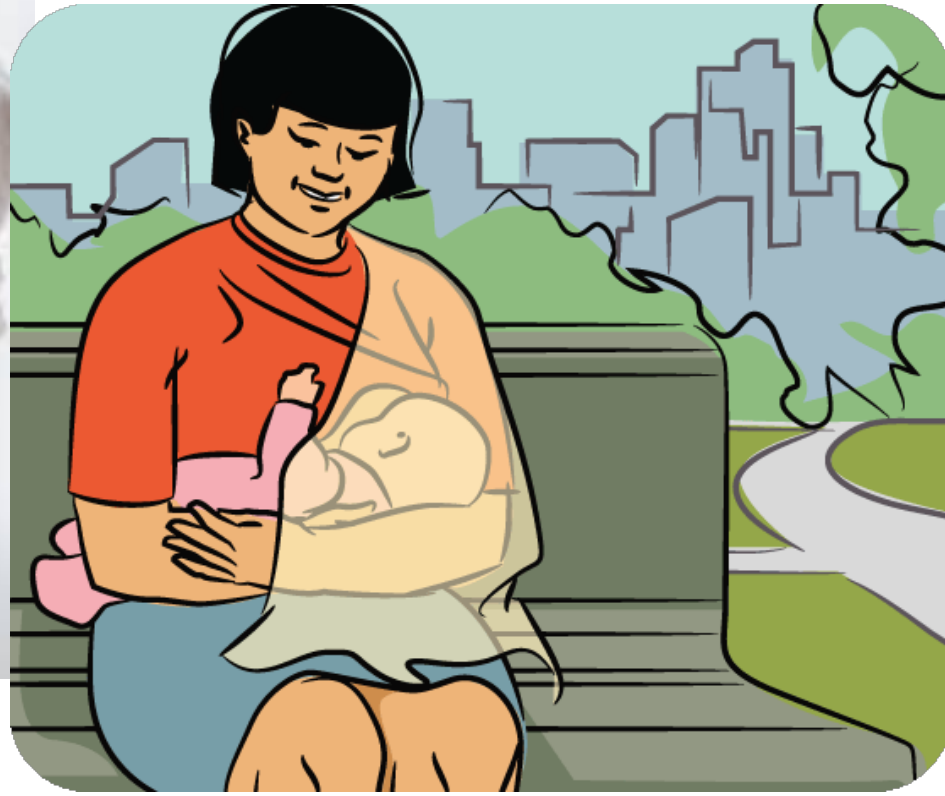
Well newborn care And Breast feeding



Eman F. Badran
Professor of Pediatrics
University of Jordan
School of Medicine
Pediatric Department
Neonatal Division

Fifth year 22-24

Primary Reference:
Attached in e learning module

Care of well newborn reference

1. Benitz WE, Committee on Fetus and Newborn. AAP Policy Statement – Hospital Stay for Healthy Term Newborns. Pediatrics. 2015;135(5): 948-953.
https://pediatrics.aappublications.org/content/135/5/948

2 Lancet series on breast feeding

https://www.thelancet.com/series/breastfeeding

3. Videos. For breast Feeding support to mothers
https://globalhealthmedia.org/language/arabic/?_sft_topic=breastfeeding

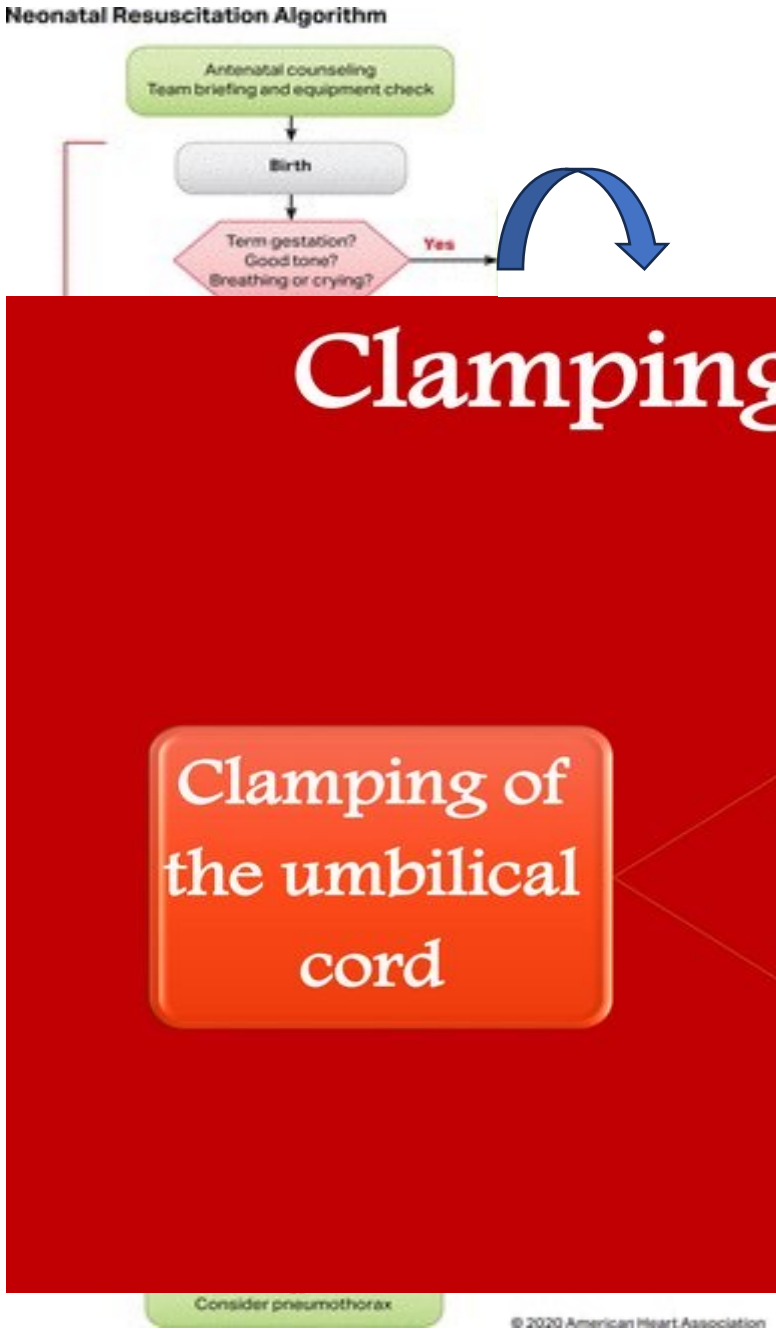
References for newborn Exam

Module

https://www.hse.ie/eng/about/who/healthwellbeing/our-priority-programmes/child-health-and-wellbeing/newborn%20exam.pdf

Well newborn care intended learning out comes

- **Learning Objectives**
  - Describe Abgar Score
  - Understand when the baby need to be assessed
  - Understand Voiding and stooling Pattern
  - Understand the risks for hemorrhagic disease of newborn , and outline anticipatory guidance that may be preventive
  - Identify the most common benign newborn problems after birth delineate appropriate guidance
  - Identify types of mandatory neonatal screen
  - SIDs



Neonatal resucitation steps 2020

▶ Delay cord clamping

Clamping Of The Umbilical Cord

- Clamping of the umbilical cord
  - Early clamping — In the first 30 sec – 3 min
  - Delayed clamping — After the pulsation is ceased

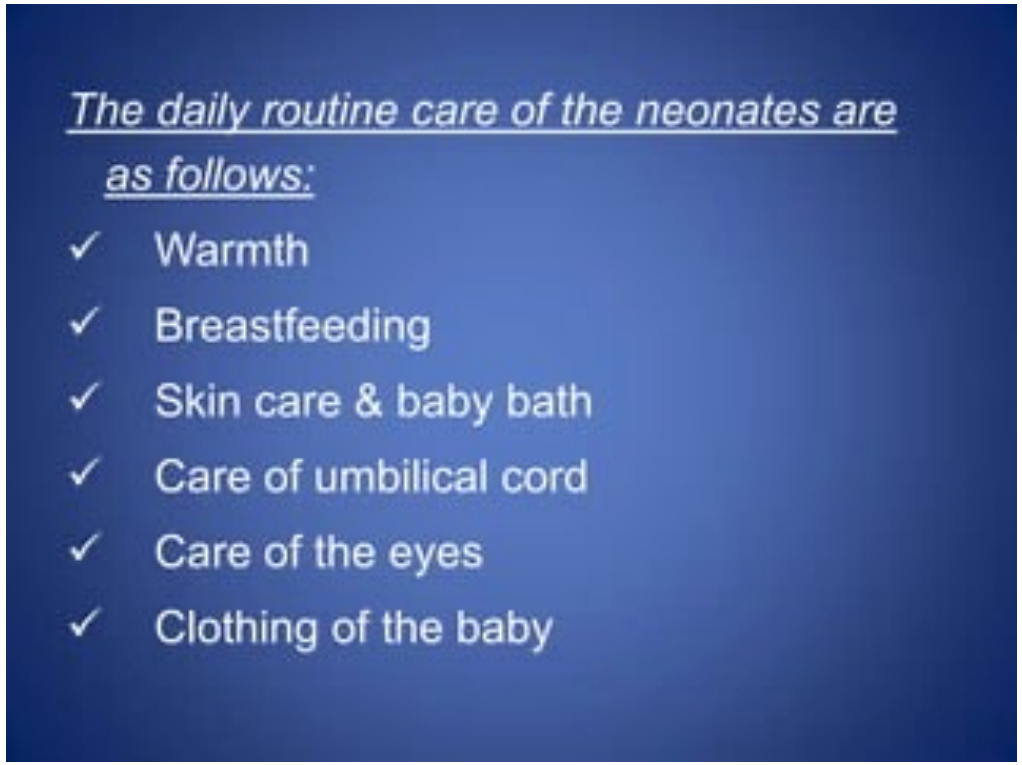
WHO: after 3-5 min

AAP: 30-60 sec

https://apps.who.int/iris/bitstream/handle/10665/148793/9789241508209_eng.pdf

https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2020/12/delayed-umbilical-cord-clamping-after-birth

The daily routine care of the neonates are as follows:



CASE

Prenatal visit

Q1. What are the 2 steps applied in the delivery room to support this Mom to Breast Feed her baby?

Airway management in delivery room

Establishment of open airway:

(Majority of babies cry at birth & take spontaneous Respiration)

✓ When the head is delivered birth attendant immediately suction the secretions, wipe mucus from face and mouth and nose.

✓Suction the mouth and nose by using bulb syringe

✓Keep head slightly lower than the body

✓Position the Baby on their backs or tilted to the side, but not on their stomachs.

Maintenance of temperature:

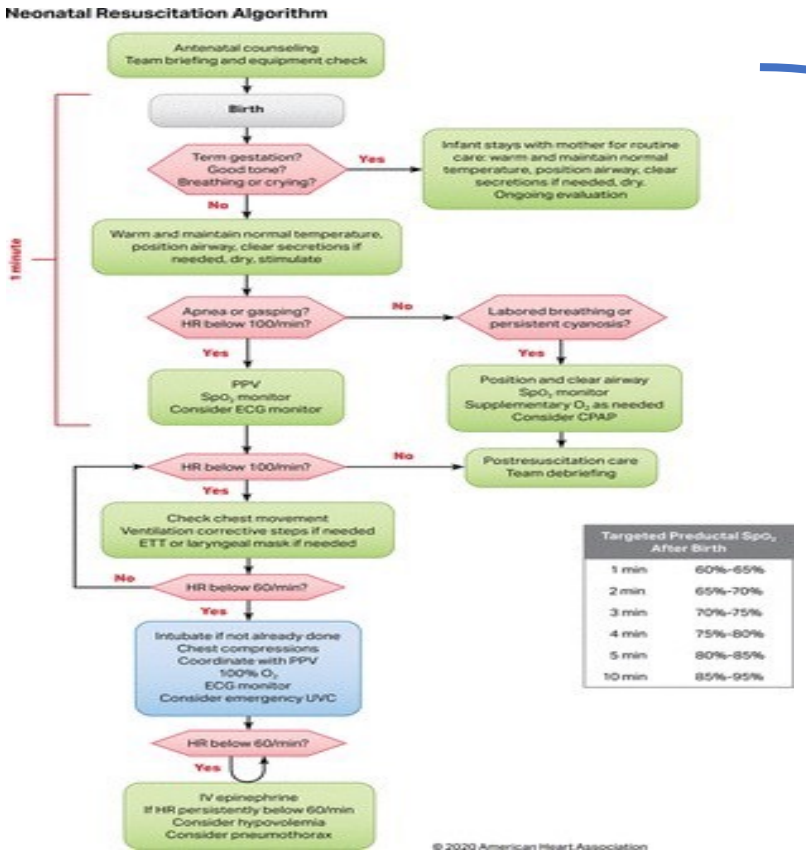
- Immediately dry the infant under a radiant warmer
- Skin to skin contact with the mother.
- Keep neonates head covered.
- Rooming in (The baby should not be separated from the mother)

•Temperature Management

WARMTH Warmth is provided by keeping the baby dry & wrapping the baby with adequate clothing in two layers, ensuring the head & extremities are well covered.

Table 1. The Apgar Score

The Apgar Score	0	1	2
Heart rate	Absent	<100 beats per min	>100 beats per min
Respiratory effort	Absent	Weak cry; hypoventilation	Good cry
Muscle tone	Flaccid	Some flexion	Active motion/Well flexed
Reflex irritability	No response	Grimace	Cry/Cough/Sneeze
Color	Blue/Pale	Acrocyanotic	Completely pink



Neonatal resucitation steps 2020

- A 5-minute Apgar score of 7 to 10 is considered normal.
- Apgar scores can be helpful **in assessing an infant's transition** from intrauterine to extrauterine life
- It may reflect neonatal resuscitation efforts
- It t **should not guide** these **resu**scitation efforts.
- Apgar scores should **not be used to predict** neurologic outcomes or development of infants

Apgar Score

At 1. @ 5 minutes of age

PARAMETER	0	1	2
Heart Rate	Absent	<100	>100
Respiratory Effort	Absent	Irregular, slow	Good, strong cry
Muscle Tone	Limp	Some flexion of extremities	Well flexed
Reflex Irritability	No response	Grimace	Cry, Sneezes
Color	Blue, Pale	Body pink, extremities blue	Completely pink.

Delivery room management of well term newborn

First do **skin-to-skin** contact to maintain his or her temperature (30-60min)

Breast feeding initiation

- The infant should be encouraged **to breastfeed** as soon **as possible and within the first hour of birth**

Q2. What information's you need to give the Parents to convince them that Vitamin K injection is needed to be given in the first hour after Birth?

Vitamin K

- Vitamin K is an important clotting factor synthesized by intestinal bacteria.
- All neonates are born with low levels of vitamin K because of:
  - ►the absence of gut flora
  - ►low levels of transplacental passage
  - ►inability of the fetal liver to store vitamin K.
  - ►Human breast milk is a poor source of vitamin K
- **Vitamin K–deficient bleeding** (formerly known as hemorrhagic disease of the newborn) can occur:
  - directly after birth
  - or many weeks later (2-12 weeks)
- PRESENT AS.
  - (Vitamin K–deficient bleeding)
    - presenting as skin bruising, mucosal bleeding, bleeding at the umbilicus and circumcision site, or even fatal intracranial hemorrhage. Large hematomas at injection sites or on the head after delivery also may be presenting signs.

Vitamin K

- Maternal risk factors for the infant's development of vitamin K–deficient bleeding include:
  - antiepileptic, antituberculin, and other vitamin K antagonist medications.
    - Infants born to mothers taking anticonvulsant (eg, phenytoin, barbiturates, carbamazepine) or antituberculosis medication (eg, rifampin, isoniazid)

- Vitamin K given to all babies after delivery in an intramuscular injection has been shown to prevent both early and late forms of bleeding.

Newborn Identification:

Newborn Identification Before a baby leaves the delivery area, identification bracelets with identical numbers are placed on the baby and mother. Babies often have two, on the wrist and ankle.

Initial newborn assessment

The parents are concerned about their baby

when you can reassure them about their baby condition after birth ? .

Q3- When is the initial newborn assessment is done?

The initial newborn assessment

- WHAT IS INITIAL ASSESMENT
  - It Include a **thorough examination** of the infant after birth for :
  - Asses if
    - Resuscitation is needed
    - Gestation Age and birth weight
    - Apgar Score
    - any anomalies and i**dentification** of infant
    - maternal **risk factors** necessitating further evaluation

- When. IMMEDIATELY AFTER DELIVERY

- Who -Typically is performed by a labor and delivery nurse or the birth attendant for **low-risk deliveries**.

  - For **higher-risk deliveries**, a specialized neonatal resuscitation team may be present at the delivery and perform this assessment.

After normal delivery of her healthy male baby. Mom was in good condition.

She did skin to skin contact to with her baby immediately after birth, and started to breast fed her baby in the first hour of his life.

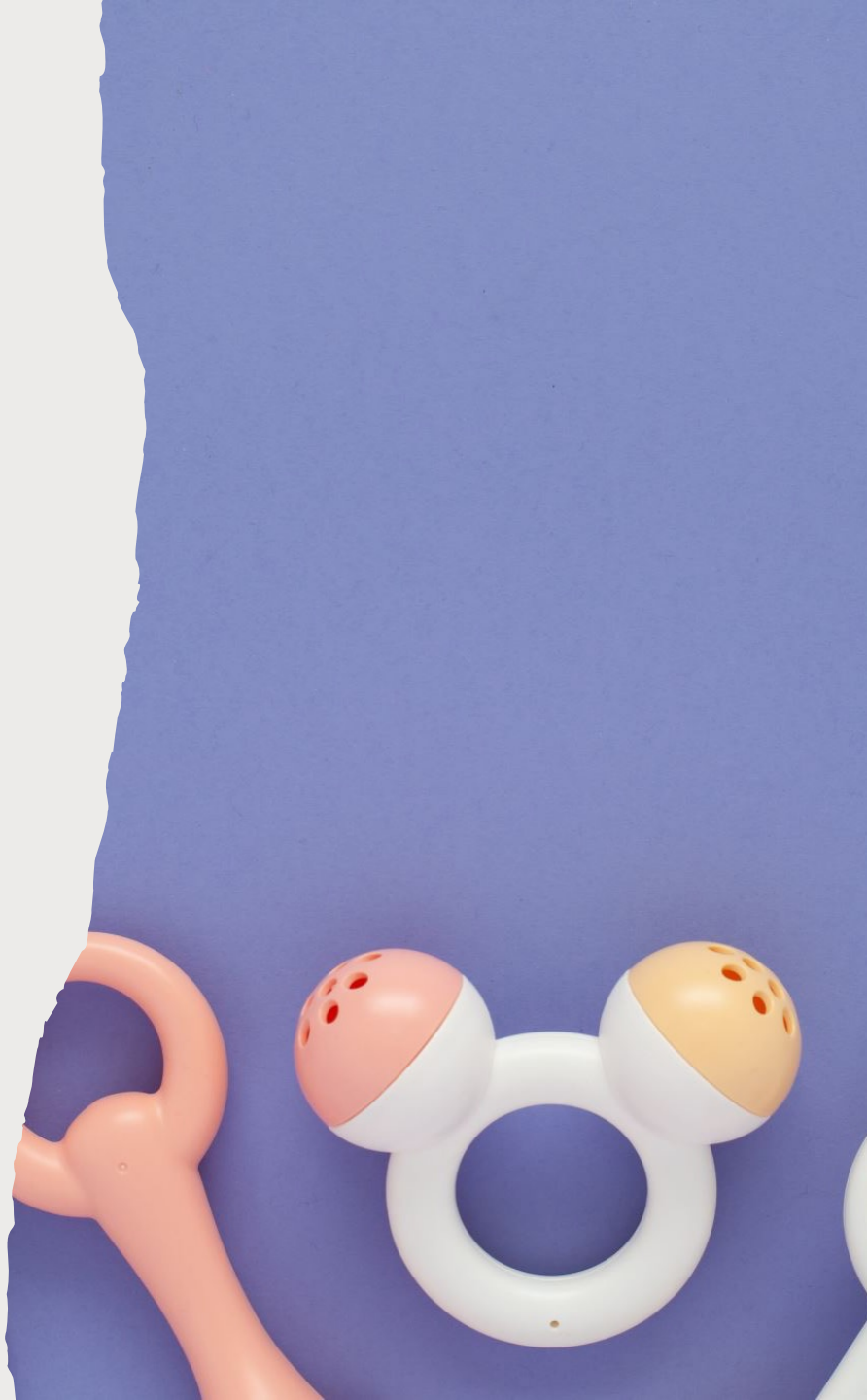
She asked you if her baby can stay with her at her own room in obstetric floor.

You were also excited since the hospital is baby friendly

Q4-How you support breast feeding during her stay?

DAILY ROUTINE CARE OF NEONATES

- The majority of complications of the normal newborn may occur during the first 24 -48 hours
- Then within the first 7 days. So close observation & daily essential routine care is important for health & survival of the newborn baby.



Support Breast feeding during Stay

- Answer: Do Room In policy (Baby stay with his mother)
- Breastfeeding Information should be given to the family
  - GIVE parents **postnatally** clear and unbiased information
    - Regarding **the benefi**ts of breastfeeding for both mother and infant
    - Dextrose water and sterile water are to be **avoided**
    - Individuals education in:
      - **breastfeeding skill**
      - as well as the **assessment** and **management** of breastfeeding **problems**
      - This should be readily available **during** hospitalization and after discharge (Post discharge feeding counseling).
- Mothers who are **unable to breastfeed** their infants
  - should have access to high-quality breast pumps and providers skilled in lactation.

Q 5. When the pediatric clinician's examination is completed

- The pediatric clinician's examination is completed in the first 24 -48 hours after birth.

What to do at time of exam

1 Look at Nurse Assesment (it is complemaentary)

- Nurses often have assessed the infant fully before this examination, and their evaluations should be viewed as complementary.

- Do The initial examination serves the purpose of:
  - Identify Further risk factors through history and physical exam
  - Identifying anomalies
  - Reassuring parents about the health of their new infant.
  - Education, sometimes termed "**discharge teaching**,"
  - Identifies and discusses common findings.
    - as safe sleep positioning, skin and cord care, jaundice,
    - As voiding patterns common to the newborn.

Newborn exam

- LINK. 15 minutes each

https://www.youtube.com/watch?v=cracmPo3iYo

https://www.youtube.com/watch?v=rW3ABQ4S6pQ

The TEN STEPS to Successful Breastfeeding

World Health Organization

unicef

Before discharge

- Q 5.1 When the pediatric clinician's examination is completed before discharge
- Q5.2 What is required prior to discharge?

▶ Take history

You Asked about the main Pointes needed to be in the History that include

- Prenatal and Antenatal History that Include :
  - Maternal Age, method of pregnancy,
  - Maternal disease Diseases before and during pregnancy (UTI, PET , DM etc....)
  - Mother blood group and Hepatitis B Status
  - Maternal screen (first and second. And third)
  - Fetal condition during Obstetric follow up
  - Maternal Medications before and during Pregnancy and during labor
  - Maternal family and Social history
  - Previous pregnancies history and Birth outcome
- social history (level of education, living, smoking ,working status etc...)
- Delivery History including:
  - method of delivery and gestation age Birth weight
  - Maternal medication during labor
  - resuscitation history for the baby and any problem -during deliver
- What happened to mother or the baby. (Abgar score

Do the second exam at 24 -48 hours of age

Now, you are planning to meet this Mom and Dad who have just had their first male baby. They are a friendly young couple who are very excited about their new son

As ideal, you completed in the first 24-48 hours after birth a **second exam (preferable with parents' attendance**

(first was initial Assessment was immediately after birth)

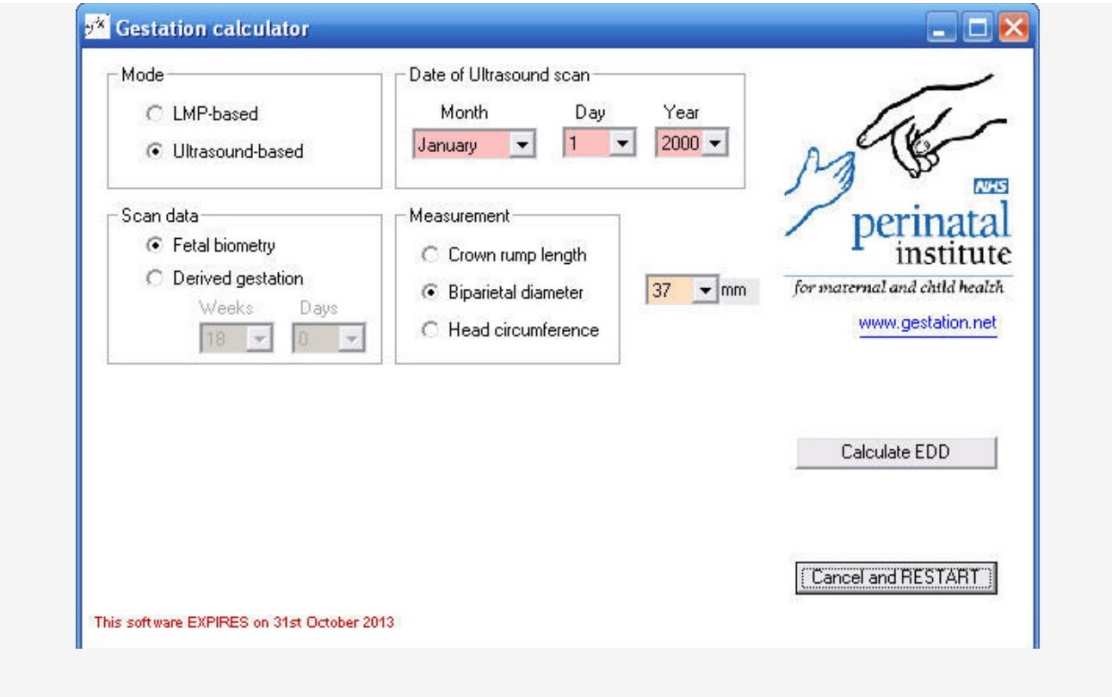
Q7: How you address these parental concerns regarding Growth and gestation Age assessment

Q 7.1 How you Gestational Age

Q 7.2 How you Assess Growth

Q 7.1 How you Gestational Age Gestation Age Assessment

- Last menstrual period (**LMP)**
- first trimester **US**
- When the gestational age or due dates are uncertain, a gestational age assessment is completed using the **Dubowitz/Ballard** examination



Q 7.2 How you Assess Growth

Growth assesment

- Do Growth Measurement : Measure
  - weight
  - length
  - Head circumference
- Plot them on CDC, WHO , fenton and intergrowth charts.

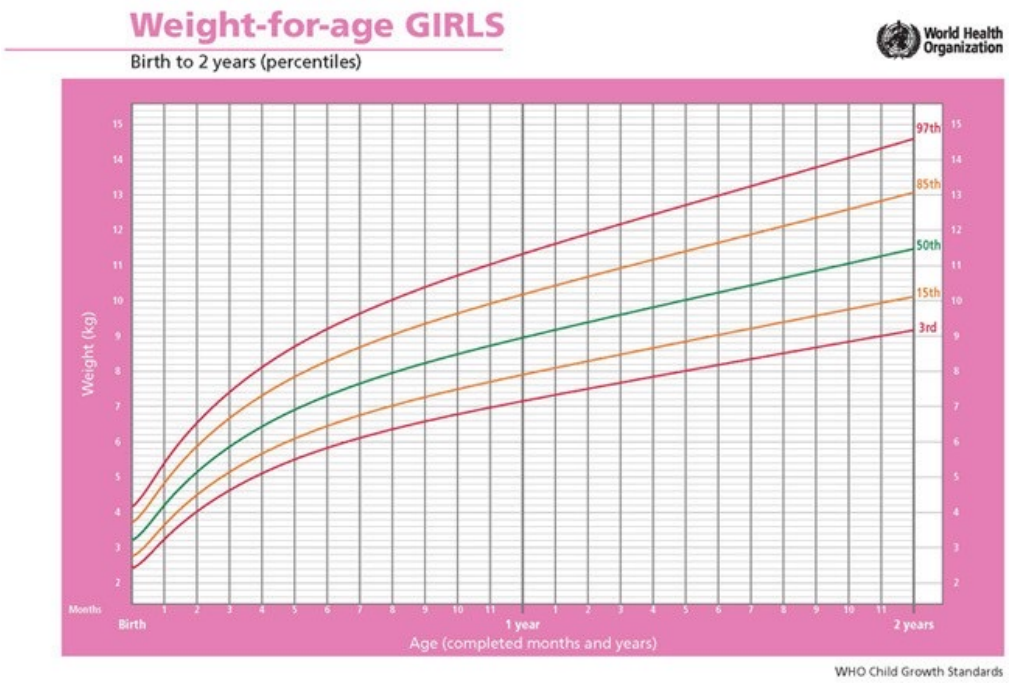
- Know if (for AGA, SGA and LGA)

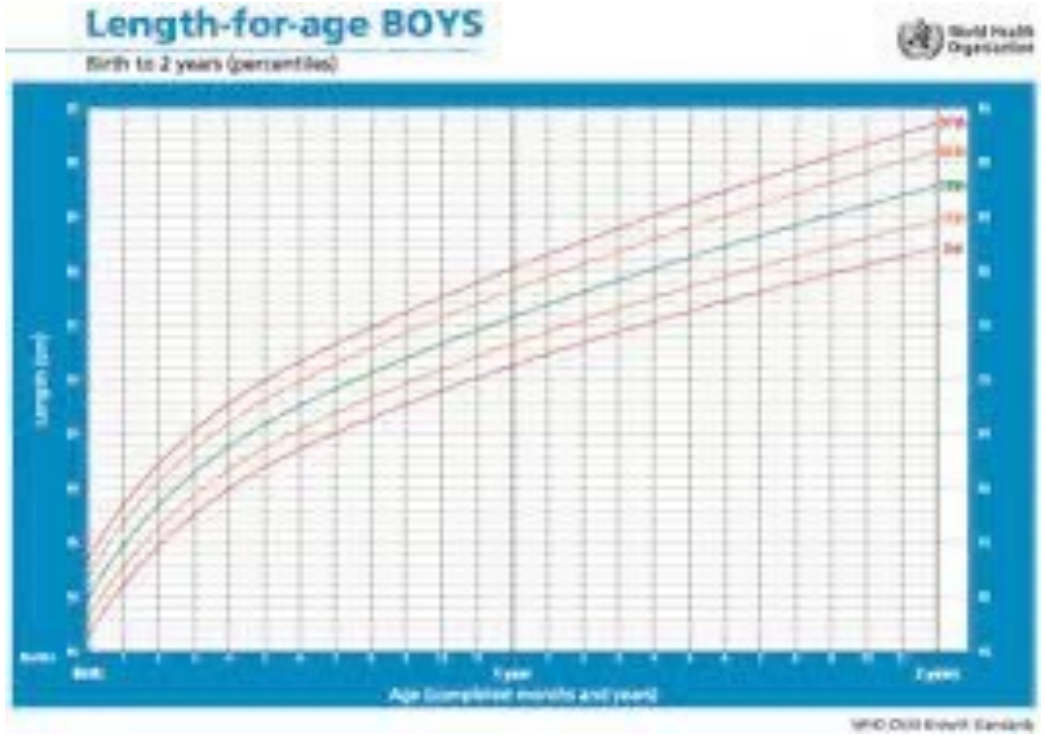
- WEIGHT:
  - The baby will be regaining their birthweight. Most babies are at, or above, their birth weight by 2 weeks.
  - The average daily wt gain for healthy term babies is about 30gm/day in the first month of life
- **LENGTH:**
  - (from the top of head to the heel with the leg fully extended)
  - Average range: (46-56 cm)

Head circumference:

- Head circumference (repeat after molding and caput succedaneum is resolved).
- Average range: 33 to 35 cm (13-14 inches)
- Place tape measure above eyebrows and stretch around fullest part occipital at posterior fontanel.

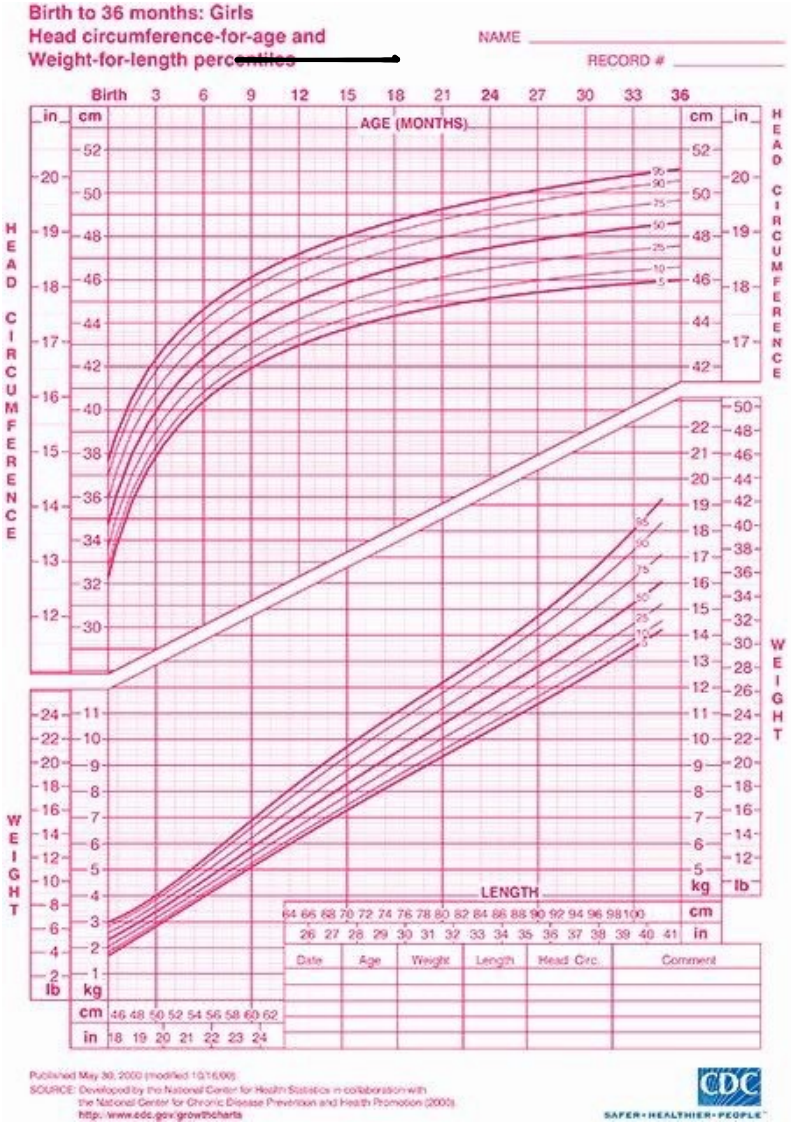
Types of Growth Charts
1-WHO Growth chart for Breastfed infants

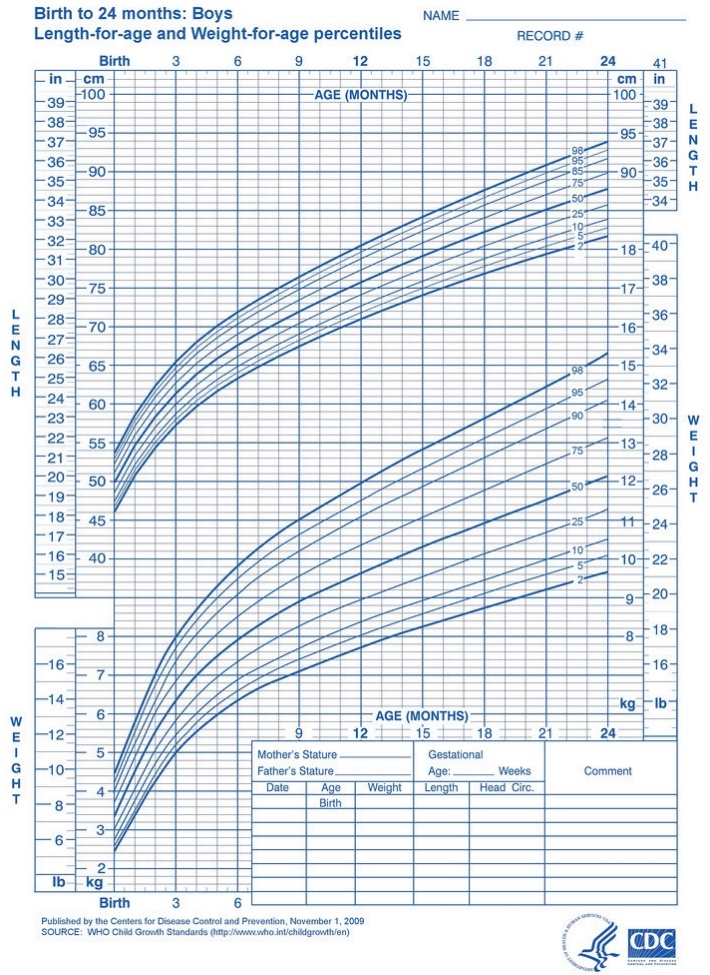




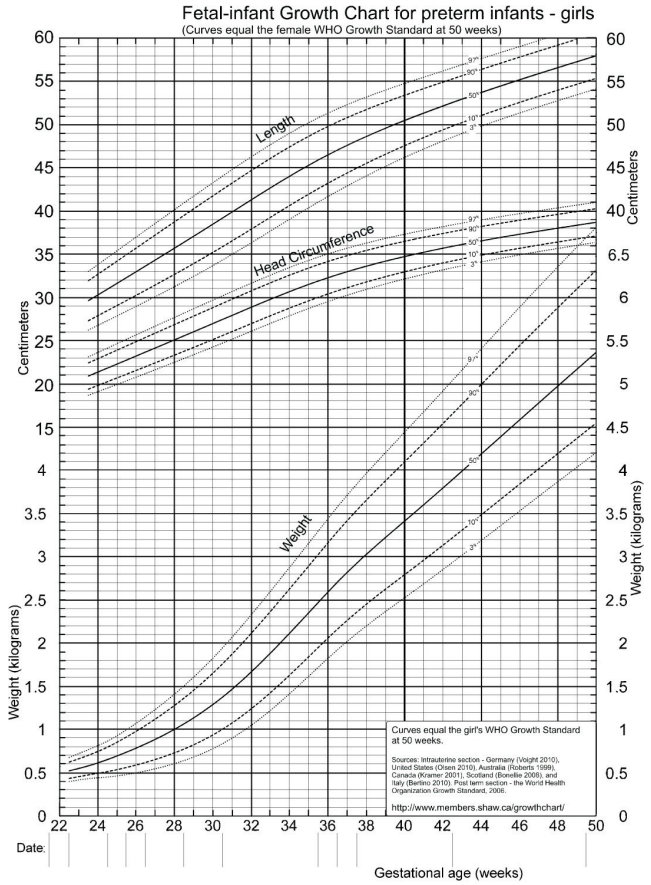
https://www.cdc.gov/growthcharts/cdc_charts.htm

2-CDC growth Charts for US Children





Fenton charts for preterm infants. (Girls and Boys)

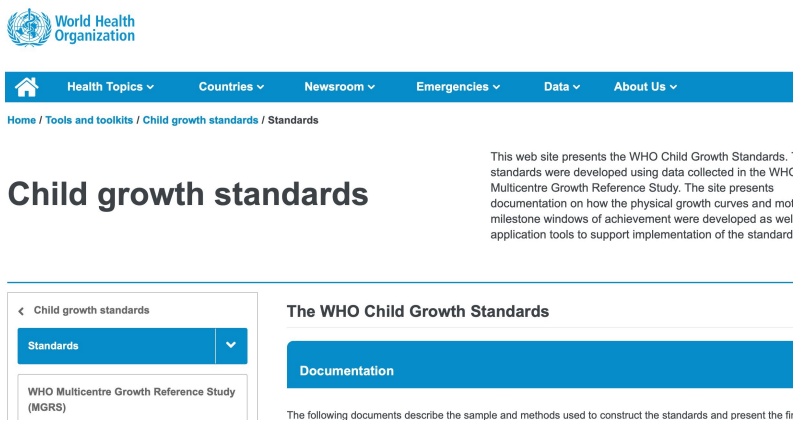


- https://www.pdffiller.com/jsfiller-desk10/?projectId=6158b1b361eaf62627634145&lp=true#ac4cfc9622534c769873b5b26163e308

How you Assess Growth
Growth assesment foor preterrm

- Intergrowth charts.
  - Intergrowth charts <36 weeks. And international
  - (https://intergrowth21.tghn.org/standards-tools/)
  - Hc, Weiigtt and length

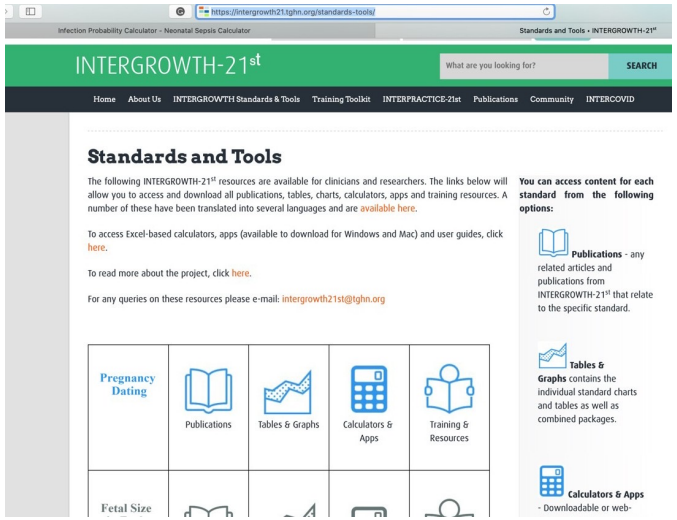
CDC

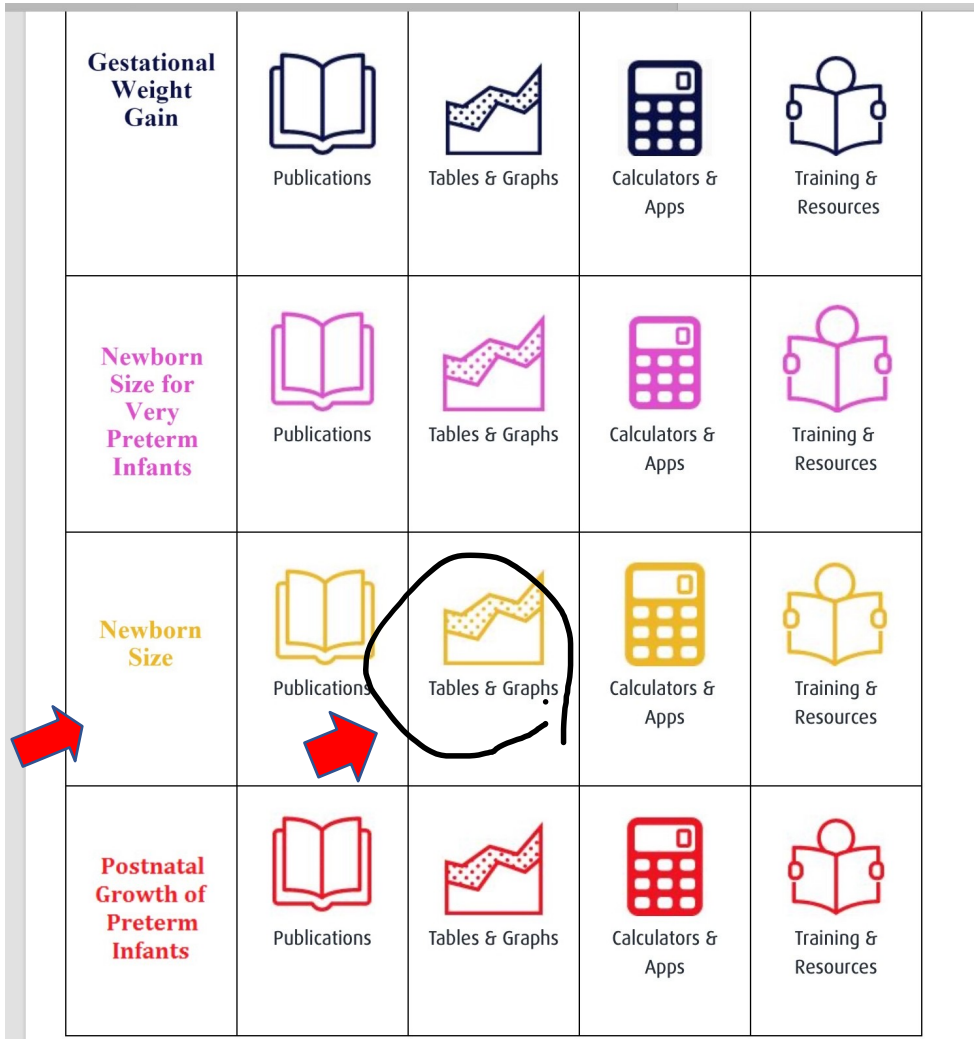


https://www.cdc.gov/growthcharts/cdc_charts.htm

Growth charts for preterm

Example : Intergrowth charts.





https://intergrowth21.tghn.org/standards-tools/

Mom and Dad have

They have many questions for you. Their Son **is one** day old now, He is **Breast fed every 2-3** Hours . You found that

- He passed urine 4-5 times of "**brick dust**" color .
- He did not gain any weight at 24 hour of age
- He did not pass stool yet at 24 hour of age.

You examined the Baby and found that he has normal physical exam and normal vital signs. Mom asked You Is that normal?

- Q8: Does he need formula since he did not gain weight today?
- Q9: Is he having an Obstruction?”
- Q10: Is the urine color cause of concern?
- Q11: Does he need to test his blood sugar to know if it is low?
- Q12: Can they discharge her baby and observe his stooling pattern at Home ?

How you address these parental concerns (Q8 - Q12)

Q 8 : Does he need formula since he did not gain weight today?

- Weight loss in newborns is observed **frequently**
- In general, **if** weight loss of >10% to 12% in the first postnatal week is a cause for concern (necessitates a thorough **evalua**tion).
- Families should be reassured about this progression and can become preoccupied with a normal process because this is a value commonly measured, reported, and compared in the course of routine newborn care.
- **Numerical weight loss** of concern in the presence of a progressively improving feeding relationship **should not drive supplementation**.
- It is typically taught that newborns should **regain their birth weight by 2 weeks** after the birth, although many newborns reach this value much sooner if feeding is well established.
- E**mphasis** should return to the feeding relationship between mother and infant and **the promotion of breastfeeding.**

Q 8.1 : : When the newborns should regain this birth weight?

- It is typically taught that newborns should **regain their birth weight by 2 weeks** after the birth, although many newborns reach this value much sooner if feeding is well established.

- E**mphasis** should return to:
  - the feeding relationship between mother and infant (demand feeding)
  - and **the promotion of breastfeeding.**
- **How do I know if my newborn is breast milk is enough?**
  - **Baby is swallowing during feeding**
  - **Breast feel empty or softer**
  - **Passing urine (**4-6 times /day) **@ stool**
  - **Sleep after feed or feel satisfied**
  - **Start to gain weight**

You examined the Baby and found that he has normal physical exam and normal vital signs. Mom asked You Is that normal?

- Q8: Does he need formula since he did not gain weight today?
- **Q9: Is he having an Obstruction?”**
- Q10: Is the urine color cause of concern?
- Q11: Does he need to test his blood sugar to know if it is low?
- Q12: Can she discharge her baby and observe his stooling pattern at Home ?

Normal Stooling Patterns

Meconium

- The infant typically passes a **first meconium** stool shortly after birth, often within the first hours and typically before 48 hours
- These black, tarry, and sticky stools

Transition Stool

- Occur as the mother's human milk production increases.
- Typically occurs in a pattern, often from green/brown to a seedy, loose, mustard yellow appearance.

It is not rare for an **infant to pass stool** with nearly **every breastfeeding** when the mother's milk is in because of the **gastrocolic reflex** signaling the colon to empty

Stool in infants

Delayed passage of stool

- When the passage of meconium stool is delayed,
  - carefully **recheck the infant's anus** for the normal characteristic.
  - continue to observe **if** the infant is feeding well without abdominal concerns (distension or vomiting).

- Delayed passage of stool beyond 48 hours can indicate serious problems,
  - Such as colonic obstruction from **imperforate anus** with or without fistula, **meconium plug syndrome**, or **Hirschsprung disease**.
  - **Need Imaging**, including barium enema, and **rectal suction biopsy** as the diagnostic gold standard for Hirschsprung should be considered.

Q9: Is he having an Obstruction?”

- Answer:
- May be

You examined the Baby and found that he has normal physical exam and normal vital signs. Mom asked You Is that normal?

- Q8: Does he need formula since he did not gain weight today?
- Q9: Is he having an Obstruction?”
- **Q10: Is the urine color cause of concern?/**
- Q11: Does he need to test his blood sugar to know if it is low?
- Q12: Can she discharge her baby and observe his stooling pattern at Home ?

Normal voiding

- When urine should pass
  - The infant's first urination nearly **always occurs in the first 24 hours**.
  - Should passed urine 4-6 times /day

- Why there is Difficulty in urine detection
  - Urine can be difficult to detect in the presence of frequent meconium stool
  - Urine could not be seen

How you address these parental concerns (Q1 10)

He passed urine 4-5 times of "**brick dust**" color

What is the normal stooling and urine pattern in their newborn baby after birth?

How to detect Urine

- ***Review notes***
  - Clinical motes should reviewed to determine if the infant **voided at delivery** or elsewhere and the **voiding was not recorded**.
- ***Look at Diaper with strips***
  - Commercially available diapers now commonly have a strips that changes color in the presence of urine, which helps identify small amounts of urine

- Use A cotton ball
  - A cotton ball is placed between the labia or a bag may be applied to collect urine if there is concern that the urine was simply not observed.
- Use Invasive
  - If there are continued concerns for anuria, c**atheterization**, bladder and **renal ultrasound with urologic consultation**, and evaluation of **renal function** can be considered.

How you address these parental concerns (Q1: 10)

He passed urine 4-5 times of "**brick dust**" color

What is the normal stooling and urine pattern in their newborn baby after birth?

Appearance of newborn urine

- can initially be scant and darkly colored.

- Can be (“**brick dust”)**
  - this is ***urate crystals*** (often termed “brick dust”) can be confused with blood in diapers
  - **urate crystals** tend to sit on the surface of the diaper and are iridescent and completely benign.
- DDX
  - Vaginal discharge can be clear, yellow, or white, and even blood-tinged as the female *infant“ withdraws bleed ”* from maternal hormones.

A newborn should not be discharged until the passage of stool and urine can be documented

You examined the Baby and found that he has normal physical exam and normal vital signs. Mom asked You Is that normal?

- Q8: Does he need formula since he did not gain weight today?
- Q9: Is he having an Obstruction?”
- Q10: Is the urine color cause of concern?
- **Q11: Does he need to test his blood sugar to know if it is low?**
- Q12: Can she discharge her baby and observe his stooling pattern at Home ?

Q 11. Is her baby at risk of Hypoglycemia?

Who at Risk for Hypoglycemia

1. Infants born to mothers with diabetes mellitus (IDM)
2. those who are SGA, or LGA
3. Preterm and late preterm
4. as well as **sick inf**ants :
   - as those with birth asphyxia, are at risk for hypoglycemia.

You examined the Baby and found that he has normal physical exam and normal vital signs. Mom asked You Is that normal?

- Q: Does he need formula since he did not gain weight today?
- Q: Is he having an Obstruction?”
- Q: Is the urine color cause of concern?
- Q: Does he need to test his blood sugar to know if it is low?
- Q: **Can she discharge her baby and observe his stooling pattern at Home ?**

Q12. What should you tell parents about bathing their infant , cleaning the genitalia and cord care

Skin care & baby bath

First Bath:

- Once a baby's temperature has stabilized, the First bath can be given.
- No need for immediate bathing
- Baby baths can be given at the hospital or at home by using warm water in a warm room gently & quickly.

- Who should be bathed immediately:
- hepatitis B–positive mothers or HIV Mothers should be bathed at birth

SKIN and Umbilical cord care

- The skin is cleaned of blood, mucus & meconium by gentle wiping before he/she is presented to the mother.
- Initially. should have **sponge baths** until the umbilical cord detaches.
  - In the past, antibiotic ointments, dyes, and alcohol have all been applied to the umbilical cord, but this practice is unnecessary. (AAP recommendation)
- The newborn infant does not require frequent bathing. (2-3 times/week)
- Cleansers should be mild (Non irritant)

Skin and Umbilical cord care.

- **Parents should keep the umbilical stump clean dry and allow it to fall off naturally, generally in 10 to 14 days.**
- **Topical application of antiseptics are not necessary unless the baby is living in a highly contaminated area.**

- Long, flexible but sharp fingernails.
  - Often are a source of concern for the new family.
  - With good lighting and when the child is quiet, the nails can be clipped, cut, filed, or torn.

Care of Genetalia

- Care of the uncircumcised penis requires little effort.
  - It can be cleansed externally when regular bathing is established.
  - **Retracting** the foreskin of an infant **is discouraged** because it will likely cause pain, bleeding, and even adhesions.

- If circumcised the penis should **be kept clean and simple petroleum ointmen**t. applied to keep the newly exposed glans from adhering to adjacent skin or diaper.

Q13. What sort of anticipatory guidance can you give these new parents regarding avoidance of Sudden infant death

Safe sleep

free of

1) quilts, 2)sleep positioners,

3) other soft objects, such as stuffed animals

Safe sleep

Infant Safe Sleep

1. Baby sleeps in crib.
2. Baby sleeps on back.
3. Nothing in sleep area.
4. Baby's face uncovered.
5. No smoking around baby.
6. Do not overheat or overdress.
7. Firm mattress, tight-fitting sheet.

Anticipatory guidance for safe sleep positioning

To reduce the risk of sudden infant death syndrome

► **Breastfeeding**

► a **pacifier** can be offered **once breastfeeding is established**.

- Immunization
  - HBV vaccine at birth (self study)
  - Congenital hear screen
  - Hearing Screen
  - Metabolic screen

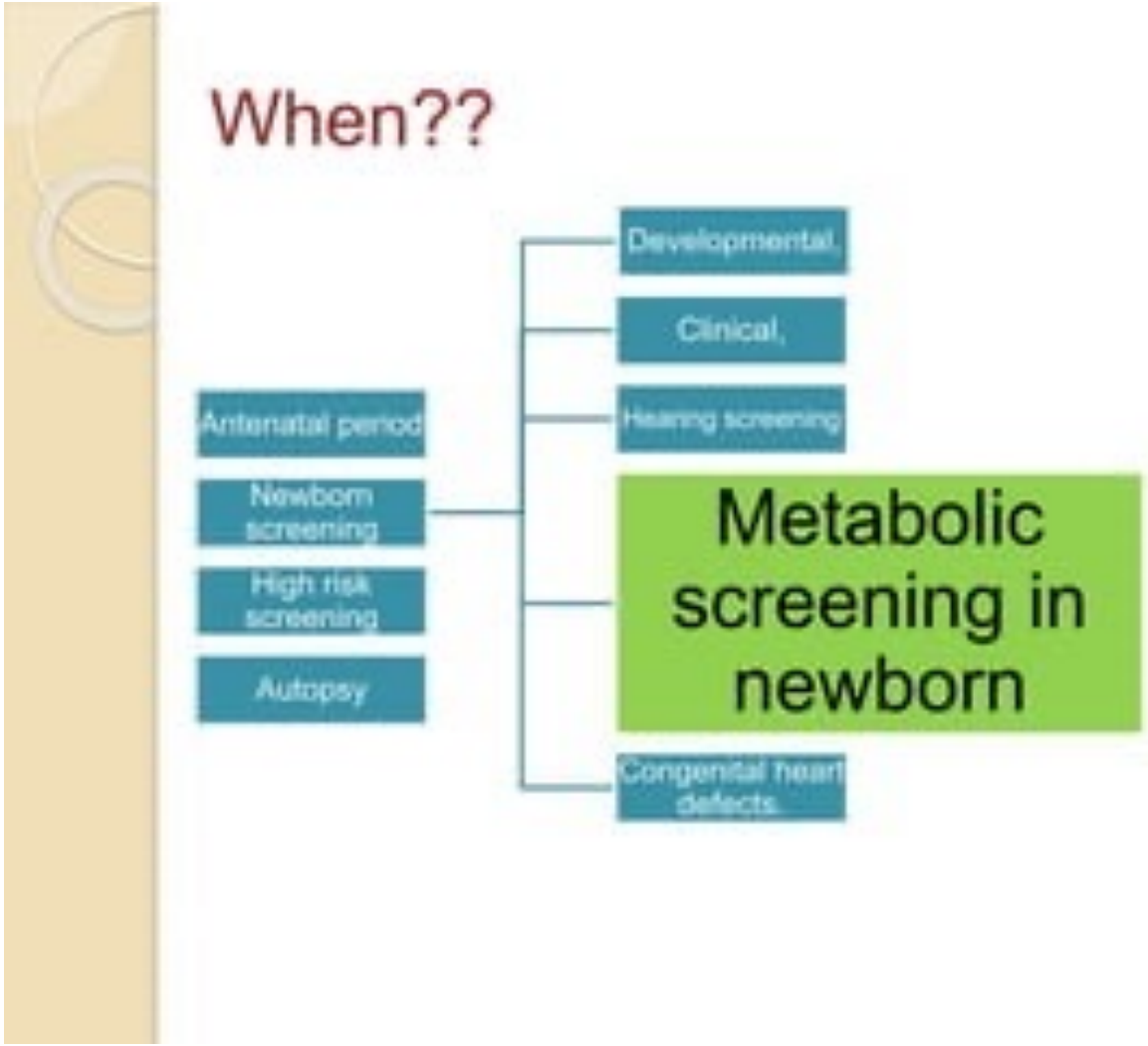
1-3-6 Principle

Goals of Hearing screen

(Early Hearing Detection and Intervention) endorsed by the JCIH, AAA, ASHA and the AAP

- Hearing Screening by 1 month of age
- Hearing identification by 3 months of age
- Intervention by 6 months of age

Children with hearing loss who do not receive intervention services by 6 months of age are at greater risk for delays in speech and language development.



• overall incidence of metabolic disorder around the world is 1:1350.

• · About 5 to 15 % of all sick neonates in NICU are expected to have some Inborn Error of Metabolism

•In Jordan : TSH, G6PD, PKU

•At 2 weeks of age

Congenital Heart disease screen
Why does this matter?

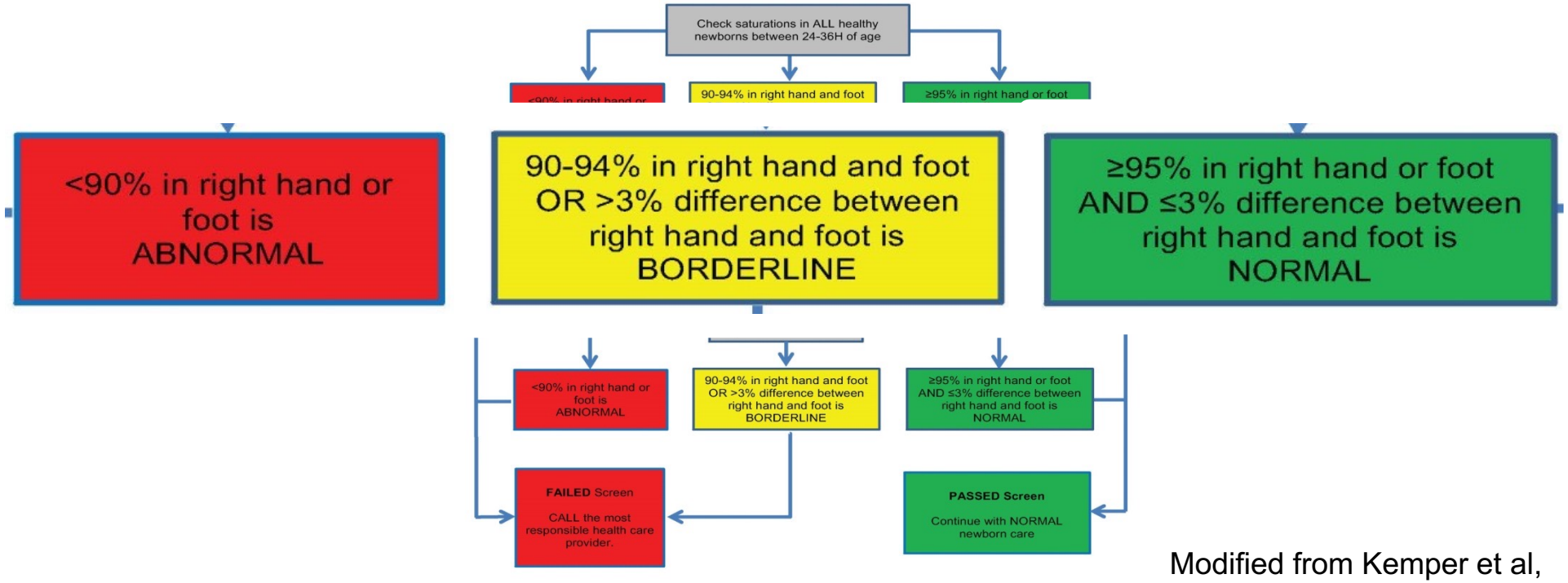
- Congenital heart disease is common
- Critical congenital heart disease is life-threatening

Critical Congenital Heart Disease Lesions	
Most consistently cyanotic	**May be cyanotic**
Hypoplastic left heart syndrome	Coarctation of the aorta
Pulmonary atresia with intact septum	Interrupted aortic arch
Total anomalous pulmonary veins septum	Double outlet right ventricle
Tetralogy of Fallot	Ebstein anomaly
Transposition of the great arteries	Other single ventricles
Tricuspid atresia	
Truncus arteriosus	

Recommendation #4

Pulse oximetry should be performed using the right hand and either foot.

(Strong Recommendation, Moderate Quality of Evidence)



Modified from Kemper et al, Pediatrics 2011; 2011

Summary of Recommendations

1. We recommend that pulse oximetry screening should be routinely performed in all healthy newborns to enhance the detection of critical congenital heart disease in Canada.
2. We recommend that the optimal screening for critical congenital heart disease should include prenatal ultrasound, physical examination and pulse oximetry screening.
3. We recommend that pulse oximetry screening should be performed between 24-36 hours of age.
4. We recommend that pulse oximetry screening should be performed in the right hand and either foot.
5. We recommend that newborns with an abnormal screening result should undergo a comprehensive evaluation by the most responsible health care provider. If a cardiac diagnosis cannot be confidently excluded, referral to a pediatric cardiologist for consultation and echocardiogram is advised.