



## Seattle-King County EMS

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# **CBT521-EMT11- OB/GYN Emergencies**

**PRINT VERSION**

**FOR A WEB-BASED TRAINING MODULE**

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## Introduction

There are many types of emergencies that can occur with the female reproductive system. This course will help you refresh your assessment and treatment skills for emergency childbirth and gynecological emergencies.

## Before You Begin

This is a continuing education and recertification course for EMTs. It covers fundamental EMT-Basic concepts and terminology as well as advanced material. We highly recommend completing the case studies and practice exam before completing the exam.

We also recommend that you review an EMT textbook chapter covering this topic as a refresher before taking the exam, for example: Chapter 20 - Obstetric and Gynecologic Emergencies in *Emergency Care and Transportation of the Sick and Injured*, 9th edition (AAOS).

## Practical Skills

To receive CBT or OTEP credit for this course a trained skills evaluator must evaluate your ability to perform the following hands-on practical skills including:

- Treatment for supine hypotensive syndrome
- Treatment with a gynecological emergency
- Emergency childbirth (field delivery) — normal and abnormal presentations
- Abnormal presentation (non-field delivery) — breech, prolapsed cord
- Neonatal resuscitation

## Course Objectives

CBT521 is an EMT continuing education and recertification course. After completing this course you will be able to:

1. Identify anatomic structures of the female reproductive system and their functions.
2. Demonstrate a basic understanding of pregnancy-related physiology by identifying appropriate statements on the menstrual cycle, ovulation, and fetal development.
3. Identify signs/symptoms and proper care for gynecological emergencies.
4. Identify the key aspects of evaluating a pregnant patient to determine if birth is imminent.
5. Identify the purpose and use of tools in an OB kit.
6. Identify the steps for normal delivery of an infant.
7. Identify how and when to cut an umbilical cord.
8. Identify the steps for post-delivery care of the newborn and mother including delivery of the placenta.
9. Identify the critical treatment interventions for complications of pregnancy including: breech (buttocks) or two limb presentation, shoulder dystocia, prolapsed cord, and postpartum bleeding.
10. Identify steps for assessing an infant's APGAR score.
11. Identify steps for neonatal resuscitation

## Terms

Terms You Should Know

**abruptio placenta** — This condition occurs when the placenta prematurely separates from the uterine wall causing heavy internal bleeding and pain; it can occur as a result of trauma.

**bloody show** — Mucous and blood that comes from the vagina as the first stage of labor begins. The cervix is sealed by a plug of mucus during pregnancy to prevent contamination. When the cervix dilates, the plug is expelled as pink-tinged mucous.

**crowning** — The bulging out of the vaginal opening caused by the baby's head pressing against it.

**dilation** — To get larger or enlarge. The degree of dilation of the cervix is often a key indicator used by midwives and physicians to determine if birth is imminent. However, EMTs do not perform this test. The process occurs over a period of several hours in some women, but can take much longer.

**eclampsia** (toxemia) — A serious condition that can develop in the third trimester. It is characterized by high blood pressure and excessive swelling in the extremities and face. Life-threatening seizures differentiate eclampsia from preeclampsia.

**ectopic pregnancy** — Condition where a fertilized egg implants outside the uterus, often in the fallopian tubes. Symptoms can include abdominal pain and vaginal bleeding.

**effacement** — A term relating to the thinning of the cervix.

**meconium** — A dark-green fecal material found in the intestines of full-term babies. Ordinarily, the meconium is passed after a baby is born. In some cases, the meconium is expelled into the amniotic fluid prior to birth. It gives the fluid a greenish-brown color known as *meconium staining*.

**placenta previa** — A condition where the placenta sits low in the uterus blocking the cervix. It can present with painless, bright red bleeding.

**postpartum** — A term used to describe the period shortly after childbirth.

**preeclampsia** — A condition found in pregnant women characterized by high blood pressure, abnormal weight gain, edema, headache, protein in the urine, and epigastric pain. If untreated, preeclampsia can progress to eclampsia.

**supine hypotensive syndrome** — A pregnancy-related condition where the weight of an unborn fetus and the uterus puts pressure on the inferior vena cava. The result is inadequate venous blood return to the heart, reduced cardiac output, and lowered blood pressure.

### New Terms

**Braxton-Hicks** — A Braxton Hicks contraction is defined by Taber's Medical dictionary as an intermittent, painless contraction that may occur every 10 to 20 minutes after the first trimester of pregnancy. These contractions were first described in 1872 by British gynecologist John Braxton Hicks. Sometimes these contractions are also called prelabor contractions or Hicks sign. Not everyone will notice or experience these contractions, and some will have them frequently. Some mothers say that they notice them more in subsequent pregnancies than in their first pregnancy.

## Female Anatomy – Reproductive Organs (Content Player)

The **cervix** is the opening of the uterus. During the first stage of birth, the cervix opens and thins to allow the fetus to move into the vagina. This opening process is called dilation.

The **endometrium** is the inner lining of the uterus. Each month, under the influence of estrogen and progesterone, the endometrium is built up in anticipation of implantation of a fertilized egg. If fertilization does not occur, the lining simply sloughs off. This sloughing off of the uterine lining is referred to as the menstrual period.

The **fallopian tubes** are long slender passageways that connect the uterus to the ovary. The female egg (ovum) passes through this structure on its way to the uterus for implantation to the uterine wall.

The **ovaries** are two almond-sized glands located on each side of the uterus behind and below the fallopian tubes. They produce estrogen and progesterone in response to follicle stimulation hormone (FSH) and luteinizing hormone (LH) secreted from the pituitary gland.

The area between the vaginal opening and the anus is called the perineum. It sometimes is torn during birth which causes bleeding.

The **uterus** is a pear-shaped, muscular organ that holds the fetus during pregnancy. It contracts to push the fetus through the cervix and into the vagina during birth.

The **vagina** is a flexible, muscular tube about three inches long. It is also called the birth canal. During birth, the fetus moves from the uterus through the cervix and into the vagina and then out of the mother's body.

## Fetal Anatomy (Content Player)

The **placenta** develops early in pregnancy and performs several important functions for the developing fetus. It exchanges respiratory gases, transports nutrients from the mother to the fetus, excretes waste, and transfers heat. The placenta is also an active endocrine gland that produces several important hormones.

The placenta is attached directly to the uterine wall. It is attached to the fetus by the umbilical cord. The umbilical vein transports oxygenated blood toward the fetus while the umbilical arteries return deoxygenated blood to the placenta.

The **amniotic sac** develops early in pregnancy. It consists of membranes that surround and protect the developing fetus. The amniotic sac fills with amniotic fluid that cushions the fetus and provides a stable environment.

The **umbilical cord** attaches the fetus to the placenta. It contains one vein and two arteries. The vessels in the umbilical cord are similar to the pulmonary circulation as the arteries carry deoxygenated blood and the veins carry oxygenated blood. In a newborn the cord is about two feet long.

## GYNECOLOGY

### Menstrual Cycle

The menstrual cycle is a woman's monthly hormonal cycle in which the uterus prepares to receive an egg and then discharges a bloody fluid. The cycle repeats on an average every 28 days, but can vary widely.

#### Menstrual Cycle (Content Player)

Days 1 to 5

If an egg has not been fertilized, hormone levels become lower causing the thickened lining of the uterus to shed. This results in a woman's period. The first day of menstrual bleeding is Day 1 in the menstrual cycle.

Days 6 to 14

During this phase, the pituitary gland produces a hormone that stimulates the ovaries to develop follicles each containing an egg. Only one egg will reach maturity and have the potential to become fertilized. Hormone levels increase causing the lining of the uterus to thicken and prepare to receive the mature egg.

Days 10 to 18

The hypothalamus and pituitary glands release a hormone that causes the mature follicle to burst and release the egg. This is called ovulation. Ovulation typically occurs midway through the menstrual cycle on Day 14.

Next, the egg begins its journey down the fallopian tubes to the uterus. This is the time period when a woman is most likely to become pregnant.

Days 16 to 28

After releasing the egg, the ruptured follicle takes on a new role and secretes progesterone which continues to thicken the lining of the uterus in preparation for the fertilized egg. If the egg is fertilized by sperm, it implants in the lining of the uterus. If the egg is not fertilized or does not implant, the lining of the uterus is shed again at the beginning of the next menstrual cycle.

### PID

Pelvic inflammatory disease (PID) is an infection of the female reproductive tract. The organs most commonly involved are the uterus, fallopian tubes, and ovaries. Occasionally, the peritoneum and intestines are involved.

The symptoms of PID include:

- Lower abdominal pain
- Fever
- Abnormal vaginal discharge
- Painful intercourse
- Irregular menstrual bleeding
- Pain in right-upper quadrant

Vaginal bleeding and lower abdominal pain can indicate a serious gynecological problem. You should maintain a high index of suspicion when these are encountered.

#### Elaboration – Causes of PID

The most common causes of PID are gonorrhea and chlamydia infections. In addition, other bacteria, such as staph or strep, can cause PID. Gonorrhea and chlamydia can progress undetected before PID symptoms appear.

PID can be either acute or chronic, and if it is allowed to progress untreated, sepsis can develop. The most common symptom of PID is moderate to severe, lower abdominal pain.

### Vaginal Bleeding

Vaginal bleeding that is not a result of direct trauma or a normal menstrual cycle can indicate a serious problem.

Since it is difficult to isolate a specific cause, treat all vaginal bleeding as if there were a serious underlying condition. This is especially true if the bleeding is associated with lower abdominal pain.

Treatment depends on the patient's needs, but may include the following:

- Maintain ABCs
- Control bleeding, if possible
- Administer oxygen
- Place in shock position

### Elaboration – Dilation and Curettage

Dilation and Curettage (D&C) – D and C stands for dilation (opening of the cervix to allow instrumentation of the uterus) and curettage (scraping of the walls of the uterus). D and Cs may be done in out-patient clinics and generally require local anesthesia. D and Cs are done to: diagnose conditions such as cancer, remove tissue after a miscarriage, and as an elective abortion.

Complications include heavy bleeding, though this is uncommon. Patients with heavy bleeding should be evaluated for signs of shock with expedited transportation to a hospital.

### Ovarian Cysts

When an egg is released from the ovary, a cyst is often left in its place. A cyst is a fluid-filled sac that is often enlarged. Ovarian cysts can rupture and cause abdominal pain. Occasionally cysts develop independent of ovulation.

### Sexual Assault

Rape is any genital, oral or anal penetration by a body part or object, through use of force or without the victim's consent. It is a crime of violence with serious physical and psychological implications.

Trauma to a woman's external genitalia can be difficult to treat because of the need to maintain the patient's modesty. The rich network of nerves in the external genitalia makes such injuries painful. Injuries to this area tend to bleed profusely because of its rich blood supply.

Treat open wounds of the genitalia with moist, sterile compresses. Use direct pressure to control bleeding. Do not place dressings in the vagina.

## OBSTETRICS

### Ovulation

Pregnancy begins with ovulation in the female. Fourteen days before the beginning of the next menstrual period, the ovary releases an egg into the abdominal cavity.

The egg then enters the fallopian tube where it is transported to the uterus. If the woman has intercourse 24 to 48 hours before ovulation, fertilization can occur in the fallopian tube.

Once fertilized, the egg begins to divide. The fertilized egg continues down the fallopian tube to the uterus where it attaches to the endometrium.

### Fetal Development

A fertilized egg develops remarkably fast. Some of the significant development changes are highlighted below.

Month	Development Milestone
1	Development of the brain, spinal cord, and heart
2	Feet and hands are distinguishable
5	Fetal heart tones can be detected by stethoscope
6	Baby is capable of surviving on its own if born prematurely
8	The fetus has an excellent chance of survival

### Trauma

Pregnant women are more susceptible to traumatic injury because of the increased vascularity of the uterus. Direct abdominal trauma can cause:

- Premature separation of placenta from uterine wall
- Premature labor
- Abortion
- Uterine rupture
- Fetal death

Fetal death can result from separation of the placenta from the uterine wall, maternal shock, uterine rupture, or fetal head injury.

### Gestational Diabetes

Some women develop diabetes during pregnancy. This is called gestational diabetes. Pregnant diabetics are prescribed insulin if their blood sugar cannot be controlled by diet alone. Gestational diabetes cannot be managed with oral drugs because they are absorbed into the placenta and can adversely affect the fetus.

### Ectopic Pregnancy

Ectopic pregnancy is the implantation of a growing fetus in a location other than the endometrium. The most common site is in one of the fallopian tubes. This is a surgical emergency because the tube can rupture and cause massive bleeding.

Patients with ectopic pregnancy often have one-sided, lower abdominal pain, a late or **missed menstrual period**, and occasionally vaginal bleeding. This is a life-threatening emergency. Treat for shock and initiate immediate transport.

### Bleeding

Vaginal bleeding during pregnancy is a cause for concern. Bleeding in early pregnancy is often associated with spontaneous abortion, ectopic pregnancy, or vaginal trauma.

**Vaginal bleeding in the third trimester is usually caused by abruptio placenta, placenta previa, or trauma to the vagina or cervix. This can be a life-threatening emergency.**

It can range from light spotting to massive hemorrhage. It is very difficult to determine the cause of vaginal bleeding in the field.

You should suspect placenta previa, abruptio placenta, or vaginal trauma when you see vaginal bleeding during the third trimester.

### **Elaboration — Abruptio Placenta**

Abruptio placenta is the premature separation of the placenta from the wall of the uterus. Separation can either be partial or complete. Complete separation usually results in death of the fetus. Several factors may predispose a patient to abruptio placenta. These include preeclampsia, maternal hypertension, multiparity, abdominal trauma or a short umbilical cord.

When abruptio placenta occurs, blood collects behind the separated placenta. As a result, vaginal bleeding is minimal. If the placenta is not completely separated from the uterine wall, it can impede bleeding. If the placenta separates completely, the pressure is lost and severe hemorrhaging can occur suddenly.

### **Elaboration — Placenta Previa**

Placenta previa is the attachment of the placenta in the lower part of the uterus covering the cervix. Unless a sonogram is done, placenta previa usually is not detected until the third trimester. When fetal pressure on the placenta increases or uterine contractions begin, the cervix thins out resulting in bleeding from the placenta.

### **Hypertension**

A woman's blood pressure generally is lower during pregnancy. However, women who have borderline hypertension before becoming pregnant can become dangerously hypertensive when pregnant.

One of the dilemmas that a hypertensive, pregnant patient faces is that many common blood pressure medications cannot be used during pregnancy. Persistent hypertension can adversely affect the placenta, thus compromising the fetus as well as placing the mother at increased risk for stroke or renal failure.

Preeclampsia is a condition characterized by high blood pressure, abnormal weight gain, edema, headache, and protein in the urine. Eclampsia is characterized by high blood pressure and excessive swelling in the extremities and face. Life-threatening seizures differentiate eclampsia from preeclampsia.

### **Elaboration — Preeclampsia**

Preeclampsia patients can have a variety of signs and symptoms including:

- Hypertension
- Abnormal weight gain
- Edema
- Headache
- Protein in the urine
- Epigastric pain

If untreated, preeclampsia can progress to eclampsia.



### **Elaboration – Eclampsia**

Eclampsia, also called toxemia, is the most serious manifestation of hypertensive disorders of pregnancy. It is characterized by grand mal seizures. Eclampsia is often preceded by visual disturbances such as flashing lights or spots before the eyes.

Eclampsia patients often experience swelling of the hands and feet and a markedly elevated blood pressure. If eclampsia develops, death of the mother and the fetus frequently results. Treat by lying mother on her side, maintaining the airway, and delivering high-flow oxygen.

### **Supine Hypotensive Syndrome**

Supine hypotensive syndrome occurs when the increased weight of the uterus compresses the inferior vena cava while a patient is supine. This markedly decreases blood return to the heart and reduces cardiac output. Some women are predisposed to this condition because of an overall decrease in circulating blood volume or anemia.

Supine hypotensive syndrome usually occurs in the third trimester of pregnancy. You can relieve it by tilting the mother to one side.

## **EMERGENCY CHILDBIRTH**

### **Signs of Imminent Delivery**

Your main task in evaluating an expectant mother is to determine if delivery is imminent. If so, the child is likely to be born within a few minutes and there is no time for transport. Expose the abdomen and genital area, taking care to be discrete. Visually inspect the abdominal and vaginal areas for bleeding or crowning.

Prepare for immediate delivery if you observe any of the following:

- Crowning
- Contractions less than 2 minutes apart
- Rectal fullness
- Feeling of imminent delivery

### **Elaboration – Crowning**

Crowning is the appearance of any part of the fetus in the mother's vagina. Remove enough of the mother's clothing to view the genital region. Look for bulging at the vaginal opening or a presenting part of the infant.

### **Elaboration – Contraction Intervals**

During the first stage of labor, the mother will experience labor pains from contractions of the uterus. These help push the fetus from the uterus and dilate the cervix. They occur at regular intervals ranging from 30 minutes to 2 minutes or less. Labor pain from contractions lasts from 30 seconds to 1 minute.

As birth approaches, the interval between contractions gets shorter. Contractions that occur within 2 minutes of each other, from the end of one to the beginning of the next, signify impending delivery.

Consider transporting the mother if the baby does not deliver after 20 minutes of contractions that are 2 to 3 minutes apart. Keep in mind that labor is generally prolonged for the mother's first baby. The average is 12 to 17 hours which allows plenty of time for transport.

### Elaboration — Rectal Fullness

A feeling of rectal fullness or a sensation of having to move one's bowels can indicate that the infant's head is in the vagina and pressing against the rectum. Delivery is imminent. Do not let the mother sit on the toilet.

### Elaboration — Feeling of Imminent Delivery

Mothers who have previously given birth often know when they are ready to deliver. Labor tends to be shorter after the first child. Use your judgment given the circumstances. When evaluating the mother, keep in mind the four signs of imminent delivery and consider transport time.

### Preparing for Delivery

Once you have determined that a field delivery is imminent, you should prepare as follows:

- Request a paramedic unit
- Don sterile gloves, gown, and eye protection
- Position mother on her back, legs drawn up
- Provide supplemental oxygen
- Prepare OB kit
- Prepare infant BVM

### Elaboration – Presentations You Can't Deliver (30)

Presentations you cannot deliver in the field:

- Single limb
- Prolapsed cord

### Elaboration – Presentations You Can Deliver

Presentations you can deliver in the field:

- Head first (normal cephalic)
- Umbilical cord around the neck
- Shoulder dystocia
- Buttocks first
- Double footling

### Assisting With Delivery

Once the head has crowned it may take additional contractions to deliver the baby. The key points for assisting with delivery are:

- Support head with gentle pressure
- Check if cord is wrapped around the baby's neck—if so, attempt to loosen
- Apply **gentle downward pressure** on shoulder and head
- After anterior shoulder has delivered, **apply gentle upward pressure**
- Suction mouth and nostrils when head appears
  - Squeeze air from the syringe before inserting. Insert the syringe no more than one inch into the mouth and no more than ½ inch into each nostril.
- Once delivered, stimulate infant if it does not breathe
- Put two clamps on umbilical cord and cut 6 inches from navel

### Elaboration – Amniotic Sac

During the first stage of labor the amniotic sac usually breaks, expelling amniotic fluid. If the sac is still covering the infant's head when the head appears, use a finger to pierce the sac. You will find it very tough. Let the fluid run out and pull the membranes away from the infant's mouth and nose.

Note the color and character of the amniotic fluid. The fluid can be clear or straw-colored (which is normal), tainted and discolored, or thick and “pea soup-like” (which indicates meconium staining).

### **Elaboration – Detailed Delivery Instructions**

Detailed delivery instructions are as follows:

1. Encourage the mother to breath deeply between contractions and push with contractions.
2. As the baby crowns, support with gentle pressure over perineum to avoid an explosive birth.
3. If the amniotic sac is still intact, rupture it with a finger to allow amniotic fluid to leak out.
4. As soon as the baby’s head appears, suction the mouth and nostrils with a bulb syringe – squeeze air from the syringe before inserting, insert the syringe no more than one inch into the mouth and no more than ½ inch into each nostril.
5. If the umbilical cord is wrapped around the baby’s neck, gently slip it over the head. Do not force it! If the cord is too tight to slip over the head, apply umbilical cord clamps and cut the cord. Clamp and cut the umbilical cord only if he baby’s head has emerged and is in a position that lows you to manage the airway.
6. Encourage the mother to push. Support the baby’s head as it delivers. Caution, babies are slippery!
7. To assist in delivery of the anterior shoulder, apply gentle downward pressure on the shoulder and head.
8. As soon as the anterior shoulder has delivered, apply gentle upward pressure to assist in the delivery of the posterior shoulder.
9. Once both shoulders have delivered, be ready for the remainder of the body to deliver quickly. Newborn babies are slippery so handle carefully.
10. Stimulate the newborn to breathe by tapping the feet, if necessary.
11. Once pulsations have stopped, clamp the cord by placing a clamp approximately 6 inches from the baby. Place a second clamp approximately 2 inches from the first, then cut the cord between the clamps.
12. Re-suction the baby’s mouth and nostrils **only if** baby is not breathing or is having respiratory distress.
13. Dry and wrap the baby in a warm blanket — cover its head.
14. Place the baby on its side to facilitate drainage.
15. Perform an APGAR assessment at 1 minute and 5 minutes after delivery.

### **Care of the Infant**

Once the body has delivered the baby should begin breathing on its own. If not, you must stimulate it by rubbing its back or tapping your fingers on the soles of its feet. If the newborn does not start breathing effectively within 10 – 15 seconds of stimulation, use an infant BVM to deliver gentle puffs of air — enough to cause the chest to rise.

If after 30 seconds of assisted ventilation there is no response and the heart rate is less than 60 beats/min, begin CPR.

Keep the newborn warm by drying it and then wrapping it in warmed blankets. After the cord is clamped and cut, cover the head. Be careful because a wet baby is very slippery. Repeat suctioning of the nose and mouth, if needed. Remember to check the APGAR score at 1 and 5 minutes.

### **Elaboration – Meconium Staining**

If you see signs of meconium staining, do not stimulate the infant before suctioning the mouth and nose. This is to avoid aspiration of fecal material that can cause pneumonia.

## APGAR

The APGAR scale is a numerical measure of a baby's overall condition immediately after birth. A perfectly healthy baby will have a total score of 10, while many babies score 7 to 8 during the first minute. By 5 minutes, most babies score 8 to 10 on the scale.

APGAR stands for:

- Appearance
- Pulse
- Grimace
- Activity
- Respirations

APGAR Scale					
Sign	Scale			Score	
	0	1	2	1 min.	5 min.
Appearance (color of skin, nailbeds, or lips)	blue, pale	body pink, extremities blue	completely pink		
Pulse	absent	<100	>100		
Grimace (reflex, irritability)	no response	grimaces	cries		
Activity (muscle tone)	limp	some flexion of extremities	active motion		
Respirations	absent	slow and irregular	strong crying		
TOTAL					

Assign a number (0, 1, or 2) for each category and then add the numbers for a total score. Repeat the process at 5 minutes. Use the lips and tongue for appearance of dark-skinned babies.

An APGAR score of 7 to 10 means adequate function.

A score of 4 to 6 means moderate depression.

An APGAR score of less than 4 requires that you begin resuscitation.

Although the APGAR score is important, it becomes a low priority in situations where both patients require all of your attention, for example, postpartum hemorrhaging or resuscitation.

### Elaboration – Managing a Poor APGAR Score (PSS)

There are three things to remember when managing an infant with a low APGAR score: position, suction, and stimulate (PSS).

Position the body so that the head is down and the airway is open. Suction mucous and fluid from the mouth and nostrils. Lastly, stimulate the infant by taping the bottoms of the feet.

PSS is a memory aid to help you recall these steps—position, suction, and stimulate.

### Care of the Mother

In a childbirth emergency you are caring for two patients. A common mistake is to focus attention on the baby to the detriment of the mother. Therefore, once the baby is delivered and the umbilical cord is cut and clamped you should:

- Monitor and **control bleeding** from the mother
- Begin fundal massage
- Monitor **vital signs**
- Keep the mother and baby warm

In general, you should transport once the infant is delivered. Do not wait for the placenta—it may take up to 30 minutes to deliver. Do not pull on the umbilical cord. If the placenta does deliver at the scene, transport it with the mother and baby to the hospital.

### Elaboration – Monitor and Control Bleeding (40)

After the placenta is delivered, place a sanitary napkin between the mother's legs. Ask her to hold her legs together. It is normal for the mother to bleed up to one cup (about 250 cc) or 5 sanitary napkins of blood after delivery. Record the number of pads.

Another strategy to help reduce bleeding is to allow the mother to nurse the infant. This will stimulate the release of hormones causing the uterus to contract. Be aware that a first-time mother may not know how to breastfeed.

### Elaboration – Fundal Massage

Fundal massage makes the uterus contract and diminishes vaginal bleeding. You can feel for the fundus of the uterus, located in the abdomen between the pubic bone and umbilicus. It should feel like a softball. Perform the massage like you would a firm muscle massage. This area may be tender and massaging it can cause discomfort.

## COMPLICATIONS – FIELD CARE

### Umbilical Cord Around Neck

As the head begins to protrude from the vaginal opening, check to see if the umbilical cord is wrapped around the infant's neck. If so, attempt to loosen it by slipping it over the infant's head. Place two fingers under the cord at the back of the baby's neck. Bring the cord forward, over the head and shoulder. Do not force it!

If it is too tight around the neck to remove, clamp in two places, and cut between the clamps using the OB scissors or scalpel.

**Try to loosen the cord gently and slip it over the head.**

### Elaboration – Umbilical Cord Around Neck

Once the head has delivered ask the mother to stop pushing so you can check if the cord is wrapped around the infant's neck. If the cord looks like it is wrapped tightly, so as to constrict the airway, you will have to loosen it.

Try to gently slip the cord over the baby's head by placing two fingers under the cord at the back of the neck. Bring the cord over the shoulders and head. Although the cord is durable, it can tear if handled roughly so do not use excessive force.

If it is too tight to loosen, clamp the cord in two places two inches apart. Cut the cord between the clamps. Unwrap the cord from around the neck and take care not to injure the baby.

### Shoulder Dystocia

Shoulder dystocia occurs when an infant's shoulders are larger than its head. This happens most commonly with diabetic and obese mothers.

In shoulder dystocia, labor progresses normally and the head is delivered routinely. However, immediately after the head is delivered, the shoulders become trapped between the symphysis pubis and the sacrum, preventing further delivery. The first step in treating shoulder dystocia is recognizing when it occurs. The two main signs of shoulder dystocia are:

- The baby's body does not emerge with standard moderate traction and maternal pushing after delivery of the baby's head
- "Turtle Sign" – the head suddenly retracts back against the mother's perineum after it emerges from the vagina.

Watch animation on shoulder dystocia

### The Do's and Don'ts of the McRoberts Maneuver

#### Do

- Pull the knees backwards (towards the patient's ears) and out to the side to rotate and open the pelvis
- Use suprapubic pressure to untrap the shoulder from behind the pelvis

#### Do Not

- Do not pull forcefully on the baby's head
- Absolutely, no fundal pressure

### Buttocks and Double Footling Presentation

If the buttocks or two feet present first, you can attempt delivery in the field. Keep in mind that these are generally slow deliveries and you likely have time to transport.

The key points in caring for these presentations are:

- Position mother with buttocks at edge of bed
- Hold mother's legs in a flexed position
- Support infant's legs — do not pull
- As the head passes pubis, apply gentle upward traction until mouth appears
- If head is stuck, create an airway by pushing away the vaginal wall — transport immediately

### Elaboration – Detailed Instructions for Buttocks or Double Footling Presentation

1. Follow these steps for a buttocks or double footling presentation:
2. Request a paramedic unit.
3. Position the mother with her buttocks at the edge of a bed.
4. Hold the mother's legs in a flexed position.
5. Support the infant's legs as they deliver — do not pull on the legs.
6. Allow baby to be delivered with contractions.
7. Continue to support the infant.
8. As the head passes the pubis, apply gentle upward traction until the mouth appears.
9. If head does not deliver, continue to support infant throughout transport.
10. Notify the receiving hospital.

### **Elaboration – If the Head Does Not Deliver**

If the head does not deliver, you need to create an airway for the infant. First, place a gloved hand into the vagina with your palm towards the infant's face. Form a "V" with the index and middle finger on either side of the infant's nose. Push the vaginal wall away from the infant's face to allow unrestricted breathing. Maintain the airway and transport immediately.

### **Postpartum Bleeding**

The most common cause of postpartum bleeding is the inability of the uterus to contract due to a retained portion of the placenta. This happens most frequently in the multigravida patient and is common following multiple births, delivery of a large infant, precipitous deliveries, and prolonged labor.

Other reasons for postpartum bleeding include: placenta previa, abruptio placenta, clotting disorders in the mother, vaginal tears, or cervical tears. External bleeding usually results from a torn perineum.

Important steps in caring for postpartum bleeding include:

- Fundal massage
- Treat for shock
- Do not force delivery of placenta
- Place sanitary napkin at opening of vagina

### **Elaboration — Postpartum Bleeding**

Postpartum bleeding is excessive bleeding following delivery. It can occur either internally or externally. More than 5 soaked pads within 30 minutes of delivery is considered excessive. Depressed vital signs are indicative of hemorrhaging. Blood loss can be severe enough to cause shock or even death.

Check the patient's vital signs frequently. Look for bleeding from the vagina, persistent abdominal rigidity or tenderness, and signs of shock such as altered LOC, cool, clammy, pale skin, or hypotension.

Firmly massage the lower abdomen in a circular motion, administer high-flow oxygen, place the patient in an appropriate position, and place a sanitary napkin at the opening of the vagina.

### **Neonatal Resuscitation**

After delivery, if the infant is not breathing effectively after 10 to 15 seconds of stimulation, begin assisted respirations. Use an infant BVM with high-flow oxygen at a rate of 40 to 60 breaths/min.

If the pulse rate falls below 60 beats/min, start compressions and ventilations at ratio of 3:1 at 120 events/min (which is 90 compressions and 30 ventilations). Remember, ventilation is the most important action in neonatal resuscitation.

**You must deliver effective ventilations.**

### **Elaboration – CPR - Two-Thumb Encircling Hands Technique**

The CPR technique for an infant with a pulse rate below 60 beats/min is as follows:

1. Place the infant on a firm, flat surface.
2. Remove clothing from the chest.
3. Find the compression site which is just below the nipple line on the middle or lower third of the sternum.
4. Wrap your hands around the upper abdomen with your thumbs on the compression site.
5. Use your thumbs to deliver gentle pressure against the sternum, pressing  $\frac{1}{2}$  to  $\frac{3}{4}$  inch into the chest.

Coordinate compressions and ventilations to avoid simultaneous delivery. Let the chest fully recoil during relaxation, but keep your thumbs on the chest.

## **MUST TRANSPORT**

### **Single Limb Presentation**

Delivery of a single limb presentation must be accomplished at the hospital since a Cesarean section usually is required.

The key points of assisting with a single limb presentation include:

- Support the baby with your hands
- Provide an airway for the baby using your fingers
- Transport immediately — do not attempt delivery in the field

### **Prolapsed Cord**

A prolapsed cord occurs when the umbilical cord falls into the birth canal and is compressed between the fetus and the pelvis. You must provide immediate care since the baby is in danger of suffocation due to compression of the umbilical cord. Your treatment is aimed at keeping the head out of the birth canal and off the cord.

To help relieve the pressure on the cord, place the mother in the knee-chest position. An alternative position is lying on her side with hips elevated. Do not let her lie flat. Administer high flow oxygen to the mother.

If you feel no pulsations in the umbilical cord, you must press the presenting part of the baby away from the umbilical cord. This will take the baby's weight off the cord.

### **Elaboration – Detailed Instructions for Prolapsed Cord**

If you see the umbilical cord in the vagina, presenting before the baby, initiate the following steps:

1. Request a paramedic unit.
2. Place the mother in the knee-chest position.
3. Check the umbilical cord for pulsations.
4. If there are no pulsations, you will need to press the presenting part of the fetus away from the umbilical cord, towards the mother's head. This will take the baby's weight off of the cord.

To do so, insert your hand into the vagina. Push the presenting part (usually the head) with the flat part of your fingers and palm. Use as much surface area of your fingers and palm as possible to distribute pressure across the baby's head. Avoid pushing with the tips of your fingers only.



5. Re-check the cord for pulsations.
6. Administer high flow oxygen to the mother.
7. Transport immediately. The fetus will die quickly without rapid intervention.
8. Continue holding the presenting part of the baby away from the umbilical cord.
9. Apply a moistened dressing on the exposed umbilical cord.
10. Do not push the umbilical cord back into the vagina.

## Summary

Key structures of the female reproductive system include:

- Cervix
- Endometrium
- Fallopian tubes
- Ovaries
- Perineum
- Uterus
- Vagina

The key structures of fetal anatomy include:

- Placenta
- Amniotic sac
- Umbilical cord

Care for vaginal bleeding includes:

- Maintain ABCs
- Control bleeding, if possible
- Administer oxygen
- Place in shock position

A fetus has an excellent chance of survival **after the seventh month of pregnancy.**

Pregnant women are more susceptible to traumatic injury because of the increased vascularity of the uterus.

Patients with ectopic pregnancy often have one-sided abdominal pain, a late or missed period, and occasionally vaginal bleeding.

Vaginal bleeding in the third trimester is usually caused by abruptio placenta, placenta previa, or trauma.

To relieve supine hypotensive syndrome **tilt the pregnant patient to one side.**

Signs of imminent delivery include:

- Crowning
- Contractions less than 2 minutes apart
- Rectal fullness
- Feeling of imminent delivery

The key points for assisting with a normal delivery are:

- Support head with gentle pressure
- Check if cord is wrapped around the baby's neck—if so, **attempt to loosen**
- Apply **gentle downward pressure** on anterior shoulder and head
- After anterior shoulder has delivered, apply **gentle upward pressure** on the posterior shoulder and head
- Suction mouth **and nostrils** when head appears
- Once delivered, **stimulate newborn** if it does not breathe
- Put two clamps on umbilical cord and cut 6 inches from navel

Care for a newborn infant includes:

- Stimulate infant if not breathing sufficiently
- Start CPR if no response after 30 seconds
- Keep infant warm
- Repeat suctioning of mouth and nose
- Check APGAR score at 1 and 5 minutes

APGAR stands for appearance, pulse, grimace, activity, and respirations.

Care of the mother includes:

- Monitor and control bleeding from the mother
- Begin fundal massage
- Monitor vital signs
- Keep the mother and baby warm

If the head remains stuck during a buttocks or double footling presentation, create an airway by pushing away the vaginal wall then transport immediately.

Important steps in caring for postpartum bleeding include **fundal massage** and **treatment of shock**.