OBJECTIVES

• List the maternal-fetal indications that may contribute to a Cesarean Section (C-Section)
• Discuss the indications for offering a patient a Trial of Labor After Cesarean (TOLAC)
• List (2) items that contribute to successful Vaginal Birth After Cesarean (VBAC) rates
• Discuss complications of C-Section and VBAC’s
• List signs and symptoms of Uterine Rupture

BACKGROUND

• C-Section rates ^ from 6.5% in 1965 to 31-35% in 2013 !!
• National Goal for Healthy People 2010 Nulliparous, Term, Singleton, Vertex (NSVT)/Primary C-Section Rates: 15.5%...
• Healthy People 2020 Goal for Primary C-Section Rates: 23.9%
Key Points:
- Induction should be performed only for medical indication
- Adequate time for normal latent and active phases of labor should be allowed unless expeditious delivery is medically indicated
- >6cm with membranes ruptures & ≥ 4 hours of adequate contractions
- 6 hours if no cervical change with adequate Ucs
- Pushing: 4 hrs primip with CLE; 3 hrs multip CLE

BACKGROUND
- Targeting NSVT Rate REDUCTION now to STOP future impact: (90% will have REPEAT C-Sections)
- 2020 Goal to “double” VBAC rates
There is a Large Variation in Cesarean Rates Among California Hospitals

Range: 16.6%-75.8%
Median: 31.4%
Mean: 32.3%

But wait, you say, my hospital only takes care of high risk patients?

251 California Hospitals Reporting Live Births

NTSV CS Rate Among CA Hospitals: 2014

Nulliparous Term Singleton Vertex

Range: 12%—70%
Median: 25.3%
Mean: 20.2%

Risk Adjustment did not reduce the variation

National Target = 23.9%

40% of CA hospitals meet national target

Large Variation = Improvement Opportunity
FACTORS EFFECTING RATES??

- Repeat C-Sections
- Dystocia-Breech Deliveries (Less Mid-Pelvic Deliveries)
- Electronic Fetal Monitoring
- Malpractice Fears

FACTORS INCREASING CESAREAN RATE

- Changing Demographics: Increased age, Obesity, Induction rates
- Convenience for provider
- Maternal Request for Primary (2.5%)

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 progress complications</td>
<td>28%</td>
</tr>
<tr>
<td>Fetal Intolerance of Labor</td>
<td>33%</td>
</tr>
<tr>
<td>Breech/Malpresentation</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Multipara</td>
<td>Not available</td>
</tr>
<tr>
<td>Various Obstetric and Medical/Obstetric vs. (Fetal) Nonsuppressible, Hypertension, Maternal, etc.)</td>
<td>8%</td>
</tr>
<tr>
<td>Pre-eclampsia</td>
<td>0%</td>
</tr>
<tr>
<td>&quot;Elective&quot; (variously defined)</td>
<td>0%</td>
</tr>
<tr>
<td>(Scheduled without &quot;medical indication&quot;)</td>
<td>18%</td>
</tr>
</tbody>
</table>

(Those "without a medical indication")
SHOULD BE AN INDICATION FOR SURGERY: LABOR DYSTOCIA

- **POWER/ No Power- (Inadequate Forces)**
  - Contractions ineffective (intensity, frequency, irregular patterns/ poor pushing)

- **PASSENGER PROBLEMS*- FETAL PRESENTATION/ POSITION/SIZE*- (Breech, Occiput Posterior, Macrosomia)

- **PELVIS PROBLEMS: Shape** (Small Pelvis Inlet, Pelvic Shape)
  - Other abnormalities of the Birth Canal

- **PAIN PROBLEMS- (Uncontrolled)** Pain increases tension, inability to relax

- **PSYCHE**: (Indication/ Time in labor, Support, etc)

### What Indications Drive the VARIATION in CS?

<table>
<thead>
<tr>
<th>CS Indication</th>
<th>Proportion of Overall CS Rate</th>
<th>Proportion of Primary CS Rate</th>
<th>CS Rate for this Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeat (prior)</td>
<td>35-30%</td>
<td>—</td>
<td>90+%</td>
</tr>
<tr>
<td>&quot;Abnormal Labor&quot; (ODP/FTP)</td>
<td>25-30%</td>
<td>35-45%</td>
<td><strong>Highly variable</strong></td>
</tr>
<tr>
<td>Fetal Intolerance of labor</td>
<td>10-15%</td>
<td>15-20%</td>
<td><strong>Highly variable</strong></td>
</tr>
<tr>
<td>Breech/Transverse</td>
<td>10%</td>
<td>15-20%</td>
<td>58%</td>
</tr>
<tr>
<td>Multiple Gestation</td>
<td>5-9%</td>
<td>10-15%</td>
<td>60-80%</td>
</tr>
<tr>
<td>Other: Placenta Previa, Herpes</td>
<td>~5%</td>
<td>~10%</td>
<td>50%</td>
</tr>
</tbody>
</table>

MATERNAL INDICATIONS

- Repeat C-Section
- Contracted pelvis (congenital, fracture)
- Obstructive tumors
- Placenta Previa
- Active Herpes
- Medical Conditions (Cardiac, Pulmonary, etc)
Fetal Indications

- Category II &/or Category III FHR Tracings (Fetal Intolerance of Labor)
- Mal-presentation (Breech)
- Cord Prolapse
- Congenital anomalies

Maternal-Fetal Indications

- Failure to progress in labor
- Placental Abruption
- Conjoined Twins
- Perimortem

Cesarean: Maternal Risks

Acute
- Common:
  - Longer hospital stay
  - Increased pain and fatigue
  - Postpartum hemorrage (transfusions ~2%)
  - Slower return to normal activity and productivity
  - Delayed or difficult breastfeeding
  - Anesthesia complications
  - Wound infection
  - Deep vein thrombosis

Long Term & Subsequent Births
- 1/100 to 1/1000
  - Abnormal placentation (previa and accreta)
  - Uterine rupture
  - Surgical adhesions
  - Bladder surgical injury
  - Bowel surgical injury
  - Bowel obstruction

We perform over 160,000 Cesareans every year in California
MATERNAL MORBIDITY

Cesarean: Neonatal Risks

- Increased neonatal morbidity
  - Impaired neonatal respiratory function
  - Increased NICU admissions
  - Affects maternal-newborn interactions including breastfeeding
  - No reduction in cerebral palsy rates

Figure 9: Increased Risk of Urinary Infection for Cesarean Delivery Compared to Vaginal Birth

Source: Bureau et al. 2004, Magee Women's Hospital 1995-2000
VBAC = FEWER COMPLICATIONS THAN REPEAT C-SECTION

- Avoid Major Abdominal Surgery
- Have Less Hemorrhage Risk
- Have Less Infection Risk
- Have Reduced Recovery Time
- Uterine Rupture Rates approximately: 0.3-0.9%

WHY NOT TRY IT???? 1/100 is still a big risk....

AMERICAN CONGRESS OF OBSTETRICIAN AND GYNECOLOGISTS (ACOG) (2011)

Trial of Labor after Cesarean Section (TOLAC) is a reasonable approach to take in selected pregnancies.

**VBAC RATES:**
- 1985: 5%
- 1996: 28.3%
- 2006: 8.5%
- 2013: 7%
FACTORS CONTRIBUTING TO SUCCESSFUL VBAC

1. Patient had a previous vaginal delivery
2. Spontaneous Labor (verses Induction)

Other considerations for TOLAC should also include a review of the C-Section Indication. There may be a better VBAC success if previous surgery was for:
- Breech Presentation
- Emergent C-Section for Fetal or Maternal Indications
- Active Herpes Lesions

VERSUS: A FAILURE TO PROGRESS / ARREST of DILATION or DESCENT History

DECREASED VBAC SUCCESS INDICATORS

- Increased Maternal Age
- Non-White Ethnicity
- Gestational Age > 40 weeks
- Maternal Obesity (High BMI)
- Pre-eclampsia
- Short interval between pregnancies
- History of Macrosomia
UTERINE RUPTURE IS THE BIGGEST RISK AND HAS BEEN LINKED TO:

- History of a Classical Uterine Incision or prior transfundal surgery
- Misoprostol Use (DO NOT USE FOR TOLAC INDUCTIONS)
- Use of Prostaglandins and Pitocin during induction

UTERINE RUPTURE SIGNS/SYMPTOMS

- Category II and/or III Fetal Heart Rate Tracing (70% of cases)
- Increase/change in PAIN, Constant or Severe, Radiates to Shoulder or Rib Cage, Burning or Tearing, Unrest between Contractions...
- Change in Uterine Activity, Suddenly absent, Irritable OR Tetanic
- Abnormal Uterine Shape, Fundal Height suddenly increases
- Maternal VS changes (Shock Symptoms)
- Loss of Fetal Station

ABSOLUTE CONTRAINDICATIONS FOR TOLAC

- Previous "Classical Uterine" Incision
- Previous Uterine Rupture
- History of Transfundal Uterine Surgery
- Medical or Obstetrical complications that preclude vaginal delivery
- Induction with Misoprostol (Cytotec)
CONSIDERATIONS FOR TOLAC/VBAC

- Up to (2) previous *Low Transverse *Uterine Incisions
- Twins with no other contraindication to vaginal delivery and only ONE prior C-Section

WEIGHTED RISKS for DISCUSSION:
- Unknown Uterine Scar
- Macrosomia Suspected (>4000 gms)
- Previous low vertical Incision

ACOG ENDORSED REQUIREMENTS

- Resources for Emergency C-Section Delivery should be "Immediately Available" (OB, Anesthesia, OR Staff, Nurse, Pediatrician) (Institutionally driven)
- The risks for both the TOLAC and the Elective Repeat C-Section must be clearly documented in the medical record: 1.6/100,000 Maternal Deaths (TOLAC)
  5.6/100,00 Maternal Deaths (Repeat)
- Documentation of counseling and management plan shall be included in medical record.

PATIENT SAFETY

- Staffs ability to recognize Uterine Rupture signs/symptoms and respond. (DRILLS, DRILLS, DRILLS)

- If conflicts arise between patient wishes and health care provider or facility policy; careful explanation and if appropriate, transfer of care to facilities supporting TOLAC, should be used rather than coercion. (Antenatally is BEST)
### NURSING IMPLICATIONS

- **Continuous FHR Monitoring**
- **High Risk Intrapartum Assessment Guidelines**
- **Induction Considerations- Foley Bulb use for cervical ripening should be considered. NO MISOPROSTOL USE!!!**
- **Observe for S/S of Uterine Rupture & Implement interventions:**
  - **STAT C-Section**, (2) **IV Lines, Oxygen, Fluid Bolus**, Transfusion possibility, Neonatal Team
  - **KNOW Institutional Policy/ Procedure**

### REFERENCES:

- www.cmqcc.org