



**Cebu Doctors' University
College of Nursing
Mandaue City, Cebu**



**NCM 107:
RLE MODULE 1F**

**NEWBORN DELIVERY AND
ASSESSMENT OF NEWBORN**

C-Group 5:

Takeshima, Angelyrie Marissu- Leader
Anggoy, Christelle Gale
Aquinde, Victoria
Cañedo, Wea Kajssa
Garvez, Shaun Emmanuel
Neri, Marie Frances Therese
Velasquez, Arantxa Angela

Facilitator: Mrs. Marichelle Valerie P. Merioles
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NEWBORN DELIVERY

LEARNING OUTCOMES:

After 5 hours of varied classroom activities, the Level II students will be able to:

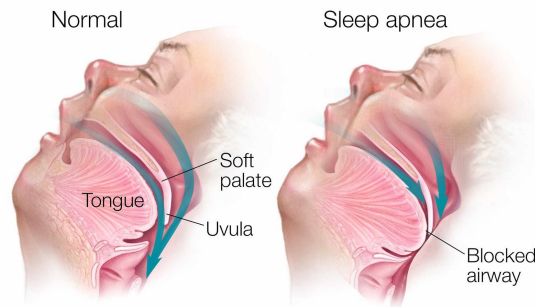
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- CLO #2: cite the importance of handle, assist and cord care during Newborn Delivery.
- CLO #3: explain the scientific principles involved in Newborn Delivery.
- CLO #4: list guidelines in Newborn Delivery.
- CLO #5: enumerate and discuss nursing responsibilities before, during and after Newborn Delivery.
- CLO #6: discuss Unang-Yakap (First Embrace).
- CLO #7: enumerate the materials needed in Newborn Delivery.
- CLO #8: document outcome of Newborn Delivery and pertinent data.
- CLO #9: demonstrate beginning skills as Handle, Assist and Cord Care of the in Newborn Delivery.

CLO#1: DEFINE THE FOLLOWING KEY TERMS RELATED TO NEWBORN DELIVERY.

Terms:

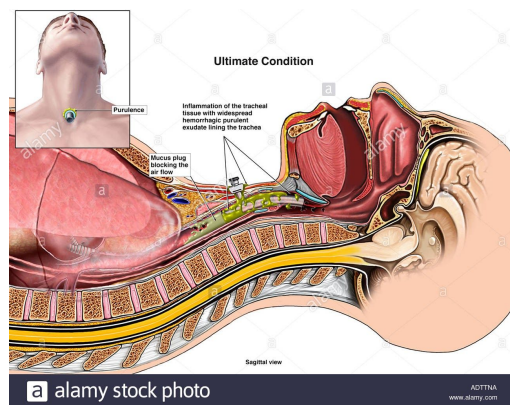
1.1 Apnea

- a cessation of breathing.



1.2 Asphyxia

- Impaired breathing that results in severely decreased delivery of oxygen to body tissues. Birth asphyxia happens when a baby's brain and other organs do not get enough oxygen and nutrients before, during or right after birth.



1.3 Assist

- provides immediate care to a newborn by ensuring airway clearance, taking anthropometric measurements and evaluation of the baby's extrauterine adaptation.



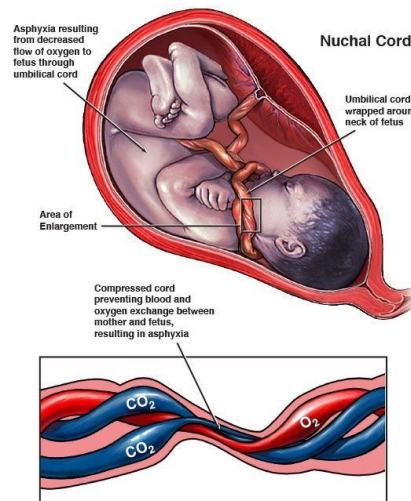
1.4 Cord care

- performs clamping and cutting of the cord immediately after delivery.



1.5 Cord coil

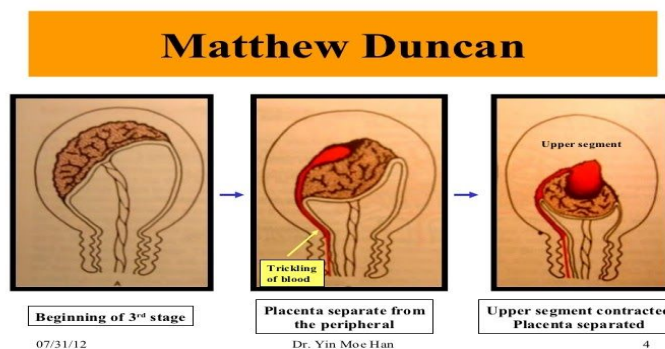
- occurs when the umbilical cord becomes coiled around an infant's neck, most often in a single coil but in some cases, multiple coils.



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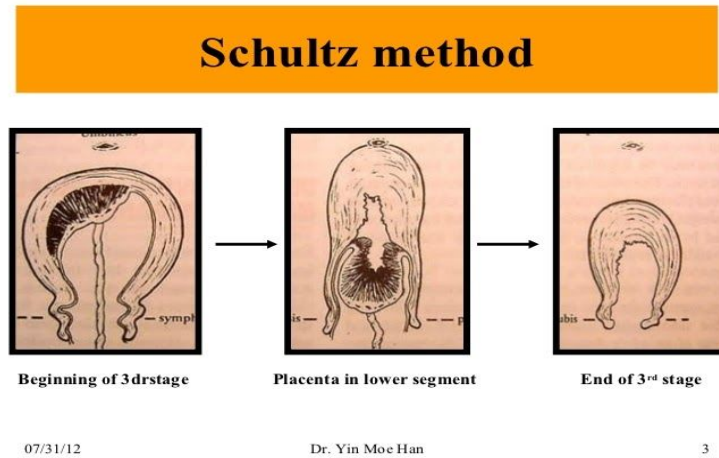
1.6 Duncan

- passage of the placenta from the uterus with the rough side foremost.



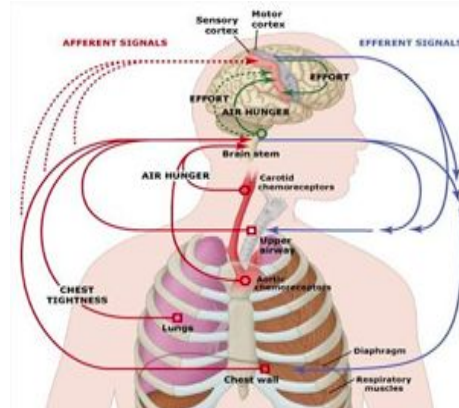
1.7 Schultze

- The separation of the placenta from the uterine wall during labor; it begins at the placental center and leads to an expulsion of the placenta after delivery of the baby.



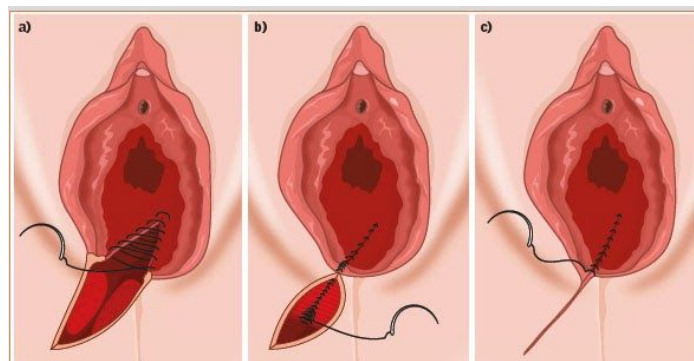
1.8 Dyspnea

- refers to sudden and severe shortness of breath, or difficulty in breathing.



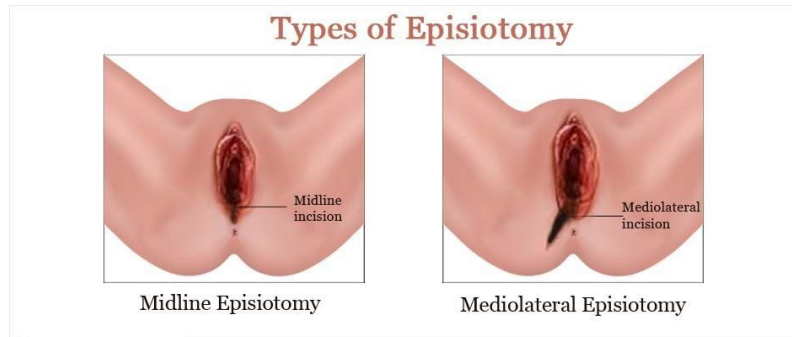
1.9 Episiorrhaphy

- surgical repair of injury to the vulva by suturing.



1.10 Episiotomy

- An incision / cut made into the perineum to widen the vaginal opening for childbirth, done using local anaesthetic.



1.11 Grunting

- A deep-pitched guttural rumble which may be heard by infants suffering from respiratory distress.

1.12 Handle

- provides assistance to the obstetrician during the delivery by serving the needed instruments and by supporting the perineum to prevent laceration.



1.13 Hypothermia

- occurs when your body loses heat faster than it can produce heat, causing a dangerously low body temperature.



1.14 Immediate newborn care

- Early management of the newborn in the delivery room or in the Nursery a few minutes or soon after birth.
 - Keeping the baby thermoregulated
 - Assess the baby's breathing and color
 - Cord care
 - Give eye care
 - Give the baby vitamin K, 1 mg by intramuscular injection outside of the upper thigh
 - Weigh the baby



1.15 Meconium staining

- It is when meconium comes out before the baby is born and goes into the amniotic fluid.

1.16 Newborn delivery

- the process of delivering a baby and the placenta, membranes, and umbilical cord from the uterus to the vagina to the outside world.



1.17 Ophthalmia neonatorum

- Is an eye infection that occurs within the first 30 days of life. It is caught during birth by contact with the mother's birth canal that is infected with a sexually-transmitted disease. One approach that can be taken to prevent the disease is the use of an ophthalmic prophylaxis, which kills the bacteria on the surface of the eye shortly after birth.



1.18 Oxytocin

- A hormone which stimulates the muscles of the womb to contract in labour and the milk to be released during breastfeeding.

1.19 Stillbirth

- A fetus of at least 20 weeks gestation, or of a birth weight of at least 350 grams if the gestational age is unknown, that is born without signs of life at the time of delivery. While miscarriage is usually defined as the loss of a baby before the 20th week of pregnancy.

1.20 Suction

- the drawing of a fluid or solid into a space because the pressure inside it is lower than that outside.



CLO#2: CITE THE IMPORTANCE OF HANDLE, ASSIST AND CORD CARE DURING NEWBORN DELIVERY

Importance of:

2.1 HANDLE

- promotes efficient newborn delivery by preparing necessary materials needed for the procedure
- provides emotional support to the mother by coaching in bearing down
- ensures sterility of the procedure by draping the patient
- prevents perineal laceration by applying support as the baby is delivered
- assists physician in episiorrhaphy

2.2 ASSIST

- ensures airway clearance of the newborn through suctioning
- prevents ophthalmia neonatorum by applying eye prophylaxis
- determines baseline anthropometric measurements and vital signs of the newborn
- prevents bleeding by administering vitamin K to the newborn
- prevents Hepatitis B by administering Hepatitis B vaccine
- ensures proper client identification by placing ID bands on the newborn
- prevents hypothermia in newborn

2.3 CORD CARE

- determines presence of hemorrhage on the umbilicus
- ensures proper clamping of the umbilical cord
- prevents umbilical cord infection

CLO#3: EXPLAIN THE SCIENTIFIC PRINCIPLES INVOLVED IN NEWBORN DELIVERY.

Anatomy and Physiology

- Note the changes in the physiology of the newborn since they are constantly adapting to the new environment in order to ensure their proper development.
For example, after delivery, the newborn begins to lose heat. Receptors on the baby's skin send messages to the brain that the baby's body is cold. The baby's body creates heat by burning stores of brown fat, a type of fat found only in fetuses and newborns.

Microbiology

- All instruments must be sterile to prevent the occurrence of infection since the procedures that will be done are invasive.
- The OB Set and pack along with the materials used during newborn delivery must be sterile.

Safety and Security

- Ensure that you are holding the newborn properly. Keep the newborn safe by implementing proper procedure and creating a safe environment.

Mathematics

- The APGAR scoring should be added appropriately to get an accurate total score.

Physics

- The transfer of heat from the environment or self to the newborn is applied by making sure that the nurse warms her hands before giving immediate care to the newborn since their skin is very delicate.

Pharmacology

- The nurse should have proper knowledge of the uses and effects of the different solutions to be used in giving care to the newborn.
- Prophylaxis are drops for the eyes that protects the newborn from getting bacterial eye infections that can be acquired during birth.

- Vitamin K which is administered intramuscular prevents vitamin K deficiency bleeding.
- Hepatitis B vaccines are administered intramuscularly on the upper outer quadrant (vastus lateralis) of the thigh. This is taken to prevent the newborn from having perinatal infection.
- BCG administered intradermally on the deltoid area. This is a vaccine given to babies to protect them from serious forms of Tuberculosis such as TB Meningitis and Miliary TB.

Time and Energy

- Prepare and organize all the needed and necessary materials in order to be efficient in doing the procedure.

Body Mechanics

- Use of proper body mechanics will avoid occurrences of discomfort or injuries such as maintaining a straight back when carrying a newborn.

Psychology

- Physical touch creates a connection between the newborn and their mother. Explaining to the mother the purpose and importance of immediate newborn care will reduce her anxiety and allow the nurse to be able to perform the care appropriately.

CLO#4: LIST GUIDELINES IN NEWBORN DELIVERY.

Guidelines observed in newborn delivery while assuming the function of:

HANDLE

- Perform medical handwashing and surgical handwashing before the procedure.
- Perform gowning and closed gloving aseptically.
- Arrange the instruments according to use.
- Observe aseptic technique as OB set and pack are prepared.
- Observe sterility as gown and gloves are served to the physician
- Drape the patient aseptically.
- Serve bandage scissors for episiotomy.
- Apply forward-upward thrust in supporting the perineum.
- Deliver anterior shoulder first followed by posterior shoulder.
- Call out time of birth.
- Suction mouth first followed by nose.
- Do not pull placenta as it is delivered.
- During episiorrhaphy, serve the round needle in suturing delicate tissues and cutting needle in suturing the skin.
- Anticipate the needs of the physician all throughout the procedure.
- Do after care

CORD CARE

- Perform medical handwashing and open gloving prior to the procedure.
- Suction secretion as needed.
- Do not pull the cord while performing the procedure.
- Direction of cord disinfection is from the cord base going up.
- Use different swab sticks for the base, umbilical cord and stump.
- Cut the cord in between the 2 clamps.
- Assess for the number of cord vessels.
- Do after care.
- Document the APGAR accurately.

ASSIST

- Do medical handwashing and open gloving prior to the procedure.
- Suction secretions as needed.
- Perform immediate newborn care fast but accurate and keep the newborn thermoregulated.
- Apply eye prophylaxis from inner to outer canthus.
- The metal/plastic tip of the eye prophylaxis must not touch the eye of the baby.
- In taking the head circumference, place the tape measure above the eyebrows.
- In taking the chest circumference, place the tape measure on the nipple line.
- In taking the abdominal girth, do not include the umbilical cord.
- Administer 0.05 mL or 0.5mg of vitamin K to preterm newborns and 0.1 mL or 1mg to term newborns.

- Administer vitamin K and Hep B vaccine on vastus lateralis.
- Disinfect the site before injection.
- Take the first temperature rectally.
- In applying the diaper, keep the umbilical cord outside it.
- Never leave the newborn alone on the table or on high surfaces.
- Ascertain the identity of the newborn before placing the identification band.

CLO#5: ENUMERATE AND DISCUSS NURSING RESPONSIBILITIES BEFORE, DURING AND AFTER NEWBORN DELIVERY.

BEFORE:

- Position patient in lithotomy position.
- Perform perineal care.
- Provide mask and cap to the patient.
- Explain procedure to the patient.
- Prepare necessary materials and arrange according to use.
- Apply sterile drapings on the mother.
- Teach patient on deep breathing exercises.
- Instruct the patient on when to bear down.

DURING:

Handle

- Coach mother in bearing down.
- Serve instruments to the physician.
- Support the perineum using forward-upward thrust.
- Deliver anterior shoulder followed by posterior shoulder (performed by physician but be prepared to perform this step if there is no physician)
- Call out time of birth (physician)
- Endorse the newborn to the cord care nurse.
- Deliver the placenta (physician)
- Take the blood pressure of the patient (circulating nurse).
- Assist the physician during episiorrhaphy.

Cord Care

- Perform APGAR scoring.

Indicator		0 Points	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed limbs	Active
P	Pulse	Absent	< 100 BPM	> 100 BPM
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue Pale	Pink body Blue extremities	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

HIE Help Center
hiehelpcenter.org

- Ensure that the newborn is thermoregulated by changing the wet flannel and performing the procedure under a goose neck lamp.
- Disinfect the umbilical cord.
- Clamp and cut the cord.
- Determine the number of vessels in the cord.
- Endorse the baby to the assist nurse.

Assist

- Suction secretions as needed.
- Apply eye prophylaxis.
- Take anthropometric measurements.
- Administer vitamin K and Hepatitis B.
- Take temperature rectally.
- Apply diaper.
- Apply identification band.
- Assess the newborn using Ballard's Assessment

AFTER:

- Do after care.
- Document assessment findings.
- Monitor vital signs of the mother and the newborn.

CLO#6: DISCUSS UNANG-YAKAP (FIRST EMBRACE).

The Unang Yakap 4&5, or "The First Embrace", is the campaign of the Philippines Department of Health (DOH), in cooperation with the WHO, to adopt and embrace the safe and quality care of Essential Intrapartum and Newborn Care (EINC) for birthing mothers and their newborns.

Steps of Unang Yakap:

FIRST EMBRACE: A HEALTHY START FOR EVERY NEWBORN INFANT

Central to EENC is the *First Embrace* – a protected and prolonged skin-to-skin cuddle between mother and baby, which allows proper warming, feeding and cord care.

First Embrace is composed of four key steps:



1. The newborn is immediately and thoroughly dried. This step stimulates the newborn's breathing.
2. The newborn and the mother must come into physical contact with each other for at least six hours. This is done to prevent complications such as hypothermia, infection and hypoglycemia.
3. The umbilical cord of a newborn is clamped for one to three minutes, or when the cord pulsations stop. The proper timing of umbilical cord cutting and clamping helps prevent a newborn's brain from bursting a blood vessel and bleeding.
4. The mother and her newborn are kept close and early breastfeeding is implemented. Early breastfeeding gives a newborn a substance called colostrum which boosts a newborn's immunity against diseases.

CLO#7: ENUMERATE THE MATERIALS NEEDED IN NEWBORN DELIVERY.**Materials to prepare for Handled Delivery:**

- Noelle Birthing Simulator



- Kelly pad



- Pail/ bucket



- Sterile gloves



- 10 cc Syringe



- 4x 5 gauze



- Suction bulb



- Plastic Ampules of lidocaine



- Suture and needle



- Stock Trays
- Surgical Scissors



- Bandage Scissors



- Sponge forceps in a container



- OB pack (with 2 covers)



- Hand towel (3)



- Gown (2)



- Square sheets (4)



- A pair of leggings



- OB Set (with 2 covers)



- Kelly curve



- Kelly straight



- Needle Holder



- Placental bowl



- Stainless medicine cup



- Tissue forceps



Materials to prepare for immediate cord care:

- Newborn mannequin with cord



- Kelly straight



- Sterile gloves



- Suction bulb



- Flannel



- Providence- iodine solution



- Cotton swab sticks



- Medicine cup



- Cord clamp



- Gauze



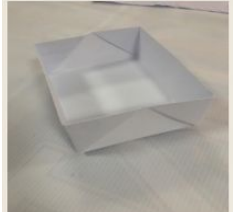
- Kidney Basin



- Surgical Scissors



- Waste Receptacle



- APGAR Chart

Apgar Scoring System

Indicator	0 Points	1 Point	2 Points
A Activity (muscle tone)	Absent	Flexed arms and legs	Active
P Pulse	Absent	Below 100 bpm	Over 100 bpm
G Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A Appearance (skin color)	Blue; pale	Pink body, Blue extremities	Pink
R Respiration	Absent	Slow and irregular	Vigorous cry

- Stethoscope



- Lined Hypotray



Materials to prepare assisted delivery:

- Newborn mannequin



- flannel



- suction bulb



- eye prophylaxis



- weighing scale



- tape measure



- tuberculin syringes



- alcohol swab



- dry cotton in a container



- hypoallergenic tape



- Vitamin K ampule



- Hepatitis B Vaccine



- Thermometer



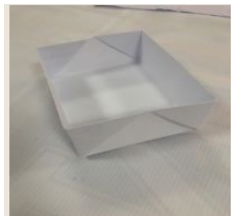
- KY Jelly



- Diaper



- Waste Receptacle



- Identification bands



- Bonnet



● Ballard's Assessment Chart

Neuromuscular Maturity							
Score	-1	0	1	2	3	4	5
Posture							
Square window (wrist)							
Arm recoil							
Popliteal angle							
Scarf sign							
Heel to ear							

Physical Maturity							
Skin	Sticky, friable, transparent	Gelatinous, red, translucent	Smooth, pink, visible veins	Superficial pitting and/or rash; few veins	Cracking, pale areas; rare veins	Parchment, deep cracking; no vessels	Leathery, cracked, wrinkled
Lanugo	None	Sparse	Abundant	Thinning	Bald areas	Mostly bald	
Plantar surface	Heel crease 40-50 mm: -1 < 40 mm: -2	> 50 mm, no crease	Faint red marks	Anterior transverse crease only	Creases anterior 2/3	Creases over entire sole	Score Weeks -10 20 -5 22 0 24 5 26 10 28 15 30 20 32 25 34 30 36 35 38 40 40 45 42 50 44
Breast	Imperceptible	Barely perceptible	Flat areola, no bud	Stippled areola, 1-2 mm bud	Raised areola, 3-4 mm bud	Full areola, 5-10 mm bud	
Eye/Ear	Lids fused loosely: -1 tightly: -2	Lids open; pinna flat; stays folded	Slightly curved pinna; soft; slow recoil	Well curved pinna; soft but ready recoil	Formed and firm; instant recoil	Thick cartilage, ear stiff	
Genitals (male)	Scrotum flat, smooth	Scrotum empty, faint rugae	Testes in upper canal, rare rugae	Testes descending, few rugae	Testes down, good rugae	Testes pendulous, deep rugae	
Genitals (female)	Clitoris prominent, labia flat	Clitoris prominent, small labia minora	Clitoris prominent, enlarging minora	Majora and minora equally prominent	Majora large, minora small	Majora cover clitoris and minora	

● Lined Hypotray



CLO#8: DOCUMENT OUTCOME OF NEWBORN DELIVERY AND PERTINENT DATA ARE THE FOLLOWING:

- Date and time of delivery
- Sex of Baby:
- Mechanism of placental expulsion
- Time of placental expulsion
- Blood Pressure of mother after placental expulsion
- Medications administered to the mother:
- APGAR SCORE
- BALLARD SCORE

CLO#9: DEMONSTRATE BEGINNING SKILLS AS HANDLE, ASSIST AND CORD CARE OF THE IN NEWBORN DELIVERY

ASSESSMENT OF THE NEWBORN

LEARNING OUTCOMES:

After 5 hours of varied classroom activities, the Level II students will be able to:

- CLO #11: define the key terms related to assessment of the newborn.
- CLO #12: utilize the different tools in assessing the newborn.
- CLO #13: discuss the importance of assessing the newborn.
- CLO #14: discuss the major points of the Newborn Screening Act of 2004.
- CLO #15: explain the principle involved in assessment of the newborn.
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- CLO #18: recognize the different materials and supplies used in assessing the newborn and its uses.
- CLO #19: document client responses and outcomes after assessment of newborn.
- CLO #20: demonstrate beginning skills integrating the CDUCN Core Values in assessing the newborn.
- CLO #21: utilize the knowledge in Assessment of Newborn in providing care to a client using a clinical-case scenario.

CLO #11: DEFINE THE KEY TERMS RELATED TO ASSESSMENT OF THE NEWBORN.

1.1 Acrocyanosis

- cyanosis, or a bluish or purplish coloration, in the hands and feet caused by circulation.



Image Source: Charlie Goldberg, M.D. - UCSD Catalog of Clinical Images

1.2 Central cyanosis

- Cyanosis of the trunk. Unlike acrocyanosis which is a normal finding in babies, Cyanosis on the lips, tongue, head, or torso is central cyanosis, and should be promptly evaluated by a doctor.



Image Source: NarayanaHealth.org

1.3 Appropriate for gestational age

- infants who fall between the 10th and 90th percentiles of weight for their age, whether they are preterm, term, or post-term.
- Small Gestational Age is a term used to describe babies who are smaller than usual for the number of weeks of pregnancy. These babies have birth weights below the 10th percentile.
- Large Gestational Age refers to a fetus or infant who is larger than expected for their age and gender. It can also include infants with a birth weight above the 90th percentile.

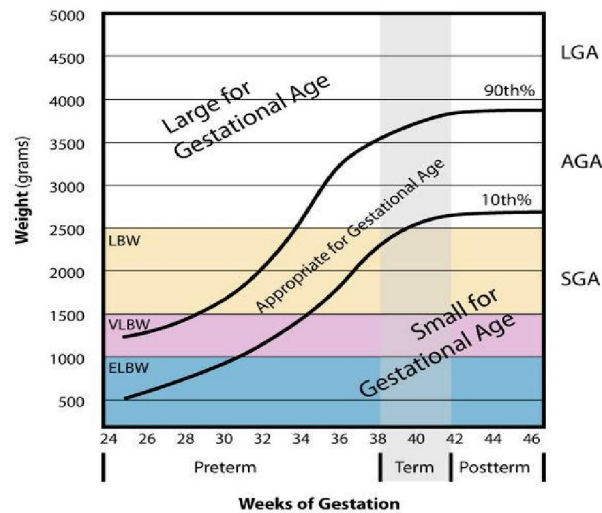


Image Source: StanfordsChildren.org

1.4 APGAR scoring

- within the first moments of life, the first minute and then again at 5 minutes, a newborn is observed and rated according to the APGAR scale. APGAR stands for "Appearance, Pulse, Grimace, Activity, and Respiration." Each of these 5 categories is scored on a scale of 0 to 2, with 2 being the best score.



Image Source: Kidshealth.org

1.5 Ballard’s assessment chart

- may be performed if the mother did not have prenatal care or if there is another question regarding the maturity of the newborn. It is based on the neonate's physical and neuromuscular maturity and can be used up to 4 days after birth.

Neuromuscular Maturity

Score	-1	0	1	2	3	4	5
Posture							
Square window (wrist)	>90°	90°	60°	45°	30°	0°	
Arm recoil		180°	140-180°	110-140°	90-110°	<90°	
Popliteal angle	180°	160°	140°	120°	100°	90°	<90°
Scarf sign							
Heel to ear							

Physical Maturity

Skin	Sticky, friable, transparent	Gelatinous, red, translucent	Smooth, pink; visible veins	Superficial peeling and/or rash; few veins	Cracking, pale areas; rare veins	Parchment, deep cracking; no vessels	Leathery, cracked, wrinkled
Lanugo	None	Sparse	Abundant	Thinning	Bald areas	Mostly bald	Maturity Rating
Plantar surface	Heel-toe 40-50 mm: -1 < 40 mm: -2	> 50 mm, no crease	Faint red marks	Anterior transverse crease only	Creases anterior 2/3	Creases over entire sole	Score Weeks -10 20 -5 22 0 24 5 26 10 28
Breast	Imperceptible	Barely perceptible	Flat areola, no bud	Stippled areola, 1-2 mm bud	Raised areola, 3-4 mm bud	Full areola, 5-10 mm bud	15 30 20 32 25 34 30 36 35 38
Eye/Ear	Lids fused loosely: -1 tightly: -2	Lids open; pinna flat; stays folded	Slightly curved pinna; soft; slow recoil	Well curved pinna; soft but ready recoil	Formed and firm, instant recoil	Thick cartilage, ear stiff	40 40 45 42 50 44
Genitals (male)	Scrotum flat, smooth	Scrotum empty, faint rugae	Testes in upper canal, rare rugae	Testes descending, few rugae	Testes down, good rugae	Testes pendulous, deep rugae	
Genitals (female)	Clitoris prominent, labia flat	Clitoris prominent, small labia minora	Clitoris prominent, enlarging minora	Majora and minora equally prominent	Majora large, minora small	Majora cover clitoris and minora	

Image Source: <https://www.msmanuals.com/>

1.6 Caput succedaneum

- the edema that forms during labor when the part of the fetal skull that contacts the cervix is put under continued pressure. It is edema that resolves in a few days; it crosses the midline, while Cephalohematoma is a subperiosteal collection of blood that does not cross suture lines. It takes several weeks to months to resolve.



Image source: BirthInjuryHelpCenter.org

1.7 Cephalohematoma

- collection of blood under the periosteum of the skull bone caused by pressure at birth.



Image Source: Healthline.com

1.8 Cyanosis

- a bluish cast to the skin and mucous membranes.



Image Source: Healthline.com

1.9 Erythema toxicum

- a rash that is commonly present on the skin of most term newborns, it consists of sporadic pinpoint papules on an erythematous base.



Image Source: Healthline.com

1.10 Full-term

- infants that are born after the beginning of week 38 and before week 42 of pregnancy.



Your baby is full term!

Image Source: LiveScience.com

1.11 Pre Term

- Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth, based on gestational age:
 - extremely preterm (less than 28 weeks)
 - very preterm (28 to 32 weeks)
 - moderate to late preterm (32 to 37 weeks)



Image Source: LiveScience.com

1.12 Post Term

- A post-term pregnancy, also called a prolonged pregnancy, is one that has extended beyond 42 weeks or 294 days from the first day of the last menstrual period.

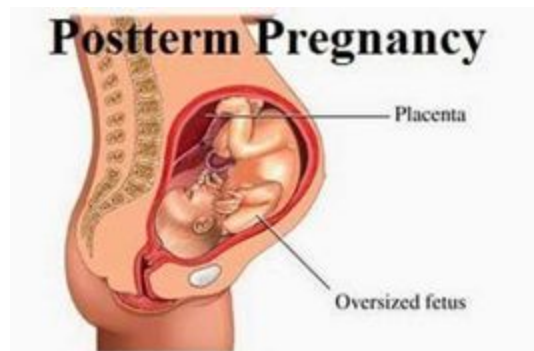


Image Source: LiveScience.com

1.13 Hemangioma

- vascular tumors of the skin that occur in 3 different types: nevus flammeus, infantile hemangiomas, and cavernous hemangioma.



Image source: BirthInjuryHelpCenter.org

1.14 Hemorrhage

- an escape of blood from a ruptured blood vessel, especially when profuse.



Image source: MayoClinic.com

1.15 Kangaroo care

- the use of skin-to-skin contact with a parent to maintain body heat; now known as skin-to-skin care.



Image Source: WikiHow

1.16 Lanugo

- the fine, downy hair that covers a term newborn's shoulders, back, upper arms, and possibly also the forehead and ears.



Image source: Healthline.com

1.17 Large for gestational age

- infants that fall above the 90th percentile in weight.

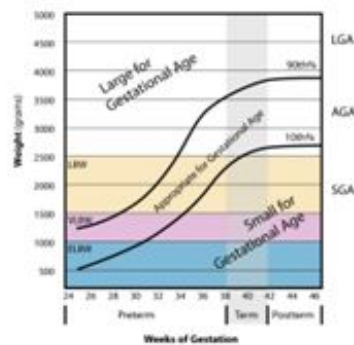


Image Source: MayoClinic.com

1.18 Low birth weight

- an infant weighing less than 2,500g at birth.



Image Source: MedicalXpress.com

1.19 Meconium

- a sticky, tar-like, blackish-green, odorless material formed from mucus, vernix, lanugo, hormones, and carbohydrates that accumulated in the bowel during intrauterine life.



Image Source: verywellfamily.com

1.20 Milia

- tiny white bumps that appear across a baby's nose, chin, or cheeks.



Image Source: verywellfamily.com

1.21 Mongolian spot

- collections of pigment cells that appear as slate-grey patches across the sacrum or buttocks and possibly on the arms and legs of newborns.



Image Source: verywellfamily.com

1.22 Natal tooth

- one or two teeth that have erupted in a newborn's mouth.



Image Source: verywellfamily.com

1.23 Neonatal period

- The neonatal period (0-28 days) is a time of extensive and ongoing system transition from the uterine environment to the external world, this includes the initial period after birth which is referred to as the perinatal period.



Image Source: verywellfamily.com

1.24 Neonate

- A neonate is also called a newborn.



Image Source: verywellfamily.com

1.25 Nevus Flammeus

-Nevus Flammeus/Port-wine stain is formed of a plexus of newly formed capillaries in the papillary layer of the corium. It is red to purple, does not blanch on pressure, and does not fade with age.



Image source: BirthInjuryHelpCenter.org

1.26 Pathologic Jaundice

-Pathologic jaundice include the appearance of jaundice within 24 hours after birth, a rapidly rising total serum bilirubin concentration (an increase of more than 5 mg per dL per day).



Image source: BirthInjuryHelpCenter.org

1.27 Physiologic Jaundice

-The skin and sclera of the eyes begin to appear noticeably yellow on the second or third day of life as a result of the breakdown of fetal red blood cells.



Image source: BirthInjuryHelpCenter.org

1.28 Prophylaxis

- is a medication or a treatment designed and used to prevent a disease from occurring.
- ARV Prophylaxis: The administration of ARV drugs to a newborn without documented HIV infection to reduce the risk of HIV acquisition.
- Newborn eye prophylaxis: refers to the practice of eye drops or ointment containing an antibiotic medication being placed in a newborn's eyes after birth.



Image Source: Healthline.com

1.29 Pseudomenstruation

- Some female newborns also have mucus vaginal secretion, sometimes blood-tinged, which is caused by maternal hormones



Image Source: verywellfamily.com

1.30 Silverman Anderson Index

- The Silverman-Anderson index is used to score an infant's degree of respiratory efficiency. The score for the individual criteria matches the grade. A total score of 0 indicates no obvious distress while a score of 10 indicates severe distress.

1.31 Small for Gestational Age

-(SGA) newborns are those who are smaller in size than normal for the gestational age, most commonly defined as a weight below the 10th percentile for the gestational age.



Image Source: verywellfamily.com

1.32 Subconjunctival Hemorrhage

- is when one or more blood spots appear on the white of your eye. The eye's conjunctiva contains a lot of tiny blood vessels that can break. If they break, blood leaks between the conjunctiva and sclera.



Image source: BirthInjuryHelpCenter.org

1.33 Transitional Stool

-are the loose, yellow-green watery stools passed on the second or third day of life. They typically appear when mother's milk starts to come in and increased amounts of lactose are secreted in the breast milk.



Image Source: verywellfamily.com

1.34 Vernix Caseosa

-Is the white, cream cheese-like substance that serves as a skin lubricant in utero. It is typically noticeable on a term newborn's skin.



Image source: BirthInjuryHelpCenter.org

1.35 Wharton's jelly

-A gelatinous substance that provides insulation and protection within the umbilical cord. Stem cells are present in Wharton's jelly, as well as in umbilical cord blood.



Image source: BirthInjuryHelpCenter.org

CLO #12: UTILIZE THE DIFFERENT TOOLS IN ASSESSING THE NEWBORN.

- Physical Assessment

Vital Signs	Normal Findings	Abnormal Findings
Monitor axillary temperature	Temperature is 36.5° C - 37.5° C	A temperature less than 36.5° C or more than 37.5° C
Inspect and auscultate lung sounds	Breathing is easy and unlabored	Laboured breathing, nasal flaring, rhonchi, rales, retractions or grunting
Monitor respiratory rate	Rate is 30-35 breaths/min	A rate less than 30 or greater than 60 breaths/min
Auscultate apical pulse	120-140 beats/min. May rise to 180 beats/min when crying or 100 beats/min when sleeping	An irregular pulse rate above 180 or below 100 beats/min

Measurement	Normal Findings	Abnormal Findings
Weigh the newborn using a newborn scale	2500g-4000g	Weight less than 2500g or greater than 4000g
Measure length	44-55 cm	Length less than 44 or greater than 55 cm
Measure head circumference	33-35.5 cm	Less than 33 or greater than 35.5 cm. This may indicate microcephaly, improper brain growth, premature closing of sutures, intrauterine infection or chromosomal defect.
Measure chest circumference	Circumference is 30-33 cm	Circumference less than 29 cm or greater than 34 cm

Reflexes appear during birth

Reflex	Normal Findings	Abnormal Findings
Rooting Reflex <ul style="list-style-type: none"> - Touch the newborn's upper or lower lip or cheek with a gloved finger 	<p>The newborn will move the head toward the stimulated area and open mouth</p> <p>Disappears sixth week of life</p>	Absence of a rooting indicates CNS disease
Sucking Reflex <ul style="list-style-type: none"> - Place a gloved finger or 	Baby makes a sucking motion	A weak or absent sucking reflex may indicate a neurological

nipple in the newborn's mouth	Disappears or diminish at 6 months of age	disorder, prematurity or CNS depression
<p>Palmar Grasp Reflex</p> <ul style="list-style-type: none"> - Press your fingers against the palmar surface of the newborn's hand from the ulnar side 	<p>The grasp should be strong</p> <p>Disappears at 6th week - 3 months of age</p>	A diminished response usually indicates prematurity. No response suggests neurologic deficits
<p>Plantar Grasp Reflex</p> <ul style="list-style-type: none"> - Touch the ball of the newborn's foot 	<p>The toes should curl downward tightly</p> <p>Disappears at 8th to 9 months of age</p>	A diminished response indicates prematurity, No response suggests neurologic deficit
<p>Tonic Neck Reflex</p> <ul style="list-style-type: none"> - The newborn should be supine. Turn the head to one side, with newborn's jaw at the shoulder. 	<p>The reflex is present when the arm and leg on the side which the head is turned extend and the opposite is flexed</p> <p>Disappears at 2nd or third month</p>	No response. If this reflex persists until later in infancy, brain damage is present.
<p>Moro Reflex</p> <ul style="list-style-type: none"> - Place the infant in a supine position. Hit the surface or startle the infant in some way 	<p>The infant slightly flexes and abducts the legs and arms. This is followed by anterior flexion and adduction of arms. All movements should be symmetrical</p> <p>Disappears by the fourth or fifth month</p>	Asymmetric response suggests injury on the part that responds more slowly. Absence of the response suggests CNS injury

<p>Babinski Reflex</p> <ul style="list-style-type: none"> - Hold the newborn's foot and stroke up the lateral edge and across the ball 	<p>Fanning of the toes</p> <p>Disappears at least 3 months to 2 years</p>	<p>Absence of response</p>
<p>Stepping Reflex</p> <ul style="list-style-type: none"> - Hold the newborn upright from behind, provide support and let the newborn's feet touch a surface. 	<p>The newborn steps with one foot and then the other in a walking motion</p> <p>Disappears by 3 months of age</p>	<p>An asymmetric response may indicate injury of the leg, CNS damage or peripheral nerve injury</p>

Body Part	Normal Findings	Abnormal Findings
Skin	<p>Acrocyanosis and mottling may be present.</p> <p>Common newborn skin variations:</p> <ul style="list-style-type: none"> - Physiologic jaundice - Birthmarks - Milia - Erythema toxicum - Telangiectatic nevi (stork bite) - Benign hemangiomas - Port-wine stain (nevus flammeus) - Harlequin sign - Vernix Caseosa <p>Newborn skin should feel resilient</p>	<p>Jaundice within 24 hours is pathologic and may indicate hemolytic disease of the newborn, blue skin suggest cyanosis, pallor suggest anemia, and redness suggest fever or irritation.</p> <p>Abnormal skin lesions</p>
Hair	Lanugo- fine downy hair may be seen	Dirty matted hair
Head	<p>Normocephalic and symmetric.</p> <p>A newborn's head may appear disproportionately large.</p>	Microcephaly and Macrocephaly

Fontanelle	The anterior fontanelle measures 2-3 cm in width and 3-4 cm in width. It closes by 12-18 months. The posterior fontanelle 0.5-1 cm closes at 2 months.	A third fontanelle is seen with Down syndrome Should not appear dented or bulging
Sutures	May override at birth	Wide separation
Face	Face is proportionate and symmetric. Movements are equal bilateral	Unusual proportions. Unequal movement may indicate facial nerve paralysis
Neck	The neck of a newborn appears short with creased skin folds.	Distended neck veins may indicate difficulty in breathing.
Eyes	Sclera and conjunctiva are clear and free of discharge lesions, redness and lacerations.	Yellow sclera suggests jaundice. Blue sclera indicate brittle bone disease
Ears	A newborn's external ear is not as completely formed as it will be, so the pinna tends to bend forward easily.	Low-set ear alignment.
Nose	Nose is midline and symmetric. Nares are patent and no discharge and tenderness	Choanal atresia is the blockage of the posterior nares in the newborn

<p>Chest</p>	<p>The chest in newborns looks small because the head is large in proportion.</p> <p>Newborns may have enlarged breast influenced from maternal hormones</p>	<p>A palpable mass of the breast</p>
<p>Abdomen</p>	<p>Abdomen looks slightly protuberant</p> <p>Bowel sounds should be present within 1 hour after birth.</p> <p>Normal sounds occur every 10-30 seconds</p>	<p>A scaphoid or sunken appearance suggests missing abdominal contents or diaphragmatic hernia.</p>
<p>Male genitalia</p>	<p>No lesions are seen on the penis and scrotum</p> <p>Testes are palpable in scrotum. Testes are equal in size, smooth, mobile and free of masses</p>	<p>Absent testicles suggest true cryptorchidism (undescended testicles)</p>

<p>Female Genitalia</p>	<p>The vulva in female newborns may appear swollen because of maternal hormones during intrauterine life</p> <p>Some female newborns also have mucus vaginal secretion, sometimes blood tinged (pseudomenstruation) which is caused by maternal hormones also.</p>	<p>Ambiguous genitalia, the genitals may be incompletely developed or the baby may have characteristics of both sexes</p>
<p>Anus</p>	<p>The anal opening should be visible and moist. Meconium is passed within 24-48 hours after birth.</p>	<p>Imperforate anus (no anal opening)</p>
<p>Extremities</p>	<p>Arms and legs are symmetric in size. Extremities should be warm and mobile with adequate capillary refill</p>	<p>Asymmetric movement of arms and legs</p> <p>Syndactyly</p> <p>Polydactyly</p>
<p>Back</p>	<p>In a newborn's spine, it appears flat in the lumbar and sacral area</p>	<p>Flaccid or rigid posture</p>

- Brazelton Neonatal Behavioral Assessment Scale
 - Developed by Brazelton to evaluate a newborn's behavioral capacity or ability to respond to a set of stimuli.
 - is a rating scale of six different categories of behavior:
 - habituation (ability to ignore a stimulus),
 - orientation (response to sights and sounds),
 - motor maturity (refers to movement and reflexes),
 - variation (changes in activity level, state and skin color),
 - self-quieting ability (how soon and how effective the newborn quiets themselves when crying)
 - and social behavior (how babies engage in the environment).

	<i>N</i>	<i>%</i>
Maternal education		
Less than 6th grade	165	43.3
7th through 12th grade	145	38.1
Completed High school	71	18.6
Marital status		
Married/living as married	309	81.1
Single	72	18.9
Parity		
0	123	32.3
1+	258	67.7
Country of birth		
Mexico	324	85.0
US	49	12.9
Other	8	2.1
Poverty		
At or below poverty level	228	63.5
200% Poverty level	116	32.3
Above 200% poverty level	15	4.2
Smoked during pregnancy		
Yes	20	5.3
No	358	94.7
Alcohol use during pregnancy		
Yes	59	15.6
No	320	84.4
Caffeine use during pregnancy		
Yes	284	74.9
No	95	25.1
Cesarean delivery		
Yes	91	23.9
No	290	76.1
General anesthesia		
Yes	10	2.6
No	371	97.4
Breastfeeding initiated after delivery		
Yes	301	92.6
No	24	7.4
Infant sex		
Female	200	52.5
Male	181	47.5

^a Total number of observations vary due to missing data (table entries do not include imputed values).

- Silverman-Anderson Index
 - To assess the degree of neonatal respiratory distress within an hour of birth. The **Silverman-Anderson Retraction Score (SAs)** is used to assess severity of respiratory distress in **newborn** and preterm **infants** without respiratory support. The **score** comprises 4 inspiratory categories of movements (thoraco-abdominal, intercostal, xiphoid, and chin movements) and one expiratory category (grunting).

Score 10 = Severe respiratory distress

Score ≥ 7 = Impending respiratory failure

Score 0 = No respiratory distress

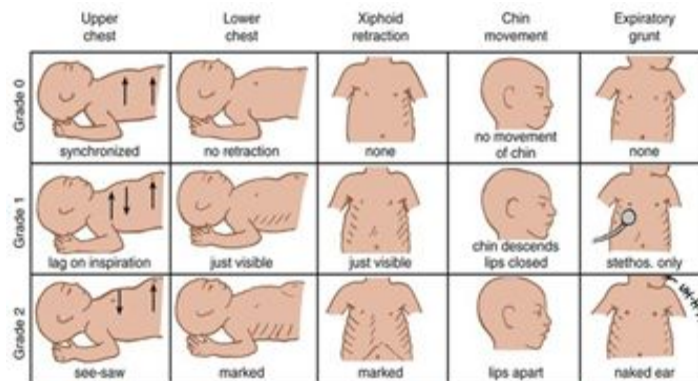


Image Source: ThoracicKey.com

- Ballard's Assessment for Gestational Age
 - Assess gestational age within 4 hours after birth to identify any potential age-related problems that may occur within the next few hours.
 - This examination requires assessing the newborn's neuromuscular and physical maturity.
 - Scores are given for 6 physical and 6 nerve and muscle development (neuromuscular) signs of maturity. The scores for each may range from -1 to 5.

- The scores are added together to determine the baby's gestational age. The total score may range from -10 to 50.

- Premature babies have low scores. Babies born late have high scores.

-Each of the criteria are scored from 0 through 5, in the original Ballard Score. The scores were then ranged from 5 to 50, with the corresponding gestational ages being 26 weeks and 44 weeks. An increase in the score by 5 increases the age by 2 weeks. The New Ballard Score allows scores of -1 for the criteria, hence making negative scores possible. The possible scores then range from -10 to 50, the gestational range extending up to 20 weeks.

Neuromuscular Maturity

Score	-1	0	1	2	3	4	5
Posture							
Square window (wrist)	> 90°	90°	60°	45°	30°	0°	
Arm recoil		180°	140-180°	110-140°	90-110°	< 90°	
Popliteal angle	180°	160°	140°	120°	100°	90°	< 90°
Scarf sign							
Heel to ear							

Physical Maturity

Skin	Sticky, friable, transparent	Gelatinous, red, translucent	Smooth, pink; visible veins	Superficial peeling and/or rash; few veins	Cracking, pale areas; rare veins	Parchment, deep cracking; no vessels	Leathery, cracked, wrinkled
Lanugo	None	Sparse	Abundant	Thinning	Bald areas	Mostly bald	Maturity Rating
Plantar surface	Heel-toe 40-50 mm; -1 < 40 mm: -2	> 50 mm, no crease	Faint red marks	Anterior transverse crease only	Creases anterior 2/3	Creases over entire sole	
Breast	Imperceptible	Barely perceptible	Flat areola, no bud	Stippled areola, 1-2 mm bud	Raised areola, 3-4 mm bud	Full areola, 5-10 mm bud	Weeks
Eye/Ear	Lids fused loosely: -1 tightly: -2	Lids open; pinna flat; stays folded	Slightly curved pinna; soft; slow recoil	Well curved pinna; soft but ready recoil	Formed and firm, instant recoil	Thick cartilage, ear stiff	-10 20
Genitals (male)	Scrotum flat, smooth	Scrotum empty, faint rugae	Testes in upper canal, rare rugae	Testes descending, few rugae	Testes down, good rugae	Testes pendulous, deep rugae	-5 22
Genitals (female)	Clitoris prominent, labia flat	Clitoris prominent, small labia minora	Clitoris prominent, enlarging minora	Majora and minora equally prominent	Majora large, minora small	Majora cover clitoris and minora	0 24
							5 26
							10 28
							15 30
							20 32
							25 34
							30 36
							35 38
							40 40
							45 42
							50 44

Image Source: MayoClinic.com

CLO #13: DISCUSS THE IMPORTANCE OF ASSESSING THE NEWBORN.

Importance of Assessing the newborn:

- Early identification and intervention of problems or deviation that may prevent the infant from progressing uneventfully through the early postnatal period related to infants' physical condition
- To assess newborn's wellbeing and adaptation to extrauterine life
- To establish baseline anthropometric measurements of the child
- To assess newborn's behavioral capacity
- To assess newborn's work of breathing
- To determine the newborn's need for resuscitation
- To detect any signs of abnormalities
- To determine neonate's physical and neuromuscular maturity
- To determine areas for parent and family health teaching

CLO #14: DISCUSS THE MAJOR POINTS OF THE NEWBORN SCREENING ACT OF 2004.

Republic Act 9288, otherwise known as the Newborn Screening Act of 2004, illustrates a procedure to detect a genetic and metabolic disorder in newborns that may lead to mental retardation and even death if left untreated.

Newborn screening program in the Philippines currently includes screening of six disorders.

The **Expanded Newborn Screening** will include 22 more disorders which will provide opportunities to significantly improve the quality of life of affected newborns through facilitating early diagnosis and early treatment.

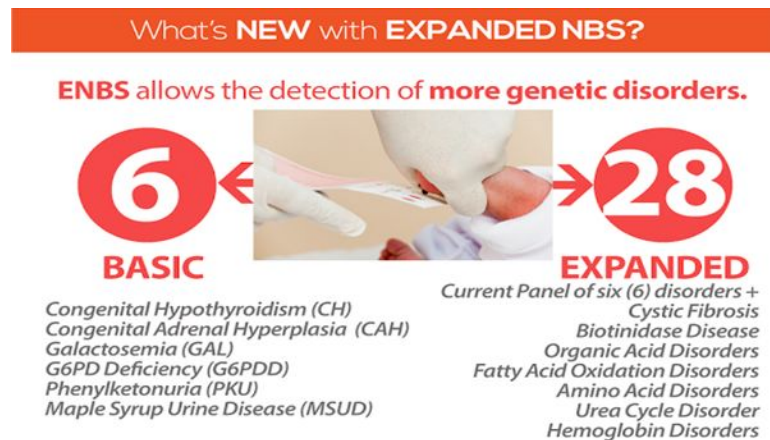


Image source: <http://vylhphilippines.blogspot.com/>

How it is done:

A newborn screening test is done 24 to 48 hours after the baby is born. The test is performed by pricking the baby's heel to collect a few drops of blood.

There are very few risks associated with this procedure, and it involves minimal discomfort to the baby. The blood is placed on a special type of paper and sent to a laboratory for analysis. Within 2 to 3 weeks, the test results are sent to the baby's doctor's office or clinic.

DISORDERS SCREENED:

- **Congenital Hypothyroidism (CH)** - this happens because the thyroid doesn't form correctly in the baby during pregnancy. At birth, the baby may have no thyroid gland at all, or have a small, partially developed gland
 - If untreated, congenital hypothyroidism can lead to intellectual disability and slow growth.



Image source: <https://emedicine.medscape.com/>

- **Congenital Adrenal Hyperplasia (CAH)** - CAH lacks one of the enzymes the adrenal glands use to produce hormones that help regulate metabolism, the immune system, blood pressure and other essential functions.
 - If left untreated, the adrenal glands produce too much of chemicals called androgen, which produce male sex traits.



Image source: <https://clinical-and-molecular-endocrinology.imedpub.com/>

- **Phenylketonuria (PKU)** - is a metabolic disorder that some babies are born with. It's caused by a defect in the enzyme that breaks down the amino acid phenylalanine.

Untreated PKU can lead to:

- Irreversible brain damage and marked intellectual disability
- Neurological problems such as seizures and tremors
- Behavioral, emotional and social problems in older children and adults
- Major health and developmental problems



Image source: <https://www.slideshare.net/DrLouay/phenylketonuria>

- **Galactosemia (GAL)** - "galactose in the blood," refers to a group of inherited disorders that impair the body's ability to process and produce energy from a sugar called galactose.
 - Most untreated children eventually die of liver failure. Surviving babies who remain untreated may have intellectual disabilities and other damage to the brain and nervous system.



Image source: <https://www.mountsinai.org/>

- **Maple syrup urine disease (MSUD)** - the body is unable to process certain protein building blocks (amino acids) properly. The condition gets its name from the distinctive sweet odor of affected infants' urine.
 - If untreated, maple syrup urine disease can lead to seizures, coma, and death.



Image source: <http://syafinasaslan.weebly.com/>

- **Glucose-6-phosphate dehydrogenase deficiency (G6PD)** - is a genetic abnormality that results in an inadequate amount of glucose-6-phosphate dehydrogenase (G6PD) in the blood. This is a very important enzyme (or protein) that regulates various biochemical reactions in the body.
 - If G6PD deficiency is mismanaged, and hyperbilirubinemia goes untreated, kernicterus can result. Kernicterus is severe, permanent brain damage and can cause conditions like cerebral palsy, seizures, intellectual impairments, and more.

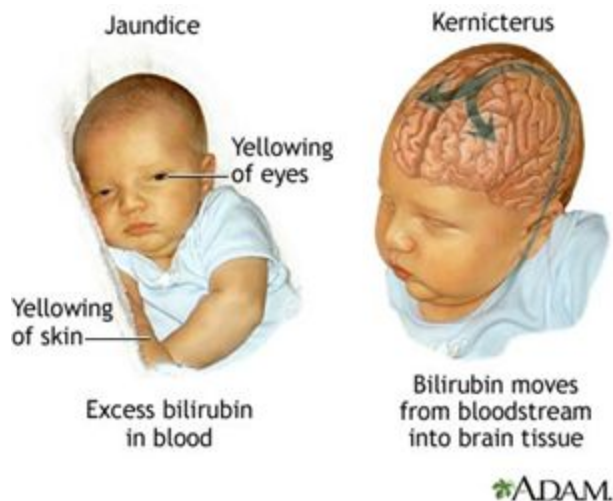


Image source: <https://medlineplus.gov/>

CLO #15: EXPLAIN THE PRINCIPLES INVOLVED IN ASSESSMENT OF THE NEWBORN.**Anatomy and Physiology**

-This assessment requires knowledge of the structure of the body as it will be useful in assessing normal or abnormal findings in a newborn.

Microbiology

-Nurse/physician should always observe sterility and follow the proper way of assessing the newborn with hygienic guidelines because newborns are prone to infection. Materials to be used must be disinfected prior to the procedure to avoid complications and occurrence of infection.

Safety and Security

-In assessing the newborn, the procedure should be done in an area that is conducive to assessing the newborn knowing that they are very delicate and their immune system is very weak. Assessment should be done in a clear area that is away from sharp and harmful objects.

Physics

-In assessing the newborn, the nurse must have warm hands since the skin of the newborn is very sensitive. The nurse must provide warmth to the newborn and protect it from heat loss by swaddling loosely in a blanket.

Time and Energy

-Organization is observed in assessing such as having prepared all the necessary materials and equipment that are involved in the procedure to be able to do it smoothly.

Body Mechanics

-Proper body mechanics should be observed in assessing to prevent injury and so the newborn will be comfortable. The newborn should also be placed correctly in different sets of assessment to ensure that the newborn is comfortable and safe.

Mathematics

-Utilizing the correct numbers and values involved in assessing a newborn will avoid further complications. This is applied in performing APGAR Scoring, conversion of weight from lbs to kg and etc.

Psychology

-Before performing the procedure to the newborn, explain the procedure and importance to the mother to reduce her anxiety.

CLO #16: LIST GUIDELINES IN ASSESSING THE NEWBORN.

1. Provide normothermic and non-stimulating examination areas.
2. Check that equipment and supplies are working properly and are accessible.
3. Proceed quickly to avoid stressing the infant.
4. Undress only the body area examined to prevent heat loss.
5. Proceed in an orderly sequence (usually head to toe) with the following exceptions:
 - Perform all procedures that require quiet first, such as auscultating the lungs, heart and abdomen.
 - Perform disturbing procedures, such as testing reflexes last.
 - Measure head, crown-to-rump, and head-to-heel length at the same time to compare results.
6. Comfort infant during and after examination; involve parent in
 - Talking softly
 - Holding the infant's hands against the chest
 - Swaddling and holding
 - Giving a pacifier or gloved finger to suck
7. Perform medical hand washing prior to the procedure.
8. Disinfect materials like tape measure prior to the procedure.
9. Turn off the air conditioning unit prior to the procedure or warm the environment.
10. Provide good lighting.
11. Warm cold instruments.
12. Keep the baby warm during the examination.
13. Never leave the baby unattended.
14. Document all assessment findings and provide nursing care.
15. Perform a quick but accurate assessment.
16. Check the first temperature per rectum to check for imperforate anus.
17. Assess from general to specific parts.
18. Perform the least disturbing assessments first.
19. Assess the newborn gently.
20. Support the neck and head of the newborn in changing positions.

CLO #17: ENUMERATE AND DISCUSS NURSING RESPONSIBILITIES BEFORE, DURING AND AFTER ASSESSMENT OF THE NEWBORN.

BEFORE:

- Warm the room prior to the procedure.
- Ascertain good lighting for the procedure.
- Prepare all necessary materials.
- Disinfect the materials to be used.
- Perform medical handwashing and open gloving.
- Explain procedure to the parents.
- Correctly identify the newborn, as per hospital identification policy

DURING:

- Use a systematic approach to examine the newborn when possible. A recommended systematic approach is 'head to toe' and 'front to back'.
- Undress the newborn and remove diaper as it is not possible to fully examine a dressed baby for all abnormalities.
- Use clinical judgement when determining the need and the urgency of follow-up for all abnormal or suspicious findings
- Prevent cross infection by implementing standard precautions as per local Infection Control Guidelines.
- Assess the following: vital signs, physical attributes, reflexes, and behavior.

AFTER:

- Apply diaper back and clothe the baby.
- Do medical handwashing.
- Document infant personal health record.
- Document completion of the newborn assessment and associated discussions, findings and follow-up requirements in the medical record.
- Inform physician for any abnormalities.
- Advise parents about the importance of follow-up newborn assessments
- Provide health teaching and further information as requested.

CLO #18: RECOGNIZE THE DIFFERENT MATERIALS AND SUPPLIES USED IN ASSESSING THE NEWBORN AND ITS USES.

- SUCTION- it is to remove fluid rapidly from the oropharynx and nasopharynx in vigorous and non-vigorous infants at birth.



*Image source:
theunassistedbaby.com
4akid.co.za*

- GLOVES- for sterility and sanitation when handling the newborn.



Image source: myglovedepot.com

- 70% ALCOHOL - for disinfecting and sanitation.

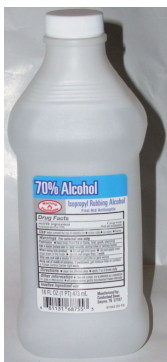


Image source: Craig Spurrier

- CLEAN TOWELS - to clean the baby from the womb and provide warmth.

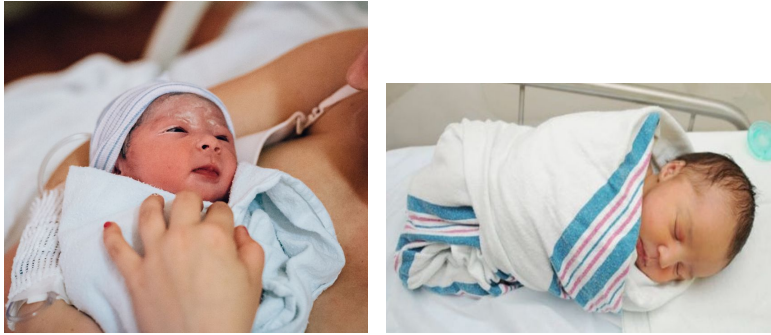


Image source: usatoday.com // todaysparent.com

- BLANKET- to provide warmth and comfort to the baby.



Image source: naturehome.com

**CLO #19: DOCUMENT THE CLIENT RESPONSES AND OUTCOMES
AFTER ASSESSMENT OF NEWBORN.**

- Maternal History

By undertaking a maternal history, the healthcare provider can make informed decisions for the newborn's ongoing care. Understanding this history will help you anticipate the needs of the newborn and validate the physical findings.

- Vital Statistics

Information from vital records is critical to identify and quantify health-related issues and to measure progress toward quality improvement and public health goals. In particular, maternal and infant mortality serve as important indicators of the nation's health, thereby influencing policy development, funding of programs and research, and measures of health care quality. Accurate and timely documentation of births and deaths is essential to high-quality vital statistics.

- Vital Signs

Vital signs are measurements of the body's most basic functions. The four main vital signs routinely monitored by medical professionals and health care providers include the following:

- Body temperature
- Pulse rate
- Respiration rate
- Blood pressure

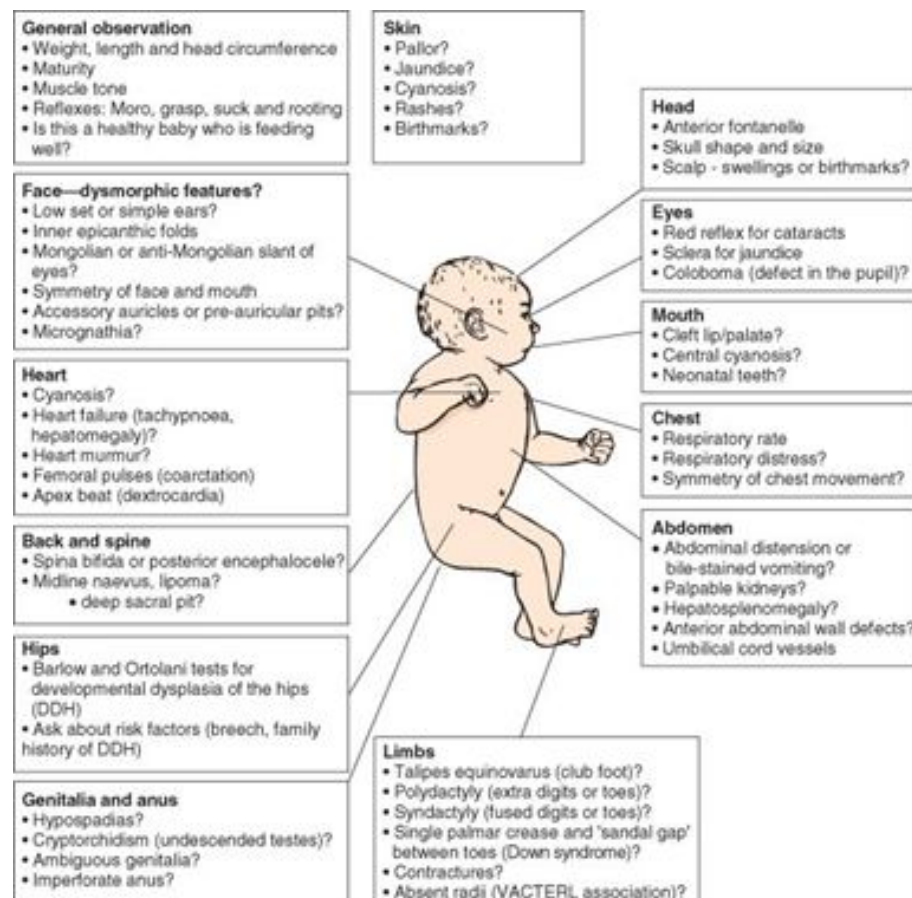
	0 to 12 months	1 to 11 years	12 and up
Heart Rate	100 to 160 beats per minute (bpm)	70 to 120 bpm	60 to 100 bpm
Respiration (breaths)	0 to 6 months 30 to 60 breaths per minute (bpm) 6 to 12 months 24 to 30 bpm	1 to 5 years 20 to 30 (bpm) 6 to 11 years 12 to 20 bpm	12 to 18 bpm [±]
Blood Pressure (systolic/ diastolic) [±]	0 to 6 months 65 to 90/45 to 65 millimeters of mercury (mm Hg) 6 to 12 months 80 to 100/55 to 65 mm Hg	90 to 110/55 to 75 mm Hg	110 to 135/65 to 85 mm Hg
Temperature	All ages 98.6 F (normal range is 97.4 F to 99.6 F)	All ages 98.6 F (normal range is 97.4 F to 99.6 F)	All ages 98.6 F (normal range is 97.4 F to 99.6 F)

- Head-to-toe Physical Assessment of the Newborn

A complete physical exam is an important part of newborn care. Each body system is carefully checked for signs of health and normal function. The healthcare provider also looks for any signs of illness or birth defects. Physical exam of a newborn often includes assessment of the following:

- Vital signs:
 - Temperature. Able to maintain stable body temperature of 97.0°F to 98.6°F (36.1°C to 37°C) in a normal room environment.
 - Heartbeat. Normally 120 to 160 beats per minute. It may be much slower when an infant sleeps.
 - Breathing rate. Normally 40 to 60 breaths per minute.
 - Blood pressure. Normally an upper number (systolic) between 60 and 80, and a lower number (diastolic) between 30 and 45.
 - Oxygen saturation. Normally 95% to 100% on room air.
- General appearance. Physical activity, muscle tone, posture, and level of consciousness or whether or not an infant is awake and alert.
- Skin. Color, texture, nails, presence of rashes.

- Head and neck:
 - Appearance, shape, and shaping of the head from passage through the birth canal (molding)
 - The open soft spots between the bones of the baby's skull (fontanel)
 - Bones across the upper chest (clavicles)
- Face. Eyes, ears, nose, cheeks. Presence of red reflex in the eyes.
- Mouth. Roof of the mouth (palate), tongue, throat.
- Lungs. Breath sounds, breathing pattern.
- Heart sounds and femoral (in the groin) pulses
- Abdomen. Presence of masses or hernias.
- Genitals and anus. Open passage for urine and stool and normally formed male and female genitals.



Motor system	9	8	7	6	5	4	3	2	1	Comments
General tone										
Motor maturity										
Pull-to-sit										
Defensive										
Activity level										
State organisation	9	8	7	6	5	4	3	2	1	Comments
Peak of excitement										
Rapidity of build-up										
Irritability										
Lability of states										
State regulation	9	8	7	6	5	4	3	2	1	Comments
Cuddliness										
Consolability										
Self-quieting										
Hand-to-mouth										

Autonomic system	9	8	7	6	5	4	3	2	1	Comments
Tremulousness										
Startles										
Lability of skin colour										
Smiles										
Supplementary Items	9	8	7	6	5	4	3	2	1	Comments
Quality of alertness										
Cost of attention										
Examiner facilitation										
General irritability										
Robustness and endurance										
State regulation										
Examiner's emot. resp.										
Reflexes	0	1	2	3	Asym	Comments				
Plantar										
Babinski										
Ankle clonus										
Rooting										
Sucking										
Glabella										






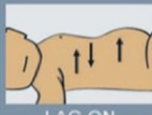




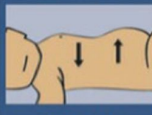




Passive resist. – legs										
Passive resist. – arms										
Palmar (hand-grasp)										
Placing										
Standing										
Walking										
Crawling										
Incurvation										
Tonic dev. – head and eyes										
Nystagmus										
TNR										
Moro										

Summary: Infant
Summary: Parent(s)

Strengths
Concerns
Strengths
Concerns

- Silverman-Anderson Index

Is an assessment scoring system that evaluates five parameters of work of breathing and assigns a numerical score for each parameter. Each category is scored as 0 for normal, 1 for moderate impairment or 2 for severe impairment.

	UPPER CHEST MOVEMENT	LOWER CHEST RETRACTIONS	XIPHOID RETRACTIONS	NARES DILATATION	EXPIRATORY GRUNT	
GRADE 0	 SYNCHRONIZED	 NONE	 NONE	 NONE	 NONE	NORMAL ↓ SEVERE
GRADE 1	 LAG ON INSPIRATION	 JUST VISIBLE	 JUST VISIBLE	 JUST VISIBLE	 HEARD WITH STETHOSCOPE	
GRADE 2	 SEE-SAW	 EASILY SEEN	 EASILY SEEN	 EASILY SEEN	 HEARD BY EAR	
	INSPIRATORY				EXPIRATORY	
	_____ + _____ + _____ + _____ + _____ =					TOTAL

- 0** no respiratory distress
- 1 - 3** mild respiratory distress
- 4 - 6** moderate respiratory distress
- 7 - 10** severe respiratory distress

- Ballard's Assessment

The Ballard score is based on the neonate's physical and neuromuscular maturity and can be used up to 4 days after birth (in practice, the Ballard score is usually used in the first 24 hour). The neuromuscular components are more consistent over time because the physical components mature quickly after birth. However, the neuromuscular components can be affected by illness and drugs (eg, magnesium sulfate given during labor). Because the Ballard score is accurate only within plus or minus 2 weeks, it should be used to assign gestational age only when there is no reliable obstetrical information about the EDC or there is a major discrepancy between the obstetrically defined gestational age and the findings on physical examination.

New Ballard Scoring – Neuromuscular Maturity Criteria

	-1	0	1	2	3	4	5
Posture							
Square Window (wrist)	>90°	90°	60°	45°	30°	0°	
Arm Recoil		180°	140°-180°	110°-140°	90°-110°	< 90°	
Popliteal Angle	180°	160°	140°	120°	100°	90°	< 90°
Scarf Sign							
Heel to Ear							

Physical Maturity

	-1	0	1	2	3	4	5																														
Skin	sticky friable transparent	gelatinous red, translucent	smooth pink, visible veins	superficial peeling &/or rash. few veins	cracking pale areas rare veins	parchment deep cracking no vessels	leathery cracked wrinkled																														
Lanugo	none	sparse	abundant	thinning	bald areas	mostly bald	<table border="1"> <thead> <tr> <th colspan="2">Maturity Rating</th> </tr> <tr> <th>Score</th> <th>weeks</th> </tr> </thead> <tbody> <tr><td>-10</td><td>20</td></tr> <tr><td>-5</td><td>22</td></tr> <tr><td>0</td><td>24</td></tr> <tr><td>5</td><td>26</td></tr> <tr><td>10</td><td>28</td></tr> <tr><td>15</td><td>30</td></tr> <tr><td>20</td><td>32</td></tr> <tr><td>25</td><td>34</td></tr> <tr><td>30</td><td>36</td></tr> <tr><td>35</td><td>38</td></tr> <tr><td>40</td><td>40</td></tr> <tr><td>45</td><td>42</td></tr> <tr><td>50</td><td>44</td></tr> </tbody> </table>	Maturity Rating		Score	weeks	-10	20	-5	22	0	24	5	26	10	28	15	30	20	32	25	34	30	36	35	38	40	40	45	42	50	44
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Plantar Surface	heel-toe 40-50 mm: -1 < 40 mm: -2	>50mm no crease	faint red marks	anterior transverse crease only	creases ant. 2/3	creases over entire sole																															
Breast	imperceptible	barely perceptible	flat areola no bud	stippled areola 1-2mm bud	raised areola 3-4mm bud	full areola 5-10mm bud																															
Eye/Ear	lids fused loosely: -1 tightly: -2	lids open pinna flat stays folded	sl. Curved pinna; soft; slow recoil	well-curved pinna; soft but ready recoil	formed & firm instant recoil	thick cartilage ear stiff																															
Genitals male	scrotum flat, smooth	scrotum empty faint rugae	testes in upper canal rare rugae	testes descending few rugae	testes down good rugae	testes pendulous deep rugae																															
Genitals female	clitoris prominent labia flat	prominent clitoris small labia minora	prominent clitoris enlarging minora	majora & minora equally prominent	majora large minora small	majora cover clitoris & minora																															

When is the appropriate time to perform New Ballard scores?

Performed between 30 minutes to 96 hours, ideally within 24 hours. However, studies have debated its validity up to 7 days.

For preterm babies < 26 weeks, it must be done in the first 24 hours because on the second day babies may suffer from consequences of prematurity.

In such a case, you have two options: Perform the remainder of the neuromuscular criteria, then assign a similar score to the popliteal angle and heel to ear. Wait 24 to 48 hours or until flexor tone has returned to the hamstrings and gluteus muscles, and repeat the assessment. For breech deliveries, there may be flexor fatigue in the 1st 24 hours, so NBS is performed after 24-48 hours to avoid lower score for lower limbs.

Assigning score and gestational age

For scores between numbers on the grid, we interpolate as follows:

25 = 34 weeks

26 = 34 weeks

27 = 34 weeks

28 = 35 weeks

29 = 35 weeks

30 = 36 weeks

Record only completed weeks of gestation and not partial weeks.

If weeks by exam fall within 2 weeks of KNOWN maternal dates, preferably confirmed by early ultrasound, then the maternal dates are more likely correct.

If weeks by exam are greater than 2 weeks outside of maternal dates in either direction, then the clinical gestational assessment is more likely correct.

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- APGAR

Apgar stands for "**A**ppearance, **P**ulse, **G**rimace, **A**ctivity, and **R**espiration."

In the test, five things are used to check a baby's health. Each is scored on a scale of 0 to 2, with 2 being the best score:

1. **A**ppearance (skin color)
2. **P**ulse (heart rate)
3. **G**rimace response (reflexes)
4. **A**ctivity (muscle tone)
5. **R**espiration (breathing rate and effort)

A baby who scores a 7 or above on the test is considered in good health. A lower score does not mean that your baby is unhealthy. It means that your baby may need some immediate medical care, such as suctioning of the airways or oxygen to help him or her breathe better. Perfectly healthy babies sometimes have a lower-than-usual score, especially in the first few minutes after birth.

A slightly low score (especially at 1 minute) is common, especially in babies born:

- after a high-risk pregnancy
- through a C-section
- after a complicated labor and delivery
- prematurely

At 5 minutes after birth, the test is given again. If a baby's score was low at first and hasn't improved, or there are other concerns, the doctors and nurses will continue any necessary medical care. The baby will be monitored closely.

Apgar Scoring

Apgar Sign	2	1	0
Appearance (skin color)	Normal color all over (hands and feet are pink)	Normal color (but hands and feet are bluish)	Bluish-gray or pale all over
Pulse (heart rate)	Normal (above 100 beats per minute)	Below 100 beats per minute	Absent (no pulse)
Grimace ("reflex irritability")	Pulls away, sneezes, coughs, or cries with stimulation	Facial movement only (grimace) with stimulation	Absent (no response to stimulation)
Activity (muscle tone)	Active, spontaneous movement	Arms and legs flexed with little movement	No movement, "floppy" tone
Respiration (breathing rate and effort)	Normal rate and effort, good cry	Slow or irregular breathing, weak cry	Absent (no breathing)

CLO #20: DEMONSTRATE BEGINNING SKILLS INTEGRATING THE CDUCN CORE VALUES IN ASSESSING THE NEWBORN.

- Head-to-Toe Assessment of newborn
- Neonatal behavioral assessment or Brazelton's Assessment
- Silverman-Anderson Index
- Ballard's Assessment for Gestational Age

CLO #21: UTILIZE THE KNOWLEDGE IN ASSESSMENT OF NEWBORN IN PROVIDING CARE TO A CLIENT USING A CLINICAL-CASE SCENARIO

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