**Chapter 33**
Obstetrics and Neonatal Care

**Introduction**

- Most deliveries occur in a hospital.
- Occasionally, the birth process moves faster than the mother expects and is unable to get to a hospital.
- You must then decide whether to:
  - Stay on the ________________ and deliver the infant
  - Transport the patient to the hospital

**Female Anatomy (1 of 3)**

- **Fetus**: developing ________________ baby.
- **Uterus**: organ that fetus grows in.
- **Placenta**: organ through which fetus exchanges nourishment and waste products.
- **Birth Canal**: vagina and lower part of uterus
- **Umbilical Cord**: cord through which fetus receives ________________.

**Female Anatomy (2 of 3)**

- **Amniotic Sac**: sac that surrounds fetus.
- **Cervix**: lowest part of ________________.
- **Vagina**: lowest part of birth canal.
- **Perineum**: skin between vagina and anus.
- **Ovaries**: two glands on each side of the uterus
  - Contains thousands of follicles, and each follicle contains an egg.

**Female Anatomy (3 of 3)**

- **Fallopian Tubes**: extend out laterally from the uterus, where ________________ occurs
- **Cervix**: lowest part of uterus.
- **Vagina**: lowest part of birth canal.
- **Perineum**: skin between vagina and anus.
- **Ovaries**: two glands on each side of the uterus
6 □ Female Reproductive System

7 □ The Uterus
- A muscular organ that encloses and protects the developing fetus.
- Responsible for contractions during labor
- Helps to __________________ the infant through the birth canal
- The birth canal is made up of the vagina and the lower third of the uterus, called the cervix.

8 □ Placenta (1 of 2)
- Attaches to the inner lining of the wall of the uterus and connects to the fetus by the umbilical cord.
- Provides nourishment to the fetus
- The placental barrier consists of __________________ layers of cells.

9 □ Placenta (2 of 2)
- After delivery, the placenta, or afterbirth, separates from the uterus and delivers.
- Placenta keeps circulation of the woman and fetus separate but allows __________________ to pass between them.
- Anything ingested by a pregnant woman has the potential to affect the fetus.

10 □ Umbilical Cord
- The umbilical cord connects the woman and fetus through the placenta.
- The umbilical vein carries __________________ blood from the placenta to the fetus.
- The umbilical arteries carry deoxygenated blood from the fetus to the placenta.

11 □ Amniotic Sac
- Contains about 500 to __________________ mL of amniotic
Fluid helps insulate and protect the fetus.
Fluid is released in a gush when the sac ruptures, usually at the beginning of labor.

12 Normal Changes in Pregnancy (1 of 5)
- During pregnancy other body systems undergo ________________.
  - Respiratory changes
  - Cardiovascular changes
  - Musculoskeletal changes

13 Normal Changes in Pregnancy (2 of 5)
- Hormone levels increase.
  - To support fetal development and prepare the body for childbirth
  - Pregnant women are at an increased risk for complications from ________________, bleeding, and some medical conditions.
  - Uterus is shifted from its normal position.

14 Normal Changes in Pregnancy (3 of 5)
- Rapid uterine growth occurs during the second trimester.
  - As the uterus grows, it pushes up on the ________________ 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.

15 Normal Changes in Pregnancy (4 of 5)
- 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 ________________ ________________ of the heart.

16 Normal Changes in Pregnancy (5 of 5)
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.

17 Complications of Pregnancy
- Most pregnant women are ______________________.
- Some may be ill when they conceive or become ill during pregnancy.
  - Oxygen poses no harm to the fetus.

18 Terms (1 of 4)
- Crowning: ______________________ of vagina caused by baby’s head
- Bloody Show: mucous and blood that comes out of the vagina as labor begins.
- Labor: muscles of uterus open the birth canal and push the baby’s head down through it.

19 Terms (2 of 4)
- Presenting Part: the part of the baby that comes out ______________________, usually the head.
- Live Birth Certificate: a certificate that live birth has occurred.
- Fetal Death Certificate: a certificate for a ______________________ baby.

20 Terms (3 of 4)
- Gravida: Number of ______________________ a woman has had
- Para: Number of ______________________ births
- Example: Para 1 gravida 2 means patient has had one live birth and is now in her second pregnancy
- Example: Para 1 gravida 3 means patient has lost one pregnancy in the past

21 Terms (4 of 4)
- Primigravida: ______________________ pregnancy
- Multigravida: more than one pregnancy
●**Primipara**: patient has had one previous live birth
●**Multipara**: more than one previous live birth

22  □  **Crowning**

23  □  **Three Stages of Labor**
● First stage: Dilation of the cervix
  – Begins with __________________ of contractions to full cervix dilation
● Second stage: Delivery of the infant
  – Full cervical dilation to the expulsion of the infant
● Third stage: Delivery of the placenta
  – Delivery of the infant to delivery of the ___________________

24  □  **First Stage (1 of 3)**
● Begins with the onset of contractions and ends when the cervix is fully dilated
● Usually the __________________ stage, lasting an average of 16 hours
● Frequency and intensity of contractions increase

25  □  **First Stage (2 of 3)**
● Labor is generally longer in a primigravida than in a multigravida.
● A woman may experience preterm or false labor, or __________________ contractions.
● Some women experience a premature rupture of the amniotic sac.
  ●
  ●

26  □  **First Stage (3 of 3)**

27  □  **Second Stage**
● Begins when the fetus begins to encounter the birth canal
  – Ends when the newborn is born
  – Uterine contractions are usually closer together and last longer.
  – The __________________ will bulge significantly, and the top of the fetus’s head will appear at the vaginal opening (crowning).
  ●
28 Third Stage
- Begins with the birth of the newborn and ends with the delivery of the ________________
  - The placenta must completely separate from the uterine wall.
  - This may take up to 30 minutes.

29 Cultural Value Considerations (1 of 2)
- Cultural ________________ is important.
- Women of some cultures may have a value system that will affect:
  - The choice of how they care for themselves during pregnancy
  - How they have planned for childbirth

30 Cultural Value Considerations (2 of 2)
- Some cultures may not permit a ________________ health care provider to assess or examine a female patient.
  - Respect these differences and honor requests from the patient.

31 Teenage Pregnancy
- The United States has one of the highest teenage pregnancy rates.
- Pregnant teenagers may not know they are pregnant or may be in ________________.
  - Respect the teenager's privacy.

32 Pre-Delivery Emergencies
33 Pre-Eclampsia
- Pregnancy-induced ________________
- Can develop after the 20th week of gestation
- Signs and symptoms include severe hypertension, severe or persistent headache, visual abnormalities, swelling in the hands and feet, and anxiety.

34 Eclampsia
- Characterized by ________________ that occur as a result of hypertension.
  To treat eclampsia:
  - Lie the patient on her left side.
• Maintain a patent airway.
• Provide supplemental oxygen.
• If vomiting occurs, suction the airway.
• Provide rapid transport and call for ALS.

35  Supine Hypotensive Syndrome
• Caused by compression of the descending _______ and the inferior vena cava by the pregnant uterus when the patient lies supine
• Hypotension results.
• Transporting the patient on her left side can prevent supine hypotensive syndrome.

36  Hemorrhage
• Vaginal bleeding that occurs before labor begins
• If present in early pregnancy, it may be a spontaneous _______ or ectopic pregnancy.

37  Ectopic Pregnancy (1 of 3)
• Occurs when an egg is implanted some place other than the uterus; normally a __________ tube

38  Ectopic Pregnancy (2 of 3)
• The leading cause of maternal death in the first trimester is internal hemorrhage following rupture of an ectopic pregnancy.
• Missed periods, other S/S of early pregnancy
• Vaginal bleeding ______________ weeks after LMP
• Abdominal pain, may refer to shoulder
• Signs of hypovolemia
• History of PID, tubal ligation, or previous ectopic pregnancy

39  Ectopic Pregnancy (3 of 3)
• Should be considered for any woman of childbearing age with sudden, severe pain in lower abdomen and missed
sudden, severe pain in lower abdomen and missed ___________ period

- Abdominal pain or unexplained hypovolemic shock in a woman of child bearing age = ectopic pregnancy until proven otherwise.

40 □ Bleeding in Pregnancy
- Hemorrhage from the vagina that occurs before labor begins may be very ___________ .
- May be a sign of spontaneous abortion, or miscarriage.
  - Abruptio placenta: the placenta ___________ prematurely from the wall of the uterus
  - Placenta previa: the placenta develops over and covers the cervix

41 □ Placenta Problems (1 of 2)
Placenta Abruptio
- Premature separation of the placenta from the wall of the uterus
- Minimal ___________ bleeding
- Rock hard uterus
- S/S of hypovolemic shock

42 □ Placenta Problems (2 of 2)
Placenta Previa
- Development of placenta over the ___________
- Painless bright red bleeding
- Soft uterus
- S/S of hypovolemic shock

43 □ Gestational Diabetes
- Develops only during ___________.
- Normally corrects itself following delivery of the infant
- Treat as regular patient with diabetes.

44 □ Trauma and Pregnancy (1 of 5)
- With a trauma call involving a pregnant patient, you have two patients: the woman and the unborn fetus
Pregnant women also have an increased risk of falling.

Any trauma to the woman has a direct effect on the fetus.

Transport on _____________________ side if possible. Slightly elevate left side of board if immobilized.

Trauma and Pregnancy (2 of 5)

Pregnant women have an increased amount of overall total _____________________ volume and a 20% increase in heart rate.

May have a significant amount of blood loss before you will see signs of shock.

Uterus is vulnerable to penetrating trauma and blunt injuries.

Trauma and Pregnancy (3 of 5)

When a pregnant woman is involved in a motor vehicle crash, severe hemorrhage may occur from injuries to the pregnant uterus.

Trauma is one of the leading causes of _____________________ placenta.

Significant vaginal bleeding is common with severe abdominal pain.

Trauma and Pregnancy (4 of 5)

Improper positioning of the seat belt can result in injury to a pregnant woman and the fetus.

Cardiac arrest

- Focus is the same as with other patients.
- Perform _____________________ and provide transport.
- Compressions may need to be applied higher on the sternum.

Trauma and Pregnancy (5 of 5)

Your focus is on the assessment and the management of the _____________________.

Follow these guidelines when treating a pregnant trauma patient:

- Maintain an open airway.
- Administer high-flow oxygen.
- Ensure adequate ventilation.
- Assess circulation.
49 • Domestic Abuse in Pregnancy
   • Pregnant women have an increased chance of being victims of domestic violence and ________________.
   • Abuse increases the chance of:
     – Spontaneous abortion
     – Premature delivery
     – Low birth weight

50 • Domestic Abuse in Pregnancy
   • The woman is at risk from bleeding, infection, and uterine rupture.
   • Pay attention to the environment for any signs of ________________.
   • Talk to the patient in a private area, away from the potential abuser if possible.

51 • Field Delivery of a Baby

52 • When to Consider Field Delivery
   • Delivery can be expected within a few ________________.
   • A natural disaster or other catastrophe makes it impossible to reach a hospital.
   • No transportation is available.

53 • Is Delivery Imminent?
   Ask: (1 of 4)
   • How long have you been pregnant?
   • When are you ________________?
   • Is this your first baby?
   • Are you having contractions?
     – How far apart?
     – How long do they last?

54 • Is Delivery Imminent?
   Ask: (2 of 4)
   • Do you feel as though you will have a bowel movement?
   • Do you feel the need to ________________?
   • Have you had spotting or bleeding?
• Has your water broken?
• Were any of your previous children delivered by cesarean section?

55 □ Is Delivery Imminent?
Ask: (3 of 4)
• Have you had ____________________ in a previous pregnancy?
• Have you been receiving prenatal care?
• Do you use drugs, drink alcohol, or take any medications?
• Is there a chance of multiple deliveries?
• Does your doctor expect complications?

56 □ Is Delivery Imminent?
Ask: (4 of 4)
• Prepare for delivery if the patient says she has to move her bowels or feels the need to ____________________.
  – Visually inspect the vagina to check for crowning.

57 □ Transporting a Pregnant Patient
• If delivery is not imminent, transport on ____________________ side if in last two trimesters of pregnancy.
• If the patient was subject to spinal injury, stabilize and prop backboard with towel roll on right side.

58 □ Preparing for Delivery (1 of 2)
• Use proper BSI precautions.
  – Gloves and eye and face protection are a minimum if delivery is already begun or is complete.
  – If time allows, a gown should also be used.
• Be calm and reassuring while protecting the mother’s ____________________.
• Consider calling for additional resources.

59 □ Preparing for Delivery (2 of 2)
• Contact medical control for a decision to deliver on scene or transport.
• Prepare ____________________ kit.
Push away or remove mother’s clothing while preserving modesty.
Place the mother in a semi-Fowler’s position with her feet flat and her knees spread apart.
Pad under and around the mother’s hips.

Positioning for Delivery

Precautions

Once labor has begun, it cannot be slowed or stopped.
Do not allow mother to go to the ________________________.
Do not hold or bind mother’s legs together.
Gather all equipment needed.
One EMT should remain with patient at all times.
Use caution when moving the patient.

Preparing for Delivery (1 of 2)

Your emergency vehicle should always be equipped with a sterile emergency obstetric (OB) kit.

Preparing for Delivery (2 of 2)

Preparing the delivery field
– Place towels or sheets on the floor around the delivery area.
– Open the OB kit carefully.
– Use the sterile sheets and drapes from the OB kit to make a sterile delivery ________________________.

Delivering the Infant (1 of 5)

Your partner should be at the patient’s head to comfort, soothe, and reassure.
Continually check for crowning.
– Some patients experience precipitous labor and birth.
– Position yourself so that you can see the ________________________ area at all times.
– Time the contractions.

Delivering the Infant (2 of 5)

Support the head as it rotates and exits the vagina.
Suction infant’s ________________________
Delivering the Infant (3 of 5)
• Once the head emerges, the shoulders will be visible.
  • Support the ______________________ and upper body as the shoulders deliver.
  • Handle the infant firmly but gently as the body delivers.

Delivering the Infant (4 of 5)
• Do not pull the fetus from the birth canal.
• The newborn will be slippery and covered in vernix caseosa.
• Place 2 clamps on the cord and cut ______________________ clamp.
  • Do not cut too close to infant
  • Suction airway again

Delivering the Infant (5 of 5)
• If the mother is able and willing, place the newborn on her abdomen so ______________________ contact can begin immediately.
• Dry off the newborn and wrap him or her in a blanket or towel.
• Place the newborn on one side, with the head slightly lower than the rest of the body.
• Obtain the 1-minute APGAR score.

Complications with Normal Vaginal Delivery
• ______________________ amniotic sac
  – Puncture the sac and push it away from the baby.
  – It will suffocate the fetus if not removed.
• Umbilical cord around the neck
  – Gently slip the cord over the infant’s head.
  – It may have to be cut.

Cord Around Neck

APGAR Scoring
• ______________________
  • Pulse
  • Grimace or irritability
● Activity or muscle tone
● Respiration

**72 APGAR Score**
● Recorded at 1 minute after delivery and 5 minutes after delivery

**73 Delivery of Placenta (1 of 2)**
● ____________________ is attached to the end of the umbilical cord.
● Gently massaging the uterus with a firm, circular, “kneading” motions will speed the delivery of the placenta.

**74 Delivery of Placenta (2 of 2)**
● It should deliver within ____________________ minutes.
● Do not pull on cord
● Once the placenta delivers, wrap it and take to the hospital so it can be examined.
● If the mother continues to bleed, transport promptly to the hospital.
●

**75 Post Delivery Emergencies**
● More than 30 minutes elapse, and the placenta has not delivered
● There is more than 500 mL of bleeding before delivery of the placenta.
● There is significant bleeding after the delivery of the placenta.
● Problems with the infant
●

**76 Neonatal Resuscitation**

**77 Neonatal Care**
● Follow standard precautions.
● Always put on gloves before handling a newborn.
● Newborn should begin breathing spontaneously within 15 to 30 seconds after birth.
● Heart rate should be 120 beats/min or higher
● ____________________ Airway

**78 Neonatal Stimulation (1 of 2)**
● If the infant is unresponsive:
– Gently tap or flick the soles of the feet or rub the back.
– Begin resuscitation efforts.
• Many infants require some form of ________________, including:
  – Positioning the airway, drying, warming, suctioning, or tactile stimulation

79 ☐ Neonatal Stimulation (2 of 2)
80 ☐ Neonatal Resuscitation (1 of 4)
  • Position the newborn on his or her back with the head down and the neck slightly extended.
  • If necessary, suction the ________________ and then the nose.

81 ☐ Neonatal Resuscitation (2 of 4)
  • Observe the newborn for spontaneous respirations, skin color, and movement of the extremities.
  • Evaluate the heart rate at the base of the umbilical cord or the ________________ artery or listening to the newborn’s chest with a stethoscope.

82 ☐ Neonatal Resuscitation (3 of 4)
If neonate is not breathing after stimulation:
  • Apply gentle artificial ventilations.
  • Continue resuscitation until breathing starts, then give oxygen.
  • Begin ________________ if no pulse after one minute.

83 ☐ Neonatal Resuscitation (4 of 4)
If neonate is not breathing after stimulation:
  • Apply gentle artificial ventilations.
  • Continue resuscitation until breathing starts, then give oxygen.
  • Begin CPR if no pulse after one minute.

84 ☐ Giving Chest Compressions
Giving Chest Compressions to a Neonate (1 of 2)
- Find the proper position
  - Just below the __________________ line
  - Middle third of the sternum
- Wrap your hands around the body, with your thumbs resting at that position. (2 hands encircling technique)
- Press your thumbs gently against the sternum, compressing 2/3 depth of chest.

Giving Chest Compressions to an Infant (2 of 2)
- Ventilate with a BVM device after every __________________ compression.
- 90 compressions per minute
- Coordinate chest compressions with ventilations at a ratio of 3:1.
- Continue CPR during transport.

Additional Concerns
- Any newborn that requires more than routine resuscitation requires transport to a hospital with a neonatal intensive care unit.
- About 12% of deliveries are complicated by the presence of _________________.
  - Continue vigorous suctioning of the infant after delivery.

Delivery Complications

Breech Delivery
- Presenting part is the __________________ or legs.
- Breech delivery is usually slow, giving you time to get to the hospital.
  - If the buttocks have passed through the vagina, the delivery has begun.
- Support the infant as it comes out.
- If head does not quickly deliver, make a “V” with your gloved fingers then place them in the vagina to prevent it from compressing infant’s airway.

Breech Delivery
**Limb Presentation (1 of 2)**
- This is a very rare occurrence.
- __________________________ be delivered in the field
- This is a true emergency that requires immediate transport.
- Give oxygen and transport rapidly

**Limb Presentation (1 of 2)**
- This is a very rare occurrence.
- Cannot be delivered in the field
- This is a true emergency that requires immediate transport.

**Limb Presentation (2 of 2)**
- Give oxygen and transport rapidly
- If a limb is protruding, cover it with a __________________________ towel.
- Never try to push it in or pull on it.

**Prolapsed Cord (1 of 2)**
- Cord is presenting part
- Head will compress the cord cutting off blood and oxygen to the fetus
- Treatment is to relieve __________________________ on the cord

**Prolapsed Cord (2 of 2)**
- Place the pregnant woman on a backboard in Trendelenburg’s or knee-chest position
- Place gloved hand into the mother’s vagina and push the cord __________________________ from the infant’s face.
- Do NOT push the cord back into the vagina.
- Transport immediately.

**Spina Bifida**
- Developmental defect in which a portion of the spinal cord or meninges may protrude outside of the __________________________
- Cover the open area with moist, sterile compresses to prevent infection.
- Maintenance of body temperature is important when applying moist
Maintenance of body temperature is important when applying moist dressings.

96 Abortion
● Delivery of the fetus or placenta before __________________ weeks
● May be spontaneous or induced
● Infection and bleeding are the most important complications.
● Treat the mother for shock.
● Transport to the hospital.
● Bring tissue that has passed through the vagina to the hospital.

97 Twins
● Twins are usually smaller than single infants.
● After __________________ minutes after the first birth, contractions will begin again, and the birth process will repeat itself.
● Delivery procedures are the same as that for single infants.
● Record the time of birth of each twin separately.

98 Substance Abuse (1 of 2)
● Effects of addiction on the fetus include:
  – Prematurity
  – Low birth __________________
  – Severe respiratory distress
  – Death
● Fetal alcohol syndrome describes the condition of infants born to mothers who have abused alcohol.

99 Substance Abuse (2 of 2)
● Pay special attention to your safety.
● Wear eye protection, a face mask, and gloves at all times.
● Look for clues that you are dealing with an addicted mother.
● The newborn will probably need immediate __________________
● Contact ALS backup for respiratory depression

100 Premature Infant (1 of 2)
● The usual gestation period is 9 calendar months, or 40 weeks.
● A normal, single infant will weigh about 7 lbs at birth.
● Any infant who delivers before 8 months (________________ weeks) or weighs less than 5 lbs at birth is considered premature.

101 □ Premature Infant (2 of 2)
● A premature infant is smaller and thinner, and the head is proportionately ________________.
● There will be less body hair.

102 □ Care of Premature Infant (1 of 2)
● Premature infants require special care to survive.
● Often require resuscitation efforts, which should be performed unless it is physically impossible.
● With such care, infants as small as 1 lbs have survived and developed ________________.

103 □ Care of Premature Infant (2 of 2)
● Keep the infant ________________.
● Keep the mouth and nose clear of mucus.
● Give oxygen.
● Do not infect the infant.
● Notify the hospital.

104 □ Post Term Pregnancy (1 of 2)
● Pregnancy lasting longer than 42 weeks
● Infants can be larger, sometimes weighing 10 lbs or more.
● Can lead to problems with the mother and infant:
   – A more difficult labor and ________________

105 □ Problems With Post Term Pregnancy
● Increased chance of injury to the fetus
● Increased chance of cesarean section
● Woman is at risk for perineal tears and infection.
● Infants have ________________ risks of meconium aspirations, infection, and being stillborn.

106 □ Fetal Demise
An infant that has ________________ in the uterus before labor
● This is a very emotional situation for family and providers.
• Onset of labor may be premature, but labor will progress normally in most cases.
• The infant may be born with skin blisters, skin sloughing, and dark discoloration.
• Do not attempt to resuscitate an obviously dead neonate.

107 Delivery Without Sterile Supplies
• You should always have eye protection, gloves, and a mask with you.
• Use clean sheets and towels.
• Do not cut or clamp umbilical ____________________.
• Keep placenta and infant at same level.

108 Pulmonary Embolism
• Postpartum patients are at an increased risk of a pulmonary ____________________.
• Results from a clot that travels through the bloodstream and becomes lodged in the pulmonary circulation
• The obstruction will block blood flow to the lungs and is potentially life threatening
• Characterized by sudden onset of dyspnea and possible chest pain