OB Excellence: Shoulder Dystocia-BEST Practice
Perinatal University
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Course Objectives
- Compare and contrast BEST Practice recommendations relative to shoulder dystocia practice, procedure, and patient safety
- Discuss & highlight clinical BEST Practice to limit invasive SD maneuvers and encouraging non-invasive, first line maneuvers with Perinatal Team members
- Review current hospital policies, procedures, and protocols relative to SD

☀ BESsT-
Practice Management Guidelines
B: BEST Decision
E: Evidence-Based
S: Simple & Safe
T: Team Focused

☀ BESsT-
Augmentation & Induction
Practice Management Guidelines
1. SD Risk Factors
2. Associated Morbidity
3. Prospective Interventions to ↓ SD
4. Outline SD Management
5. Medical-Legal Implications
6. QA Tools & Indicators

Group Discussion #1
Questions ?: [*Actual or Best Estimate]

❖ What is your Hospital Shoulder Dystocia Rate?
❖ Does you Hospital have a plan to decrease Birth Trauma?
Shoulder Dystocia Statistical Significance & Risk Factors

Definition:
ACOG Practice Bulleting #40 (reaffirmed 2008)
Impaction of the ANTERIOR shoulder behind the maternal pubis symphysis Or POSTERIOR shoulder on the sacral promontory

Shoulder Dystocia: Incidence
ACOG (2002/2008): 0.6-1.4 (*50)%
Creasy & Resnick (2009): 0.24-2 (*8.2)%
Gabbe et al (2007): 0.15-1.7 (*47)%

Additional Research:
Schwartz, 1958: 0.19% (16,229 Deliveries)
Acker, 1985: 2 (*22.6)% (14,577 Deliveries)
Wagner et al, 1999: 1-4%
Beall et al, 1998: 0.16%

Antepartum Risk Factors
(Jarvie & Ramsay, 2009; ACOG: Practice Bulletins #22, #40; Creasy & Resnick, 2009; Mehta et al 2006; Wagner 1999; Spong et al 1995)
- *Fetal Macrosomia
- *Maternal Diabetes
- Maternal Obesity
- Post Term Pregnancy

Intrapartum Risk Factors
- Labor Induction
- Epidural Anesthesia
- Protraction or Arrest of Labor
- Prolonged Second Stage
- Operative Vaginal Delivery
Macrosomia Risk Factors

- Prior History of Macrosomia
- Maternal Prepregnancy Weight
- Weight Gain during Pregnancy
- Multiparity
- Male Fetus
- Gestation Age > 40 Weeks
- Ethnicity
- Maternal Birth Weight
- Maternal Age < 17 yo
- Positive 50-gm Glucose Screen + Negative 3-hr Glucose Tolerance Test

Shoulder Dystocia: Incidence

Macrosomia (>4000g) occurs in 10% of all US births & >4500g occurs in only 1.5% (ACOG, 2008)

IF ↑ EFW > 4500:

- >4500 = SD INCREASES TO 9.2-24%
- >4500 + DM = SD INCREASES TO 20-50%

Shoulder Dystocia Diagnosis

Primary (Objective)

- Turtle Sign
- Newborn Weight

Secondary (Subjective)

- Prenatal Care Record (PNCR)
- Risk Factors
- Physical Assessment Techniques
- Fundal Height
- Leopold’s Maneuvers
- Pelvimetry
- Testing
- 1Hr Glucose & 3 Hour GTT
- Ultrasound
- Labor Curve

SD: Diagnosis-PA Techniques

- Fundal Height
- Leopold’s Maneuvers

Predicting Fetal Macrosomia:

<table>
<thead>
<tr>
<th></th>
<th>sensitivity</th>
<th>predictive value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U/S</td>
<td>17%</td>
<td>36%</td>
</tr>
<tr>
<td>Clinical</td>
<td>43%</td>
<td>53%</td>
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</tbody>
</table>
Friedman’s Curve

Shoulder Dystocia Maternal, Fetal, & Neonatal Morbidity & Mortality

Morbidity may be due to:
Internal Factors
  Fetal Descent/Birth Process
  Brachial Plexus Injuries can occur in-utero (Gherman et al, 1997, Jennett et al, 1992, Nocon et al, 1993)

External Factors
  Cesarean Section (German et al, 1997)
Management Maneuvers
  Major Maneuvers = INCREASE MORBIDITY

Maternal Morbidity
  *PP Hemorrhage
  *Fourth Degree Lacerations
  Cervical & Vaginal Lacerations

Fetal Morbidity
Perinatal Asphyxia
  pH Drops .04/min (Wood, 1973)
Macrosomia:
  Depressed Apgar Scores
  Increased Rates of NICU Admissions

Neonatal Mortality:
  21-290:1000 Deliveries
  Morbidity Immediately Obvious in 20% of Cases

Neonatal Morbidity
  *Brachial Plexus Injury: 0.0042 -40%
  Permanent Damage: 4-15%
  Vaginal Birth: 0.047-0.6%
  Cesarean Section: 0.0042-0.095%
  Clavicle Fracture: 10.6%
  Humerus Fracture: 4%
  Perinatal Asphyxia: 0.14-8.6%
  Erb’s Palsy
Group Discussion #2

Questions:
- What Maneuvers do YOU perform during a Shoulder Dystocia Incident?
- Which one is most effective for YOU?
- What Maneuvers do the Primary Practitioners at your facility Perform during a Shoulder Dystocia?

Shoulder Dystocia Maneuvers & Management

First Line
- Elective Cesarean Section
- Operative Vaginal Delivery
- Vaginal Delivery
- External Maneuvers
  - McRobert’s Maneuver
  - Suprapubic Pressure
  - Gaskin’s Maneuver

Second Line
- Episiotomy
- Internal Maneuvers
  - Wood’s Screws Maneuver
  - Rubin’s Maneuver
  - Posterior Arm Release
  - Cleidotomy
  - Symphysiotomy
  - Zavanelli Maneuver

Elective Cesarean Section

EFW > 5000g without DM RISKS:
- Cesarean Birth: 35-60%
- Brachial Plexus Injury: 7-11%
- Perinatal Death: 2.4%

Fundal Pressure (Kristellar Maneuver)
- Contributes to Impaction & Perineal Lacerations
- Traction + Fundal Pressure is associated with brachial plexus injuries, fractures of the humerus & clavicle (ACOG, 1997; Baskett & Allen, 1995; Gross et al, 1987)
- Fundal Pressure + Vacuum Extraction + Episiotomy lead to Severe Perineal Lacerations (Matsuo et al, 2009)
- May result in Uterine Rupture
McRoberts’ Maneuver
- Benefits first described 1911
- Popularized by Dr. William McRoberts, Jr.
- Success Rate/Release of Shoulder Dystocia
  Alone: 39-42%
  + Suprapubic Pressure: 50%
  + Suprapubic Pressure +/- Proctoepisiotomy: 54-58%

McRobert’s Maneuver: Hyperflexion + Abduction, “Supine Squat”
Benefits:
✓ Clinical Pelvimetry: ↑ AP 1.75cm
✓ Symphysis Rotates: 8 cm
✓ Flattens lumbar lordosis

McRoberts’ Maneuver: Risk Factors
- Symphyseal Separation
- Dislocation of the Sacroiliac Joint
- Lower Extremity Neuropathy
- Limited Success in Obese Patients

Suprapubic Pressure
Displaces the impacted anterior shoulder to an oblique plane thereby allowing it to pass beneath the symphysis pubis
Maneuver Performed with any of the following:
✓ *Fist
✓ Side of Hand
✓ Layered Fingers

McRobert’s Maneuver + Suprapubic Pressure = 50% Resolution of Shoulder Dystocia

Gaskin’s Maneuver
- First introduced in 1976 by Ina May Gaskin
- Patient placed on Hands-and-Knees
- Research of 68/82 (83%) Delivered Patients:
  - Gaskin Maneuver ALONE

Diagnosis-to-Delivery Interval: 1-6 Minutes
Mechanism:
Sacrum Unobstructed as in Lithotomy
Weight of Maternal Abdomen Released
Gravity pushes Posterior Shoulder Anterior over Sacral Promontory
Benefits:
- Does not require fetal manipulation
- Does not preclude other maneuvers
- Useful with Bilateral Impaction
- All Additional SD Maneuvers may be completed in this Position
Group Discussion #3

Question ?: [*Actual or Best Estimate]
- What is the Episiotomy & Laceration Rates at your Facility?
  - TOTAL: All MDs?
  - Physician Rate vs CNM Rate vs Resident Rate?

Shoulder Dystocia: Algorithm
Episiotomy versus Fetal Manipulation in Managing Severe Shoulder Dystocia: A Comparison of Outcomes
Retrospective review from 3 data sets
  - Johns Hopkins
  - University of Florida
  - Litigation Data Base
  \[ n = 592 \text{ (242 with severe SD)} \]
Results: In severe SD, addition of episiotomy was associated with greater risk of brachial plexus injury & severe perineal trauma.

Direct fetal manipulation techniques are not associated with an increased rate of fracture or brachial plexus injuries.

Zavanelli Maneuver
*Maneuver: 7 Cardinal Movements Reversed*

*How long should SD Management Persist?*
2 Contractions?

*Limit Head-Body Delivery Time*

*Fetal pH Drops:*
*Goal:*
5 Minutes OR 2 Completed Contractions

Shoulder Dystocia: Management
- Elective Cesarean Section is Limited
- Quick Diagnosis
- Collaborative Team Response
- SD Management varies with Skill & Competency of Delivering Practitioner
- There is an inverse relationship between the incidence of Brachial Plexus injuries from SD and the experience of the obstetrician
  - *(Acker et al., 1988)*
- Non-surgical Skill → Surgical Backup
Group Discussion #4

Question ?: 
❖ DOES your facility perform Shoulder Dystocia Drills? 
❖ Individually or TEAM Training? 
❖ Quarterly, Biannually, or Annually? 
❖ Multidisciplinary: RN + MDs?

Shoulder Dystocia Documentation Requirements & Medical-Legal Implications

Shoulder Dystocia: Medical Malpractice Claims

2008: Retrospective Analysis of closed Claims

Review Period: 2000-2005
Total Claims: 189
Total Paid Claim Amount: $168 Million
Shoulder Dystocia: 26% (14 cases) of Claims
54% Resulted in 4% of all Costs = $6.7 Million

Shoulder Dystocia Delivery Documentation Record

*TIMES: Document each event listed below per EFM Clock

First Stage Labor Duration _______ Second Stage of Labor Duration _______ Time head delivered _______ Time body delivered _______

TRACTION & Maternal Efforts:

- NONE: Maternal Efforts Only
- Gentle
- Moderate
- Strong
- Assisted by Maternal Efforts
- NOT Assisted by Maternal Efforts
- Other: Explain if above boxes not checked

MANEUVERS: Document any/all maneuvers that apply, duration of Maneuvers, & list practitioner who performed maneuver

<table>
<thead>
<tr>
<th>Maneuvers</th>
<th>Duration: Begin/End Time</th>
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<tbody>
<tr>
<td>Practitioner(s) who Performed Maneuver</td>
<td></td>
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<tr>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>McRobert’s Maneuver:</td>
<td><strong><strong>/</strong></strong></td>
</tr>
<tr>
<td>Suprapubic Pressure:</td>
<td><strong><strong>/</strong></strong></td>
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<tr>
<td>Gaskin’s Maneuver:</td>
<td><strong><strong>/</strong></strong></td>
</tr>
<tr>
<td>Episiotomy:</td>
<td>Time: ______ Type: ______</td>
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<tr>
<td>Episiotomy Extension:</td>
<td>Time: ______</td>
</tr>
<tr>
<td>Modified Rubin’s Maneuver:</td>
<td><strong><strong>/</strong></strong></td>
</tr>
<tr>
<td>Wood’s Screw Maneuver:</td>
<td><strong><strong>/</strong></strong></td>
</tr>
<tr>
<td>Posterior Arm Release:</td>
<td><strong><strong>/</strong></strong></td>
</tr>
<tr>
<td>Zavanelli Maneuver:</td>
<td><strong><strong>/</strong></strong> Time of C/S: ______</td>
</tr>
</tbody>
</table>

Question ?:
❖ DOES your facility perform Shoulder Dystocia Drills?
❖ Individually or TEAM Training?
❖ Quarterly, Biannually, or Annually?
❖ Multidisciplinary: RN + MDs?
☐ Other (List all Additional Maneuvers): _____________________________________________
☐ * Nasopharyngeal Suction on Perineum

OTHER INFORMATION:
______________________________________________________________________________

PROVIDERS: Delivering Practitioner: __________________ Assistant: ______________________
List ALL Providers in Attendance at Delivery:
______________________________________________________________________________

Skills & Drills Multidisciplinary Collaborative Team Integration

❖ BESsT- Shoulder Dystocia Data Analysis
  1. QA Tools & Indicators
     SD-NEAR-MISS Analysis
       Chart Review for Risk Factors (DM + Macrosomia >4000gm)?
       Labor Dystocia Management?
       Second Stage Labor Management?
     Rate of SD
       Spontaneous
       Induced with Maneuvers
       Assess Charts for Inappropriate Use of Fundal Pressure
     Rates of Associated Birth Trauma:
       Lacerations
       Episiotomy Rate per Practitioner Groups v Individuals
       Brachial Plexus Injury
       Cervical Spinal Injury
       Orthopedic Injury: Clavicle or Humorous
       Perinatal Asphyxia
       5min Apgar Score <7
       Cord pH <7.0 & BD -12 or <

All Perinatal Quality, Risk, Safety Courses are accessed at Perinatal University @ www.perinatalu.org;
❖ A FULL Reference List is available ON-Line once you access your course!

Perinatal Goal: Fetal Safety & Wellbeing

Thank you for your participation in our program, Have a wonderful Day!