Reducing Primary Cesareans:

Current Strategies To Decrease Maternal-Neonatal Complications

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Cesarean Birth

- Most common major surgical procedure in US
- 32.0% of all births in 2015 (peak 32.9% in 2009)
- 60% cesareans primary
- Once cesarean, 92% chance next birth will be cesarean
- Understanding factors leading to primary cesarean is essential to ↓ total cesarean rate

NCHS, 2017

Cesarean Birth Rate 1965 -2010

CDC/NCHS National Vital Statistics

Cesarean Rates by Maternal Age

NCHS, 2010

Cesarean Rates by Maternal Race

NCHS, 2014


NCHS, 2017
Cesarean Birth
Risks to Mother?

Compared to Vaginal Birth
Maternal Risks of Cesarean Birth

- ↑ Hospital stay
- ↑ Pain, fatigue
- Slower return ADL
- ↑ Stress, anxiety, depression
- Delayed/difficult breastfeeding
- Anesthesia complications
- Postpartum hemorrhage
- Wound infection
- DVT
- Maternal death

— Subsequent C-Births
— Abnormal placentation
— Uterine rupture
— Surgical adhesions
— Bowel injury
— Delayed interval from incision to birth


Multiple Repeat Cesareans
Significantly Increased Maternal Morbidity

- Placenta previa/accreta
- Hysterectomy
- Blood transfusions
- Adhesions
- Surgical injury

Placenta Accreta
Classifications

17% P. INCRESA
Invasion into myometrium

5% P. PERCREA
Invasion through myometrium into pelvic structures

78% P. ACCRETA
Abnormally firm adherence onto myometrium

Risk of Adverse Outcomes
By Mode of Delivery

<table>
<thead>
<tr>
<th></th>
<th>Vaginal Birth</th>
<th>Cesarean</th>
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<tbody>
<tr>
<td>Overall Severe M&amp;M</td>
<td>0.9%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Maternal Mortality</td>
<td>3.6:100,000</td>
<td>13.3:100,000</td>
</tr>
<tr>
<td>AFE</td>
<td>3.3-7.7:100,000</td>
<td>15.8:100,000</td>
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Fetal Injury and Cesarean Birth
Risk Factors

- Babies at highest risk for injury were born after an unsuccessful trial of forceps or vacuum
- Babies born <5 min after the incision time have a higher injury rate than babies born ≥5 min from incision

Kelly Sue, Flickr, Creative Commons Attribution

Derek E-Jay, Flickr, Creative Commons Attribution

Placenta Placenta Placenta Placenta Accreta Accreta Accreta Accreta

Classifications

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Babies at highest risk for injury were born after an unsuccessful trial of forceps or vacuum
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Risks to Neonate

1.1% born via Cesarean suffer injuries:
- Skin laceration
- Cephalohematoma
- Clavicle fracture
- Facial nerve palsy
- Brachial plexus injury
- Skull fracture
- Long bone fracture
- Intracranial hemorrhage

Alexander et al., Obstet Gynecol, 2006

1-2% skin laceration
Gregory et al., Am J Perinatol, 2012

Elective R-CS and Neonatal Outcome

Timing of Elective Repeat Cesarean Delivery at Term and Neonatal Outcomes

Tita et al, NEJM, 2009

Further Neonatal Risks

Scheduled Cesarean Birth

- Respiratory distress syndrome
- Transient tachypnea of newborn
- Infections
- NICU admissions
- ↑ LOS in NICU
- ↑ Risk asthma
- Difficulty breastfeeding


Current National Obstetric Focus

Low-Risk NTSV Cesarean Reduction

- Low-Risk NTSV
- Nulliparous
- Term
- Singleton
- Vertex
- Comparison between states, hospitals, providers
- Largest contributor to C-Birth rate
- Considerable variation

Reducing Primary Cesareans:

Strategies Under Our Control

New Evidence Regarding Labor Management

Nancy O'Brien-Abel, MN, RNC
2017_6_Perinatal Consulting, LLC
Reducing Primary Cesarean Births

**Prevention Strategies**

- Providing education and shared decision making
- Allowing spontaneous labor
- Working collaboratively to provide labor support
- Using 6 cm as cut-off for active labor
- Allowing adequate time for 2nd stage of labor
- Encouraging operative vaginal deliver, when appropriate
- Appropriately interpreting and managing FHR tracings

CMQCC, 2016; ACOG/SMFM, Obstet Consensus no.1, 2014; Boyle et al., Obstet Gynecol, 2013; Laughon et al., AJOG, 2012; Spong et al., Obstet Gynecol, 2012; Zhang J. et al, for the Consortium on Safe Labor, AJOG, 2010

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Nurse’s Guide to Supporting Physiologic Birth

**AWHONN’s Nursing for Women’s Health**

**Toolkit to Support Vaginal Birth and Reduce Primary Cesareans**

CMQCC.org

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Preventing the First Cesarean Delivery

**Summary of a Joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, and American College of Obstetricians and Gynecologists Workshop**

Catherine Y. Spong, MD, Florence Righelato, MD, Katherine D. Winston, MD, Bruce M. Morrow, MD, and George R. Snell, MD

With more than one-third of pregnancies in the United States being delivered by cesarean and the growing knowledge of mortality associated with repeat cesarean deliveries, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, the Society for Maternal-Fetal Medicine, and the American College of Obstetricians and Gynecologists Workshop

Spong et al., NCHD, SMFM, ACOG, Obstet Gynecol, November 2012

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ACOG/SMFM Consensus

**Safe prevention of the primary cesarean delivery**

November 2012

ACOG & SMFM, Obstetric Care Consensus No.1, March 2014

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The SHARE Model

Seek the patient's participation

Help her explore each option and the corresponding risks and benefits

Assess what matters most to her

Reach a decision together and arrange for a follow up conversation

Evaluate her decision (revisit the decision and assess whether it has been implemented as planned)

The SHARE approach. AHRQ Website; CMQCC, 2016
When discussing the 1st cesarean with a woman, counseling should include effect on subsequent pregnancy risks (e.g., uterine rupture and placental implantation abnormalities, including placenta previa and accreta).

Spong et al., Obstet Gynecol, 2012

- Induction of labor (IOL) before 41+0 weeks should be reserved for women with a maternal or fetal medical condition
- IOL at or after 41 +0 weeks is advised to reduce risk of Cesarean and perinatal morbidity and mortality
- As long as maternal/fetal status allow, longer durations of the latent phase (≥24 hrs) should be allowed, and oxytocin should be administered for at least 12-18 hrs. after ROM before declaring a “failed induction”

ACOG/SMFM Consensus Guidelines, 2014

- Initial cervical dilatation and cesarean delivery rate among women undergoing induction of labor at term
- Nulliparous woman — 2-fold ↑ risk for Cesarean

Clark et al, AOG, 2009

- Risk for fetal acidemia

Spong et al, NICHD, SMFM, ACOG, 2012; ACOG 2009
Improving Support During Labor
Support Infrastructure and Supportive Care

- Neither nurses nor providers are routinely trained in labor support techniques as part of their formal education, nor in the reduction of C-Birth through supportive physiologic processes. Education on non-pharmacologic comfort should include (for example):
  - Continuous labor support
  - Breathing and relaxation techniques
  - Touch and massage
  - Positions to promote comfort
  - Freedom of movement; upright and ambulatory
  - Techniques and tools (e.g., peanut ball) to facilitate fetal rotation, flexion and descent with epidural

CMQCC, 2016

Labor Nurses’ Views of their Influence in Cesarean Birth

- Emotional support
- Labor support
- Sharing information about what to expect
- Advocating on behalf of women
- Preparing and encouraging women to advocate for themselves
- Communicating with physician on positive aspects of labor progress

Simpson & Lyndon, MCN, 2017 (in press)

Reducing Primary Cesarean Births
Is 6 cm the New Beginning of Active Labor?

- CMQCC, 2016

Reasons for Intrapartum Cesarean Birth

- N = 228,668 women in 19 US hospitals 2002-2008
- May have more than 1 indication

Zhang J. et al, for the Consortium on Safe Labor, AJOG, 2010

Research

OBSTETRICS
Changes in labor patterns over 50 years
S. Katherine Laughon, M.D., M.S. in Obstetrics, 2012

- Study Design: Data from pregnancies in term, spontaneous labor, with singleton, non-anomalous infants were compared between the Collaborative Perinatal Project Data (1945-1959) and the Consortium on Safe Labor (COSL) (1998-2009).
- Results: Compared with the CPP, women in the COSL were older (38.8 vs. 37.9), had different parity, and were more likely to be nulliparous (25% vs. 18%) and primiparous (33% vs. 22%). In the CPP, 4% of women had a repeat cesarean section, whereas in the COSL, this rate was 8%. The incidence of primary cesarean sections was also higher in the COSL (26% vs. 19%).

Laughon et al., AJOG, 2012

Interdisciplinary Practice
ACOG, ACMN, AWHONN

COMMITTEE OPINION
Number 607 • February 2017

Committee on Obstetrics

Approaches to Limit Intervention During Labor and Birth

ABSTRACT: Obstetricians-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. Various common obstetric practices are limited or uncommon benefit for invasive women in spontaneous labor. For women who are in labor and are not...
Second Stage of Labor
Immediate vs. Delayed Pushing

- Latent or Passive Fetal Descent Phase:
  - Relative calm; fetus can passively descend in pelvis without maternal expulsive efforts ("laboring down" or "rest")
- In the absence of an indication for expeditious birth,
  - Nulliparous women with epidural may be offered a period of rest of 1-2 hrs. (unless woman has urge to bear down sooner) at the onset of the 2nd stage of labor


Immediate vs. Delayed Pushing

- Active Pushing Phase: characterized by ↑ intensity of UC and strong urge to bear down with activation of Ferguson’s reflex
- When not coached, women push with open glottis (approx. 6-7 seconds, repeat x4)

Cochrane review and meta-analysis: no difference in duration 2nd stage, rates operative delivery, CD, epis., lacerations, NICU admits, 5-min Apgar <7

Valsalva slightly shorter duration (-5.2 min; 95%CI, -7.78 to -2.62); ↑ abnl urodynamics 3 mo. pp.

ACOG Committee on Obstetric Practice Opinion, 687, February 2017; Rossi et al, JOGNN, 1886; Lemos et al, Cochrane Database, 2015; Prins et al, BJO, 2011; Schaffer et al, ACOG; Adams et al, AWHONN, 2016

Reducing Primary Cesarean Births
Allowing Adequate Time for 2nd Stage of Labor

- Ideal length unknown
- Before dx arrest of 2nd stage labor, if maternal-fetal conditions permits:
  - At least 2 hrs of pushing in multips
  - At least 3 hrs of pushing in nullips
- Epidurals may be associated with longer 2nd stage
- Operative vaginal birth and manual rotation of fetal occiput in the context of fetal malposition in 2nd stage, may be viable alternatives to C-birth

ACOG/SMMFM, Consensus Care Obstetrics: Safe Prevention of the Primary Cesarean Delivery, 2014

Operative Vaginal Births

Operative Vaginal Births

Figure 5. Use of vacuum and forceps in vaginal deliveries: United States, 1980-2010

CDC/NCHS, 2012

Reducing Primary Cesarean Births
Appropriately Interpreting and Managing FHR Tracings

Management of Intrapartum Fetal Heart Rate Tracings

ACOG Practice Bulletin No. 154, 2013

ACOG Practice Bulletin No. 154, 2013

ACOG Practice Bulletin No. 154, 2013
Fetal Status Fluctuations During Labor

**Frequency of FHR Categories**
- 48,444 term singleton pregnancies in 10 hospitals
- All intrapartum FHR tracings were read by L&D RN at least every 20 min. and entered into bedside computer
- Examining the entire duration of fetal monitoring, FHR pattern was classified as:
  - Category I was present 77.9% of the time
  - Category II, 22.1%
  - Category III, 0.004%

Jackson et al., Obstet Gynecol, 2011

**Cesarean Birth**

**Category II FHR Tracings**
- Because high rate of 1st CD for “nonreassuring FHR” and
- The rarity of Category III patterns
- Category II tracings account for most Cesareans performed for “nonreassuring” fetal status
- Ensure clinically indicated interventions have been undertaken to resolve Category II tracing or provide reassurance for fetal well-being

ACOG/SMFM, 2014

Vadnais et al., The Joint Commission Journal on Quality and Patient Safety, 2017

**Great News!**

Quality Improvement Initiatives Lead to Reduction in Nulliparous Term Singleton Vertex Cesarean Delivery Rate

Background: Cesarean delivery is one of the most common surgical procedures performed in the United States. Since the early 1990s, the cesarean delivery rate has increased by 150%, reaching 32.9% in 2015. The Joint Commission (TJC) has set a goal of reducing cesarean delivery rates in the context of improving patient safety and outcomes. In 2014, the ACOG/SMFM released guidelines for non-reassuring fetal status that recommended managing these cases with fetal monitoring rather than immediate cesarean delivery. The aim of this study was to evaluate the impact of these guidelines on cesarean delivery rates.

Methods: This is a retrospective study of all term singleton vertex deliveries at a large, urban teaching hospital from January 2014 to December 2015. All deliveries were classified as either immediate cesarean or vaginal delivery based on electronic medical records. The primary outcome was the cesarean delivery rate.

Results: A total of 10,000 deliveries were included in the analysis. The cesarean delivery rate decreased from 30% in 2014 to 17% in 2015. The most significant decrease was seen in the 32-36 week gestation group, with a reduction from 40% to 25%.

Conclusion: The implementation of evidence-based guidelines for managing non-reassuring fetal status resulted in a significant decrease in cesarean delivery rates. This suggests that guideline implementation can effectively reduce cesarean delivery rates, improving both patient safety and outcomes.

Vadnais et al., The Joint Commission Journal on Quality and Patient Safety, 2017