Waiting for the Natural Exit: C-Section Reduction

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Our Goal

To ensure that every child is born as healthy as possible while causing the least possible damage to the mother

FACTS

The cesarean rate rose nearly 60% from 1996 to 2009

- Can be life saving
- In new USA 33%
- No decrease in maternal morbidity and mortality rate
Pregnancy-related deaths in the U.S. have risen from 7.2 per 100,000 live births in 1987 to 17.8 in 2009 and 2011. (CDC)

Women in the U.S. face a 1-in-1,800 risk for maternal death, the worst among the developed nations surveyed in Save the Children’s 16th annual State of the World’s Mothers report.

U.S. women are more likely to die during childbirth than women in any other developed country, leading the U.S. to be ranked 33rd among 179 countries on the health and well-being of women and children.

Causes?

- Stagnation in the quality of medical/nursing care
- Change in population demographics masking improvements
- Is the increase in cesarean delivery causally, or associatively related to maternal death


Why Reduce C-Section Rates??

Potential Maternal Risks:

- Hemorrhage
- Increased risk of placenta previa or accreta
- Uterine rupture
- Puerperal infection
- Anesthetic complications
- Surgical complications
- Pain - Narcotic use
- Repeat surgery subsequent pregnancy
- Increased risk of ectopic pregnancy (9.5/1000 compared with 5.7/1000)
- Gravid hysterectomy
- Venous thromboembolism
- Limit family size
- Longer hospital stay
- Cost
Why Reduce C-Section Rates??

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Rate of Accreta

1 in 4,027 pregnancies in the 1970s
1 in 2,510 pregnancies in the 1980
1 in 533 from 1982-2002

Placenta accreta is a general term used to describe the clinical condition when part of the placenta, or the entire placenta, invades and is inseparable from the uterine wall.

Women at greatest risk of placenta accreta are those who have myometrial damage caused by a previous cesarean delivery.

Risk increases with each cesarean delivery

http://www.acog.org/Resources-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Placenta-Accreta.aspx
Why Reduce C-Section Rates??

- Placenta does not completely separate from the uterus
- Massive obstetric hemorrhage
- Average blood loss at delivery in women with placenta accreta is 3,000-5,000 ml
- 40% require more than 10 units of packed red blood cells
- Risk of DIC
- Hysterectomy
- Renal damage
- Maternal mortality with placenta accreta has been reported to be as high as 7%

http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Placenta-Accreta

Morbidity associated with cesarean delivery in the United States: is placenta accreta an increasingly important contributor?

- 2000-2011 Nationwide Inpatient Sample data
- Identify cesarean deliveries and records with 12 potential cesarean delivery complications, including placenta accreta
- Rate of placenta accreta increased by 30.8% among women with a repeat cesarean deliveries
- Placenta accreta became an increasingly important contributor to repeat cesarean delivery morbidity


Why Reduce C-Section Rates??

Benefits to Baby of spontaneous labor and delivery:
- Labor increases fetalcatecholamines and prostaglandins causing increased secretion of lung surfactant
- Physical compression of thorax removes lung fluid
- Reduced exposure to drugs

Potential Risks of elective C/S:
- Iatrogenic prematurity
- NICU - Longer hospital stay
- RDS
- Anesthetic complications
- Fetal laceration
- Increased allergic diseases
- Hypoglycemia
- Hypothermia
- Transient fetal hypoxia
- Persistent pulmonary hypertension
- Changes in skin and gut bacterial colonization
Conclusions: This study shows for the first time that the primary gut flora in infants born by cesarean delivery may be disturbed for up to 6 months after the birth. The clinical relevance of these changes in unknown, and even longer follow-up is needed to establish how long-lasting these alterations of the primary gut flora can be.

In Pediatrics, Bisgaard and colleagues examined the correlation between C-sections and immunological disorders in two million Danish children born over a period of 35 years between 1973 and 2012.

- Children born by C-section have been more frequently hospitalized than those born vaginally due to asthma, juvenile rheumatoid arthritis, inflammatory bowel disorder, immune system defects, leukaemia, and other tissue disorders during their lives.

- More specifically, the risk of developing asthma is 20 per cent higher if you are born by C-section. The researchers conclude that there is an approximately 40 per cent greater risk of developing immune defects and a 10 per cent greater risk of developing juvenile rheumatoid arthritis.

http://sciencenordic.com/giant-study-links-c-sections-chronic-disorders

Cesarean section is the most common in-patient operating room procedure in U.S. hospitals.

One in three women will have a cesarean birth 🌸🌸🌸🌸🌸🌸🌸
Cesarean birth

- Now the most frequently performed inpatient operation
- In the USA more than 1.2 million cesareans are performed each year
- In 1965 the national US cesarean rate was 4.5%
- This rate has increased 7 fold
- In 2009 it peaked at 32.9
- In 2014 it is 32.2%

2014

- Number of vaginal deliveries: 2,699,951
- Number of Cesarean deliveries: 1,284,551
- Percent of all deliveries by Cesarean: 32.2%

http://www.cdc.gov/nchs/fastats/delivery.htm

Increased rate of cesarean deliver is not validated by tangible improvements in perinatal outcomes.

Both short term and long-term maternal morbidity has risen significantly.

giving birth is one of the most profound emotional experiences in a woman’s life.

Contributing Factors

- Society’s acceptance of surgery for childbirth
  - Common surgery – forget its major abdominal surgery
- Women’s trust in their care provider
- Maternal request
- Too strong a reliance on technology
  - Electronic Fetal Monitoring (EFM) – the most common obstetric procedure

Cesarean Delivery on Maternal Request

ACOG Committee Opinion (#559, 4/13 – reaffirmed)

- Is defined as a primary prelabor cesarean delivery on maternal request in the absence of any maternal or fetal indications.
- No accurate means to determine rate estimated to be 2.5% of all births in the United States


Cesarean Delivery on Maternal Request

Obstetrician–Gynecologists’ Knowledge, Perception, and Practice Patterns

- 2006, 1031 questionnaires mailed to US OB/GYNs – 68% return rate
- 50% believe women should be able to request an elective C/S
- Approx. 50% acknowledge having performed at least one c/s for non medical reasons based on maternal request
- 58% noted increased inquiries into maternal request c/s
  - Media
  - Convenience

Cesarean Delivery on Maternal Request

- Need to track frequency
- Prevalence world wide 1-18%
- Appears to be increasing correlating with population affluence

http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Cesarean-Delivery-on-Maternal-Request

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Cesarean Delivery on Maternal Request

- Reason
  - Fear/anxiety
  - Reproductive plans
  - Personal values
  - Poor obstetric outcomes
  - Critical life experiences
  - rape
  - FGM
  - Culture

http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Cesarean-Delivery-on-Maternal-Request

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Cesarean Delivery on Maternal Request

Is it ethical?

Ethical Framework
1. Patient autonomy
2. Avoiding harm - nonmaleficence
3. Cost-effectiveness - in conjunction with an understanding of what matters most to the patient.
4. Effects on health care system of increasing choice
   - "How the choices of some can affect opportunities for others raises important questions of justice"

http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Ethics/Elective-Surgery-and-Patient-Choice
ACOG’s recommendation in cases in which cesarean delivery on maternal request is planned:

- A gestational age of 39 weeks.
- Request should not be motivated by the unavailability of effective pain management.
- Not recommended for women desiring several children, given that the risks of placenta previa, placenta accreta, and gravid hysterectomy increase with each cesarean delivery.

Committee on Obstetric Practice offers the following recommendations

‘In the absence of maternal or fetal indications for cesarean delivery, a plan for vaginal delivery is safe and appropriate and should be recommended.’

Contributing Factors

- Too strong a reliance on technology
- Electronic Fetal Monitoring (EFM) – the most common obstetric procedure
Contributing Factors

- limited evidence to support it is better than intermittent auscultation in low risk women
- Subjective interpretation – category 2 tracings – false positive rate high
- Contributing to increased c/s rate

Cochrane review

“no evidence of benefit for the use of the admission CTG for low-risk women on admission in labor. Furthermore, the probability is that admission CTG increases the caesarean section rate by approximately 20%. The findings of this review support recommendations that the admission CTG not be used for women who are low risk on admission in labor. Women should be informed that admission CTG is likely associated with an increase in the incidence of caesarean section without evidence of benefit”.


Intrapartum fetal surveillance in the absence of recognized risk factors

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Grade and supporting references</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission CTG increases the rate of continuous electronic fetal monitoring use, may increase the rate of caesarean section but may identify a small number of previously unidentified at risk fetuses. Attending clinicians should decide whether or not to use admission CTG according to individual women’s circumstances and decisions.</td>
<td>A (Level I) Good Practice Note (Consensus-based)</td>
</tr>
</tbody>
</table>

Women should receive 1:1 midwifery intrapartum care. Cardiotocography should not be used as a substitute for adequate intrapartum midwifery staffing.

Women in active labor should receive continuous close support from an appropriately trained person. (I-A)

Intrapartum fetal surveillance for healthy term women in spontaneous labor in the absence of risk factors for adverse perinatal outcome.

Intermittent auscultation following an established protocol of surveillance and response is the recommended method of fetal surveillance. Compared with electronic fetal monitoring, it has lower intervention rates without evidence of compromising neonatal outcome. (I-B)

Epidural analgesia and intermittent auscultation.
1. Intermittent auscultation may be used to monitor the fetus when epidural analgesia is used during labor. Provided that a protocol is in place for frequent intermittent auscultation assessment.

Recommendation 10: Admission Fetal Heart Test
1. Admission fetal heart tracings are not recommended for healthy women at term in labor in the absence of risk factors for adverse perinatal outcome, as there is no evident benefit. (I-A)

Recommendation 11: Intrapartum Fetal Surveillance for Women With Risk Factors for Adverse Perinatal Outcome
Normal electronic fetal monitoring tracings during the first stage of labor. When a normal tracing is identified, it may be appropriate to interrupt the electronic fetal monitoring tracing for up to 30 minutes to facilitate periods of ambulation, bathing, or position change, providing that (1) the maternal-fetal condition is stable and (2) if oxytocin is being administered, the infusion rate is not increased. (II-B)

SEPTEMBER JOGC SEPTEMBER 2007
Decision support tool - intermittent auscultation in labor for healthy Term women without risk factors for adverse perinatal outcome

Contributing Factors
Failure to trust women’s bodies to give birth naturally

Advocate for:
- Spontaneous labor at term
- Continuous support during labor from OB RN
  - Informed caring, comfort, support, calmness
  - Patience and watchful waiting
  - Constant vigilance
- Promote ambulation, movement, use gravity

Continuous support in labor leads to:

- Decreased incidence of cesarean birth
- Women have greater satisfaction in their labors
- Benefits for both mother and infant with no known harm

Continuous support for women during childbirth (Cochrane Review)

- 22 trials involving 15,288 women
- Women with continuous support
  - More likely to have spontaneous vaginal delivery
  - Less likely to have intrapartum regional analgesia
  - Less likely to report dissatisfaction
  - Had shorter labors
  - Less likely to have c/s or instrumental vaginal delivery
  - Less likely to have a baby with low 5 minute Apgar score


Doula Care, Birth Outcomes, and Costs Among Medicaid Beneficiaries

Results.

- Cesarean rate was 22.3% among doula-supported births and 31.5% among Medicaid beneficiaries nationally.
- Preterm birth rates were 6.1% and 7.3%.
- After control for clinical and sociodemographic factors, odds of cesarean delivery were 40.9% lower for doula-supported births (adjusted odds ratio = 0.59; P < .001).

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3617571/

Old Adage from 1916

Once a cesarean always a cesarean

This is the case for approximately 90% of women who have had a previous cesarean in the USA
Stated objective of the U.S. Department of Health and Human Services
Health People 2020

Reduce repeat cesarean births among low-risk women
90.8 percent of low-risk females had a repeat cesarean birth in 2007

Target 10% reduction to 81.7%


Increase in primary Cesarean births
Decrease in VBACs


TOLAC – trial of labor after cesarean

► Careful counselling
► Review maternal obstetric history
► Maternal wishes
► Avoid induction of labor
► Manage delivery in a hospital setting
► Higher # previous C/S greater risk
► Successful VBAC offer protection for subsequent VBACs
TOLAC - ACOG 2010 Guidelines

Level A Evidence

- Most women with a prior cesarean delivery with a low transverse incision are candidates for VBAC and should be offered TOLAC.
- Epidural anesthesia may be used as part of TOLAC.
- Misoprostol should not be used for patients who have had a prior cesarean delivery or major uterine surgery.

**Predictors of VBAC Success or Failure**

<table>
<thead>
<tr>
<th>Increased Chance of Success</th>
<th>Decreased Chance of Success</th>
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<tbody>
<tr>
<td>Prior vaginal delivery</td>
<td>Maternal obesity</td>
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<tr>
<td>Prior VBAC</td>
<td>Short maternal stature</td>
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<tr>
<td>Spontaneous labor</td>
<td>Macrosomia</td>
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<td>Favorable cervix</td>
<td>Increased maternal age (&gt;40 y)</td>
</tr>
<tr>
<td>Nonrecurring indication (breech presentation, placenta previa, herpes)</td>
<td>Induction of labor</td>
</tr>
<tr>
<td>Preterm delivery</td>
<td>Recurring indication (cephalopelvic disproportion, failed second stage)</td>
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<tr>
<td></td>
<td>Increased interpregnancy weight gain</td>
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<tr>
<td></td>
<td>Latina or African American race/ethnicity</td>
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<tr>
<td></td>
<td>Gestational age ≥41 wk</td>
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<td></td>
<td>Preconceptional or gestational diabetes mellitus</td>
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</tbody>
</table>
Increased Rate of Uterine Rupture
- Classic hysterotomy
- Two or more cesarean deliveries
- Single-layer closure
- Induction of labor
- Use of prostaglandins
- Short interpregnancy interval
- Infection at prior cesarean delivery

Decreased Rate of Uterine Rupture
- Spontaneous labor
- Prior vaginal delivery
- Longer interpregnancy interval
- Preterm delivery

Predictors of Uterine Rupture

The most effective approach to reducing overall morbidities related to cesarean delivery is to avoid the first cesarean delivery.

Reduce Primary Cesarean Births

Low risk defined as
- Primary cesarean
- Single and Vertex presentation
- 37 or more completed weeks of pregnancy

- 14.5% in 1996
- 28.8% in 2009
- 26.9% in 2013

National Vital Statistics Reports, Vol. 63, No. 6, November 5, 2014
Reduce cesarean births among low-risk (full-term, singleton, and vertex presentation) women is a stated objective of the U.S. Department of Health and Human Services.

Target 10% reduction to 23.9%

Primary Cesarean Birth

Most frequent indications
- labor dystocia/failure to progress
- abnormal or indeterminate fetal heart rate tracing
- fetal malpresentation
- multiple gestation
- suspected fetal macrosomia

Primary Cesarean Delivery in USA

From a study by Boyle et al, 2013
Retrospective cohort study
- 38,484 women in the study
- Overall primary cesarean rate 21.3%
- Primiparous cesarean rate 30.8%
- Multiparous primary cesarean rate 11.5%

Failure to progress #1 indicator
42.6% of primiparous women and 33.5% of multiparous women never progressed beyond 5cm of dilation prior to delivery.
Study by Zhang, 2010
Patterns of Spontaneous Labor

Definitions effect labor management.
In this study active labor did not start until 6 cm dilation.

- Friedman curve outdated
- Different population
- Maternal age – women older
- Both maternal and fetal weight
- Increased use of epidural/intrathecal


Data were from the Consortium on Safe Labor.
- 62,415 parturients
- Single term gestation
- Spontaneous labor
- Vertex presentation
- SVD
- Normal perinatal outcome
Study by Zhang, 2010
Patterns of Spontaneous Labor

Results

- Labor may take over 6 hours to progress from 4 to 5 cm
- Over 3 hours to progress from 5 to 6 cm of dilation.
- Nulliparas and multiparas appeared to progress at a similar pace before 6 cm.
- However, after 6 cm labor accelerated much faster in multiparas than in nulliparas.


Study by Zhang, 2010
Patterns of Spontaneous Labor

Results

- The 95th percentile of the 2nd stage of labor in nulliparas with and without epidural analgesia was 3.6 and 2.8 hours, respectively.


Extending the length of the 2nd Stage of Labor

- 78 nulliparous women randomly assigned
- Group 1: 2nd stage 2hrs without epidural 3 hrs with epidural anesthesia
- Group 2: 2nd stage extended for at least one additional hour
- All women had epidural anesthesia.
- The incidence of cesarean delivery was
  - 19.5% (n=8/41 deliveries) in the extended labor group
  - 43.2% (n=16/37 deliveries) in the usual labor group

Laboring Down

- Physiological management of 2nd stage of labor
  - With or without an epidural
  - Goal to wait until woman feels an urge to push
    - Optimal use of maternal energy
    - Improved fetal oxygenation
  - Need to stop the directed valsala bearing-down as soon as the cervix is fully dilated

ACOG/SMFM guidelines for prevention of primary cesarean delivery

- Prolonged latent (early)-phase labor should be permitted
- The start of active-phase labor can be defined as cervical dilation of 6 cm, rather than 4 cm
- In the active phase, more time should be permitted for labor to progress
- Multiparous women should be allowed to push for 2 or more hours and primiparous women for 3 or more hours; pushing may be allowed to continue for even longer periods in some cases, as when epidural anesthesia is administered

ACOG/SMFM guidelines for prevention of primary cesarean delivery

- Patients should be encouraged to avoid excessive weight gain during pregnancy
- Access to nonmedical interventions during labor, such as continuous support during labor and delivery, should be increased
- External cephalic version should be performed for breech presentation
- Women with twin gestations should, if the first twin is in cephalic presentation, be permitted a trial of labor
- Techniques to aid vaginal delivery, such as the use of forceps, should be employed

Operative Vaginal Delivery

Supported by ACOG when appropriate to reduce the incidence of cesarean births

- Maternal exhaustion
- Inability to push effectively
- Pre-existing cardiovascular disease
- Arrest of descent or need to rotate
- Non reassuring fetal heart rate patterns in the 2nd stage of labor


Operative Vaginal Delivery

Rate of operative vaginal delivery

1993 Rate 9.01%
2013 Rate 3.3%

Can be used safely to avoid cesarean delivery
Routine episiotomy is not recommended
Need to have an experience health care provider


Primary Cesarean Section Rates

<table>
<thead>
<tr>
<th>State</th>
<th>2006</th>
<th>2009</th>
<th>2012</th>
</tr>
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<tbody>
<tr>
<td>WA</td>
<td>20.4</td>
<td>20.2</td>
<td>19.5</td>
</tr>
<tr>
<td>Idaho</td>
<td>14.5</td>
<td>14.9</td>
<td>14.7</td>
</tr>
</tbody>
</table>
Advocate for:
- Constant one on one labor support by experienced OB RN
- Avoid Induction of Labor
- Reconsider use of constant EFM
- Promote ambulation and position changes
- Redefine onset of active labor
- Support ‘laboring down’
- Extend active non-directive pushing in 2nd stage of labor (by at least an hour)
- Support instrumental vaginal deliveries
- Change society’s and the media’s portrayal of labor

Any Questions

Thank you ☺