
Shoulder Dystocia Workshop for Family Physicians FMCH Retreat

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May 11, 2023

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Objectives

After this session participants will be able to:

- Summarize team preparation for shoulder dystocia
- Document critical elements in the medical record
- Coordinate timely multidisciplinary care of the affected neonate
- Cite evidence for best practices in subsequent pregnancy management
- Demonstrate techniques for management of shoulder dystocia

Sharing

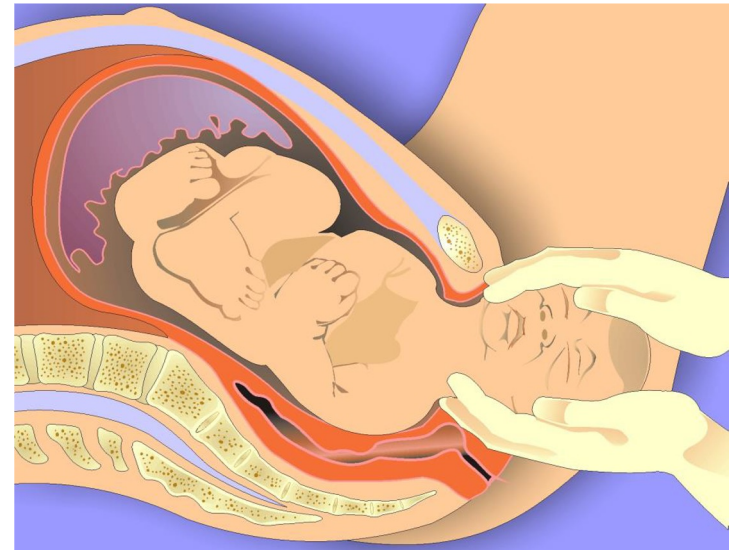
What makes you most nervous about shoulder dystocia?

What goes well? What would you do differently?

<https://globalhealthmedia.org/videos/stuck-shoulders/>

What is Shoulder Dystocia?

- “Stuck”
- Time > 60 seconds head to body interval
- Additional maneuvers
- Complications
 - Maternal injury
 - Neonatal injury
 - Note: not all brachial plexus injury is from SD



Risk Factors for Shoulder Dystocia

Antenatal Risk Factors		Labor Risk Factors
Maternal	Fetal	
Prior delivery with a shoulder dystocia	Macrosomia	Assisted vaginal delivery with vacuum or forceps
Gestational or preexisting diabetes	Male gender	Labor dystocia/arrest disorders
Maternal obesity		Prolonged second stage
Postdates pregnancy		
Abnormal pelvic anatomy		
Short stature (<5 ft or 0.5 m)		

Prevention of Shoulder Dystocia

- “Shoulder dystocia cannot be accurately predicted or prevented” □ be ready
- Most shoulder dystocias occur in women with NO risk factors
- Ultrasound-derived fetal abdominal diameter–biparietal diameter difference □ not been found to be clinically useful

Suspected Macrosomia

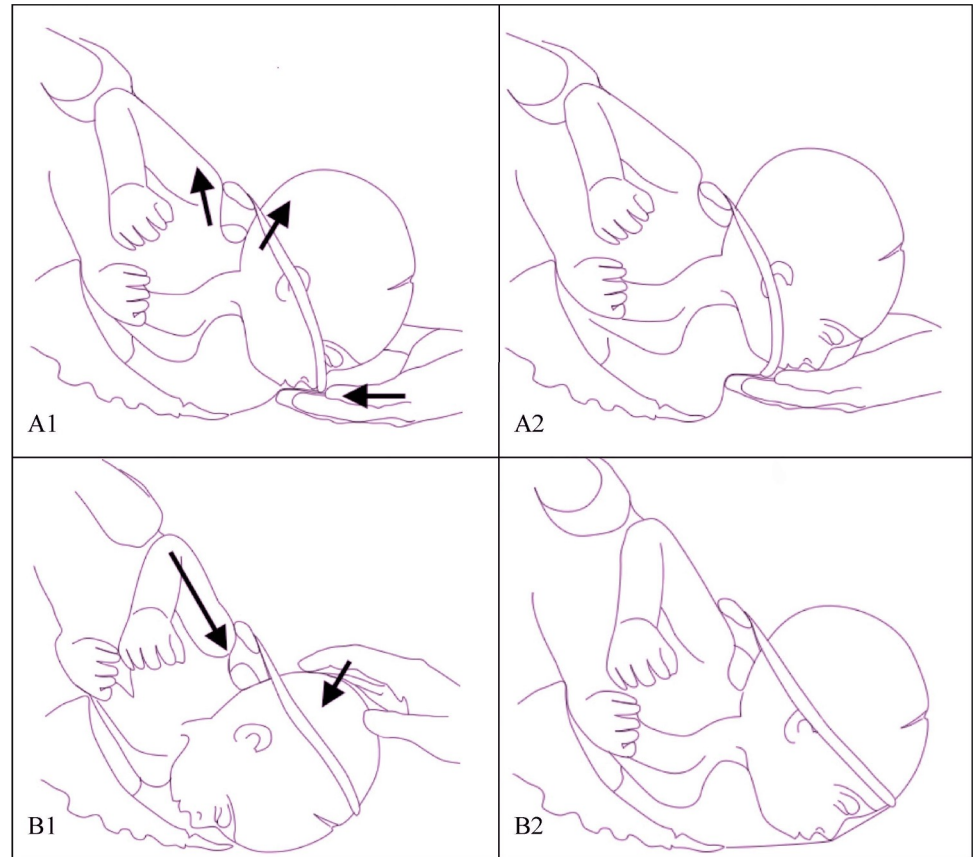
- Meta-analysis showed reduction in SD if IOL at 37-38wks (no change in brachial plexus injury)
- ACOG recommends avoiding IOL before 39wks
- Diabetes or not?
 - If EFW >4500g AND diabetes, elective C/S NNT is 443 to prevent one permanent brachial plexus injury
 - If EFW >5000g for non diabetic women

The “Push Back” Maneuver

- 2018 RCT in France
- About 900 women randomized
- Those with “push back” had lower risk of SD
 - OR, 0.36; 95% CI, 0.14 to 0.92; P = 0.03

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If Anticipating SD

- **Prepare** for SD (have step in room, talk out loud about risk and mnemonic, have appropriate personnel - nursing for mom and baby, NICU if high risk)
- **Do not pull** on the head, encourage vigorous pushing
- McRoberts' POSITION vs MANEUVER, **move on quickly**
 - Woods' Screw and Reverse Woods' Screw
 - Removal of posterior arm
 - Posterior axillary sling: Menticoglou maneuver

H Call for **H**elp!

E **E**valuate and **E**xplain the clinical situation

L **L**egs – McRoberts maneuver

P Suprapubic **P**ressure

E **E**nter the birth canal posteriorly and assess the need for an **E**pisiotomy

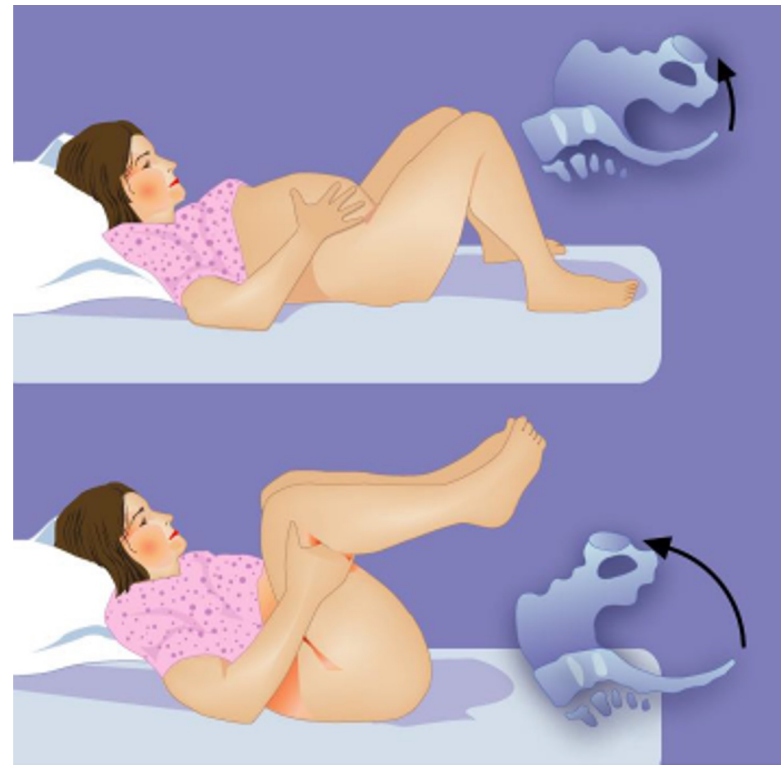
R⁴ **R**emove the posterior arm
Rotational maneuvers
Roll the patient to hands and knees
Repeat

What Is Gentle Traction?

- Studies of the force we apply....
(ALSO video)
 - “threshold of force” thru sensor on provider
 - 99.89 N resulted in transient brachial plexus injury
 - Simulation: mean force 47N “normal”, 67N if SD
 - Case report: we don’t estimate well, and we over-estimate if stressful environment
 - UK: 2/3 of simulations used >100N
 - US: 40% pulled at least 100N, 15% > 100N
 - Not related to provider gender, ht, wt, BMI

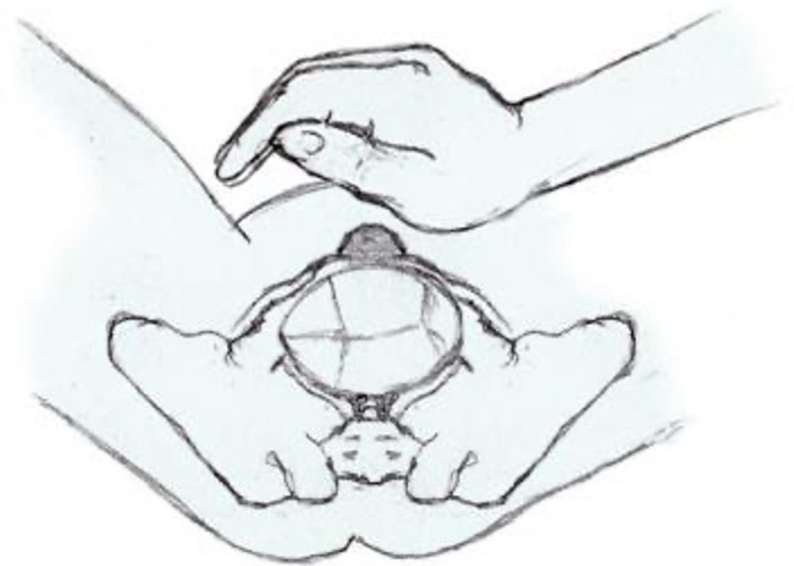
External Maneuvers

- Bring patient to end of space
- McRobert's
 - "simple, logical and effective" (ACOG)
 - "Heels to ears"
 - Displaces pubic symphysis superiorly 1-2cm
 - Sacral extension—flattens promontory
 - How far back is necessary?
 - Simple flexion, or abduction also?



Suprapubic Pressure

- Lateral vs straight down
- NOT FUNDAL
- “CPR” hand position
- Continuous vs rocking
- Posterior side of baby’s shoulder, switch if ineffective
- communicate with nursing



Internal Maneuvers: Which First?

- One study: only time to delivery predicted severity, **use whatever maneuver works fastest**
- Another: **removal of posterior arm** “accomplishes delivery” most often, with least injury
- **Equally, if not more important than the maneuver chosen, is the development of skilled teams who are practiced in the systematic approach to shoulder dystocia**

Gaskin Maneuver

- **Rolling over to 'all fours' position**
 - Gaskin maneuver
 - Increases pelvic dimensions and may allow fetal position to shift, freeing the impacted shoulder



Provider needs to re-orient—
formerly “posterior” shoulder is now
anterior

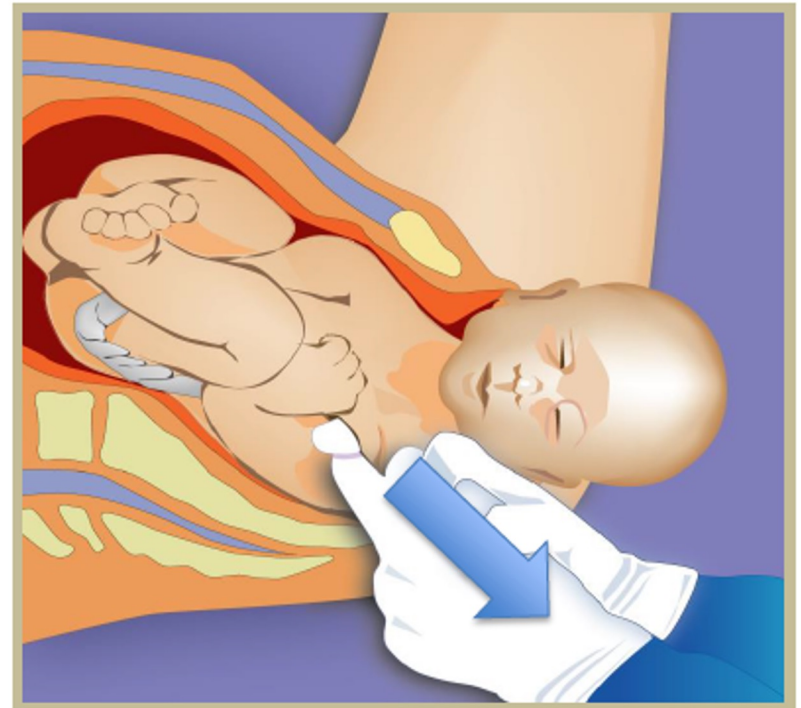
May be difficult if dense epidural or
broken bed

Consider practicing this position
during labor

Posterior Axillary Sling (“Menticoglou”)

Posterior Sling

- Head is gently held upward by an assistant
- Flex fourth and fifth fingers of each hand and press against the woman’s perineum at the 6 o’clock position
- Both middle fingers are both placed into the axilla
- The fingers overlap each other
- Traction downward and outward along the curve of the sacrum



“Last Resort”

Zavanelli

- Manual return of the fetus to the vagina, with subsequent cesarean
- First described in 1985
- Case series 1999

Abdominal Rescue

- Small series
- GA with hysterotomy
- Rotate infant transabdominally (screw)
- Delivery vaginally

Symphysiotomy

- Incision of symphysis
- Limited data
- Low resource countries

Quality Documentation

SHOULDER DYSTOCIA ATTENDING DELIVERY NOTE

DELIVERY SUMMARY		MANEUVERS USED		NEWBORN		APGAR		
EFW on Admission 2416	Laceration Degree First Degree	Maneuvers Performed <input type="checkbox"/> McRobert's <input type="checkbox"/> Suprapubic Pressure <input type="checkbox"/> Episiotomy <input type="checkbox"/> Rotation-Rubin/Woods Screw <input type="checkbox"/> Delivery of Posterior Arm <input type="checkbox"/> Fracture of Clavicle <input type="checkbox"/> Gaskin (All Fours) <input type="checkbox"/> Zavanelli (Cephalic Replacement)		Birthweight 2640	APGAR 1 Min 5 Min 9 9			
Diabetic	Laceration Type Vaginal	Other Maneuvers		Baby Admitted to Well Baby Nursery				
Other Risk Factors	Lac/Epis Repaired Yes	Instruments Used for Delivery		Cord Ph done? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Time Head Delivered M / d /yyyy H :mm	Type of Anesthesia <input type="checkbox"/> None <input checked="" type="checkbox"/> Epidural <input type="checkbox"/> Spinal <input type="checkbox"/> Combined <input type="checkbox"/> General <input type="checkbox"/> Duramorph <input type="checkbox"/> IV Sedation <input type="checkbox"/> Other <input type="checkbox"/> Pudendal			Arterial Cord pH Cord PO2 pCO2 BE				
Time Body Delivered 5 /24 /2010 10 : 20	EBL <input checked="" type="checkbox"/> <500 mL <input type="checkbox"/> 500-1000 mL <input type="checkbox"/> 1000-1500 mL <input type="checkbox"/> >1500 mL <input type="checkbox"/> Blood Transfusion Given			Venous Cord pH Cord PO2 Cord pCO2				
Fetal Head Position Occiput Anterior	Shoulder Impacted	Stage 1 Duration Hrs Mins 6 45		Stage 2 Duration Hrs Mins 0 35		<input type="checkbox"/> Attending MD discussed events with patient and family member		
Placenta Delivery Spontaneous	Episiotomy Type None	FINISHED		Attending Narrative Note				
				ATTENDING COMPLETING NOTE				
				Include name and dictation code				

Time

Maneuvers

Anterior Shoulder

Maternal Condition

Chord pH

Team Members present

Documentation

- Contemporaneous documentation of the management of shoulder dystocia is recommended
 - record significant facts, findings, and observations about the shoulder dystocia event and its sequelae.
- This information is critical for accurately informing patients and future health care providers regarding the delivery events and counseling patients about future risks.
- Checklists or standardized documentation forms have been suggested as tools to help ensure that critical information is noted at the time of the delivery

Documentation in Epic

Delivery Summary

New Baby C-Section Delivery Note

Hector, Pending C-Section

Patient: Hector, Pending MRN: 2016081 Sex: Birth Date/Time: [Open Chart](#) [Admit](#)

Operative Delivery

Forceps attempted? Yes No
 Vacuum extractor attempted? Yes No

Shoulder Dystocia

Shoulder dystocia present? Yes No

Anterior shoulder: right left

Time recognized: Help called by:

Time help called: Physician/Provider:

Physician/Provider arrived: NICU staff:

NICU arrived: Additional staff:

Additional staff arrived:

Gentle attempt at traction, assisted by maternal expulsive forces? Yes No

First maneuver:

Time performed: Performed by:

Presentation

Presentation:	<input type="checkbox"/> Vertex	<input type="checkbox"/> Transverse	<input type="checkbox"/> Breech	<input type="checkbox"/> Face	<input type="checkbox"/> Brow	<input type="checkbox"/> Compound
Position:	<input type="checkbox"/> Left		<input type="checkbox"/> Middle		<input type="checkbox"/> Right	
	<input type="checkbox"/> Occiput		<input type="checkbox"/> Mentum		<input type="checkbox"/> Sacrum	
	<input type="checkbox"/> Anterior		<input type="checkbox"/> Transverse		<input type="checkbox"/> Posterior	

Not yet finalized. [Deliveries Complete](#)

Note: time is only in hour/minute? Unclear how to document seconds

Delivery Summary

New Baby C-Section Delivery Note

Hector, Pending C-Section

Patient: Hector, Pending

MRN: 2016081

Sex:

Birth Date/Time:

[Open Chart](#)

[Admit](#)

- Summary
- Chart Review
- Results Review
- Intake/Output
- Problem List
- Notes
- Orders
- Charges
- Pre-op Consult
- Consent
- Triage-Admit
- Transfer
- Discharge
- Delivery Sum...
- Customize
- More

- Labor Events
- Labor Event Times
- Anesthesia
- Operative Delivery
- Shoulder Dystocia**
- Presentation
- Newborn Delivery
- Delivery Providers
- Cord
- Placenta
- Resuscitation
- Apgars
- Skin to Skin
- Measurements
- Lacerations
- Blood Loss
- Vaginal Supply C...
- Procedures
- Labor Length

Shoulder Dystocia

Shoulder dystocia present? Yes No

Anterior shoulder: right left

Time recognized:

Time help called:

Physician/Provider arrived:

NICU arrived:

Additional staff arrived:

Help called by:

Physician/Provider:

NICU staff:

Additional staff:

Gentle attempt at traction, assisted by maternal expulsive forces? Yes No

First maneuver:

<input type="checkbox"/> McRoberts maneuver	<input type="checkbox"/> suprapubic pressure	<input type="checkbox"/> delivery of posterior arm	<input type="checkbox"/> Woods screw maneuver	<input type="checkbox"/> Rubin maneuver	<input type="checkbox"/> Gaskin maneuver	<input type="checkbox"/> fetal clavicular fracture
<input type="checkbox"/> Zavanelli maneuver	<input type="checkbox"/> symphysiotomy					

Time performed:

Performed by:

Second maneuver:

<input type="checkbox"/> McRoberts maneuver	<input type="checkbox"/> suprapubic pressure	<input type="checkbox"/> delivery of posterior arm	<input type="checkbox"/> Woods screw maneuver	<input type="checkbox"/> Rubin maneuver	<input type="checkbox"/> Gaskin maneuver	<input type="checkbox"/> fetal clavicular fracture
<input type="checkbox"/> Zavanelli maneuver	<input type="checkbox"/> symphysiotomy					

Time performed:

Performed by:

Third maneuver:

<input type="checkbox"/> McRoberts maneuver	<input type="checkbox"/> suprapubic pressure	<input type="checkbox"/> delivery of posterior arm	<input type="checkbox"/> Woods screw maneuver	<input type="checkbox"/> Rubin maneuver	<input type="checkbox"/> Gaskin maneuver	<input type="checkbox"/> fetal clavicular fracture
<input type="checkbox"/> Zavanelli maneuver	<input type="checkbox"/> symphysiotomy					

Time performed:

Performed by:

Fourth maneuver:

<input type="checkbox"/> McRoberts maneuver	<input type="checkbox"/> suprapubic pressure	<input type="checkbox"/> delivery of posterior arm	<input type="checkbox"/> Woods screw maneuver	<input type="checkbox"/> Rubin maneuver	<input type="checkbox"/> Gaskin maneuver	<input type="checkbox"/> fetal clavicular fracture
<input type="checkbox"/> Zavanelli maneuver	<input type="checkbox"/> symphysiotomy					

Time performed:

Performed by:

Not yet finalized.

Hide copied text

Hover for details

Delivery Summary Documentation

Hector, Pending [2016081]

Labor Events

Labor/Delivery complications: **Shoulder Dystocia**

Shoulder Dystocia

Shoulder dystocia present?: **Yes**
Anterior shoulder: **right**
Time recognized: **4/10/2019 12:09:00**
Time help called: **4/10/2019 12:09:00**
Physician/Provider arrived: **4/10/2019 12:10:00**
Additional staff arrived: **4/10/2019 12:11:00**
Gentle attempt at traction, assisted by maternal expulsive forces?: **Yes**
First maneuver: **McRoberts maneuver, suprapubic pressure**
Second maneuver: **Rubin maneuver**
Third maneuver: **Woods screw maneuver**
Fourth maneuver: **delivery of posterior arm**

Presentation

Presentation: **Vertex**
Position: **Left Occiput Transverse**

Newborn Delivery

Time head delivered: **4/10/2019 12:09:00**
Birth date/time: **4/10/2019 12:13:00**
Delivery type: **VBAC, Spontaneous**

Delivery Providers

Delivering clinician:

Provider	Role
	Delivery Assist
	Delivery Nurse

Placenta

Placenta delivery date/time:
Placenta removal:

Apgars

Living status: **Living**

Medicolegal Risk

Documentation

- Antenatal risk factors
 - Diabetes, History of dystocia, known macrosomia
“Well controlled gestational diabetic not requiring medications with an estimated fetal weight of 3500g and pelvis proven to 3200g with uneventful vaginal delivery – not at increased risk of shoulder dystocia”
- Features of management: duration of dystocia, maneuvers used, chord pH
 - Reference to “traction” - always document (and do) “gentle traction”
 - Higher risk? Document consideration at each stage.
“Primp with GDM-A2 with suspected macrosomia, EFW of 3900g with slow first stage progress. Augmentation initiated. Following labor course closely.”
- Who was called to the room for support e.g. NICU, additional nursing
- Features of labor which might indicate suspicion such as slowly progressing labor.

Lack of clarity or **delay in consultation with or transfer to OB**

less with dystocia and more with NRFHT

Assisted delivery in a diabetic

Data Supporting Simulation

- Simulation and team training protocol are associated with **reduction in transient brachial plexus injury**
- After introducing mandatory clinical shoulder dystocia simulation for all personnel on a labor and delivery unit, the frequency of evidence-based management of shoulder dystocia was higher, and the **rate of neonatal brachial injury at birth was lower**
- **In one large UK hospital, a decade after annual training was started, there were no cases of permanent BP injury in 562 cases of SD**

Before Delivery

Prepare based on historical knowledge

- Major Risk Factors
 - Maternal History (10% chance of recurrence)
 - Fetal Macrosomia
 - Dysfunctional labor progression and patterns
 - Maternal Obesity
 - Gestational Diabetes
 - Excessive weight gain

Newborn resuscitation

- Team in room
- Rapid assessment of newborn
 - If need for cardiopulmonary support
 - vitals, warm and dry, stimulation
 - equipment
 - transfer to NICU
 - If no need for resuscitation
 - isolette
 - **evaluate for injury**
 - Delay versus rapid clamp and cut
- Cord gases (venous and arterial)

The Shoulder Dystocia Delivery- Newborn Risks

Potential complications:

- Fetal Brachial Plexus injuries (4.0 to 40%)- **most common**
- Permanent brachial plexus palsy (0.5 to 1.6%)
- Clavicular fracture (1.7 to 9.5%)
- Humeral fracture (0.1 to 4.2%)
- Hypovolemia due to chord compression
- Hypovolemic Shock
- Hypoxic-ischemic encephalopathy (0.3%), 1 in 22,000
- Long term neurologic deficits
- Death

Worcester Early Intervention Network

330 Plantation St.
Worcester, MA 01604
(508) 770-0089

567 Southbridge St.
Auburn, MA 01501
(508) 770-0089

480 Main St.
Holden, MA 01520
(508) 770-0089

Towns Served -- Auburn, Boylston, Holden, Leicester, Paxton,
Shrewsbury, W. Boylston, Worcester

Who is Eligible?

Eligible children include those between birth and three years of age who were born with a disability or health condition that affects their development. Children who were born prematurely; have feeding, vision or hearing issues; are slow to crawl, sit, walk, talk or do things for themselves; have behavior or attention difficulties or have been identified as having environmental risk factors may also be eligible.

Parents are encouraged to call the early intervention program if they have any concerns related to their child's development.

- **THE EARLY INTERVENTION TEAM**
- Speech and Language Therapist
- Occupational Therapist
- Physical Therapist
- Developmental Specialist
- Registered Nurse
- Social Worker
- Mental Health Clinician

Non-surgical approaches

- Daily PT and regular OT
- **Erb's Palsy** requires early immobilization and passive and active motion exercises.
- Recovery nearly 100% if started within first 4 weeks of birth.
- Observation

Specialty Care Boston

Boston Children's Brachial Plexus Program

Contact: Contact the Brachial Plexus Program

617-355-6021

(Not necessarily a total transfer)

They treat children from birth to young adulthood with the following:

- Brachial plexus birth injury (BPBI)
- Traumatic brachial plexus injury
- Erb's palsy
- Total plexus involvement
- Horner's syndrome
- Klumpke's palsy
- Acute flaccid myelitis
- Thoracic outlet syndrome