FPQC
Florida Perinatal Quality Collaborative

Background & Significance of Cesareans

William M. Sappenfield, MD, MPH, CPH

Partnering to Improve Health Care Quality
for Mothers and Babies

Begin with a Test:

You are about to give birth. Pregnancy has gone smoothly. The birth seems as if it will, too. It's one baby, in the right position, full term, and you've never had a cesarean section — in other words, you're at low risk for complications.

What's likely to be the biggest influence on whether you will have a C-section?

(A) Your personal wishes.

(B) Your choice of hospital.

(C) Your baby's weight.

(D) Your baby's heart rate in labor.

(E) The progress of your labor.

Rosenberg T, NYT, Jan 19 2016

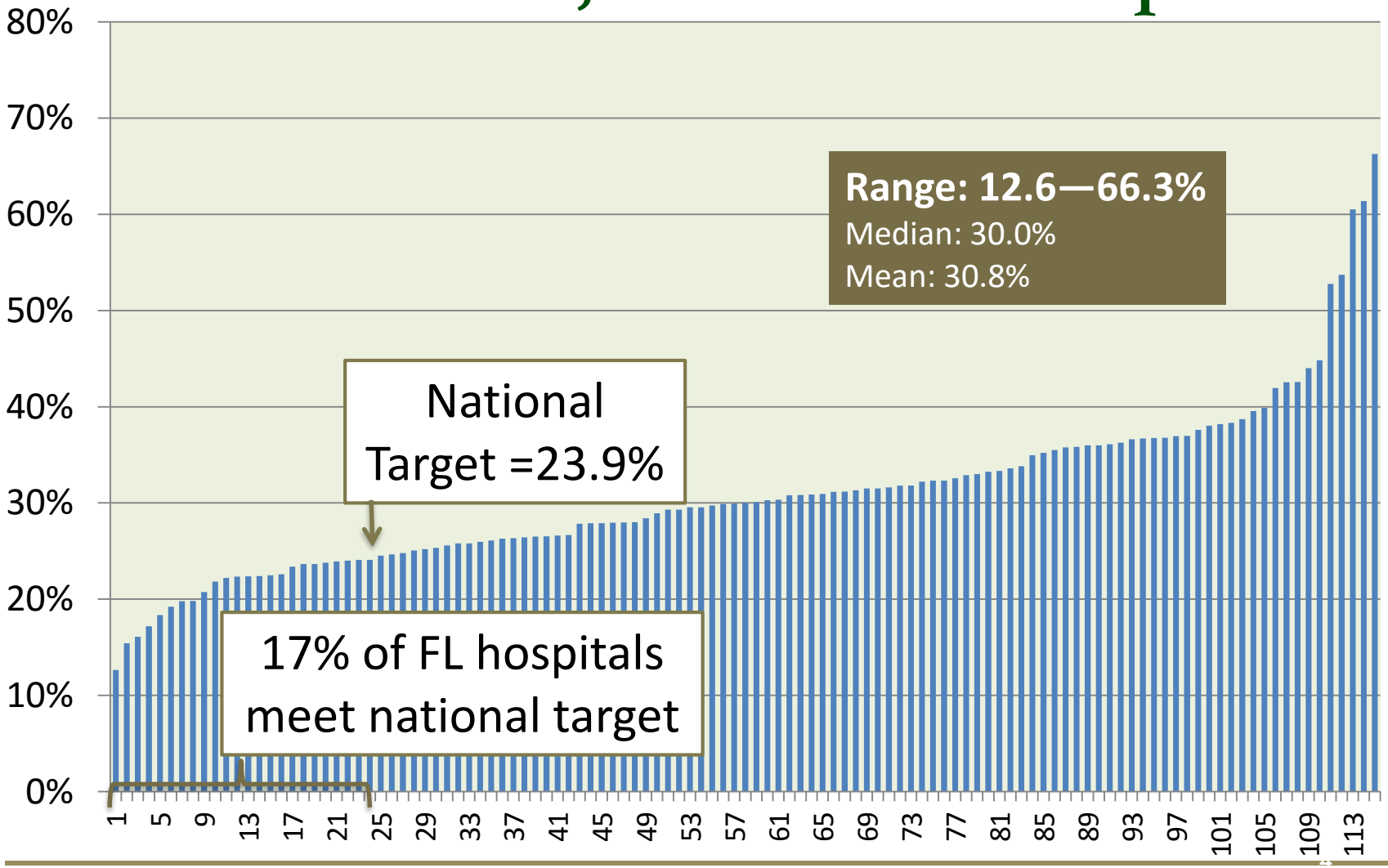
Cesarean Rates, U.S. States
Range 22.8% to 39.7%

Fig. 2. U.S. total cesarean delivery rates by state, 2010. (Data from Martin JA, Hamilton BE, Ventura SJ, Osterman MJ, Mathews TJ. Births: final data for 2011. Natl Vital Stat Rep 2013;62(2):1–90.)

Safe prevention of the primary cesarean delivery. Obstetric Care Consensus No. 1. American College of Obstetricians and Gynecologists. Obstet Gynecol 2014;123:693–711.

Low-Risk First-Birth (Nulliparous Term Singleton Vertex)

Cesarean Rate, 115 Florida Hospitals



Source: FL Vital Records, 2016

PROVIDE
Why Promote Primary Vaginal Birth?

- "There are no data that higher rates improve any outcomes, yet the C-section rates continue to rise." *The Joint Commission*
- At 60% of all U.S. cesarean deliveries, primary cesareans are a major contributor to total cesarean delivery rates over the past two decades.

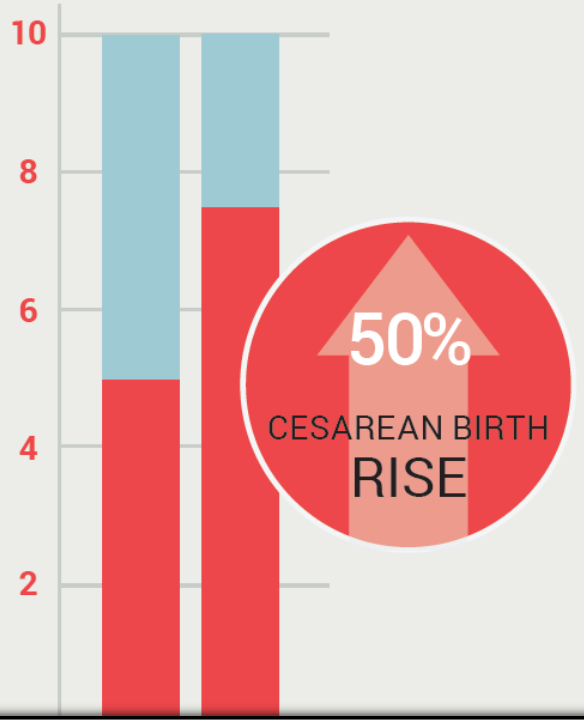
Importance of the First Birth

If a woman has a Cesarean birth in the first labor, over 90% of ALL subsequent births will be Cesarean births

If a woman has a vaginal birth in the first labor, over 90% of ALL subsequent births will be vaginal births

Cesarean birth is the most common hospital surgery in the U.S.

In just 10 years, Cesarean birth rates rose by 50% in both California and the United States.



By Katy Backes Kozhimannil, Michael R. Law, and Beth A. Virnig

Cesarean Delivery Rates Vary Tenfold Among US Hospitals; Reducing Variation May Address Quality And Cost Issues

DOI: 10.1377/hlthaff.2012.1030
HEALTH AFFAIRS 32,
NO. 3 (2013): 527–535

ABSTRACT **Cesarean delivery is the most commonly performed surgical procedure in the United States, and cesarean rates are increasing. Working with 2009 data from 593 US hospitals nationwide, we found that cesarean rates varied tenfold across hospitals, from 7.1 percent to 69.9 percent. Even for women with lower-risk pregnancies, in which more limited variation might be expected, cesarean rates varied fifteenfold, from 2.4 percent to 36.5 percent. Thus, vast differences in practice patterns are likely to be driving the costly overuse of cesarean delivery in many US hospitals. Because Medicaid pays for nearly half of US births, government efforts to decrease variation are warranted. We focus on four promising directions for reducing these variations, including better coordinating maternity care, collecting and measuring more data, tying Medicaid payment to quality improvement, and enhancing patient-centered decision making through public reporting.**

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Physician Experience

- My C/S rate is the same as everyone else in the hospital
- I know what ACOG (other professional organizations) recommend
  - But they don't practice here, we are different here
  - Patient risks, distance from the hospital, high liability
- My patients are: "high risk", "want a C/S"
  - "I do what they want"
- There is no down-side to higher C/S rates

Most State C-Section Rates Too High

Thirty states and the District of Columbia have C-section rates for first-time mothers with low-risk deliveries that are above the national target of 23.9 percent or lower.

Source: Consumer Reports' analysis of data from The Leapfrog Group and the California Maternal Quality Care Collaborative. No Vermont hospital-reported data.

Why Nulliparous Term Singleton Vertex Cesarean Birth?

Why does the Toolkit Focus on NTSV Cesarean Rate?

- Nulliparity is a critical risk adjuster. Creates a standardized population.
- NTSV represents the most favorable conditions for vaginal birth, but also the most difficult labor management
- The NTSV population is the largest contributor to the recent rise in cesarean rates
- The NTSV population exhibits the greatest variation for all sub-populations of cesarean births for both hospitals and providers

Indications for Primary Cesarean

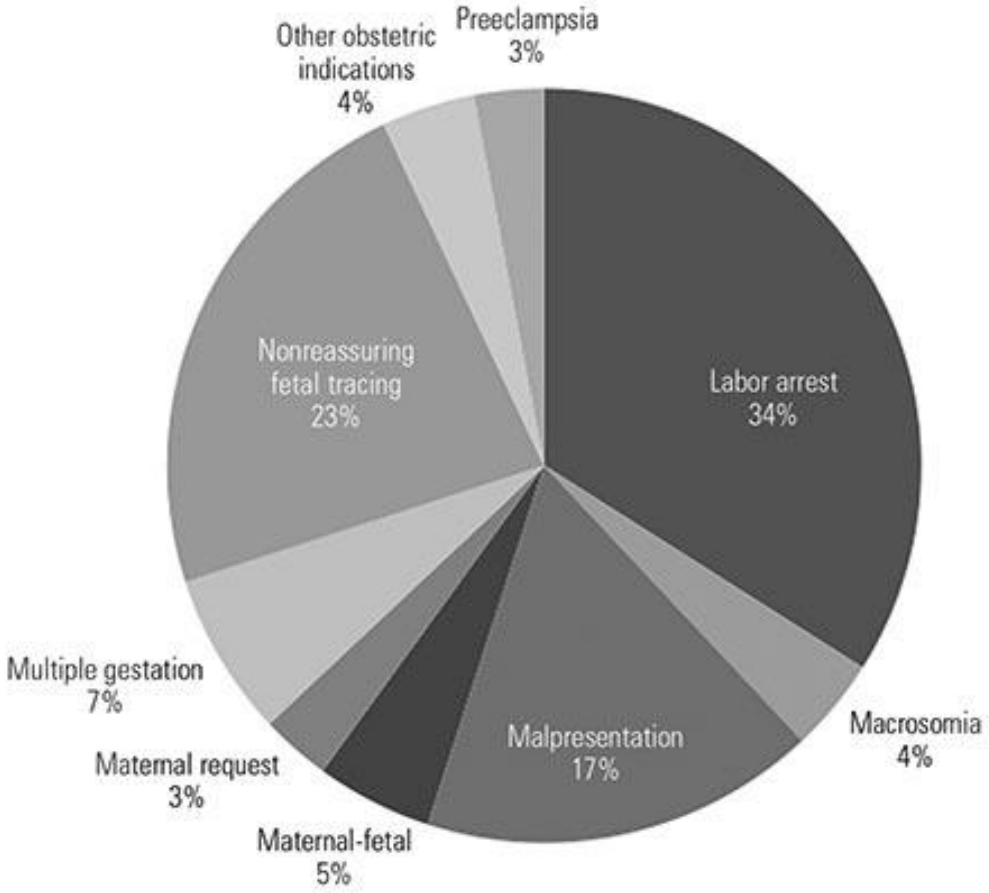


Fig. 3. Indications for primary cesarean delivery. (Data from Barber EL, Lundsberg LS, Belanger K, Pettker CM, Funai EF, Illuzzi JL. Indications contributing to the increasing cesarean delivery rate. Obstet Gynecol 2011;118:29–38.)

Safe prevention of the primary cesarean delivery. Obstetric Care Consensus No. 1. American College of Obstetricians and Gynecologists. Obstet Gynecol 2014;123:693–711.

What Indications Have Driven the **RISE** in CS?

Cesarean Indication	Percent of the Increase in Primary Cesarean Rate Attributable to this Indication	
	Yale (2003 v. 2009) (Total: 26% to 36.5%) Focus: <u>all</u> primary Cesareans	**Kaiser SoCal (1991 v. 2008) (Primary: 12.5% to 20%)** Focus: all primary <u>*singleton*</u> Cesareans
Labor progress complications (CPD/FTP)	**28%**	**~38%**
Fetal Intolerance of Labor	**32%**	**~24%**
Breech/Malpresentation	<1%	<1%
Multiple Gestation	16%	Not available
Various Obstetric and Medical Conditions (Placenta Abnormalities, Hypertension, Herpes, etc.)	6%	20% (Did not separate preeclampsia from other complications)
Preeclampsia	10%	
"Elective" (variously defined)	8% (Scheduled without "medical indication")	18% (Those "without a charted indication")

60%!

What Indications Drive the **VARIATION** in CS?

CS Indication	Proportion of Overall CS Rate	Proportion of Primary CS Rate	CS Rate for this Indication
Repeat (prior)	30-35%	---	90+%
"Abnormal Labor" (CPD/FTP)	25-30%	35-45%	Highly variable
Fetal Intolerance of labor	10-15%	15-20%	Highly variable
Breech/Transverse	10%	15-20%	98%
Multiple Gestation	5-9%	10-15%	60-80%
Other: Placenta Previa, Herpes, etc	~5%	~10%	90%

60%!

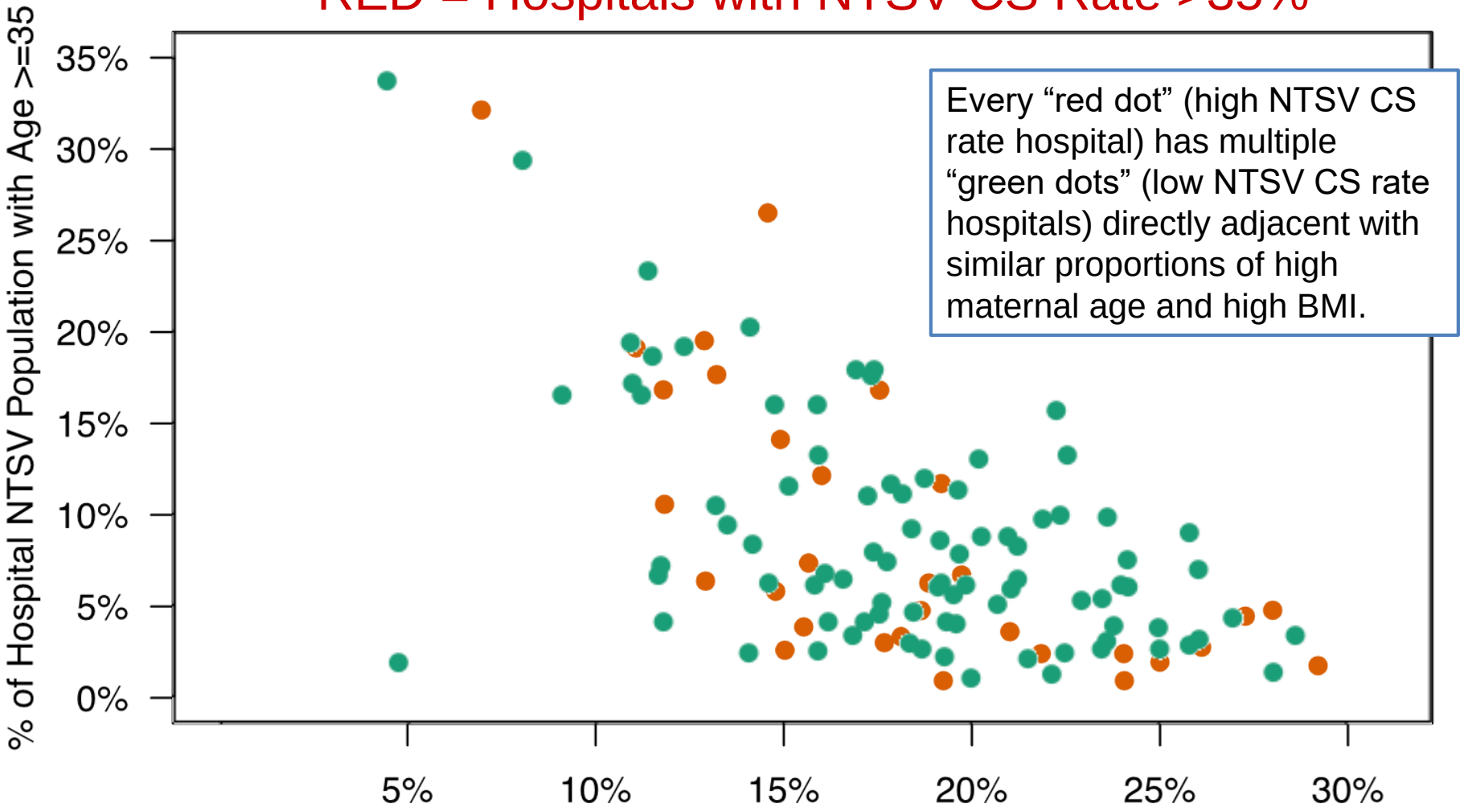
“But My Patients are Higher Risk…”

- NTSV CS measure is already risk stratified
- The only race that impacts is African-American
- Age and BMI clearly impact an individual’s CS risk
- Formal risk-adjustment analysis using both age and BMI shows that over 2/3 hospitals realize less than 2% change
- Age and BMI effects may be provider dependent (more patience for obese women’s labor)

Effects of Maternal Age and BMI on Hospital NTSV CS Rates:

Green = Hospitals with NTSV CS Rate <25%

RED = Hospitals with NTSV CS Rate >35%



Every “red dot” (high NTSV CS rate hospital) has multiple “green dots” (low NTSV CS rate hospitals) directly adjacent with similar proportions of high maternal age and high BMI.

CMCQQ data presented at PCOGS 2014

Why should we care?

- Relentless rise in total CS rate without maternal or neonatal benefit
  - 6% in early 70's
  - 20% in mid 80's
  - 33% in 2010
  - Cerebral Palsy rates, neonatal seizure rates unchanged since 1980

Why Focus on Cesarean Birth for Quality Improvement?

US 2013 overall
CS= 32.7%

CA 2013 overall
CS= 33.1%

Osterman M etal, NVSR vol 63, num 6, Nov 2014

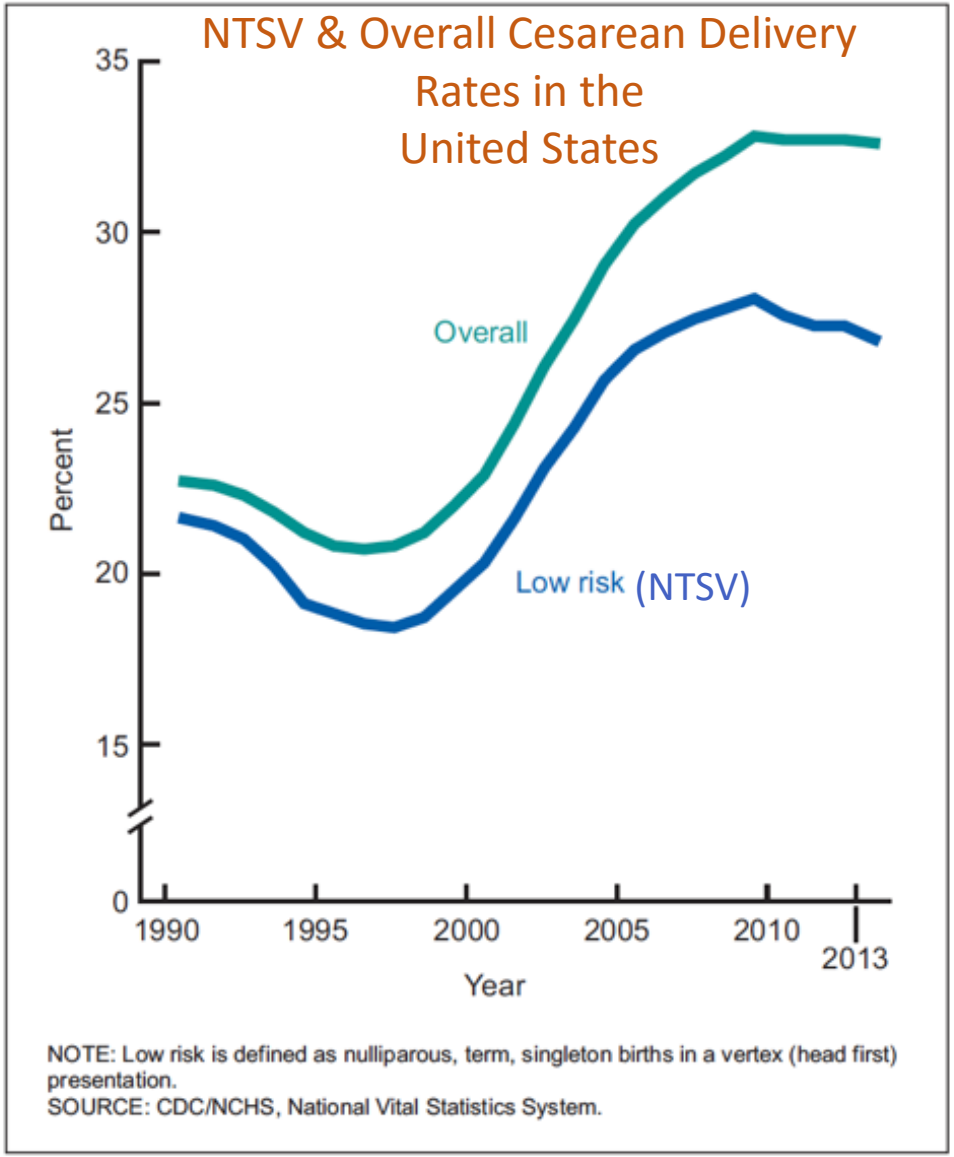
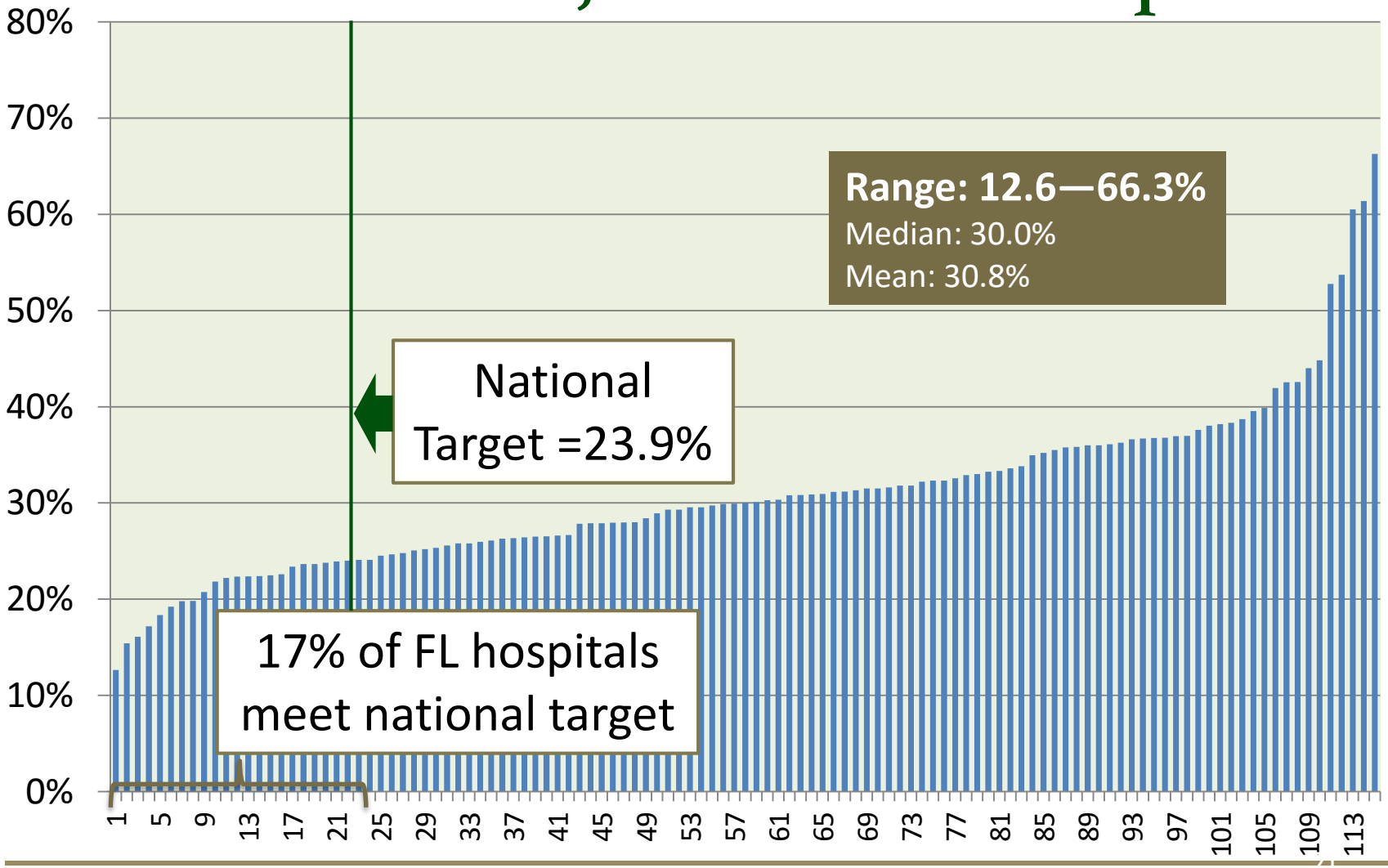


Figure 1. Overall cesarean delivery and low-risk cesarean delivery: United States, final 1990–2012 and preliminary 2013

"Large variation in individual provider rates exists even within single facilities. These within-group variations indicate that the risk level or "type" of patient is not driving the high rates of NTSV cesarean within certain facilities, nor is maternal request. Various cultural and clinical components are at play, including variations in practice style and clinical decision making" (Smith et al 2016)

Low-Risk First-Birth (Nulliparous Term Singleton Vertex)

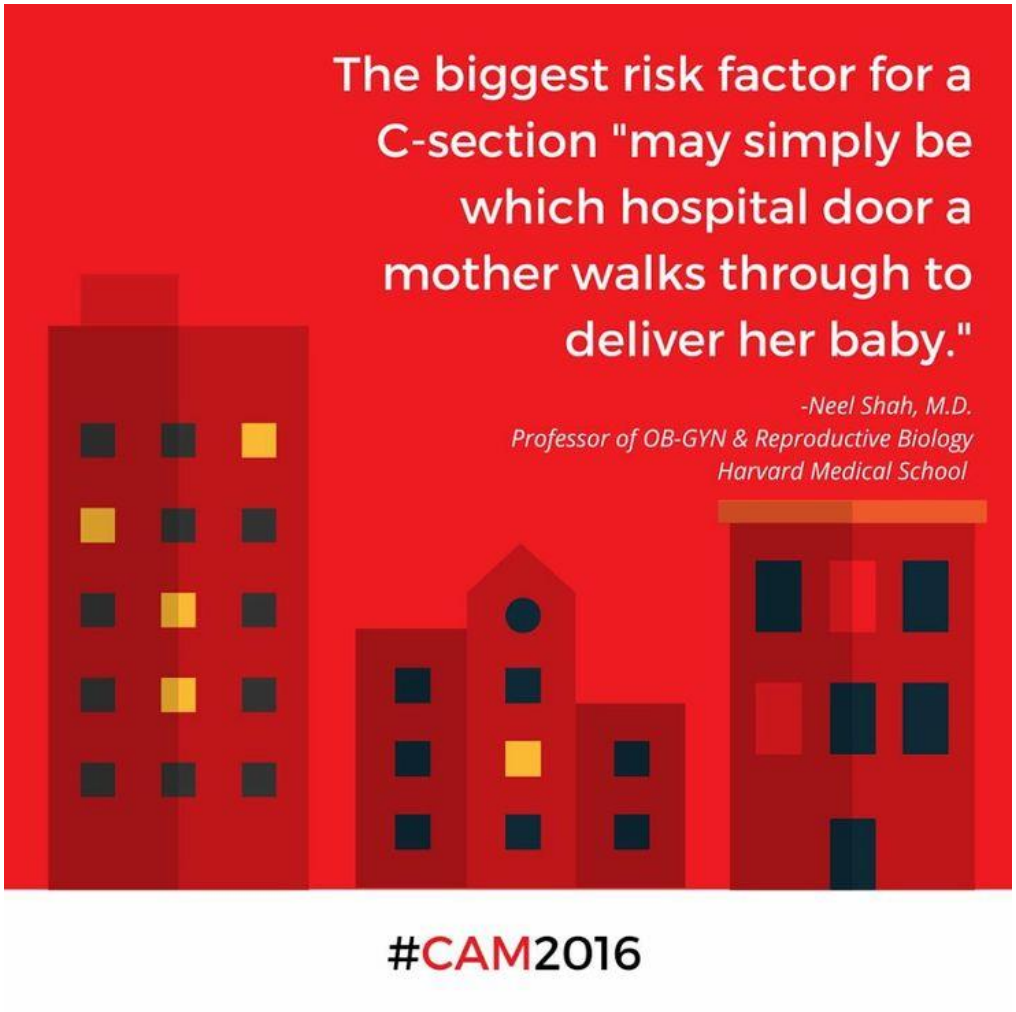
Cesarean Rate, 115 Florida Hospitals



Source: FL Vital Records, 2016

The Florida Context

- NTSV cesareans drive the increasing cesarean rate because most subsequent births are by cesarean due to limited chance for vaginal delivery after cesarean.
- Variation in Florida hospital cesarean rates presents an opportunity for quality improvement.
- Variation also suggests other factors, including clinical practice patterns and patient preferences, may be affecting these rates.


The biggest risk factor for a C-section "may simply be which hospital door a mother walks through to deliver her baby."
-Neel Shah, M.D.
Professor of OB-GYN & Reproductive Biology
Harvard Medical School
#CAM2016


Do you know your hospital's rate of cesarean?
19%
15%
35%
?
32%
10%
22%
It matters!
Lamaze for Parents

Cesarean: Maternal Risks

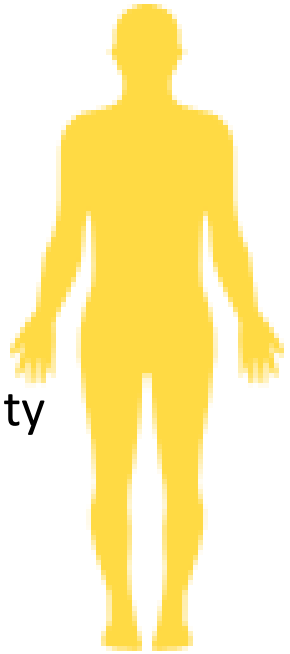
Acute

Common:

- Longer hospital stay
- Increased pain and fatigue
- Postpartum hemorrhage (transfusions ~2%)
- Slower return to normal activity and productivity
- Delayed or difficult breastfeeding

1/100 to 1/1000

- Anesthesia complications
- Wound infection
- Deep vein thrombosis



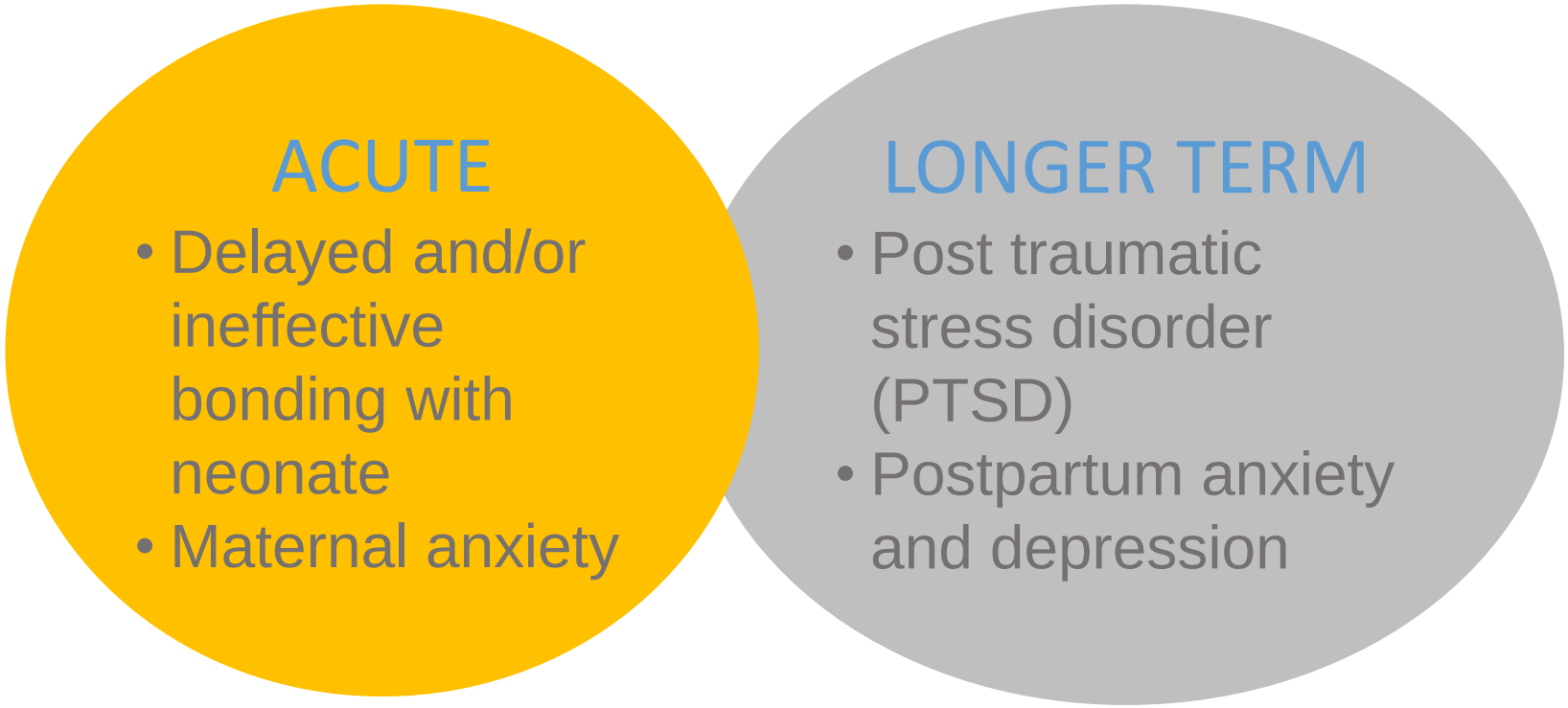
Long Term & Subsequent Births

1/100 to 1/1000

- Abnormal placentation (previas and accretas)
- Uterine rupture
- Surgical adhesions
- Bladder surgical injury
- Bowel surgical injury
- Bowel obstruction

We perform over 160,000 Cesareans every year in California

Maternal Psychological Risks



Cesarean: Neonatal Risks

- Increased neonatal morbidity
  - Impaired neonatal respiratory function
  - Increased NICU admissions
  - Affects maternal-newborn interactions including breastfeeding
- Unrealized benefits
  - Cerebral Palsy rates, neonatal seizure rates unchanged since 1980

Financial Cost

Florida's cesarean delivery costs about $4,000 more. Florida could save more than $8,000,000 a year if NTSV cesarean rates decreased 3% in participating FPQC hospitals.

Cesarean costs $5,000 to $10,000 more than a vaginal birth

	Total	Vaginal Childbirth	Cesarean Childbirth
Commercial			
Provider Charges	$24,921	$22,734	$32,062
Allowed Paid Amount	$13,494	$12,520	$16,673
Medicaid			
Provider Charges	$24,227	$21,247	$31,259
Allowed Paid Amount	$6,673	$6,117	$7,983

TRUVEN HEALTH ANALYTICS MARKETSCAN® STUDY

Childbirth Connection
Catalyst for Payment Reform
Center for Healthcare Quality and Payment Reform

PROVIDE Goals

- The Advisory Group proposes the PROVIDE initiative hospitals reduce their NTSV cesarean rates at least 20% over the 18-month initiative.
- The ultimate goal is for Florida's rate to match if not surpass the U.S. rate in three years.

Summary of Issues

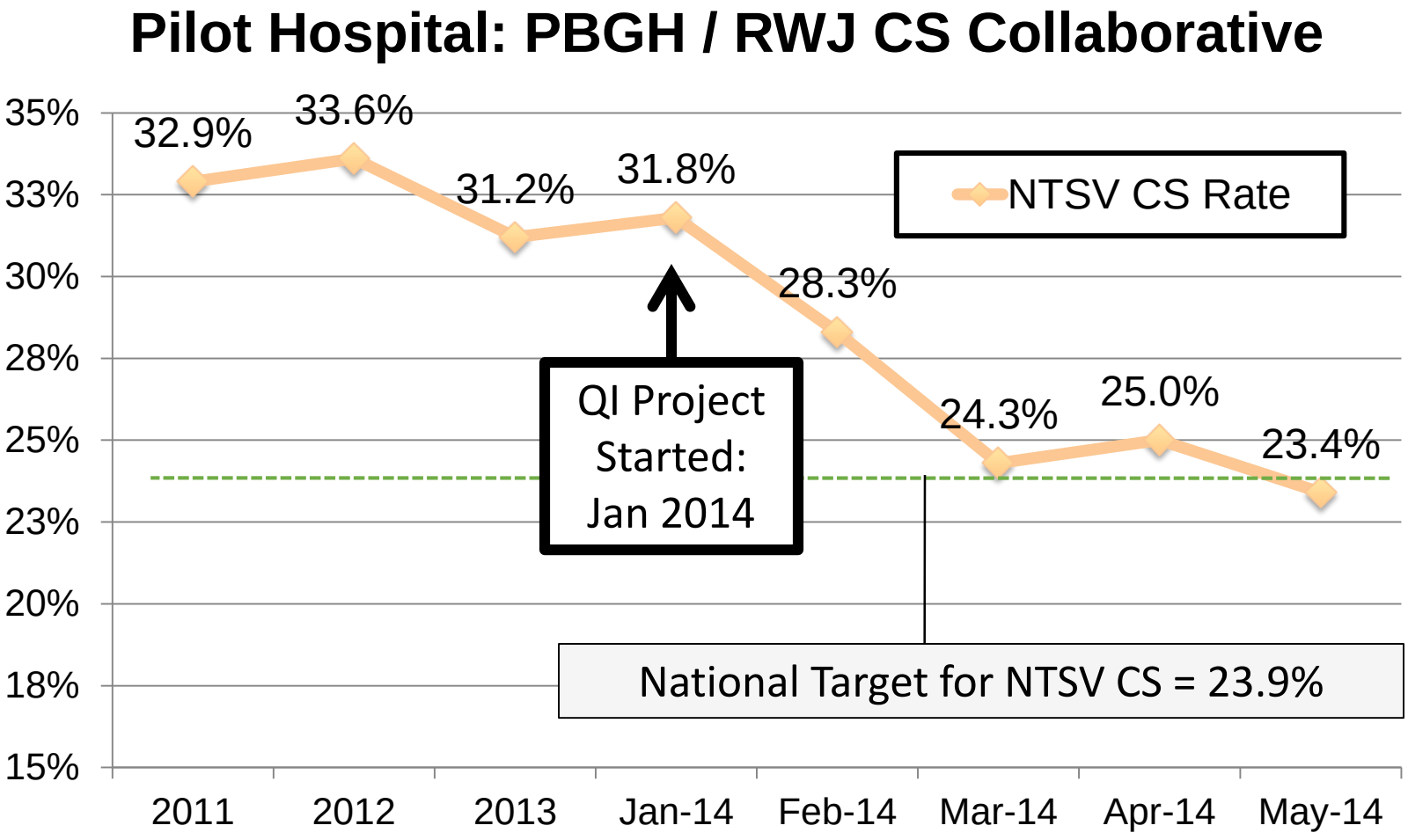
- Extreme variation among hospitals
- Rapid rise of rates without neonatal or maternal benefits (indeed can have complications)
- Significant consequences for future pregnancies

But, Cesarean births can also be life-saving and they have an absolute role in Obstetrics—making the message to patients: "They shouldn't be taken lightly"

Impressive Results: within 6 months

HOSPITAL 1	HOSPITAL 2	HOSPITAL 3
24.2 % Reduction	22.1% Reduction	19.5% Reduction
Baseline – 32.6% After QI – 24.7%	Baseline – 31.2 After QI – 24.3%	Baseline – 27.2% After QI – 21.9%

CMQCC Data-Driven QI: NTSV CS



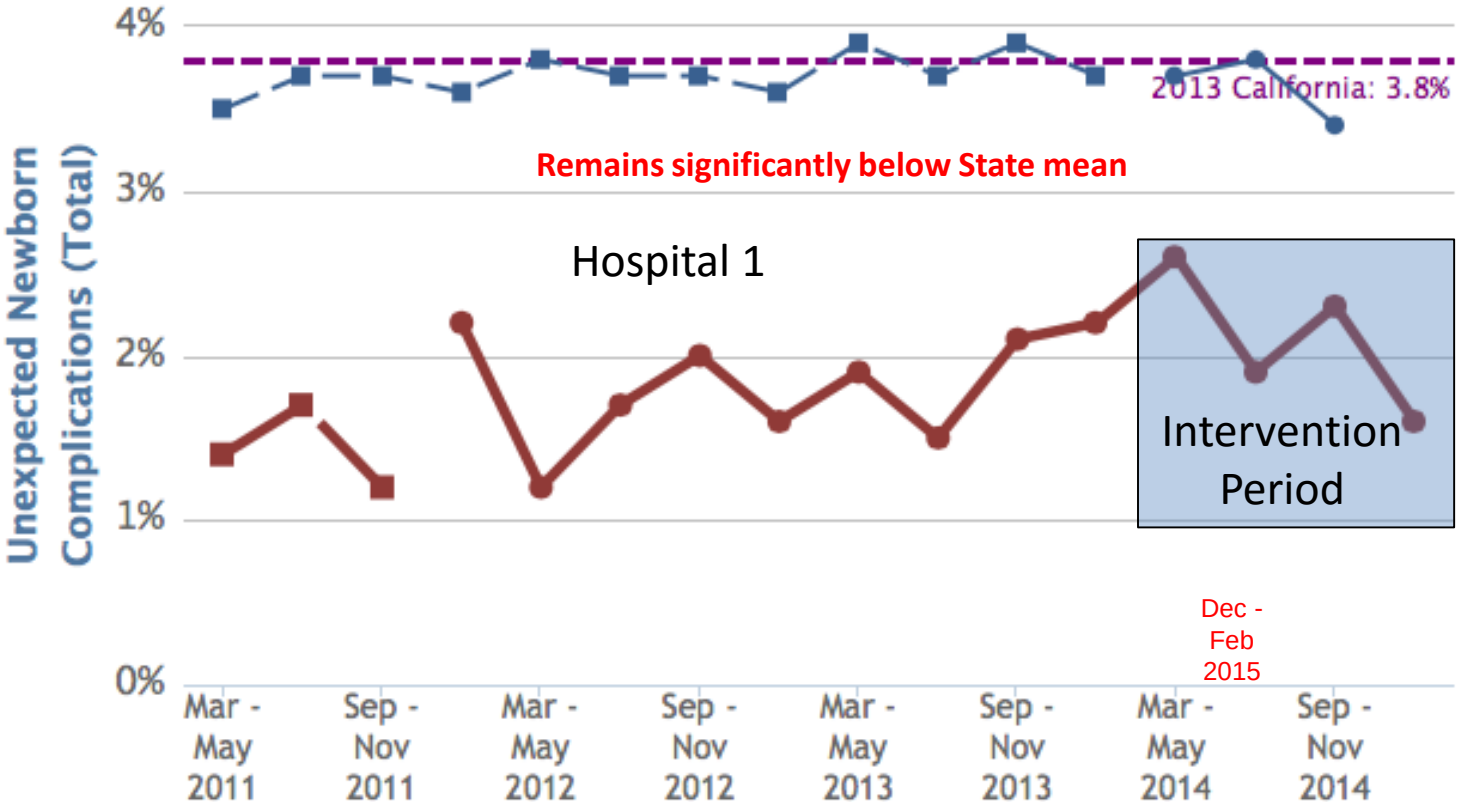
CMQCC
California Maternal
Quality Care Collaborative

No Change in Baby Outcomes:

Rate of Unexpected Newborn Complications

(This slide from CMQCC Supporting Vaginal Birth Toolkit Implementation Slides)

Screen Shot from the CMQCC Maternal Data Center



Take-home Lessons from the Pilot Hospitals

- Power of provider-level data
- Key role of nurses
- Need a reason to change
- National guidelines very helpful
- Needs “constant gardening”
- Medical and nursing leadership important

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for Mothers and Babies

QUESTIONS?