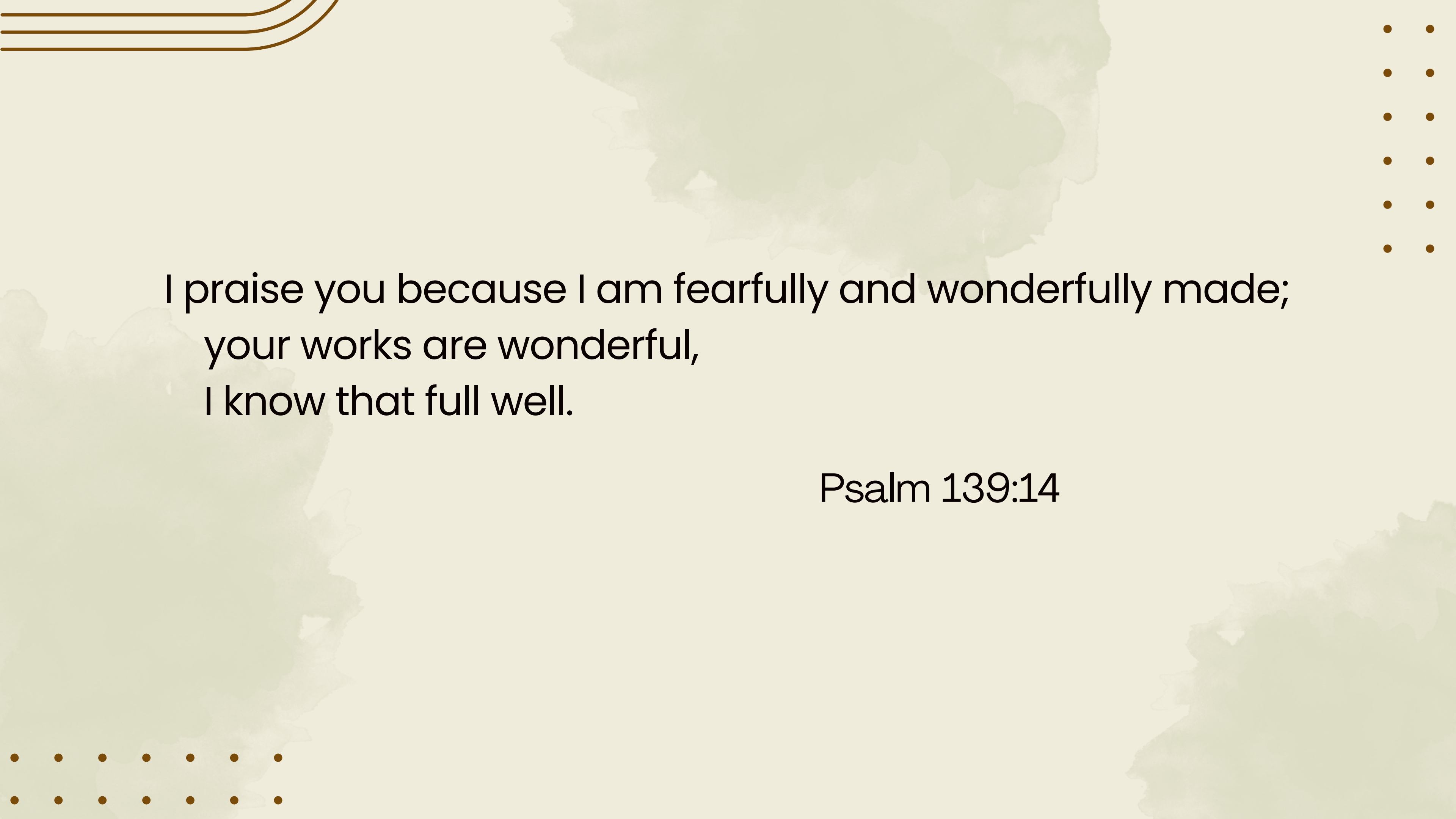
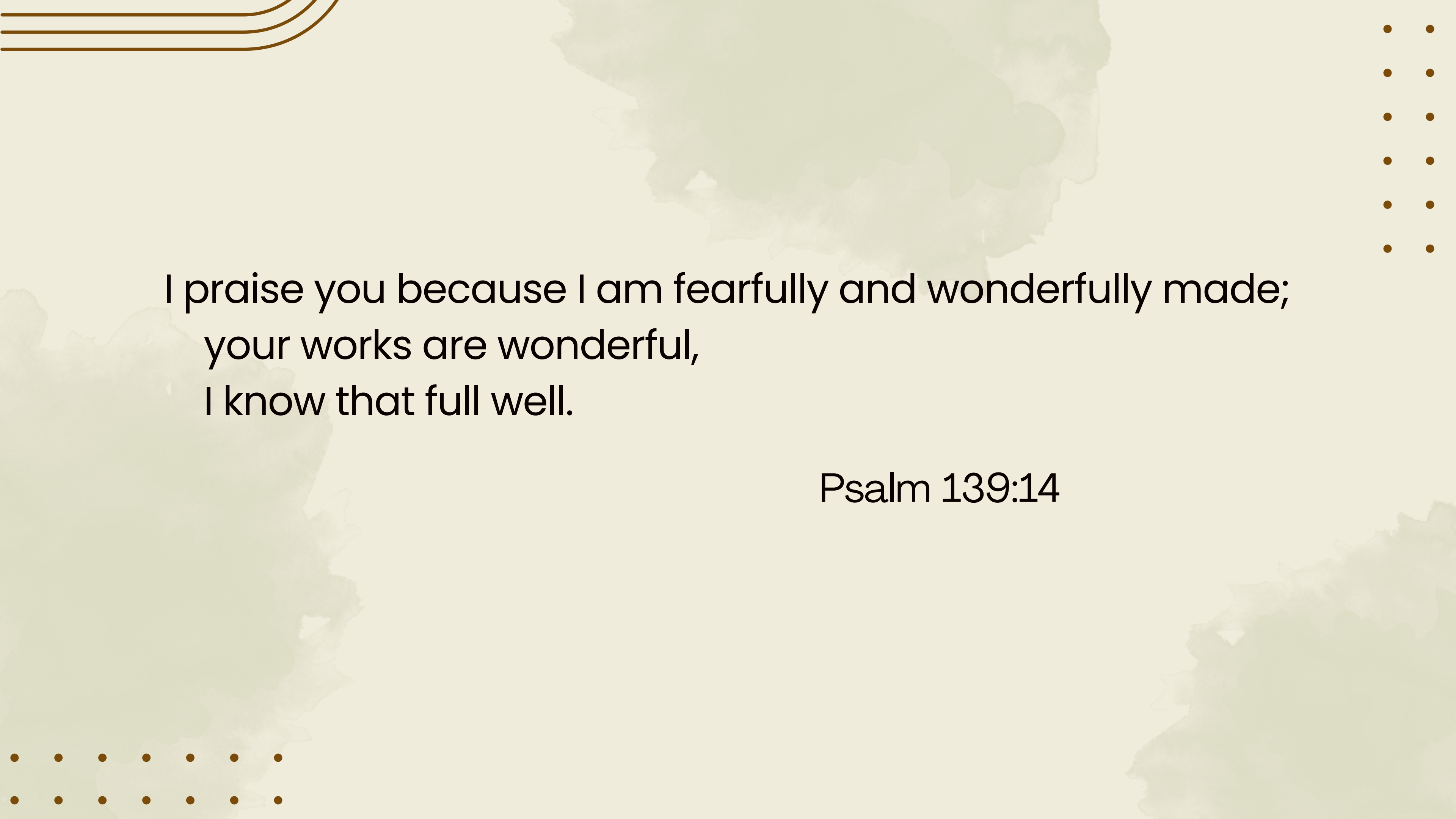


The background features a light beige color with soft, abstract watercolor washes in a muted olive green. In the top-left corner, there are three parallel, curved lines in a dark brown color. In the top-right corner, there is a grid of ten small, dark brown dots arranged in two columns of five. In the bottom-left corner, there is a grid of ten small, dark brown dots arranged in two rows of five.

I praise you because I am fearfully and wonderfully made;
your works are wonderful,
I know that full well.

Psalm 139:14

The background features a light beige color with soft, abstract watercolor washes in a muted olive green. In the top-left corner, there are three parallel, curved lines in a dark brown color. In the top-right corner, there is a grid of ten small, dark brown dots arranged in two columns of five. In the bottom-left corner, there is a grid of ten small, dark brown dots arranged in two rows of five.

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Psalm 139:14

Neonatal Disorders

Pamela Dulce G. Cabotaje, MD

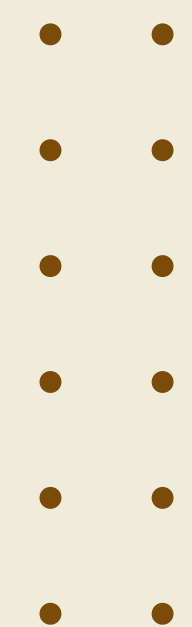
Pediatrics 2
Batch Mausbong





***A newborn delivered
limp and
not crying***

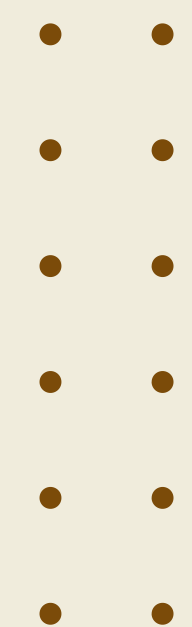
- 1. What will you do ?**
- 2. What information do you need?**
- 3. What preparations should have been made?**



Learning Objectives

By the end of the session, given delivery room and neonatal case scenarios, third-year medical students will be able to formulate appropriate management plans for common neonatal conditions with at least 85–95% accuracy on case-based assessments.





Learning Objectives

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Learning Objectives

Given a delivery room case scenario involving a newly delivered infant, the third-year medical students will be able to:

1. Evaluate appropriately maternal, fetal, intrapartum, and environmental risk factors that contribute to neonatal morbidity and mortality.
2. Perform appropriately the essential steps of newborn assessment, Essential Intrapartum and Newborn Care (EINC), and the initial management of newborns with normal and abnormal adaptation during the first minutes of life according to current newborn care standards.

3. Explain correctly the physiologic transition from fetal to extrauterine life, including growth, respiratory, gastrointestinal, nutritional, fluid-electrolyte, thermoregulatory, and bilirubin adaptations in the newborn.
4. Differentiate appropriately normal neonatal findings from abnormal clinical manifestations, including respiratory distress, feeding difficulties, jaundice, temperature instability, hypoglycemia, seizures, gastrointestinal abnormalities, and growth disturbances. complications, and expected outcomes.

5. Classify correctly common neonatal disorders into congenital, infectious, respiratory, metabolic/endocrine, neurologic, hematologic, gastrointestinal, and environmental/transitional disorders.
6. Formulate appropriately an initial diagnostic and management approach for common neonatal disorders based on clinical presentation, natural course of illness, complications, and expected outcomes.
7. Recognize appropriately prematurity as a major contributor to neonatal morbidity and mortality and explain its short- and long-term consequences across multiple organ systems.

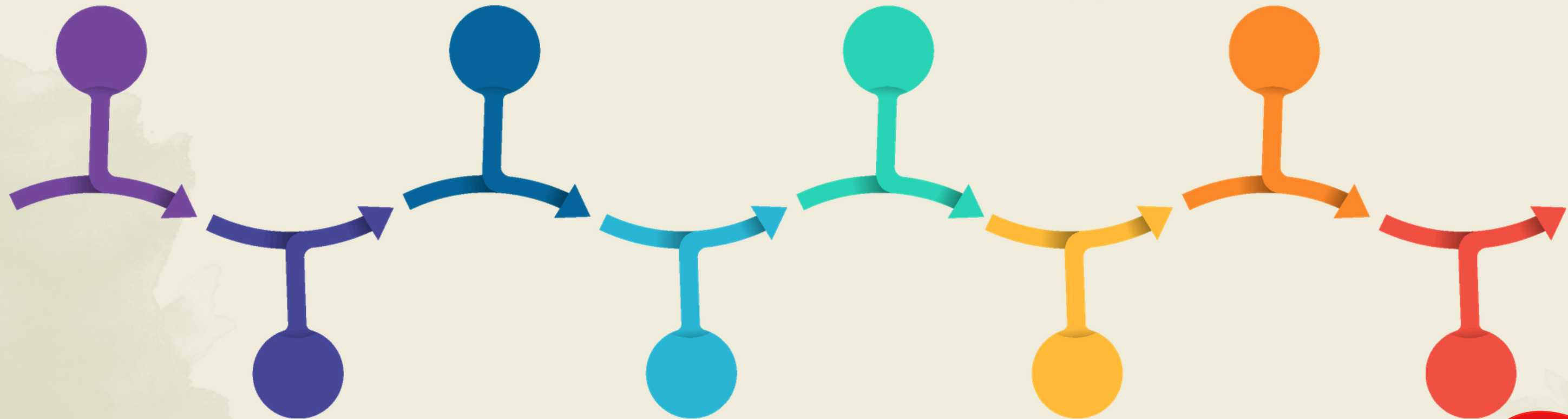
From Womb to World Approach

**1. Identify
Risk Factors**

**3. Perform
EINC**

**5. Recognize
Clinical
Presentation**

**7. Initiate
Management**



**2. Assess
Newborn**

**4. Normal Vs.
Abnormal?**

**6. Formulate
Differential
Diagnosis**

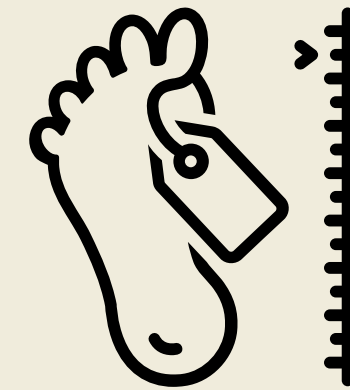
8.



Why Newborn Care Matters?



Burden of High Risk Newborn



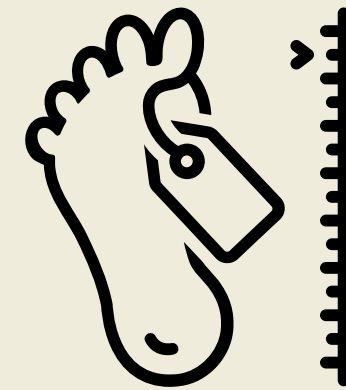
Burden of High Risk Newborn



Cost



Morbidity



Mortality

Every Breath Counts

- **The neonatal period (first 28 days) is the most vulnerable period of life.**
- **Approximately 2.3 million newborns died globally in 2022.**
[who.int](https://www.who.int)
- **Neonatal deaths account for approximately 47% of all deaths among children younger than 5 years.**

Leading causes of neonatal mortality remain:

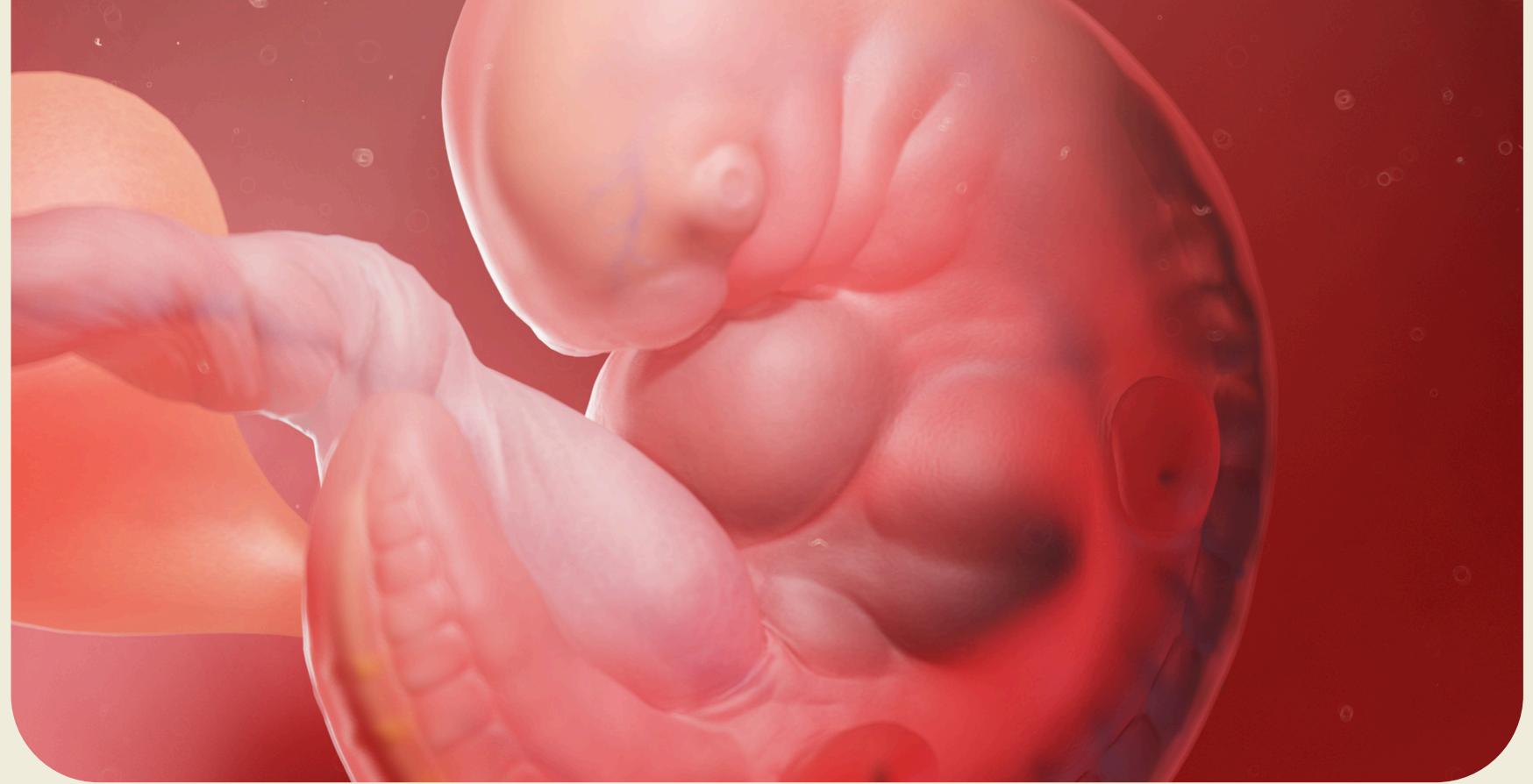
- **Prematurity**
- **Birth asphyxia/complications during birth**
- **Neonatal infections**
- **Congenital anomalies [who.int]**

Same Age



Different Sizes

Fetal Development and Growth



Brain

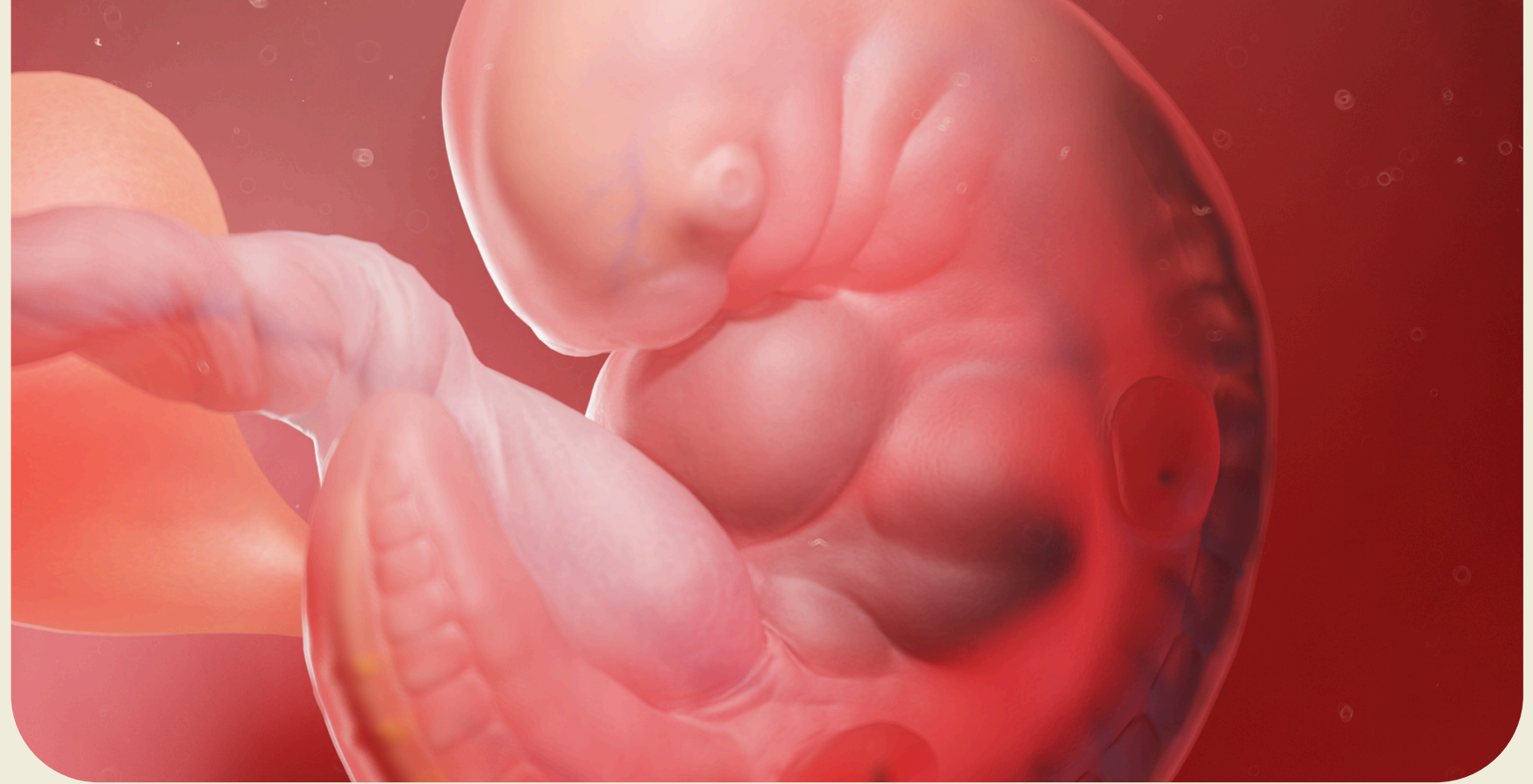
Gastrointestinal

Cardiovascular

Genitourinary

Others

Fetal Development and Growth



Brain

Gastrointestinal

Cardiovascular

Genitourinary

Others



Pregnancy: A Month-By-Month Guide | 3D Animation

Dr. Paulien Moyaert



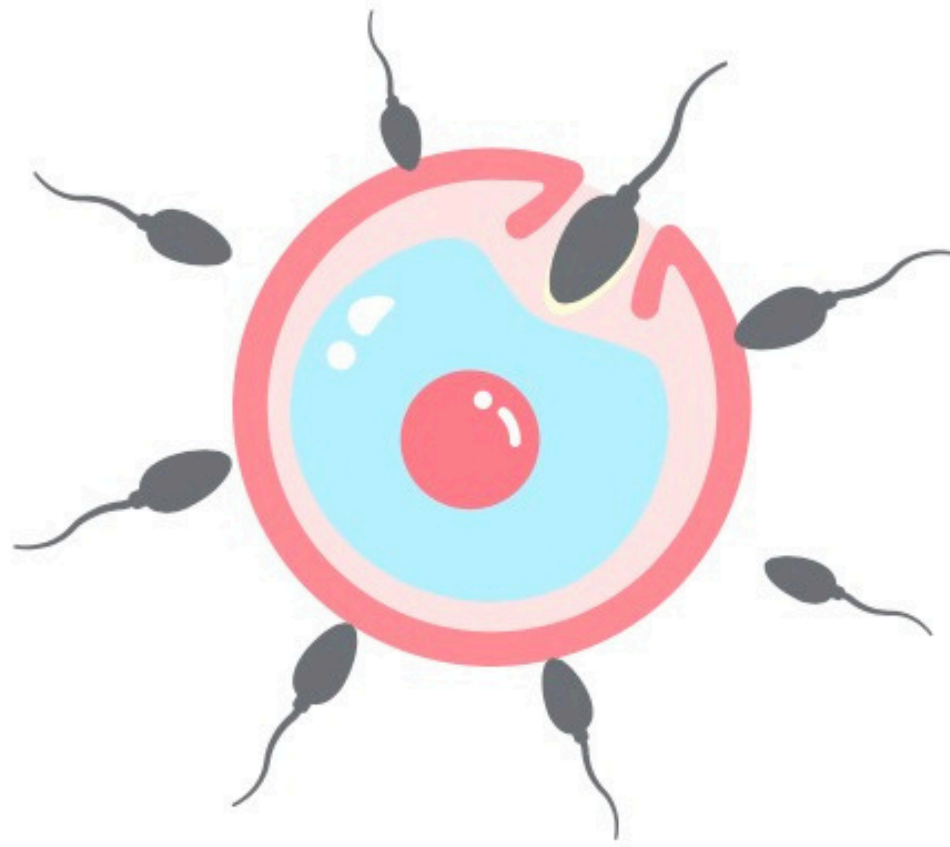
PREGNANCY

3D ANIMATION

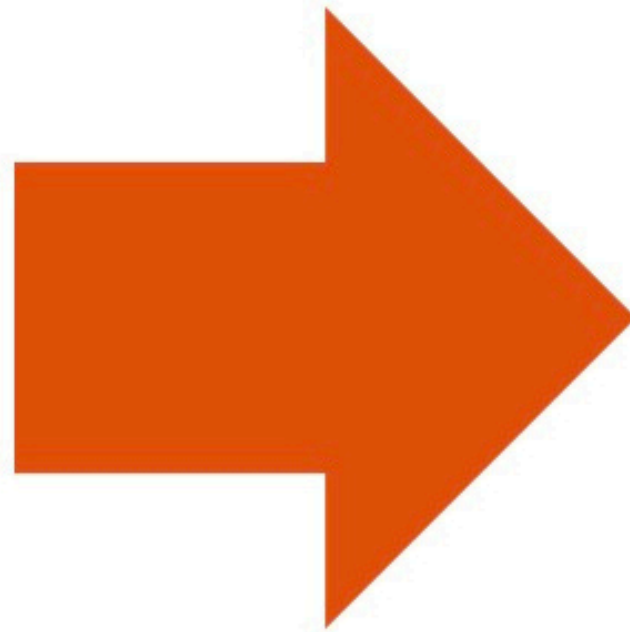


Watch on  YouTube

SOMATIC DEVELOPMENT : EMBRYONIC PERIOD



Fertilization



8th week of gestation



KEY MILESTONE



Time Postconception	Developmental Milestones
6 Days	Blastocyst Formation & Implantation Begins - Embryo is a spherical mass of cells with a central cavity (blastocyst).
2 Weeks	Completion of Implantation & Early Circulation - Uteroplacental circulation begins. - Embryo consists of two germ layers: Endoderm & Ectoderm. - Amnion formation starts.
3 Weeks	Formation of Mesoderm, Neural Tube, & Early Circulatory System- Third germ layer (Mesoderm) appears. - Primitive neural tube begins to form (early central nervous system). - Blood vessels develop, and paired heart tubes begin to pump.



SIGNIFICANCE



These early structures provide the framework for later organ formation.

The primitive neural tube develops into the brain and spinal cord.

Early circulation is essential for nutrient and oxygen transport to the developing embryo

FETAL PERIOD





FETAL PERIOD



(Week 9–Birth)

Key Developments:

Week 10: Face is recognizably human.

Week 12: External genitalia distinguishable.

Weeks 20–24: Alveoli form, surfactant production begins (critical for lung function).

Third Trimester:

- Weight triples, length doubles. Increased fat, protein, iron, and calcium storage.

Myelination & Brain Growth

- **Mid-gestation onward:** Myelination begins, continues for years.
- **Week 8:** Gross nervous system structure established.
- **6 Months:** Neurons complete migration, but differentiation continues.
- Axonal connections develop, making CNS vulnerable to teratogens & hypoxia.
- Apoptosis (cell death) & synaptic pruning occur postnatally, shaping brain circuits.
- MRI studies suggest fetal connectivity disruptions may contribute to psychiatric disorders.

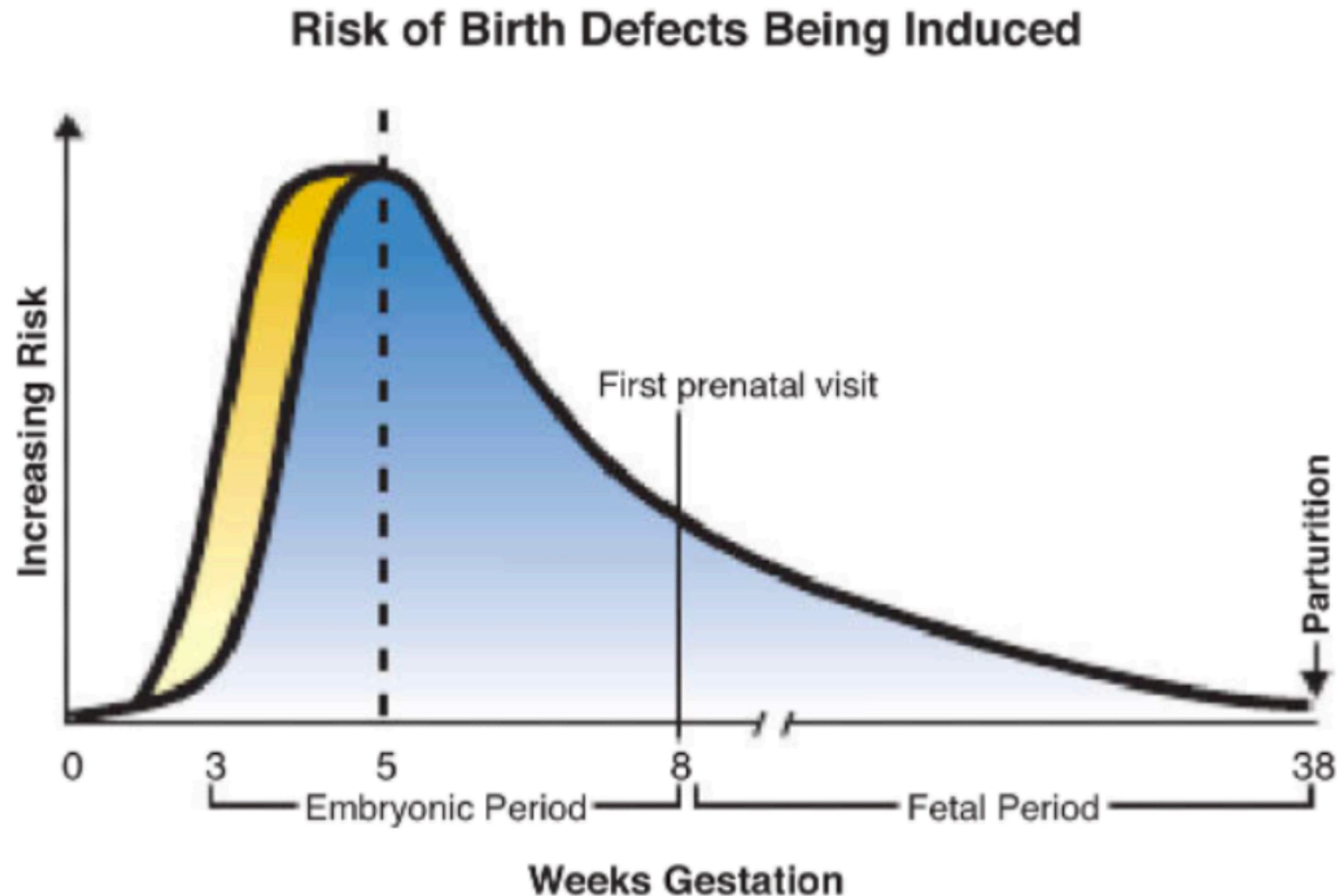


BEHAVIORAL DEVELOPMENT

Reflex & Motor Development

- **Week 13-14:** Breathing & swallowing motions appear.
- **Week 17:** Grasp reflex begins (**fully developed by 27 weeks**).
- **Week 26-28:** Eye opening occurs.
- **mid-gestation:** Full range of neonatal movements observed

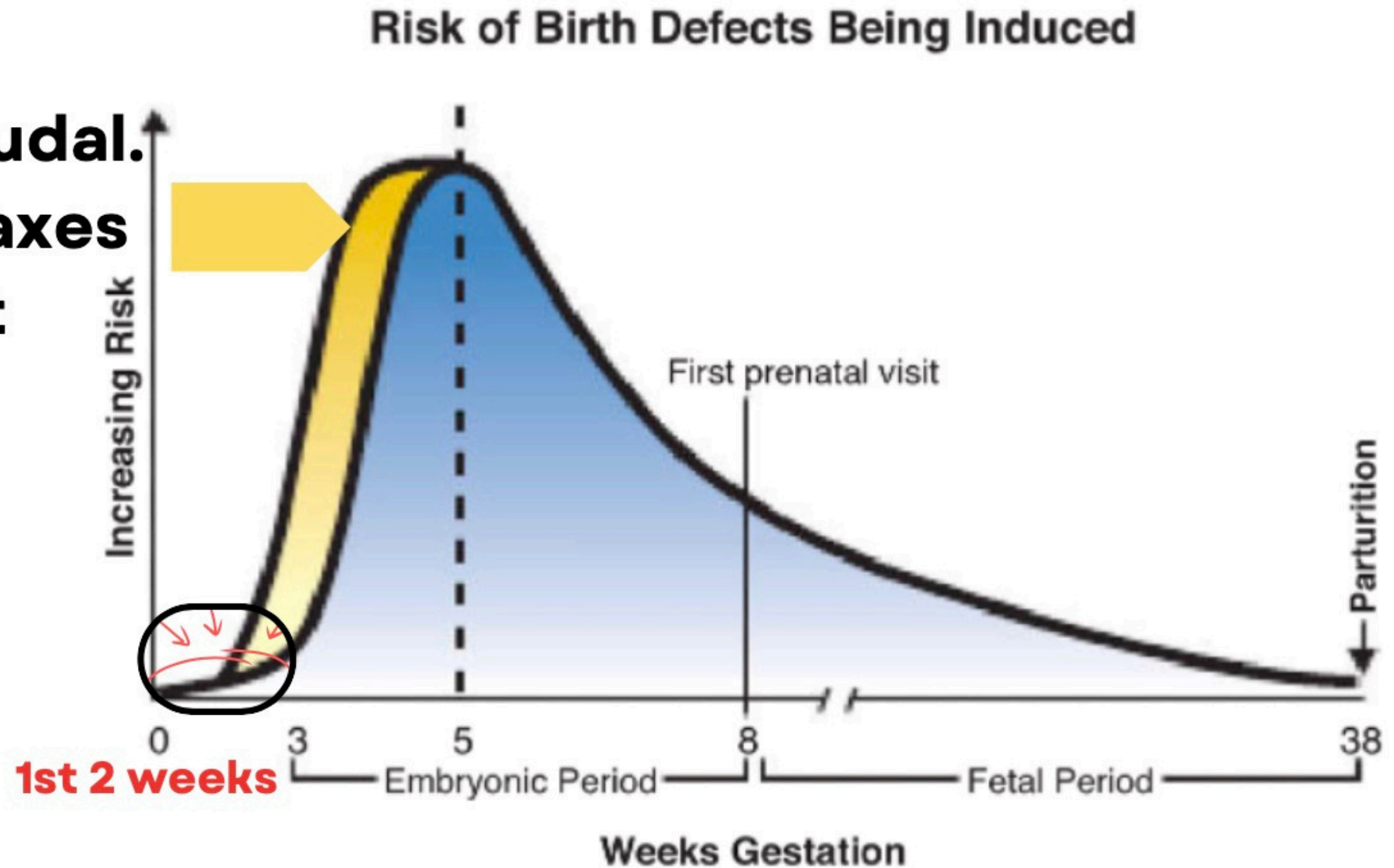
CRITICAL PERIODS OF EMBRYONIC DEVELOPMENT



CRITICAL PERIODS OF EMBRYONIC DEVELOPMENT

Critical Time

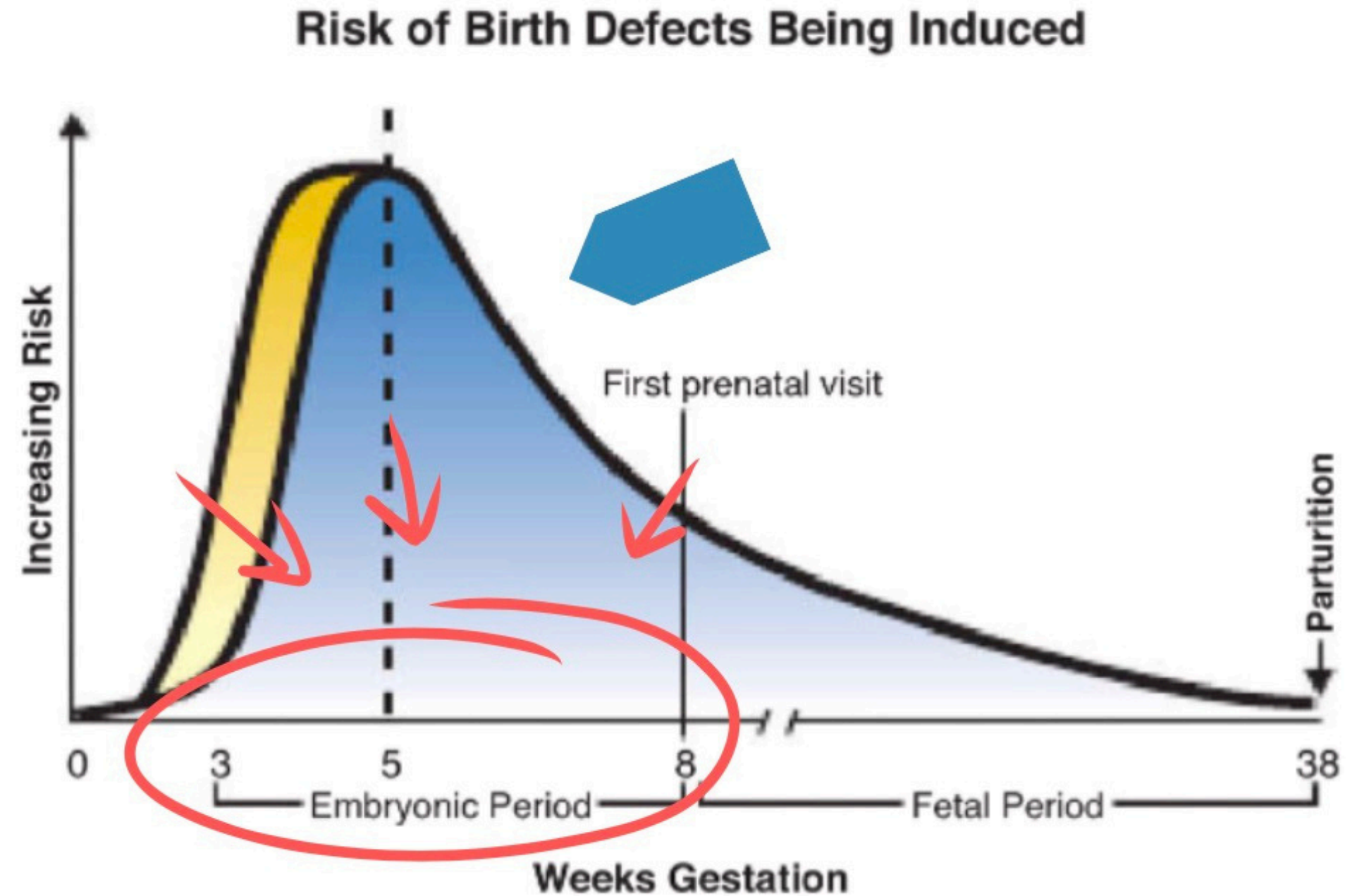
1. Cranial-caudal.
2. Left-right axes establishment



CRITICAL PERIODS OF EMBRYONIC DEVELOPMENT

High Risk Period

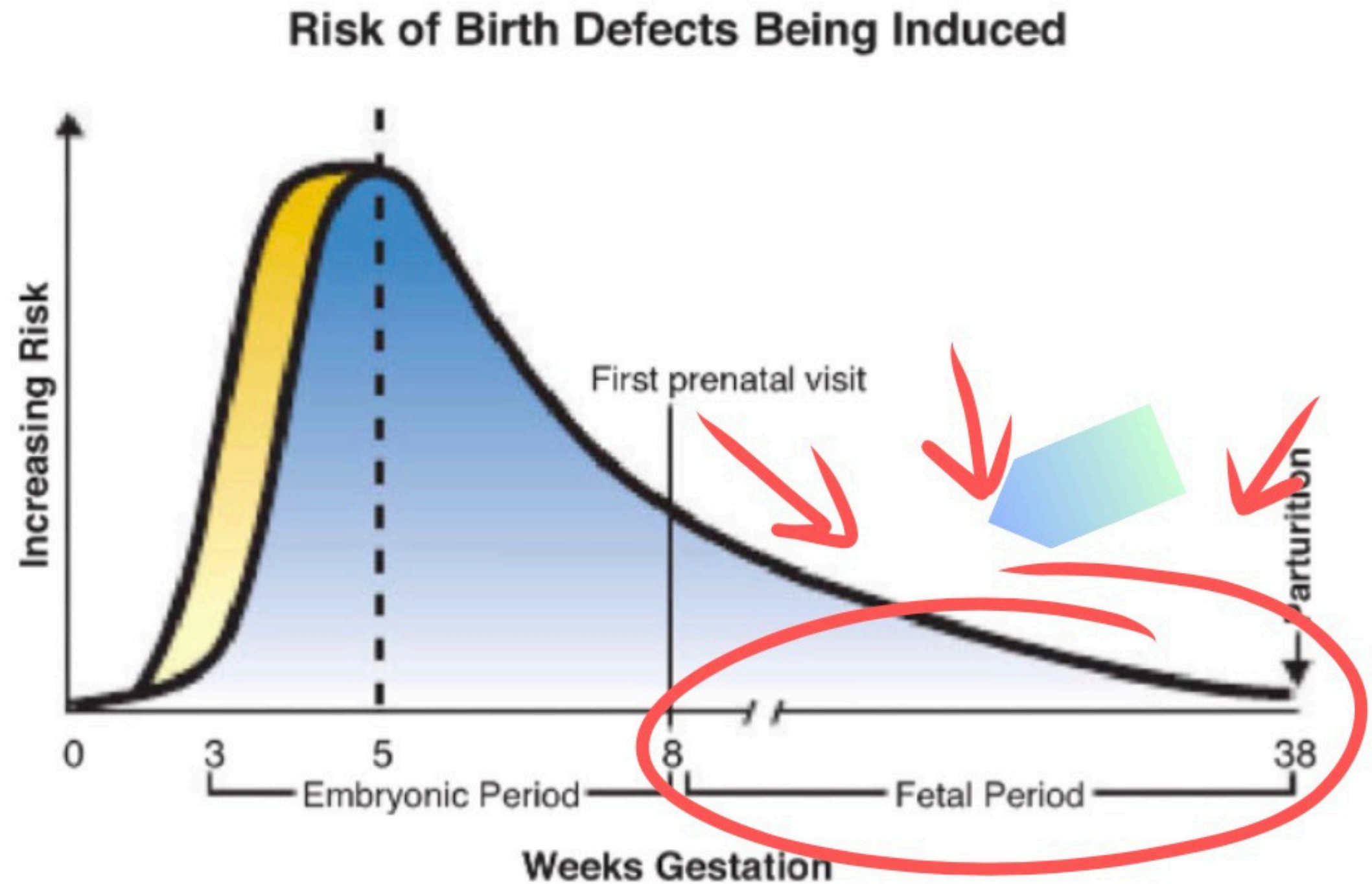
Organogenesis



CRITICAL PERIODS OF EMBRYONIC DEVELOPMENT

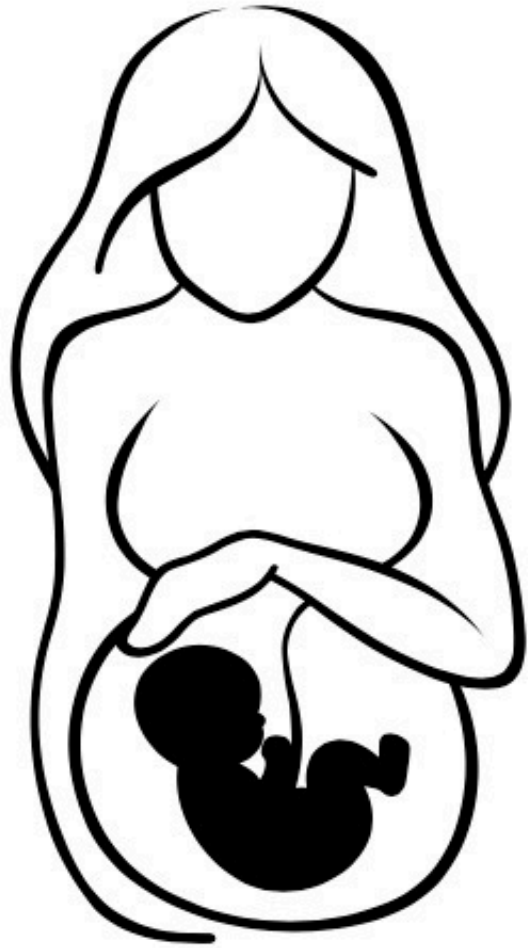
Critical Time

Fetal Period

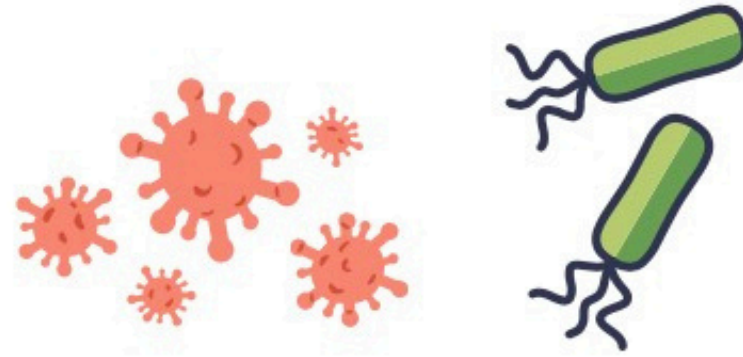




THREATS TO FETAL DEVELOPMENT



INFECTIOUS AGENTS



CHEMICALS/ DRUGS



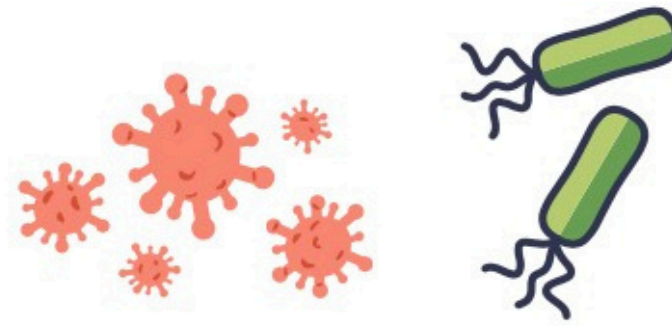
TERATOGENS AND ENVIRONMENTAL FACTORS



THREATS TO FETAL DEVELOPMENT



INFECTIOUS AGENTS



**TOXOPLASMOSIS
, RUBELLA,
SYPHILIS, ZIKA**

CHEMICALS/ DRUGS





THREATS TO FETAL DEVELOPMENT

FETAL ADAPTATIONS TO ADVERSE CONDITIONS IMPACT LIFELONG HEALTH (METABOLIC DISEASES, OBESITY, CARDIOVASCULAR RISK).

EPIGENETIC IMPRINTING: ENVIRONMENTAL SIGNALS TURN GENES "ON" OR "OFF".

MATERNAL STRESS: AFFECTS HPA AXIS & AUTONOMIC SYSTEM, POSSIBLY LEADING TO ADHD, CONDUCT DISORDERS, AND COGNITIVE CHANGES.

FETAL PROGRAMMINS AND EPIGENETICS



THREATS TO FETAL DEVELOPMENT

CHEMICALS/ DRUGS

MERCURY, THALIDOMIDE, ANTIEPILEPTICS.

NICOTINE: ↓ BIRTHWEIGHT, NEURODEVELOPMENTAL ISSUES.

ALCOHOL: FETAL ALCOHOL SYNDROME (FAS) → COGNITIVE & BEHAVIORAL DEFICITS.

COCAINE: MAY CAUSE BEHAVIORAL EFFECTS BUT LESS COGNITIVE IMPACT THAN INITIALLY BELIEVED.

**What do
you need
to know ?**



Identifying High Risk Newborn



Maternal



Fetal



Delivery

Identifying High Risk Newborn



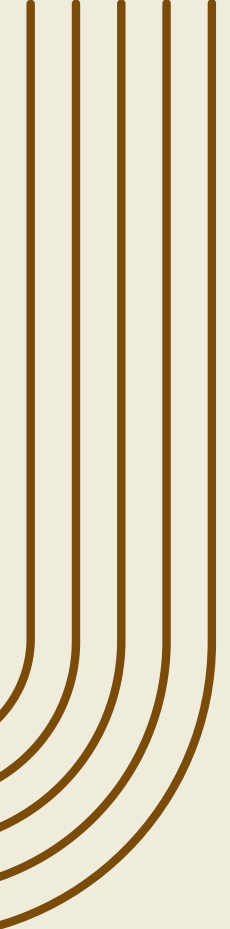
Maternal



Fetal



Delivery



Identifying High Risk Newborn

Maternal illnesses

Obstetric history

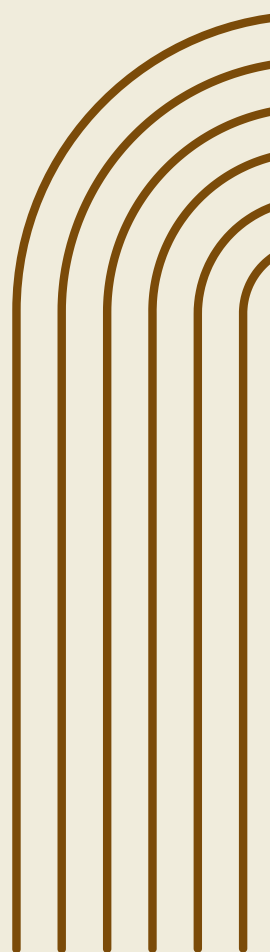
Prenatal care

Infections

Medications

Labor events

Mode of delivery



Maternal History

Works as an x-ray technician

No maternal illness of DM, HPN, Asthma, heart illnesses,
previous hospitalization at due to
-trauma

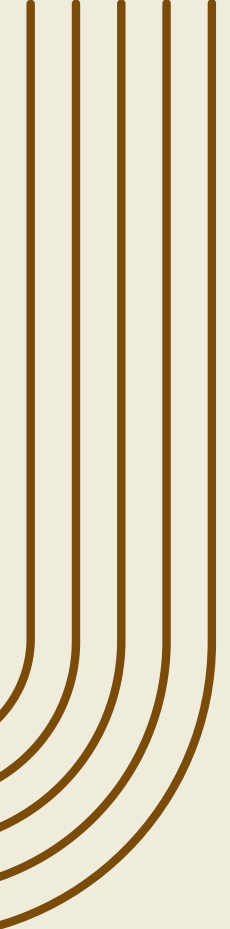
Maternal History/ Pre-natal History

Cognizant of pregnancy at ___ wks AOG

with pre-natal monthly check up at a lying -in, intake of multivitamins of anti-tetanus 2x,

no maternal illness of DM, HPN, Asthma, heart illnesses, Pneumonia, COVID, + UTI at 8 Mos. AOG, with intake of antibiotics of Amoxicillin 500mg/tab, 1 tab, 3x a day for 7 days, with follow-up and improvement,

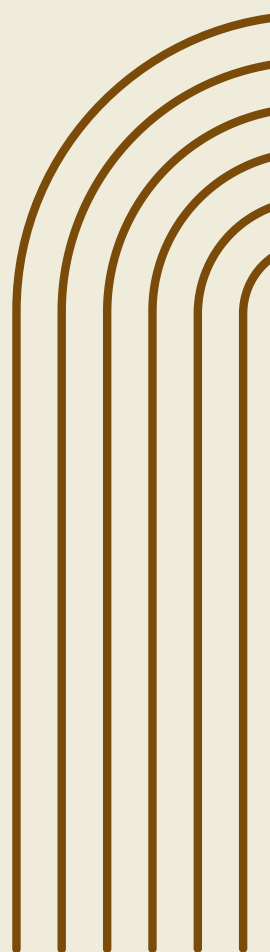
+ UTZ at 8 weeks, Congenital screening at 20 wks AOG revealing normal results, 40 wks AOG adequate AF, no cord coil, cephalic, presently with no cough and colds, fecer, loose stools, dysuria



Chief complaint

labor pains/uterine contractions

HPI:



Delivery Room Management



Delivery Room Management



Personnel

Environment

Equipment

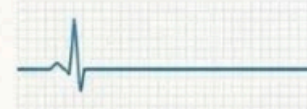
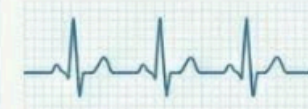
Breastfeeding



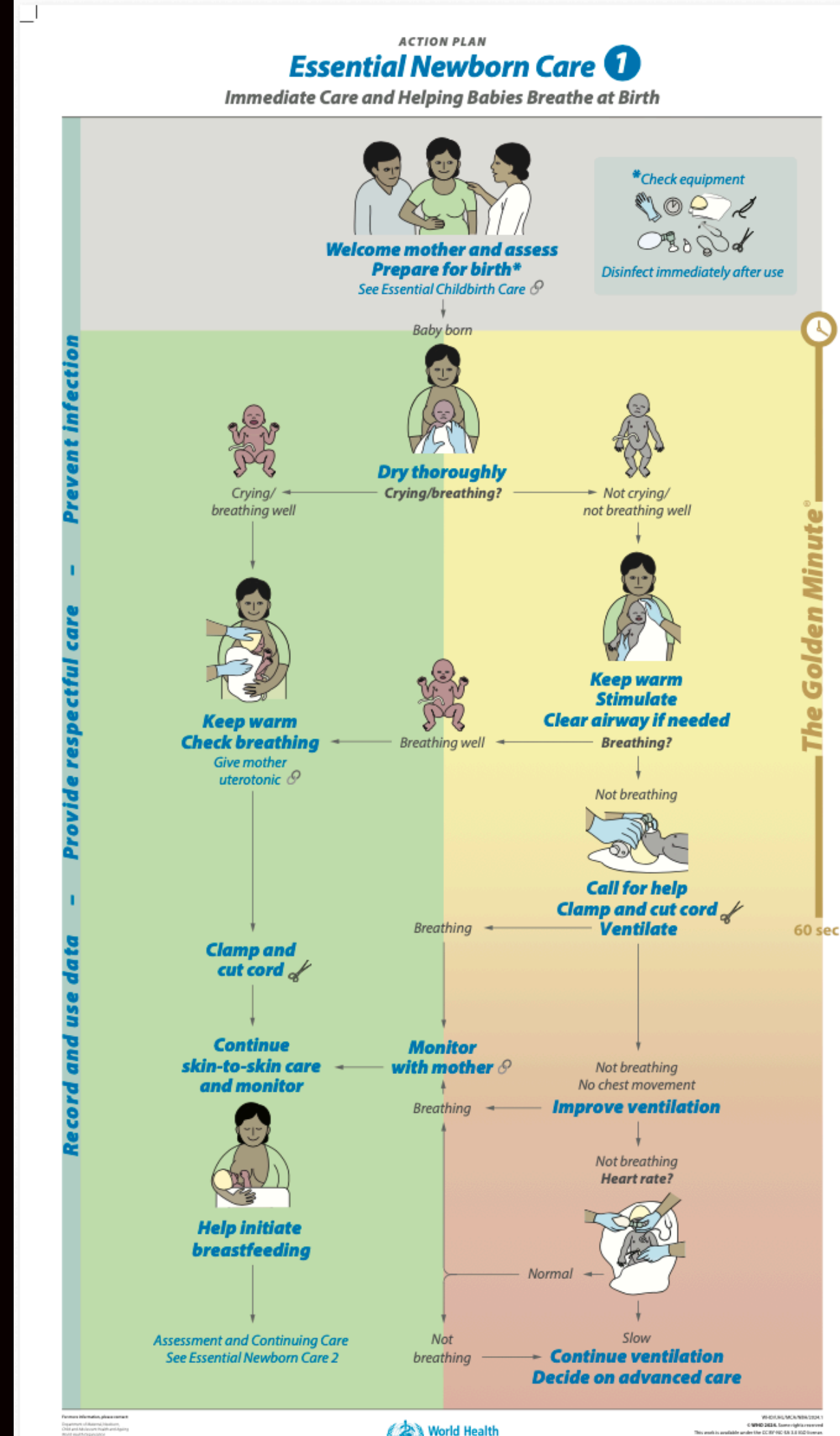
APGAR ASSESSMENT



APGAR ASSESSMENT

APGAR Score			
Newborn Assessment at Birth (1 & 5 Minutes)			
	0	1	2
 A – Appearance (Color)	Blue or pale 	Pink body, blue extremities (acrocyanosis) 	Completely pink 
 P – Pulse (Heart Rate)	Absent 	< 100 beats/min 	≥ 100 beats/min 
 G – Grimace (Reflex Irritability)	No response 	Grimace 	Cry or withdrawal 
 A – Activity (Muscle Tone)	Limp 	Some flexion 	Active movement 
 R – Respiration	Absent 	Slow or irregular 	Good cry 
 Assessed at 1 minute and 5 minutes after birth. May be repeated if score is low.			
MED NAZ Score Interpretation 0-3 → Severe neonatal compromise 4-6 → Moderate neonatal compromise 7-10 → Normal newborn			
⚠️ CRITICAL MEDICAL DISCLAIMER: APGAR score is NOT used to guide resuscitation decisions. It is a post-birth assessment tool only.			

Essential Intrapartum Newborn Care



EINC

Normal

Good cry

Good Activity

Compromised

Poor cry

Poor tone

Respiratory Distress

Low APGAR



ACTION PLAN

Essential Newborn Care **1**

Immediate Care and Helping Babies Breathe at Birth



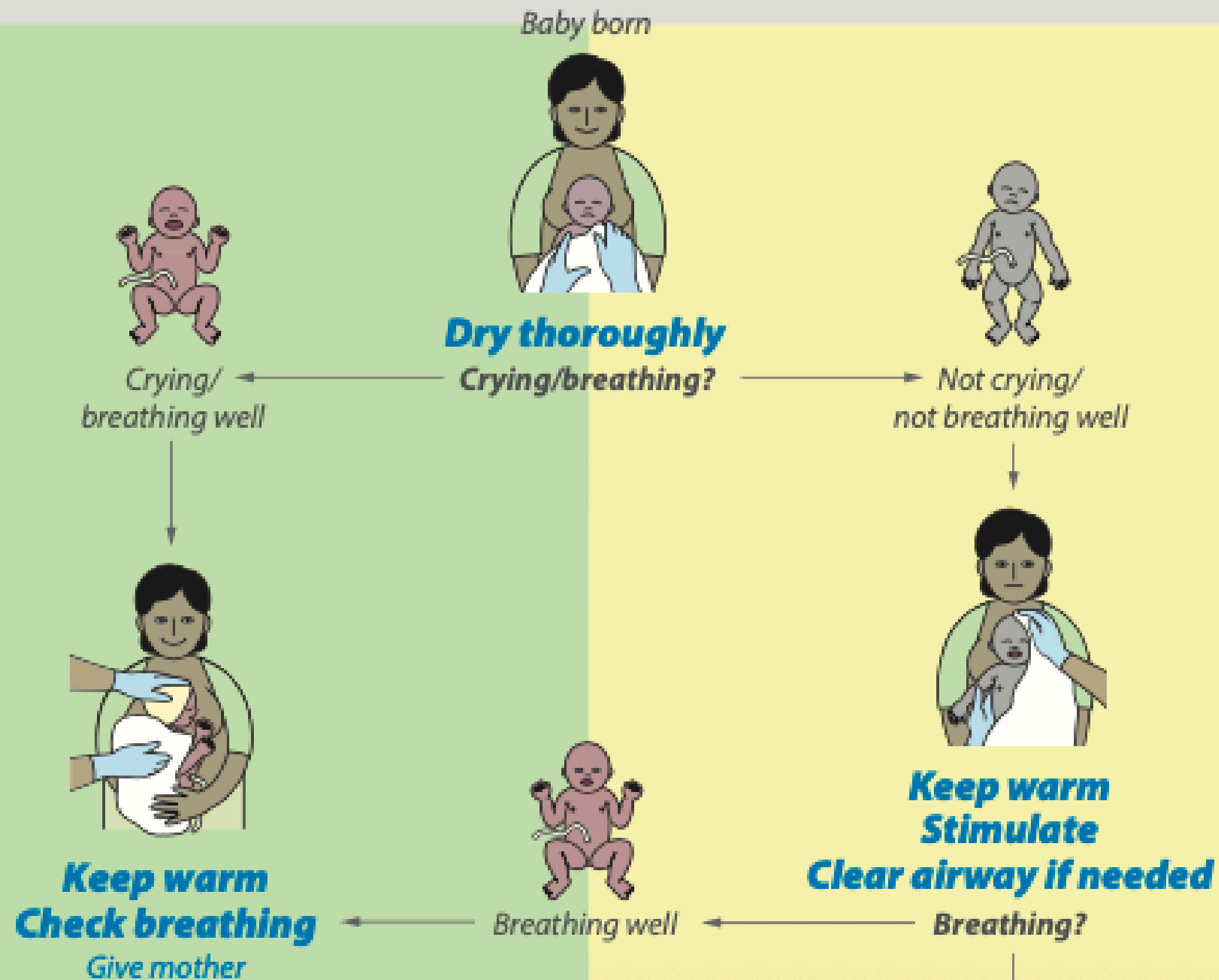
**Welcome mother and assess
Prepare for birth***

See Essential Childbirth Care 

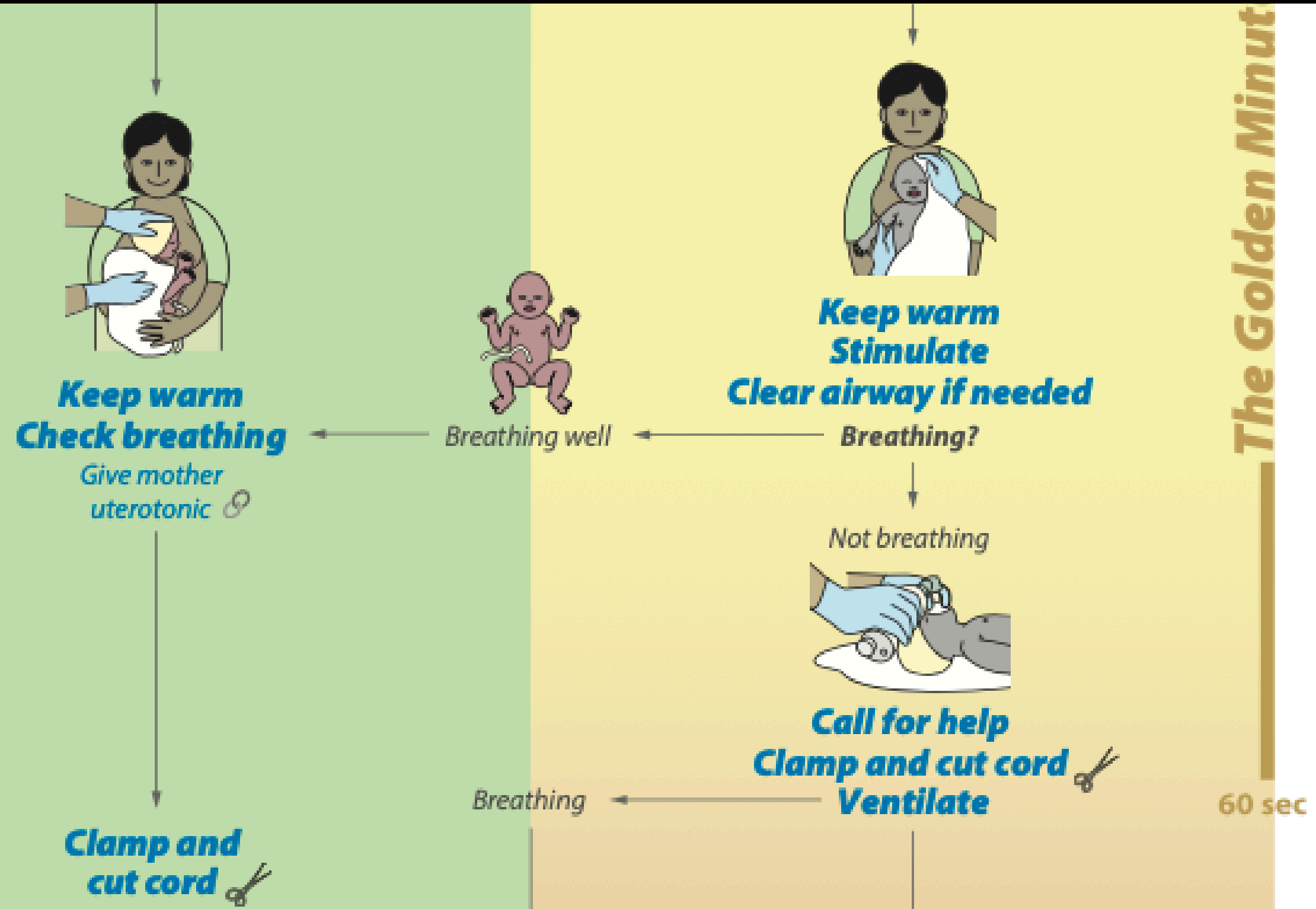
***Check equipment**

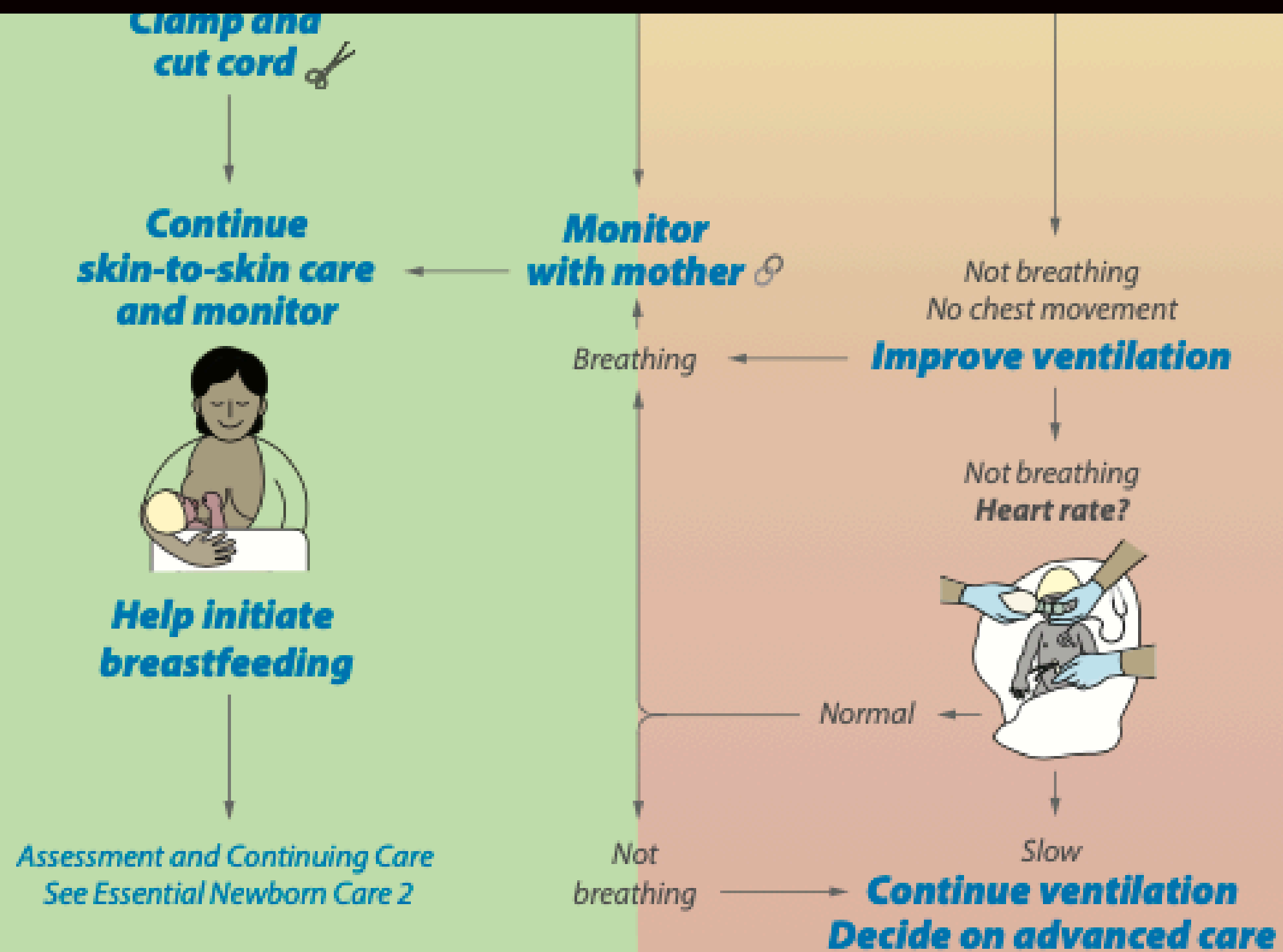


Disinfect immediately after use



data - Provide respectful care -







Initial STEPS of Neonatal Resuscitation Program made super EASY!

Tala Talks NICU



From a doctor licensed in the US

MRP



Watch on  YouTube

DR. TALA



APGAR





Age of Gestation





**Neurologic
History**

**Physical
Maturity**



**Which Baby
concerns
you most?**



Growth Classification

Birth weight

Gestational age

Growth curves

SGA

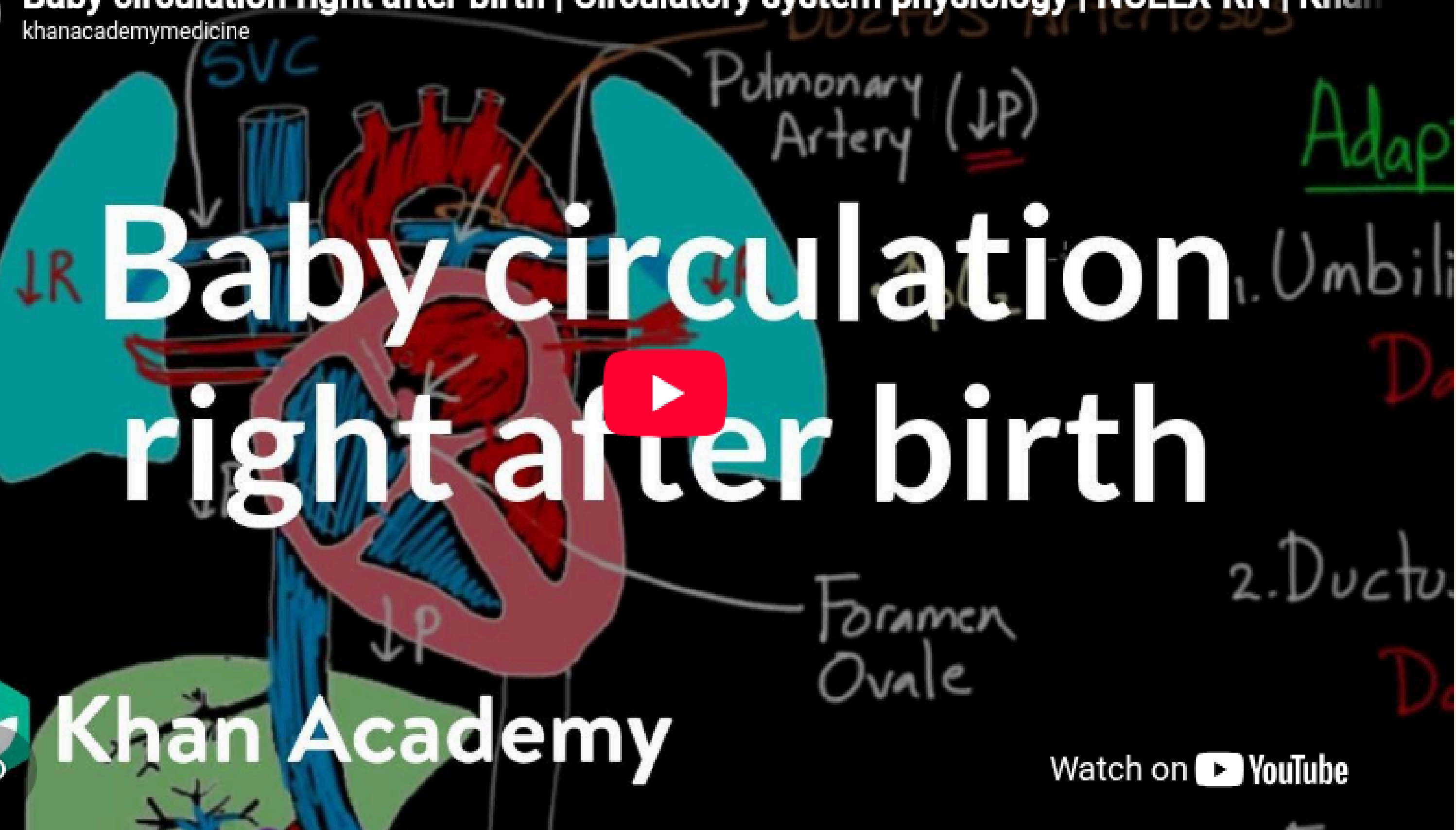
- **Maternal hypertension**
- **Smoking**
- **Placental insufficiency**
- **Multiple gestation**

LGA

- **Maternal diabetes**
- **Maternal obesity**
- **Post-dates pregnancy**



Baby circulation right after birth | Circulatory system physiology | NCLEX-RN | Khan
khanacademymedicine



Khan Academy

Watch on  YouTube

**What should a
normal
newborn look
like ?**



Respiratory

GIT

**Caloric
Requirement**

Fluid and Electrolytes

Thermoregulation

Physiologic Jaundice



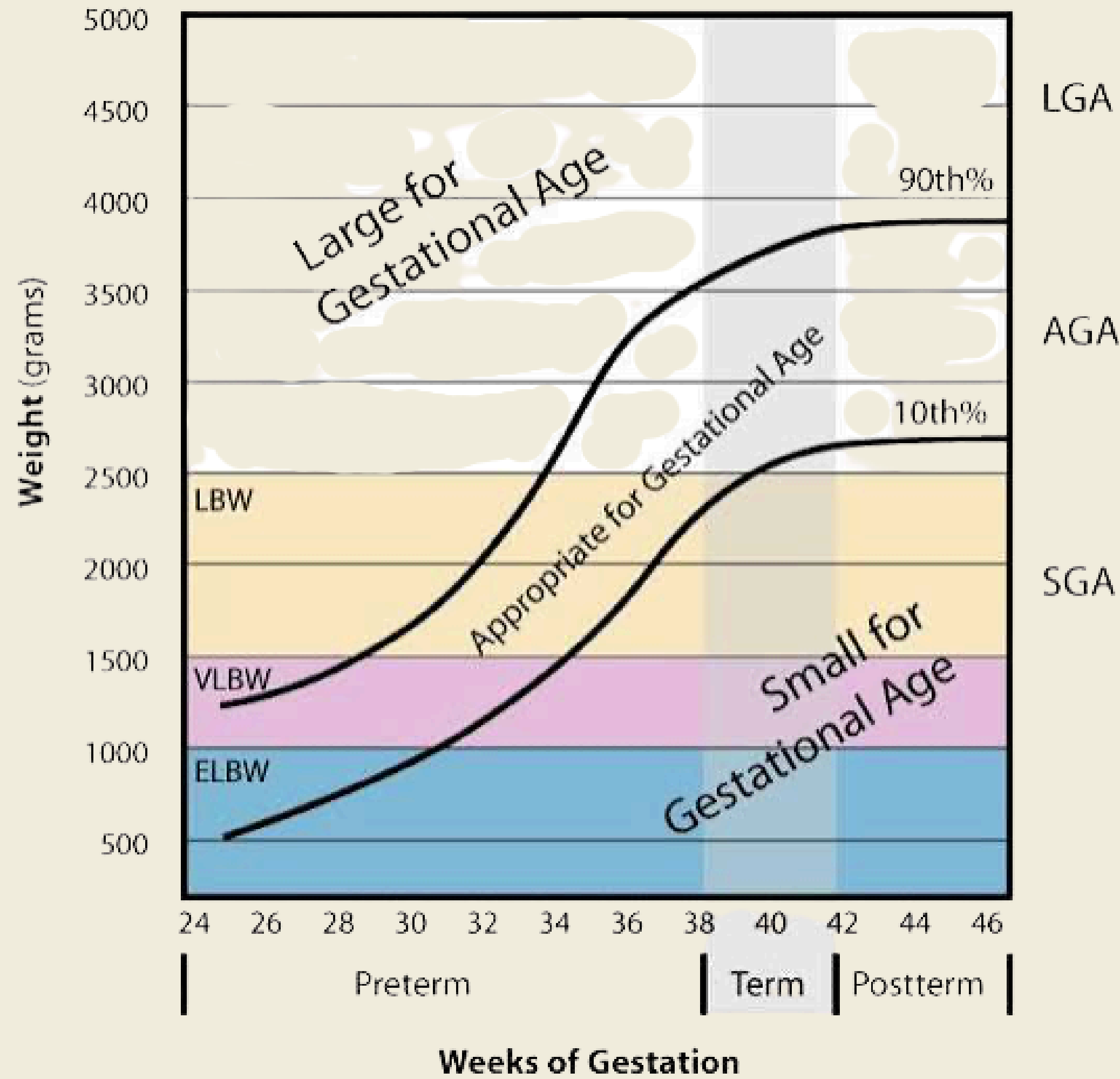
**Normal
Physiologic
Adaptation**

How to approach Neonatal Disorders ?



Fetal Growth Assessment

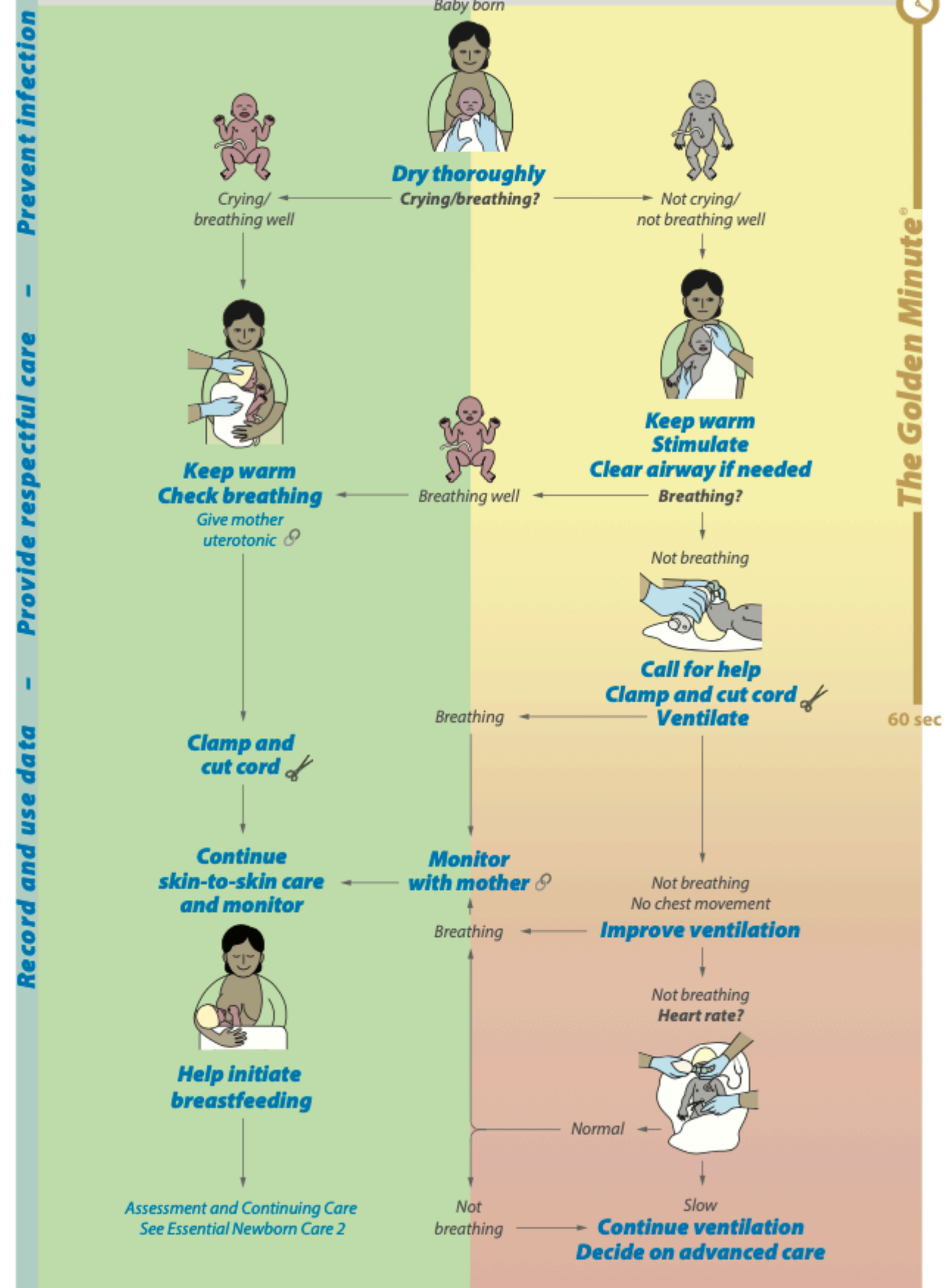
Expected
weight
length
head circumference
gestational age



Newborn Care first 4- hours



Newborn Care first 4-hours



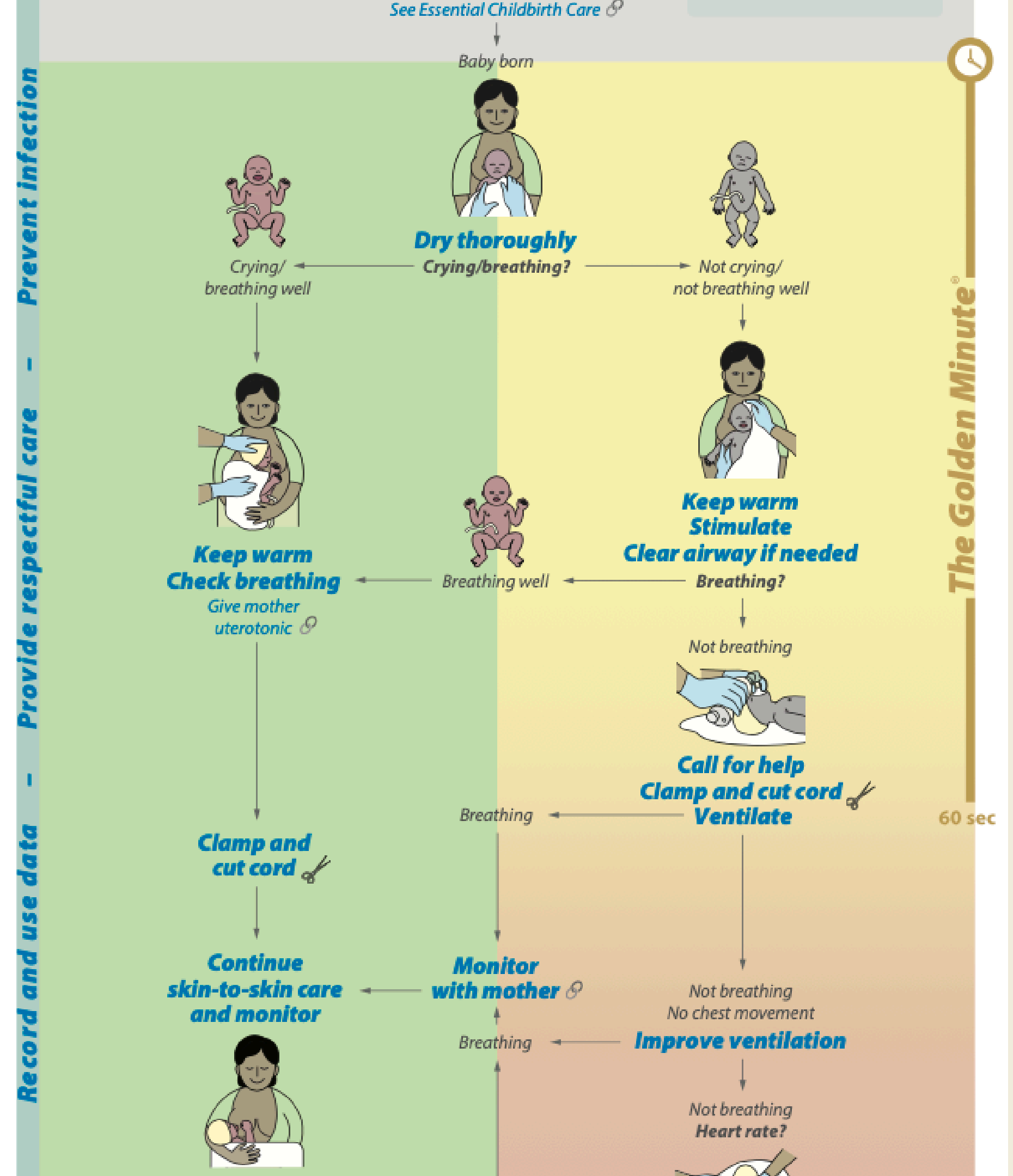
Normal Newborn



High Risk Newborn



Newborn Care first 4-hours



Doctor's Order



Doctor's Order



Revised as of September 2022



Citystate Centre, 709 Shaw Boulevard, Pasig City
Call Center: (02) 8441-7442 Trunkline: (02) 8441-7444
www.philhealth.gov.ph



ESSENTIAL INTRAPARTUM NEWBORN CARE (EINC) PROTOCOL CHECKLIST WITH SPECIAL CONSIDERATION FOR PREMATURE *OR* SMALL BABIES

HEALTH FACILITY (HF)					
ADDRESS OF HF					
A. PATIENT	1. Last Name, First Name, Middle Name, Suffix				SEX ☐ Male ☐ Female
	2. PhilHealth ID Number [][] - [][][][][][][][][] - []				
B. MEMBER	(Answer only if the patient is a dependent; otherwise, write, "same as above")				
	1. Last Name, First Name, Middle Name, Suffix				
	2. PhilHealth ID Number [][] - [][][][][][][][][] - []				

Place a (✓) in the status column if DONE or NA if not applicable.

I. PROCEDURES UPON ARRIVAL TO THE FACILITY AND PRIOR TO DELIVERY	Status
A. Upon arrival at facility	
1. Identified the <i>mother at risk of preterm birth</i> at point of entry	
2. <i>Mother in labor between 24-36 weeks was given antenatal steroids, if not yet previously given</i>	
3. History	
4. Vital signs	
5. Physical exam	
6. Obtained birth plan	
7. Determined companion of choice	

I. PROCEDURES UPON ARRIVAL TO THE FACILITY AND PRIOR TO DELIVERY	Status
3. During labor	
1. Allowed <i>mobility</i> and position of choice, <i>when applicable</i>	
2. Used partograph, <i>as indicated</i> , to monitor labor	
3. Allowed a companion of choice	
4. Allowed the mother to have oral fluids and light snacks, as indicated in Physician's orders.	
5. Ordered IV fluids and NPO, only when indicated	
6. Non-routine practice of perineal shaving or enema	

6. Non-routine practice of perineal shaving or enema	
C. Prior to delivery	
1. Ensured room temperature is 25-28 degrees Celsius. Eliminated air drafts	
2. Arranged all instruments in a linear sequence.	
3. Mother informed by skilled health professional on the care of her baby in the first hours of life	
4. Checked resuscitation area and equipment	
D. Perineal bulging	
1. Performed proper handwashing	
2. Put on two pairs of sterile gloves (if solitary birth attendant)	
3. No routine episiotomy or fundal pressure done.	

3. The routine episiotomy or fundal pressure done.

II. PROCEDURES FROM DELIVERY TO TIME SIX HOURS POSTPARTUM

A. Delivery

1. Supported the perineum of the mother with controlled delivery of the head

2. Called out time of birth and sex of the baby

3. *Delivered the baby prone on the mother's abdomen or chest*

B. First 30 seconds

1. Immediately and thoroughly dried the baby and checked breathing

2. When the newborn premature or small baby is vigorous, placed skin-

6. <i>Premature or small baby, without respiratory distress, unable to latch on the breast, transferred to NICU for further care, as needed</i>	
7. <i>Transferred the mother and her baby to be roomed-in together in Kangaroo position, if possible</i>	
8. Eye care done	
9. Did thorough physical exam of baby including weight, anthropometric measurements, <i>when appropriate</i>	
10. Injected vitamin K IM	
11. Injected hepatitis B vaccine IM, <i>when appropriate</i>	
12. Injected BCG vaccine ID, <i>when appropriate</i>	
E. More than 6 hours	
1. Breastfeeding support on positioning and attachment provided	
2. Bathing done (optional)	
3. <i>No additional "cord care" with trimming and application of alcohol or povidone iodine</i>	

4. Massaged uterus of the mother <i>gently</i>	
5. Examined the birth canal for lacerations, bleeding	
6. Examined the placenta and membranes	
7. Basic newborn resuscitation provided, <i>as needed</i> ● Instead of room air resuscitation, for babies < 32 weeks, it is preferable to start with 30% oxygen, where feasible ● Oxygen 0.5-1 lpm given by nasal cannula if needed, while maintaining skin-to-skin contact with mother ● If vigorous and stable, returned the baby to prone position, allowed to stay on mother's chest in skin-to-skin contact and latched on the breast once with feeding cues.	
8. Advanced newborn resuscitation provided, <i>as needed</i>	
9. Vital signs taken including oxygen saturation by pulse-oximetry, every 5 minutes and recorded	

12. Injected BCG vaccine ID, <i>when appropriate</i>	
E. More than 6 hours	
1. Breastfeeding support on positioning and attachment provided	
2. Bathing done (optional)	
3. <i>No additional "cord care" with trimming and application of alcohol or povidone iodine</i>	

Certified correct by:														Conforme by:													
(Printed name and signature) Attending Physician														(Printed name and signature) Parent/Guardian													
PhilHealth Accreditation No.														Date signed (mm/dd/yyyy)													
Date signed (mm/dd/yyyy)																											

**When to
discharge
patient ?**



Discharge Orders

Maternal History/ Pre-natal History

Cognizant of pregnancy at ___ wks AOG

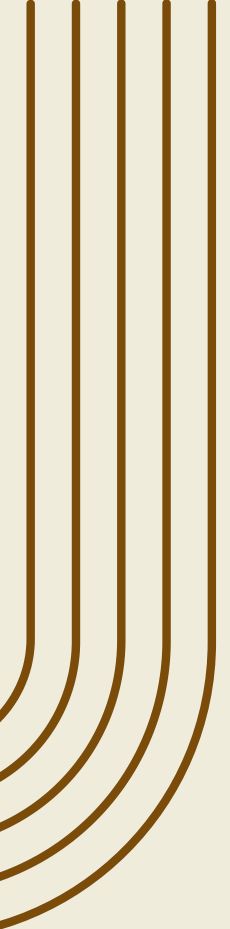
with pre-natal monthly check up at a lying -in, intake of multivitamins of anti-tetanus 2x,

no maternal illness of DM, HPN, Asthma, heart illnesses, Pneumonia, COVID, + UTI at 8 Mos. AOG, with intake of antibiotics of Amoxicillin 500mg/tab, 1 tab, 3x a day for 7 days, with follow-up and improvement,

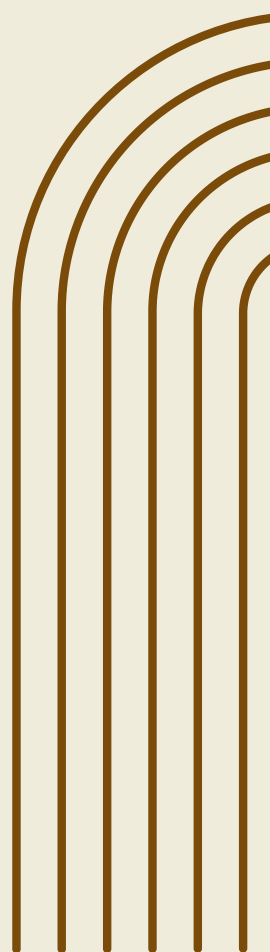
+ UTZ at 8 weeks, Congenital screening at 20 wks AOG revealing normal results, 40 wks AOG adequate AF, no cord coil, cephalic, presently with no cough and colds, fecer, loose stools, dysuria

Birth History

Born term baby boy at 40 wks AOG to a 28 y.o G1P1 (1001) mother delivered via normal spontaneous delivery, after 6 hours of labor assisted by a midwife at a lying-in, AS, 8,9 , BW 3,000 g BL 50 cm HC 32 AC com with no PROM, no meconium staining, no cord coil, with good cry and activity, discharge with mother as well baby after 48 hours

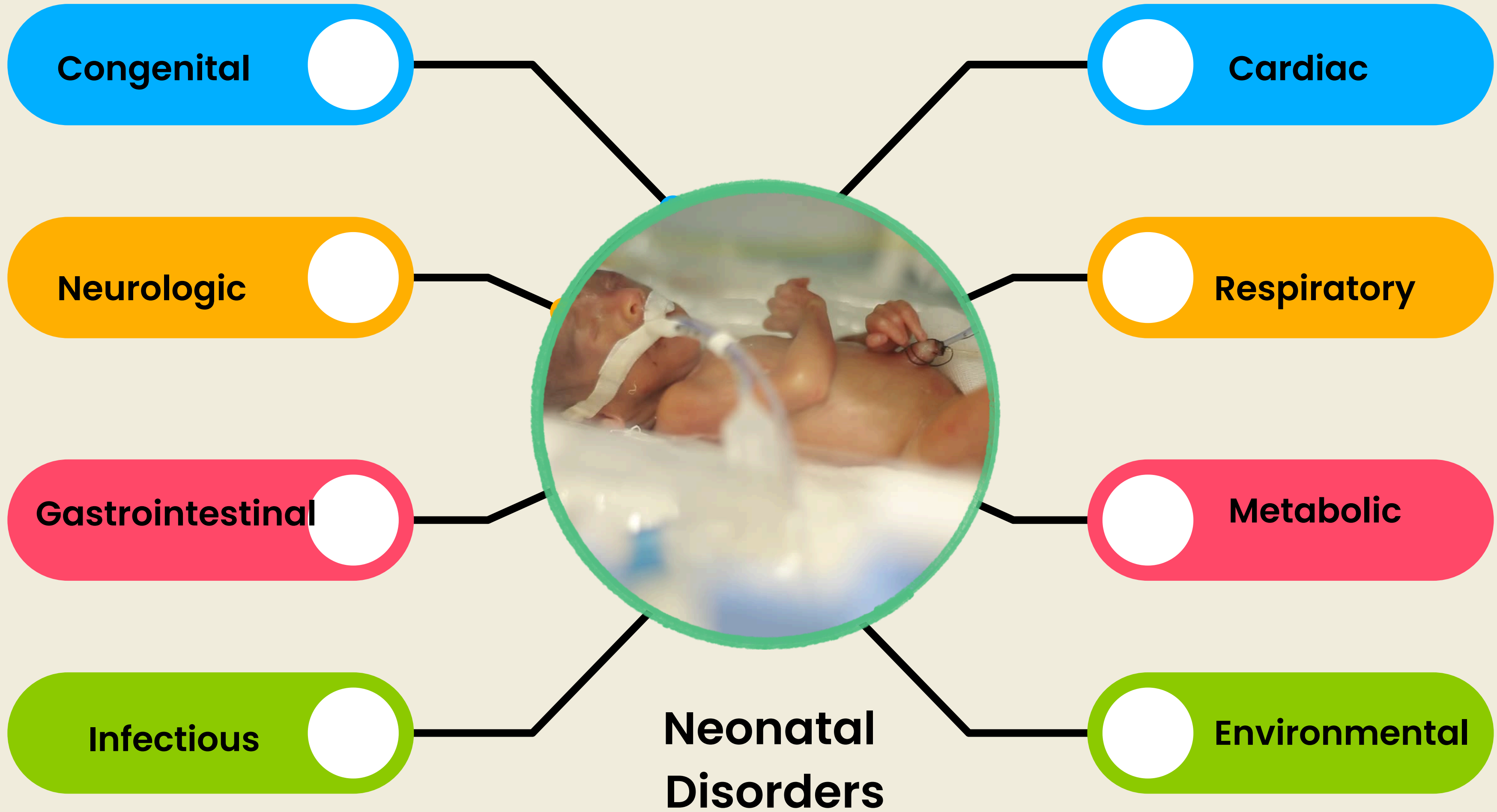


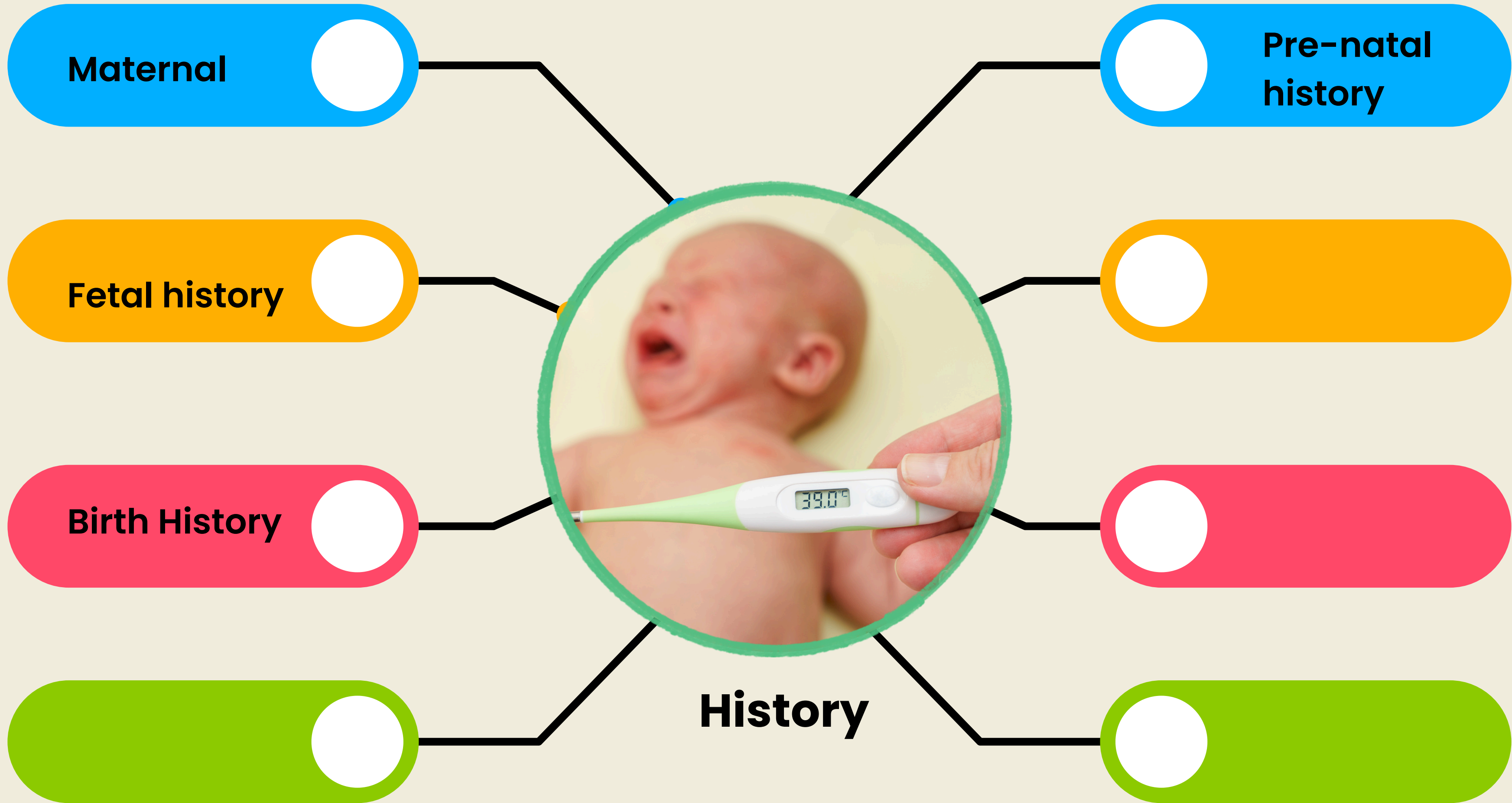
Birth History (sick child)



**What are the
essentials for
each
disorder?**









For each disorder

Definition

Etiology/Risk Factors

Natural Course of Illness

Clinical manifestations

Differential Diagnosis

Diagnostic Evaluation

Management

Complication

Prognosis/Outcome



20,000+ pieces sold in the past 12 months.



Strong 60% repeat customer rate.



Recognized in sustainable fashion showcases.



Growing community of loyal, eco-conscious followers.



Our Progress

Your paragraph text



**Why Prematurity
Matters?**



Our Answer



We create fashion that is responsible, inclusive, and timeless. Our approach combines sustainable materials, ethical production, and modern design that speaks to global communities.





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**Global fashion industry
valued at \$1.7 trillion and
growing**



**Sustainable fashion
projected to reach \$15
billion by 2030**



**Younger generations drive
demand for eco-friendly
and inclusive brands**



Market Potential



www.reallygreatsite.com

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Our Offerings



Everyday collections made with organic and recycled fabrics.



Accessories that blend functionality with style.



Premium capsule collections with cultural storytelling.



Artist and designer collaborations to keep ideas fresh.



www.reallygreatsite.com

Our business model combines direct-to-consumer sales, wholesale distribution, exclusive limited drops, and strategic partnerships through licensing and collaborations.





20,000+ pieces sold in the past 12 months.



Strong 60% repeat customer rate.



Recognized in sustainable fashion showcases.



Growing community of loyal, eco-conscious followers.



Our Progress



The Competition

Fast fashion is cheap but unsustainable, luxury fashion is exclusive but inaccessible — our edge is combining the best of both with accessible luxury, eco-conscious design, and cultural relevance.

Who We Are

Together, we are building a brand that balances style and responsibility.



Creative Director

over a decade of
experience designing for
international brands.



Business Director

expert in scaling retail
and managing
sustainable supply
chains.



Marketing Lead

specialist in fashion
storytelling and digital
campaigns.



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Studio Shodwe

Thank You Very Much!

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