



## **2019 CPQCC Update**

**Jochen Profit, MD, MPH**

**Associate Professor of Pediatrics**

**Chief Quality Officer, California Perinatal Quality Care Collaborative**

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## CPQCC Activities

1. Service
2. Data
3. QI
4. Research

# 1. Service

nicu-directory.cpqcc.org

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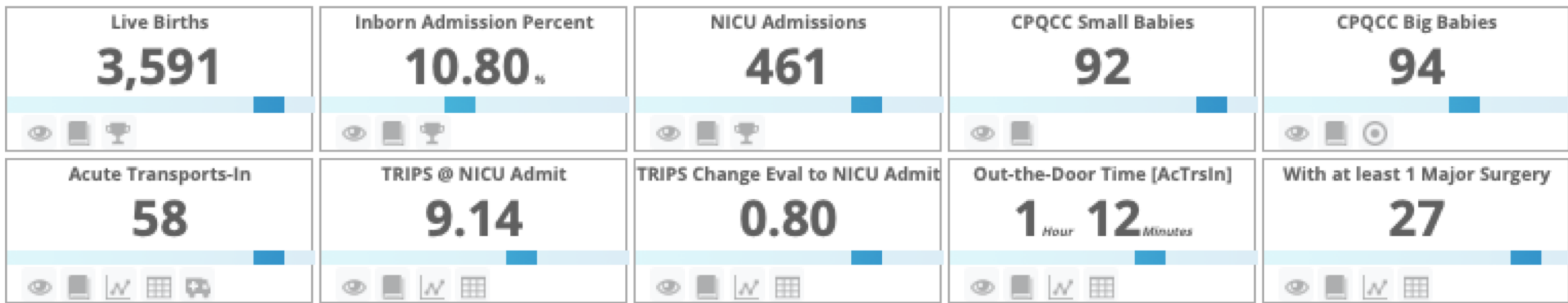
Search by Center

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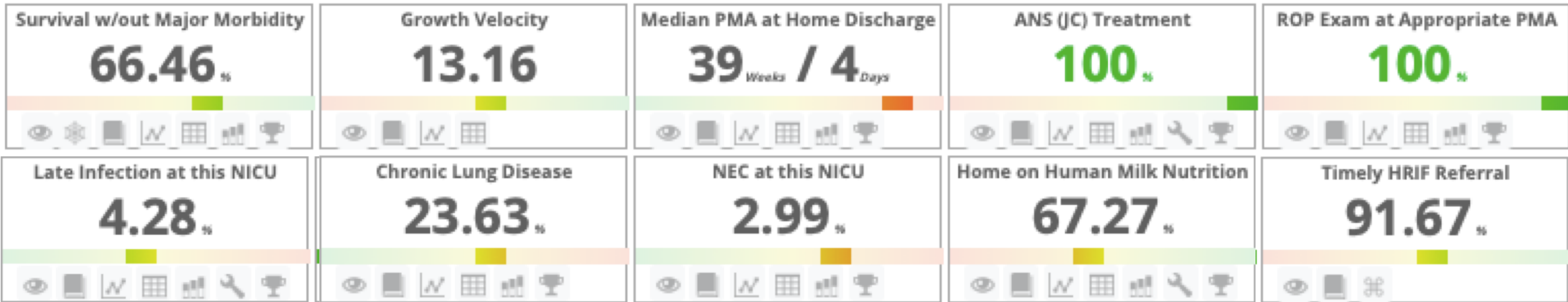
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#	Organization	City	Website
1	<a href="#">Alta Bates Summit Medical Center</a>	Berkeley	<a href="#">Link</a>
2	<a href="#">Ami Garden Grove Hospital And Medical Center</a>	Garden Grove	
3	<a href="#">Anaheim Regional Medical Center</a>	Anaheim	
4	<a href="#">Anderson Lucchetti Women's and Children's Center</a>	Sacramento	
5	<a href="#">Antelope Valley Hospital Medical Center</a>	Lancaster	
6	<a href="#">Arrowhead Regional Medical Center</a>	Colton	
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8	<a href="#">California Hospital Medical Center</a>	Los Angeles	
9	<a href="#">California Pacific Medical Center</a>	San Francisco	
10	<a href="#">Cedars-Sinai Medical Center</a>	Los Angeles	
11	<a href="#">Centinela Hospital Medical Center</a>	Inglewood	
12	<a href="#">CITA Hillman and Presbyterian Medical Center</a>	Los Angeles	



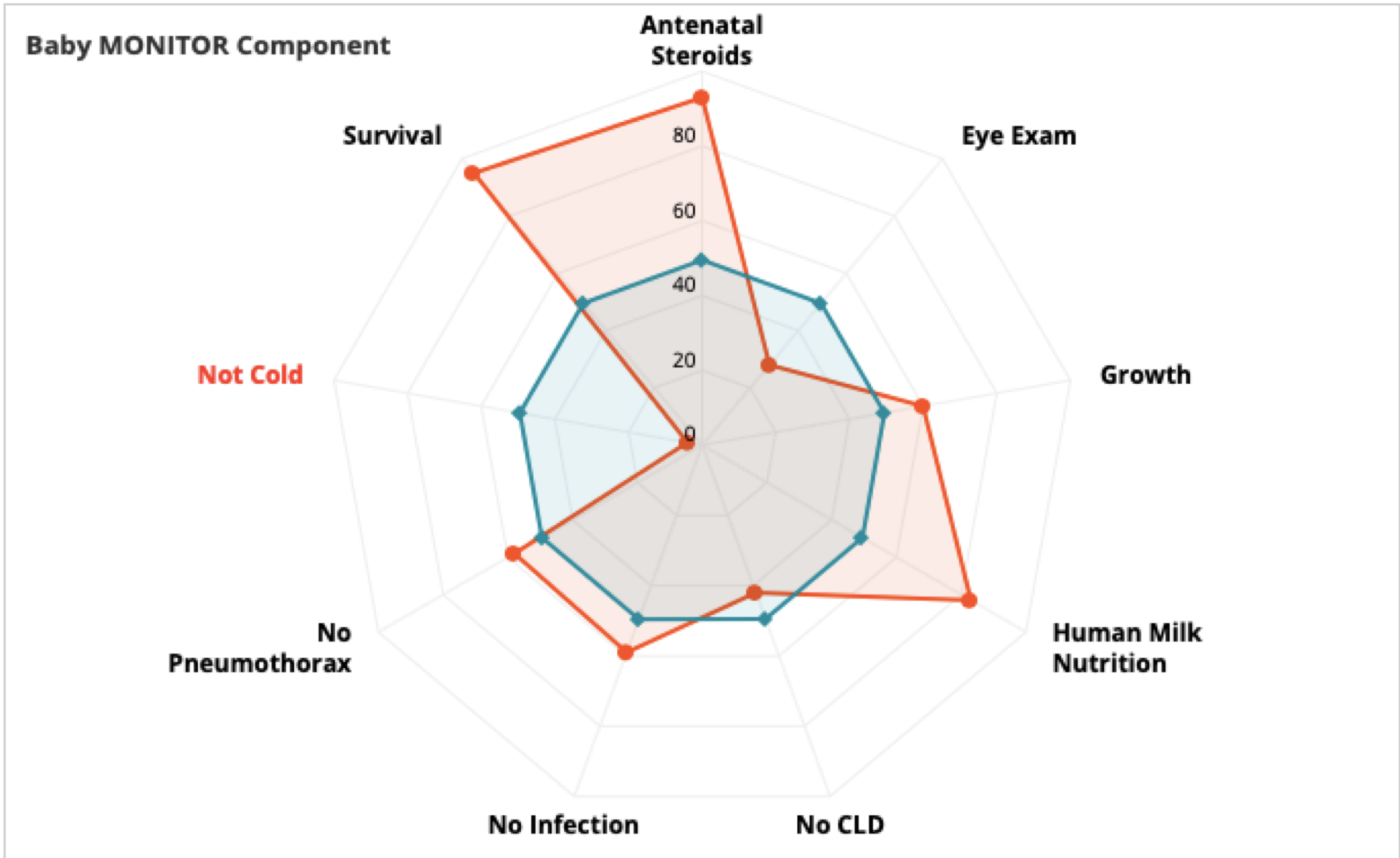
*VON Small Babies*



*Big Babies*

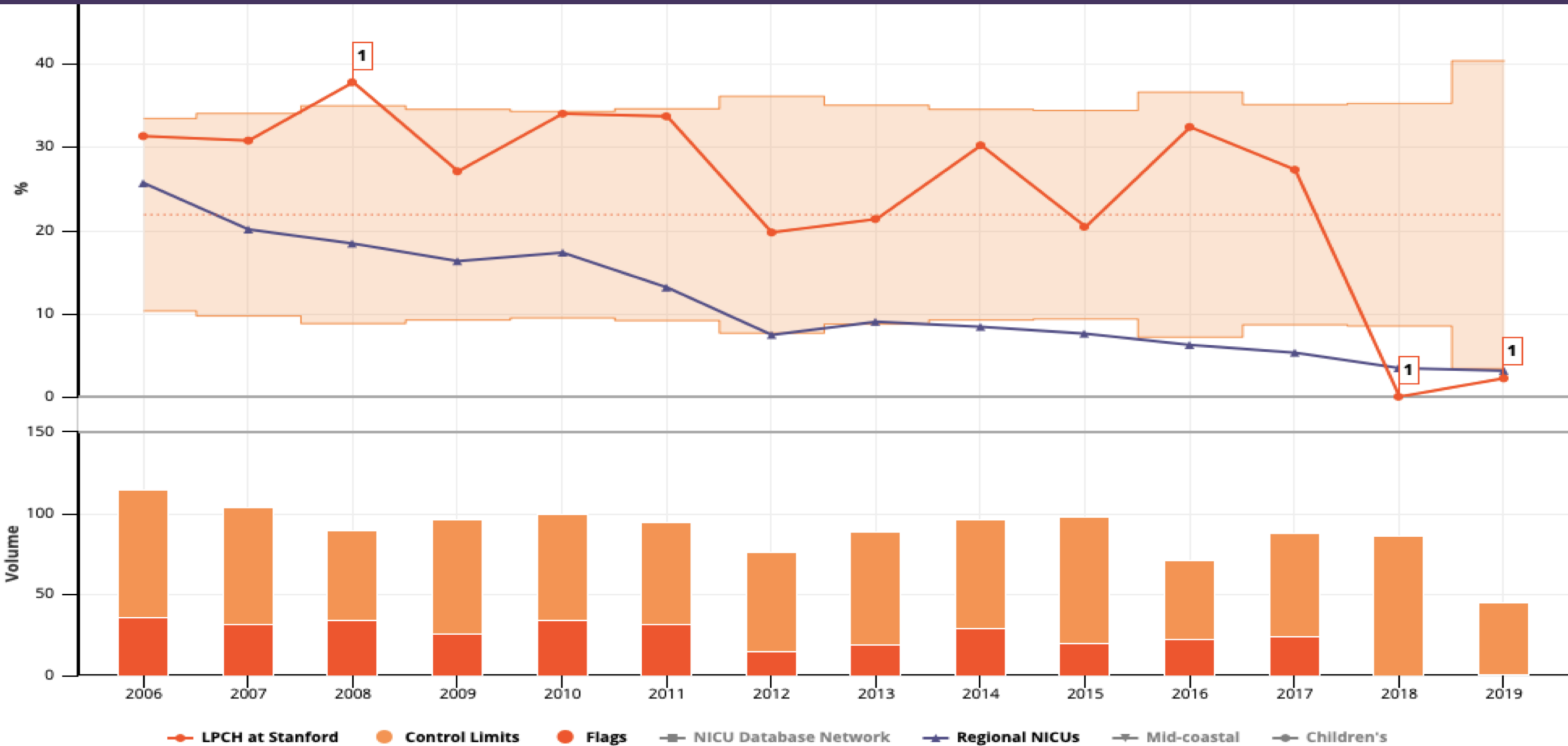


# CPQCC DASHBOARD





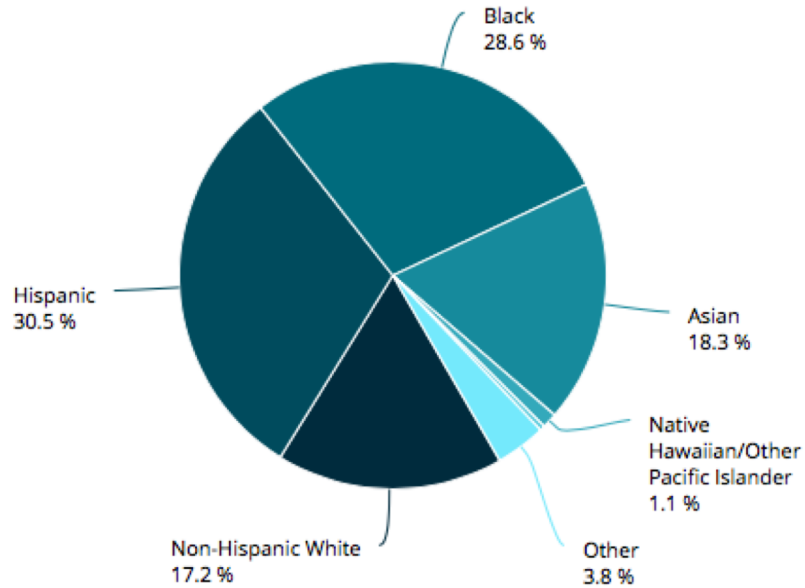
# CPQCC SPC CHARTS



# CPQCC EQUITY DASHBOARD

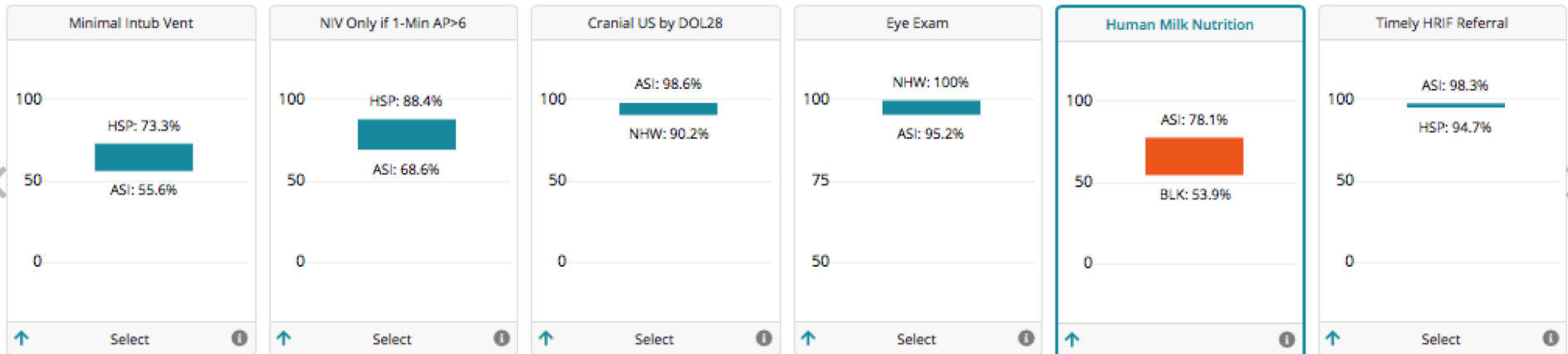
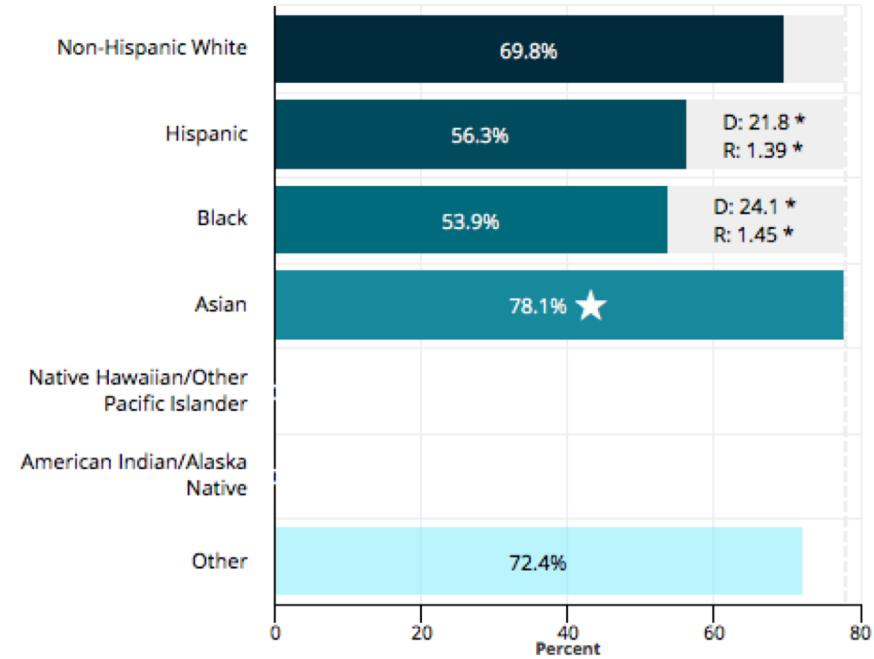


Race/Ethnicity Distribution for all VON Small Babies



Human Milk Nutrition by Race/Ethnicity

Reset zoom



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# CPQCC turning data into action

BETWEEN 2006-2015  
MEMBER HOSPITALS  
REDUCED MORTALITY  
RATES FOR VLBW  
INFANTS BY

21%

AN ADDITIONAL

16.6%

OF BABIES WERE  
DISCHARGED WITHOUT  
MAJOR MORBIDITIES  
LIKE SEVERE ROP, NEC, CLD,  
AND SEVERE IVH

AND THE RATE OF  
HEALTH CARE-  
ASSOCIATED  
INFECTIONS  
DECREASED BY

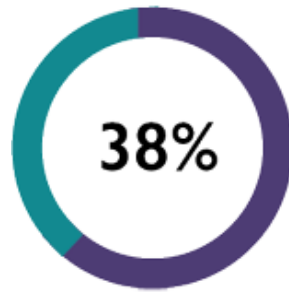
49%



### 3. PQIP Key Accomplishments

#### QI PROGRAMS

- **Grow, Babies, Grow Collaborative - in progress**



OF CALIFORNIA'S  
VLBW BABIES  
FALL > 1  
STANDARD  
DEVIATION  
BELOW THEIR  
INITIAL BIRTH  
WEIGHT  
PARAMETERS  
BY THE TIME OF  
DISCHARGE FROM  
THE NICU.



OF THE MOST  
VULNERABLE  
BABIES, BORN  
WEIGHING  
LESS THAN  
1,000 GRAMS,  
EXPERIENCE THIS  
SAME  
SUB-OPTIMAL  
GROWTH.

- **Simulating Success - in progress**

35%

OF VERY LOW BIRTHWEIGHT BABIES  
IN CALIFORNIA ARE AFFLICTED WITH  
BRONCHOPULMONARY DYSPLASIA



BPD CAN  
SUBSTANTIALLY  
DRIVE UP THE  
COST OF THE CARE  
THAT THESE BABIES  
RECEIVE.

# Extending Our Reach

## KEY PROJECTS

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1

### CPQCC Subspecialty Groups:

- Health Equity Task Force
- Moms in the NICU
- Children's Hospital Workgroup

2

### Context/Culture Task Force

- Kurlen Payton, Jenny Quinn, Jochen Profit leading effort
- Recently launched to consider how to assess and strengthen context/culture in QI efforts

3

### Alert and Network Reports

- What quarterly measures would you like to see for your NICU?
- Considering all-CPQCC reporting to help communicate network level progress

4

### High Potential NICU Outreach

- Discussions with NICUs in lowest quintile of admissions
- Workgroup recruitment
- Kick off meeting on March 6th



# Incidence Trends and Risk Factor Variation in Severe Intraventricular Hemorrhage across a Population Based Cohort

Sara C. Handley, MD<sup>1</sup>, Molly Passarella, MS<sup>1,2</sup>, Henry C. Lee, MD MS<sup>3,4</sup>, and Scott A. Lorch, MD, MSCE<sup>1,2,5</sup>

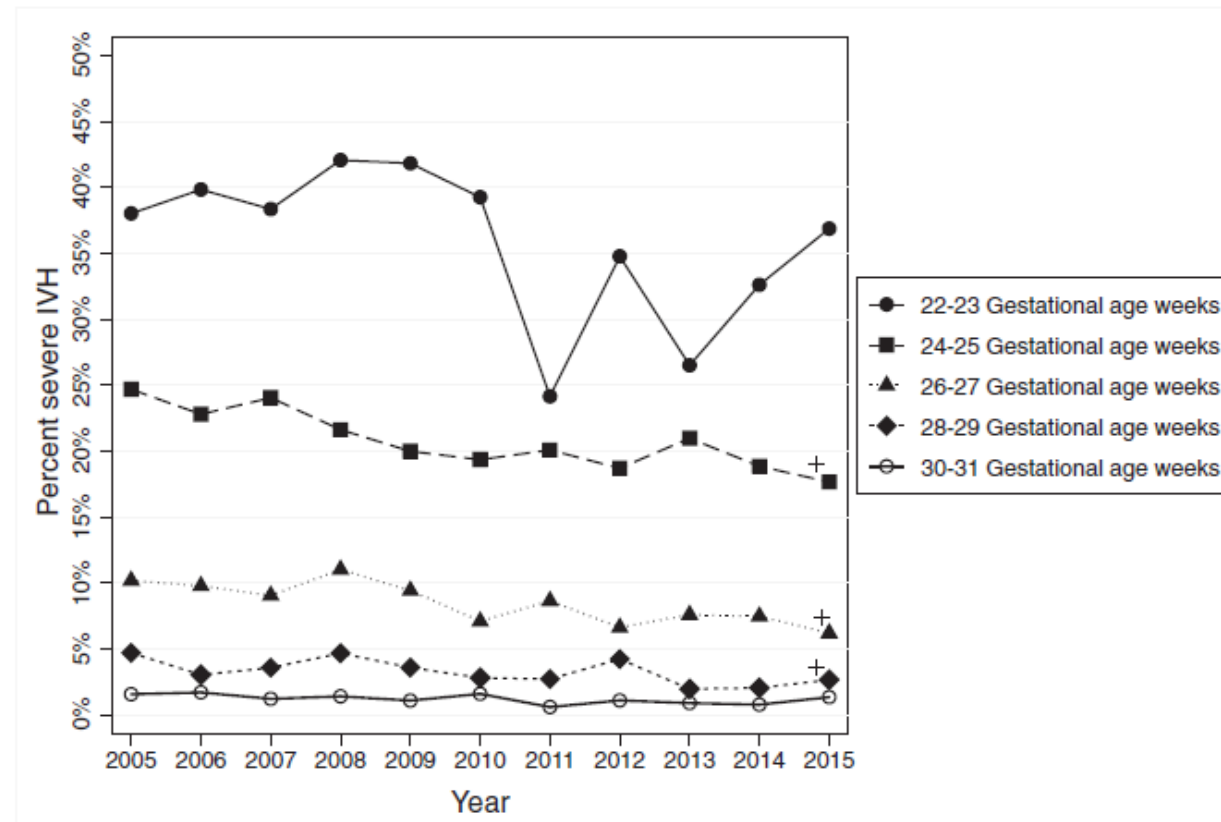


Figure 1. Severe IVH by gestational age over time. + Indicates significant change over time.



**Figure 2.** Rates of antenatal steroid exposure and delivery room intubation over time by IVH status. + Indicates significant decrease over 11-year period; ◇ Indicates significant change in rate of decrease.

IVH reduction appeared to be mediated by increased antenatal steroid administration (19%) and reduction in delivery room intubation (27%)

# Disparities in NICU Care

# Disparities in Health Care–Associated Infections in the NICU

Jessica Liu, PhD, MPH<sup>1,2</sup> Charlotte Sakarovitch, PhD  
Henry C. Lee, MD, MS<sup>1,2</sup> Jochen Profit, MD, MPH<sup>3,4</sup>

<sup>1</sup>Perinatal Epidemiology and Health Outcomes Research Unit, Division of Neonatology, Department of Pediatrics, Lucile Packer Children's Hospital, Stanford University School of Medicine, Palo Alto, California  
<sup>2</sup>California Perinatal Quality Care Collaborative, Palo Alto, California  
<sup>3</sup>Division of Biomedical Informatics Research, Department of Medicine, Stanford University, Stanford, California  
<sup>4</sup>Medical Data Lab, Université Côte d'Azur, Nice, France

Am J Perinatol

**Abstract**  
**Objectives** This study examined the association between health care–associated infection (HAI) and race/ethnicity and its association with infection severity.  
**Study Design** This is a retrospective cohort study of very low birth weight (VLBW) infants hospitalized in neonatal intensive care units (NICUs) between 2011 and 2015.  
**Results** Risk-adjusted odds ratios (ORs) for HAI were higher in the high-infection tertile of infection rates (OR, 1.5; 95% CI, 1.1–2.0) compared with the low-infection tertile. Non-Hispanic black infants in the high-infection tertile were more likely to have an HAI (OR, 1.8; 95% CI, 1.2–2.8) compared with non-Hispanic white infants.  
**Conclusion** Hispanic infants in the high-infection tertile were more likely to have an HAI (OR, 1.5; 95% CI, 1.0–2.2) compared with non-Hispanic white infants. These findings suggest that racial and ethnic disparities in HAI exist across different infection rates in NICUs.

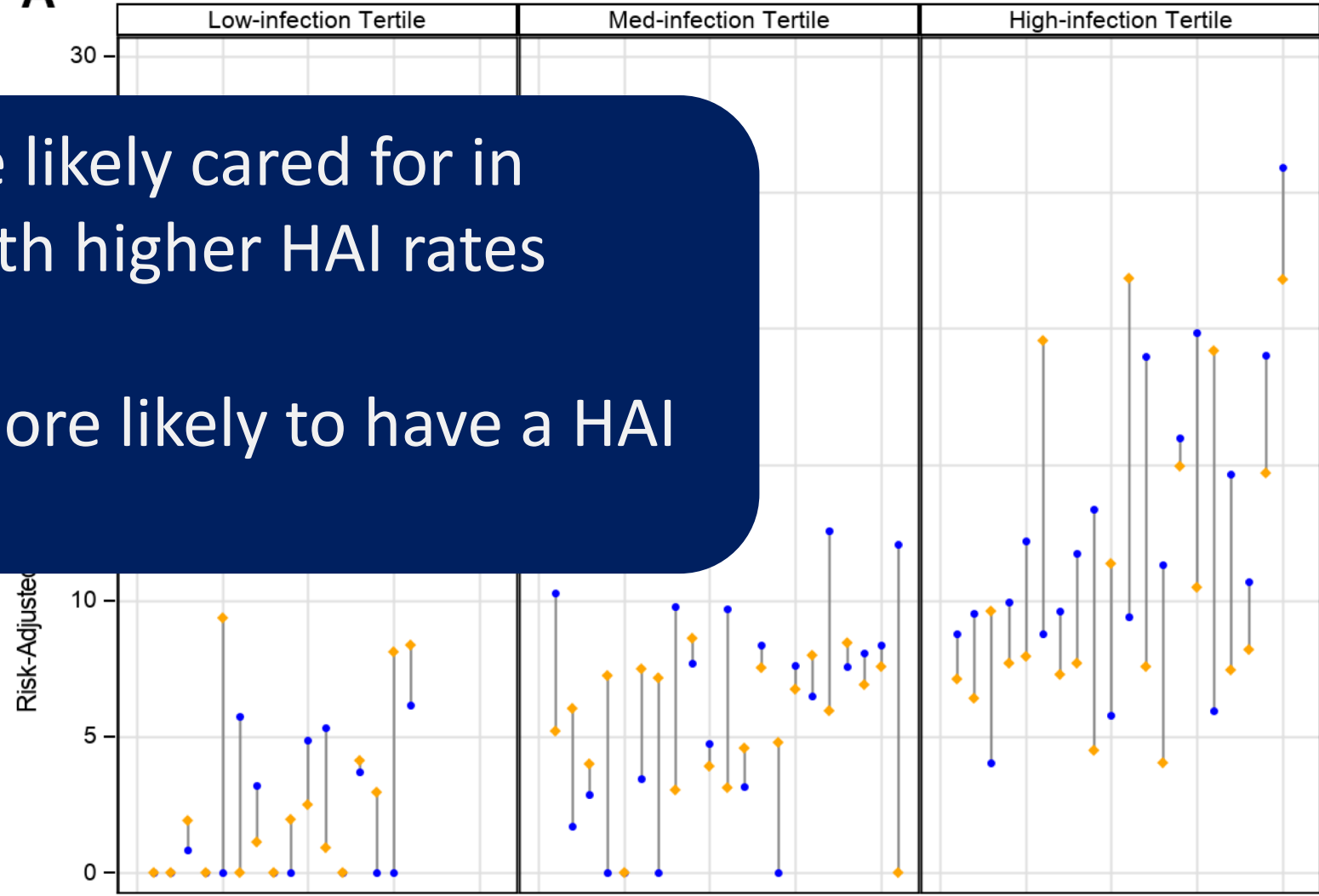
**Keywords**  
→ infant  
→ health care–associated infection  
→ disparity  
→ risk factors

Health care–associated infection (HAI) is a serious complication among very low birth weight (VLBW; <1,500 g) preterm infants hospitalized in the neonatal intensive care unit (NICU), and infection rates in these infants have ranged from 21 to 30%.<sup>1–4</sup> VLBW infants are especially susceptible to HAI. They are immune-incompetent hosts, require prolonged hospitalization, undergo frequent invasive procedures, and receive prolonged broad-spectrum antibiotics and intravenous nutrition.<sup>1,5–7</sup> In addition, infection risk is conveyed by a combination of maternal health and clinical practice-related factors.<sup>1–3,5,6,8–11</sup>

Blacks more likely cared for in hospitals with higher HAI rates

Hispanics more likely to have a HAI

Figure 2A  
● Non-hispanic Black ◆ Non-hispanic White

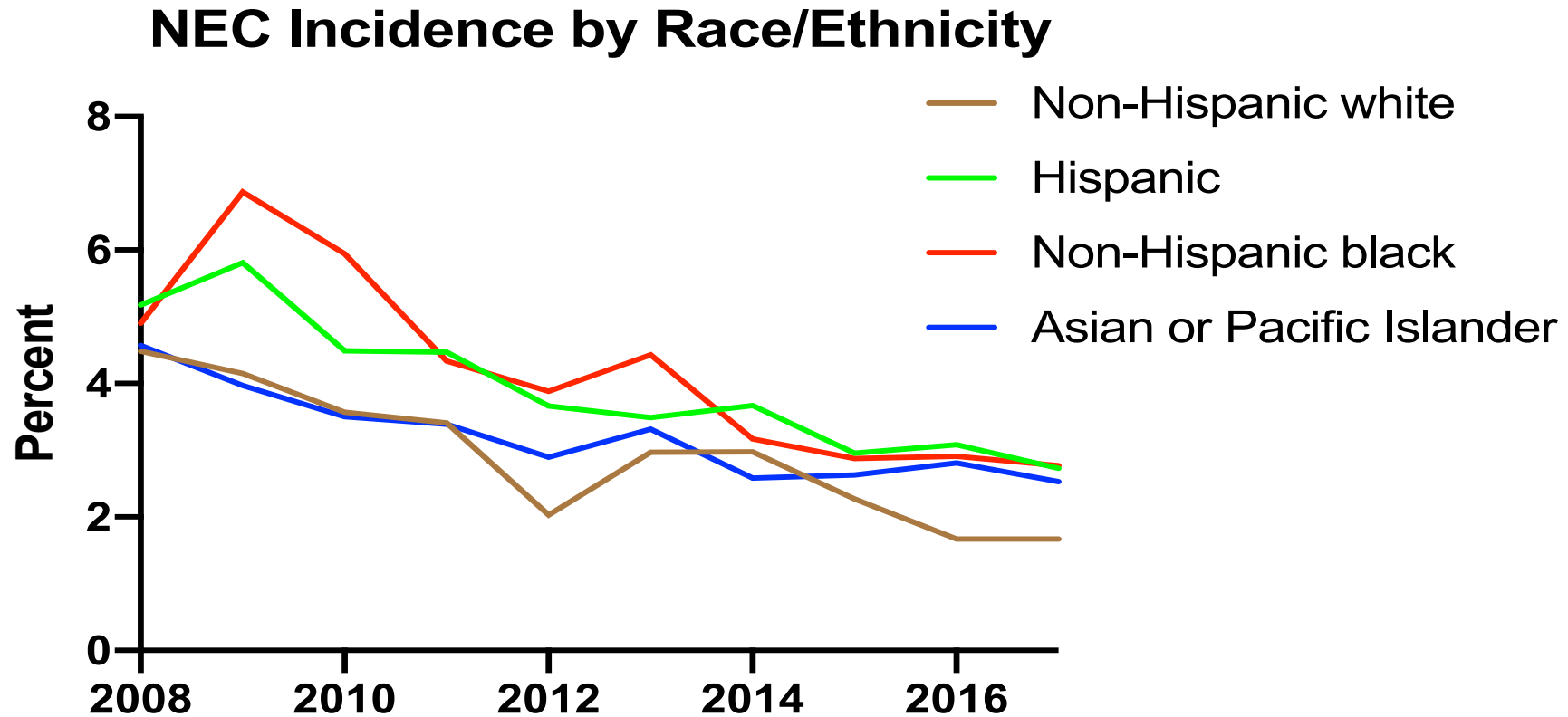


Vulnerable populations may be differentially affected by HAI because they may receive care in challenged hospitals, which provide lower quality of care,<sup>21–23</sup> or differential treatment within hospitals.<sup>24</sup> HAI is more dependent on

<sup>1</sup> At the time of this research, Dr. Sakarovitch was a senior statistician at the quantitative sciences unit.

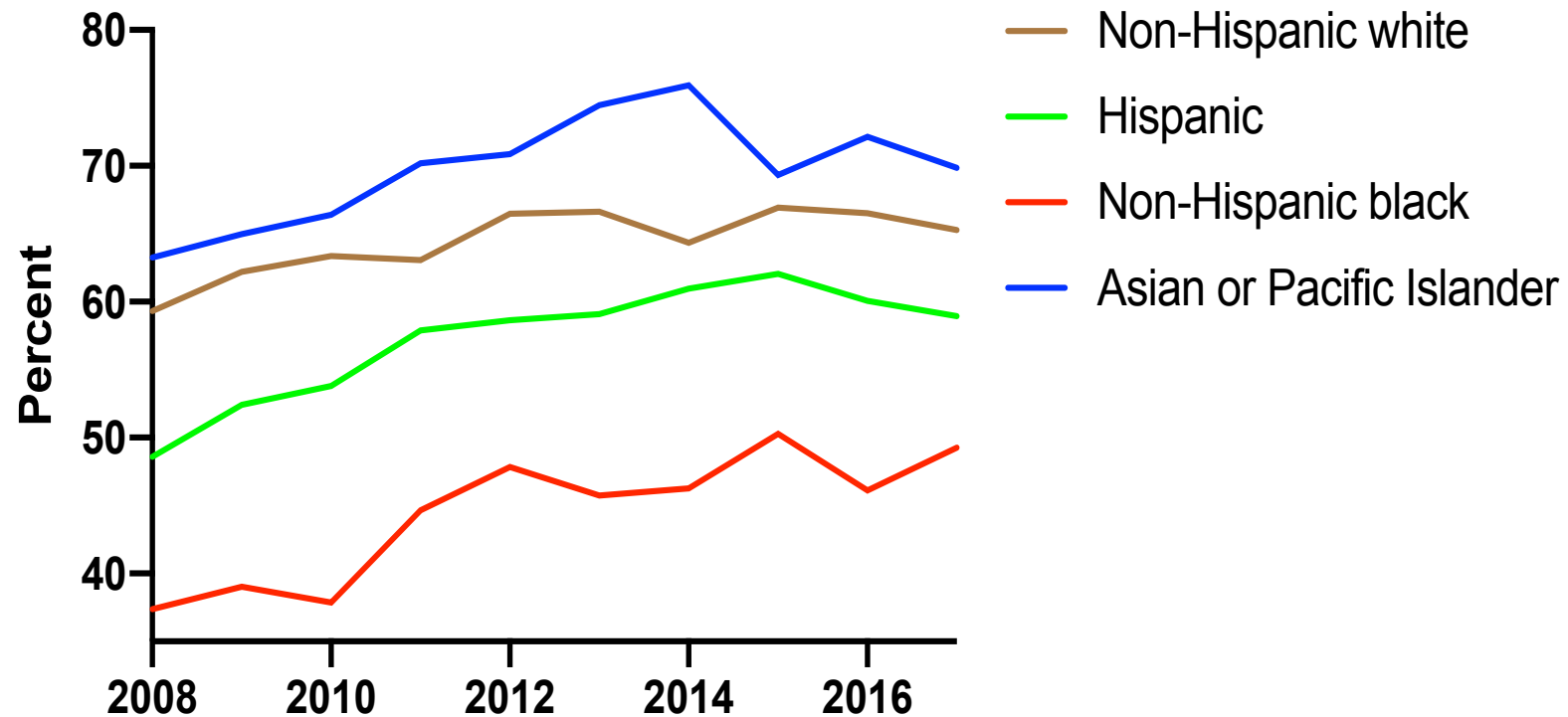
Liu J, Profit J et al. Am J Perinat 2019; Apr 30

# NEC Incidence by Race/Ethnicity in California, 2008-2017



# Breast Milk Use at Discharge by Race/Ethnicity in California, 2008-2017

Breast Milk Use at NICU Discharge by Race/Ethnicity





# Mediation by Breast Milk Between Race/Ethnicity and NEC

	Estimate (95% CI)	P-Value
<b>Black and White</b>		
Total Effect	.007 (-.001 - 0.01)	0.05
Natural Direct Effect	.003 (-.004 - 0.01)	0.36
Natural Indirect Effect	.008 (-.002 - 0.005)	<0.01
Percentage Mediated	51.3 (-6.9 - 109.6)	0.08
<b>Hispanic and White</b>		
Total Effect	.007 (.002 - 0.01)	0.01
Natural Direct Effect	.006 (.001 - 0.01)	0.03
Natural Indirect Effect	.001 (.001 - 0.002)	<0.01
Percentage Mediated	19.3 (3.5 - 35.2)	0.02
<b>API and White</b>		
Total Effect	.006 (-.001 - 0.01)	0.07
Natural Direct Effect	.009 (.002 - 0.02)	0.01
Natural Indirect Effect	-.003 (-.004 - 0.001)	<.01
Percentage Mediated	-39.4 (-87.3 - 8.45)	0.11
<b>Non-White and White</b>		
Total Effect	.008 (.003 - 0.01)	0.03
Natural Direct Effect	.006 (.001 - 0.01)	0.02
Natural Indirect Effect	.002 (.001 - 0.002)	<0.01
Percentage Mediated	20.6 (5.9 - 35.3)	0.01

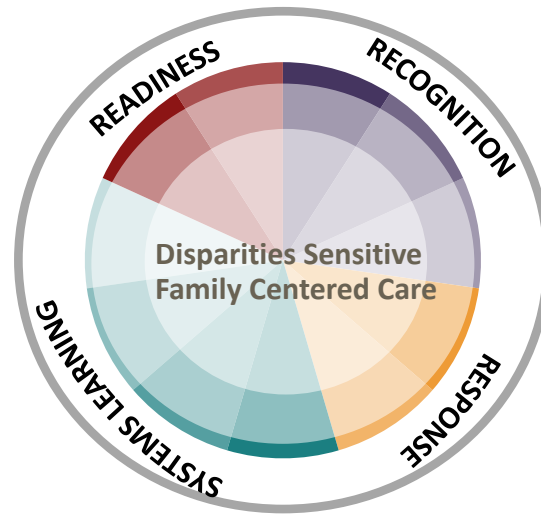
API: Asian or Pacific Islander

Human milk use explained 51% of the difference in NEC rates between black and white infants.

19% between Hispanics and whites

Goldstein G, Profit J, et al.  
Peds Res, under review

# Health Equity- Solutions



Family Centered Care  
Tip Sheet

Change Ideas

EHR- Derived Measures  
of Family Centered Care

# Family Centered Care is Critical to Long-term Outcomes

NICU

TRANSITION AND FOLLOW THROUGH



HIGH QUALITY CLINICAL CARE



FAMILY ENGAGEMENT AND INVOLVEMENT IN CARE

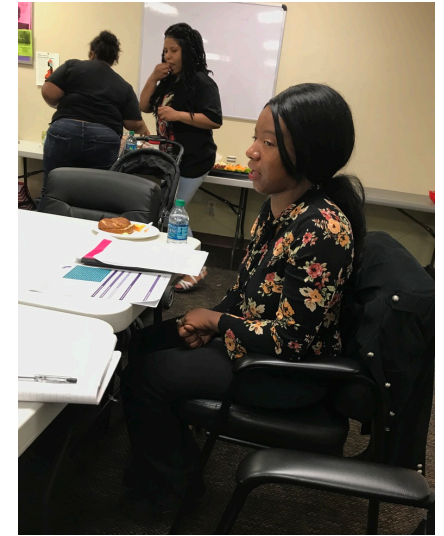


INTEGRATION OF THE INFANT INTO THE FAMILY UNIT

Gaps in family centered care contribute to variation in care and outcomes. Minority families are particularly vulnerable.

# Selecting Measures

- \* EXPERT PANEL WITH FAMILY REPRESENTATIVES.  
FOCUS GROUPS AND INTERVIEWS WITH VULNERABLE FAMILIES
- \* DELPHI METHOD  
STRUCTURED METHOD TO SEEK PANEL INPUT  
TWO ROUNDS OF RATING  
MEASURES RATED ON: IMPORTANCE; SCIENTIFIC ACCEPTABILITY; FEASIBILITY AND USABILITY  
SELECTION CRITERIA:
  - MEDIAN RATING  $\geq 7$  ON A SCALE OF 1 (low)-9(high)
  - PASS THE TEST FOR AGREEMENT (80% of the ratings were within the range: 7-9)
  - PASS THE TEST FOR DISAGREEMENT (90% of the ratings were within the range 4-9)
- \* OVERALL GOAL  
Develop a balanced scorecard of measures across multiple domains that serve as an efficient signal for family-centeredness of a NICU.



# Results

## ENGAGING FAMILIES AS PARTNERS

- Family presence at the bedside
- Family not present at the bedside
- **NICU family advisory council (✓)**

## PROVIDING SERVICES AND SUPPORTS

- NICU social worker availability
- Time to social worker contact
- **Delayed social worker encounter (✓)**
- Frequency of social worker contact

## FAMILY PARTICIPATION IN HANDS-ON CARE

- **Days to first skin-to-skin care (✓)**
- Frequency of skin-to-skin care
- Days to skin-to-skin by two family members

## COMMUNICATING WITH FAMILIES

- **Frequency of updates to families by MD/NNP/RN (✓)**
- Frequency of updates to families with limited English proficiency by MD/NNP/RN
- Provision of interpreter services

## SUPPORT FOR BREASTFEEDING

- NICU lactation consultant availability
- Time to first lactation consult
- **Time to priming with oral colostrum (✓)**

## CARE COORDINATION

- Post-discharge care coordination\*
- Continuity of care by RN\*
- Continuity of care by MD\*

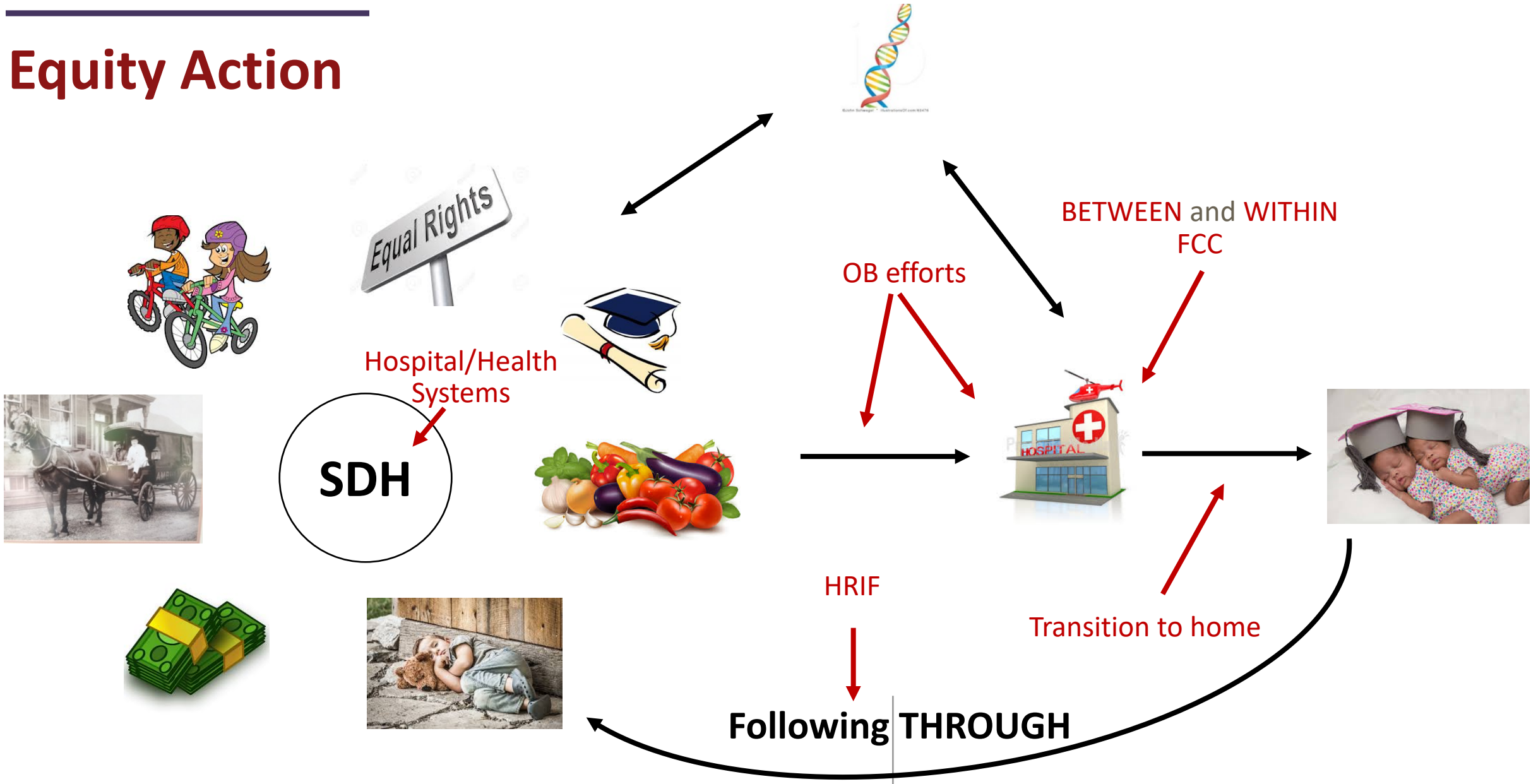
\* Care coordination measures to be subjected to additional research- Not selected at this time

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## Next Steps and Future Directions

- \* Refining measure specifications in collaboration with CPQCC data abstractors
- \* Pilot testing measures
- \* Incorporating measures into CPQCC reports
- \* Dissemination of measures for broader use. Collaboration with American Academy of Pediatrics

# Equity Action





**Introducing  
NICU Baby  
MONITOR**

**By CPQCC**



Join us for our first annual  
**IMPROVEMENT PALOOZA**  
A deep dive into the exciting world of quality improvement

Are you wondering how to start an improvement project in your unit? Curious about how the culture of your NICU influences the quality of care?

Text

*Join us for CPQCC's first Improvement Palooza, held in conjunction with the 2020 CAN Cool Topics in Neonatology Meeting!*

**March 6, 2020 || 8am – 4pm || Coronado Island Marriott Resort & Spa**

Designed to help NICU teams supercharge their quality improvement journeys, Improvement Palooza is a can't miss event.

*For more information visit [www.cpqcc.org/improvement-palooza-2020](http://www.cpqcc.org/improvement-palooza-2020)*

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[profit@stanford.edu](mailto:profit@stanford.edu)

**@ProfitJochen**

**@CPQCC**



“OF ALL THE  
FORMS OF INEQUALITY,  
INJUSTICE IN HEALTH  
CARE IS THE  
MOST SHOCKING AND  
INHUMANE.”

- Dr. Martin Luther King, Jr.