



## COMMON CAUSES OF DEATH (MORTALITY) AND DIS-EASE (MORBIDITY) IN THE NEWBORN

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# Leading Causes of Infant Mortality

- Born Too Small or Too Soon\*
- Birth Defects
- Sudden Infant Death Syndrome
- Maternal Disease
  
- Globally: Birth Asphyxia, Infection
  
- \*United Nations 2014: Leading cause of death in infants < 5

# Global Impact

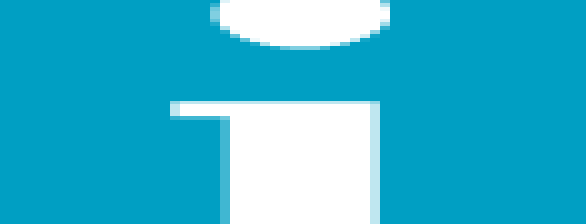
- Almost 8 million births (6% of total births worldwide) are affected by a serious birth defect every year
- Every year: 3.3 million die at < 5 years
- Every year: 3 million are disabled for life
- Upto 70% maybe preventable
- 90% occur in low-mid income countries

<http://www.marchofdimes.com/MOD-Report-PF.pdf>

# Leading 5 causes birth defects\* worldwide

- Congenital Heart Disease
- Neural tube Disorders
- Hemoglobin Disorders
- Down Syndrome
- G6PD deficiency

\* The presence of abnormality in Structure OR Function, Present at Birth

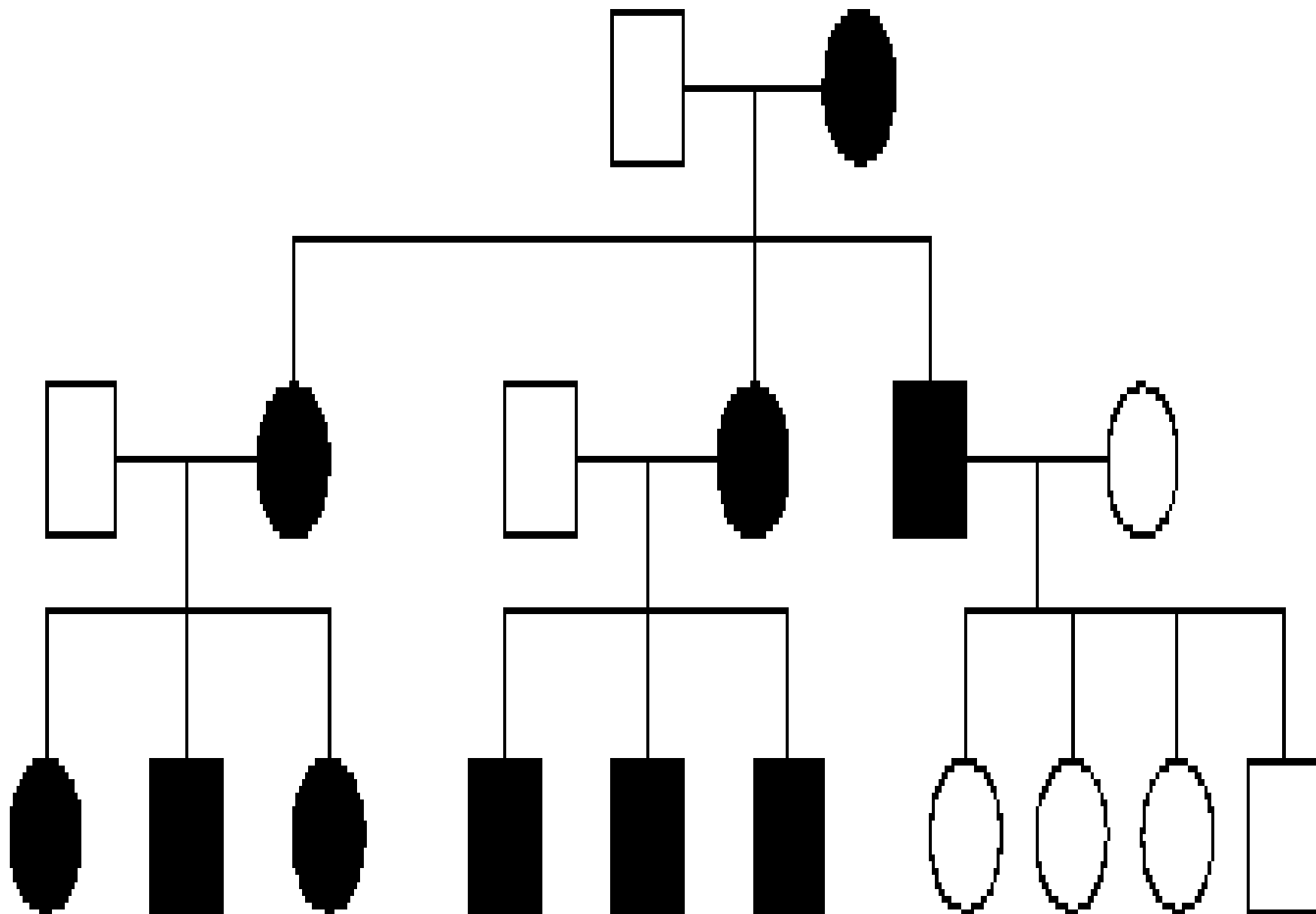


**Institute *for*  
Healthcare  
Improvement**



## IHI Triple Aim Initiative

Better Care for Individuals, Better Health  
for Populations, and Lower Per Capita Costs







# Other Important Causes Globally

- Recessive Disorders\* eg. Cystic Fibrosis
  - Infections eg. TORCHES
  - Malnutrition-related eg. Folate Deficiency
  - Teratogens eg. Fetal Alcohol Syndrome
- 
- \*The importance of consanguinity, homogenous populations and endemic Infectious Disease

*Thank you to ALL of our Teams ...*



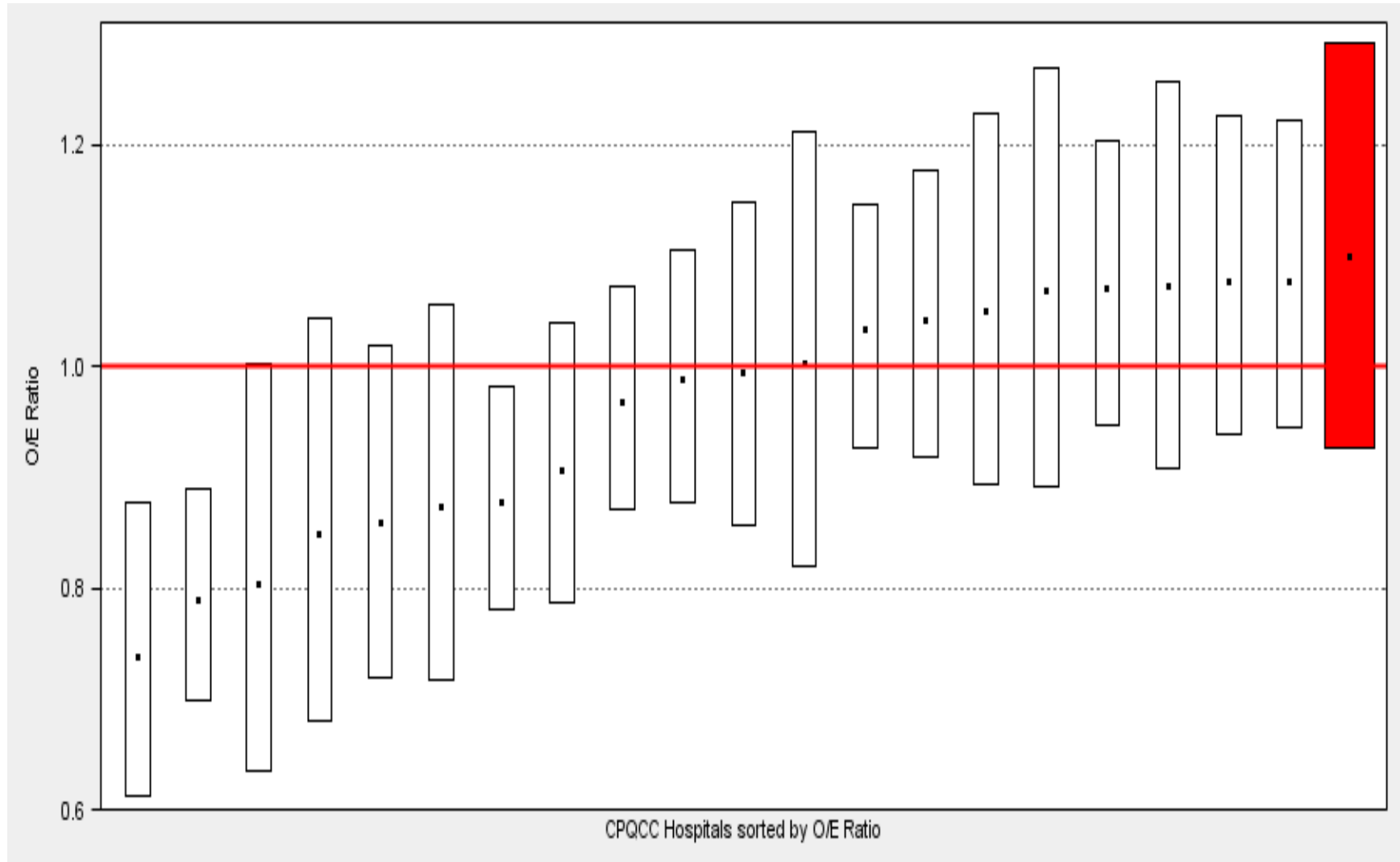
- *The very first requirement in a hospital is that it should do the sick no harm*



## 23 Regional NICUs (AAP Level IV) in California (for 2011-2013 cumulative data)

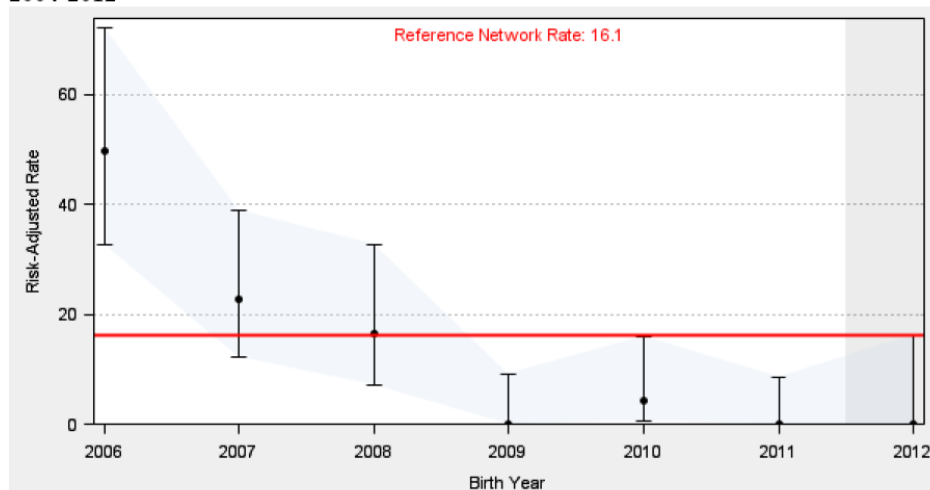
- 5 Children's Hospitals without Inborn Babies:  
Rady CHSD, CHLA, CHOC, CHORI, Madera
- 18 other regional NICUs with Inborn:  
Stanford-LPCH, MCH (Long Beach) the 5 UC  
Medical Centers, Cedars-Sinai, CPMC, Sutter  
Memorial, Loma Linda, LAC-USC, 3 Kaisers,  
Harbor-UCLA, and SCVMC-San Jose

# Antenatal Steroids (ANS) in < 1500g Inborn & Outborn in 21 CA Regional Centers (2010-12) **SCVMC 98% ANS (N=151)**

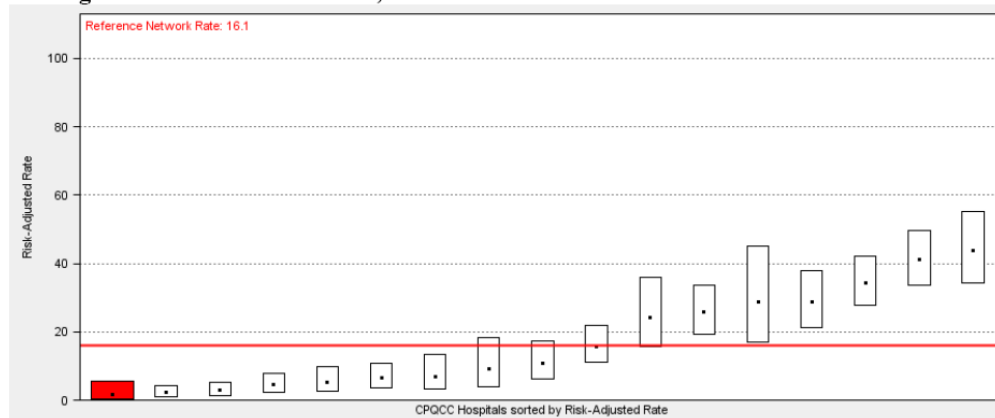


# Elimination of Admission Hypothermia in Preterm Very Low Birth Weight Infants by Standardizing Delivery Room Management

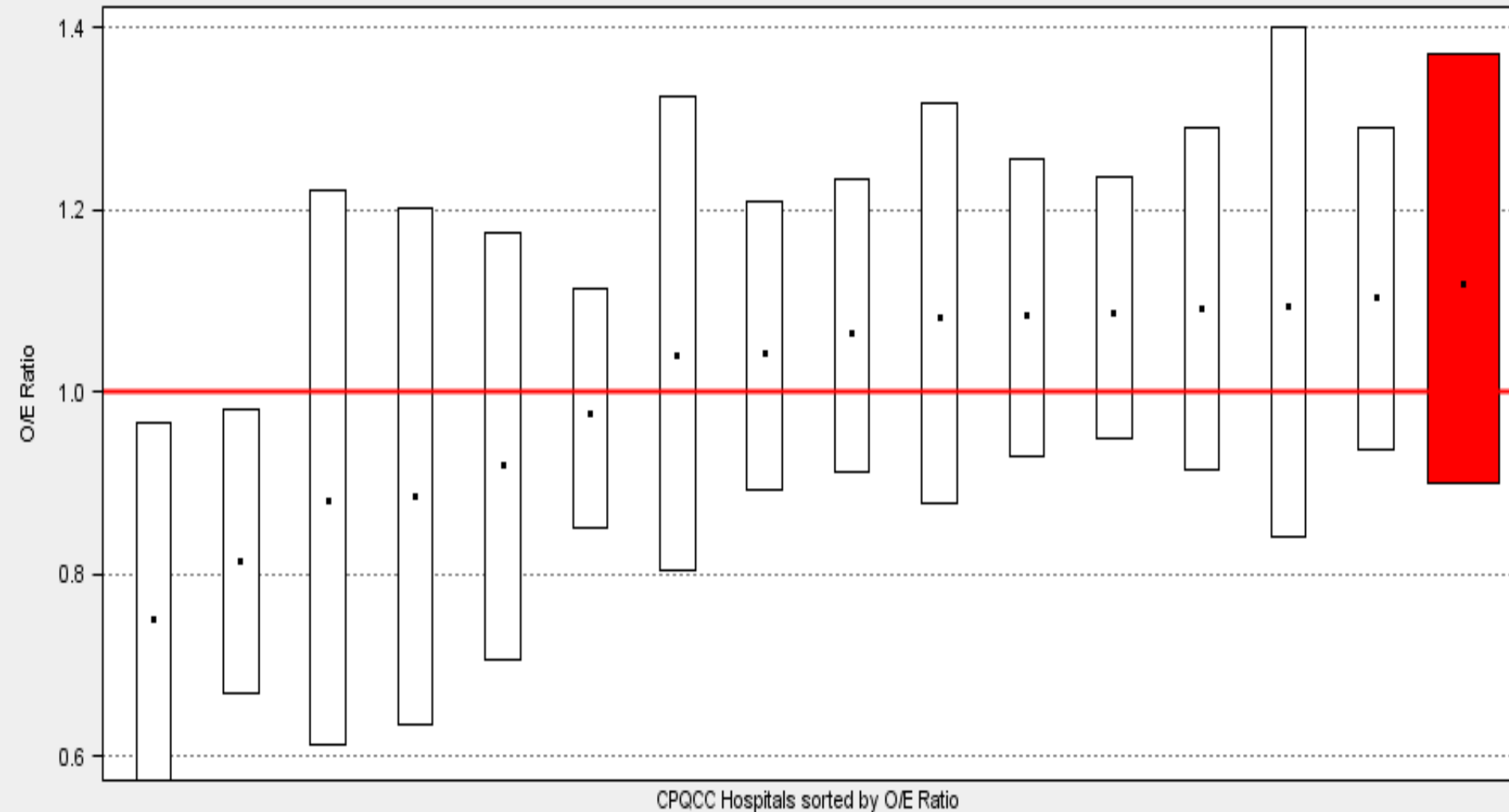
**Figure 2A. Center Risk-Adjusted Hypothermia Rates for Inborns, Trend Chart, 2004-2012**



**Figure 2B. Center, Inborn, Risk-Adjusted Hypothermia Rates Comparison Chart for Regional NICUs in California, 2009-2011**



Survival without major morbidities (2010-2012)  
in **Inborn < 1500g** at 16 Regional Centers (**N=137**)  
**SCVMC > 67%** (v 59% Reference Network)

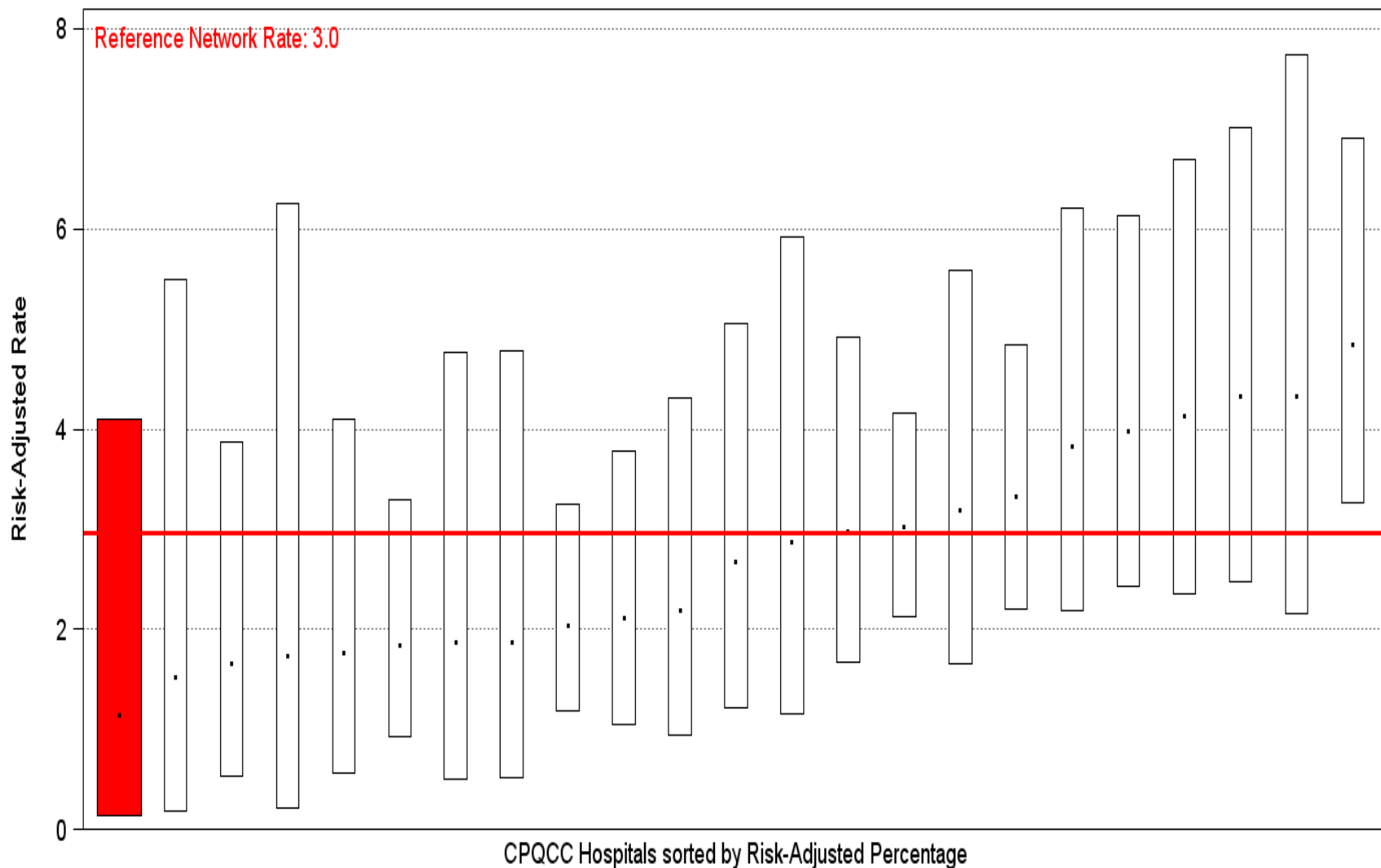


# Human Connectome

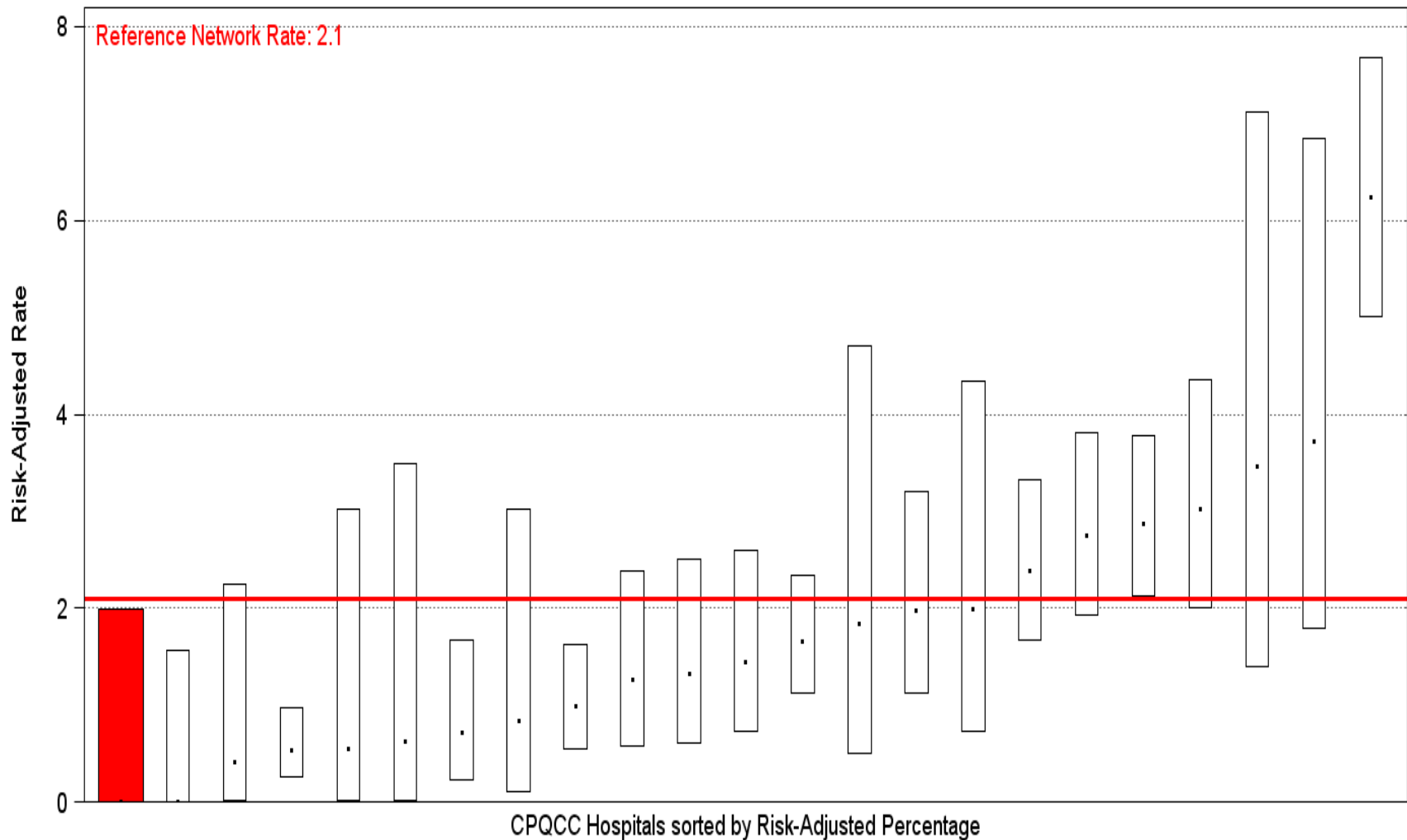




**Risk-Adjusted Rates for Focal Intestinal Perforation by Birth Year**  
**Infants 401 to 1,500 grams or 22 to 29 weeks of Gestation born between 1/1/2011 and 12/31/2013**  
**California Perinatal Quality Care Collaborative (CPQCC)**  
**Center Risk-Adjusted Rates Comparison Chart for Regional NICUs, 2011-2013**  
**Santa Clara Valley Medical Center (SCVMC) N=145**



**Risk-Adjusted Rates for Discharged Home on Oxygen by Birth Year**  
**Infants over 1,500 grams Discharged Home from Center born between 1/1/2011 and 12/31/2013**  
**California Perinatal Quality Care Collaborative (CPQCC)**  
**Center Risk-Adjusted Rates Comparison Chart for Regional NICUs, 2011-2013**  
**Santa Clara Valley Medical Center (SCVMC) N=143 (Zero for 5 years 2009-14)**



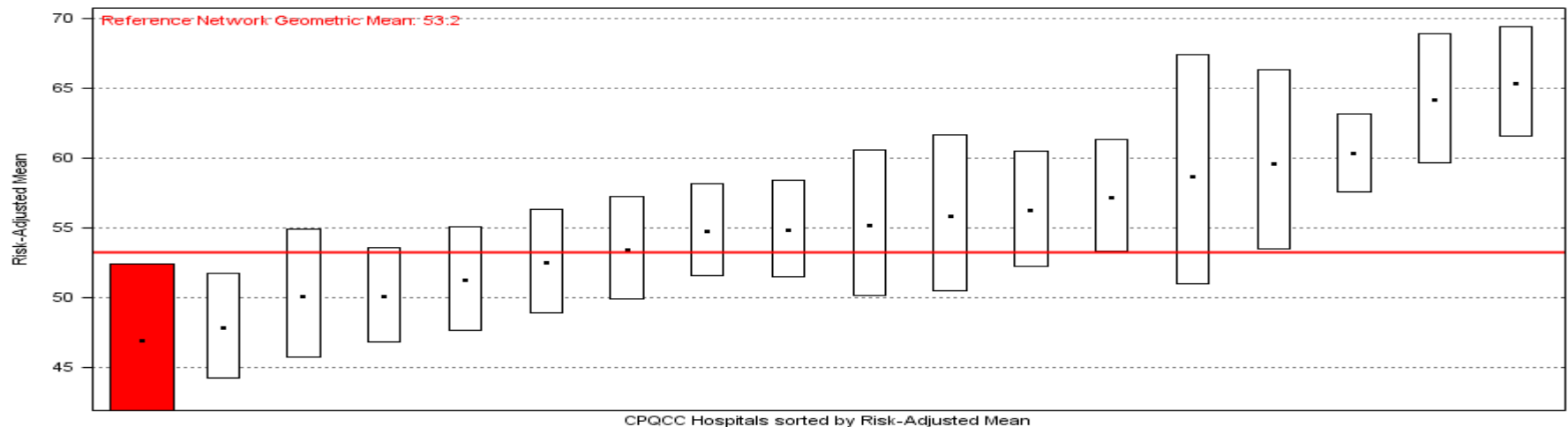
# Length of Stay (LOS) at VMC NICU 2008-2013

## Babies < 1500g birth weight and <32weeks

	Number of babies	Median LOS (days)	Mean LOS (days)
2008-2010	135	53.9	64.8
2011-2013	134	48.8	57.9
Reduction		5.1	6.9

### Risk Adjusted Median LOS for (Inborns only) at 18 Regional CA NICUs, 2011-13

SCVMC NICU = red bar

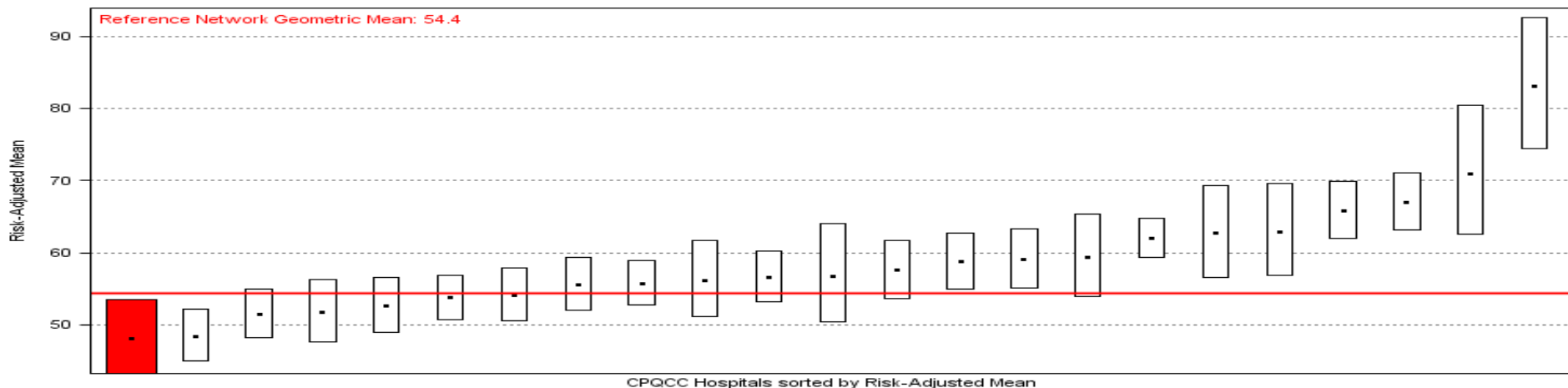


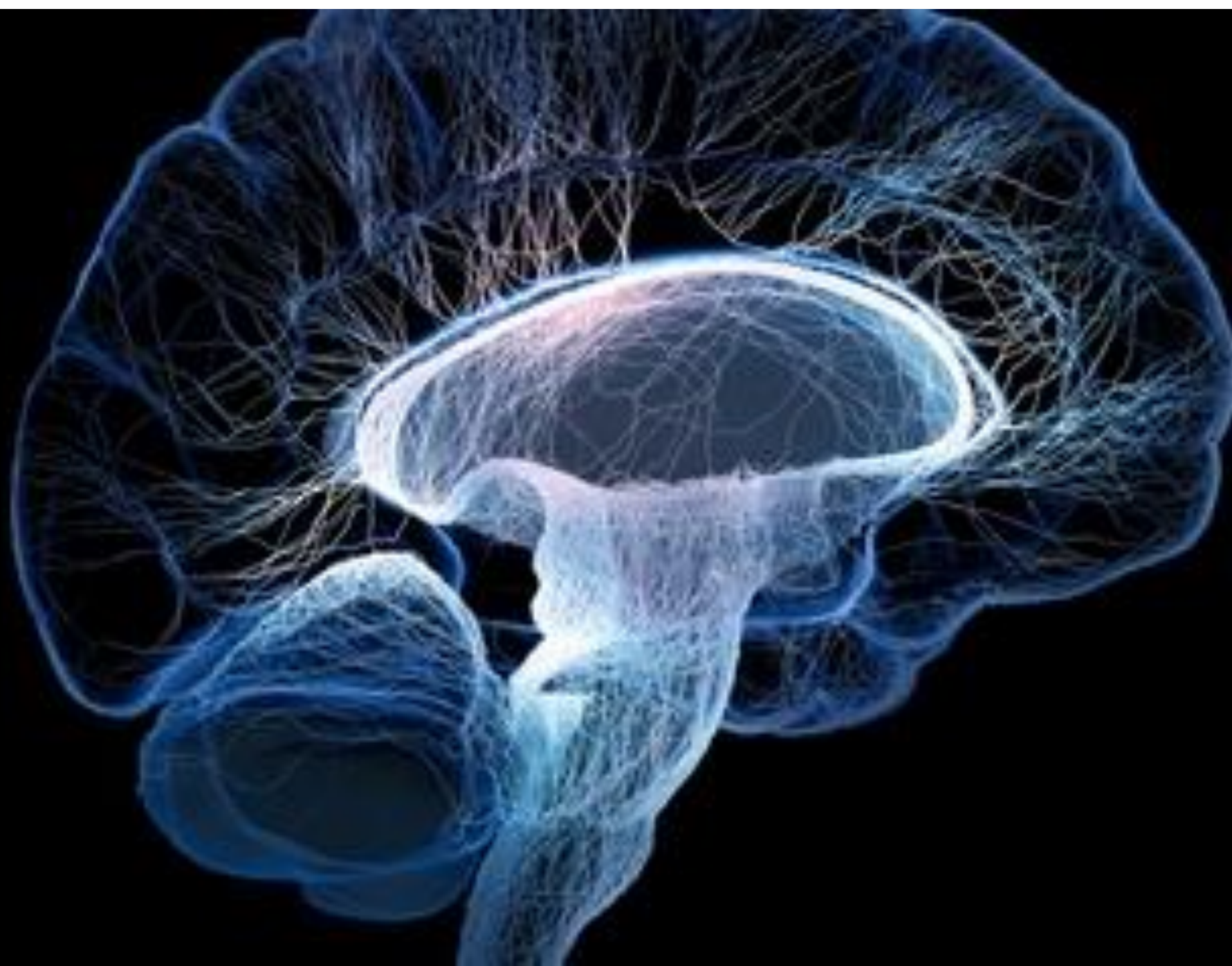
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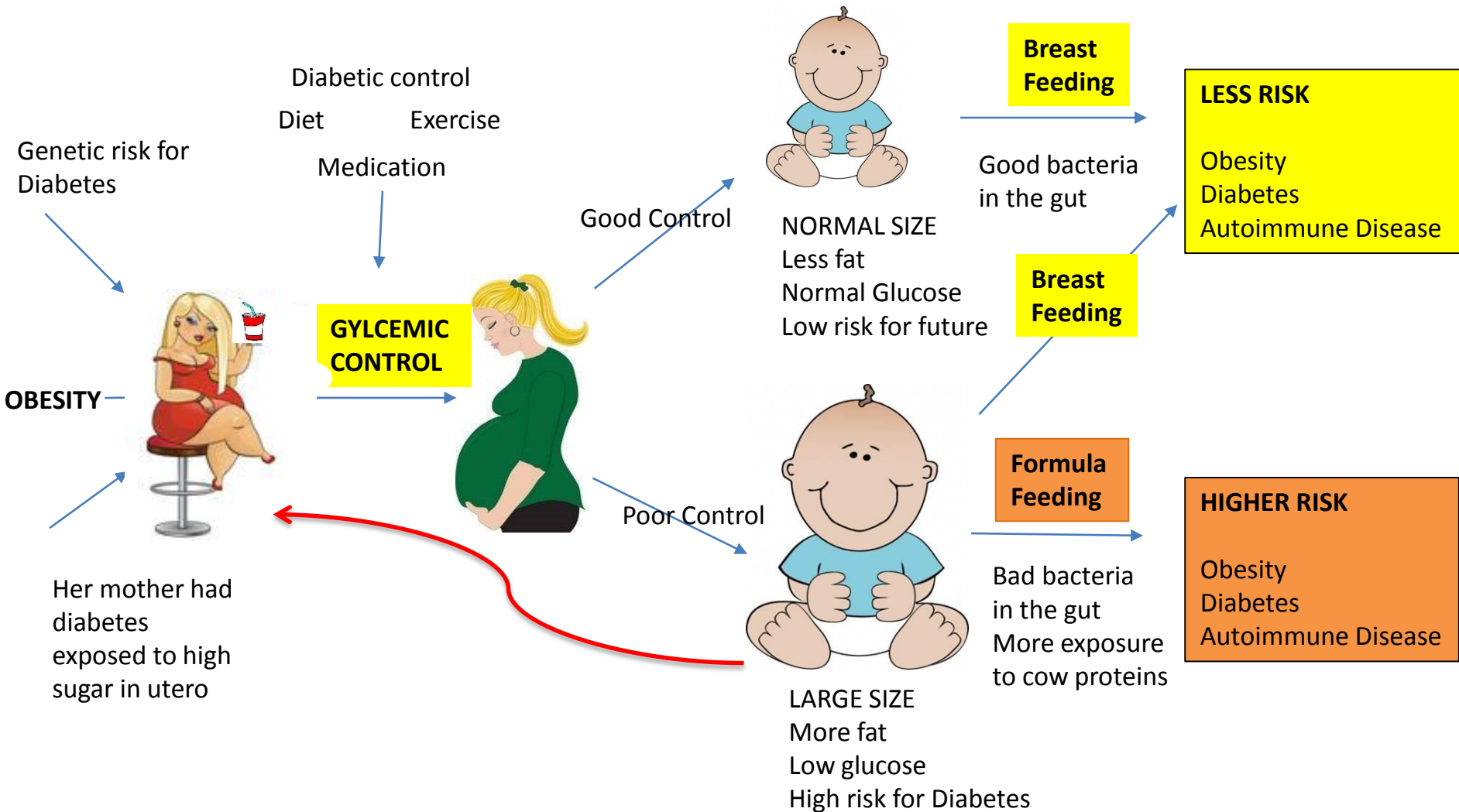
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### Risk Adjusted Median LOS for 23 Regional CA NICUs, 2011-13 Median NICU Days at Home Discharge (SCVMC NICU, red bar, N=134)





# Impact of Maternal Diabetes and Breast Feeding on the Health of Future Generation



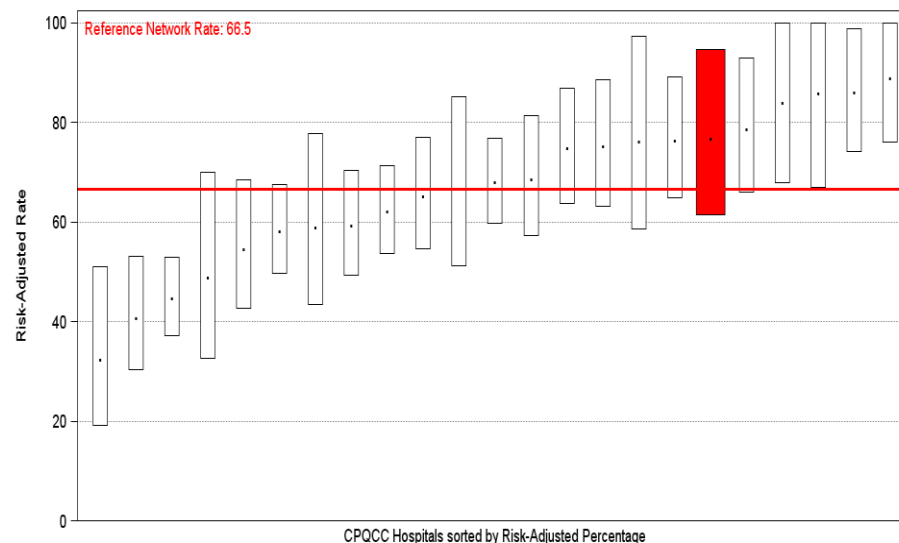
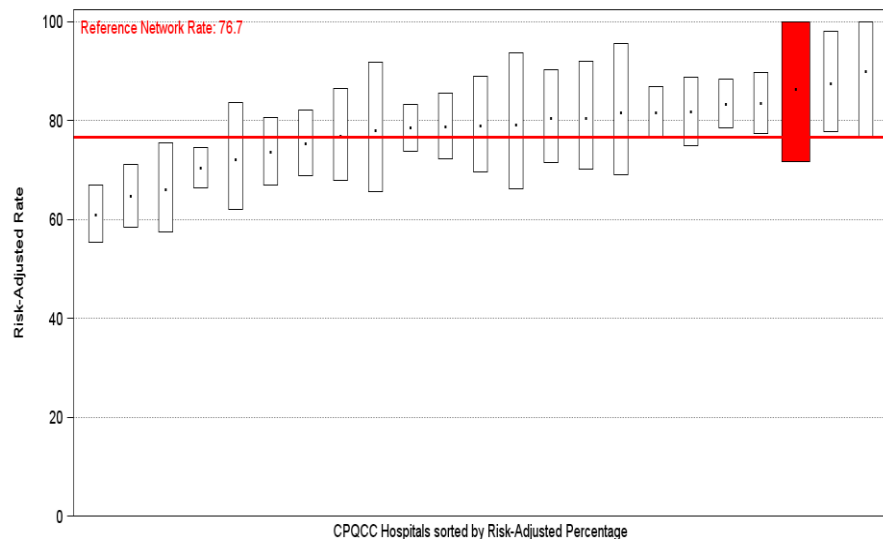
# Benefits of breastfeeding for infants

## Decreased risk of

- Type 1 diabetes
- Type 2 diabetes
- Obesity
- SIDS
- Asthma
- GI infections
- Ear infections
- Leukemia



# Risk-Adjusted Rates for Human Milk Nutrition at Discharge From SCVMC NICU (1/1/2011 - 12/31/2013)



**Infants over 1,500 grams**

**California Perinatal Quality Care  
Collaborative (CPQCC) Center Risk-Adjusted  
Rates Comparison Chart for Regional NICUs**

**SCVMC N=143**

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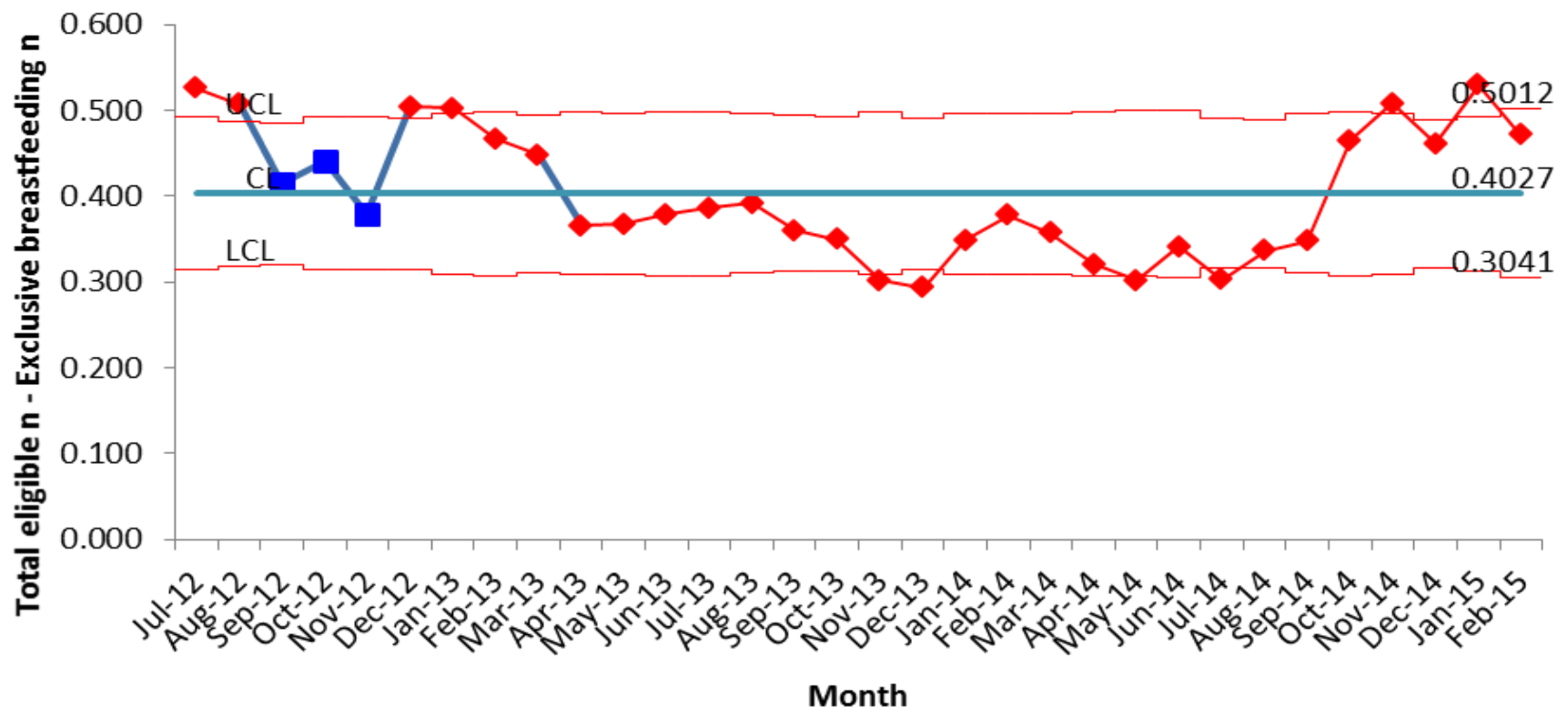
**SCVMC N=119**



# Improve breastfeeding rates at SCVMC

Multidisciplinary BF Team at VMC to monitor and improve breastfeeding in well babies

## Exclusive breastfeeding n



*Thank you !*

