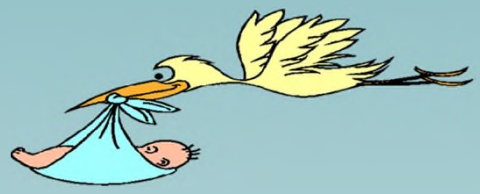
Obstetrical & Gynecological Emergencies



John Mohler, RN, BSN, CCRN, CFRN
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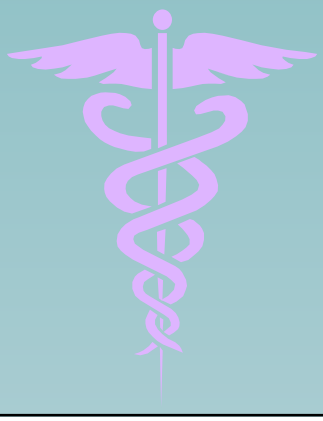
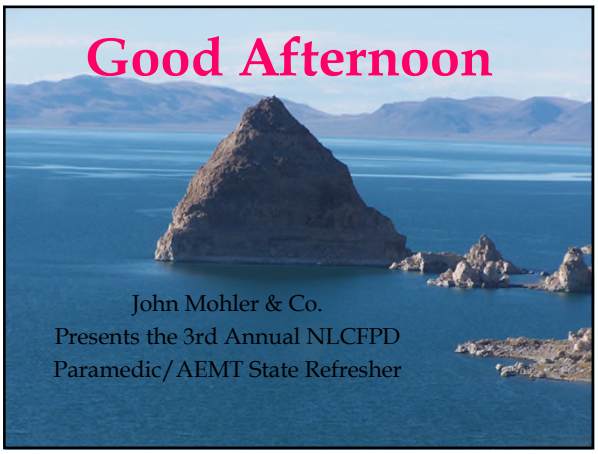


Good Morning CCFD

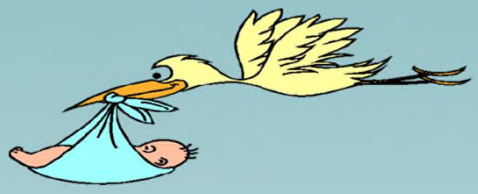
John Mohler, RN, BSN, CFRN, CCRN
SEMSA – Critical Care Services

Good Afternoon



John Mohler & Co.
Presents the 3rd Annual NLCFPD
Paramedic/AEMT State Refresher

Obstetrical & Gynecological Emergencies



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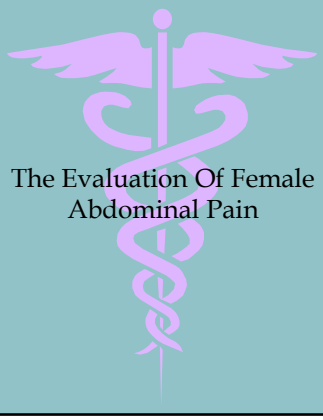
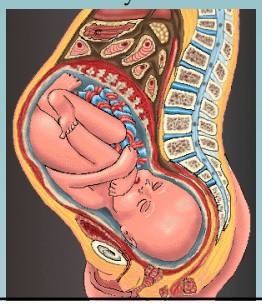
SEMSA - Air 1



The Evaluation Of Female Abdominal Pain

The Fertile Years

- 8 to 80 years old



Physiological Changes of Pregnancy

- Cardiovascular
- Respiratory
- Gastrointestinal
- Renal
- Musculoskeletal
- Reproductive

Cardiovascular Changes

- Increased O_2 consumption - 20% at Term
- Increased O_2 delivery - 40-60% at Term
- Blood Volume
  - Plasma - 45-50% at 32 weeks
  - RBC's - 25-32% at 30-32 weeks
- Left ventricular hypertrophy
- Hypercoagulative state

Cardiovascular Changes

- Resistance changes
  - SVR decreases 20% at 16-24 wks
  - PVR decreases 34% at 34 wks
- HR increases
- Stroke volume increases
- Blood Pressure
  - Systolic decreases 9% at 28 wks
  - Diastolic decreases 10% at 28 wks
  - Decreases dramatically with vena caval compression

Cardiovascular Changes

- Cardiac Output
  - Increases 6-8L/min 30-50% at Term
  - Increases an additional 45% with contractions and labor
  - With each contraction 300 -600 mls are shunted into maternal circulation
  - Reaches its peak at 30 minutes postpartum
- Systolic Murmur normal
- May have jugular venous distention
- EKG Changes
  - Low voltage QRS, Tented T waves, ST segment elevations, T wave inversion in lead III, Q waves in lead III and aVF

Respiratory

- Respiratory
  - Upper Airways
    - Mucosal edema & friability, Capillary engorgement
    - Obligate mouth breathers
  - Chest Wall
    - Increases in circumference, elevation of diaphragm, increase in diaphragmatic excursion
  - Respiratory Musculature
    - Diaphragm and intercostals accessory muscles contribute equally to tidal volume during pregnancy, max. inspiratory and expiratory pressures unchanged
  - Oxygenation
    - Uterine shunting begins when oxygen saturation falls below 92% at altitude and 96% at sea level

Respiratory

- Respiratory Rate – normal to slightly ↑
  - Compensatory Respiratory Alkalosis
- Tidal Volume - ↑ 40% (100-200 ml)
- Minute Ventilation - ↑ 40%
- Vital Capacity – unchanged
- Residual Volume – ↓ 20%
- Functional Residual Capacity - ↓ 20%
  - Supine positioning - ↓ 25%
- Inspiratory Capacity - ↑ 5-10% (100-300 ml)
- Total lung capacity - ↓ 4% (200-400 ml)

Respiratory Changes

Arterial Blood Gases

Parameter	Pregnancy	Pre-pregnancy
pH	7.40 - 7.45	7.35 - 7.45
pO_2 (mm Hg)	104 - 108	80 - 100
pCO_2(mm Hg)	27 - 32	35 - 45
Bicarbonate		
HCO_3 (meq/L)	22	26

Normal Physiological Alterations in Pregnancy

- Cardiovascular
  - intravascular volume ⇧ 40-50%
  - Cardiac Output ⇧ 30-40%
  - Heart Rate ⇧ 15-20 bpm
  - Blood Pressure ⇩ 10-15

Pregnant (3rd Trimester)

- Gastrointestinal
  - Gastric motility — decreased
  - Gastrointestinal sphincter — decreased competency
- Urinary
  - Urinary collecting system — dilated
  - Glomerular filtration rate — ↓ 30-50%

Interview Questions

- Last menstrual period? (LMP)
  - Was it normal?
  - Have you missed a period?
  - Could you be pregnant?
    - Use of contraceptives
  - Is there any vaginal discharge?
    - What color is it?
    - Is there any odors associated with it?

Evaluate The Abdominal Pain

- Location
- Quality
- Intensity
- Chronology
- Setting
- Aggravation or alleviation of symptoms
- Associated complaints or symptoms
- Medications

Two Pain Evaluation Tools

- P
- Q
- R
- S
- T

- P
- A
- I
- N

GYNECOLOGICAL EMERGENCIES

- P
  - provocation, location
- Q
  - quality of the pain
- R
  - radiation of pain
- S
  - severity (1-10)
- T
  - time of pain

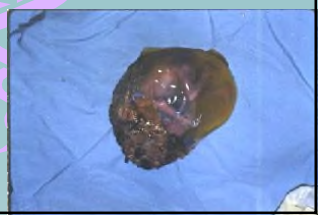
- P
  - period of pain
- A
  - area of pain
- I
  - intensity
- N
  - nullify/provokes

SAMPLE history

- S CENE SAFETY
- A LLERGIES
- M EDICATIONS
- P AST MEDICAL HISTORY
- L AST MEAL
- E VENTS PRECEDING

Abortion

- Spontaneous - miscarriage
- Therapeutic
- Criminal



General Signs and Symptoms

- Patient suspects that she is pregnant
- Vaginal bleeding
- Menstrual like cramp pains in lower abdomen
- Passage of tissue & clots
- Uterus is non palpable
- Uterus is below the woman's umbilicus

Threatened AB

- Bleeding
- Pain- like menstrual cramps
- Usually in 1 st trimester

Care in General

BLS prn

Watch and Treat for Shock

Expedient transport

Save any expulsed tissue

Inevitable AB

- Bleeding - can be massive
- Uterine contractions

Incomplete AB

- Hemorrhage
- Contractions
- Retained POC

Care in General

- BLS prn
- Watch and Treat for Shock
- Expedient transport
- Save any expulsed tissue

Missed AB

- The fetus dies at less than 20 weeks and is retained for at least 2 months

Care in General

- BLS prn
- Watch and Treat for Shock
- Expedient transport
- Save any expulsed tissue

- Preterm Labor
  - PTL is defined as regular contractions producing cervical changes occurring between the 20th and 36th week of gestation
- Premature rupture of membranes (PROM)
  - The spontaneous rupture of the amniotic membrane before the onset of labor
  - Preterm PROM (P PROM) occurring prior to 37 weeks gestation

Stabilization

- Dehydration can cause contractions that mimic labor
  - Give IV fluid bolous of 500-1000 cc on healthy patient and repeat prn
- Keep bladder empty –
  - Foley prn
- Infection may cause contractions
  - Consider antibiotics
- Avoid repeated vaginal exams unless pt. appears more active or c/o urge to have bowel movement or push
- Tocolytics

Pre Term Labor

Uterine tocolytic therapy:

- 1) Nifedipine:
  - 10 mg orally
- 2) Indomethacin (NSAID):
  - 50mg-100mg loading dose PO then 25 - 50mg Q 4-6 hours. Typically administered between 24-32 weeks gestation for only a 48 hour course;
- 3) Terbutaline:
  - 0.25mg SQ Q 20 minutes X 2 doses.
- 4) Magnesium sulfate:
  - 4-6 grams over 30 minutes followed by infusion of 2 gm/hr

Pre Term Labor

Fetal Protection Therapy

- Magnesium Sulfate:
- Antenatal Steroids:
  - a) Betamethasone 12mg IM Q24 hours X 2 doses
  - b) Dexamethasone 6mg IM Q12 hours X 4 doses
- Broad spectrum antibiotics

Tocolysis Or Inhibition Of Labor

- Bed rest
- No pelvic exams
- Tocolytics
  - Terbutaline
  - Magnesium sulfate
  - Nifidepine
  - Indomethacin
  - Ritodrine

Nifedipine

- 10 mg orally (immediate release capsule). If uterine contractions persist, may repeat every 20 minutes for three doses total.

Terbutaline

- Give initial IVP of 0.25 mg Terbutaline given over at least 1 min.
  - Alternatively:
    - 0.25 mg SQ q 20 min x 3 doses (SEMSA q 30 min)
- Then mix 5 mg of Terbutaline in 500 cc of $D_5$1/2NS and begin infusion at 60cc/hr = 10ug/min
  - Titrate up by 10ug/min q 20 min until contractions stop
  - Don't exceed 35ug/min unless MD orders specifically

Terbutaline

- 0.25 mg sq
  - Repeat q 20 min x 3 doses
- Side effects:
  - Jitterness, N & V, flushed feeling, tachycardia, palpitations, restlessness, lightheadedness
- Contraindications
  - Hold for maternal pulse >120, active bleeding, pulmonary edema,
- Antidote
  - Inderal 0.5 mg slow IVP, or
  - Verapamil 5-10 mg slow IVP

- February 17, 2011 (***UPDATED February 27, 2011***) — Clinicians should not use injectable terbutaline to prevent preterm labor or treat it beyond 48 to 72 hours because of the risk for maternal heart problems and death, the US Food and Drug Administration (FDA) announced.
- In addition, oral terbutaline should not be used for the prevention or any treatment — acute or prolonged — of preterm labor because it shares the same safety risks as the injectable version and has not proven to be effective
- The FDA stated that the cardiovascular risks outweigh any potential benefit to pregnant women receiving injections of terbutaline on a prolonged basis, or any treatment with the tablet version of the drug.
- The American College of Obstetricians and Gynecologists also discourages the use of terbutaline for preventing preterm labor, the agency noted.

$MgSO_4$ for Tocolysis

- Load with 4-6 gm of $MgSO_4$ mixed in 50cc of D_5W to run at 150cc/hr
- Then mix 20 gm of $MgSO_4$ in 500cc of NS to run at 50cc/hr = 2 gm/hr
  - the range is 1-4 gm/hr
- Note:
  - $MgSO_4$ can be given deep IM

Magnesium Sulfate

- Mix 50 gm in 500 cc D5W
  - Load with 4-6 gm over 30 min. (lower dose for decreased renal clearance
    - Maintenance dose = 2-4 gm/hr
- Side effects
  - Flushing , sweating, N&V, drowsiness, weakness, visual disturbance, general muscular relaxation
- Therapeutic level = 4-7 mEq/L
  - d/c for levels > 7 mEq/L
- Antidote: turn off MgSO4
  - 1 Gm Ca gluconate 10% over 3 min.
  - 1 gm CaCl 10% over 2-3 min.

Prostaglandin Inhibitors (Indomethacin or Indocin)

- Used as a 2nd line tocolytic
- Dosage: 50-100 mg PO or PR, followed by 25-50 mg q 4-6 hr for 24-48 hours only
- Side effects
  - Premature closure of the ductus arteriosus and neonatal pulmonary hypertension if used longer than 48 hours
- Do not use after 32 weeks gestation

Steroid Therapy (Betamethasone or Dexamethasone)

- Dosage:
  - Dexamethasone 6 mg IM q 12 hr. x 4 doses
  -
- Si
  - Increased risk of infection, watch for increased risk of pulmonary edema when used with tocolytics

Trying to buy 48 hours

- it decreases Respiratory Distress Syndrome in the premie

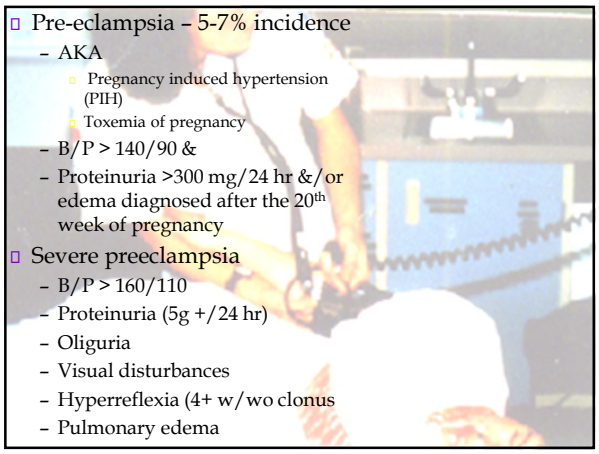
Toxemia of Pregnancy

Pre-eclampsia
versus
Eclampsia

Hypertensive Disorders

- > 50,000 women die/yr 2^0 HTN related to pregnancy

- PIH (pregnancy induced hypertension)
  - Can last up to 6 weeks post partum
  - ↑ B/P, without proteinuria or edema



- Pre-eclampsia – 5-7% incidence
  - AKA
    - Pregnancy induced hypertension (PIH)
    - Toxemia of pregnancy
  - B/P > 140/90 &
  - Proteinuria >300 mg/24 hr &/or edema diagnosed after the 20th week of pregnancy
- Severe preeclampsia
  - B/P > 160/110
  - Proteinuria (5g +/24 hr)
  - Oliguria
  - Visual disturbances
  - Hyperreflexia (4+ w/wo clonus
  - Pulmonary edema

Eclampsia

- Preeclampsia with grand-mal seizures

- Defined as the occurrence of convulsions the pre-eclamptic woman
  - Cerebral edema and hypoxia are life threatening neurological complications
  - Pt's may lapse into coma with a mortality of 3-5%

May manifest up to 6 weeks post partum

Stabilization for Hypertensive Disorders in OB

- Total IV fluids to < or = 100cc/hr
- Monitor B/P q 5-15 min.
- Monitor for S&S of Pulmonary edema
  - Continous pulse Ox
- Foley catheter with urometer for hourly UOP
- Monitor DTRs, clonus, LOC hourly
- Continuous fetal monitoring
- Antihypertensives prn

- Emergency Treatment:
  - Blood pressure
    - Labetalol – (preferred now)
      - 10 mg IVP over 2 min,
        - then MR 20, 40, 80mg IVP q 10 min.
      - Max 300 mg
    - Hydralazine 2-5mg IVP initially
      - give a 500 cc fluid bolus first! Target SB/P is 90-100 torr
        - Bottoms the B/P out very easily
      - 10 mg q 15-20 min. prn B/P >160/100 Torr
      - Max dose 20 –(40mg) mg without results

Anti-epileptics

Be mindful of signs of toxicity

- Prevent seizures
  - $MgSO_4$ 4 -6 gm IV over 30 min., then 2-4 gm/hr
- Treat seizures
  - $MgSO_4$ as above, then gtt at 2-4 gm/hr
  - Valium or Versed for status seizures only (Seldom occurs)
- Cerebyx (fosphenytoin)
  - Load with 10-20 mg/kg IM or IV
  - Maintenance 4-6 mg/kg/day

HELLP Syndrome

A severe complication of preeclamsia

- **H** Hemolysis
- **EL** Elevated liver enzymes
- **LP** Low Platelets (<100,000/mm^3)

First identified and described as a serious complication of preeclampsia by Weinstein in 1982

HELLP Symptoms

- Malaise, H/A (50%of the time)
- Epigastric pain
  - 90% of HELLP syndrome patients complain of RUQ pain
- Nausea & Vomiting
- Often mistaken for other medical conditoins (gallbladder, liver ITP, hepatitis)
- 54% of patients have delays in diagnosis and errors in management

Emergency Treatment for HELLP

2-24% up to 30% mortality

HELLP Drugs

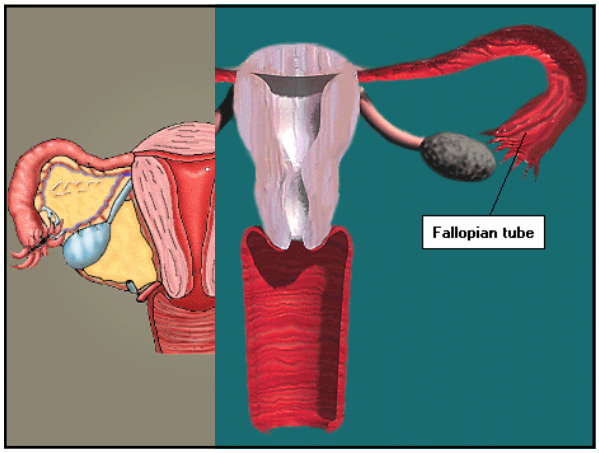
- MgSO4 - seizure prevention
- Cerebyx - seizure prevention
- Hydralazine - antihypertensive
- Labetalol - antihypertensive
- Steroid rescue -
  - for HELLP - increases platelets
  - For fetal lung maturity & prevention of IVH in the neonate
- Sedation -
  - Phenobarbital may lower the incidence of neonatal IVH

ECTOPIC PREGNANCY

SIGNS

&

SYMPTOMS



SIGNS & SYMPTOMS

- Low abdominal pain
- Vaginal spotting
- Missed menstrual period
- Referred shoulder pain
- Tender, distended abdomen
- Postural vital sign changes
- Shock

Emergency Care

- **ABC's**
- Treat for **SHOCK**
- This is a surgical emergency and **transport** is a must!

Birthing Complications

- Excessive hemorrhage
  - Placenta abruption
  - Placenta previa
  - Vasa previa
  - Trauma in pregnancy
  - Ruptured uterus
- Delivery emergencies
  - Breech birth
    - Limb presentation
  - Nuchal cord
  - Prolapsed cord
  - Multiple births
  - Shoulder dystocia

Placenta Previa

Malpositioned placenta - usually covering the cervix

- Characteristics
  - Painless bleeding during pregnancy

- Treatment is palliative
  - Oxygen
  - Fluids
  - +/- Mast
  - Transport

Placenta Abruptio

Premature separation of the placenta from the uterus

- Characteristics
  - Occurs more frequently than previa
  - Life threatening for both mom and fetus
- Signs and symptoms
  - Painful vaginal bleeding
  - Severe localized abdominal pain
  - Rigid tender abdomen

Treatment:

Treat for Shock

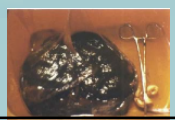
STAT Transport

Stages of Labor

- First Stage (Dilation)
  - Contractions begin and cervix dilates
  - Bag of waters usually breaks

- Second Stage (Expulsion)

- Third Stage (Placental expulsion)



Differenciating Between True and False Labor

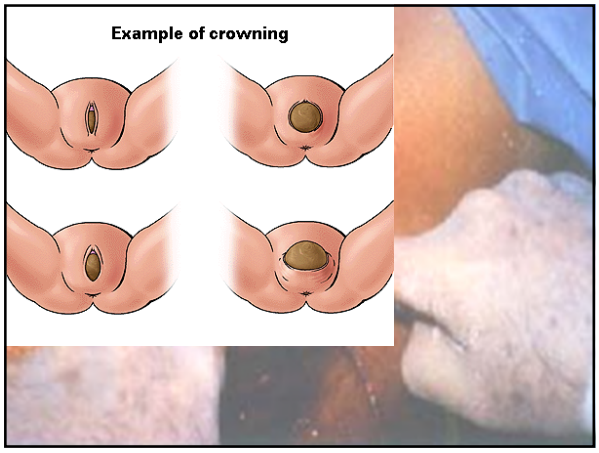
True Labor	False Labor
Pains are regular	Irregular
Pains become closer together	No change
Pains become longer in duration and severity	No change
Pain starts in the back and moves to front	Pain mainly in front
Relationship exists between the degree of uterine hardening and intensity of pain	No relationship
Bloody show often present	No show
Cervix thins and opens	No change in cervix
Presenting part descends	No descent

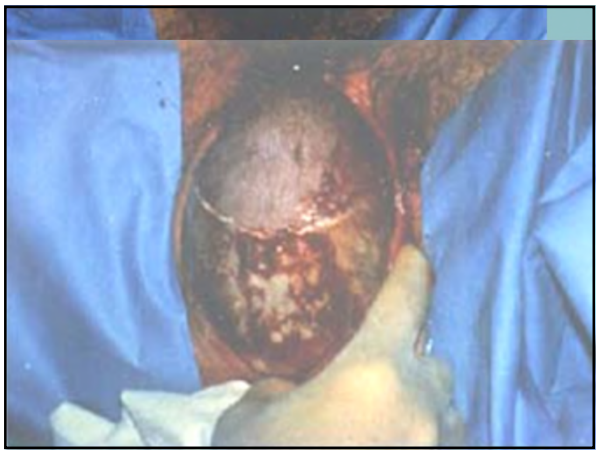
Pitocin

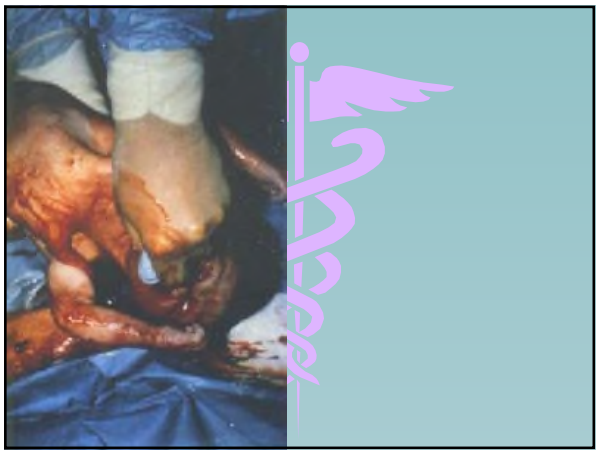
- Labor induction (10u/liter)
  - 0.001-0.002 units/min IV infusion
  - 6-120 cc/hr = 0.001-.02u/min
- Postpartum bleeding
  - 20-40 units/liter of NS and titrate (w/o) to control uterine atony
  - SEMSA protocol is 20 u/L of NS to run at 500cc over 10-20 min, then 125cc/hr

A Normal Delivery

As Assisting a Birth g a





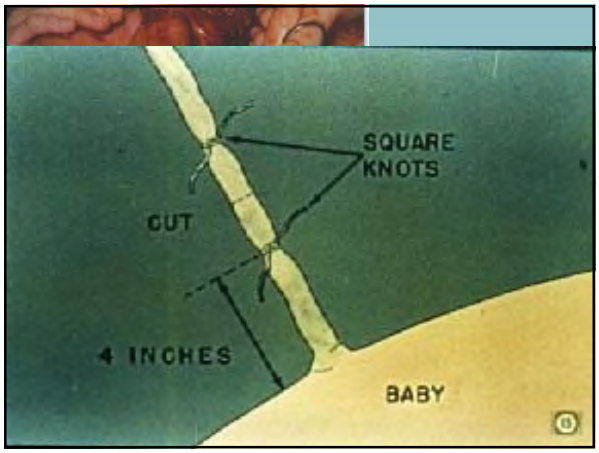


Assisting a

Assisting a Birth

Caudal View

Caudal View


SQUARE
KNOTS
CUT
4 INCHES
BABY

Save the placenta and give to the hospital

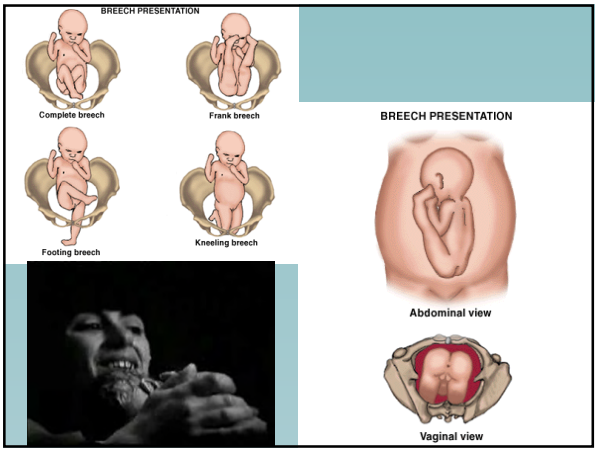
Labor and Birthing Complications

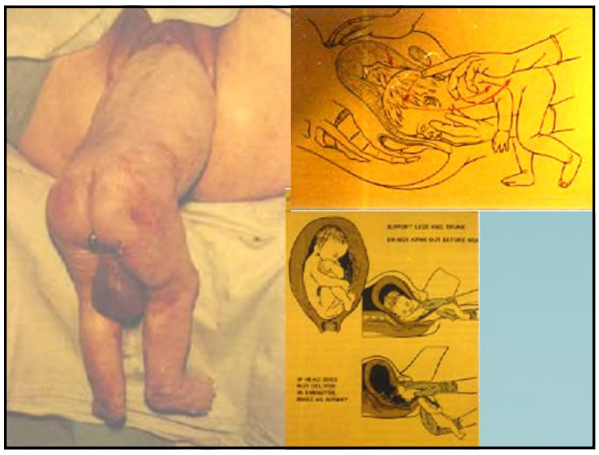
Sandberg method of assessing gestational age

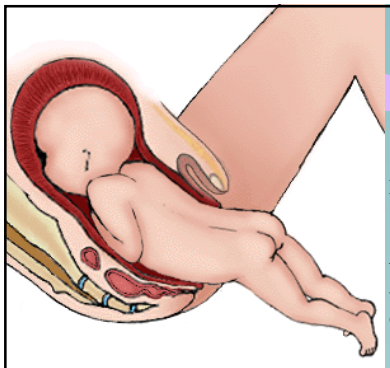
- Measure from the pubis to the top of the fundus in centimeters (fingerbreaths)
  - the # of cm's = the weeks of gestation

Birthing Complications

- Delivery emergencies
  - Breech birth
    - Limb presentation
  - Nuchal cord
  - Prolapsed cord
  - Multiple births
  - Shoulder dystocia







Feet born, shoulders engaging.

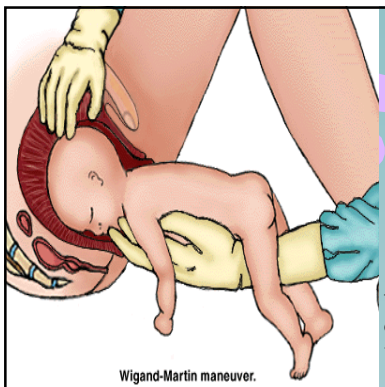
If you see feet….

Sit on your hands!

Monitor the HR

When you get to the umbilicus - you must deliver!

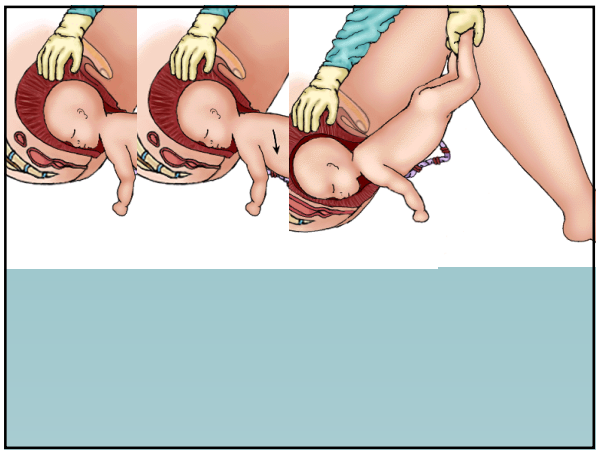
You've got 3 minutes



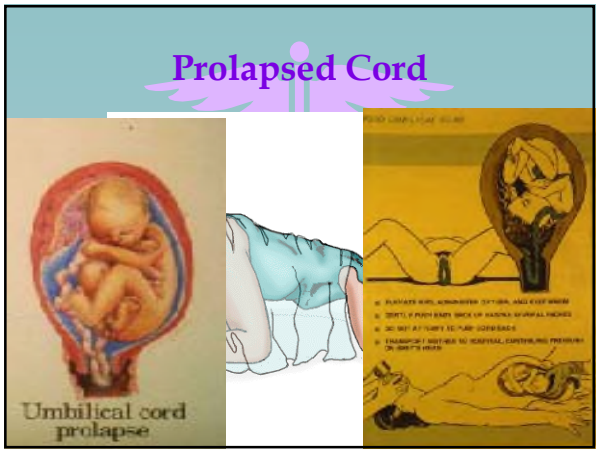
Wigand-Martin maneuver.

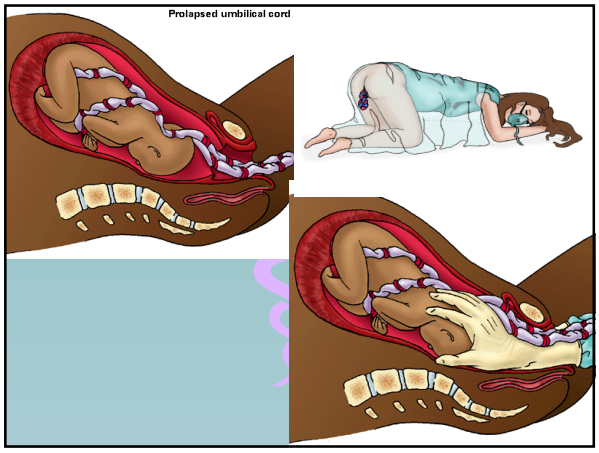
One of only 2 times when we are expected to enter the vaginal vault

You are creating an emergency airway for the newborn



Prolapsed Cord

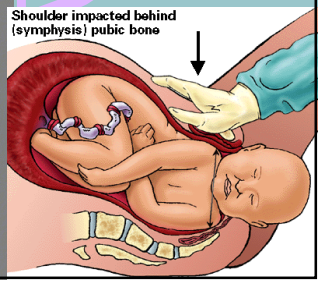




"The head's out, but the shoulder is stuck!"

Signs of Shoulder Dystocia

- The infant's head will appear to "recoil" back against the vaginal opening
- The infant's head seems unable to move in any direction
- As the mother pushes with a contraction and you apply gentle traction on the head, the body fails to move



Multiple Births

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