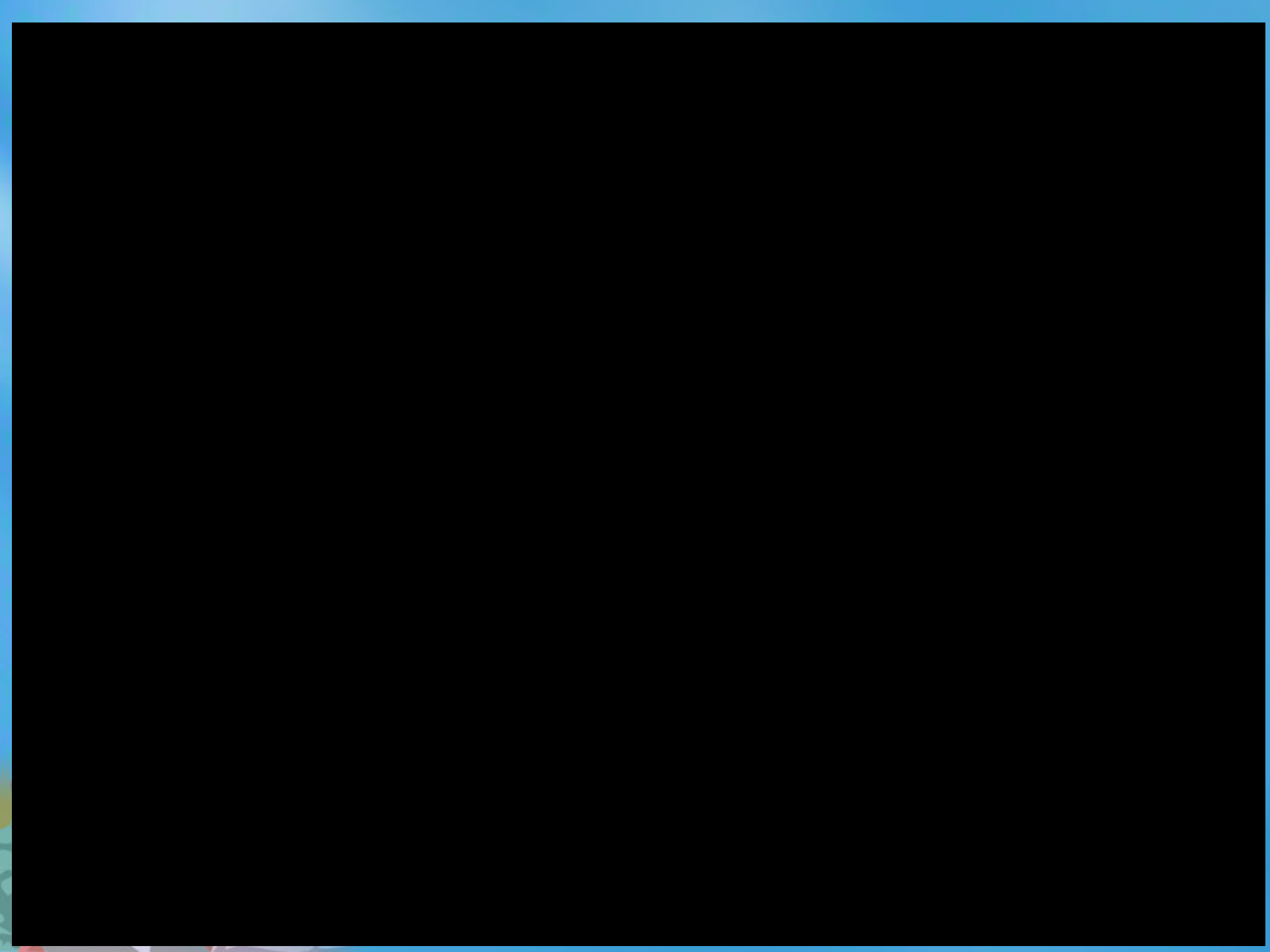




# Complications of Delivery

Guy Peifer



- Childbirth is usually a happy event.
- Usually occurs without worry.
- But.....occasionally something goes wrong.



# Posterior (Sunny Side Up)



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# Frank Breech



# Complete Breech



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# Footling Breech



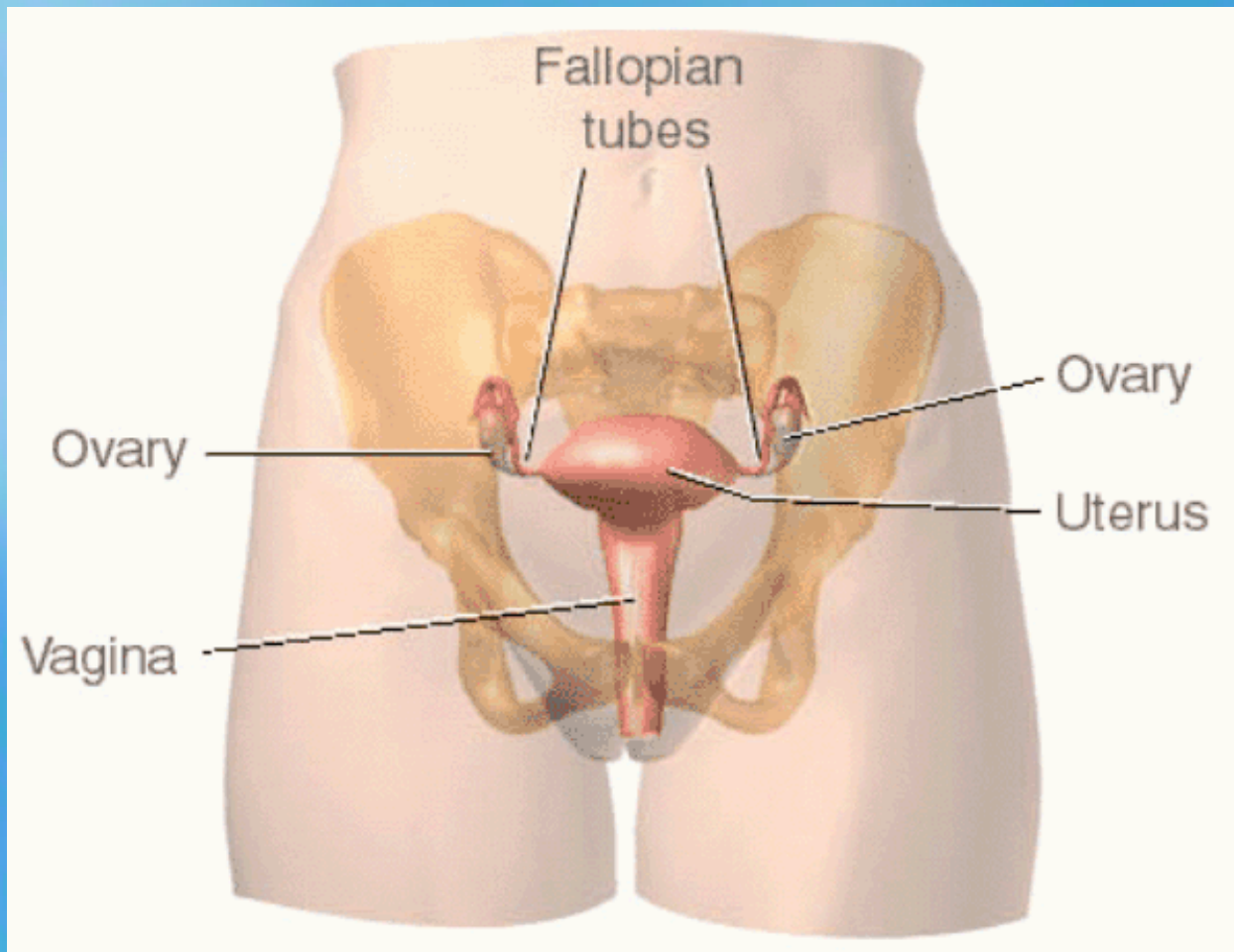


# Transverse



# Twins

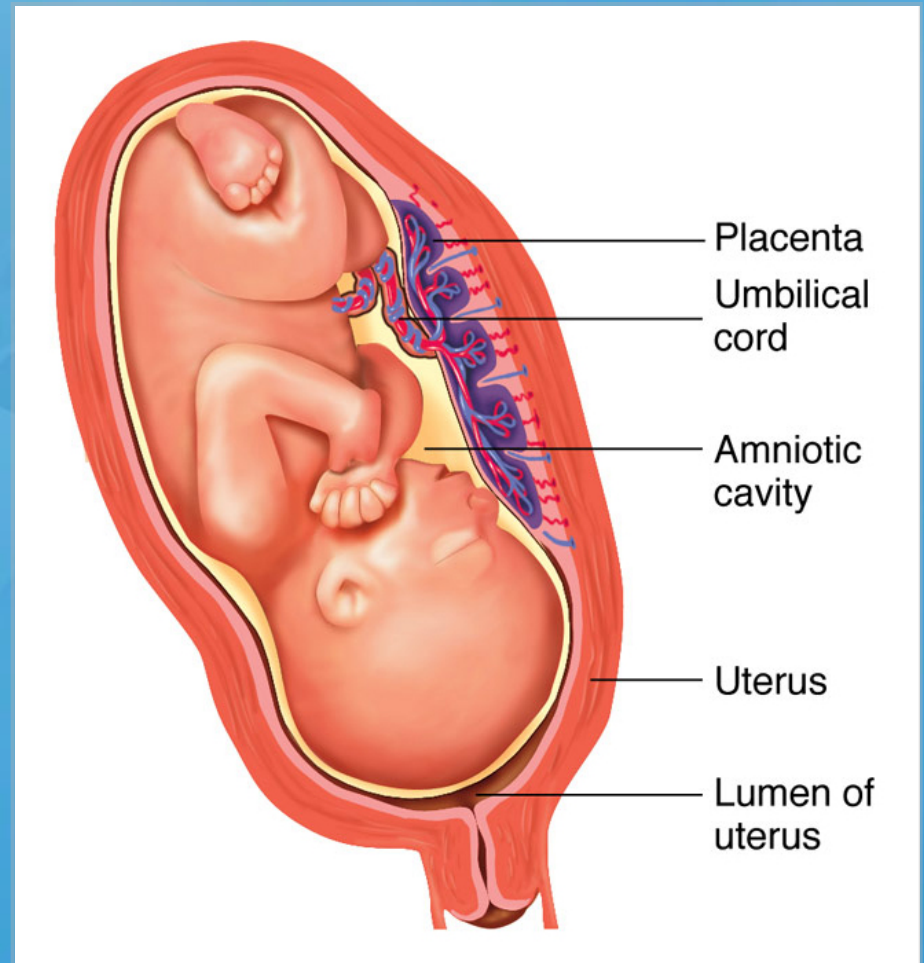




The female reproductive system includes two ovaries, two fallopian tubes, the uterus, and the vagina.



- The umbilical cord connects the fetus and placenta.
  - The umbilical vein carries blood to the fetus.
  - The umbilical arteries carry blood to the placenta.



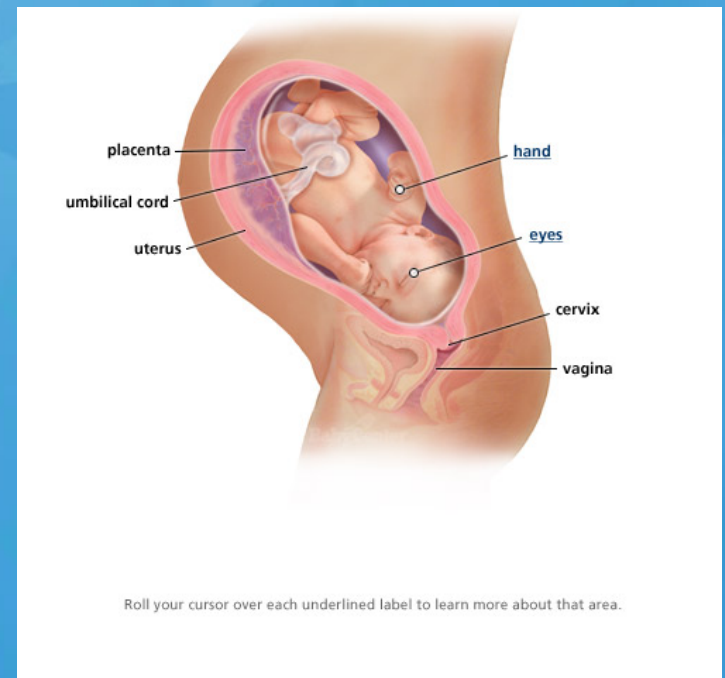
# Fetal Development

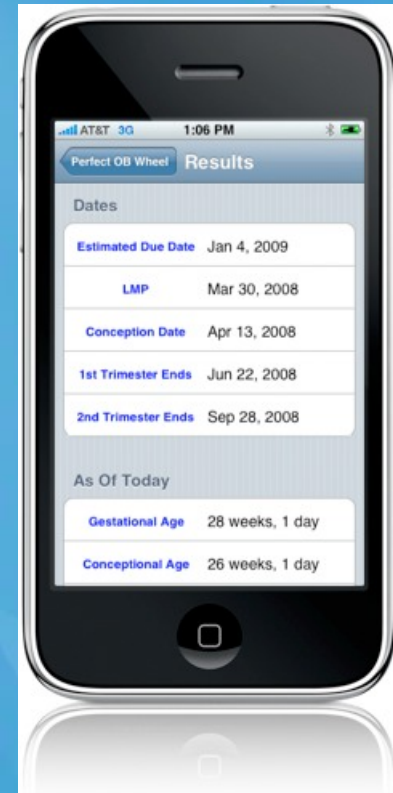
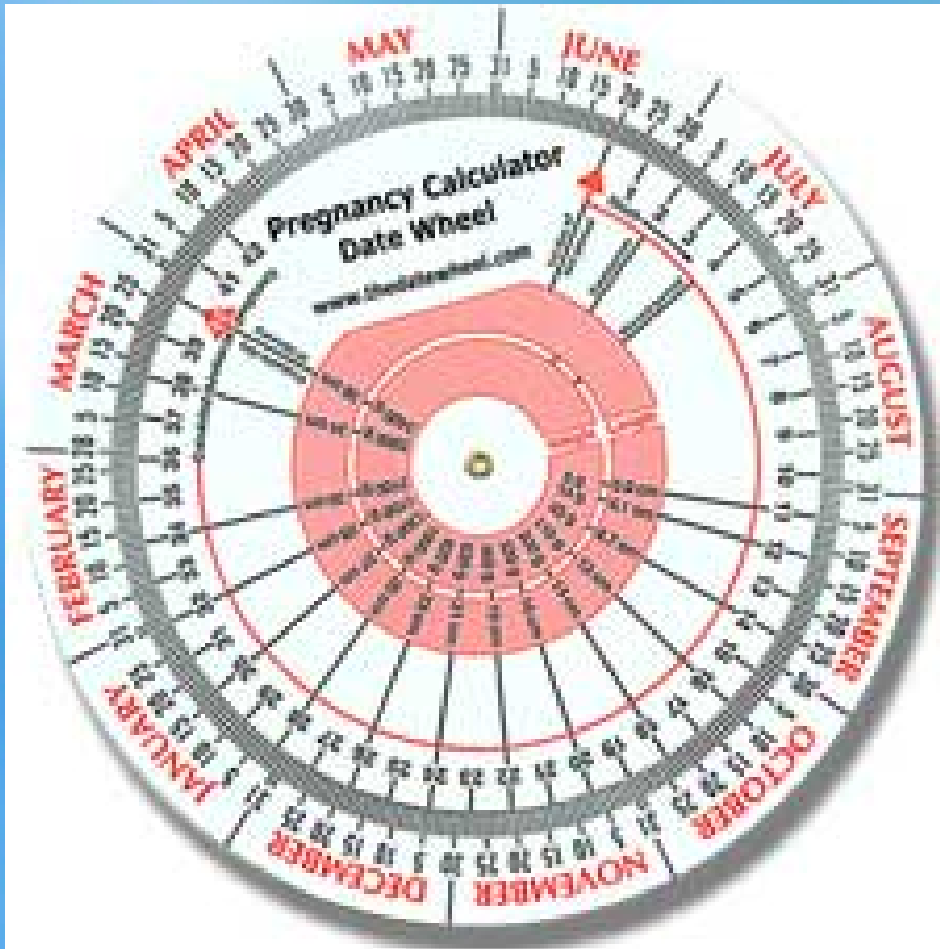
- The amniotic sac encloses the fetus in amniotic fluid.
- The fourth through eighth week of embryonic development are critical.
  - Major organs and other body systems are most susceptible to damage as they form.



# Fetal Development

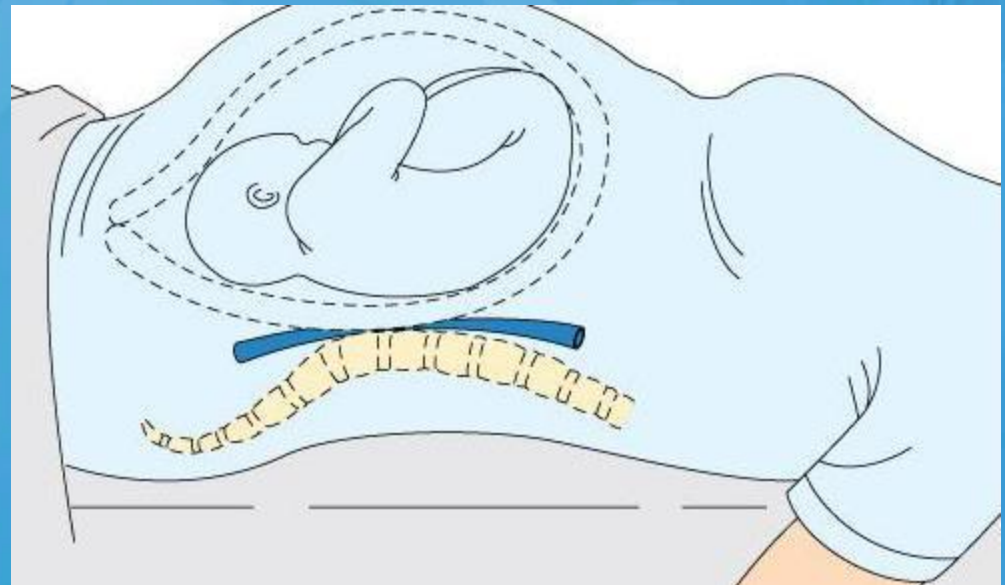
- Gestational period: time it takes the fetus to develop in utero
  - Normally 38 weeks
  - Calculated from the first day of the pregnant woman's last menstrual period





# Supine Hypotensive Syndrome

- Sensitivity to body position increases as gestation increases.
  - Lying supine can cause compression of the inferior vena cava.
  - If pressure is not relieved, cardiac output is decreased.







# Special Terminology

- :
- Gravidity—number of times pregnant
- Parity—delivery of an infant who is alive
- Primigravida—woman pregnant for first time
- Primipara—woman with only one delivery
- Multigravida—two or more pregnancies



# Special Terminology

- Multipara—two or more deliveries
- Grand multipara—more than five deliveries
- Nullipara—never delivered



# Primary Assessment

- Transport decision
  - Provide rapid transport for patients:
    - With significant bleeding and pain
    - Who are hypertensive
    - Who are having a seizure
    - Who have an altered mental status



# History Taking

- Determine chief complaint using OPQRSTI.
- Obtain the SAMPLE history.
- Determine estimated due date.
- Determine previous complications or gynecologic problems.



# History Taking

- Was an ultrasound done recently, and what were the findings?
- Determine the general impression of the patient's health.
- Determine if there is any vaginal bleeding.



# History Taking

- Determine if the woman's water has broken.
  - Does she need to move her bowels or push?
    - Delivery is imminent.
- Inspect the woman for crowning.



# Secondary Assessment

- Base the exam on the chief complaint.
  - Exam should include fetal heart tones and rate.
- Inspect for crowning or vaginal bleeding.
- If the amniotic sac has ruptured, ask about the color of the fluid.





# Secondary Assessment

- If there is time to reach the hospital:
  - Place in the lateral recumbent position.
  - Remove clothing that might obstruct delivery.
  - Begin transport.
- If there is not time:
  - Try to find a private and clean area.
  - Keep nervous bystanders busy.
  - Be calm and professional.



# Reassessment

- Perform ongoing examination, including:
  - Serial vital signs
- Time contractions, and perform exam.
- Check interventions, and transport.



# Substance Abuse

- Illicit drugs pass through the placenta barrier and enter fetal circulation.
- The fetus may have withdrawal signs.
- Treatment should concentrate on cardiorespiratory support.



# Cardiac Conditions

- Determine the nature and treatment of any heart condition.
  - Cardiac medications?
  - Diagnosed with dysrhythmias or heart murmurs?
  - History of rheumatic fever?
  - Born with congenital heart defect?
  - Episodes of dizziness, light-headedness?



# Hypertensive Disorders

- Preeclampsia
  - Risk factors include:
    - First pregnancy before age 20 years
    - Women with advanced maternal age
    - History of multiple pregnancies
    - Diabetes

Can cause pulmonary edema.  
May progress to life-threatening grand mal seizures.



# Seizures

- Treatment is difficult because drugs may cause fetal distress.
  - Magnesium sulfate is recommended.
- Potential complications may include:
  - Abruptio placenta
  - Hemorrhage
  - Disseminated intravascular coagulation



# Diabetes

- Diabetes may be affected by pregnancy.
  - May manifest as hyperglycemic or hypoglycemic episodes
  - Insulin-dependent diabetics may need to adjust their dosages during pregnancy.
- Patients with a history of diabetes should have a blood glucose level test.



# Respiratory Disorders

- Maternal asthma complications:
  - Premature labor
  - Preeclampsia
  - Respiratory failure
  - Vaginal hemorrhage
  - Eclampsia
- Fetal asthma complications:
  - Premature birth
  - Low birth rate
  - Growth retardation
  - Fetal death





# Respiratory Disorders

- Pneumonia
  - Especially virulent during pregnancy
  - Common complications:
    - Low birth weight
    - Premature labor
    - Preterm delivery



# Hyperemesis Gravidarum

- Persistent nausea and vomiting
  - Leads to dehydration and malnutrition
- Exact cause is unknown.
- Symptoms include:
  - Severe and persistent vomiting
  - Projectile vomiting
  - Severe nausea



# Hyperemesis Gravidarum

- Prehospital treatment includes:
  - Administer 100% supplemental oxygen.
  - Start IV line of normal saline.
  - Diphenhydramine? Zofran?
  - Check blood glucose levels.
  - Check orthostatic vital signs; obtain an ECG.
  - Transport to a hospital.



# Infections

- Urinary tract infections
  - If *Streptococcus agalactiae* is passed to the newborn, it can cause:
    - Respiratory problems
    - Pneumonia
    - Septic shock
    - Meningitis



# Sexually Transmitted Infections

- Bacterial vaginosis
  - Normal vaginal bacteria are replaced by other bacteria.
  - Can lead to:
    - Premature birth
    - Low birth weight
    - Pelvic inflammatory disease



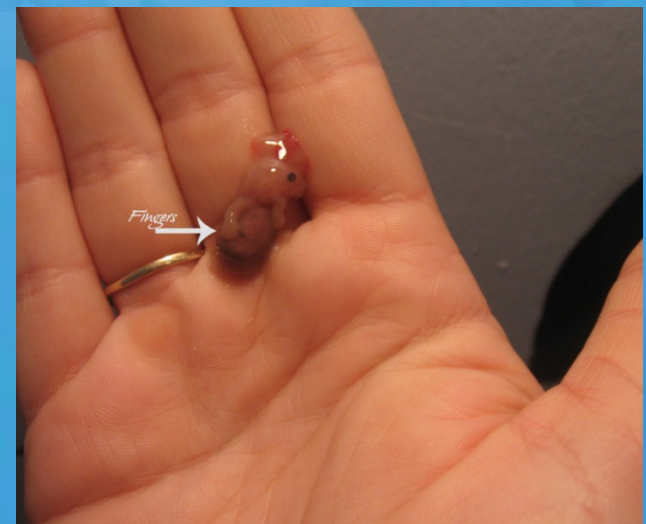
# Sexually Transmitted Infections

- Syphilis
  - Women with syphilis may have:
    - Stillborn babies
    - Babies born blind
    - Developmentally delayed babies
    - Babies who die shortly after birth



# Pathophysiology of Bleeding Related to Pregnancy

- Abortion
  - Expulsion of the fetus before the 20th week of gestation
  - Broadly classified as:
    - Spontaneous abortion (miscarriage)
    - Elective (intentional) abortion



# Pathophysiology of Bleeding Related to Pregnancy

- Miscarriage (spontaneous abortion)
  - Treatment includes:
    - Establishing an IV line of normal saline
    - Administering 100% supplemental oxygen
    - Obtaining an ECG
    - Providing emotional support with rapid transport
    - Watching for signs of shock





# Pathophysiology of Bleeding Related to Pregnancy

- Missed abortion: fetus dies during the first 20 weeks of gestation but remains in utero
  - Provide emotional support and transport.
  - On examination:
    - Uterus feels like a hard mass.
    - Fetal heartbeat cannot be heard.



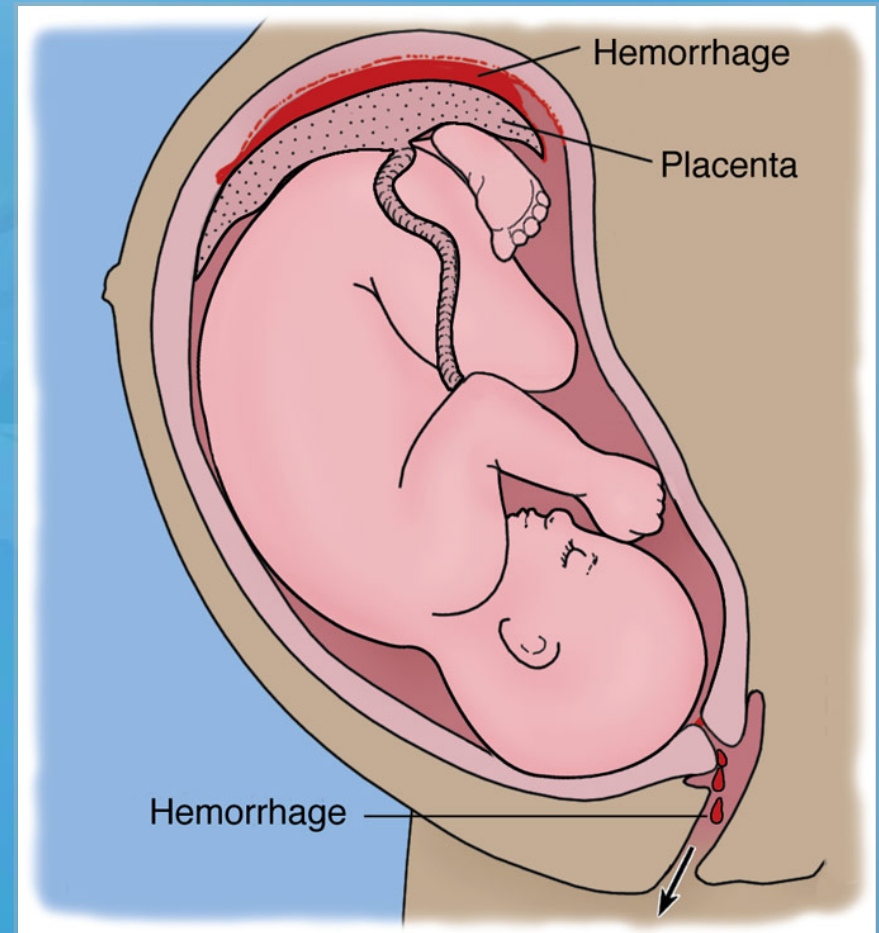
# Pathophysiology of Bleeding Related to Pregnancy

- Ectopic pregnancy
  - Ovum implants somewhere besides uterus.
  - Patient usually presents with:
    - Severe abdominal pain
    - May be in hypovolemic shock



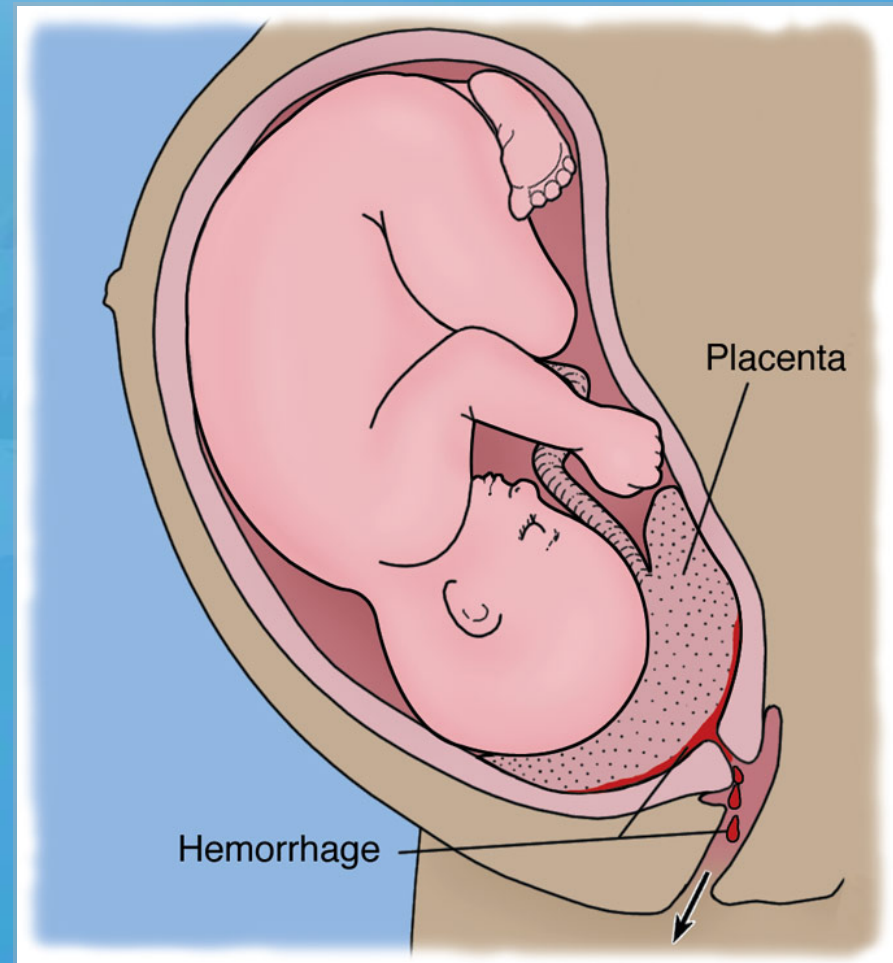
# Abruptio placenta

- Premature separation of the placenta from the uterine wall



# Placenta previa

- Placenta is implanted low in the uterus and obscures the cervical canal.

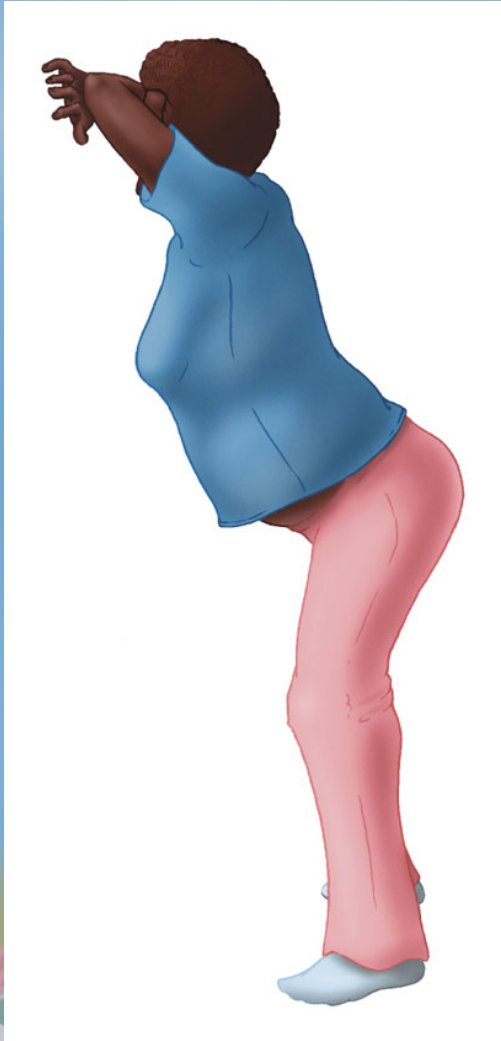


# Management of Bleeding Related to Pregnancy

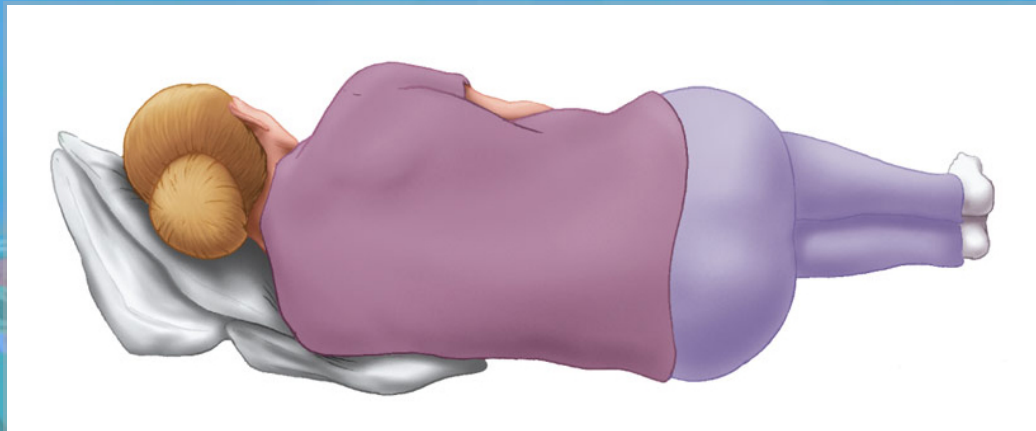
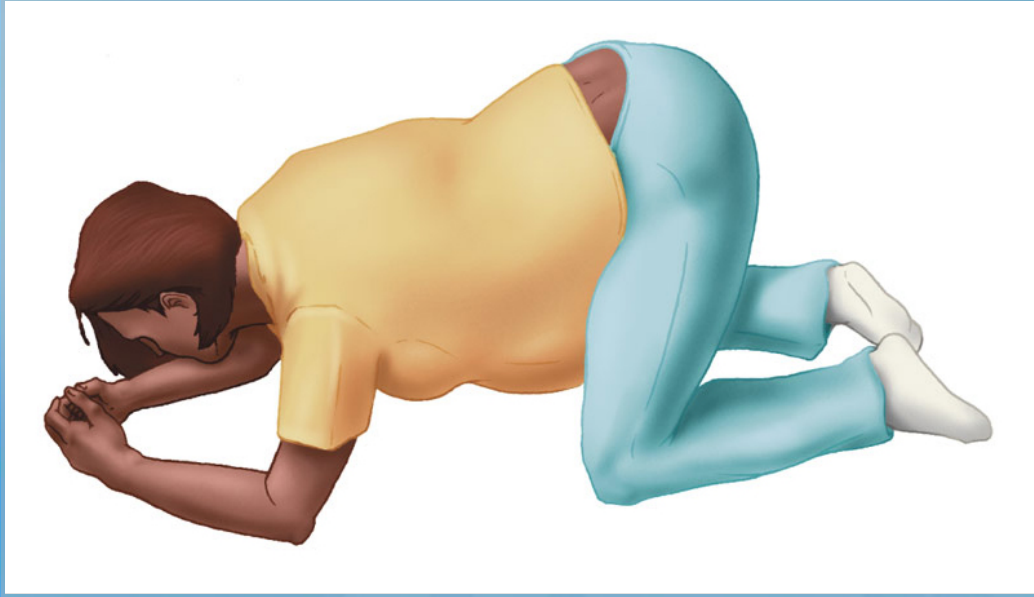
- Keep the woman lying on her left side.
- Administer 100% supplemental oxygen.
- Provide rapid transport.
- Start an IV line of normal saline.
- Obtain an ECG and baseline vital signs.
- Loosely place trauma pads over the vagina.



# Preparing for Delivery



# Preparing for Delivery







# Assisting Delivery

- Control delivery.
- Support the head as it emerges.
- Check for nuchal cord.
- Clear the airway by suctioning with a bulb syringe.

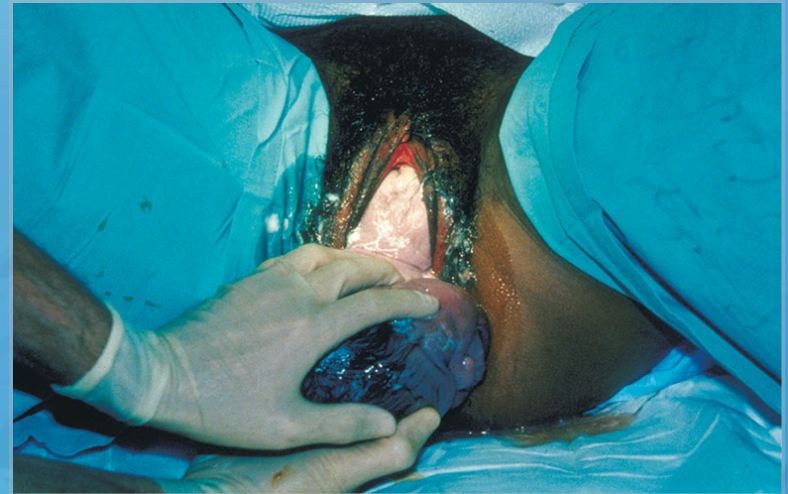


Courtesy of AAOS



# Assisting Delivery

- Gently guide the head downward so the upper shoulder can deliver.
- Gently guide the head upward to allow delivery of the lower shoulder.



Courtesy of AAOs



Courtesy of AAOs



# Assisting Delivery

- Once delivered, maintain at the same level as the vagina.
- Wipe blood or mucus from the newborn's nose and mouth with sterile gauze.



Courtesy of AAOS



# Assisting Delivery

- Dry the newborn with sterile towels, and wrap in a dry blanket.
- Record the time of birth for the PCR.



# Assisting Delivery

- Apgar scoring
  - Evaluates newborn's vital functions
    - Heart rate
    - Respiratory effort
    - Muscle tone
    - Reflex irritability
    - Color



# Assisting Delivery

- Cutting the umbilical cord
  - Handle the cord with care.
  - Tie or clamp the cord with clamps 2 inches apart, then cut the cord between them.
  - Examine the ends to ensure there is no bleeding.
  - Once cut, wrap the newborn in a dry blanket.



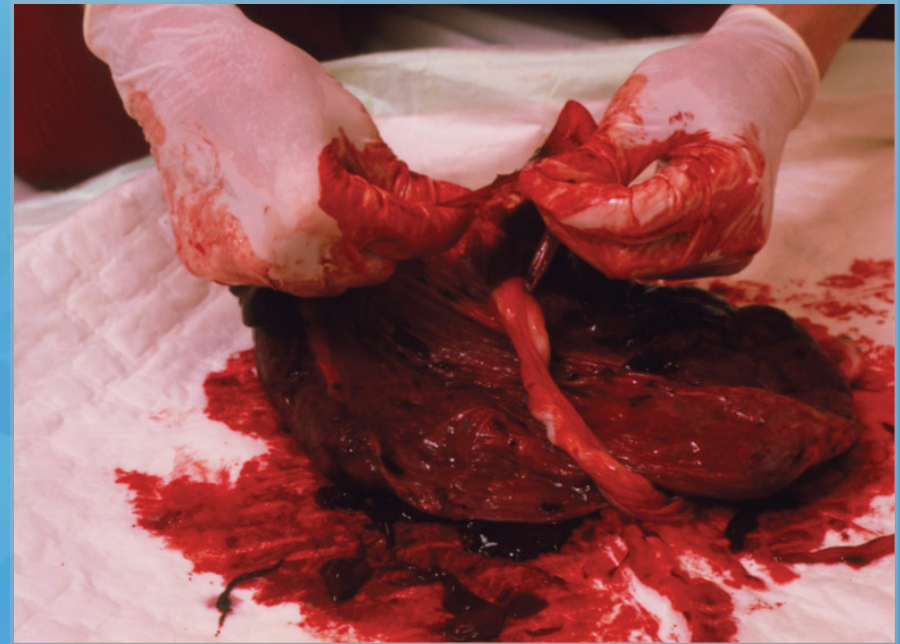
# Assisting Delivery

- Delivery of the placenta
  - Usually within 20 minutes after delivery
  - Do not pull on the umbilical cord to speed up placental delivery.
  - Instruct the patient to bear down.



# Assisting Delivery

- Delivery of the placenta (cont'd)
  - Fetal side should be gray, shiny, and smooth.
  - Maternal side should be dark maroon with a rough texture.



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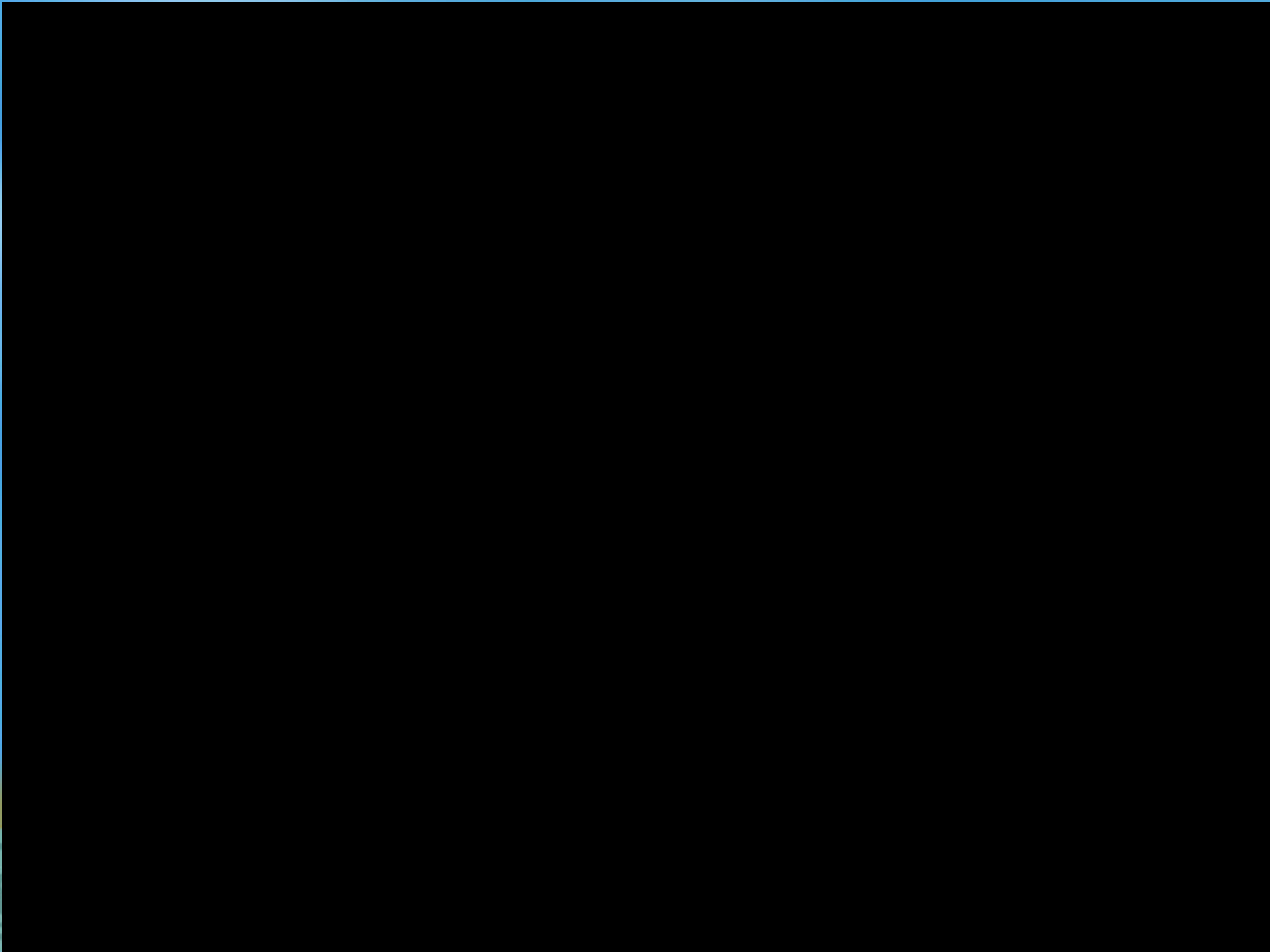




# Assisting Delivery

- Delivery of the placenta (cont'd)
  - Place in a plastic bag, and transport.
  - Examine the perineum for lacerations.
  - Prepare for transport.
    - If the placenta has not delivered after 15 minutes, begin transport.





# Premature Rupture of Membranes

- The amniotic sac ruptures, or opens, more than an hour before labor.
  - The sac may self-seal and heal itself.
  - Often, labor will begin within 48 hours.
- If not near term, a risk of infection exists.



# Uterine Rupture

- Occurs during labor
- Signs and symptoms include:
  - Weakness, dizziness, and thirst
  - Initial strong contractions that have lessened
  - Signs of shock
- Treat for shock, and provide rapid transport.



# Postterm Pregnancy

- The fetus has not been born after 42 weeks.
- Cause is unknown.
- High-risk because:
  - Fetus may become malnourished.
  - Increased chance of meconium aspiration



# Multiple Gestation

- Prepare for more than one resuscitation.
- Consider the possibility of multiples if:
  - First newborn is small
  - Abdomen is still fairly large after the birth.
- The second newborn is usually born within 45 minutes.



# Amniotic Fluid Embolism

- Amniotic fluid enters the woman's pulmonary and circulatory system through the placenta.
- Results in an allergic reaction response
- Signs and symptoms include:
  - Respiratory distress and hypotension
  - Cyanosis
  - Possible seizures



# Nuchal Cord

- The umbilical cord becomes wrapped around the newborn's neck during delivery.
  - May cause fetal heart rate to slow

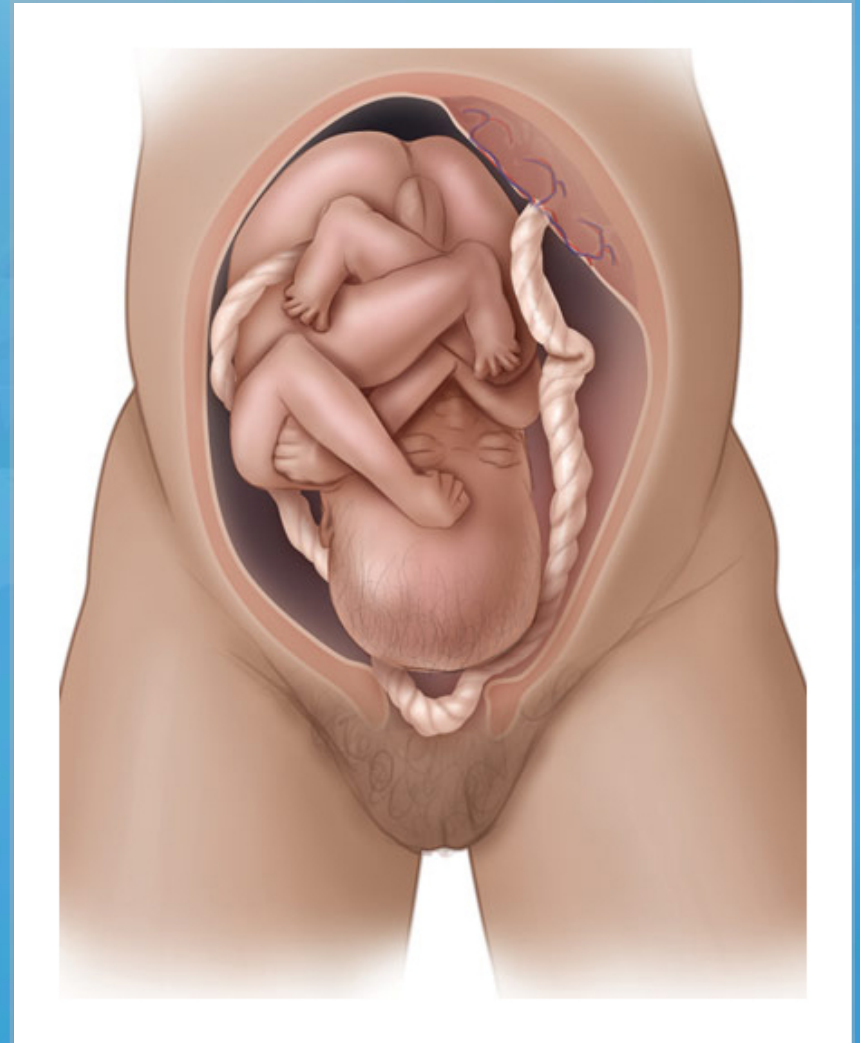
Slip a finger under the cord and gently attempt to slip it over the shoulder and head. If unsuccessful, cut the cord.





# Prolapsed Umbilical Cord

- The cord emerges before the fetus.
  - Shuts off the oxygenated blood supply from the placenta.
  - Leads to fetal asphyxia



# Uterine Inversion

- Placenta fails to detach properly from the uterine wall when it is expelled.
  - Uterus turns inside out as a result.
- Severity graded by how much the uterus has reversed itself.
- Very painful and may rapidly cause shock.



# Postpartum Hemorrhage

- Causes of postpartum hemorrhage include:
  - Prolonged labor or multiple baby deliver
  - Retained products of conception
  - Placenta previa
  - Full bladder



# Trauma and Pregnancy

- Trauma is a complicating factor in pregnancy.
- Leading cause of maternal death in United States



# Assessment Considerations

- Pregnant patients will have different signs or responses to trauma.
  - May be more difficult to interpret tachycardia
  - Signs of hypovolemia may be hidden.
  - Higher chance of bleeding to death in case of pelvic fractures
  - Respiratory rate less than 20 breaths/min is not adequate.



# Summary

- Pregnancy is considered at term by week 37 of gestation.
- Physiologic changes during pregnancy can alter a woman's response to trauma and create or exacerbate medical conditions.
- In an obstetric emergency, find out the length of gestation, estimated due date, complications with this or other pregnancies, and if there is any vaginal bleeding.



# Summary

- When assessing, determine if there is time to get to the hospital.
- If delivery is imminent, prepare a private, clean area.
- Never pull on the umbilical cord to deliver the placenta.
- Pharmacology may include magnesium sulfate, calcium chloride, terbutaline, diphenhydramine, and oxytocin.



# Summary

- High-risk pregnancy complications include precipitous labor and birth, postterm pregnancy, meconium staining, fetal macrosomia, multiple gestation, intrauterine fetal death, amniotic fluid embolism, hydramnios, and cephalopelvic disproportion.





# Summary

- Meconium may be a yellow or greenish black tint in the amniotic fluid. If the newborn is depressed and meconium staining is present, suction the infant.
- Labor complications include premature rupture of membranes, preterm labor, uterine rupture, and fetal distress.
- Delivery complications include cephalic presentation, breech presentation, shoulder dystocia, nuchal cord, and prolapsed cord.



# Summary

- Treat trauma in a pregnant woman the same as in a nonpregnant women, except transport a pregnant patient on her left side unless a spinal injury is suspected.



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