MATERNAL911®

Imminent Birth

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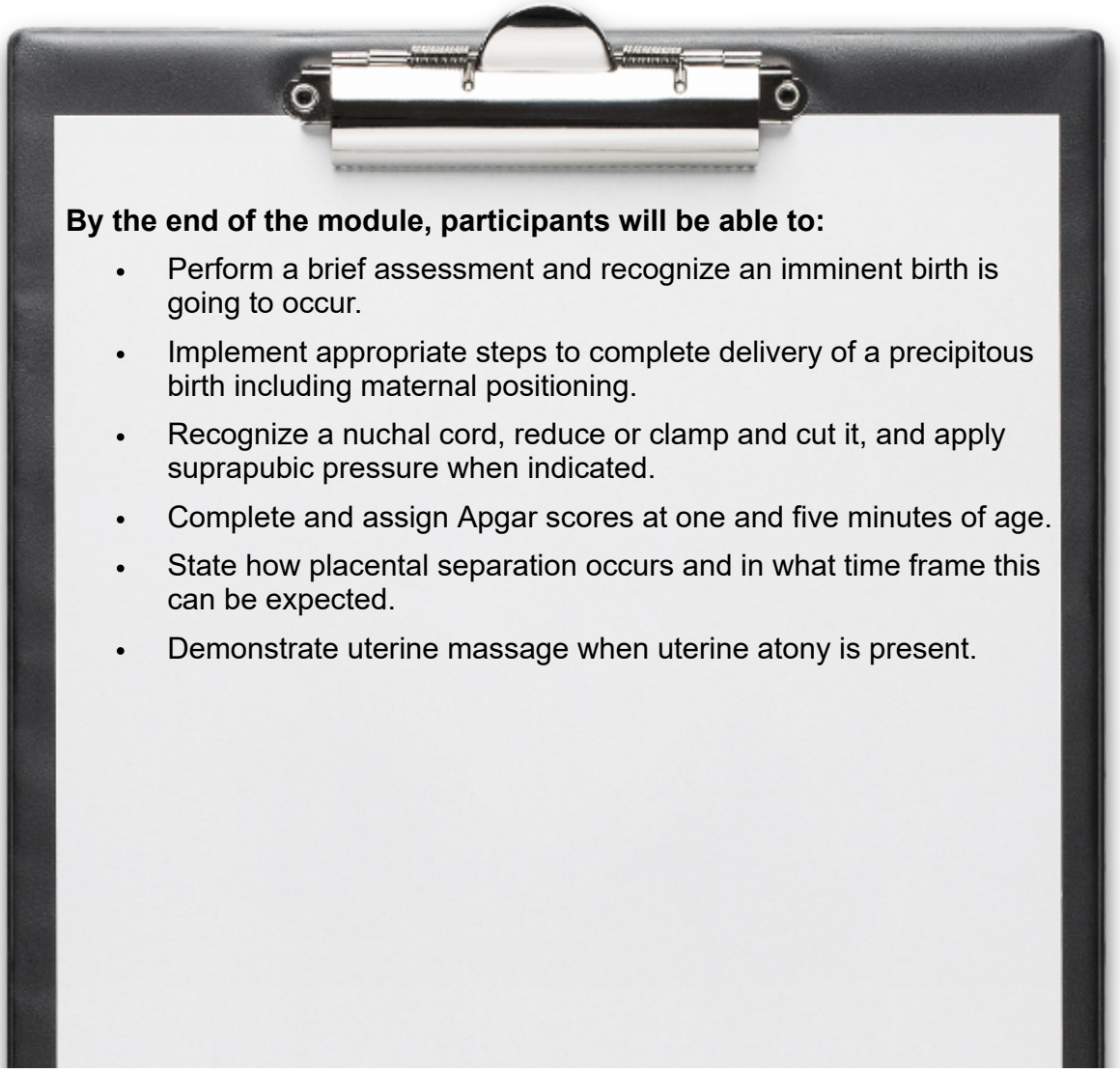
Course Description:

Imminent birth is something that will continue to occur in every facility across the world. This course will explain how to prepare and what to expect. Participants will gain confidence so that when they are faced with these situations in the future, they will be more prepared.

Approximate Time to Complete: 30 minutes

Click here to download a print version of this course.



By the end of the module, participants will be able to:

- Perform a brief assessment and recognize an imminent birth is going to occur.
- Implement appropriate steps to complete delivery of a precipitous birth including maternal positioning.
- Recognize a nuchal cord, reduce or clamp and cut it, and apply suprapubic pressure when indicated.
- Complete and assign Apgar scores at one and five minutes of age.
- State how placental separation occurs and in what time frame this can be expected.
- Demonstrate uterine massage when uterine atony is present.

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Precipitate or Precipitous Labor

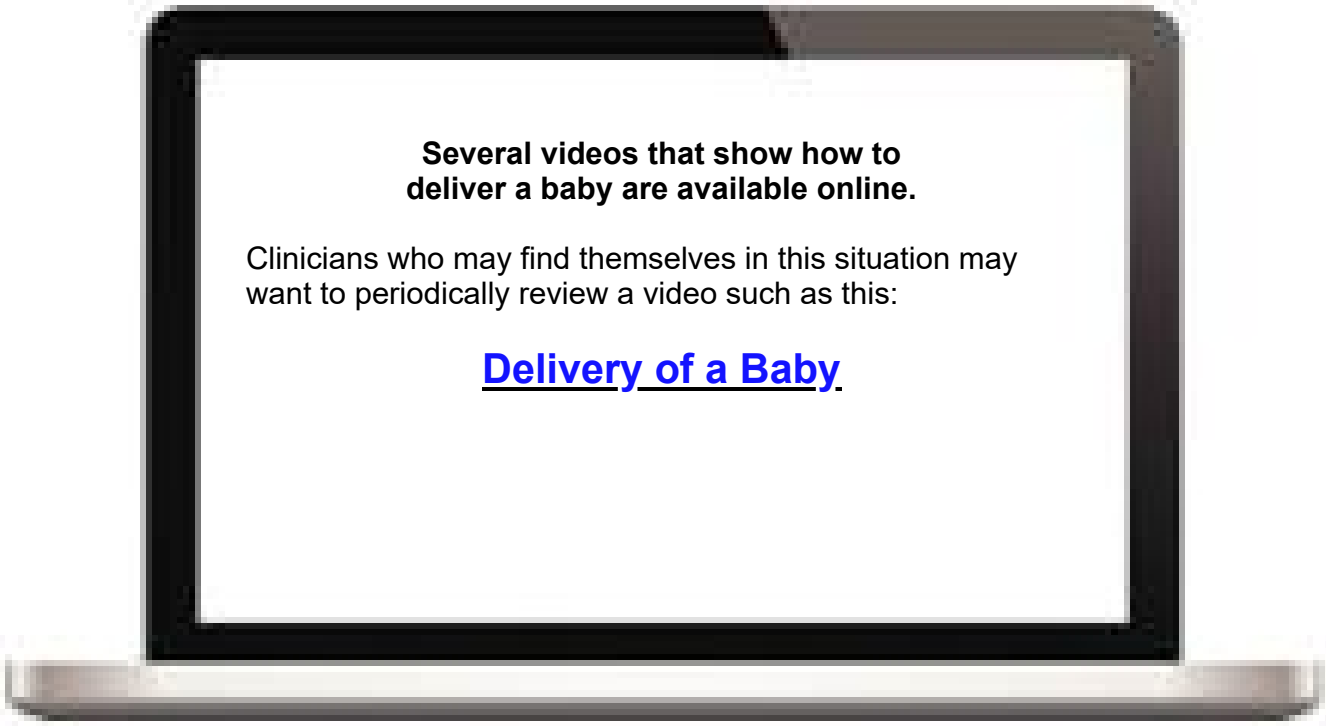
Labor that lasts less than three hours from onset of regular contractions to delivery.

- Each year, hundreds of deliveries in the United States occur precipitously in emergency departments and medical and surgical hospital rooms, as well as outside of the hospital setting in homes and cars.

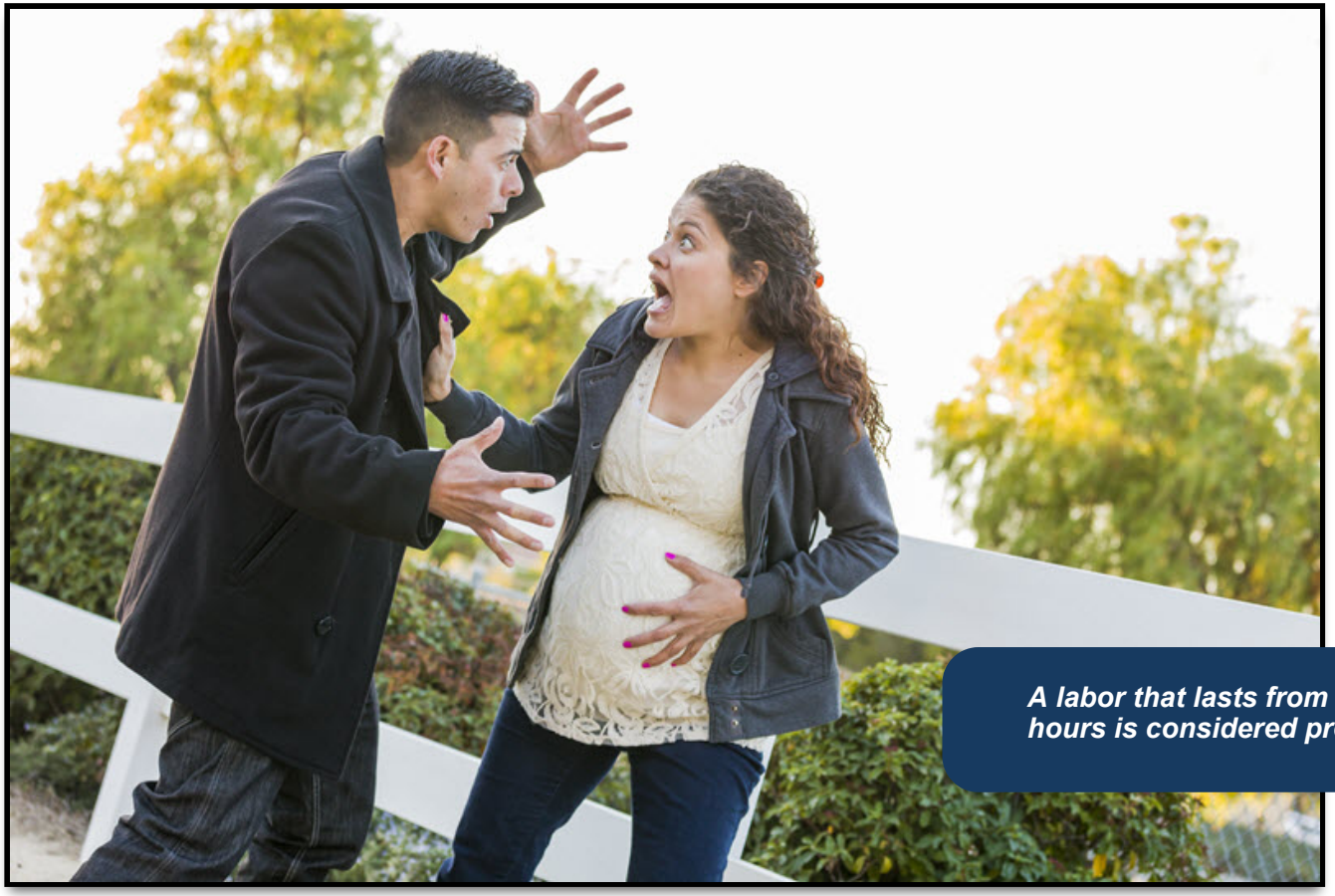
- Fortunately, normal labor and delivery results in good outcomes in the absence of intervention in most cases.

- This topic will review the key points for assisting women during an imminent delivery of a fetus in cephalic position.

- The course is intended for health care providers who do not perform obstetrical deliveries as part of their usual practice, as a refresher for those who do perform, and for new team member of a labor and delivery unit.



http://www.operationalmedicine.org/ed2/Video/delivery_of_a_baby_video.htm



A labor that lasts from onset to delivery in less than 3 hours is considered precipitous [1].

For a standard delivery you will need:

- Antibacterial cleansers to wash your hands
- Gauze sponges
- Sterile gloves and gowns
- Bulb syringe to remove fluid and mucus from the infant's mouth and nose
- Two sterile clamps to clamp the umbilical cord
- Sterile scissors or knife to cut the umbilical cord between the clamps
- An appropriate blood tube to collect fetal blood from the placental end of the cut umbilical cord
- Clean blankets to dry and swaddle the infant
- Blankets and gown to keep the mother warm
- Suitable containers for the placenta and wet, bloody clothing and sheets, etc.
- A diaper

1

Call for help

- There are two patients in an obstetrical delivery, the mother and the infant; each should have at least one health care provider.
- An obstetrician and pediatrician or family practitioner or appropriate provider should be summoned, if available.

2

Ask the woman

- How many babies she has delivered
- If she has any obstetrical or medical problems, such as twin gestation, preterm fetus, previous cesarean delivery, fetal anomalies, maternal bleeding diathesis or other medical conditions.
- If she has a headache, scotomata, or epigastric pain, which are signs of preeclampsia.
- Due date and gestational age.

3

Perform a brief assessment:

- Is the fetus visible and beginning to emerge from the vagina (i.e. crowning)?
- Is the presenting part the scalp, buttocks, or foot?
- In 95% of pregnancies, the presenting part is the fetal head.
- Is the amniotic sac intact? If it is, leave it alone until it ruptures naturally.

If there is time and equipment is available, check the maternal temperature and blood pressure.

- Fever suggests chorioamnionitis

Maternal hypertension (systolic blood pressure ≥140 mmHg or diastolic blood pressure ≥90 mmHg) is the key finding for preeclampsia.

- Preeclampsia can progress to eclampsia (i.e. seizures) and can be associated with life-threatening complications (e.g. hepatic rupture, pulmonary edema, stroke, renal failure).
- Further discussion occurs under the Severe Preeclampsia Module of Maternal 911.

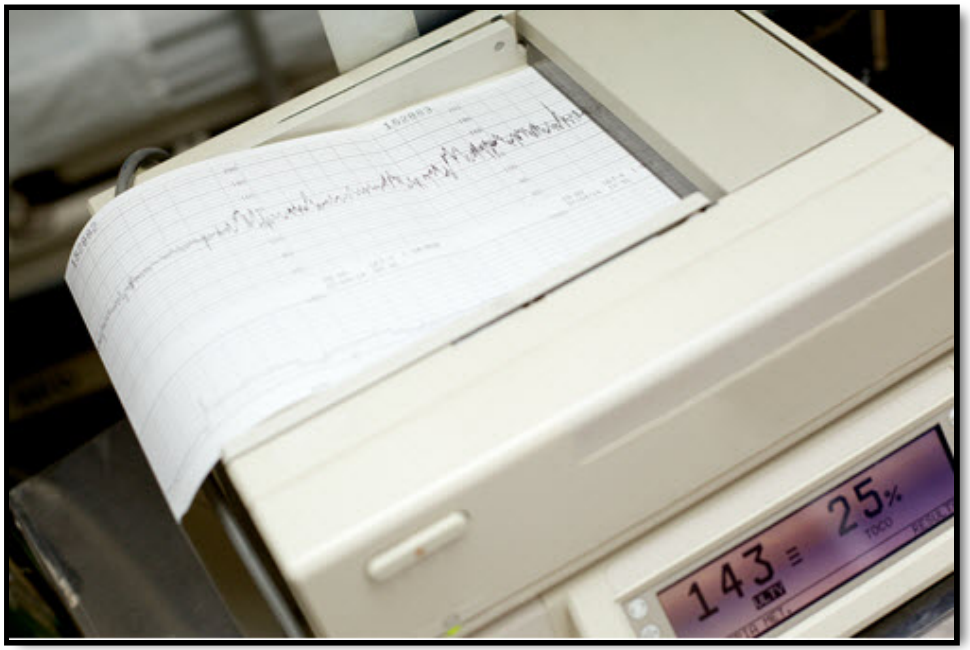
- If the fetus is not visible, delivery is still likely imminent if painful contractions are occurring at least every two minutes, the mother wants to bear down/push, and the perineum distends with contractions.
- The second stage of labor, which includes the time from complete cervical dilation until delivery, typically lasts 30 minutes to 2 hours [2].
- If contractions are several minutes apart, there may be time to transport the mother to Labor and Delivery or to the nearest emergency department for delivery under more controlled conditions.

The fetal heart rate (FHR) should be checked with a Doppler device, by auscultation with a stethoscope, or with use of a portable ultrasound unit, if available.

A normal FHR is between 110 and 160 beats per minute [3].

FHR has various patterns that are informative of fetal status. VEAL-CHOP is an acronym that can help the provider remember that late or variable decelerations can be concerning, particularly if recurrent. Early decelerations are associated with fetal head compression and are not concerning for fetal compromise. Fetal accelerations are indicative of reassuring fetal status.

Click the picture to reveal a helpful acronym.



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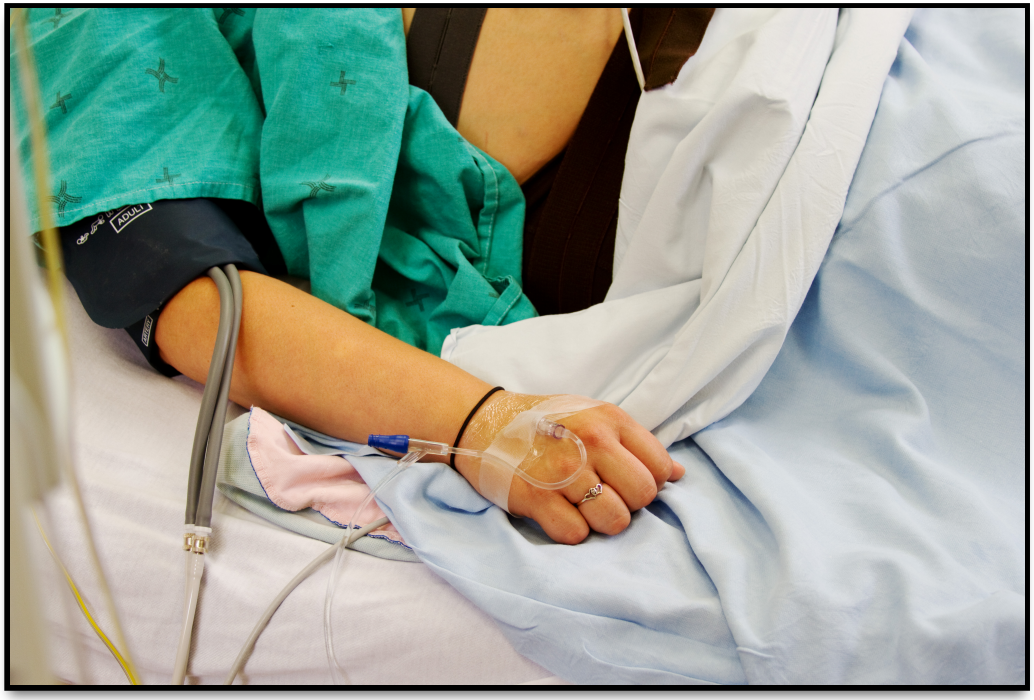
V ariable	**C** ord Compression
E arly Deceleration	**H** ead Compression
A cceleration	**O** kay
L ate Deceleration	**P** lacental Insufficiency

Further discussion of each decel occurs within the Fetal Monitoring module.

- Position the mother in a semi-sitting position, with hips flexed and abducted, and knees flexed (lithotomy position).
- In the absence of a birthing bed or table with stirrups, it is easier to deliver a baby if pillows, a stack of towels, or an upside down bedpan is placed under the mother's hips and back to raise the perineum above the surface of the bed/stretcher.
    - This provides additional room to maneuver when guiding the infant posteriorly to ease his/her shoulder under the symphysis pubis.
- Alternatively, the mother may lie on her side with her leg held up by a support person.



- If possible, insert a large bore intravenous (IV) catheter (14 or 16 gauge) into the woman's arm vein and draw a blood sample for blood type, antibody screens and CBC.
- This same line can be used to administer oxytocin after delivery of the placenta and for volume replacement in case of hemorrhage.

Instructions to the mother

- Before the fetus is visible at the introitus, the mother will want to bear down and push according to her own reflex needs in response to the pain of contractions and the pressure felt from descent of the fetal head.
- Ask her to pant through the peak of her contractions and try to rest and breathe normally between them. This helps to keep her from bearing down and delivering before additional help is available.
- If the fetal head is crowning, ask her to make only modest expulsive efforts in an attempt to achieve a controlled delivery, which is less likely to cause maternal or fetal trauma than an uncontrolled delivery.

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Click the gray arrows to read through the steps of delivery.

Control and Guide the Delivery

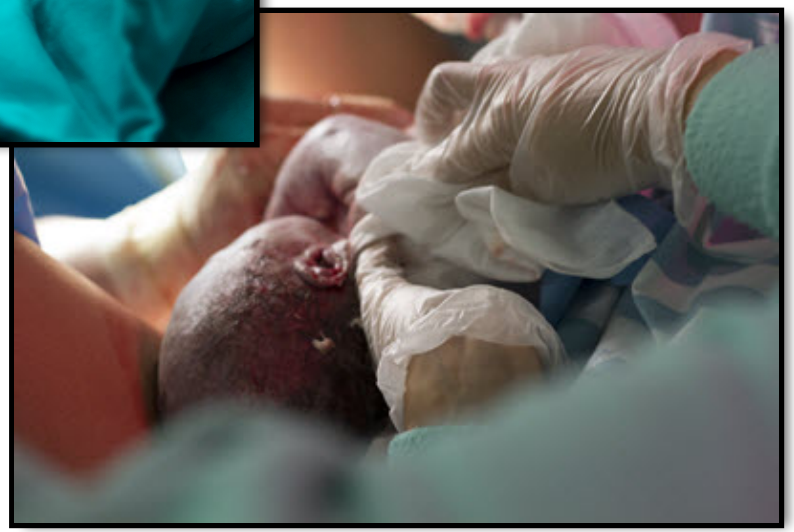
- Place one hand on the infant's head and apply gentle downward pressure to maintain it in a flexed position and prevent it from quickly emerging from the vagina. Use the other hand to ease the perineum over the fetal face.
- Do not pull on the head; let the mother gradually push it into your hands. Her strong urge to bear down will abate somewhat when the head is out.

- After the infant's head has delivered, it will usually rotate to the side.
- If the umbilical cord is present around the fetal neck, gently slip it over the fetal head or push it over the fetal shoulder and deliver through the cord.
- If the cord is tight, and cannot be reduced, double clamp it and then cut between the clamps.
- It is important to not rupture or avulse the cord because serious fetal/neonatal hemorrhage can occur.

- With the next push, guide the head slightly downward so that the anterior shoulder slips under the symphysis pubis and delivers, guide the head slightly upward to deliver the posterior shoulder over, rather than through, the perineum [4].
- If the shoulders do not deliver easily, have your assistant or the mother sharply flex her thighs back against her abdomen.
    - This maneuver, referred to as McRoberts maneuver, will open the pelvis to its maximum dimension.
- Ask the assistant to use his/her fist to apply suprapubic pressure. The suprapubic pressure should be applied from left to right or right to left. The correct approach starts on the side of the fetal back and transmits the pressure in the direction of the fetal face, which works to decrease the width of the fetal shoulders.
- Do not push on the maternal fundus. This may cause uterine rupture.
- If the shoulder does not deliver, this may indicate a shoulder dystocia. This topic is discussed separately within Maternal 911 modules.

- Once both shoulders have delivered, the rest of the baby immediately follows.
- Document the time of expulsion.
- Hold onto the baby with both hands and then place it on the bed or mother's chest if cord length allows.
- If the cord has already been clamped and cut due to a nuchal cord, the infant may be immediately placed onto the bed or mother's abdomen or chest.

Step 4 of 4



- The newborn's neck should be held in a neutral to slightly extended position to open the airway.
- The nose and mouth are wiped of fluid, blood, and mucus with a clean cloth.
- Newborns should be obligate nose breathers, so removing these substances from the nose is thought to facilitate air exchange.
- There is no strong evidence that suctioning with a bulb or catheter is beneficial.

- Hypothermia in the immediate newborn period increases oxygen consumption and metabolic demands. Hypothermia is independently associated with increased mortality; therefore, maintaining body heat is an important initial step in caring for the newborn.
- Low birth weight and preterm infants are particularly prone to rapid loss of body heat because of their large body surface area relative to their mass, thin skin, and decreased subcutaneous fat.

- Drying the newborn is crucial, as it significantly reduces heat loss.
- There are several additional ways to keep the infant warm after drying: swaddling in warm towels/blankets, "skin to skin" contact with mother, placement in a warm (36.5ºC) isolette, raising the environmental (room) temperature, and clothing.

- Drying and suctioning the infant generally provides adequate stimulation, but if the baby is limp and not breathing, tactile stimulation should be initiated promptly.
- Appropriate ways of providing additional stimulation include flicking the soles of the feet with your fingers and rubbing the infant's back.
- More vigorous stimulation is not helpful and may cause injury to the infant.

- The Apgar score assesses neonatal heart rate, respiratory effort, muscle tone, reflex irritability, and color [5].
- Each of the five assessments (APGAR) are scored 0, 1 or 2 with a maximum total score of 10 [5].
- The Apgar score should be assigned at one and five minutes after birth [5].
- About 90% of neonates have Apgar scores of 7 to 10, and generally require no special intervention [5].

APGAR is an acronym for:

APPEARANCE (Skin Color)

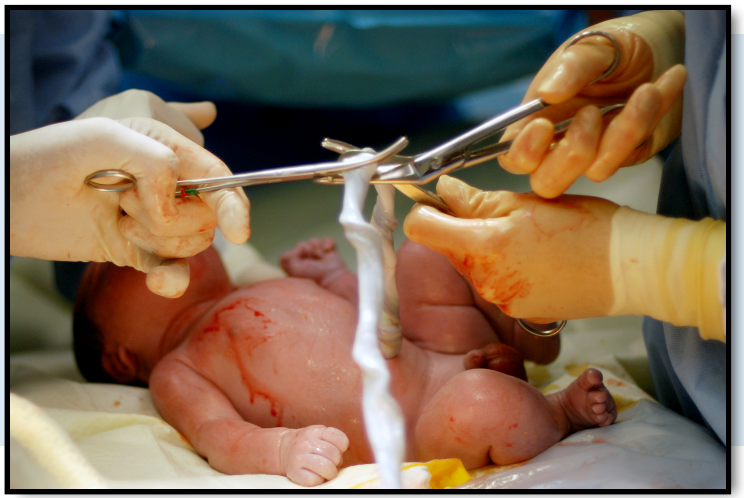
PULSE (Heart Rate)

GRIMACE (Reflex Irritability)

ACTIVITY (Muscle Tone)

RESPIRATION (Breathing)

- There is no urgency to clamping the umbilical cord. It is recommended to delay the cord clamping for one minute [6].
- After one minute, if sterile instruments are available, doubly clamp and cut the cord between the clamps with scissors or a knife.
- There are no nerve endings in the umbilical cord, cutting it is painless. Place the infant onto the mother's abdomen or chest to provide warmth through skin-to-skin contact. Dry the infant and cover with a dry, warm blanket or towel.
- Collect one red top tube of blood from the placental end of the cord; this blood is used for determining the newborn's blood type and Rh(D) status if necessary.



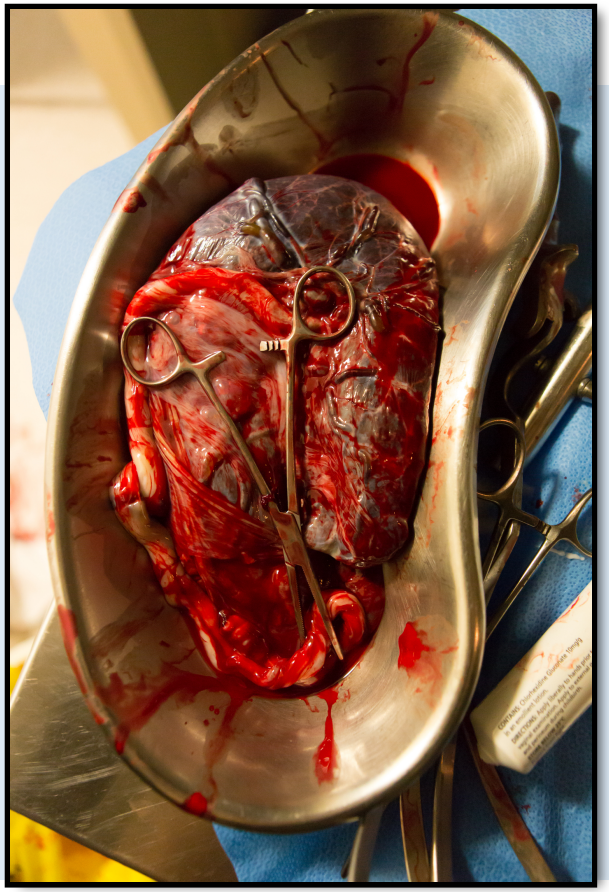
- If sterile instruments for clamping and cutting the cord are not available, the cord can be left attached to the placenta.
- A cool room temperature (compared to body temperature) causes the Wharton's jelly to swell and blood vessels in the cord to collapse and constrict, creating a natural clamp.

Do not pull on the cord to deliver the placenta, which may still be attached to the uterus.
The three classic signs of placental separation are [7]:

- Lengthening of the umbilical cord
- A gush of blood from the vagina signifying separation of the placenta from the uterine wall
- Change in the shape of the uterine fundus from discoid to globular with elevation of the fundal height

Click on the photo to continue reading.

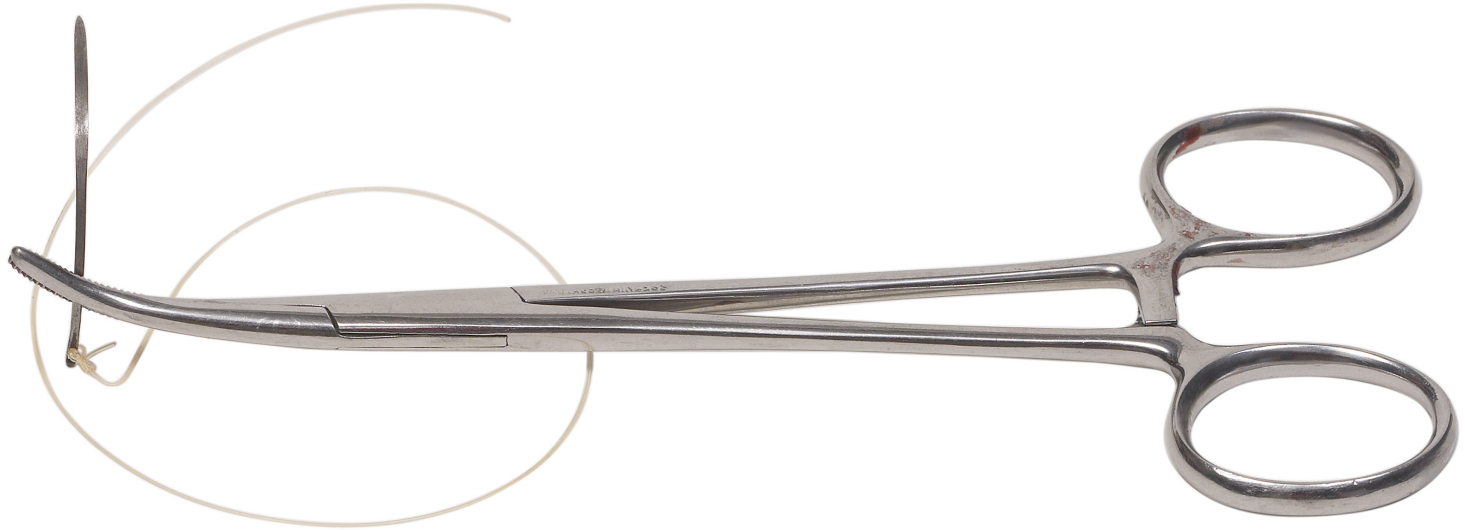
- Placental separation occurs naturally in 90% of deliveries within 15 minutes and in 97% of deliveries in 30 minutes. There is no reason to try to hasten this process [8, 9].
- Contractions typically diminish after delivery of the baby, and then resume upon separation of the placenta.
- If the placenta is not expelled with contractions, ask the mother to bear down and place gentle traction on the umbilical cord to deliver it.
- An abdominal hand should secure the uterine fundus to prevent uterine inversion.



- When time allows, starting a uterotonic agent right after delivery of the fetal head is most optimal to prevent postpartum hemorrhage (PPH).
  - Managing the third stage of labor has become a standard of care at numerous facilities to prevent PPH. Please refer to the PPH module in the Maternal 911 program.
- After placental expulsion, vigorously massaging the uterine fundus (which will be at the level of the maternal umbilicus) will help the uterus contract into a firm globular mass.
- If the fundus is not firm, this raises concern for uterine atony, which is the most common cause of PPH.
- Administration of a uterotonic agent is recommended after the delivery of the baby to stimulate the uterus to contract and remain contracted, which will reduce maternal blood loss.
- If available, oxytocin is infused (10-40 units in 500mL 0.9% saline with a rate sufficient to prevent uterine atony) into a maternal vein [8].
  - Bolus intravenous injection is not recommended, even at low doses.
  - If there is no venous access, intramuscular injection (IM) of 10 units of pitocin is also effective.
  - It is recommended to save the placenta for later examination.

Lacerations

- After delivery of the baby and placenta, inspect the perineum for lacerations.
  - Superficial lacerations generally do not require any treatment.
  - Deeper lacerations should be evaluated and treated by a health care provider.
  - Apply pressure to lacerations that are bleeding briskly until these lacerations can be repaired.
  - Further discussion of vaginal laceration repair is beyond the scope of this program.
- PPH is a common phenomenon after imminent birth and as indicated is discussed separately in another module.



Congratulations!

You have successfully completed this module.

Click on the above 'X' to take the post-test for this course.
If you do not attain a passing score after two attempts at the post-test the entire program must be repurchased.

1. Hughes EC. Obstetric-Gynecologic Terminology, Davis, Philadelphia 1972. p.390.

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6. Fogarty M, Osborn DA, Askie L, Seidler AL, Hunter K, Lui K, Simes J, Tarnow-Mordi W. Delayed vs early umbilical cord clamping for preterm infants: a systematic review and meta-analysis. Am J Obstet Gynecol. 2018;218(1):1. Epub 2017 Oct 30.

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