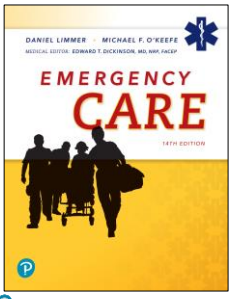
Emergency Care

Fourteenth Edition



Chapter 36

Obstetric and Gynecologic Emergencies

Topics (1 of 2)

Topics (2 of 2)

Anatomy and Physiology

Back to Topics

External Genitalia

- Labia
- Perineum
- Mons pubis

Internal Genitalia (1 of 3)

- The vagina
  - Birth canal
  - Smooth muscle
- The ovaries and fallopian tubes
  - Ovaries responsible for producing ova
  - Fallopian tubes (oviducts) are where fertilization usually occurs.
    - Ectopic pregnancy occurs if fertilized ovum implants in fallopian tubes.

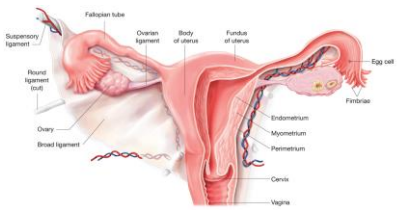
Internal Genitalia (2 of 3)

- The uterus
  - Muscular, hollow organ located along midline in women's lower abdominal quadrants
  - Intended site for fertilized ovum to implant and develop into a fetus

Internal Genitalia (3 of 3)

- The uterus
  - Can stretch and grow as fetus gets larger
  - Cervix
    - Muscular ring separating uterus and vagina

Female Genitalia



For long description, see slide 119: Appendix 1

Internal female genitalia.

The Female Reproductive Cycle

- Menstruation
  - Stimulated by estrogen and progesterone
  - Ovaries release ovum (ovulation).
  - Uterus walls thicken.
  - Fallopian tubes move egg toward uterus (peristalsis).
  - Without fertilization, uterine walls expelled
    - Bleeding three to five days

Fertilization

- Sperm reaches ovum.
- Ovum becomes embryo.
- Embryo implants in uterus.
- Fetal stage begins at week 8.

Physiologic Changes in Pregnancy

Back to Topics

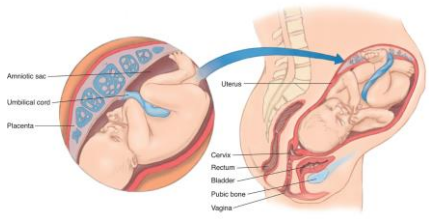
Changes in the Reproductive System (1 of 3)

- Nine months of pregnancy
  - Three 3-month trimesters
- Placenta
  - Organ of maternal and fetal tissues
  - Exchange area between mother and fetus
    - Oxygen
    - Nutrients
    - Waste products

Changes in the Reproductive System (2 of 3)

- Umbilical cord
  - Circulates blood
  - Expelled with delivery of baby, placenta
- Amniotic sac
  - Fluid that allows fetus to float, cushions fetus, and maintains constant fetal body temperature

Changes in the Reproductive System (3 of 3)



Structures of pregnancy.

Other Physiologic Changes in Pregnancy (1 of 3)

- Cardiovascular system
  - Increased blood volume, cardiac output, and heart rate
- Respiratory system
  - Increased oxygen demand and consumption
- Gastrointestinal system
  - Slowed digestion
  - Nausea and vomiting

Other Physiologic Changes in Pregnancy (2 of 3)

- Hormones
  - Ligaments are more elastic, thus more vulnerable to injury
- Additional weight affects posture, possibly leading to back pain and balance issues
- Preexisting medical conditions

Other Physiologic Changes in Pregnancy (3 of 3)

For long description, see slide 120: Appendix 2

Physiologic changes in pregnancy.

Supine Hypotensive Syndrome

- Placenta, infant, and amniotic fluid total 20 to 24 lbs.
- When supine, mass compresses inferior vena cava.
- Cardiac output decreases.
- Dizziness and drop in blood pressure

Think About It 1

- How does the development of the fetus affect other body systems?

Labor and Delivery

Back to Topics

The Stages of Labor

- First stage
  - Starts with regular contractions and ends when cervix fully dilated
- Second stage
  - Baby enters birth canal and is born.
- Third stage
  - Begins after baby is born and ends when afterbirth is delivered

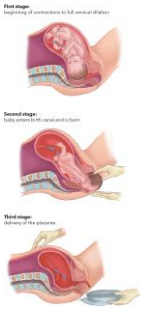
First Stage (1 of 2)

- Braxton-Hicks contractions
  - Irregular, not sustained, and not indicative of impending delivery
- Lightening
  - Fetus's movement from high in the abdomen down toward birth canal
- Contractions of the uterus produce normal labor pains.

First Stage (2 of 2)

- Characteristics of labor pains
  - Contraction time, or duration
  - Contraction interval, or frequency
  - When they last 30 seconds to 1 minute and are 2–3 minutes apart, delivery of the baby may be imminent.
- Breaking of amniotic sac
  - Fluid with meconium staining indicates that there may be fetal distress.

Labor Stages



Three stages of labor.

Second Stage

- Full dilation of cervix
- Contractions increasingly frequent
- Labor pain severe
- Mother feels urge to push or move bowels.
- EMT will have to decide whether to transport the patient, or keep her where she is and prepare to assist with delivery.

Third Stage

- After baby's birth, contractions resume until placenta is delivered.
- Usually lasts 10 to 20 minutes

Think About It 2

- Why is childbirth such an exhausting ordeal for the mother?

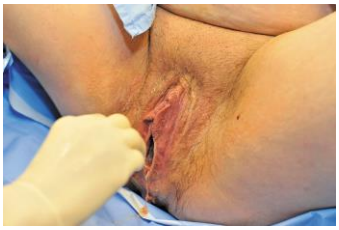
Patient Assessment (1 of 4)

- Traditional patient assessment
  - Airway, breathing, and circulation of primary assessment
  - Past medical history of secondary assessment
- Expected due date
- First pregnancy?
- Has patient seen doctor about pregnancy?

Patient Assessment (2 of 4)

- When did labor pains start?
- Has water broken or has she had bloody show?
- Patient feeling the urge to push or to move her bowels?
- Examine for crowning.
- Take vital signs.

Crowning



Crowning of the infant's head.

Patient Assessment (3 of 4)

- Findings that might indicate the need for neonatal resuscitation
  - No prior prenatal care
  - Premature delivery
  - Labor induced by trauma
  - Multiple births

Patient Assessment (4 of 4)

- Findings that might indicate the need for neonatal resuscitation
  - History of pregnancy problems (especially placenta previa and breech presentation)
  - Labor induced by drug use (especially narcotics)
  - Meconium staining when water breaks

Think About It 3

- How can you get necessary information from a patient who may be having uncontrolled pain from contractions?

Normal Childbirth

Back to Topics

Role of the EMT

- EMTs do not deliver babies; mothers do.
- Primary role is to determine whether the delivery will occur on scene and if so, to assist mother as she delivers her child.

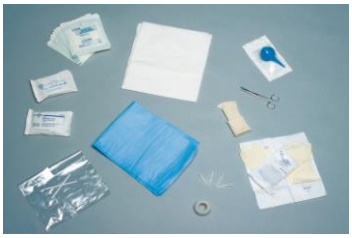
Preparing the Mother for Delivery (1 of 2)

- Control scene.
- Wear proper PPE.
- Place mother on bed, floor, or ambulance stretcher.
- Remove clothing obstructing vagina.
- Position assistant and OB kit.
- If possible, make environment as warm as possible.

Preparing the Mother for Delivery (2 of 2)

Preparing the mother for delivery. Numbers signify the order for placing items and draping the mother.

Preparing the OB Kit (1 of 2)



Contents of an OB (obstetrics) kit.

Preparing the OB Kit (2 of 2)

- Off-duty delivery supplies
  - Clean sheets and towels
  - Heavy, flat twine or new shoelaces
  - Towel or plastic bag (for placenta)
  - Clean, unused rubber gloves and eyewear
  - Head covering for the baby

Think About It 4

- Are there legal/moral/ethical concerns for an off-duty delivery?

Assisting the Delivery (1 of 8)

- Position for constant view of the vaginal opening.
- Be prepared for the patient to experience discomfort.
- Provide emotional support.
- Communicate with patient through contractions.

Assisting the Delivery (2 of 8)

- Assisting with a normal delivery
  - Keep someone at mother's head.
  - Position gloved hands at vaginal opening when baby's head starts to appear.
    - Place hand on baby's head as it bulges out to prevent sudden uncontrolled expulsion.
  - Place one hand below baby's head as it delivers.

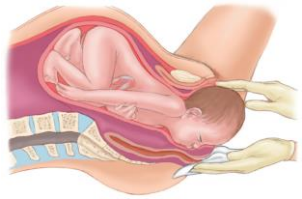
Assisting the Delivery (3 of 8)

- Assisting with a normal delivery
  - If amniotic sac has not broken at time of delivery, use your finger to puncture the membrane.
  - Once the head delivers, check to see if the umbilical cord is wrapped around the baby's neck.
  - Help deliver the shoulders.

Assisting the Delivery (4 of 8)

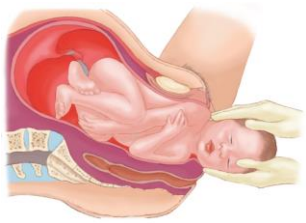
- Assisting with a normal delivery
  - Support the baby during the entire process.
  - Assess the airway.
    - Use syringe to suction mouth and nose if necessary.
  - Note exact time of birth.

Assisting the Delivery (5 of 8)



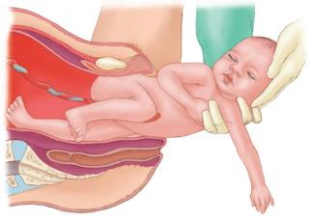
First Take Standard Precautions.
1. Support the infant's head. (Assist the mother by supporting the baby throughout the birth process.)

Assisting the Delivery (6 of 8)



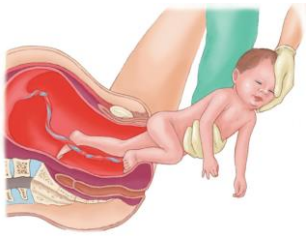
2. Aid in the birth of the upper shoulder.

Assisting the Delivery (7 of 8)



3. Support the trunk.

Assisting the Delivery (8 of 8)



4. Support the pelvis and lower extremities.

Ongoing Assessment and Care of the Mother

- Do not forget to continue to assess and care for the mother following birth.
- Use the primary assessment to identify life threats.
- Most frequent risk for the mother is bleeding.
- Provide emotional care.

The Neonate

Back to Topics

Assessing the Neonate

- Assess neonate immediately at birth.
- Protocol usually calls for noting ease of breathing, heart rate, crying, movement, and skin color.
- APGAR score
  - Does not guide resuscitation efforts
  - Based on **A**ppearance, **P**ulse, **G**rimace, **A**ctivity, and **R**espiratory effort.

Caring for the Neonate (1 of 4)

- Keeping the baby warm
  - Heat retention is high priority.
  - Dry baby.
  - Discard wet blankets.
  - Wrap baby in a dry blanket.
    - Infant swaddler or “space blanket”
  - Cover head.
  - Encourage breastfeeding.

Keeping the Baby Warm

Dry and wrap the baby in a warm blanket or swaddler.

Caring for the Neonate (2 of 4)

- Cutting the umbilical cord
  - Circumstances necessitating cutting
    - If cord wrapped around baby's neck and cannot be slipped over head
    - If attachment impedes resuscitation effort
    - If attachment interferes with urgent need for transport of mother or baby
    - If protocol requires it

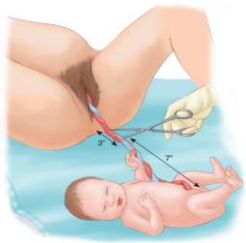
Caring for the Neonate (3 of 4)

- Cutting the umbilical cord
  - Steps
    - Keep infant warm
    - Use sterile clamps.
    - Apply one clamp about 10 inches from the baby.
    - Place a second clamp about 7 inches from the baby.

Caring for the Neonate (4 of 4)

- Cutting the umbilical cord
  - Steps
    - Cut the cord between clamps using surgical scissors.
    - Be careful when moving the baby so no trauma is brought to the clamped cord.
  - Place the baby on the mother's abdomen and allow her to begin breastfeeding.

Cutting the Umbilical Cord



Cutting the umbilical cord.

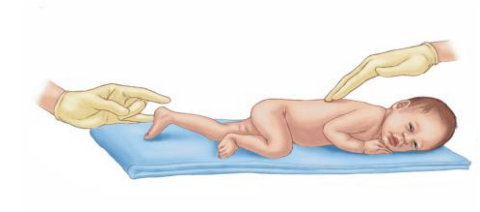
Think About It 5

- Why is it so important to stimulate the baby?

Neonatal Resuscitation (1 of 5)

- Dry, warm, and stimulate the neonate for 30 seconds.
- Establish that the baby is breathing.
  - Evaluate respirations, heart rate, and muscle tone.
  - If shallow, slow, gasping, or absent, provide positive pressure ventilation at a rate of 40 to 60 per minute.

Neonatal Resuscitation (2 of 5)

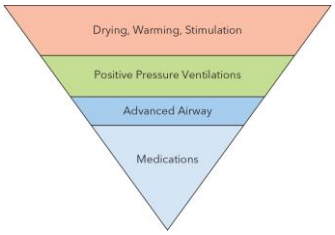


It may be necessary to stimulate the newborn to breathe.

Neonatal Resuscitation (3 of 5)

- Assess infant's heart rate.
  - If less than 100 bpm, continue positive pressure ventilations.
  - If less than 60 bpm, begin chest compressions at 120 events per minute (90 compressions and 30 ventilations).
- If adequate respirations and a pulse greater than 100 bpm, move to routine care.

Neonatal Resuscitation (4 of 5)



For long description, see slide 121: Appendix 3

Inverted pyramid of neonatal resuscitation.

Neonatal Resuscitation (5 of 5)

Deliver chest compressions mid-sternum with two thumbs, at a depth of one-third to one-half depth of the chest. For a very small infant, the thumbs may be overlapped.

Think About It 6

- What are the first steps in neonatal resuscitation?
- What is central cyanosis?
- When is artificial ventilation required, and what is the rate of artificial ventilations?

Care After Delivery

Back to Topics

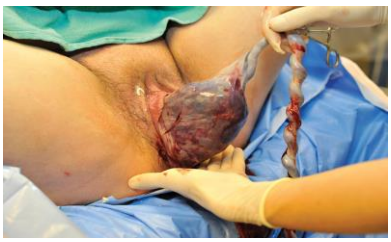
Caring for the Mother

- Mother at risk for serious bleeding, infection, emboli
- Deliver placenta.
- Control vaginal bleeding.
- Comfort.

Delivering the Placenta (1 of 2)

- Afterbirth
  - Placenta with umbilical cord, amniotic sac membranes, and tissues lining uterus
- Placental delivery starts with labor pains.
- May take 30 minutes or longer
- Begin transport in 20 minutes.

Delivering the Placenta (2 of 2)

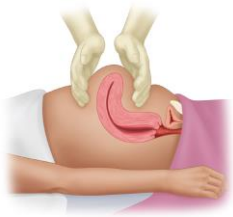


Guide the placenta out as it begins to appear at the vaginal opening.

Controlling Vaginal Bleeding after Birth

- Place a sanitary napkin over the mother's vaginal opening. Do not place anything in the vagina.
- Have the mother lower her legs and keep, but not squeeze, them together.
- Massaging the uterus will help it contract, which controls the bleeding.
- Encourage the mother to begin nursing the baby.

Controlling Vaginal Bleeding



After delivery of the placenta, massage the uterus to help control vaginal bleeding.

Providing Comfort to the Mother

- Take vital signs frequently.
- Acts of kindness will be appreciated and remembered.
  - Wipe face and hands with damp washcloth.
  - Replace blood-soaked sheets and blankets.

Think About It 7

- What are your responsibilities in caring for the mother?
- What is considered to be the usual blood loss?
- Give examples of acts of kindness toward the mother.

Childbirth Complications

Back to Topics

Complications of Delivery

- Common complications
  - Cord around the neck
  - Unbroken amniotic sac
  - Infants who need encouragement to breathe

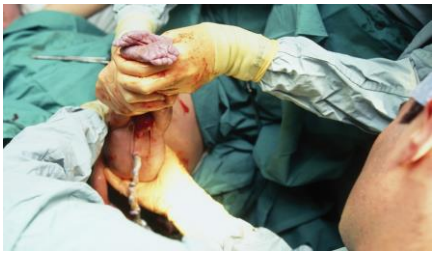
Breech Presentation (1 of 2)

- Most common abnormal delivery
- Buttocks- or both-legs-first delivery
- Risk of birth trauma to baby is high.
- Meconium staining often occurs.

Patient Care—Breech Presentation

- Initiate rapid transport.
- Never attempt to deliver baby by pulling on legs.
- Provide high-concentration oxygen to mother.
- Place mother in head-down position with pelvis elevated.
- If body delivers, support it to prevent explosive delivery.
- Care for baby, cord, mother, and placenta as for cephalic delivery.

Breech Presentation (2 of 2)



Breech delivery. © Eddie Lawrence/ScienceSource

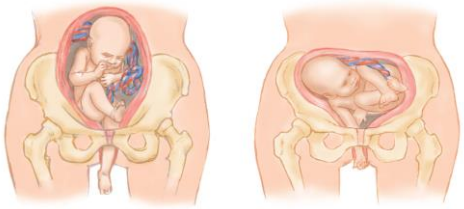
Limb Presentation (1 of 2)

- A limb of infant protrudes from the vagina.
- Commonly a foot when baby in breech position.
- Prolapsed cord often present as well.
- Rapid transport essential
  - Cannot be delivered in a prehospital setting

Patient Care—Limb Presentation

- Transport immediately.
- Place mother in head-down position with pelvis elevated.
- Do not pull on limb or replace limb into vagina.
- Do not place gloved hand into vagina unless there is a prolapsed cord.
- Administer high-concentration oxygen to mother.
- Notify receiving facility of limb presentation.

Limb Presentation (2 of 2)



Limb presentation.

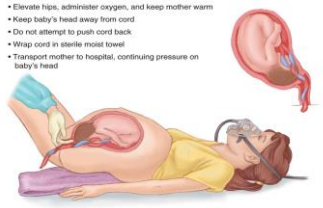
Prolapsed Umbilical Cord (1 of 2)

- When umbilical cord presents first and becomes squeezed between vaginal wall and baby's head
- Oxygen supply to the baby may be totally interrupted.
- Life-threatening condition

Patient Care—Prolapsed Umbilical Cord

- Position mother with head down and pelvis raised.
- Provide mother with high-concentration oxygen.
- Check cord for pulses and wrap exposed cord.
- Insert fingers into vagina to push up on baby's head or buttocks to keep pressure off the cord.
- Keep mother, child, and EMT as a unit.
- Transport immediately.
- Notify receiving facility of prolapsed cord.

Prolapsed Umbilical Cord (2 of 2)



For long description, see slide 122: Appendix 4

Prolapsed umbilical cord.

Patient Care—Multiple Birth

- Have appropriate resources.
- Clamp or tie cord of first baby.
- Assist with delivery of second baby.
- Placenta and cord care are same as single delivery.
- Keep babies and mother warm.

Patient Care—Premature Birth

- Keep baby warm.
- Keep airway clear.
- Provide ventilations and/or chest compressions.
- Watch umbilical cord for bleeding.
- Avoid contamination.
- Call ahead to emergency department.

Patient Care—Meconium

- Stains amniotic fluid greenish or brownish yellow color
- Do not stimulate infant before suctioning.
- Maintain open airway.
- Provide ventilations and/or chest compressions.
- Transport as soon as possible.

Think About It 8

- Why is it important to have your partner or another person (birthing coach or other adult acceptable to the mother) observing as you help the mother through childbirth?

Emergencies in Pregnancy

- Excessive prebirth bleeding
- Ectopic pregnancy
- Seizures in pregnancy
- Miscarriage and abortion
- Trauma in pregnancy
- Stillbirths
- Cardiac arrest of pregnant woman

Excessive Prebirth Bleeding (1 of 2)

- Placenta previa
  - Placenta blocks birth canal
  - If placenta is damaged or torn, severe bleeding may occur
- Abruptio placentae
  - Placenta prematurely separates from uterine wall
  - Usually caused by trauma
  - Complete abruption causes massive hemorrhage and is usually fatal for the fetus

Excessive Prebirth Bleeding (2 of 2)

- Main sign is profuse bleeding.
- Abdominal pain may or may not be felt.
- Assess for signs of shock.
- Provide high-concentration oxygen and transport.
- Place sanitary napkin over vagina.
- Save all tissue that is passed.

Ectopic Pregnancy

- Be alert for:
  - Acute abdominal pain, often on one side
  - Vaginal bleeding
  - Rapid and weak pulse
  - Low blood pressure
  - Absent menstrual period

Seizures in Pregnancy

- Existing preeclampsia
- Elevated blood pressure
- Excessive weight gain
- Excessive swelling to face, ankles hands, and feet
- Altered mental status, headache, or other unusual neurologic findings

Miscarriage and Abortion (1 of 2)

- Spontaneous or induced
- Cramping, abdominal pains
- Bleeding ranging from moderate to severe
- Noticeable discharge of tissue and blood from vagina

Miscarriage and Abortion (2 of 2)

- Obtain vital signs.
- If shock is present, keep patient warm and prevent hypoxia.
- Place sanitary napkin over vaginal opening.
- Transport as soon as possible.
- Save all blood-soaked pads and expelled tissues.
- Provide emotional support.

Trauma in Pregnancy

- Pregnant patient's pulse 10 to 15 beats per minute faster than nonpregnant women.
- Blood loss may be 30 to 35 percent before signs/symptoms appear.
- Ask patient if she received blows to abdomen.

Stillbirths

- Do not resuscitate if it is obvious the baby died some time before birth.
- Provide full resuscitation measures if baby is born in pulmonary or cardiac arrest.
- Prepare to provide life support.
- Provide emotional support for family.

Cardiac Arrest of Pregnant Woman

- Chance to save unborn child
- Begin CPR on mother immediately.
  - Displace uterus if more than 20 weeks
  - Position hands 1 to 2 inches higher on sternum to make up for shifting of the heart by large uterus.
- Continue CPR until emergency cesarean section can be performed or you are relieved in emergency department.

Gynecologic Emergencies

Back to Topics

Vaginal Bleeding

- Treat as potentially life-threatening.
- Check for associated abdominal pain.
- Monitor for hypovolemic shock.

Trauma to the External Genitalia

- When sizing up the scene, observe for mechanisms of injury.
- During primary assessment, look for signs of severe blood loss and shock.
- Consider additional internal injuries.

Sexual Assault

- Treat immediate life threats.
- Do not disturb potential criminal evidence.
- Examine genitals only if severe bleeding is present.
- Discourage bathing, voiding, or cleansing wounds.
- Fulfill mandated reporting requirements.

Think About It 9

- When arriving at a crime scene, what are the key things to keep in mind as you respond?

Chapter Review

Chapter Review (1 of 5)

- Although birth is a natural process that usually takes place without complications, the involvement of EMS usually indicates something unusual has happened.
- The EMT's role at a birth is generally to provide reassurance and to assist the mother in the delivery of her baby.

Chapter Review (2 of 5)

- During the normal delivery, the EMT will evaluate the mother to determine if there should be immediate transport or if birth is imminent and will take place at the scene.
- If birth is to take place at the scene, the EMT must prepare for the worst. Have equipment ready and appropriate resources on hand. Always be prepared for neonatal resuscitation.

Chapter Review (3 of 5)

- Complications of delivery are a true emergency. An EMT must be prepared to initiate rapid transport in the case of breech presentation, prolapsed umbilical cord, limb presentation, premature birth, or meconium staining of the amniotic fluid.

Chapter Review (4 of 5)

- There may also be predelivery emergencies or emergencies associated with pregnancy (such as excessive bleeding, ectopic pregnancy, seizures, abortion, or trauma to the pregnant mother) that the EMT must be prepared to treat.

Chapter Review (5 of 5)

- Stillbirth, death of the mother, and sexual assault are difficult emergencies the EMT is occasionally called upon to manage. Emotional care for these issues may be as important as medical care.

Remember (1 of 5)

- Female reproductive organs present new anatomy and specific potential emergencies. EMTs should recognize the different anatomy and be prepared to address reproductive emergencies.
- A growing fetus creates massive change to the mother's body. All systems undergo major alterations.

Remember (2 of 5)

- Assessment of the woman in labor is designed to predict imminent delivery and to recognize likely resuscitation.
- The urge to push and crowning indicate imminent delivery. Transport typically should be deferred for a home delivery.

Remember (3 of 5)

- Lack of prenatal care, premature labor, multiple gestation, and underlying conditions indicate a likelihood of neonatal resuscitation.
- Childbirth requires a high level of personal protective equipment.

Remember (4 of 5)

- The most important aspect of care for a neonate is keeping the baby warm. Resuscitation may be indicated by assessing breathing and heart rate.
- After delivery, there are two patients to care for: the infant and the mother.

Remember (5 of 5)

- EMTs should be familiar with the pathophysiology and emergency treatment of the various complications of childbirth.
- Care of the sexual assault patient must include medical, legal, and psychological considerations.

Questions to Consider

- What is the difference between abruptio placenta and placenta previa?
- How do you care for a prolapsed cord?
- What do you do if the bag of water is still intact during delivery?

Critical Thinking (1 of 2)

- You are called to a pregnant woman in labor. During your evaluation you find that it is the woman's first pregnancy, the baby's head is not crowning, and contractions are 10 minutes apart.

Critical Thinking (2 of 2)

- You ask the mother if she feels the need to move her bowels, and she says no. Do you prepare for delivery at the scene? Or do you transport the mother to the hospital?

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Appendix 1

Diagram shows the location of the broad ligament, ovary, round ligament, suspensory ligament, fallopian tube, ovarian ligament, body of uterus, fundus of uterus, egg cell, fimbriae, endometrium, myometrium, perimetrium, cervix, and vagina.

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Appendix 2

The changes are listed in pairs, one on the inside and the corresponding one noticeable on the outside.

Inside	Outside
increasing heart rate	faster pulse
Ligaments stretched, carrying extra weight of fetus	Swayback posture, back pain
Increasing blood volume	Pink coloration to skin
Increased oxygen demand and decreased lung capacity	Shortness of breath is common
Fetus growing and uterus enlarging	Belly enlarging
Growing uterus displaces GI tract	Nausea, vomiting, and heartburn

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Appendix 3

The steps listed in the neonatal resuscitation pyramid, from bottom to apex, are as follows.

- Drying, warming, stimulation.
- Positive pressure ventilations
- Advanced airway
- Medications

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Appendix 4

The steps are as follows.

- Elevate hips, administer oxygen, and keep mother warm.
- Keep baby's head away from cord.
- Do not attempt to push cord back.
- Wrap cord in sterile moist towel.
- Transport mother to hospital, continuing pressure on baby's head.

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