (%)	Hispanic/Latino, n (%)	Other racial groups, non-Hispanic, n (%)
Insurance ^{*,*}				
Private insurance	34 (50.0)	25 (43.9)	1 (3.8)	1 (9.1)
Medicaid or Medicare insurance	34 (50.0)	32 (56.1)	25 (96.2)	10 (90.9)
Maternal complications [*]				
Cesarean section [*]	10 (14.7)	32 (56.1)	9 (34.6)	2 (18.2)
Pre-eclampsia [*]	0 (0.0)	13 (22.8)	8 (30.8)	1 (9.1)
Hemorrhage, with intervention [†]	0 (0.0)	10 (17.5)	1 (3.8)	2 (18.2)
Mortality	1 (1.5)	2 (3.5)	1 (3.8)	0 (0.0)

Note. ^{*} Percentages compared by column; ^{*} $p < .001$; ^{*} Percentages compared by row; [†] $p = .002$

(Holloway, Gillespie, & Clayton, 2021)

Maternal Health Disparities: Determinants of Obstetric Hemorrhage in an Academic Medical Center

Diana Rodriguez, BSN, RN, CCRN

Nurse Anesthesia Program

Gordon L. Gillespie, PhD, DNP, RN, FAAN – Project Chair

Beth Ann Clayton, DNP, CRNA, FAAN – Committee Member

October 2022

Maternal Health Disparities: Determinants of Obstetric Hemorrhage in an Academic Medical Center



Methods

IRB review

- Non-human subjects determination

Data Collection

- Retrospective chart review
- August 2018-August 2021, 36-months

Inclusion criteria:

- Cesarean delivery
- ≥ 37 weeks gestation
- Non-anomalous fetus in vertex position

Maternal Health Disparities: Determinants of Obstetric Hemorrhage in an Academic Medical Center

Measures for analysis:

Maternal (non-modifiable)	Maternal (modifiable)	Delivery variables
<ul style="list-style-type: none">• Age• Race• Relationship status	<ul style="list-style-type: none">• Body mass index• Tobacco use• Insurance status• Prenatal care• SARS-CoV-2 diagnosis	<ul style="list-style-type: none">• Indication for cesarean• Anesthesia type• Pitocin administration

(Rodriguez, Gillespie, & Clayton, 2022)

Maternal Health Disparities: Determinants of Obstetric Hemorrhage in an Academic Medical Center

Results

Sample description :

Age

- Mean = 29.5 yrs
- Median = 30 yrs
- Range = 14 - 47 yrs

Race

- non-Hispanic White = 45.9%
- Non-Hispanic Black Median = 34.4%
- Hispanic/Latino = 8.8%

QBL

- Mean = 869 mL
- Median = 772 mL
- Range = 36 - 4,234 mL

Table 1

Sample Demographic and Delivery Factor Prevalence

Patient and delivery factors	N (%)
Age	
<35 yo	1442 (79.5)
≥35 yo	371 (20.5)
Race	
Non-hispanic White	832 (45.9)
Non- hispanic Black	624 (34.4)
Hispanic/Latino	159 (8.8)
Other	197 (10.9)
Body mass index	
Normal (18.5-24.9)	67 (4.2)
Overweight (25-29.9)	444 (28.1)
Obese 1 (30-34.9)	332 (21.0)
Obese 2 (35-39.9)	402 (25.4)
Obese 3 (≥40)	335 (21.2)
Tobacco use	
Never	1235 (68.6)
Current or previous	564 (31.4)
SARS-CoV-2 diagnosis	
Active infection	9 (0.5)
Previous infection	32 (1.8)
No previous or current infection	1696 (97.6)
Relationship status	
Partnered	998 (55.2)
Not partnered (single, divorced, widowed)	811 (44.8)
Insurance status	
Commercial/private	747 (41.2)
Medicaid/Medicare	871 (48.0)
Self-pay	168 (9.3)
Other	31 (1.7)
Prenatal care initiation	
Early care (1 st and 2 nd trimester)	1199 (66.2)
Late care (beyond 2 nd trimester)	612 (33.8)
Indication for cesarean section	
Parturient & fetal history	957 (56.0)
Placental & uterine pathology	38 (2.2)
Labor-related	667 (39.1)
Elective (patient request)	49 (2.9)
Anesthesia type	
Spinal or CSE	750 (49.4)
Labor epidural	711 (46.8)
General	59 (3.4)
Pitocin administration	
No administration during labor	474 (42.7)
<4 hours duration	8 (0.7)
≥4 hours duration	627 (56.5)
Quantitative blood loss	
1-999 mL	1324 (73.0)
1000-1499 mL	332 (18.3)
≥1500 mL	157 (8.7)

(Rodriguez, Gillespie, & Clayton, 2022)

Factors	No hemorrhage (n=1324), n (%)	Hemorrhage (n=489), n (%)	OR	95% CI
Race				
Non-hispanic white	635 (48.0)	198 (40.5)	Reference	Reference
Non-hispanic black	440 (33.2)	184 (37.6)	1.341*	1.061-1.696
Hispanic/Latino	109 (8.2)	50 (10.2)	1.471*	1.015-2.132
Other	140 (10.6)	57 (11.7)	1.306	0.923-1.847
Age				
< 35yo	1061 (80.1)	381 (77.9)	Reference	Reference
≥ 35yo	263 (19.9)	108 (22.1)	1.426	0.974-2.087
Body mass index				
Normal (18.5-24.9)	56 (4.8)	11 (2.6)	Reference	Reference
Overweight (25-29.9)	250 (21.5)	85 (20.3)	1.731	0.867-3.457
Obese 1 (30-34.9)	322 (27.7)	122 (29.1)	1.929	0.978-3.804
Obese 2 (35-39.9)	250 (21.5)	82 (19.6)	1.67	0.835-3.339
Obese 3 (≥40)	283 (24.4)	119 (28.4)	2.141*	1.083-4.229
Tobacco use				
Never	880 (67.0)	355 (73.0)	Reference	Reference
Previous or current	433 (33.0)	131 (26.8)	0.75	0.595-0.945
SARS-CoV-2 diagnosis				
No previous or current infection	1245 (98.0)	451 (96.8)	Reference	Reference
Previous or active infection	26 (2.0)	15 (3.2)	1.593*	0.836-3.034
Prenatal care initiation				
Early care (1 st and 2 nd trimester)	867 (65.7)	331 (67.7)	Reference	Reference
Late care (beyond 2 nd trimester)	453 (34.3)	158 (32.3)	0.914	0.732-1.410
Pitocin administration				
No admin during labor	370 (41.4)	104 (48.1)	Reference	Reference
<4 hours duration	5 (0.6)	3 (1.4)	2.135	0.502-9.080
≥4 hours duration	518 (58.0)	109 (50.5)	0.749	0.555-1.011
Indication for cesarean section				
Elective (patient request)	33 (2.7)	15 (3.2)	Reference	Reference
Parturient & fetal history	777 (62.7)	179 (38.2)	0.507*	0.269-0.953
Placental & uterine pathology	19 (1.5)	18 (3.8)	2.084	0.858-5.064
Labor-related	410 (33.1)	256 (54.7)	1.374	0.732-2.579
Anesthesia type				
Spinal/combined spinal epidural	608 (54.8)	141 (34.5)	Reference	Reference
Labor epidural	470 (42.3)	241 (58.9)	2.211*	1.739-2.811
General	32 (2.9)	27 (6.6)	3.638*	2.112-6.268

(Rodriguez, Gillespie, & Clayton, 2022)

Maternal Health Disparities: Determinants of Obstetric Hemorrhage in an Academic Medical Center



- Odds ratio for obstetric hemorrhage (QBL ≥ 1000 ml)

How Can Healthcare Providers Help?



Healthcare Provider Initiatives

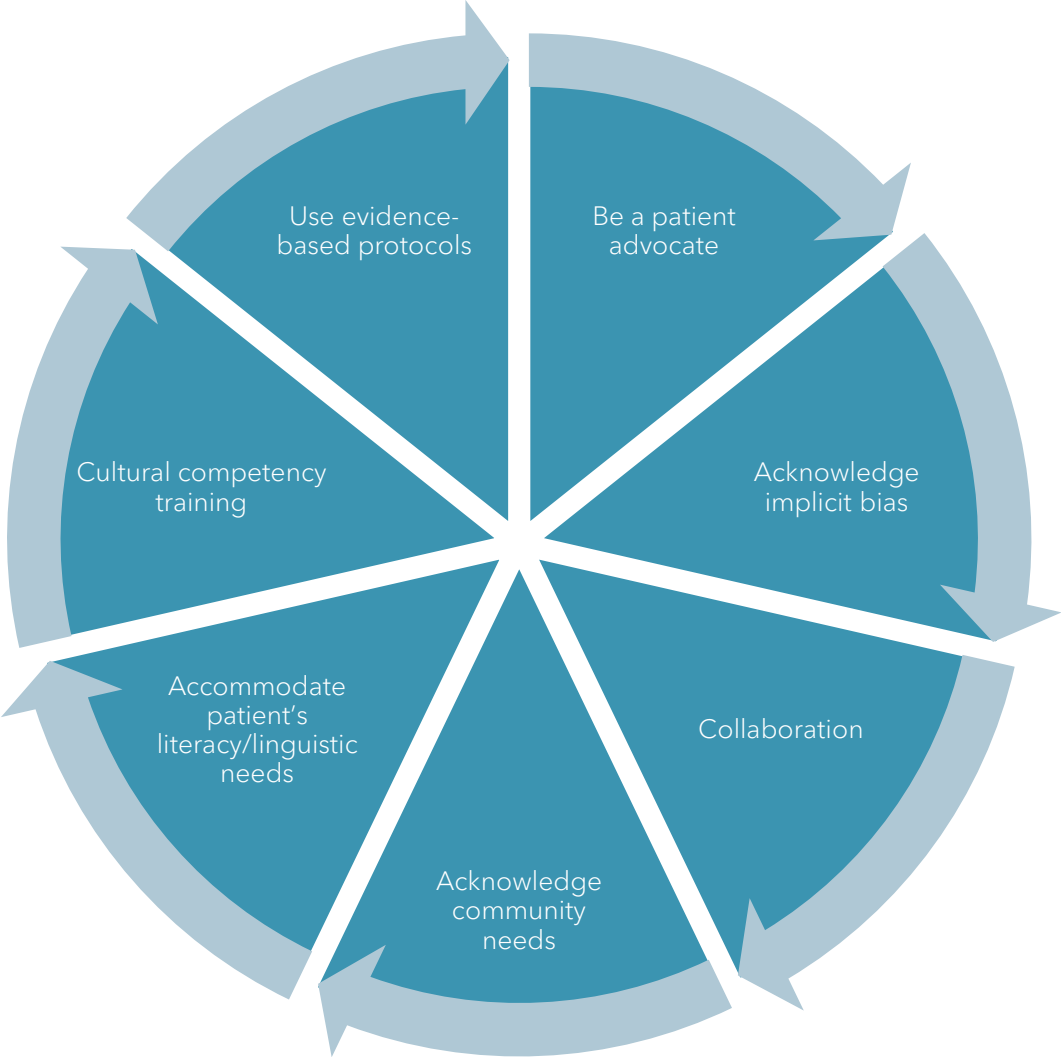


Figure 9: Pregnant Woman (Hartford Courant, 2020)

Why is this topic so important to US, as CRPs?

- We don't recognize our own biases
- These biases can
 - Alter how we approach participants
 - Reduce research participation
 - Affect how people view UC, UC Health, and science
- Alter how we listen to people, and translate what they say

Implicit Bias

We usually
don't know that
we carry these
biases until we
examine
ourselves

Unconscious & involuntary attitudes toward a group of people

Develops early in life from exposure to repeated reinforced stereotypes

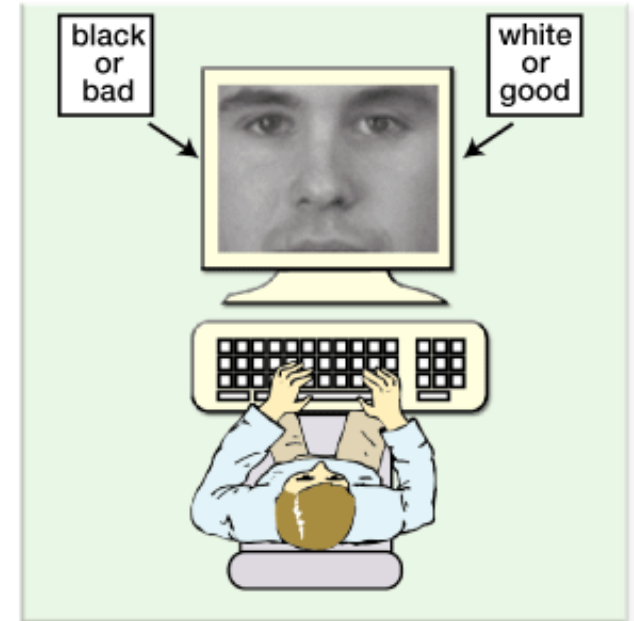
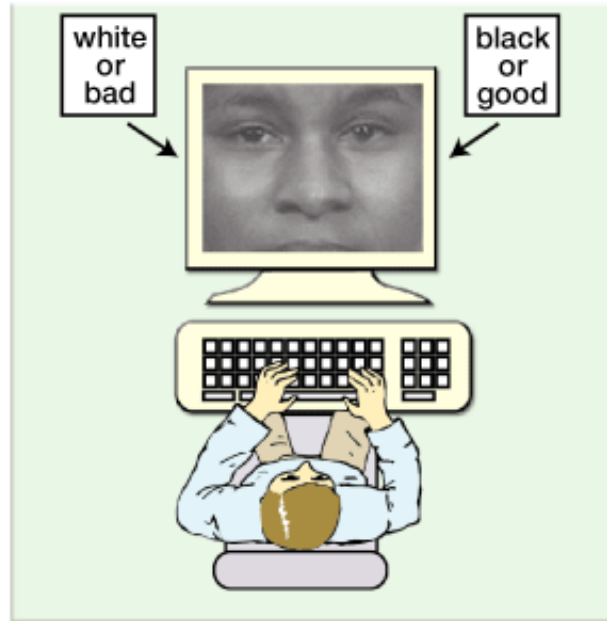
Based on age, sex, race, socioeconomic status, sexual orientation, etc.

Can unknowingly affect a person's behavior and cognitive processes

Biases tend to be displayed when providers experience burnout or sleep deprivation

Harvard IAT Test

<https://implicit.harvard.edu/implicit/takeatest.html>



Scenario: Asthma Trial

- Consent and Visit 1 (done at time of consent) takes a significant amount of time. You are told to look for 'good' patients.
- Requires three follow-up visits, taking study drug or placebo every day (drug is FDA approved for other indications). Pays \$50, \$50, \$75
- Requires cell phone with app to receive texts and document dose
- Sex as a determinant because, as children, boys have an increased prevalence of asthma. As adults, women have an increased prevalence and severity of asthma
- Team Bonus for each participant completing trial; goal of 30 patients

Patient 1 Annie Abner - meets all study criteria

- Female, white, 23 yo, normally sees doc in Adams county but came for repeated exacerbations.
- Has baby with her, because no childcare.
- Claims no longer smoking (study criteria), but clothes smell like smoke.
- Any concerns about approaching them for research?

Patient 2 - Evelyn Stein-Devré meets all study criteria

- Female--transgender, white, 56 yo, currently struggling with housing; allergies driving asthma
- Hx of agoraphobia; has trouble keeping appointments

- Any concerns about approaching them for research?

Patient 3 - André Washington meets all study criteria

- Male, 25 years old, in for annual visit (no exacerbations or health concerns)
- Concert support staff for Lizzo
- Any concerns about approaching them for research?



All patients deserve opportunity to be in research

Our research deserves to include all people

- Research isn't generalizable if population is limited
- Data gaps, especially with transgender
- Be proactive to make people feel welcomed into the research space
- Be introspective to look for biases you may not know you have