The Collaborative to Support Vaginal Birth and Reduce Primary Cesareans

Funding for the collaboratives was provided by the California Health Care Foundation

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California Maternal Quality Care Collaborative
Stanford University
Disclosures

Dr. Main has no financial or other conflicts of interest

Objectives

1. Identify the drivers for the rise and variation in NTSV Rates
2. List labor management changes that can safely reduce primary cesarean rates
3. List the component of a quality improvement collaborative
4. Identify the new outside pressures on our specialty over cesarean births
Transforming Maternity Care

A Toolkit to Support Vaginal Birth and Reduce Primary Cesareans

California Maternal Quality Care Collaborative

- Multi-stakeholder organization established in 2006: providers, state agencies, public groups with focus on Maternal Care
- Hosts California Maternal Mortality Review Committee
- Sister organization with CPQCC (neonatal care)
- Developer of QI toolkits: Early Elective Delivery, OB Hemorrhage, Preeclampsia, CVD in Pregnancy, and First Cesarean Prevention
- Leads multiple QI Collaboratives (Hemorrhage, HTN)
- Established Maternal Data Center in 2011
50% rise in CS rates over a 10 year period

In CA and the US, cesareans account for 1/3 of all births

Cesarean is the most common hospital surgery in the US!

Osterman M et al, NVSR vol 63, num 6, Nov 2014
For the Last 30 Years, Reducing Cesarean Section Rates has been the “Third Rail” for Obstetric Quality Programs.
What Indications Have Driven the **RISE** in CS?

<table>
<thead>
<tr>
<th>Cesarean Indication</th>
<th>Percent of the Increase in Primary Cesarean Rate Attributable to this Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor complications (Failure to progress and fetal concerns)</td>
<td></td>
</tr>
<tr>
<td>Breech</td>
<td></td>
</tr>
<tr>
<td>Multiple Gestation</td>
<td>10%</td>
</tr>
<tr>
<td>Various Obstetric and Medical Conditions (Placenta Abnormalities, Hypertension, Herpes, etc.)</td>
<td></td>
</tr>
<tr>
<td>“Elective” (defined variously, often: scheduled without medical indication)</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Failure to Progress and Fetal Concerns** also account for most of the hospital variation.

**Quality Improvement Focus:** How can we prevent the development of Labor Indications for Cesarean?
Major Maternal Complications: Vaginal Births versus Primary Cesareans, Repeat Cesareans, and Vaginal Births After Cesarean

Figure 1. Maternal morbidity, by method of delivery and previous cesarean history: 41-state and District of Columbia reporting area, 2013

https://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_04.pdf
How Judge Hatchett’s Son Is Coping After His Wife’s Childbirth Death

(Healthy woman with complications resulting in death during “routine” repeat Cesarean)

I Almost Died During Childbirth. I’m Not Alone.

(Healthy woman with major complications during “routine” repeat Cesarean: “Near Miss” now with PTSD)
Where is the benefit from higher CS rates?

- Relentless Rise without Baby or Mother benefit
  - 6% in early 70’s, 20% in mid 80’s, 33% in 2010
  - CP rates, neonatal seizures unchanged since 1980
  - Overall, no benefit for long-term urinary continence

- Increased maternal and neonatal morbidity
  - Impaired neonatal respiratory function, NICU admits
  - Affects maternal-infant interaction/Breast Feeding
  - Increased maternal PP infections, VTE, transfusions
  - Longer recovery, 2X PP re-admissions

- Prior CS can have major complications
  - Placenta previa and accreta (invasion deep into or thru the uterine wall) ➔ hysterectomy or worse
  - Uterine rupture; abdominal adhesions
Rising Rate of Low APGARs and Serious Term Neonatal Neurologic Complications

US CDC Natality data: term singletons with BWt > 2,500g

Am J Obstet Gynecol 216: S517-8, 2017
Cesarean Delivery Rates Vary Tenfold Among US Hospitals; Reducing Variation May Address Quality And Cost Issues

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.
Let’s 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
Nulliparous, Term, Singleton, Vertex (NTSV) Cesarean Section Rate: Performance Measure

- Risk Stratified (“standard population”)
  - No further risk-adjustment needed (more discussion later)

- Widely adopted nationally
  - DHHS: Healthy Person 2010 and 2020
  - NQF endorsed, Joint Commission Perinatal Core Measure (PC-02), LeapFrog, CMS e-measure

- >15 years experience

- National data and trends available
NTSV CS Rate Among CA Hospitals: 2014
Nulliparous Term Singleton Vertex
(Source: Linked OSHPD-Birth Certificate Data)

Range: 12%—70%
Median: 25.3%
Mean: 26.2%

National Target = 23.9%

40% of CA hospitals meet national target
Large Variation = Improvement Opportunity
Keys To Our approach

- **Toolkit**: Collection of best practices, and practical implementation ideas, sample policies

- **Collaborative**: Doctors and nurses from multiple hospitals working together to share ideas and implement relevant parts of Toolkit

- **Data Center**: Rapid sharing of real-time benchmarking data to support and drive the QI process
Who Needs to Be Engaged?

- **Obstetricians:** Help set expectations during prenatal care; set up a coverage scheme to reduce time pressure for delivery
- **Nurses:** Develop a passion for labor support and a balanced approach to Category II strips
- **Mothers:** Increasing understanding that Cesarean delivery should not be taken lightly; There is a lot of approaches that you can use to increase your chance
- **Administrators:** Develop a labor support system for patients, nurses, and physicians
Toolkit as the Foundation

- "How-to Guide" to reduce primary cesarean delivery
- Is the resource foundation for the QI collaborative
- The principles are generalizable
- Has a companion Implementation Guide

79 pages in 5 parts

Followed by:
- 20 appendices (graphics, flow charts)
- 338 references

Public Release
April 28, 2016

Download from: CMQCC.org
May 24, 2016

John Wachtel, MD  
Chair: District IX  
American Congress of Obstetricians and Gynecologists

Dear Dr. Wachtel:

In representing the American College of Obstetricians and Gynecologists (ACOG), we would like to congratulate your organization and all the contributors involved in the development of the CMQCC’s Toolkit to Support Vaginal Birth at Term in the U.S. on April 8th to address the efforts at reducing the primary Cesarean delivery rate.

We have had the honor to review this comprehensive toolkit and ACOG strongly supports its dissemination and use to address the efforts at reducing the primary Cesarean delivery rate.

This excellent resource, and the plan for encouraging awareness and implementation is unquestionably a commendable program to address this issue and should set a benchmark for achieving success in reducing the primary Cesarean delivery rate.

Sincerely,

Hal. C. Lawrence III, MD  
Executive Vice President and CEO

Christopher M. Zahn, MD  
Vice President, Practice Activities
Early admission support

- Admission policy or checklist for spontaneous labor
- Latent labor support and therapeutic rest policies
- Patient education materials to explain rationale for delayed admission, reduce anxiety and provide guidance on when to return to the labor and delivery unit
- Material with specific guidance for partners and family members as to how to best support the woman in early labor
- Setting expectations prior to labor is a critical step
Peanut Ball

- Decreased length of labor
- Decreased CS rate in patients with epidurals


Transforming Maternity Care
A Toolkit to Support Vaginal Birth and Reduce Primary Cesareans
Example of ACOG/SMFM Labor Dystocia Checklist in toolkit

<table>
<thead>
<tr>
<th>CMQCC Labor Dystocia Checklist (ACOG/SMFM Criteria)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Diagnosis of Dystocia/Arrest Disorder (all 3 should be present)</td>
</tr>
<tr>
<td>□ Cervix 6 cm or greater</td>
</tr>
<tr>
<td>□ Membranes ruptured, then</td>
</tr>
<tr>
<td>□ No cervical change after at least 4 hours of adequate uterine activity (e.g. strong to palpation or MVUs &gt; 200), or at least 6 hours of oxytocin administration with inadequate uterine activity</td>
</tr>
<tr>
<td>“6 is the new 4”</td>
</tr>
<tr>
<td>2. Diagnosis of Second Stage Arrest (only one needed)</td>
</tr>
<tr>
<td>No descent or rotation for:</td>
</tr>
<tr>
<td>□ At least 4 hours of pushing in nulliparous woman with epidural</td>
</tr>
<tr>
<td>□ At least 3 hours of pushing in nulliparous woman without epidural</td>
</tr>
</tbody>
</table>
Table 3. Recommendations for the Safe Prevention of the Primary Cesarean Delivery

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Induction of labor</strong></td>
<td>Strong recommendation</td>
</tr>
<tr>
<td>Before 41 0/7 weeks of gestation, induction of labor generally should be performed based on maternal and fetal medical indications. Inductions at 41 0/7 weeks of gestation and beyond should be performed to reduce the risk of cesarean delivery and the risk of perinatal morbidity and mortality.</td>
<td>Strong recommendation</td>
</tr>
<tr>
<td>Cervical ripening methods should be used when labor is induced in women with an unfavorable cervix.</td>
<td>Strong recommendation</td>
</tr>
<tr>
<td>If the maternal and fetal status allow, cesarean deliveries for failed induction of labor in the latent phase can be avoided by allowing longer durations of the latent phase (up to 24 hours or longer) and requiring that oxytocin be administered for at least 12–18 hours after membrane rupture before deeming the induction a failure.</td>
<td>Strong recommendation</td>
</tr>
</tbody>
</table>

Committee Opinion

Committee on Obstetric Practice

The American College of Nurse–Midwives and the Association of Women’s Health, Obstetric and Neonatal Nurses endorse this document. This Committee Opinion was developed by the American College of Obstetricians and Gynecologists’ Committee on Obstetric Practice, in collaboration with American College of Nurse–Midwives’ liaison member Tekoa L. King, CNM, MPH, and College committee members Kurt R. Wharton, MD, Jeffrey L. Ecker, MD, and Joseph R. Wax, MD.

This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Approaches to Limit Intervention During Labor and Birth

ABSTRACT: Obstetrician–gynecologists, in collaboration with midwives, nurses, patients, and those who support them in labor, can help women meet their goals for labor and birth by using techniques that are associated with minimal interventions and high rates of patient satisfaction. Many common obstetric practices are of limited or uncertain benefit for low-risk women in spontaneous labor. For women who are in latent labor and are not admitted, a process of shared decision making is recommended. Admission during the latent phase of labor may be necessary for a variety of reasons. A pregnant woman with term premature rupture of membranes (also known as prelabor rupture of membranes) should be assessed, and the woman and her obstetrician–gynecologist or other obstetric care provider should make a plan for expectant management versus admission and induction. Data suggest that in women with normally progressing labor and no evidence of fetal compromise, routine amniotomy is not necessary. The widespread use of continuous electronic fetal heart-rate monitoring has not improved outcomes when used for women with low-risk pregnancies. Multiple nonpharmacologic and pharmacologic techniques can be used to help women cope with labor pain. Women in spontaneously progressing labor may not require routine continuous infusion of intravenous fluids. For most women, no one position needs to be mandated nor proscribed. Nulliparous women who have an epidural and no indication for expeditious delivery may be offered a period of rest for 1–2 hours before initiating pushing efforts. Obstetrician–gynecologists and other obstetric care providers should be familiar with and consider using low-interventional approaches for the intrapartum management of low-risk women in spontaneous labor.
CMQCC Supporting Vaginal Birth Quality Collaborative: 3 Cohorts as of 2/20

**GRP 1**
- **May 2016**: 24 Hospitals
- **Oct 2017**: 91 Participating Hospitals, all with starting NTSV Rates ≥24%

**GRP 2**
- **Jan 2017**: 42 Hospitals
- **Jun 2018**: 4 Systems with 71 hospitals with variable starting NTSV Rates

**GRP 3**
- **Nov 2017**: 25 Hospitals
- **May 2019**:
Examples of Shared Practices

- Introduced “Let’s take a LAP” (Labor Assessment and Plan)—any staff member can ask to gather to discuss the patient’s progress and ensure all interventions have been tried.

- A star is put on the whiteboard with the names of the primary nurse and physician team that delivered a NTSV mother vaginally.

- In whiteboard reviews, NTSV mothers are discussed by all staff to review the plan and review all of the labor options.

- The unit project is labelled “6 is the new 4” and staff wear buttons saying “6 is the new 4—ask me.”

- Every hospital with success shares the provider NTSV CS rates.
Example of Team Brainstorming on How to Get the Word Out:
FTP/CPD Diagnosis Badge Cards
CMQCC Maternal Data Center

Rapid-cycle data: metrics available within 45 days after every month

- **PDD—Discharge Diagnosis File (ICD9/10 Codes)**
  - Monthly uploads: mother and infant PDD

- **Birth Certificate (Clinical Data)**
  - Monthly uploads: electronic files for ALL California births

- **Chart Review (select metrics/QI projects)**
  - Supplemental files or limited chart reviews

**Automated Linkage of all 3 files**

**CMQCC Maternal Data Center**

Links over 1,000,000 mother/baby records each year!
Measure Analysis: Identify “Drivers” of the CS Rate

What Drives Our Nulliparous Term Singleton Vertex (NTSV) CS Rate?

Screen Shot from the CMQCC Maternal Data Center
Comparison Rates for the 3 Major NTSV Drivers

Spontaneous Labor

- FTP / CPD
  - Miller Children's Hospital: 8%
  - All Regional Nurseries (Jul): 14.2%
  - Statewide (Jul 2012 – Jun): 15.3%
  - Proportion of the NTSV Spontaneous Labor population that had a CS for the specific indication

- Fetal Distress
  - Miller Children's Hospital: 5.4%
  - All Regional Nurseries (Jul): 5.3%
  - Statewide (Jul 2012 – Jun): 8%
  - Proportion of the NTSV Spontaneous Labor population that had a CS for the specific indication

Induced Labor

- FTP / CPD
  - Miller Children's Hospital: 7.1%
  - All Regional Nurseries (Jul): 22.6%
  - Statewide (Jul 2012 – Jun): 23.8%
  - Proportion of the NTSV Induced population that had a CS for the specific indication

- Fetal Distress
  - Miller Children's Hospital: 6.8%
  - All Regional Nurseries (Jul): 7.2%
  - Statewide (Jul 2012 – Jun): 7.2%
  - Proportion of the NTSV Induced population that had a CS for the specific indication

- Other
  - Miller Children's Hospital: 2.1%
  - All Regional Nurseries (Jul): 3.3%
  - Statewide (Jul 2012 – Jun): 4.5%
  - Proportion of the NTSV Induced population that had a CS for the specific indication
Monthly QI Control Chart: NTSV CS Pilot Project

Baseline: 31.5%

New Baseline: 23.8%
CMQCCC Supporting Vaginal Birth Quality Collaborative: 3 Cohorts as of 2/20

**GRP 1**
- May 2016
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- 91 Participating Hospitals, all with starting NTSV Rates ≥24%

**GRP 2**
- Jan 2017
- 42 Hospitals

**GRP 3**
- Nov 2017
- 25 Hospitals
- +4 Systems with 71 hospitals with variable starting NTSV Rates

- Jun 2018
- May 2019
Cohort 1: NTSV CS Rates

Mean Rates: 
28.2% → 24.7%

48% Dropped below target of 23.9%
26% Dropped significantly
18% No Change
8% Increased slightly (2)
Cohort 2: NTSV CS Rates

Mean Rates: 29.3% → 24.2%

- 43% Dropped below target of 23.9% (16)
- 24% Dropped below 26% (9)
- 22% Dropped significantly (8)
- 8% No Change (3)
- 3% Increased slightly (1)
Any Downsides?

- Balancing measures are very important
- More vaginal births: Any increase in 3rd or 4th degree lacerations?
  - Zero change from the prior 4 year baseline
- Most important measure is Healthy Babies
  - NQF measure “Healthy Term Newborns” (#0716) recently reconfigured as “Unexpected Newborn Complications”
  - Asks whether term babies without preexisting conditions had any major complications during birth or neonatal period
Balancing Measure:
Severe Unexpected Newborn Complications
(monitoring for unintended consequences)

Cohort 2 Hospitals

<table>
<thead>
<tr>
<th>Baseline (2014-5)</th>
<th>2017 Q1-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2%</td>
<td>=&gt; 2.3%</td>
</tr>
</tbody>
</table>
Collaborative Action: Collective Impact

Reduction of Primary Cesareans

- Data-driven QI Initiative
- Health Plans (multiple strategies)
- Professional Leadership
- Medicaid: Fee For Service and Managed Care
- Collected Evidence/ QI Tool Kit
- Purchaser/ Employer Engagement
- Performance Measures/ Public Reporting
- Address Unit Culture Issues
- Patient + Public Engagement

Multiple Leverage Points are much more effective than one or two alone
CMQCC Labor Culture and Attitudes Survey Background

- Staff from 80 California hospitals including CMQCC Supporting Vaginal Birth Collaborative
- Clinicians: 714 Nurses, 202 Doctors, 19 CNM
- 2/3 of questions from previously validated surveys, 1/3 newly validated.
- Electronic Survey: Able to link all RN/MD/CNM to their hospital and then to the hospital NTSV CS rate (range: 15-45%)
- Able to link MD to their individual NTSV CS rate (anonymized)
Key Survey Findings

1. RN’s and MD’s have some insight into their hospitals’ performance
2. RN’s and MD’s have different concepts of patient preparedness for labor (more later)
3. It matters (i.e. associated with lower rates):
   - That physicians welcome oversight (case reviews) and feedback
   - That physicians agree with best practices to reduce intervention
   - That physicians believe that maternal agency is important
4. There is significantly more fear of vaginal birth at (some) underperforming hospitals
Key Survey Findings (con’t)

5. Some physicians at underperforming hospitals believe that cesarean is safer for babies and just as safe for mothers.

6. Nurses more often have attitudes that align with Top Quartile hospitals across the board.
   - But remember that each hospital has a range of responses.
   - Attitude/Culture misalignment between nurses and physicians is associated with higher cesarean rates.

• What is actionable?
• What would have the greatest impact?
Opportunity for Better Childbirth Preparation!

Most of my patients have sufficient knowledge about vaginal and cesarean birth to make informed choices.

- Nurses and Doctors had very different assessments of women’s knowledge base for making informed childbirth decisions.
- This was especially true in the non-top performing hospitals.
- This was a very common finding.
CHCF Patient Engagement Video: “My Birth Matters”

MyBirthMatters.org
Coming in April 2018
HUDLS: Hands-On, Understanding and Demonstration of Labor Support

Goal: to develop a series of web based tools by re-designing the Labor Support Workshop content to be presented in brief periods of instruction (Huddles)

- Timeline 1/1/17 – 12/31/18
- Team Leaders: Jan Trial, USC, Christa Sakowski, CMQCC
CA Secretary of HHS Annual Hospital Awards: NTSV CS Rates <23.9%

SMARTCARE
CALIFORNIA

General Hospital

2016 Achievement Award

For Meeting or Exceeding the Healthy People 2020 Goal for Low-Risk, First-Birth Cesarean Deliveries

To receive this award, a California hospital must achieve a Cesarean section (C-section) rate of 23.9 percent or lower for low-risk, first-birth deliveries. The award is based on 2015 data reported by hospitals to the Office of Statewide Health Planning and Development and the California Department of Public Health-Vital Records.

Diana S. Dooley
Secretary, California Health and Human Services Agency
Yelp Maternity Data (live 7/24/17)

El Camino Hospital

Claimed

140 reviews

Hospitals

815 Pollard Rd
Los Gatos, CA 95032

Get Directions
(408) 378-6131
ecaminohospital.org

Send to your Phone

"I was planning a natural delivery and every nurse there was so accommodating and helpful during each part of labor." in 15 reviews

"I wanted an all natural birth and the nurses and staff were such a help and totally respected my wishes." in 23 reviews

"My husband, our sweet baby Ruby, and I felt so welcome and very well taken care of :)" in 5 reviews

Maternity Care Data

Based on data from Cal Hospital Compare

C-Section Rate
Below Average Rate

Breastfeeding Rate
Well Above Average Rate

Episiotomy Rate
Average Rate

VBAC Routinely Available
Summary

- Extreme variation among hospitals
- Rapid rise of rates without neonatal or maternal benefits (indeed can have complications)
- Significant consequences for future pregnancies
- Labor management techniques together with provider and patient education can lead to rapid change without effecting baby outcomes

"Getting the balance right: cesarean births can be life-saving and they have an absolute role in Obstetrics—but they shouldn’t be taken lightly"
Thank You!

Visit: CMQCC.org
How do Hospital Rates of High Maternal Age and High Maternal BMI Interact?

- Compare outcomes of hospitals with like populations of high BMI and high Maternal Age
- Do hospitals with similar rates of high BMI or High Maternal Ages behave same or differently?
Correlation of High Age and Low BMI Hospital Populations and Spread of High Medium and Low NTSV Hospitals

Data from 242 California Hospitals that were continually open between 2015-2016 and had an average ≥100 annual deliveries.
Overlap of High and Low NTSV Hospitals for Similar Age and BMI Populations

Effect of Maternal Age and BMI on Hospital NTSV CS Rates in California, 2015-2016

Data from CMQCC, manuscript in preparation