

# Incorporating Health Equity Lens into Quality Improvement Projects to Address Racial/Ethnic Disparities

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I have no relationships to disclose relevant to this topic

# Objectives

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- Review recent evidence relating to neonatal health equity and quality improvement
- Identify strategies to incorporate health equity into QI projects
- Identify how to effectively monitor health disparity in a clinical setting

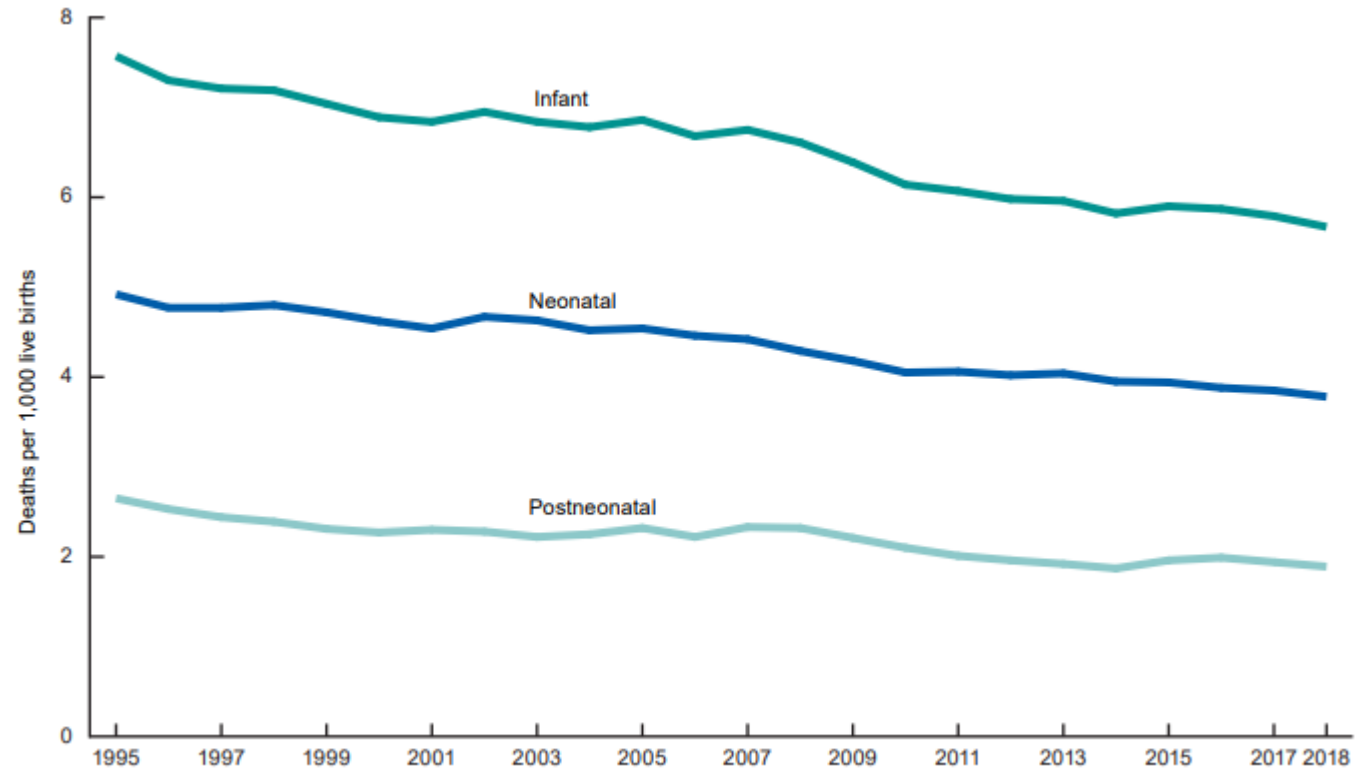
# Background

# Background

## Declining Infant Mortality

US Infant Mortality Rate 5.67 (2018)

### Infant, neonatal, and post neonatal mortality rates United States, 1995–2018



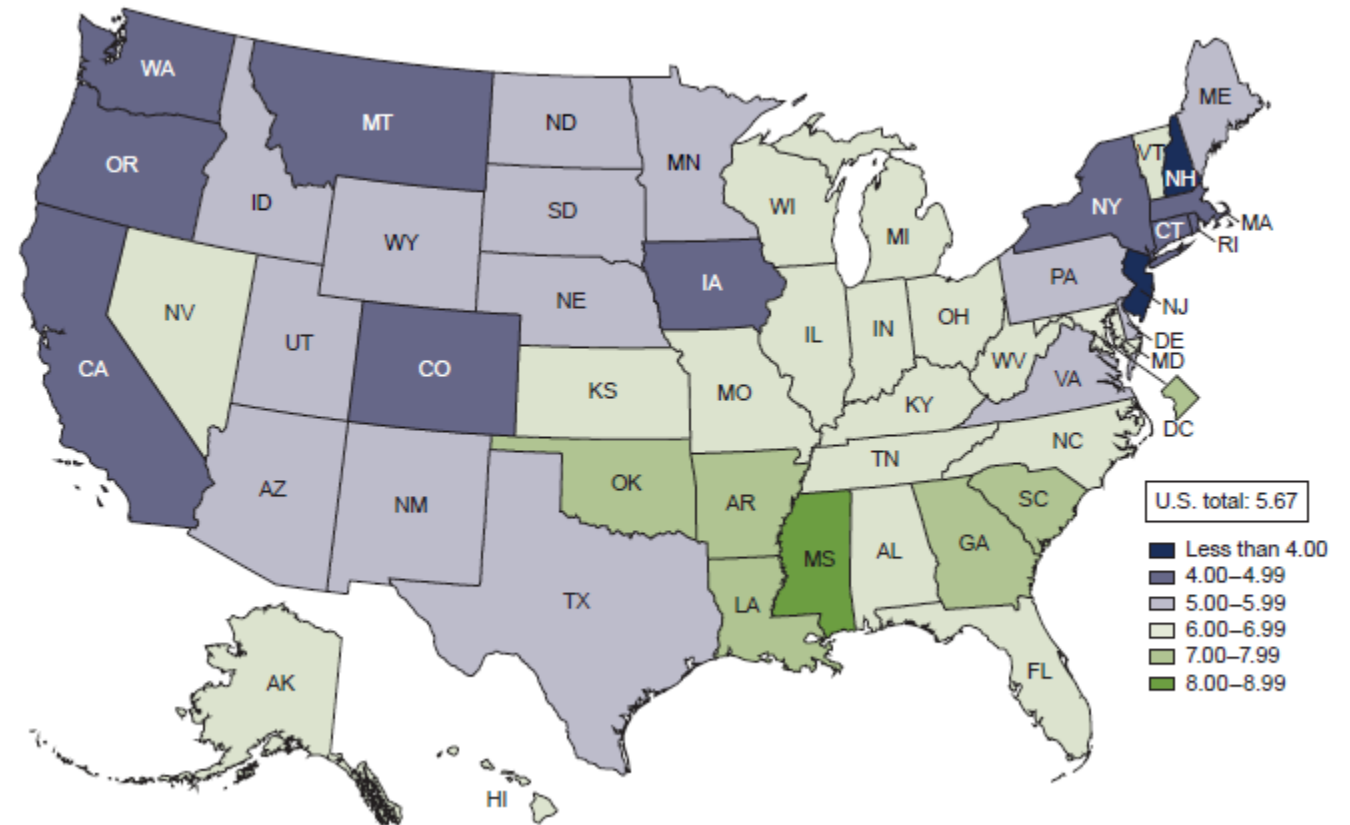
SOURCE: NCHS, National Vital Statistics System, Linked birth/infant death file.

# Background

## Geographic Distribution

Infant mortality rates, by state: United States, 2018

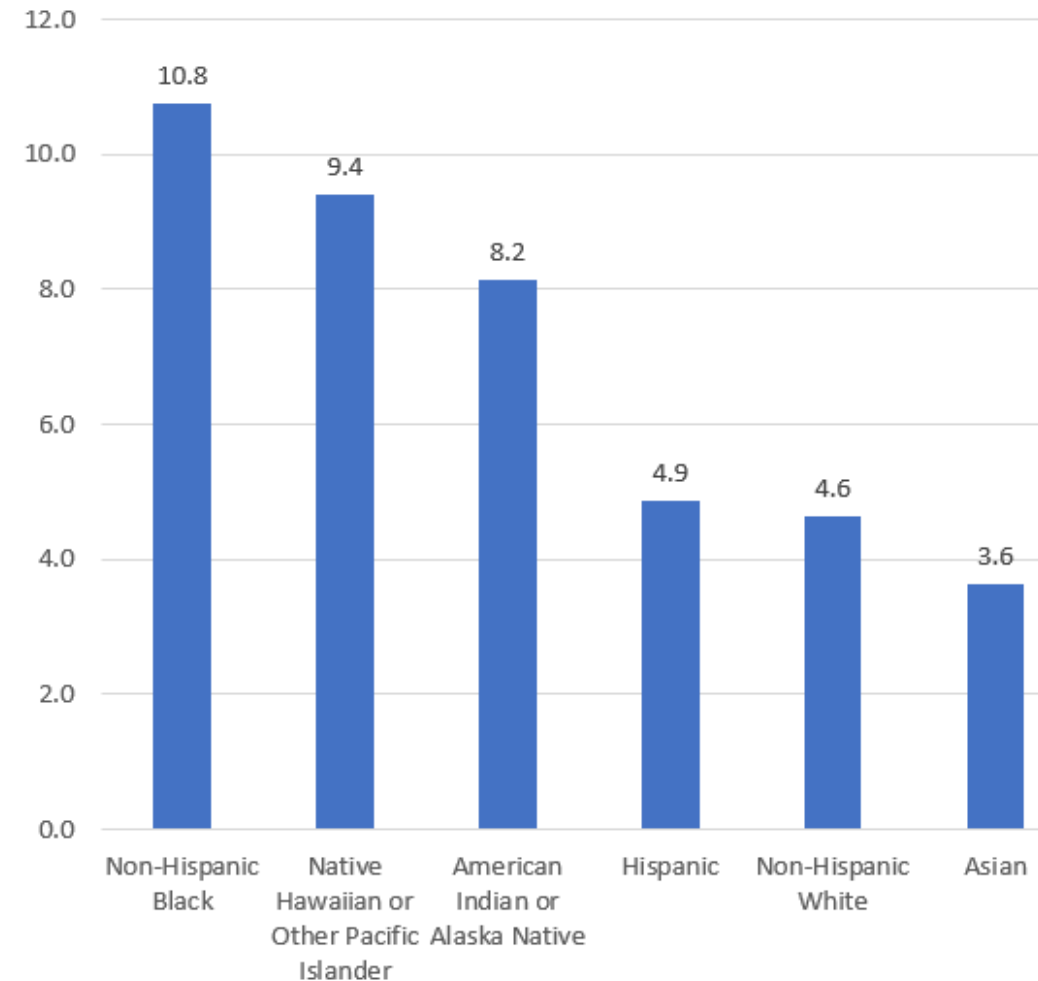
- Variability of risk
- Opportunities for improvement



# Background

## Racial/Ethnic Infant Mortality Disparities

### Infant Mortality Rates by Race and Ethnicity, 2018



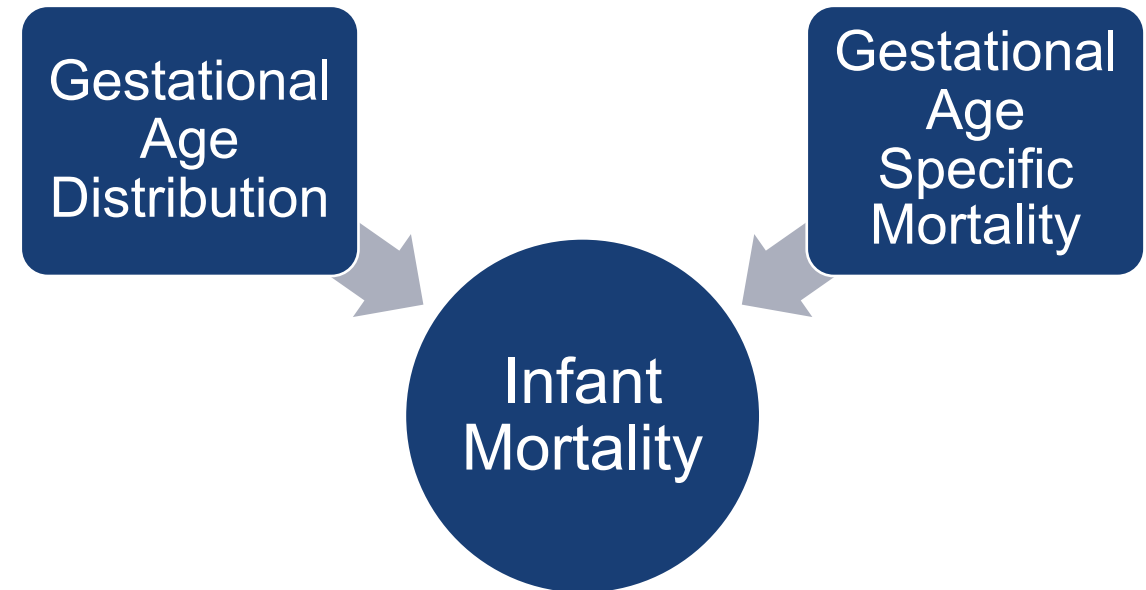
Racial/Ethnic distribution as contributing factor

# Background

## Mechanisms of Infant Mortality Rate Differences

### Factors

- Gestation Age Distribution
  - Changes in preterm birth rate
- Gestational Age Specific Mortality
  - Changes in survival rate once born at a given gestational age

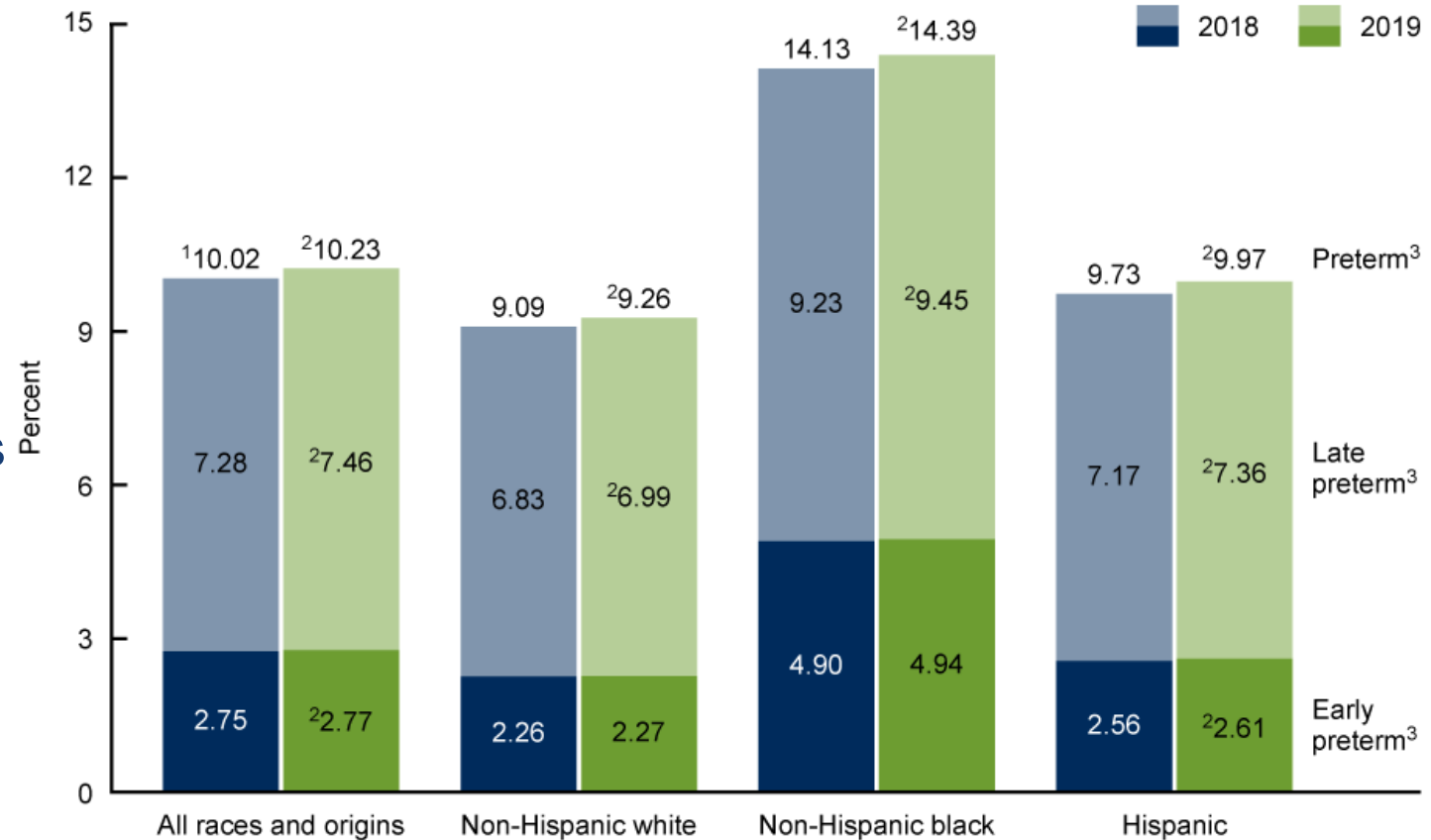




# Background

## Racial/Ethnic Disparities in Gestational Age Distribution

Preterm birth rates, by race and Hispanic origin of mother  
United States, 2018 and 2019



- Preterm births increased in 2019
- Preterm birth rates higher for Black and Hispanic mothers
- Evident in early and late preterm rates

Contribution by gestational age to the overall infant mortality decline, 2007-2013, for the total population and for NHW, NHB, and Hispanic women.

- IM reduction seen for NHW, NHB, and Hispanic babies
- Reductions seen in virtually every GA group
- Distribution of rate reductions differs by racial/ethnic group

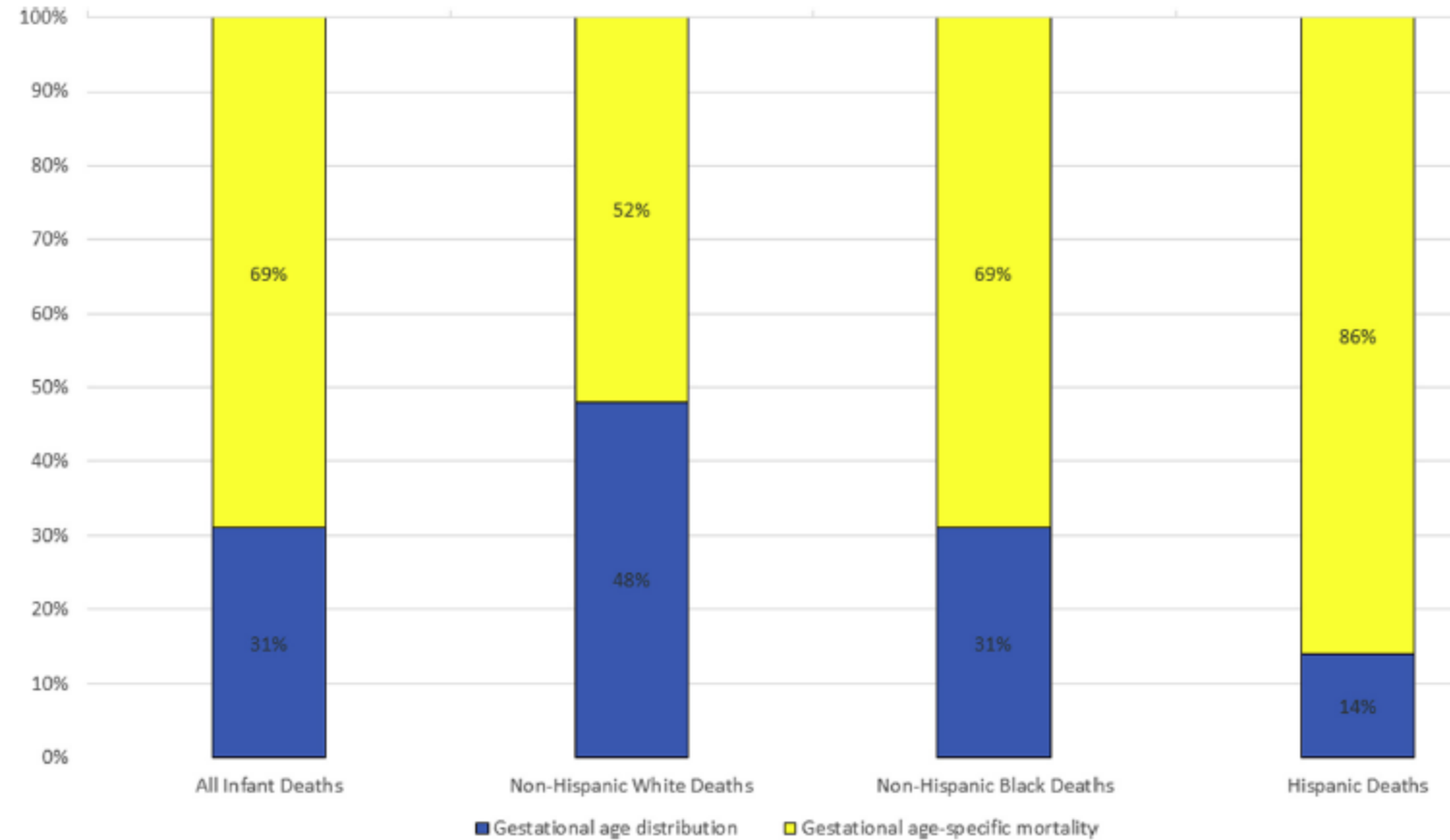
Gestational age, wks	Total population, %	non-Hispanic white, %	non-Hispanic black, %	Hispanic, %
<32	63.4	60.8	73.4	61.9
32-33	2.6	-0.6	3.5	4.3
34-36	10.1	8.9	9.6	9.4
37-38	19.7	29.7	11.0	14.5
39-41	3.2	0.2	2.1	8.6
42+	1.0	1.1	0.4	1.2
Absolute decrease in infant mortality rate (per 1000 births)	0.80	0.54	2.05	0.68

# Background

## Mechanism of Recent Decline Infant Mortality

- Dominated by gestational age mortality reduction
- Differs by race/ethnicity
- NICUs continue to play significant role in infant mortality reduction

Contributions to IM Decline, 2007 to 2013 (births  $\geq$  22 weeks)



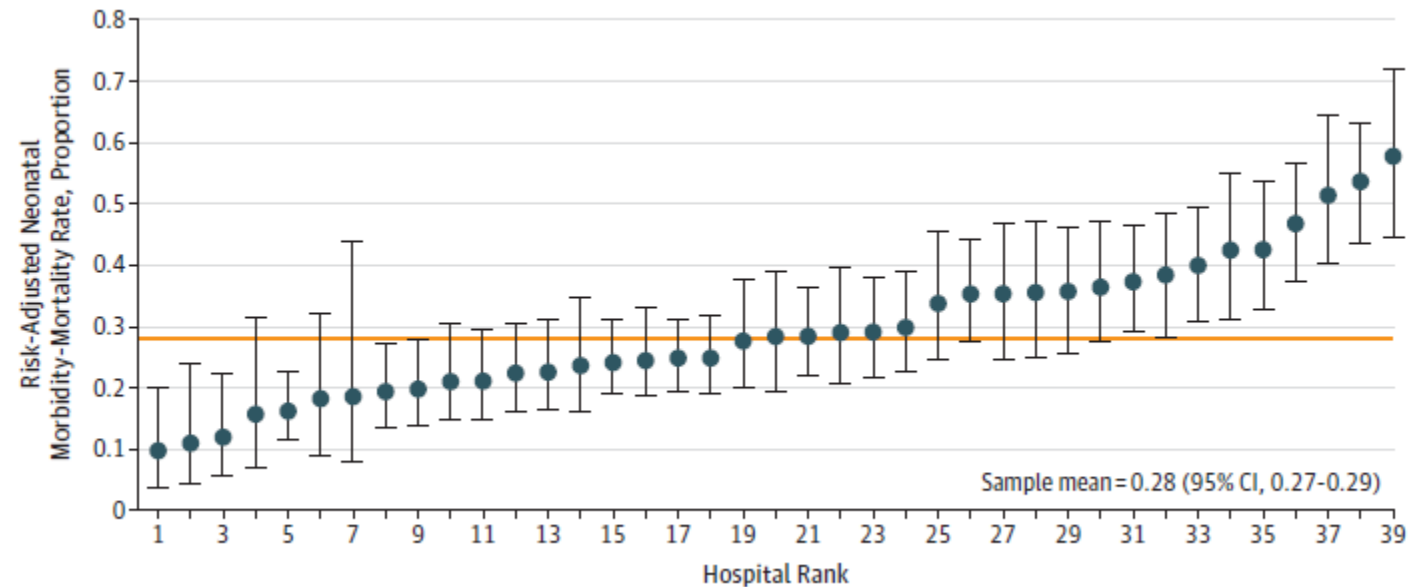
# Recent Evidence

# Recent Evidence

## Adjusted VPT Neonatal Morbidity/Mortality Differences by Hospital

Hospitals differ greatly in risk-adjusted VPT morbidity and mortality

### Hospital Rankings for Risk-Adjusted Neonatal Morbidity and Mortality, New York City, 2010-2014



### Hospital Rankings for Risk-Adjusted Neonatal Morbidity and Mortality, New York City, 2010-2014

- Black and Hispanic VPT infants are more likely to be born at hospitals with higher risk-adjusted neonatal morbidity/mortality
- 40% of the B-W disparity and 30% of the H-W disparity is explained by birth hospital

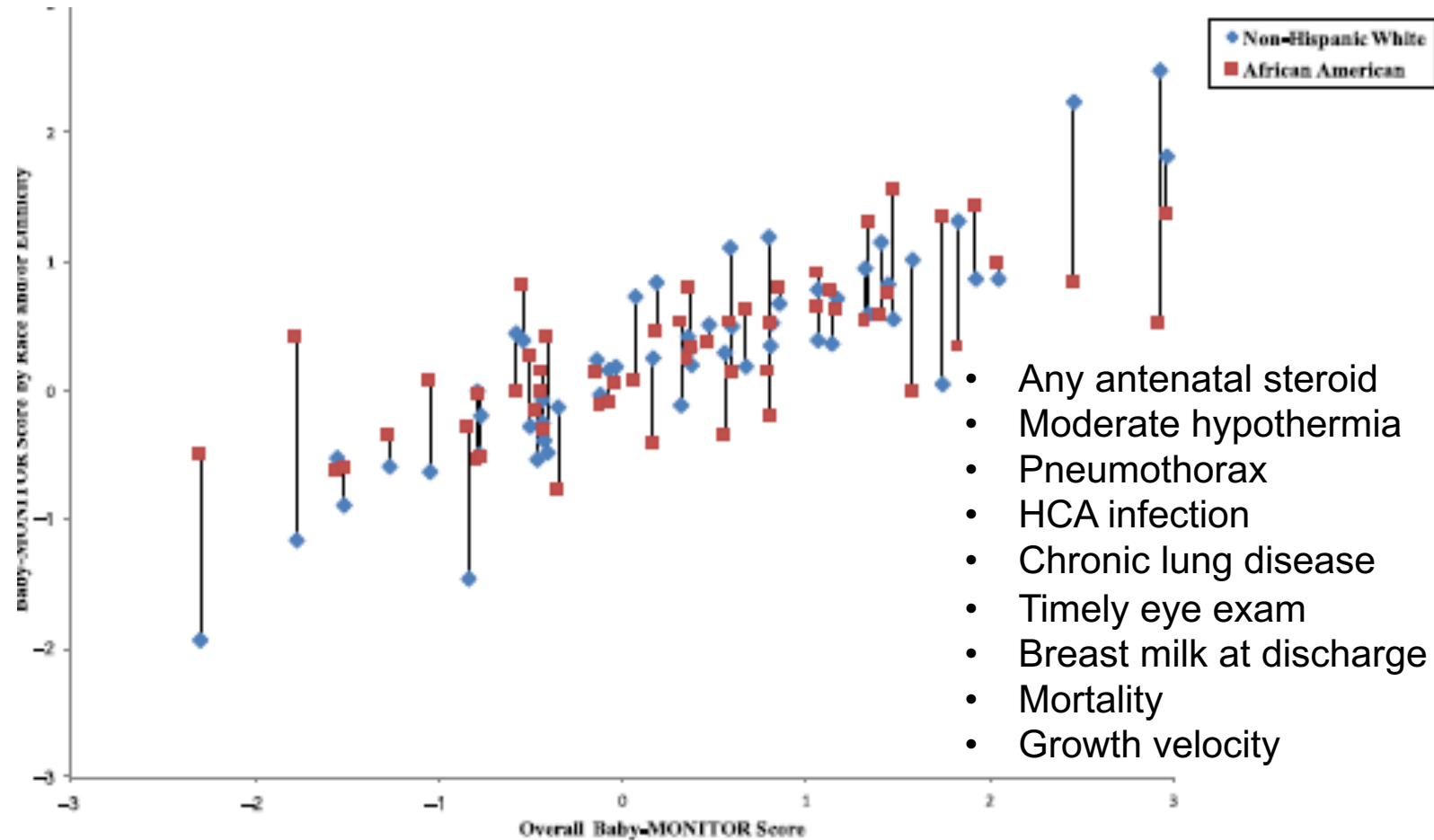
Race/Ethnicity	Low Morbidity and Mortality		Middle Morbidity and Mortality		High Morbidity and Mortality	
	Distribution of Births, No. (%) <sup>a</sup>	Adjusted Risk (95% CI)	Distribution of Births, No. (%) <sup>a</sup>	Adjusted Risk (95% CI)	Distribution of Births, No. (%) <sup>a</sup>	Adjusted Risk (95% CI)
Non-Hispanic black	560 (20.2)	0.14 (0.12-0.17)	1011 (36.4)	0.23 (0.21-0.26)	1204 (43.4)	0.41 (0.39-0.43)
Hispanic	541 (25.0)	0.16 (0.13-0.19)	881 (40.6)	0.25 (0.23-0.27)	746 (34.4)	0.42 (0.39-0.45)
Non-Hispanic white	290 (20.5)	0.18 (0.13-0.22)	803 (56.6)	0.25 (0.22-0.27)	325 (22.9)	0.38 (0.33-0.42)
All races/ethnicities	1572 (100)	0.16 (0.14-0.18)	3183 (100)	0.25 (0.24-0.26)	2422 (100)	0.40 (0.38-0.41)

# Recent Evidence

## Racial/Ethnic Disparity in NICU Care Quality

Racial/ethnic differences in outcomes and key processes within and between NICUs

Baby-MONITOR scores for each NICU- Black (N<sub>≥</sub>10) vs. White

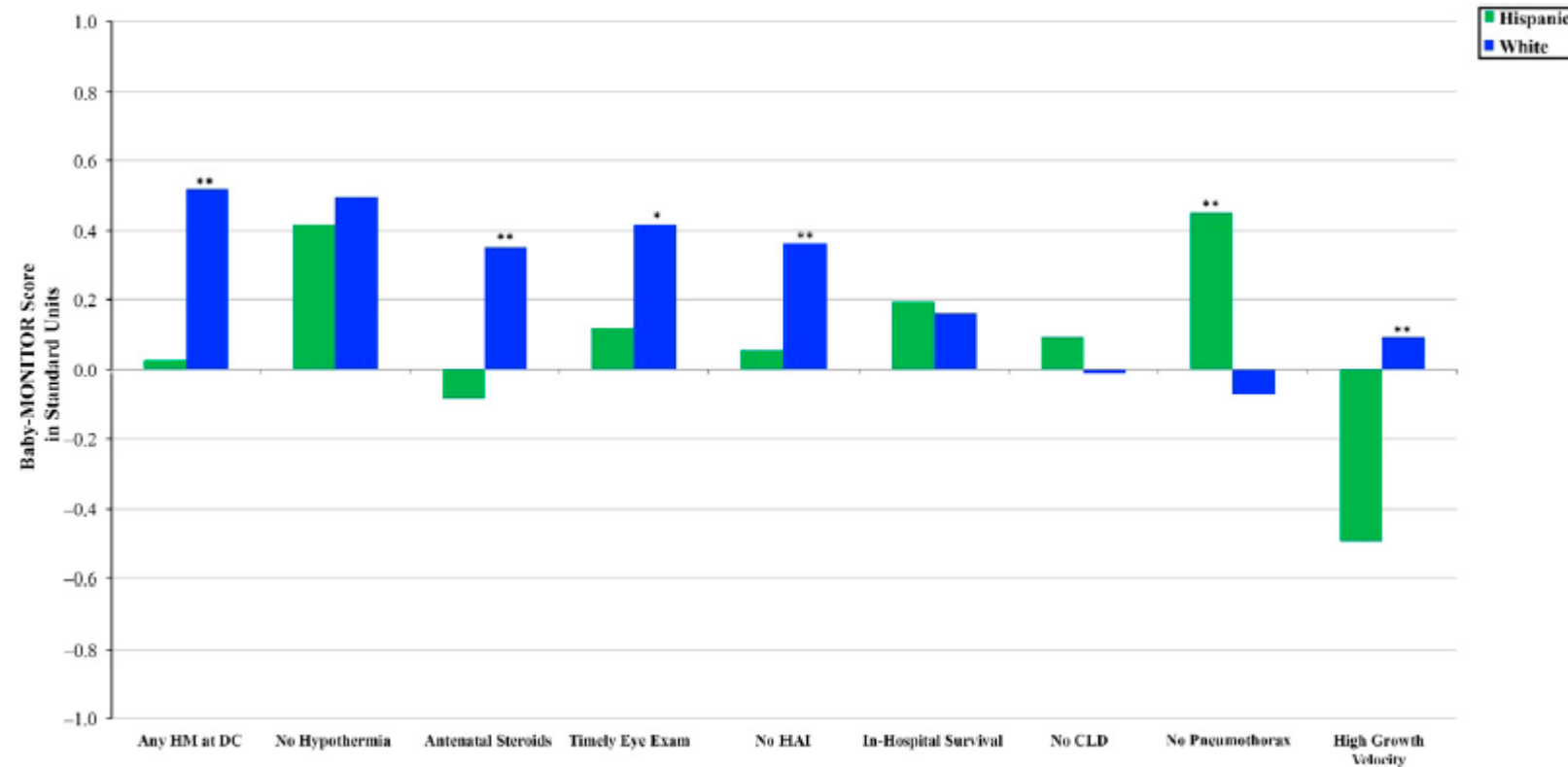


# Recent Evidence

## Racial/Ethnic Disparity in NICU Care Quality

Both Black and Hispanic infants scored lower on key process measures

### Baby-MONITOR subcomponent score- Hispanic vs. White



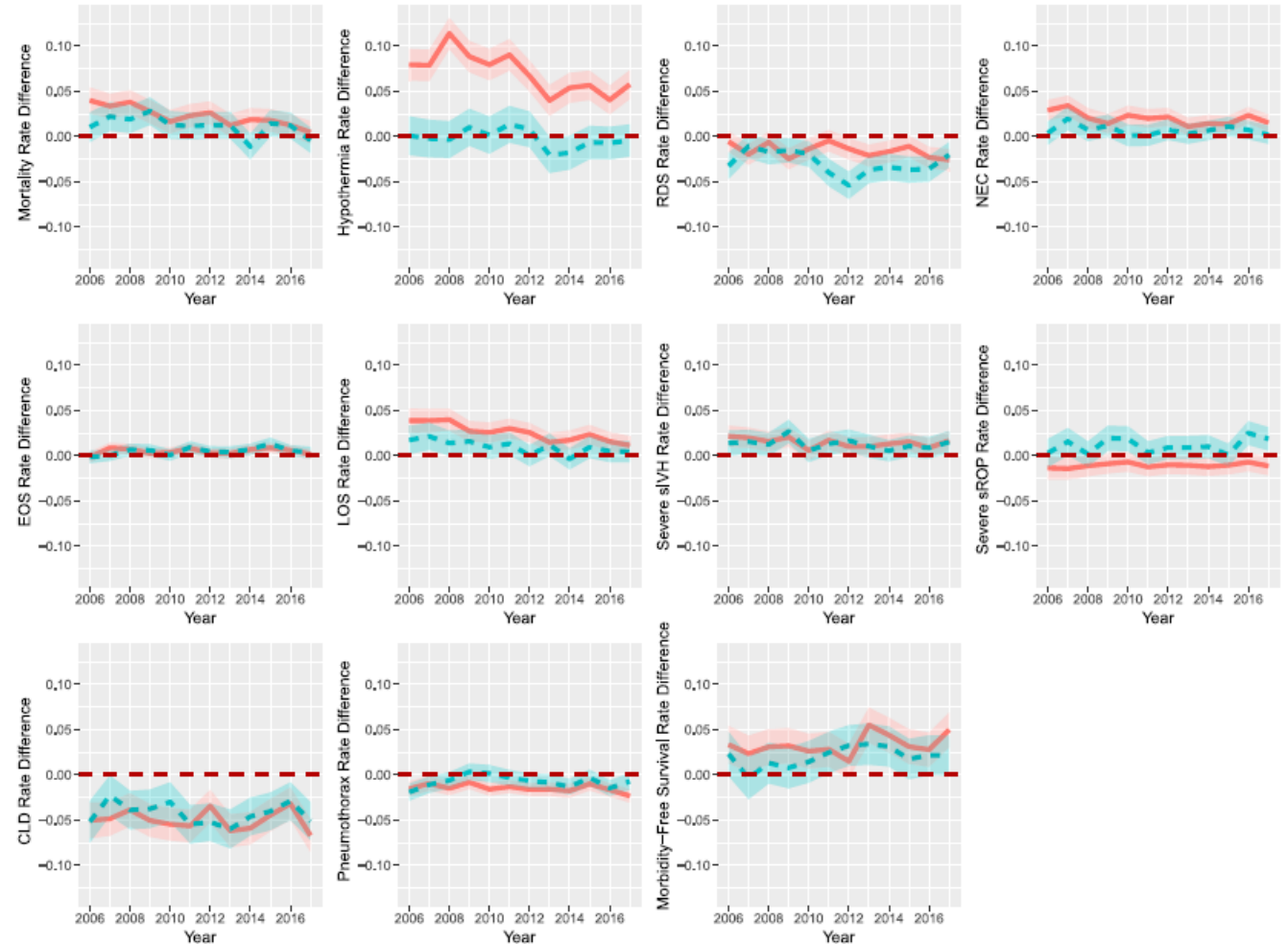


# Recent Evidence

## Changes in NICU Care Practices by Race/Ethnicity Over Time

Rate differences in mortality and morbidity outcomes among African American (red) and Hispanic (blue) versus white infants by birth year

Racial and ethnic disparities in key care practices and certain outcomes have decreased in some areas but have persisted overall



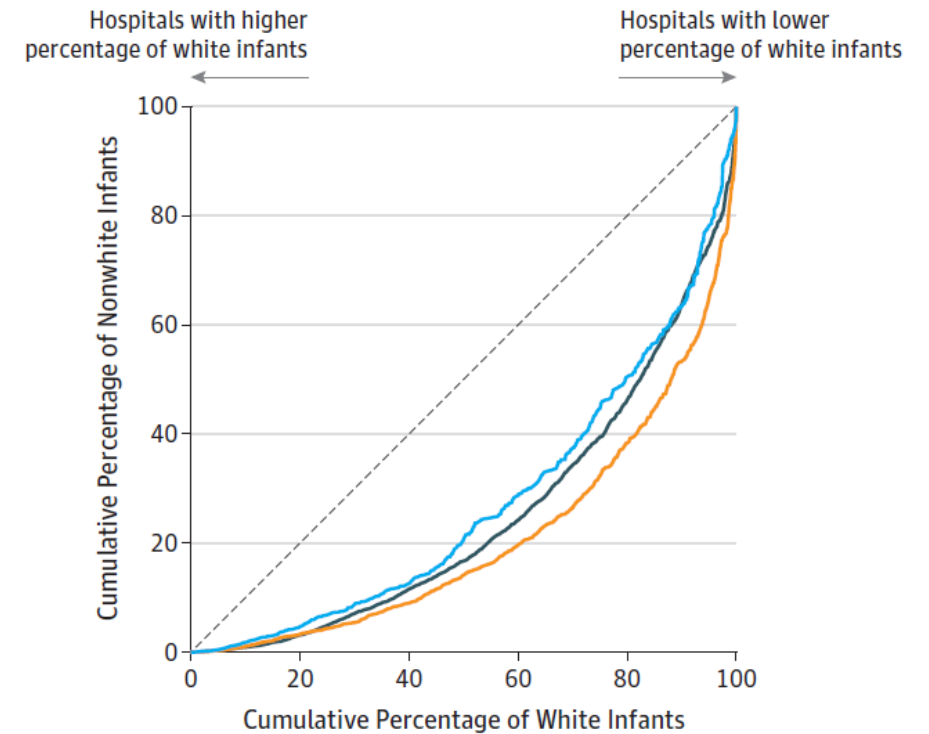
# Recent Evidence

## Racial/Ethnic Segregation and Inequality in the NICU

### Lorenz Curves for Segregation by Race/Ethnicity US Neonatal Intensive Care Units (NICUs)

	NICU Segregation Index (95% CI)
Black	0.50 (0.46-0.53)
Hispanic	0.58 (0.54-0.61)
Asian	0.45 (0.40-0.50)

Black, Hispanic, and Asian babies are segregated across NICUs, reflecting racial segregation of minority populations in the US

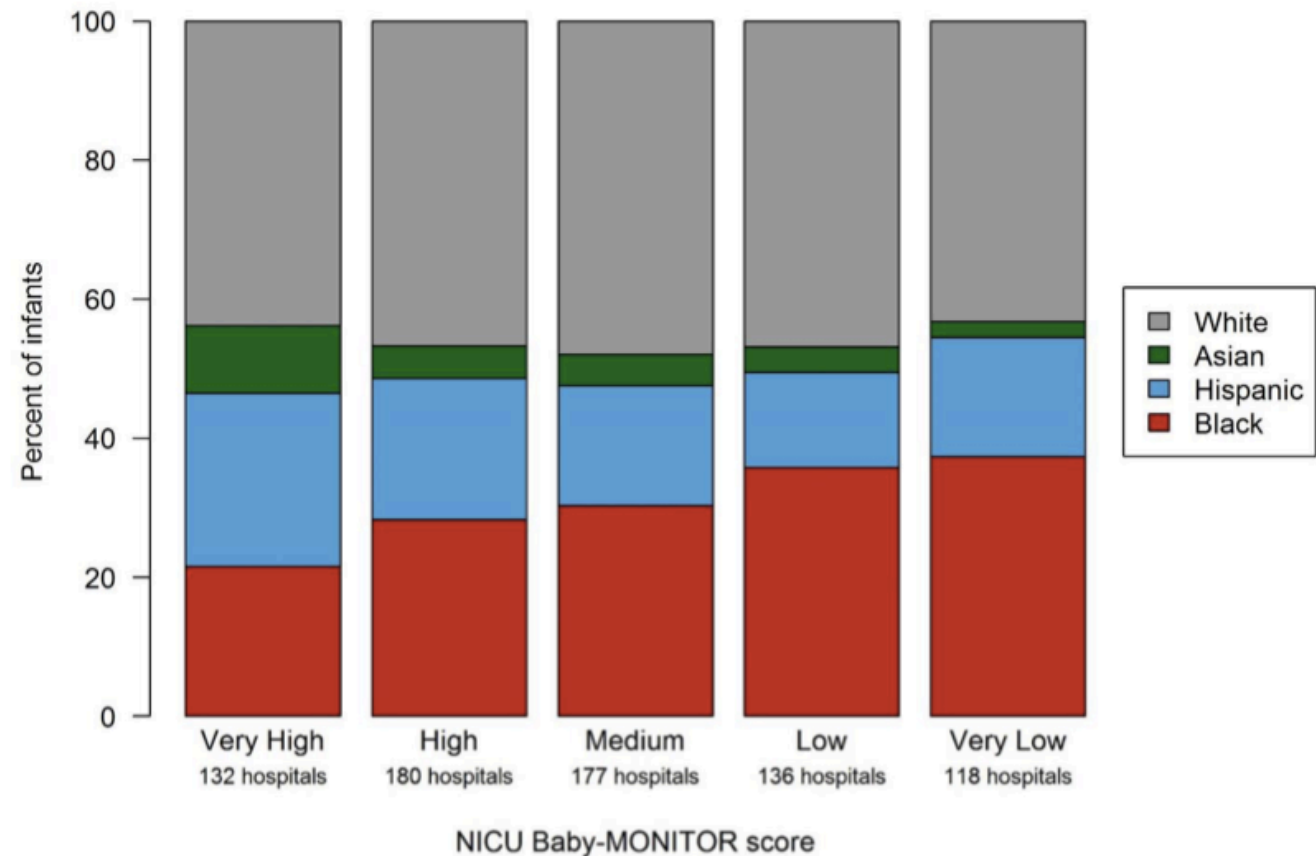


# Recent Evidence

## Racial/Ethnic Segregation and Inequality in the NICU

### Racial/Ethnic Distribution within Quintiles of Baby MONITOR Scores

Black infants receive care in lower quality US NICUs



# Types of Disparate Care

There is widespread concern for differential care toward *families* suggesting lack of equitable family-centered care

## Suboptimal Care

## Privileged Care

### Neglectful Care

### Judgmental Care

### Systemic Barriers

### Priority Treatment / Assertive Families

Staff ignore, avoid, or neglect family needs when difficult or unpleasant

Staff evaluate moral status based on race, class, or immigration status

Staff unable or unwilling to address family barriers (transportation, child care, housing, employment, etc.)

Families connected to NICU receive priority care; assertive families receive more attention

# Structure

Nursing characteristics

Appropriate setting

Geography

Minority-serving hospitals

Military vs. civilian care

Composite quality

# Process

Breast milk

High risk infant follow up  
referral

Parental satisfaction /  
family experience

Shared parent-provider  
decision-making

Kangaroo care

Surfactant use

# Outcomes

IVH

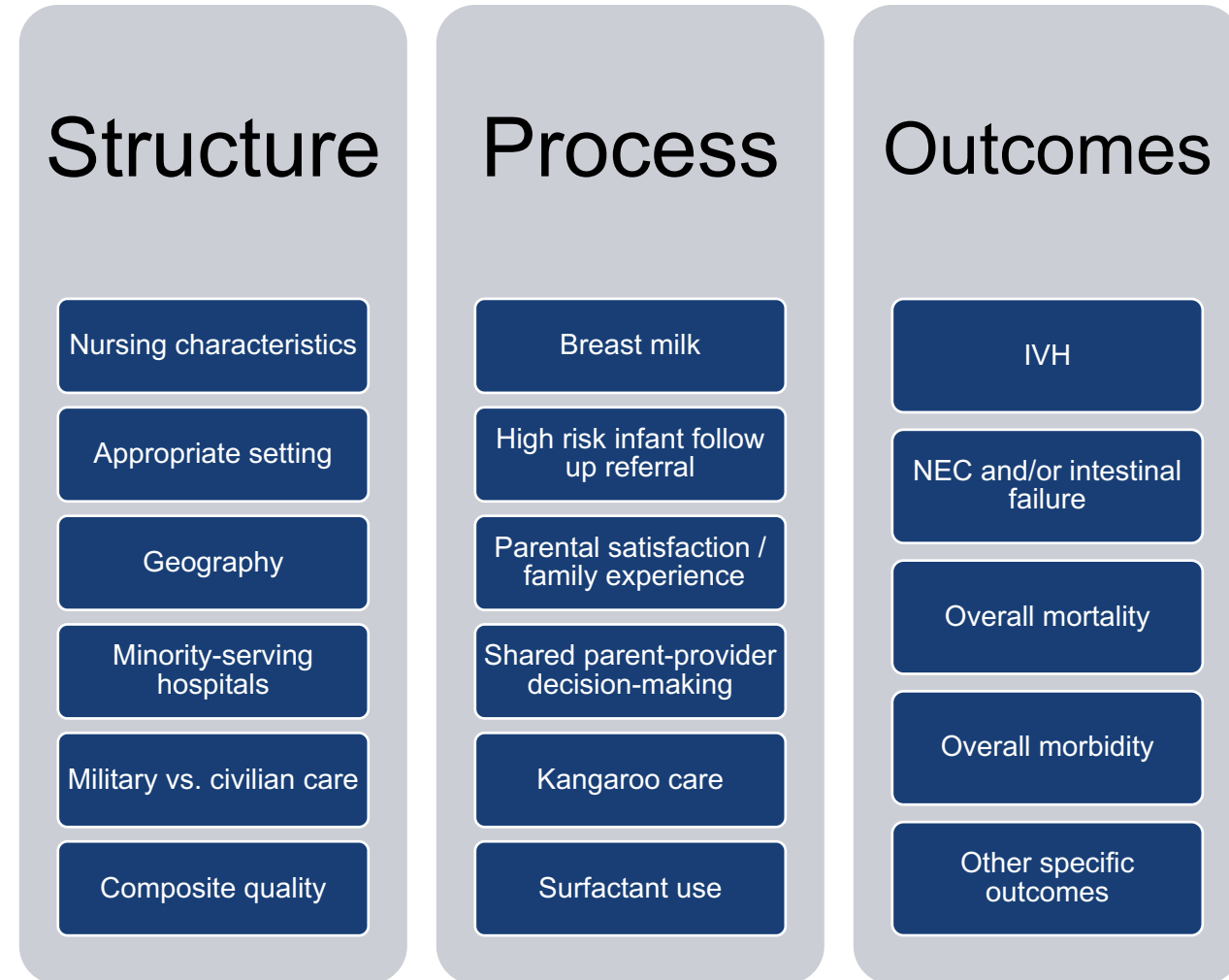
NEC and/or intestinal failure

Overall mortality

Overall morbidity

Other specific outcomes

Disparities in structure, process, and outcome measures, most often disadvantaging infants of color



# Recent Evidence Summary

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NICUs continue to play a key role, not only in infant mortality reduction, but also in the reduction of infant mortality racial/ethnic disparities

There are persisting racial/ethnic structural, process, and outcomes that affect morbidity and mortality

Racial/ethnic disparities are seen both within and between hospitals

There is evidence of inequitable care toward families that may, in turn, affect the care and outcomes of their infants



# Strategies



# Strategies

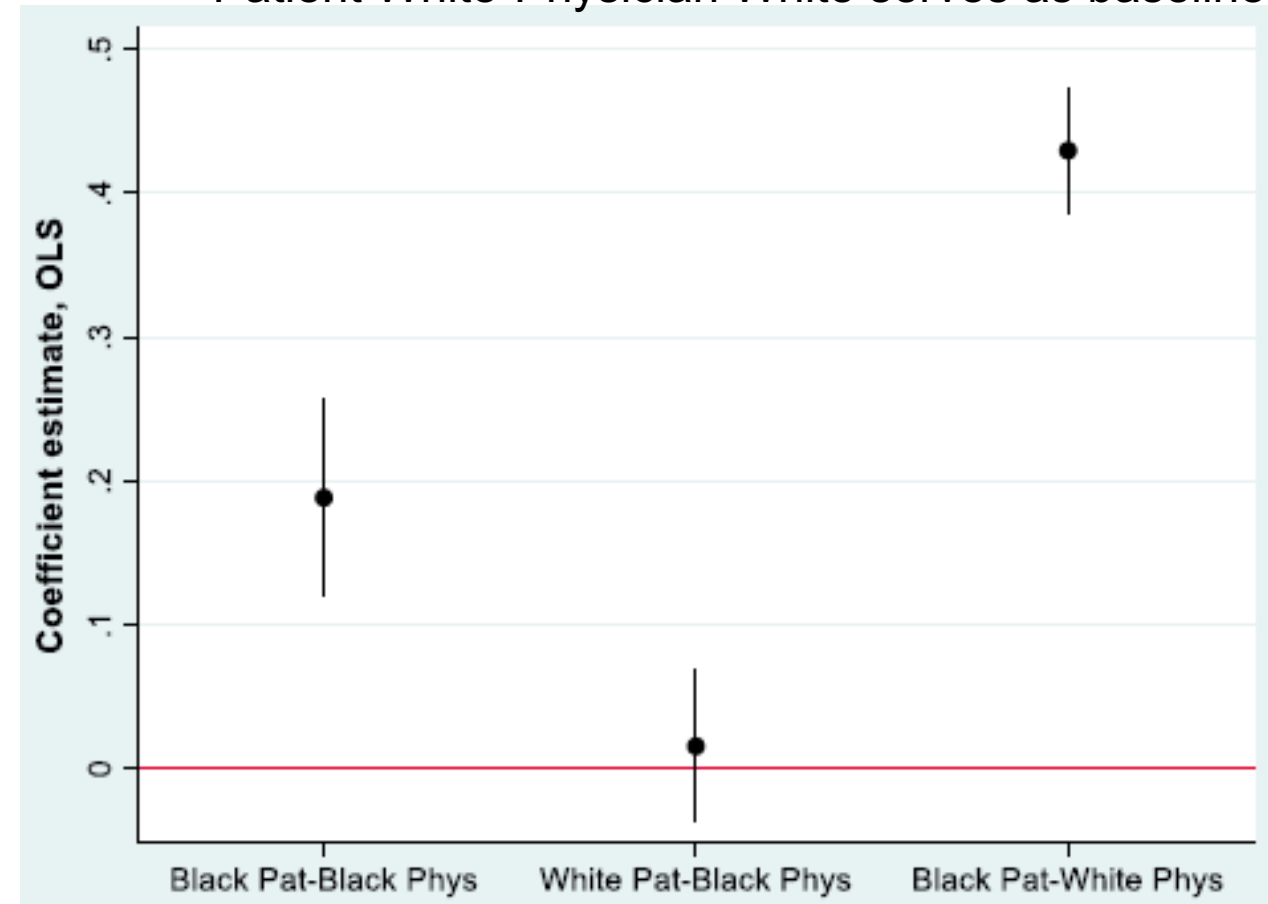
## A Starting List

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- Reject notions that marginalized populations are either inherently advantaged or disadvantaged
- Make staff diversity a priority
- Include equity as care quality factor similar to other domains (safety, effectiveness, timeliness, patient-centeredness, and efficiency)
- Consider intervention quality, as well as presence (e.g., timeliness- surfactant, antibiotics), comprehensiveness (e.g., SDH intake)
- Include balancing measures when relevant
- Examine sustainability of effects (e.g., breast milk use)
- Establish family-centered care standards and develop measures to track compliance
- Identify outcomes, as well as processes in family engagement
- Ensure diverse representation on family advisory groups
- Ensure that infants within systems are receiving risk-appropriate care

- Mortality was lower when Black physicians cared for Black infants
- Does this say something about bias, communication, and trust?
- How does this result in improved outcomes?

Effect of racial concordance on patient survival-  
Patient White-Physician White serves as baseline



### Unit Acculturation

- Signal importance of FCC, partnering
- Ensure families are greeted respectfully

### NICU Staff Communication

- Offer opportunities for families to interact with babies in ways that work for them
- Offer language assistance to families with LEP

### Counseling

- Employ personnel for a standardized assessment of SDH and for tailored psychosocial support

### Organizational Resources

- Provide routine social services screening for all families at the beginning of their NICU stay to identify transportation, parking, food, and space or resources for sibs

### Family Leadership

- Employ a paid family advisor and/or representative family advisory council to provide input
- Develop a hospital-based peer to peer support program that employs family navigators

### Education

- Develop targeted education and support re: health benefits of breastfeeding for mothers and preterm babies. Provide breastfeeding supplies and a comfortable pumping space
- Develop multi-lingual and culturally appropriate education on positive touch and kangaroo care.

- Environmental exposures
- Food insecurity
- Health insurance
- Health literacy
- Housing insecurity
- Implicit bias
- Language discordance
- Neighborhood
- Racism- interpersonal
- Racism- structural
- Transportation access

- Addressing Short-term Needs Through Universal Programs
- Use of Screening Tools for Longer-term Unmet Needs
- Family Navigation of Social Services
- Mental Health Support
- Coordination of Efforts with High-risk Infant Follow-up Programs

Unmet basic needs are infrequently assessed and identified in the NICU.

Factors	Unmet basic need assessed among families of infants		Unmet basic needs identified among families of infants		Unmet basic needs identified among families of infants assessed	
	<i>n</i> assessed/601	%	<i>n</i> identified/601	%	<i>n</i> identified/ <i>n</i> assessed	%
Childcare	17/601	2.8	4/601	0.01	4/17	23.5
Food/Hunger	42/601	6.9	22/601	0.04	22/42	52.4
Housing	227/601	37.8	31/601	0.05	31/227	24.6
Transportation difficulties	17/601	2.8	10/601	0.02	10/17	58.8
Utilities (e.g., heat)	1/601	0.2	0/601	0	0/1	0
Employment [1]	537/601	89.4	181/601	30.1	181/537	33.7

### Promote a Culture of Equity

- Establish cultural sensitivity
- Acknowledge and manage implicit and explicit personal biases
- Facilitate nurse-led rounds

### Identify and Mitigate Social Risks of Families

- Screen for social determinants of health
- Provide support when necessary assistance with housing, meals, and transportation and counseling for mental health, drug or alcohol problems or smoking cessation
- Include social workers and legal specialists on teams

### Take Action to Assist Families After Discharge

- Provide carefully tailored discharge teaching
- Utilize home visiting and social media
- Establish meaningful clinical-community partnerships

### Maintain Support for Families Through Infancy

- Use parent coaches and innovative medical visit structures
- Provide contraception, family planning, and high-quality obstetric care
- Provide evidence-based early intervention programs

### Develop Robust Quality Improvement Efforts to Ensure Equitable, High-quality NICU and Follow Through Care to All Newborns by Eliminating Modifiable Disparities

- Establish measurable aims
- Engage all disciplines, parents, and PCPs
- Obtain support from organizational leaders through a formal charter

### Advocate for Social Justice at the Local, State, and National Levels

- Ensure that social justice is part of every organization's mission
- Advocate that health care organizations accept and act on their responsibility for the populations and neighborhood that they serve
- Speak out!



## Pediatric RESEARCH

[www.nature.com/pr](http://www.nature.com/pr)



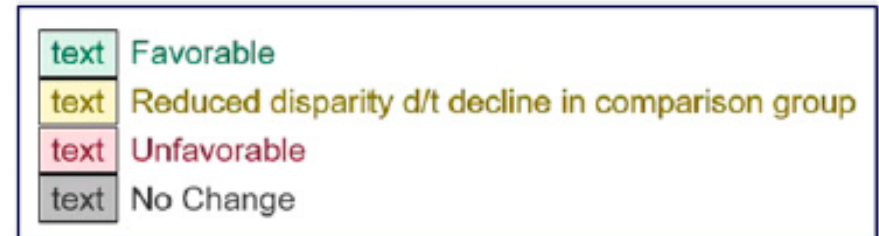
**REVIEW ARTICLE**      **OPEN**

# The color of health: how racism, segregation, and inequality affect the health and well-being of preterm infants and their families

Andrew F. Beck<sup>1,2</sup>, Erika M. Edwards<sup>3,4,5</sup>, Jeffrey D. Horbar<sup>3,4</sup>, Elizabeth A. Howell<sup>6,7,8</sup>, Marie C. McCormick<sup>9,10,11</sup> and DeWayne M. Pursley<sup>9,11</sup>

# Measurement

# Measurement Simple Run Charts



Ongoing Performance Measure	Actual Performance YTD		Trend (Past 4 Years) ↑/↓ = goal direction	Change in Disparity		No. Missed Opportunities in Group of Interest	
	White, English	Group of Interest		2018–2019 YTD	2018–2019 YTD	2018	2019 YTD
Comfort promis offered (Ambulatory)	75.9%	82.3% (Black)		26.9%		2225	0
Asthma: well controlled <sup>a</sup>	90.8%	75.7% (Black)		4.6%		299	203 <sup>a</sup>
Combo-10 vacinnes	62.6%	19.5% (Black)		4.8%		325	331 <sup>a</sup>
No-show appointments	5.0%	21.2% (Black)		0.4%		10597	10 115

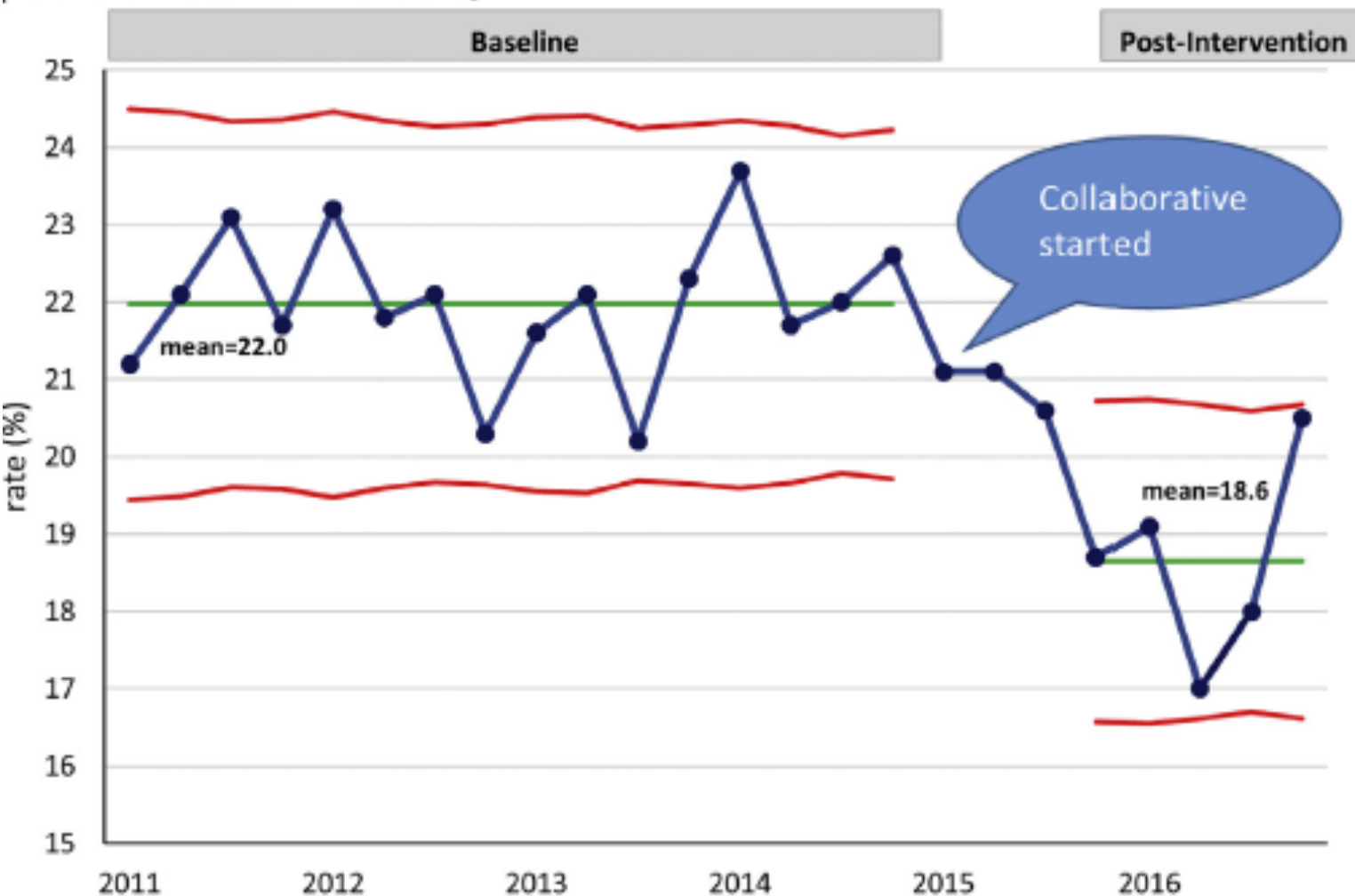
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2019  
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Last Updated: 02/10/2020

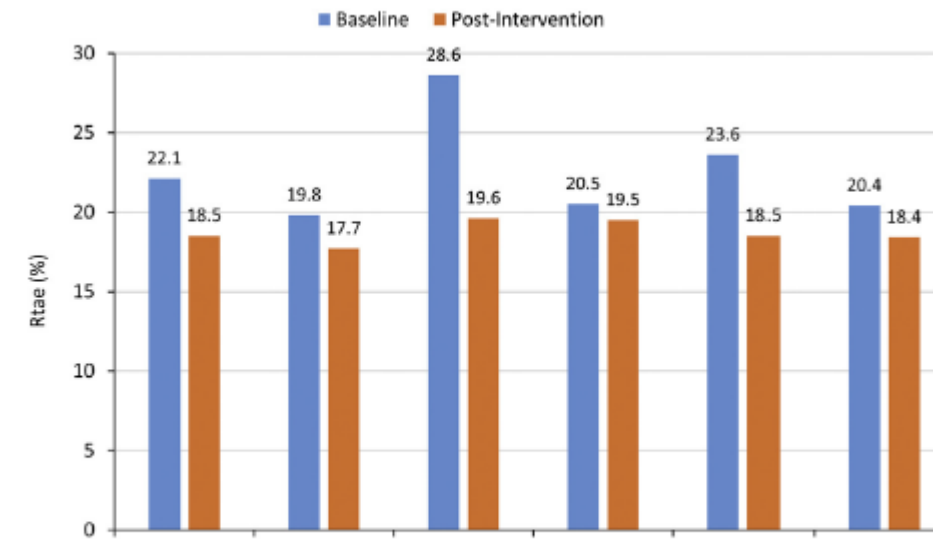
# Measurement

## Statistical Process Control and Adjusted Relative Risk

### Severe maternal morbidity



### A Severe maternal morbidity



	All	White	Black	Asian	Hispanics	Others
adjRR	0.85	0.87	0.76	0.92	0.83	0.84
95% CI	0.77-0.94	0.76-0.98	0.65-0.89	0.81-1.04	0.75-0.92	0.72-0.99
Baseline N	54311	15775	3404	8180	23051	3901
Post-Intervention N	19165	5401	1114	3195	8161	1294

“Of all the forms of inequality, injustice in health is the most shocking and the most inhuman...”

- Martin Luther King