Care of the Well Newborn

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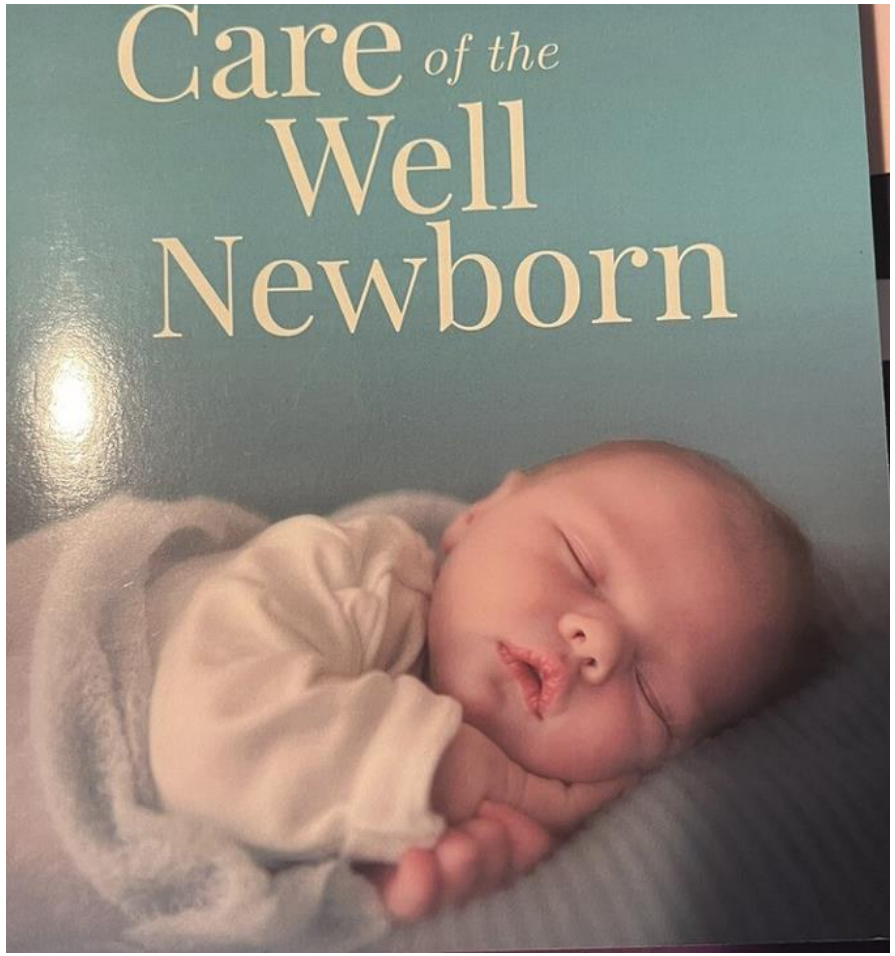


Fifth year2025-2026

Primary Reference:

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. Egge JA, Anderson RH, Schimelpfenig MD. Care of the Well Newborn. Pediatrics in Review. 2022 Dec 1;43(12):676-90.

3 Lancet series on breast feeding
https://www.thelancet.com/series/breastfeeding

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

Objectives

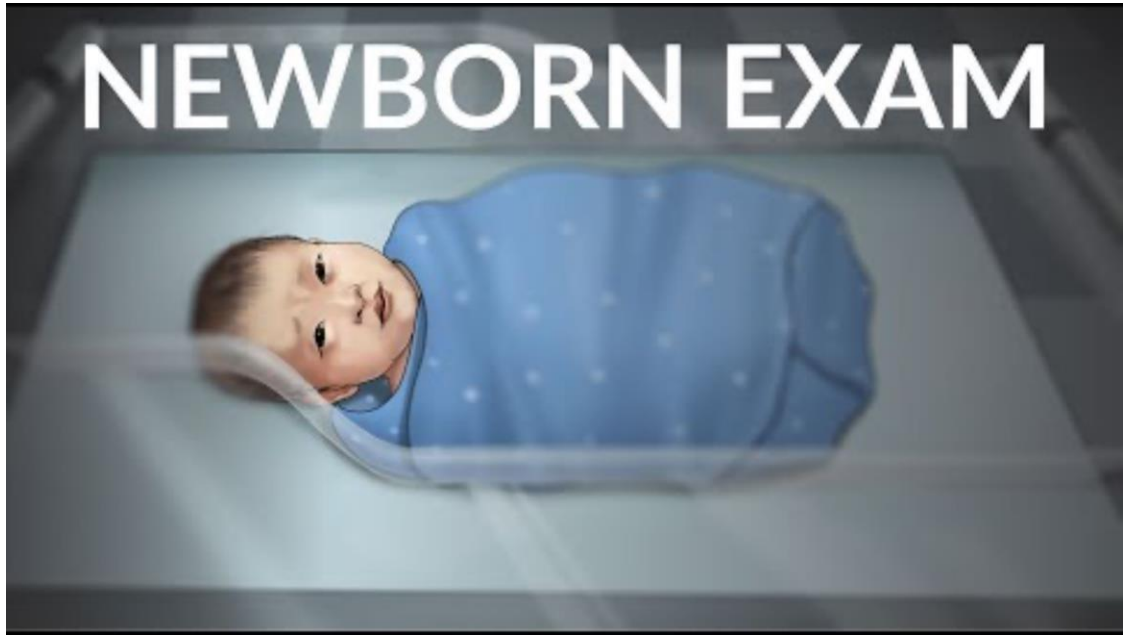
1. Videos for Newborn exam and module (self study)
2. Definition
3. Golden hours
4. Newborn Care in post delivery department
5. Routine care before discharge and parents' educations

Newborn exam

- LINK. 15 minutes each

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

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



References for newborn Exam

Module

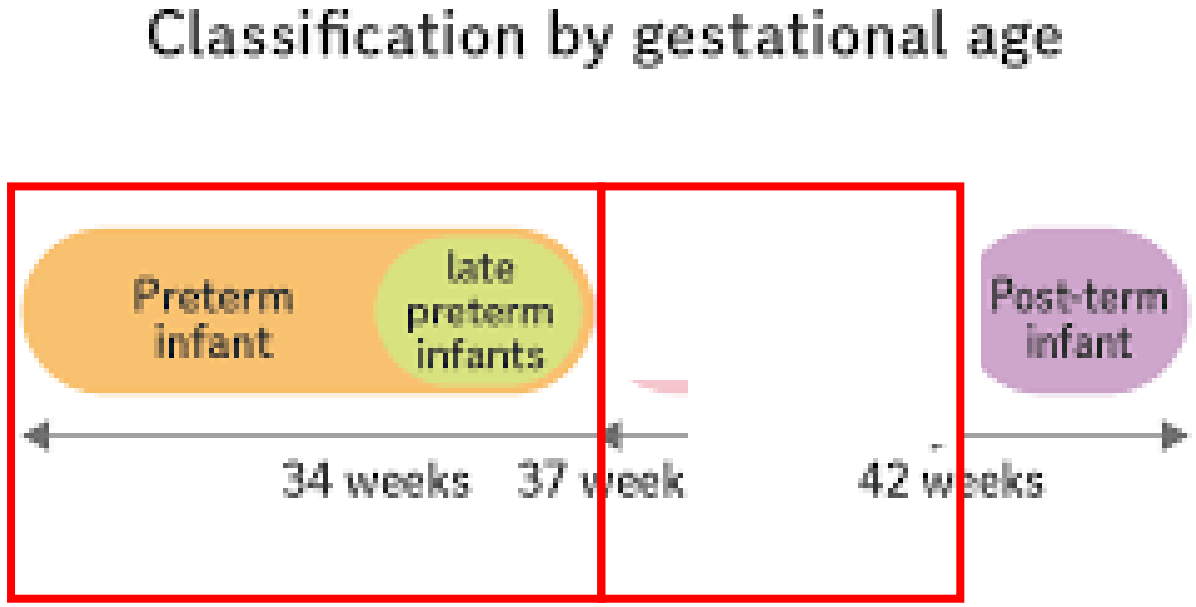
https://www.hse.ie/eng/about/who/healthwellbeing/our-priority-programmes/child-health-and-wellbeing/newborn%20exam.pdf

Term newborn : definition

Category	Gestation (weeks)
1. Extremely preterm	Under 28
2. Very preterm	28 to under 32
3. Moderate preterm	32 to under 37
a) Early moderate preterm	32 to under 34
b) Late moderate preterm	34 to under 37

Table 2: Categories of preterm birth

Figure 2



Plan for the Golden Hour

Antenatal consultation for high-risk pregnancies (before the mother comes in for delivery)

Examples

- Maternal conditions: Von- Willebrand disease, SLE, Cancer
- Fetal conditions: Twin to twin transfusion, Rh hemolytic disease of the newborn, fetal cardiac malformation, congenital diaphragmatic hernia, gastroschisis, open neural tube defects

Consult other specialists ahead of delivery

Plan mode and time of delivery

Plan actions at time of delivery

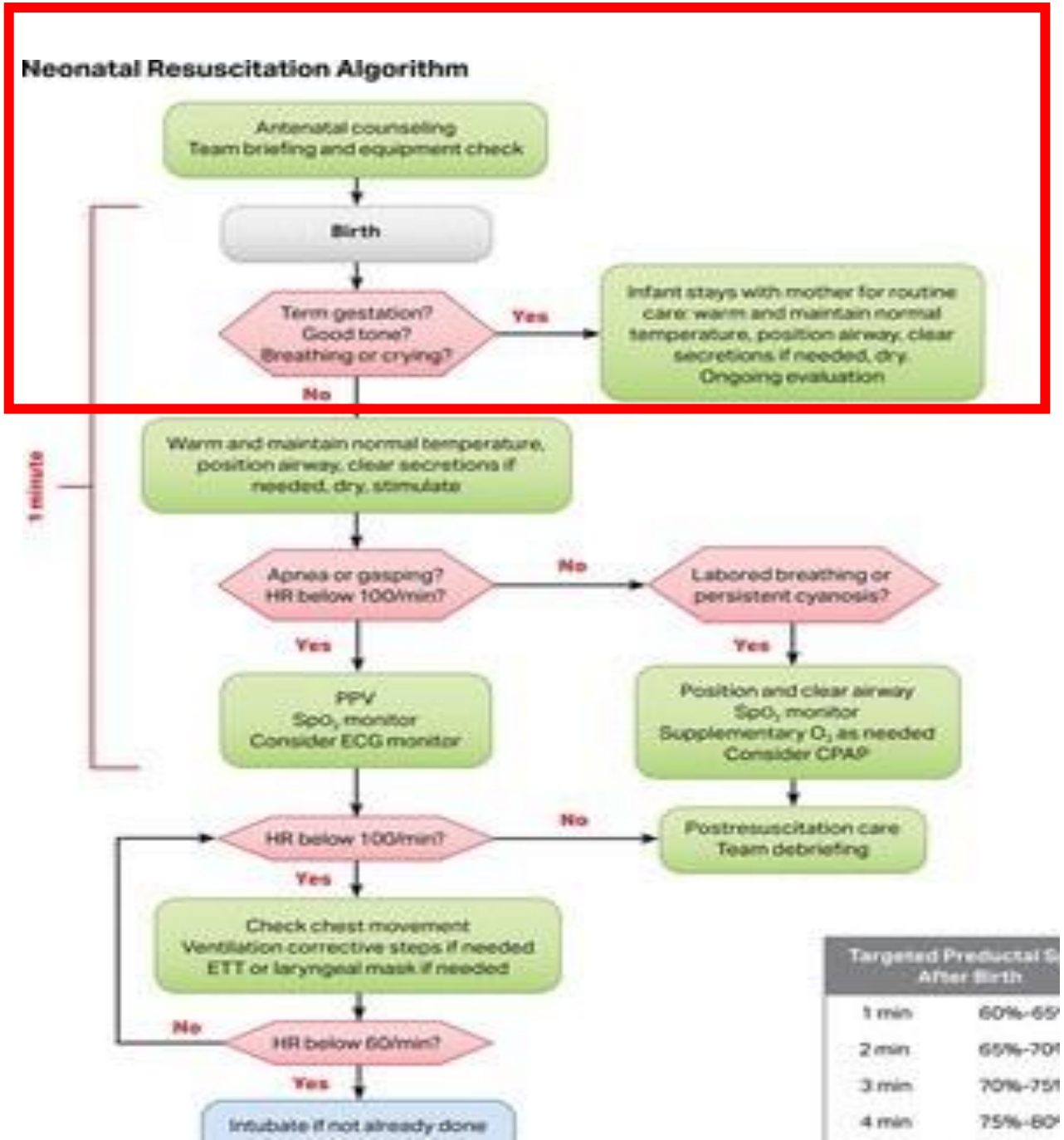
Have written plans available at time of delivery

Communication between OB and NICU

when high risk conditions are noted on admission of patient for delivery or monitoring to Labor Ward

- Preterm labor or premature rupture of membranes
- Multiple gestation
- Known fetal anomaly
- Other complications of pregnancy- preeclampsia, gestational diabetes, intrauterine growth restriction, Rh isoimmunization
- Other medical conditions in mother
- Bleeding- placenta previa or abruption

What is your hospital's plan for this communication?



Early Assessments If Baby **Term**, **Breath**, **good tone**
(Golden hour: Evidence-Based Steps and Benefits)

Critical first 60 minutes after birth

Step 1: Thermal Care
Immediate Drying & Gentle Stimulation

Step 2: Delayed Cord Clamping

Step3: Skin-to-Skin.
possible.)

Step 4: Initial Newborn Assessment on Mother's Abdomen

Step 5: **Breast feeding Initiation**

Step 6: Postponing Non-Urgent Procedures

step 7
Vitamin K

Step 1: Warm

By Immediate Drying &Hat

- VERY Gentle Stimulation

If term, good tone, breathing

Delivery **room temarotene**: 25C^0

Dry baby :
Use **w**arm **p**reheated **ab**sorbable **sheets**

Maintain **baby Normal Temperature**
Between 36.5–37.5°C after birth

Thermal care in Delivery Room

olden Hour :step step

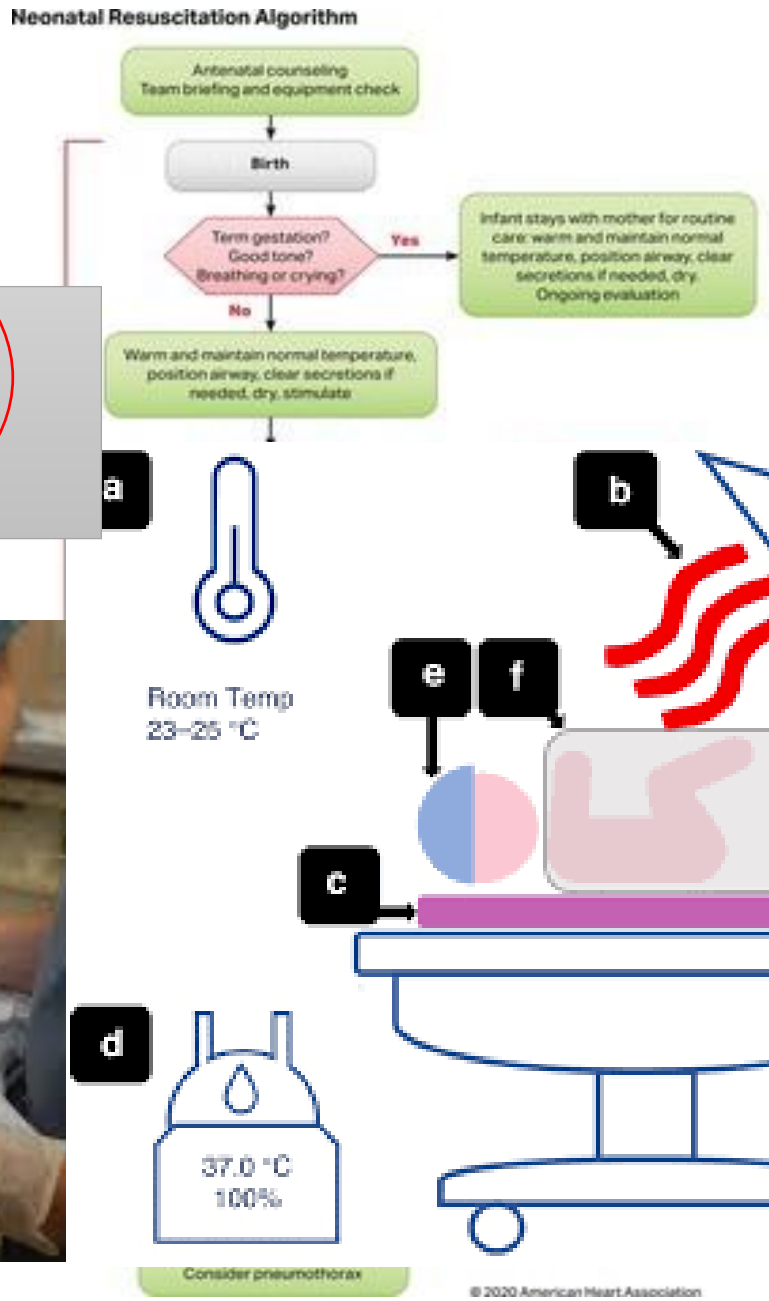
: provide Warm

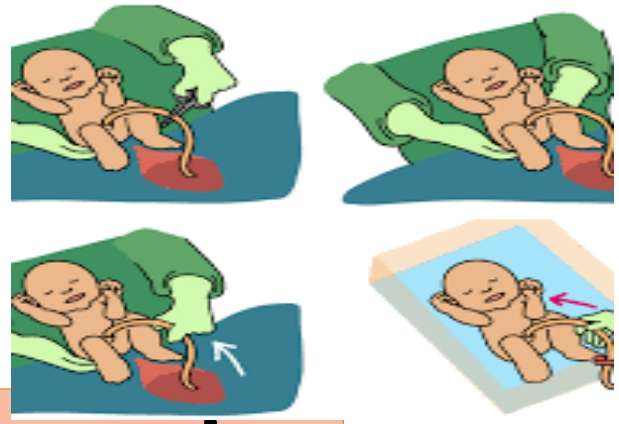
ne Delivery Room / OR

Temperature management:

Dray and warm the baby

(if needed resuscitation)





Step 2:**Delay** Cord **c**lamping (DCC)

Cord blood is the blood that remains in the umbilical cord after birth.

It contains red **blood** cells (RBC, that can carry oxygen, WBC, IMMUNE CELLS nutrients, and stem cells.

Stem cells replenish cells in blood, skin and organs

- If cord clamping occurs 10–15 seconds after birth, 67% of the umbilical cord blood goes to the infant.
- By 1 minute of age, the amount of cord blood in the placenta passed to the infant increases to 80%.(79-80 ml)

What medical societies recommend for Delayed Cord Clamping:

Society	Year Issued	Delay (Mins)
ACNM: American College Nurse Midwives	2014	2 - 5
WHO: World Health Organization	2014	1 - 3
RCOG: Royal College of Obstetricians and Gynaecologists	2015	1
SOGC: Society of Obstetricians and Gynaecologists of Canada	2015	0.5
FOGSI: Federation of Obstetric and Gynaecological Societies of India	2016	Not stated
ACOG: American College of Obstetricians and Gynecologists (Officially endorsed by ACNM)	2020	0.5 - 1
FIGO: Federation International Gynaecology & Obstetrics, working group for pre-term birth < 34 weeks	2021	0.5
ILCOR: International Liaison Committee on Resuscitation, review 42 RCT to form policy for premies < 34 weeks	2021	No proof!

Action:
Wait 1–3 minutes
(or until pulsation stops) before clamping

For term infants: 2–5 min;
For preterm: 30–60 sec

Benefits:
Increased red cell volume and birth weight
Higher iron stores up to 6 months
Lower risk of anemia, NEC, IVH

- Delay cord clamping

Benefit

Delayed Cord Clamping for Preterm Neonates

- Reduction in the number of **transfusions**
- Decreased incidence of intraventricular hemorrhage **(IVH)** of all grades
- Reduced requirement for **inotrope** support
- Improved important neonatal outcomes such as necrotizing enterocolitis **(NEC)** and **late-onset sepsis**
- Better **hemodynamic stability** in the first few days of life
- Less **surfactant**
- Associated with **improved neurodevelopment** outcomes....

The Benefits to the Infant of Delayed Cord Clamping

- **Increased iron stores at birth and less infant anaemia:** Studies show a 61% reduction in the rate of anaemia requiring blood transfusion when delayed cord clamping is practiced.[7]
- **Decreased intraventricular haemorrhage:** Studies show a 59% reduction in the rate of intraventricular haemorrhage in preterm infants when delayed cord clamping is practiced.[7]
- **Less necrotizing enterocolitis:** Studies show a 62% reduction in the rate of necrotizing enterocolitis among preterm babies when delayed cord clamping is practiced.[7]
- **Less infant sepsis:** Studies show a 29% reduction in the rate of neonatal sepsis for preterm infants when delayed cord clamping is practiced.[7]
- **Fewer blood transfusions needed:** Studies show a 52% reduction in the rate of blood transfusions for low blood pressure among preterm babies when delayed cord clamping is practiced.[7]

Step 3:skin-to-skin contact

To maintain his or her temperature (30-60min)

(No interruptions, including exams and measurements, to a minimum to make the skin-to-skin contact continuous)

- **Action:**
- Place unclothed newborn directly on mother's bare chest for ≥60 min
- **Benefits:**

. Decreases hypothermia hypoglycemia

Increases exclusive breastfeeding

Less crying/decreased pain responses
Less maternal stress depression
Reduction in postpartum hemorrhage
Colonization w/ normal skin flora

Step 4: Initial Newborn Assessment on Mother's Abdomen

- **Action:**
- Conduct
  - Apgar, vitals
  - routine exam while baby is skin-to-skin
- **Benefits:**
- Maintains physiologic stability
- Avoids unnecessary separation
- Supports uninterrupted bonding

Step 4: **Initial Newborn Assessment on Mother's Abdomen cont…**

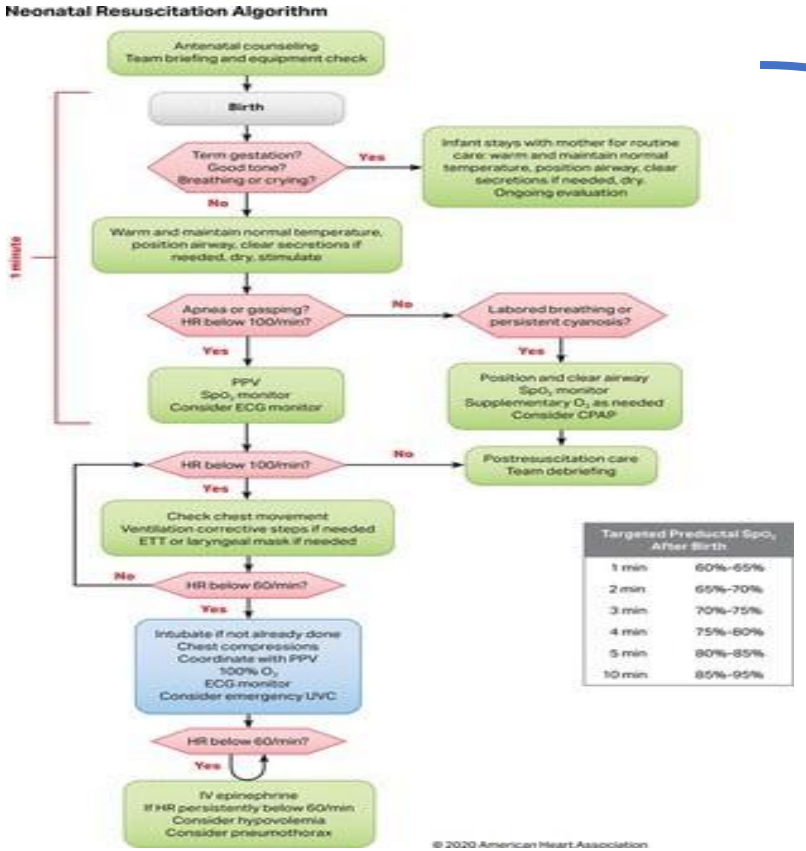
Apgar Score

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.

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

Initial newborn assessment after delivery

routine exam while baby is skin-to-skin (first hour)

The parents are concerned about their baby

when can you 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 (first hours) 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

Step 5: Early Initiation of Breastfeeding

_____

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Step 6: Postponing Non-Urgent Procedures

Action:

- Delay weighing, bathing, injections until after 60 minutes
- **Benefits:**
- Preserves uninterrupted bonding
- Avoids hypothermia
- Reduces newborn stress

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

Step 7 Vitamin K : fat Soluble

1.Vitamin K is an **important clotting** factor for prper coagulation

2. synthesized by intestinal bacteria.

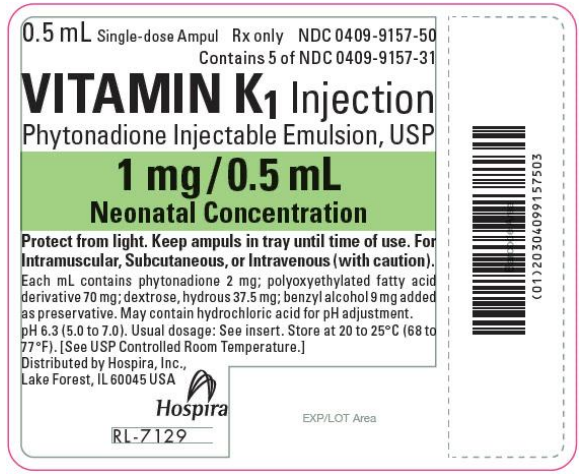
3. S**ince** 1961 (universal prophylactic)

•**All neonates** are born with low levels of vitamin K because of:

- ►4. the immature of gut flora (the amount of vitamin K synthesized from their flora is insufficient. (slow acquisition of vitamin K-producing gut flora)
- ►5. low levels of transplacental transfer
- ►6.inability of the fetal liver to store vitamin K.
- ►7,Human breast milk is a poor source of vitamin K
- ►infant levels 30-60% of adult levels

Step 7 Vitamin K : fat Soluble

leave infant at risk for hemorrhagic complications



1. leave infant at risk for hemorrhagic complications

- **Vitamin K–deficiency bleeding (VKDB)**
- directly after birth first 24 hours, or first week (classic VKDB day1 today 7)
- or many weeks later (1-12 weeks) Late VKDB
- 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)
    - Present first day

- 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.

CASE

Prenatal visit

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

Answer

Skin to skin 30-6- sec

Breast Milk initiation first hour

Early Assessments If Baby **Term**, **Breath**, **good tone**
(Golden hour: Evidence-Based Steps and Benefits)

Critical first 60 minutes after birth

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Step 4: Initial Newborn Assessment on Mother's Abdomen

Step 5: **Breast feeding Initiation**

Step 6: Postponing Non-Urgent Procedures

step 7
Vitamin K

Objective 4

Newborn Care in post delivery department

Sending the baby to post delivery Department

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)

WARMTH

-is provided by keeping the baby **dry**

& wrapping the baby with adequate clothing in two layers, ensuring the head & extremities are well covered.

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?

Support Breast feeding during Stay

(Answer : Baby stay with his mother)

- Rooming in
  - Facilitates bonding/empowers parents
  - Encourages cue-based feeding

Support Temperature Regulation-- Recommendations during Stay

What is the needed ?

- **Answer:**
  Temperature Regulation-- Recommendations
- **why ?**
  Have increased heat loss and less efficient at thermogenesis
- **Impact:**
  An unclothed newborn in a 23°C environment (room temp) is equivalent to an unclothed adult in a 0°C environment
- **What to monitor?**

  Measure temperature at least once daily
  TWICE daily in infants < 37 weeks or < 2500 g
  Allow rooming in/encourage skin-to-skin care
  Have adiustable temperature controls
  Keep dry, clothed, away from drafts
  Hats decrease heat loss by ~ 25%
  Delay bathing for 6 to 24 hours
  Hypothermia can be a sign of illness/infection

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?

When the pediatric clinician’s examination is completed before discharge

- The majority of complications of the normal newborn may occur during the first 24 -48 hours (discharge after 48 hour)
- close observation & daily essential routine care is important for health & survival of the newborn baby.

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 Take History

▶ 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

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 Take History

2 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.

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 Take History

2 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.

3. 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.

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)

Objectives

1. Videos for Newborn exam and module (self study)
2. Definition
3. Golden hours
4. Newborn Care in post delivery department
5. Routine care before discharge and parents' educations

Objective 5

Routine care before discharge and parents' education

- 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

Objective 5

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

Objective 5

Q 7.1 How you Assess Gestational Age

Q 7.2 How you Assess Growth

Objective 5

How you Assess Gestational Age

Category	Gestation (weeks)
1. Extremely preterm	Under 28
2. Very preterm	28 to under 32
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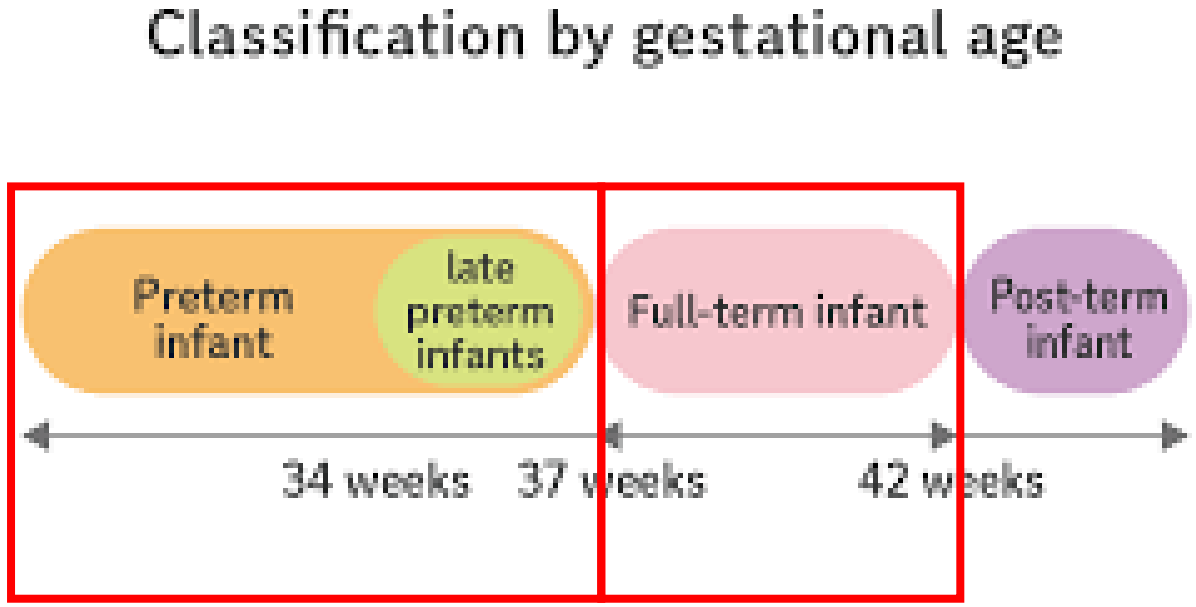
Table 2: Categories of preterm birth

Figure 2



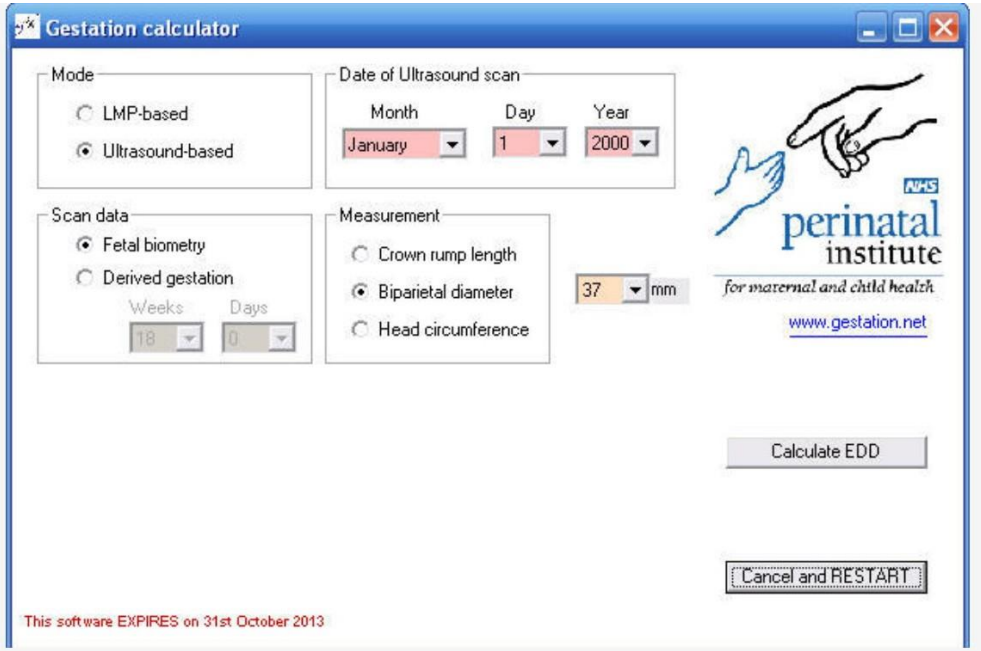
Q 7.1 How you Gestational Age Gestation Age Assessment

Objective 5

LPM. 22/ 9

Expecd + / - 7d/3m 29 / 6

- Last menstrual period (**LMP)**



Objective 5

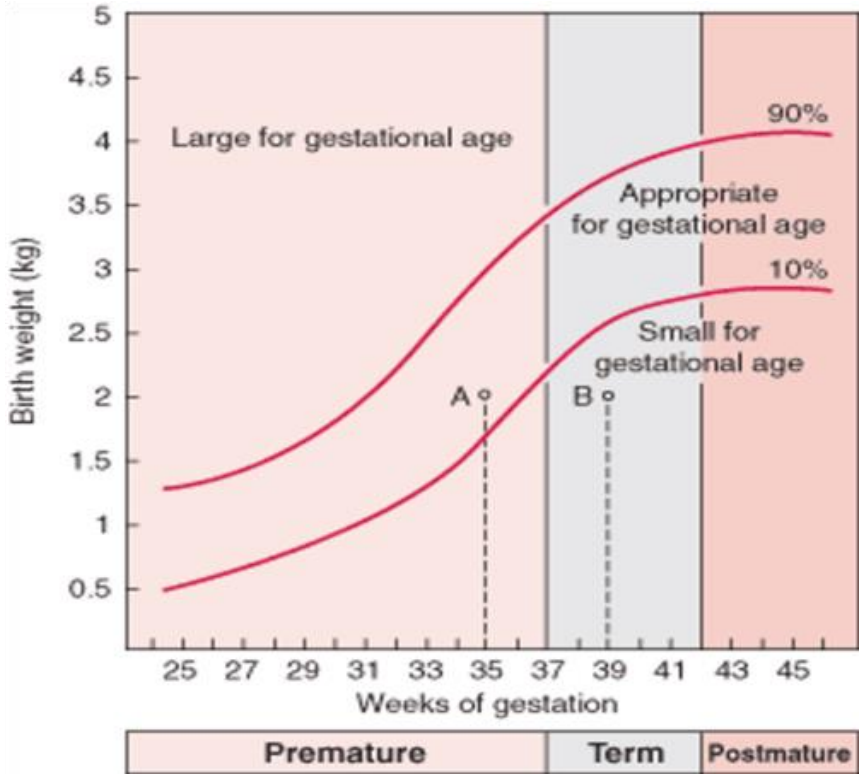
Q 7.2 How you Assess Growth Growth assesment

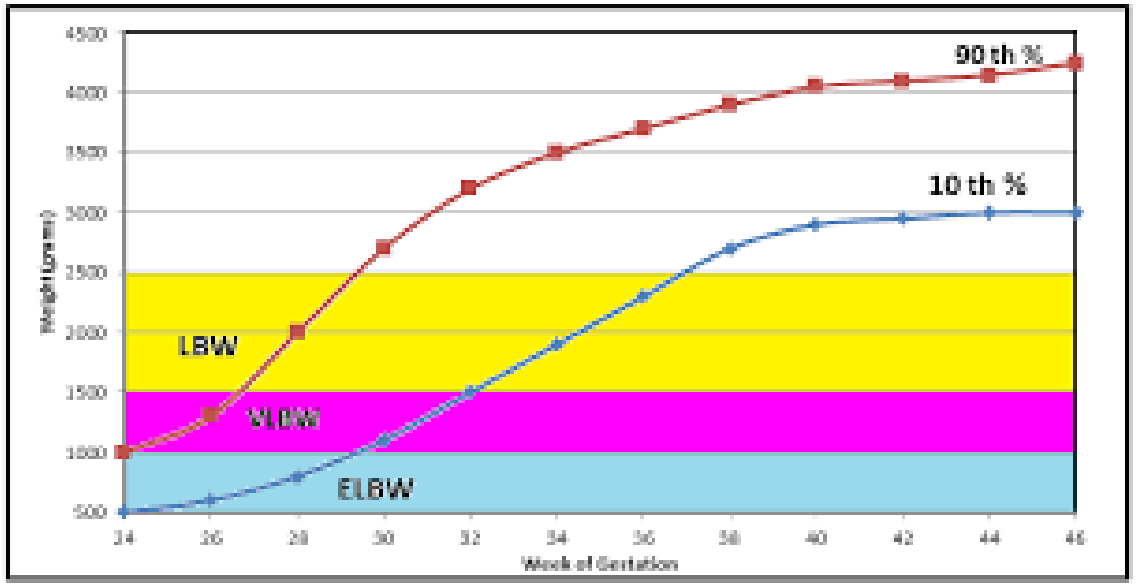
- Do Growth Measurement : Measure
    - weight
    - length
    - Head circumference
- Plot them on CDC, WHO , fenton and intergrowth charts.

- Know if (for AGA, SGA and LGA)

Objective 5

Growth assessment at Birth :weight





Objective 5

Growth

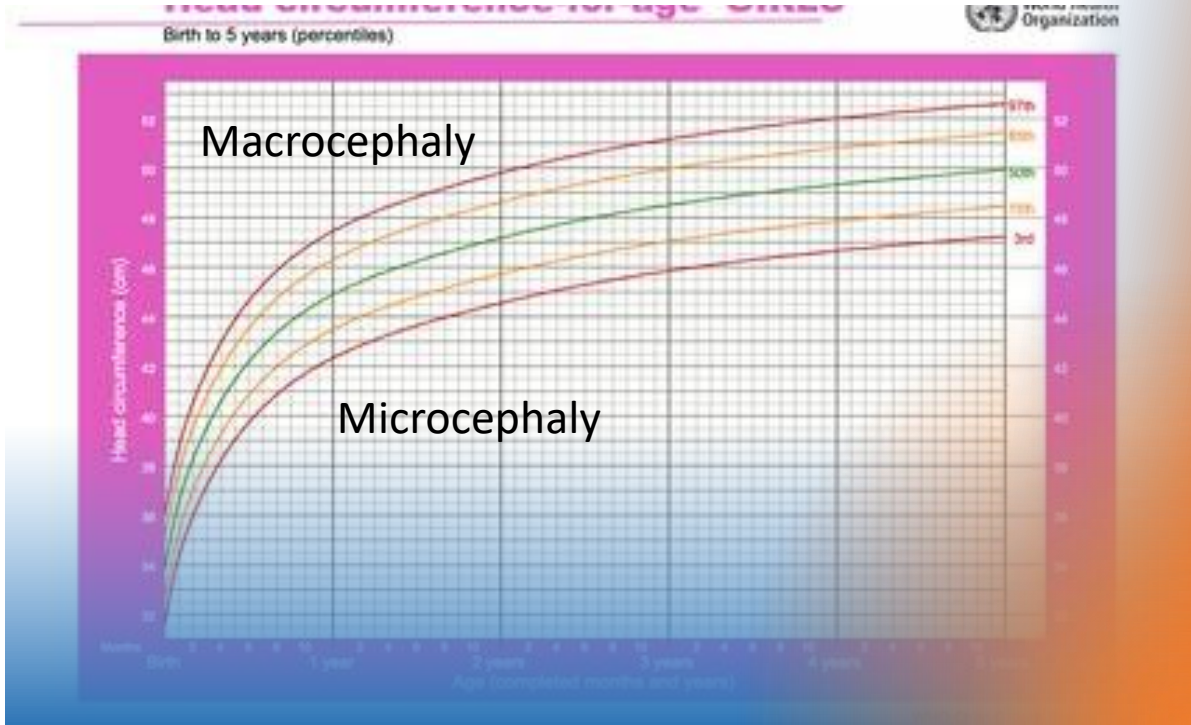
- WEIGHT:
  - The baby will be regaining their birth weight. Most babies are at, or above, their birth weight by 2 weeks.
  - The average daily weight gain for healthy-term babies is about 30gm/day in the first month of life
- **LENGTH:**
  - (from the top of the head to the heel with the leg fully extended)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



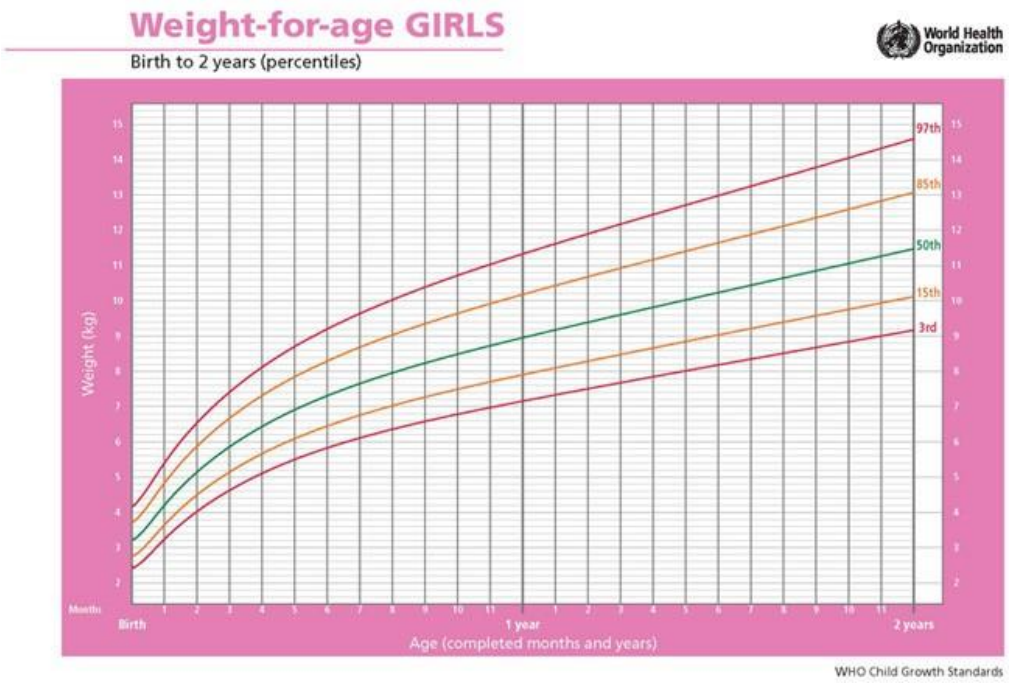
Objective 5

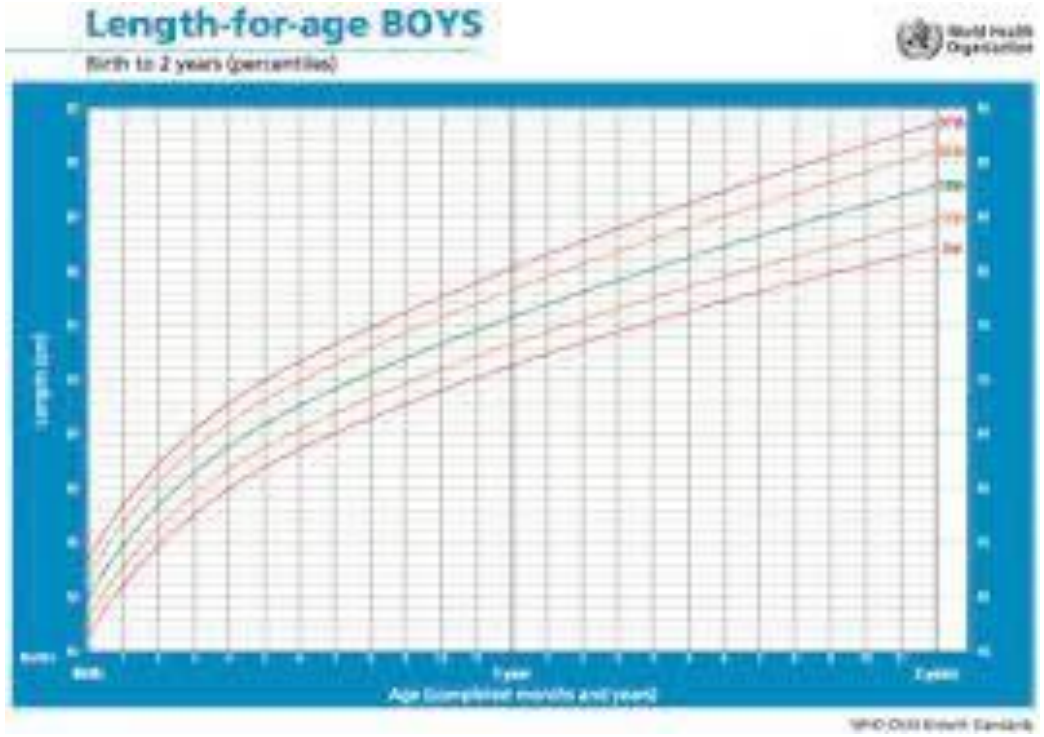
Which charts

Term	Term
Breast fed	WHO
formula	CDC

Preterm		
Intergrowth (Longitudinal study)	Focuses on growth patterns post-birth for preterm infants	compares them to other premature babies.
Fenton (Cross-sectional)	Emphasizes size at birth based on gestational age	Fenton compares premature babies to unborn babies, while

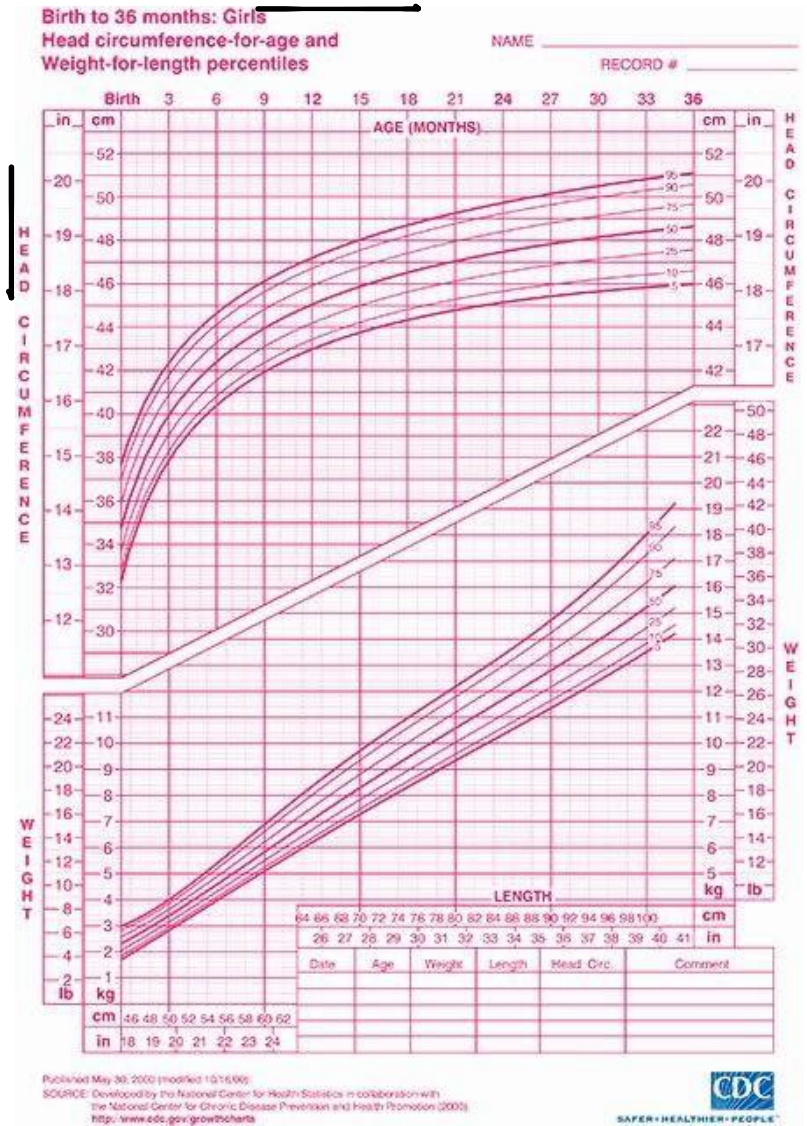
Types of Growth Charts. (Term infants)
1-WHO Growth chart for Breastfed infants

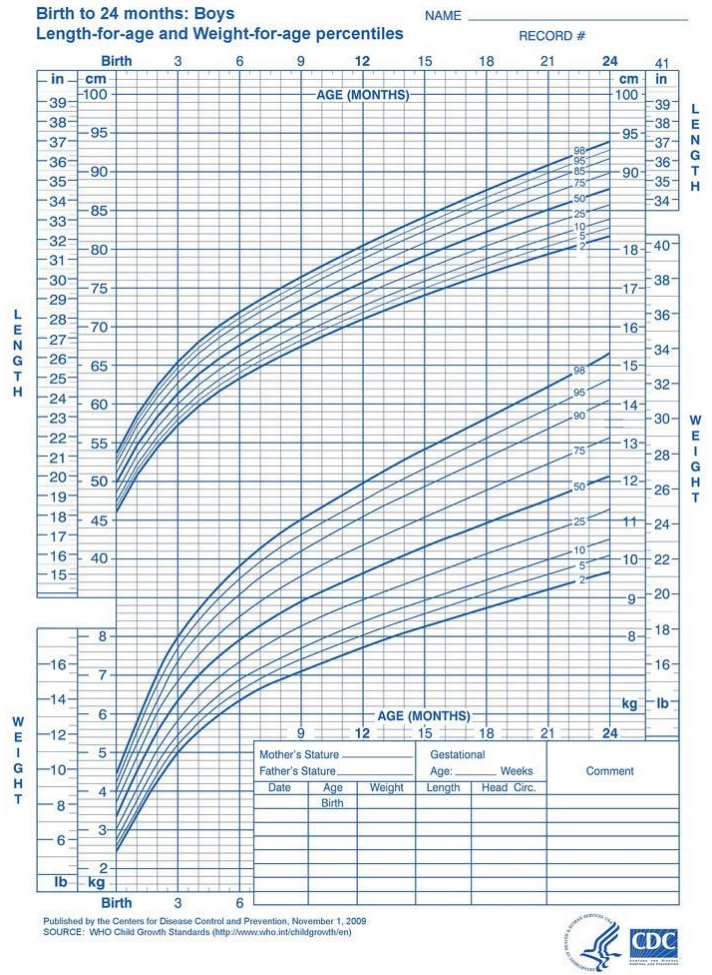




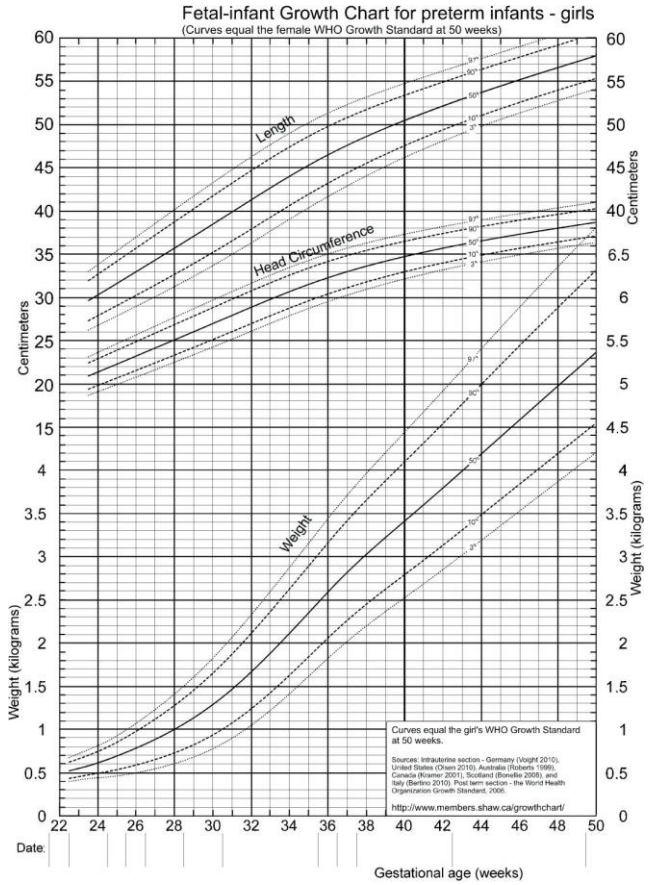
2-CDC growth Charts for US term Children

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





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, Weight and length

Objective 3

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)

Weight loss

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

- Weight loss in newborns is observed **frequently** common (5% vaginal births and 10% of C/S births), but supplementation might be required
- Families should be reassured about this progression and can become preoccupied with a normal process because this is a value commonly measured
- It is typically taught that newborns should **regain their birth weight by 2 weeks** after
- 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?

- 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**

Weight Loss, Voiding, Stooling

Assess weight daily until discharge, then close outpatient follow-up

Weight loss > 10% is common (5% vaginal births and 10% of C/S births), but supplementation might be required

Failure to return to birth weight by 10-14 days is also common

Should gain 35-40 g/day after reaching nadir

First time breastfeeding moms are at highest risk

Infants should void in first 12 hours; investigate if no urine bv 24 hours

99% of healthy infants will stool in the first 48 hours

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 ?

How you address these parental concerns (Q8- 12)

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

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

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?
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- **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 in first 12 hours; investigate if no urine bv 24 hours go investigation
  - Then Shouldpassed 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 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.

Weight Loss, Voiding, Stooling

Assess weight daily until discharge, then close outpatient follow-up

Weight loss > 10% is common (5% vaginal births and 10% of C/S births), but supplementation might be required

Failure to return to birth weight by 10-14 days is also common

Should gain 35-40 g/day after reaching nadir

First time breastfeeding moms are at highest risk

Infants should void in first 12 hours; investigate if no urine bv 24 hours

99% of healthy infants will stool in the first 48 hours

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

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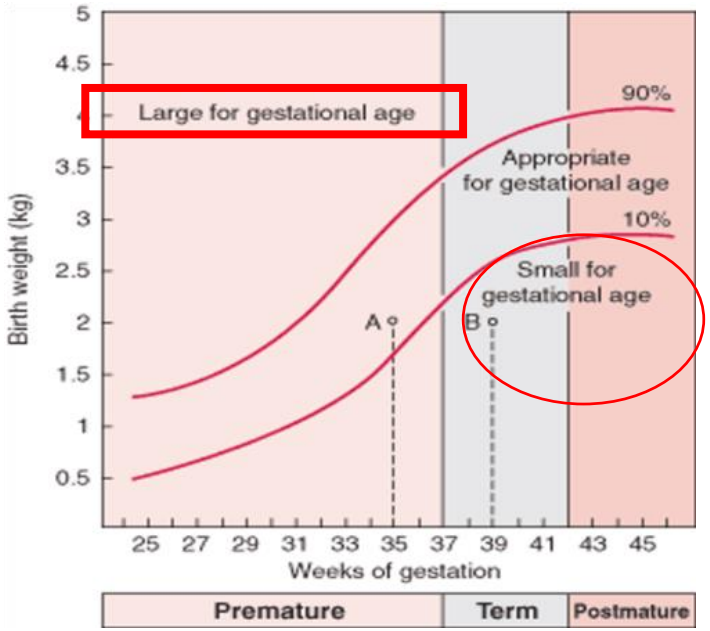
- Q9: Is he having an Obstruction?”
- Q10: Is the urine color cause of concern?
- **Q11: Does he need to test his blood sugar to know if it is low?**
- Q12: Can she discharge her baby and observe his stooling pattern at Home ?

Q 11. Is her baby at risk of Hypoglycemia?

Who at Risk for Hypoglycemia

- Infants born to mothers with hyperglycemia during pregnancy (diabetes mellitus (IDM)
- those who are SGA, or LGA



Hypoglycemia

- Expected decrease in blood glucose over the first 2-3 hours of life
- Risk factors for hypoglycemia:
  - 34 0/7 - 36 6/7 weeks GA
  - SGA
  - LGA
  - IDM
  - Perinatal stress/hypoxic event
  - Post-term delivery
- Screen any infant with possible symptomatic hypoglycemia (jittery, sweating, hypotonic, irritable, apneic, temp instability)

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- Q: **Can she discharge her baby and observe his stooling pattern at Home ?**

Objective 5

Routine care before discharge and parents' education

- 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

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

Skin Care/Bathing- Vernix Caseosa

- Made of sloughed skin and lanugo hair
- High lipid content
- A moisturizer
- Decreases transepidermal water loss
- Antioxidant/antimicrobial properties
- To dry baby, wipe lightly with towel but retain vernix

Bathing

- WHO: delay first bath
  - At least six hours preferably after 24 hours
  - Promotes maternal bonding
  - Increases breastfeeding success
- Early bath recommended for moms with Hepatitis B or C, HIV, active HSV
  - Could minimize the transmission of infection
  - Clean skin well before IM iniections
- Do not bathe before infant's temperature stabilized
  - Can result in hypothermia and respiratory distress

Baby bath

- Cleansers should be mild (Non irritant)

- Use warm water and keep room warm
- Keep bath time < 10 minutes
- Wash and dry face, then unwrap to bathe body
- Tub (or immersion) bathing –
  - Less distress and better temperature regulation
- No difference in cord healing or infection risk
- Use hat after bathing
- Bathe only 2-3 times per week.
- More frequent -> Disrupts normal bacterial skin flora and causes skin drying/cracking

Skin Care

- Keep diaper area clean and dry
- Use water , water wipes or detergent-free wipes
- Zinc-oxide or petrolatum-based ointments for diaper rash
- Basic emollients can be used
  - (AS petroleum jelly, plain ointments, or creams without perfumes or preservatives)
  - Support skin's barrier function
  - Daily emollient use from first few weeks of life until 6-9 months decreases incidence of atopic dermatitis by 30-50% in infants with a family history
- Use sunscreen carefully in infants under 6 months.

Umbilical cord care and Nails

- **Umbilical cord**
  - Keep umbilical cord **clean** and **dry**,
  - Clean with soap and sterile water as needed
  - **No** routine treatment with **antiseptic** (chlorhexidine/alcohol)
    - Increases time to cord separation without decreasing morbidity/mortality
    - Concern for systemic absorption
  - Median time to cord separation is **6-7 days**
  - **Teach** parents to be alert for signs **of omphalitis**
    - Redness, warmth, tenderness, swelling/purulent discharge
    - Affects ~ 0.7 - 1/1000; mortality as high as 13%
  - Daily chlorhexidine for 1 week for home births in regions with high mortality rate
- **Nails**
  - Long, flexible, yet sharp fingernails Frequently cause concern for the new family.
  - The nails **can be clipped**, cut, filed, or tear when there is adequate lighting and the child is quiet.

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

Feeding

Breastfeeding - decreased neonatal **morbidity/mortality**

Lower rates of infections (diarrheal illness, sepsis, and resp)

Exclusive breastfeeding for at **least 6 months**

Should begin within the first hour of life, if possible

Babies should room-in with mom to feed on demand

Goal Vitamin D intake is 400 IU (10 mcg) daily

All breastfeeding infants should receive a daily Vitamin D supplement

Safe sleep

free of

1) **No** Quilts
2) **No** sleep positioners,
3) **No** other soft objects, such as stuffed animals

No routine sleeping in sitting devices (bouncer, carseat)

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.

Tobacco Exposure

- Increases risk of stillbirth, preterm birth, low birth weight, congenital malformations, sudden infant death
- 8% of infant deaths and 17% of SIDS caused by tobacco smoke exposure
- Higher risks of ear infections, pneumonia, wheezing, cancer
-

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**.

- Share room but no bed sharing
  - AAP: Have infant on SEPARATE sleep surface in parents' room for ≥ 6 months
  - Facilitates breastfeeding
  - 50% decreased risk SIDS
- Home monitors not recommended

0.14%

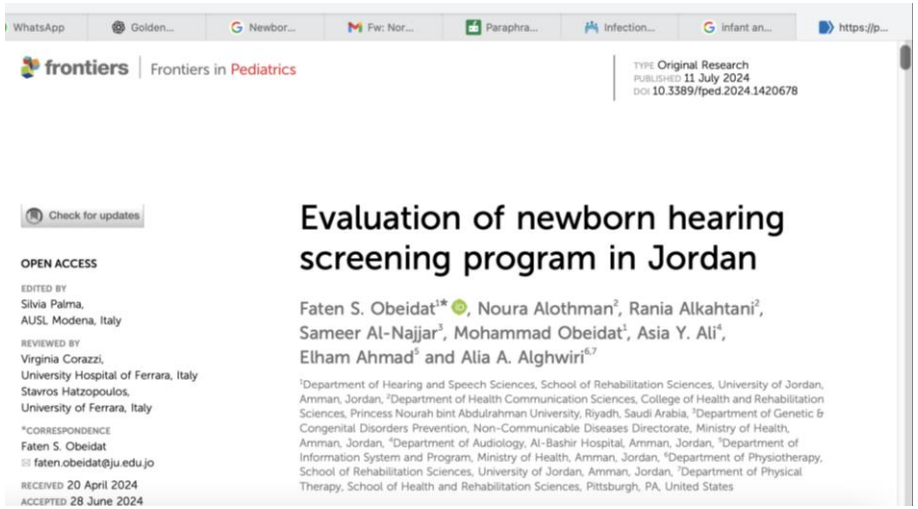
Hearing loss

Hearing Screen

- Hearing loss affects 1-3/1000 newborns in the US
- Universal Newborn Hearing Screening recommended since 1993
  - If not passed → needs medical evaluation/audiologic testing by 3 months
  - Enrollment in intervention services by 6 months of age
- 97% of infants who REFER on their newborn hearing screen prior to hospital discharge do not have hearing loss

- Otoacoustic Emissions (OAE)
- Auditory Brainstem Response (ABR)

The prevalence among the Jordanian population was 1.4/1000



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Evaluation of newborn hearing screening program in Jordan

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Newborn Hearing Screening (NHS) program was officially launched in Jordan in 2021

CCHD (Critical Congenital Heart Disease) Screening

Why does this matter?

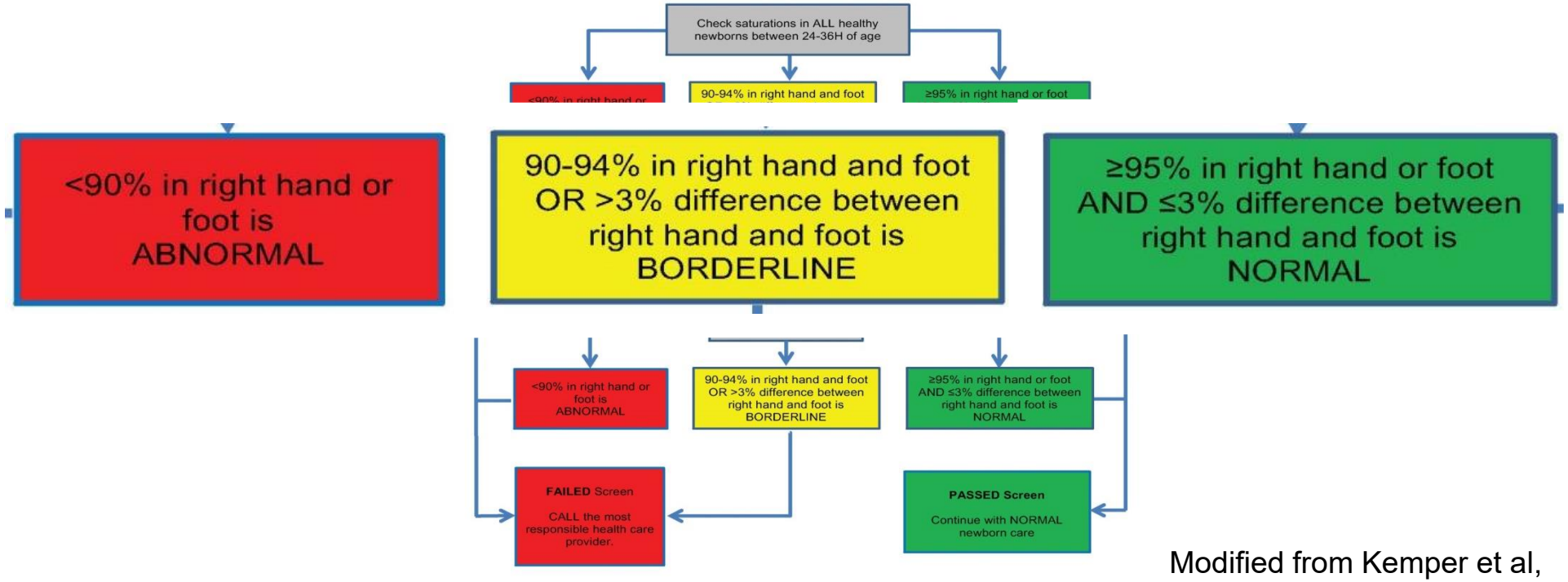
- Congenital heart disease (CHD) affects 8/1000 live infants
- Critical congenital heart disease (CCHD), lesions requiring intervention in the first year of life, affects 2/1000 live births
- The five T's
  - Tetralogy of Fallot (TOF)
  - Total anomalous pulmonary venous return (TAPVR)
  - Transposition of the great arteries (TGA)
  - Truncus arteriosus
  - Tricuspid atresia
- Hypoplastic left heart syndrome (HLHS)
- Pulmonary atresia
- Critical coarctation or interrupted aortic arch

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

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

Jaundice

- Occurs in 60-80% of newborns
- Worst complication: bilirubin encephalopathy

- Risk Factors:
  - <38 weeks GA
  - Significant bruising or cephalohematoma
  - ABO incompatibility
  - DAT+
  - Hemolytic disease
  - East Asian race
  - Exclusive breast feeding
  - Previous sibling with jaundice

Jaundice

Patient Summary

Age at sampling:	24 hours
Total Bilirubin:	9 mg/dL
Bilirubin trend:	Not available (Learn more)
ETCOc:	Not provided
Gestational Age (GA):	36 weeks
Neurotoxicity Risk Factors:	No

Recommendations — Copy to Clipboard

	Recommendation	Threshold
If using TcB, confirm with TSB?	Yes	8.3 mg/dL
Phototherapy?	No	11.2 mg/dL
Escalation of Care? (More)	No	17.1 mg/dL
Exchange Transfusion?	No	19.1 mg/dL

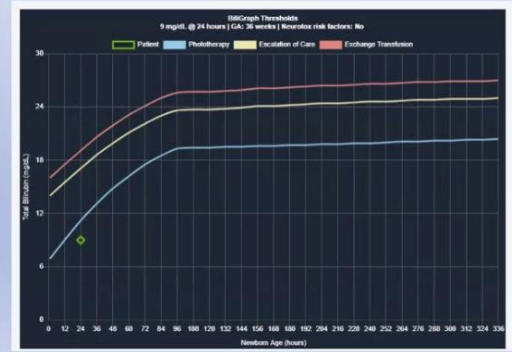
Postdischarge Follow Up

For the baby **2.2 mg/dL** below the phototherapy threshold (**Δ-TSB**) at 24 hours of age (during birth hospitalization with no prior phototherapy):

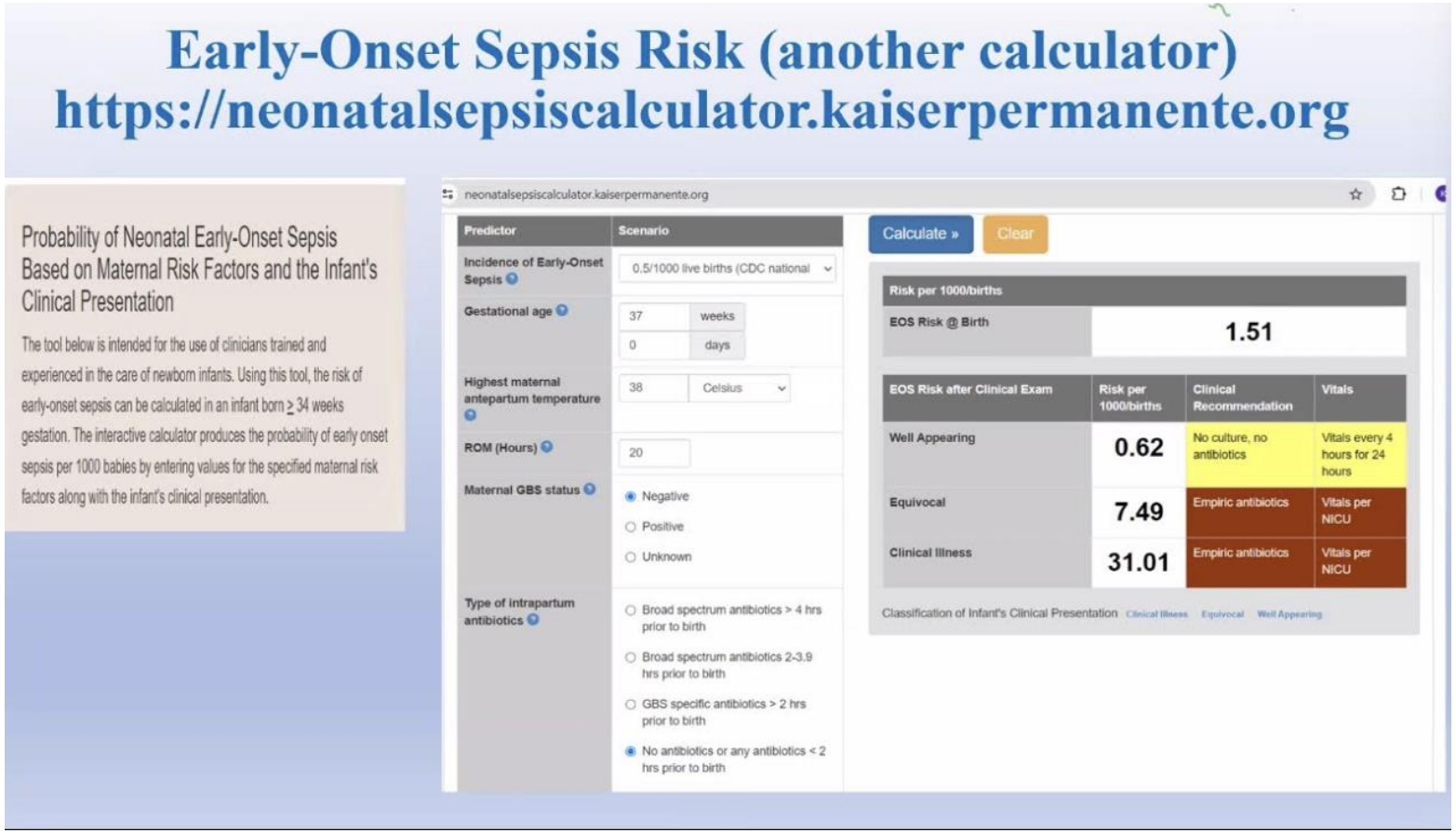
Check TSB or TcB in 4 to 24 hours. Use clinical judgment and shared decision making to determine when to repeat the bilirubin measure within this 4 to 24 hour period.

BiliTool™
https://bilitool.org

- Phototherapy threshold
- Escalation of care threshold
- Transfusion threshold



Early onset sepsis risk



https://neonatalsepsiscalculator.kaiserpermanente.org

Immunization
HBV vaccine at birth.

- Hepatitis B
  - Highest risk for chronic infection when HBV is acquired in infancy or childhood
  - HepB vaccine alone, given within 24h of birth, is 75-95% effective in preventing perinatal transmission of HepB virus. With HBIG, is ~99% effective.
- HepB vaccine administration guidelines in infants > 2 kg:
- Guidelines are slightly different for infants < 2 kg
- Consult AAP Red Book OR NHS UK guidelines

Hospital Discharge

- Goal: discharge mom and baby together when stable
- WHO: at ≥ 24-hours after vaginal delivery
- US: 2 nights for vaginal deliveries, 4 nights for C/S
- AAP-Recommended Education:
  - Signs of newborn illness
  - Benefits of breastfeeding
  - Normal urine/stooling patterns
  - Umbilical cord care, skin care, and circumcision care
  - Temperature measurement
  - Jaundice
  - Safe sleep, protection from tobacco exposure
  - Hand hygiene (vaccination recs for caregivers)
  - Proper swaddling (keeping infant's hips abducted)
  - Proper car seat use

Infant Carseat

- Car seat:
  - appropriate size
  - well-fitted straps
  - rear-facing,
  - back seat
  - secure attachment
  - correct angle

- 71% decrease infant MVA deaths when used properly

- Never leave infant unattended in car

- Remove infant from the car seat when travel is complete

Follow up Care

- Infants discharged at < 48 hours should be seen within 48 to 72 hours
- Infants discharged at > 48 hours should be seen within 3 -5 davs
- Newborn readmission is common

~ 1 - 2% of healthy newborns readmitted within 30 days

- Most common diagnoses: feeding problems, jaundice
- Timely newborn outpatient follow-up -> decreased early readmission rates

Meta

Newborn screening

WHAT?

- Public health program
- Now an integral part of neonatal care
- Screening babies for potentially treatable conditions, not clinically evident in newborn period
- *"Catch them early"*
  - Aim to identify early before significant morbidities set in
- List of disorders vary from country to country

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Newborn Screening by Genomic Sequencing: Opportunities and Challenges

by David Bick [1,*], Arzoo Ahmed [1], Dasha Deen [1], Alessandra Ferlini [2], Nicolas Garnier [3], Dalia Kasperaviciute [1], Mathilde Leblond [1], Amanda Pichini [1], Augusto Rendon [1], Aditi Satija [1], Alice Tuff-Lacey [1] and Richard H. Scott [1]

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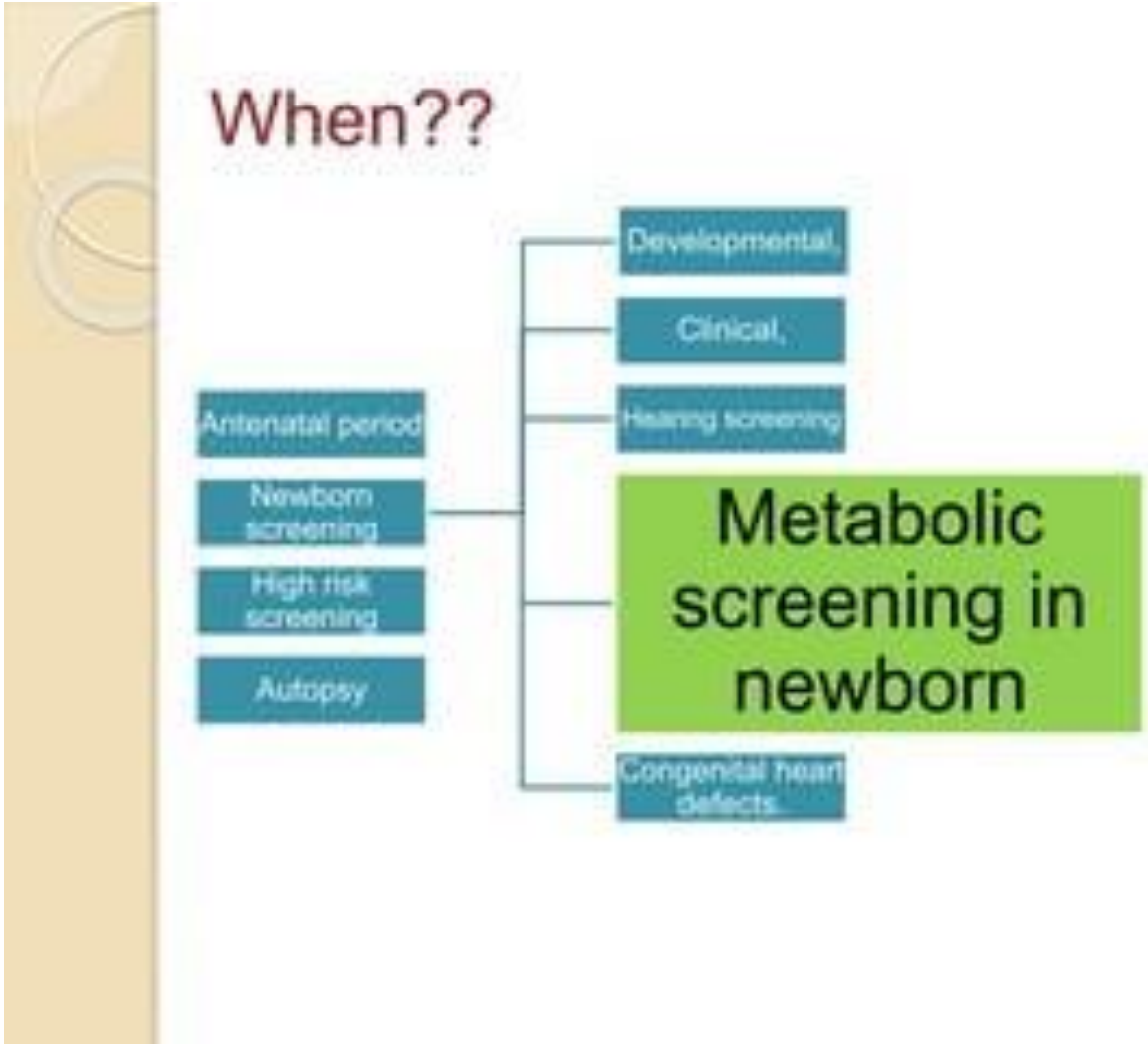
Metabolic screen



• the overall incidence of metabolic disorders 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

Summary of Recommendations

Care of the Normal Newborn– First 48 Hours

Summary of General Care, Interventions, and Screening Tests for Well Newborns			
Age	Care	Screening	Interventions
Birth to 24 hrs	Temperature regulation Feeding Umbilical cord care Skin care Bathing (preferably after 6 to 24 hours) Voiding/Stooling	Hypoglycemia Jaundice screening if indicated	Vitamin K Erythromycin ophthalmic ointment Hepatitis B vaccine
24 to 48 hours	Temperature control Feeding Weight change Voiding/Stooling Discharge examination Discharge counseling and teaching	Jaundice screening Critical Congenital Heart Disease screen Newborn Metabolic Screen Hearing screen	Male circumcision (if desired) Car seat testing (for infants < 37 weeks or with risk factors)