

# 5 things to know about *Prehospital Childbirth*



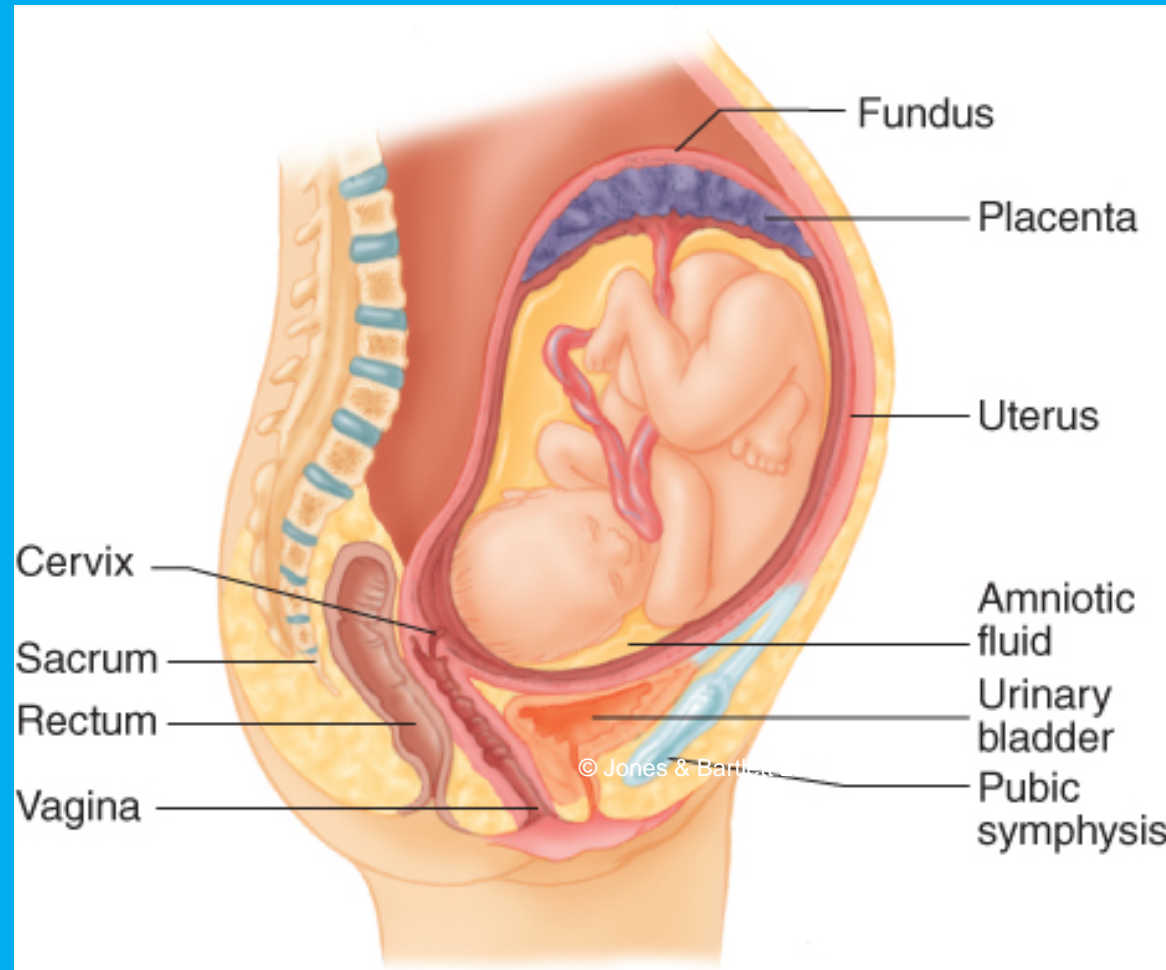
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*Adapted from Jones and Bartlett Emergency Care and  
Transportation of the Sick and Injured, 11<sup>th</sup> Edition*

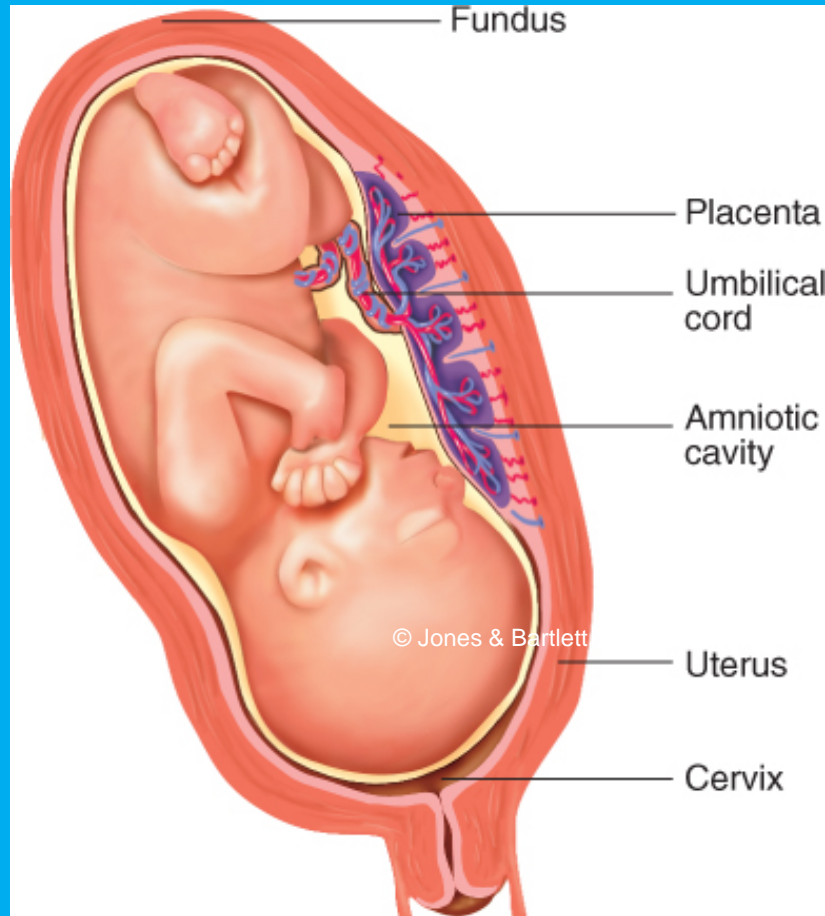
# #1 It's going to happen, whether you're there or not

- **Childbirth is a natural process**
- **Your involvement is most often irrelevant**
- **You're not the one doing the work**
- **Approximately 4,000,000 births/year in the US**
- **Complications occur in 50,000 (Approx 1.25%)**
- **Approximately 1.6% of all births occur out of hospital**

# #2 Anatomy and Physiology Matters



# Anatomy and Physiology of the Female Reproductive System



- The placenta attaches to the uterine wall and provides nourishment to the fetus.

# Anatomy and Physiology of the Female Reproductive System

- Placenta keeps the circulation of the woman and fetus separate but allows substances to pass between them.
- Anything ingested by a pregnant woman has the potential to affect the fetus.

# Anatomy and Physiology of the Female Reproductive System

- The umbilical cord connects the woman and fetus through the placenta.
  - The umbilical vein carries oxygenated blood from the placenta to the fetus.
  - The umbilical arteries carry deoxygenated blood from the fetus to the placenta.

# Anatomy and Physiology of the Female Reproductive System

- The fetus develops inside a fluid-filled, baglike membrane called the amniotic sac.
  - Contains about 500 to 1,000 mL of amniotic fluid
  - Fluid helps insulate and protect the fetus.

# Normal Changes in Pregnancy

- During pregnancy other body systems undergo changes.
  - Respiratory changes
  - Cardiovascular changes
  - Musculoskeletal changes



# Normal Changes in Pregnancy

- Hormone levels increase.
  - To support fetal development and prepare the body for childbirth
  - Pregnant women are at an increased risk for complications from trauma, bleeding, and some medical conditions.
  - Uterus is shifted from its normal position.

# Normal Changes in Pregnancy

- Rapid uterine growth occurs during the second trimester.
  - As the uterus grows, it pushes up on the diaphragm and displaces it.
  - Respiratory capacity changes, with increased respiratory rates and decreased minute volumes.
  - Blood volume and speed of clotting increase.
  - Cardiac output is increased.

# Normal Changes in Pregnancy

- **In the third trimester, there is an increased risk of vomiting and potential aspiration following trauma.**
- **Changes in the cardiovascular system and the increased demands of supporting the fetus increase the workload of the heart.**

# Normal Changes in Pregnancy

- **Weight gain during pregnancy is normal.**
  - Challenges the heart and impacts the musculoskeletal system
  - The joints become “looser” or less stable.
  - Changes in the body’s center of gravity increase the risk of slips and falls.

# #3 Your OB Kit is Probably Expired

- **Check it!!**
- **Know what's in it (open it...if you can)**
- **Everything in it can be improvised**
- **BOIL WATER! GET FRESH TOWELS!! (they do it in the movies, right?)**
- **You'd better have PPD – things get messy. VERY messy (and slippery)**

# Stages of Labor

- 1. First uterine contraction to full dilation of the cervix**
- 2. Full dilation of the cervix to delivery of the fetus**
- 3. Delivery of the fetus to delivery of the placenta**

# The History and Physical

- **All the usual items (CC, HPI, PMH, Meds Allergies)**
- **How many pregnancies? (gravida)**
- **How many live births? (para)**
- **Miscarriages/abortions (different!) (20 weeks)**
- **Prenatal care? (head off complications and make transport decisions)**

## #4 *When Things Go Wrong, they Can Go VERY Wrong - FAST*

- **Second/third trimester bleeding**
- **Fetal demise**
- **Explosive delivery**
- **Placenta previa**
- **Placental abruption**
- **Limb Presentations**



- **Nuchal Cord**
- **Incomplete Breech**
- **Ruptured uterus**
- **Postpartum hemorrhage**
- **Eclampsia**
- **Exacerbations of other preexisting maternal conditions**
- **Trauma and pregnancy**

# #5 You have Two Patients

- **One might be stable, the other not**
- **Method/mode of transport**
- **Use all resources available**
- **Don't let your nerves lead to mistakes**

# Neonatal Assessment and Resuscitation

- Newborn will usually begin breathing spontaneously within 15 to 30 seconds after birth.
- Heart rate will be 120 beats/min or higher. Rates of 160 not uncommon
- Clear the airway (suction, meconium)

# Additional Resuscitation Efforts

- If chest compressions are required, use the hand-encircling technique for two-person resuscitation.
  - Perform BVM ventilation during a pause after every third compression, using a ratio of 3:1.



# The Apgar Score

- **Standard scoring system used to assess the status of a newborn**
- **Assigns a number value to five areas:**
  - **Appearance**
  - **Pulse**
  - **Grimace or irritability**
  - **Activity or muscle tone**
  - **Respirations**

# The Apgar Score

- **The total of the five numbers is the Apgar score.**
  - **Calculate the Apgar score at 1 minute and 5 minutes after birth.**

# The Apgar Score

**Table 33-4**

**Apgar Scoring System**

Area of Activity	Score		
	2	1	0
Appearance	Entire newborn is pink.	Body is pink, but hands and feet remain blue.	Entire newborn is blue or pale.
Pulse	More than 100 beats/min	Fewer than 100 beats/min	Absent pulse
Grimace or irritability	Newborn cries and tries to move foot away from finger snapped against sole of foot.	Newborn gives a weak cry in response to stimulus.	Newborn does not cry or react to stimulus.
Activity or muscle tone	Newborn resists attempts to straighten hips and knees.	Newborn makes weak attempts to resist straightening.	Newborn is completely limp, with no muscle tone.
Respiration	Rapid respirations	Slow respirations	Absent respirations

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# Review

1. The first stage of labor ends when:
  - A. the presenting part of the baby is visible.
  - B. contractions are less than 10 minutes apart.
  - C. the mother experiences her first contraction.
  - D. the amniotic sac ruptures and labor pains begin.



# Review

**Answer:** A

**Rationale:** The first stage of labor begins with the onset of contractions and ends when the cervix is fully dilated. However, since cervical dilation cannot be assessed in the field, the first stage of labor is considered over when the presenting part of the baby is visible at the vaginal opening (crowning).

# Review

2. A 23-year-old woman, who is 24 weeks pregnant with her first baby, complains of edema to her hands, a headache, and visual disturbances. When you assess her vital signs, you note that her blood pressure is 160/94 mm Hg. She is MOST likely experiencing:
- A. eclampsia.
  - B. preeclampsia.
  - C. a hypertensive crisis.
  - D. chronic water retention.

# Review

**Answer: B**

**Rationale:** Preeclampsia—also called pregnancy-induced hypertension—usually develops after the 20th week of gestation and most commonly affects primagravida (first pregnancy) patients. It is characterized by a headache, visual disturbances, edema of the hands and feet, anxiety, and high blood pressure. Preeclampsia can lead to eclampsia, a life-threatening condition that is characterized by seizures.

# Review

3. You are transporting a woman who is 8 months pregnant. To prevent supine hypotensive syndrome, how should you position this patient?
- A. On her right side
  - B. Supine
  - C. Semi-Fowler's
  - D. On her left side

# Review

**Answer:** D

**Rationale:** To prevent supine hypotensive syndrome, the patient must be positioned on her left side. This stops the weight of the baby from compressing the inferior vena cava, which can cause low blood pressure.

# Review

4. Immediately after delivery of the infant's head, you should:
- A. suction the baby's mouth and then nose.
  - B. suction the baby's nose and then mouth.
  - C. assess the baby's breathing effort and skin color.
  - D. check the position of the umbilical cord.

# Review

**Answer:** D

**Rationale:** Immediately following delivery of the infant's head, you should check the position of the umbilical cord to make sure it is not wrapped around the baby's neck (nuchal cord). If a nuchal cord is not present, suction the infant's mouth and nose.

# Review

5. Upon delivery of the baby's head, you note that the umbilical cord is wrapped around its neck. You should:
- A. immediately clamp and cut the cord.
  - B. make one attempt to slide the cord over the head.
  - C. keep the cord moist and transport as soon as possible.
  - D. give the mother high-flow oxygen and transport rapidly.



# Review

**Answer: B**

**Rationale:** If the umbilical cord is wrapped around the baby's neck (nuchal cord), you should make one attempt to gently remove the cord from around the baby's neck. If this is not possible, the cord should be clamped and cut. Keep the cord moist, administer high-flow oxygen to the mother, and transport at once.

# Review

6. The need for and extent of newborn resuscitation is based on:
- A. the 1-minute Apgar score.
  - B. the gestational age of the newborn.
  - C. the newborn's response to oxygen.
  - D. respiratory effort, heart rate, and color.

# Review

**Answer: D**

**Rationale:** The need for and extent of newborn resuscitation is based on respiratory effort, heart rate, and skin color. The Apgar score is *not* used to determine if resuscitation is needed; the first score is not assigned until the newborn is 1 minute of age. Resuscitation, if needed, should commence *immediately*.

# Review

7. The 1-minute Apgar score of a newborn reveals that the baby has a heart rate of 90 beats/min, a pink body but blue hands and feet, and rapid respirations. The baby cries when the soles of its feet are flicked and resists attempts to straighten its legs. You should assign an Apgar score of:
- A. 4.
  - B. 6.
  - C. 8.
  - D. 9.

# Review

**Answer: C**

**Rationale:** The Apgar score, which is obtained at 1 and 5 minutes after birth, assigns a numeric value to the following five areas: appearance, pulse, grimace, activity, and respirations. A heart rate below 100 beats/min is assigned a 1; a pink body with blue hands and feet is a 1; rapid respirations is a 2; a strong cry in reaction to a painful stimulus is a 2; and resistance against an attempt to straighten the hips and knees is a 2. Added together, the Apgar score for this infant is 8.

# Review

8. The MOST effective way to prevent cardiopulmonary arrest in a newborn is to:
- A. rapidly increase its body temperature.
  - B. allow it to remain slightly hypothermic.
  - C. ensure adequate oxygenation and ventilation.
  - D. start CPR if the heart rate is less than 100 beats/min.

# Review

**Answer:** C

**Rationale:** Cardiopulmonary arrest in infants and children (including newborns) is most often the result of respiratory arrest. Therefore, ensuring adequate oxygenation and ventilation *at all times* is critical. It is also important to maintain the infant's body temperature and to prevent hypothermia.

# Review

9. While assisting a woman in labor, you visualize her vaginal area and see an arm protruding from her vagina. She tells you that she feels the urge to push. You should:
- A. cover the arm with a sterile towel and transport immediately.
  - B. encourage her to keep pushing as you prepare for rapid transport.
  - C. insert your gloved fingers into the vagina and try to turn the baby.
  - D. instruct the mother to keep pushing and give her high-flow oxygen.



# Review

**Answer:** A

**Rationale:** Limb presentations do not deliver in the field—period! If the mother feels the urge to push, instruct her to stop; she should pant instead. Cover the protruding limb with a sterile towel, administer high-flow oxygen to the mother, and transport immediately. Delivery must take place in the hospital.

# Review

10. A newborn is considered to be “term” if it is born after \_\_\_\_\_ weeks and before \_\_\_\_\_ weeks.
- A. 34, 37
  - B. 37, 42
  - C. 38, 44
  - D. 39, 43

# Review

**Answer: B**

**Rationale:** A term gestation ranges between 37 and 42 weeks. An infant who is born before 37 weeks gestation (or weighs less than 5 lb, regardless of gestational age) is considered premature. An infant born after 42 weeks is considered past due.

# Extra Credit

- What's the best way to “save” the fetus?
- ***SAVE THE MOTHER!***