

# Beyond Feeding: A Case-Based Look at Speech Pathology in the NICU

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# Disclosures

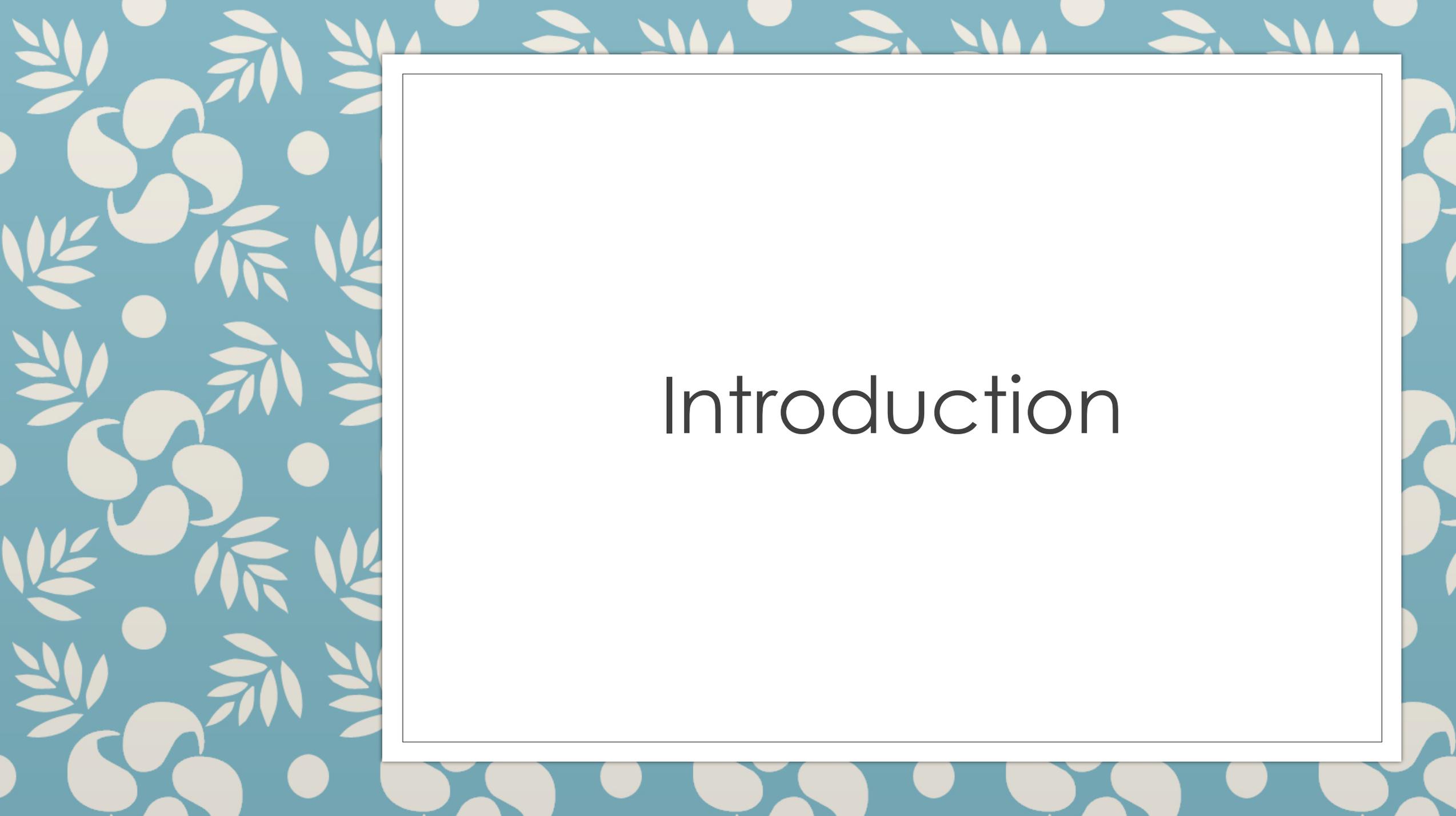
## Financial

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# Course Objectives

- After this course, participants will be able to:
  - I. Describe the scope of Speech Pathology services in the NICU beyond oral feeding, including developmental care and neuroprotective supports.
  - II. Identify early risk factors in medically fragile infants that warrant Speech Pathology assessment and ongoing monitoring.
  - III. Describe how Speech Pathologists collaborate with families, nursing, medical, and therapy teams to support infant development prior to and during oral feeding.



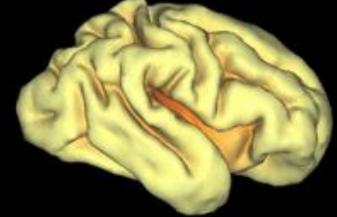
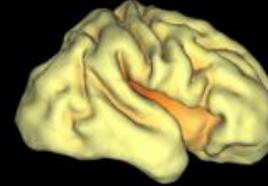
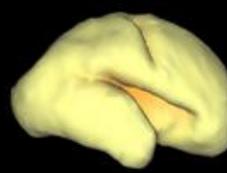
# Introduction



25 week

30 week

33 week

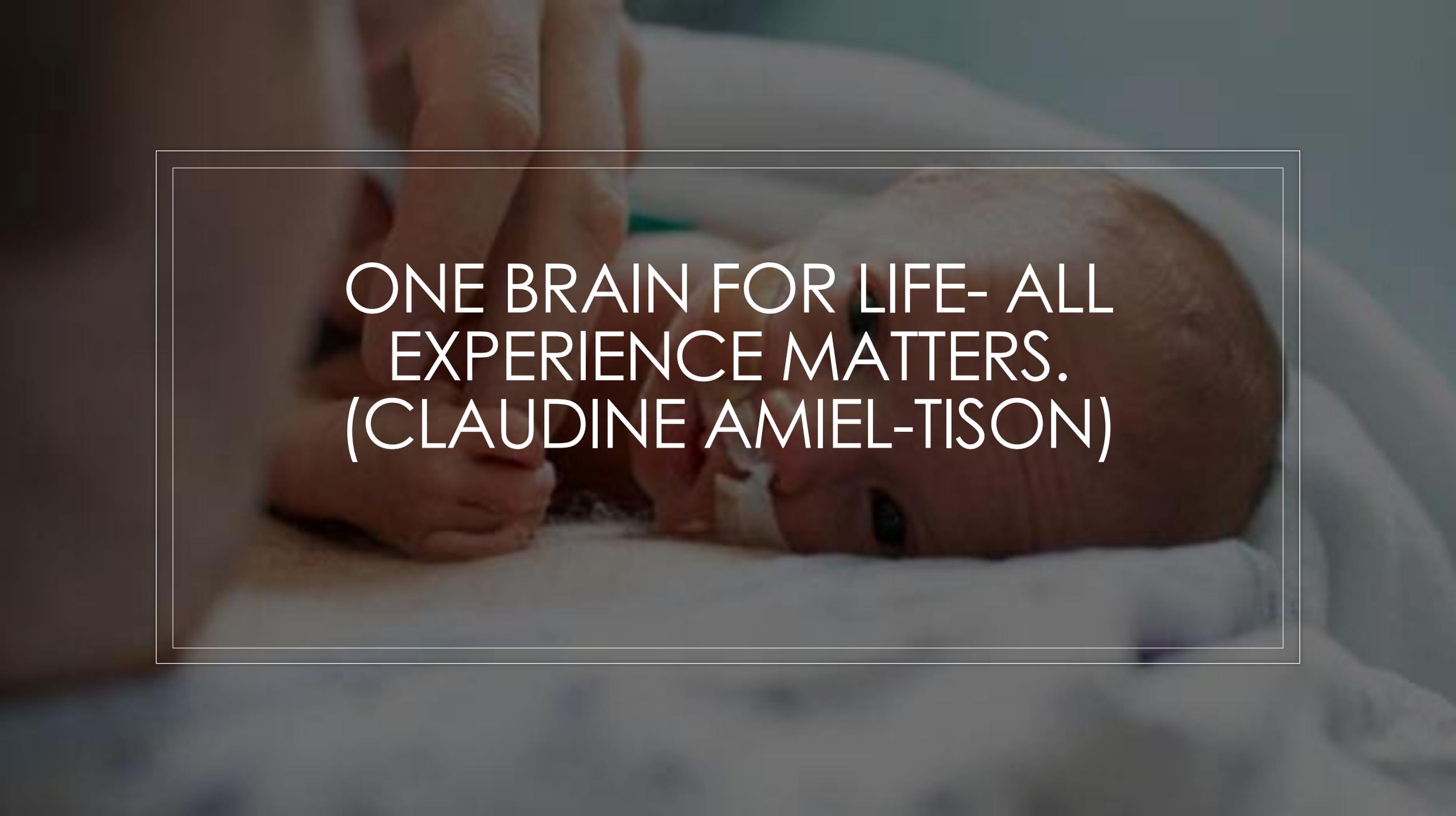


Term

Adult

# NEUROPROTECTION

Neurons that fire together, wire together. Experience strengthens synapses.

A newborn baby is lying on a white surface, possibly a bed or blanket. A hand is visible, gently touching the baby's head. The background is softly blurred, showing more of the white surface and a hint of a blue wall. The overall mood is calm and tender.

ONE BRAIN FOR LIFE- ALL  
EXPERIENCE MATTERS.  
(CLAUDINE AMIEL-TISON)

# Cortical folding



25 week



30 week



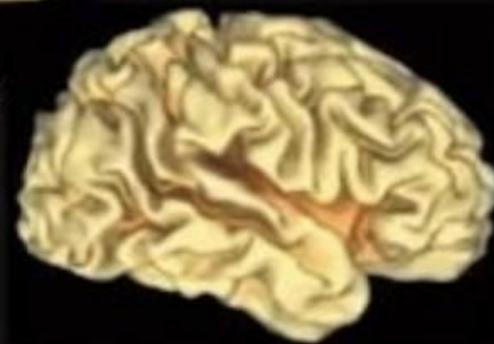
33 week



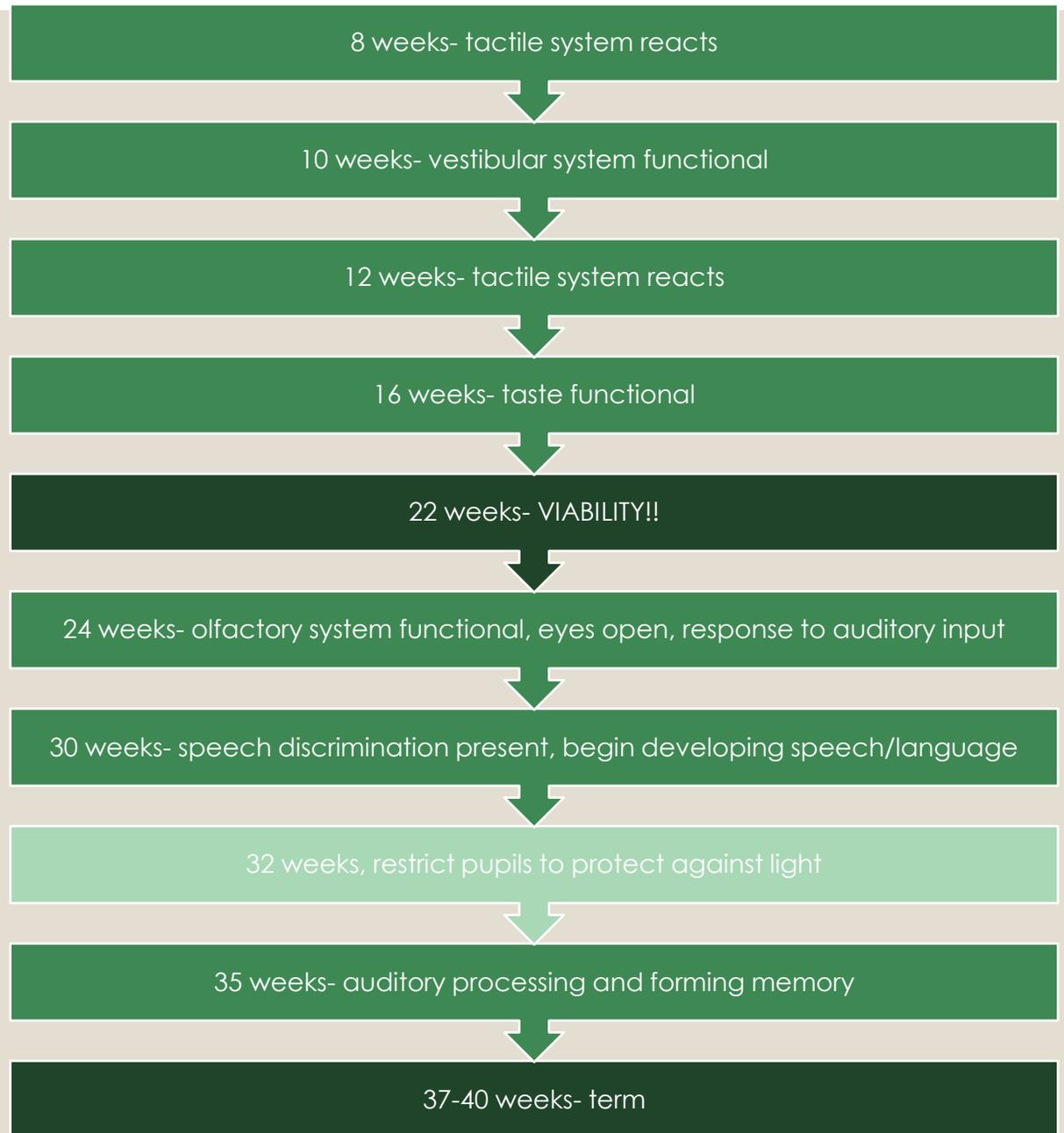
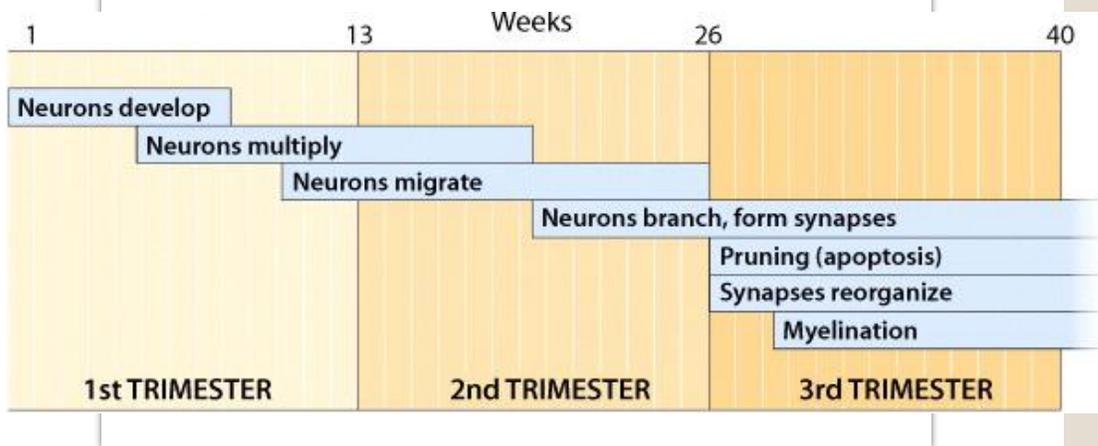
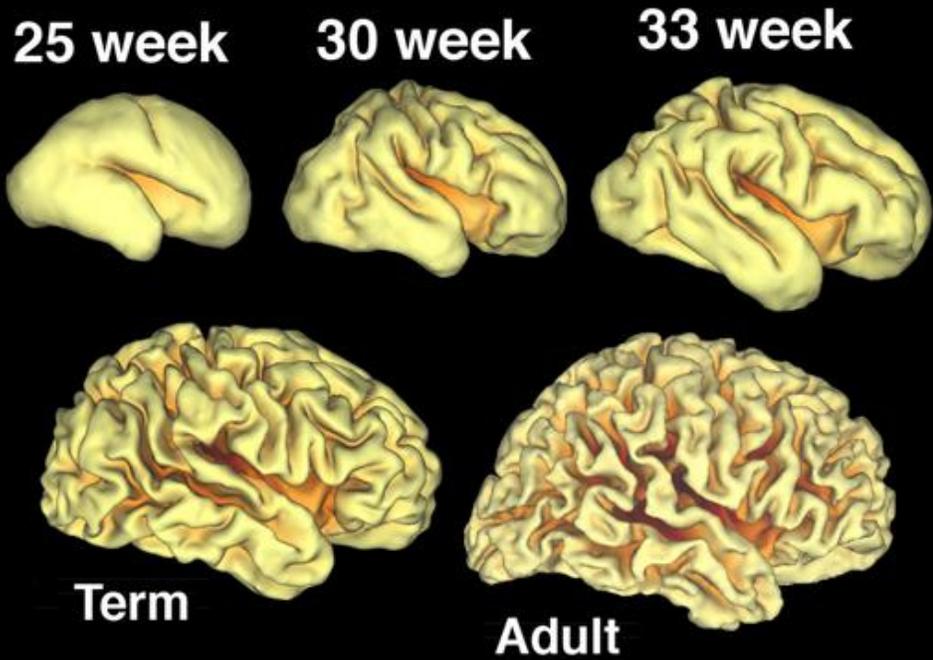
Term equivalent  
(37 weeks)



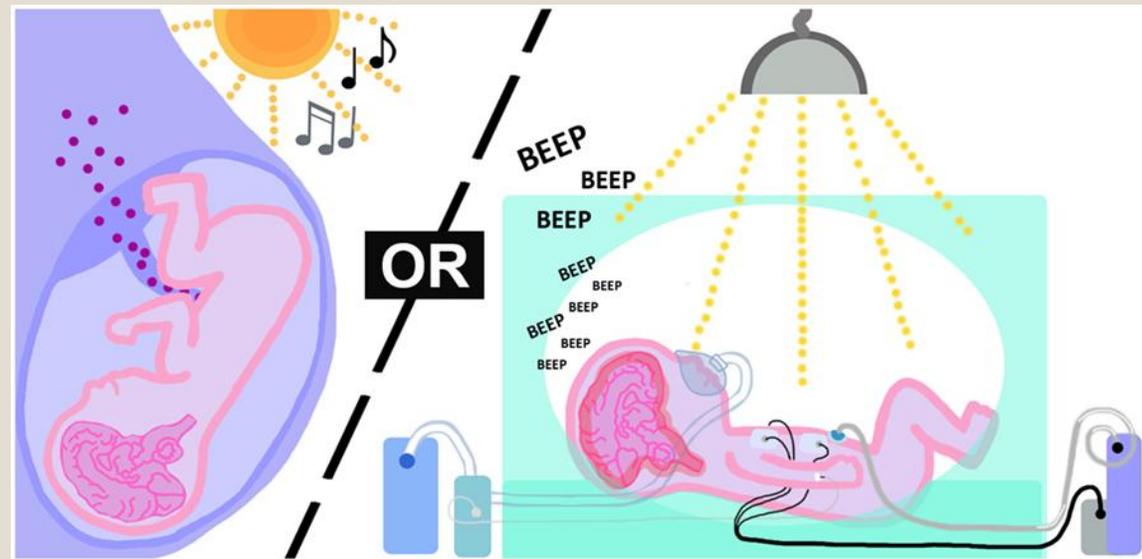
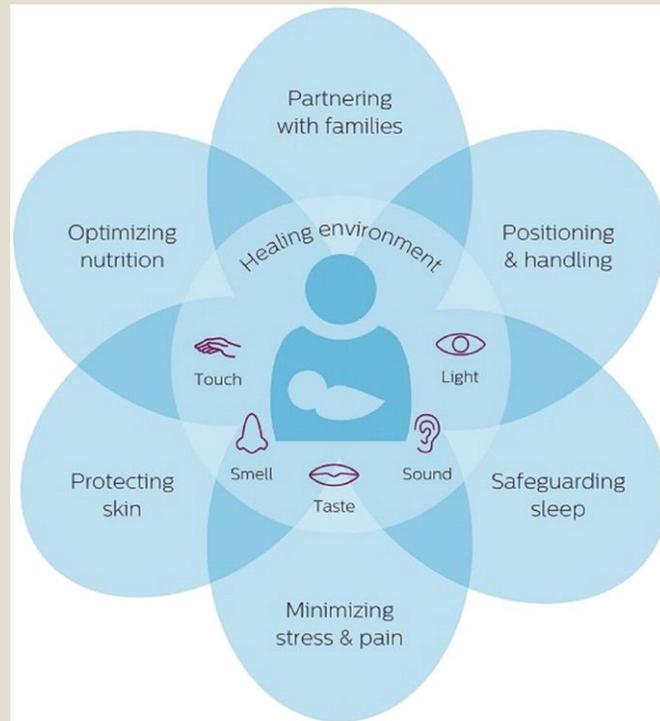
Adult



Term control



# NICU Environment and Effects on Sensory system



# Stress Signs



- <https://bloominglittles.com/10-unexpected-ways-your-nicu-baby-is-telling-you-they-are-stressed/>

# Signs of Stability



BLOOMING LITTLES

# Habilitative Interventions

Tactile

Vestibular/Kinesthetic

Olfactory

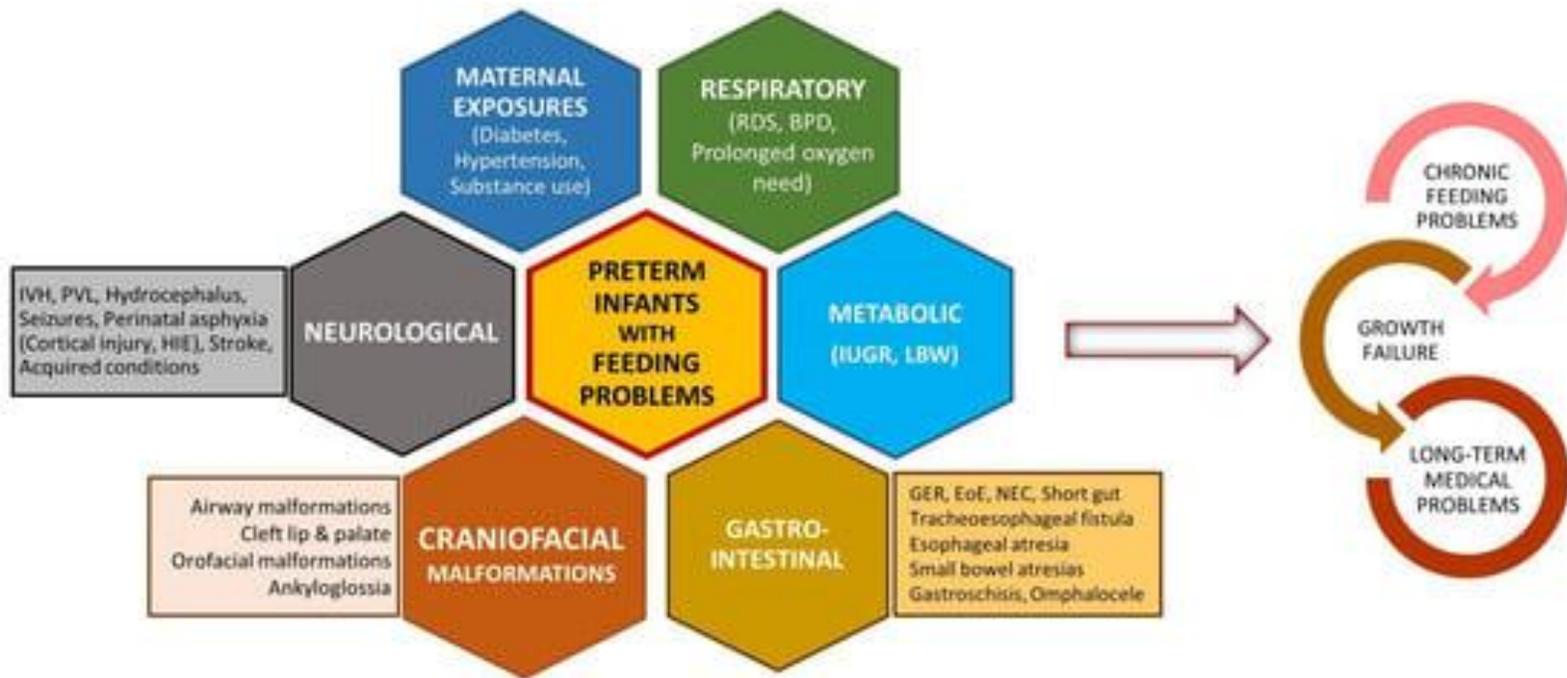
Gustatory

Auditory

Visual

Promotes developmental foundations for speech, language and swallowing

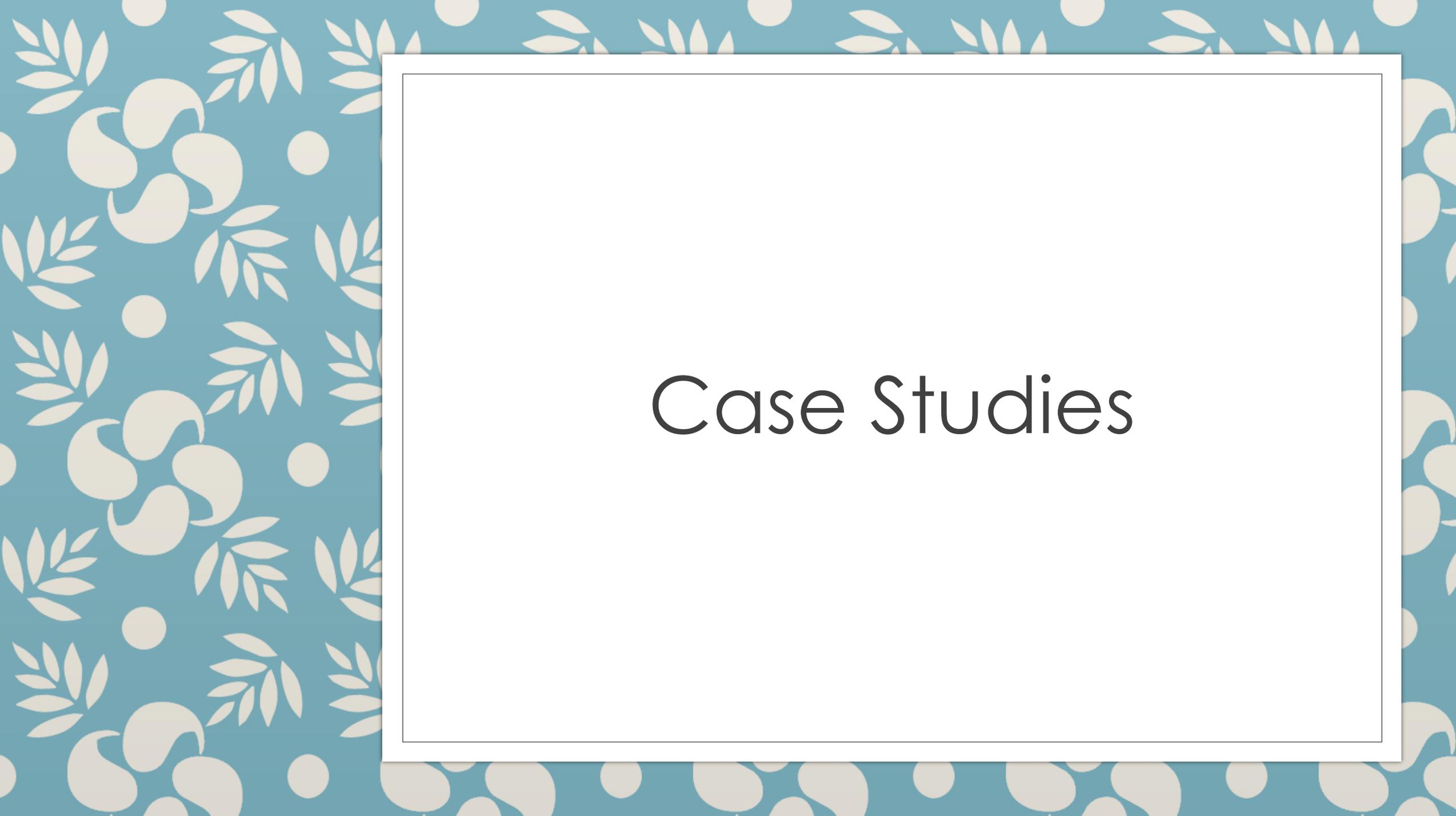




**RISK FACTORS FOR FEEDING PROBLEMS IN PRETERM INFANTS**

## At risk population

- Kamity, R., Kapavarapu, P. K., & Chandel, A. (2021). Feeding problems and long-term outcomes in preterm infants—a systematic approach to evaluation and management. *Children*, 8(12), 1158.



# Case Studies



Stock image used for illustrative purposes only, not real photo of patient described.

## Case Study: Ava

A cheeky tale of strength and snuggles

# Maternal history

- Antenatal History
- Prenatal care
- Scans/tests
- Complications
- Medications in pregnancy
- Medications at delivery

# Maternal Medications



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Betamethasone

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Magnesium

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Other common  
maternal medications



## Birth conditions

- Type of delivery
- APGARs
- Respiratory support
- Medications
- Lines
- Birth weight

## APGAR SCORE

| SCORE    | APPEARANCE  | PULSE  | GRIMACE  | ACTIVITY   | RESPIRATION  |
|----------|---|--|--|--|--|
| <b>0</b> | <br>Blue all over        | <br>No pulse        | <br>No response to stimulation | <br>No movement                         | <br>No respiration        |
| <b>1</b> | <br>Blue extremities     | <br><100 beats/min  | <br>Grimace on stimulation     | <br>Some flexion                        | <br>Weak, irregular, slow |
| <b>2</b> | <br>No blue colouration | <br>>100 beats/min | <br>Cry on stimulation        | <br>Flexed limbs that resist extension | <br>Strong cry           |

**≥7** NORMAL
**4-6** LOW
**≤3** CRITICAL

More FREE resources at [eventmedicinegroup.org](http://eventmedicinegroup.org)

APGARs

# Birth Weight Implications

- Over 2500gm [5.51 lbs] - Average neonatal BW is 7
- 1500-2499gm [3.31-5.50 lbs] - Low birth weight (lbw)
- 1000-1499 [2.20-3.30lbs] - Very low birth weight (VLBW)
- Under 1000gm [<2.20 lbs] - Extremely Low Birth weight (ELBW)
  - \*450g= 1 lb
- AGA- appropriate for gestational age
- SGA- small for gestational age (weight and length are proportionate, but they are small)
- LGA- large for gestational age
- IUGR- intrauterine growth restriction (weight and length not proportionate, and they are small)



## Nutrition

- UVC
- IV
- TPN
- Bottle feeding



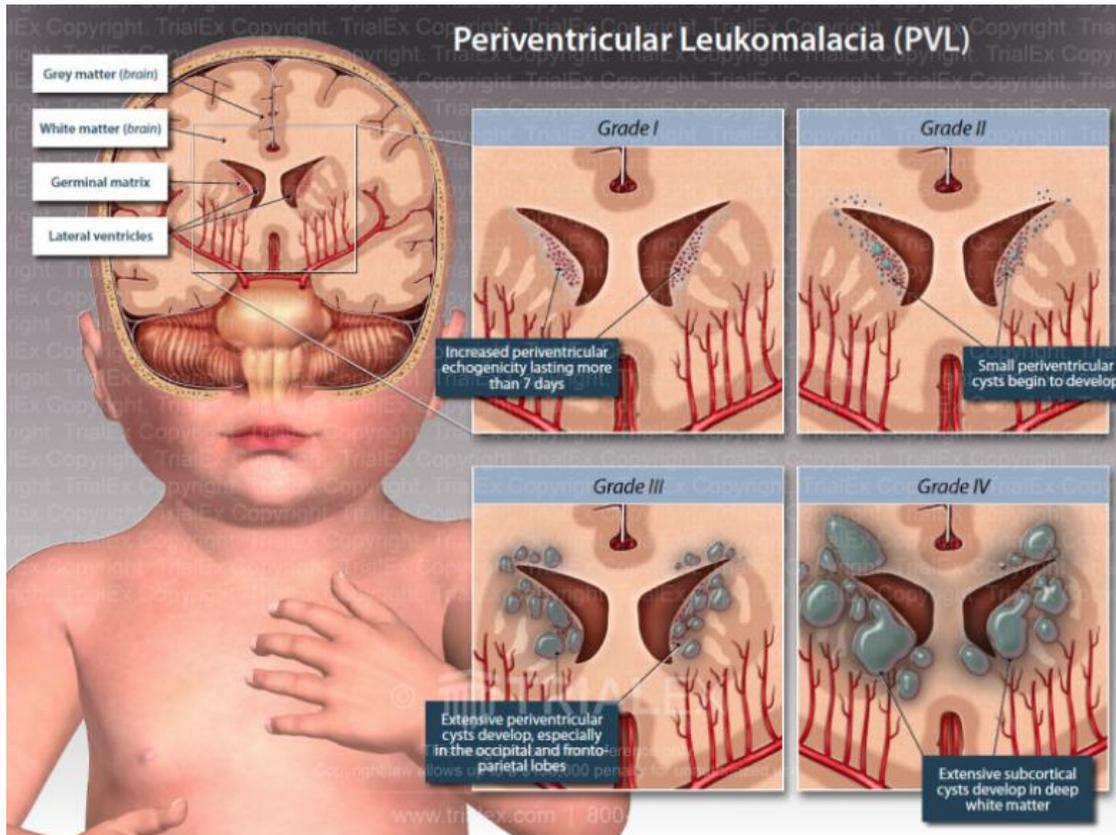
Respiratory:  
Chronic Lung  
Disease (CLD)

# Neurologic

- Head Ultrasound
- MRI Brain



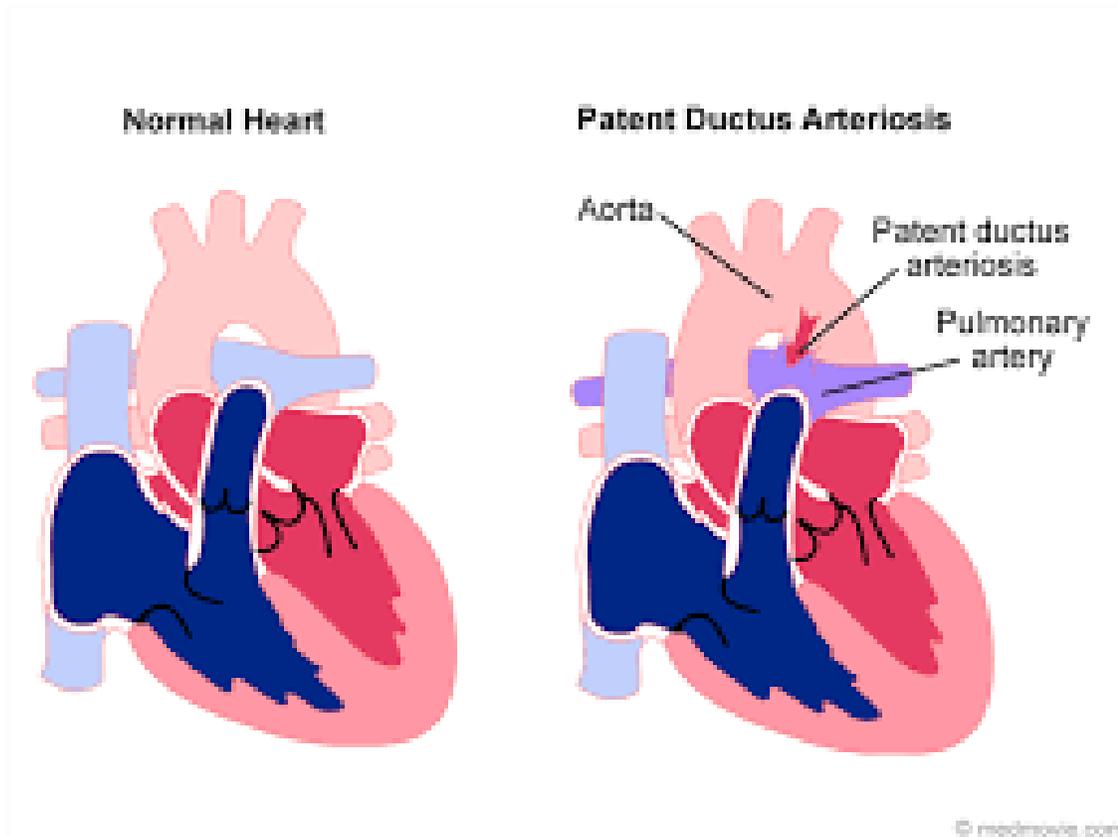
# Periventricular Leukomalacia



<https://trialquest.com/library/library-item/periventricular-leukomalacia-pvl>

- Gray matter versus white matter

- Implications



# Cardiac: PDA/PFO

# Ophthalmic: Retinopathy of Prematurity

Bilateral ROP

Procedural Considerations

Treatment

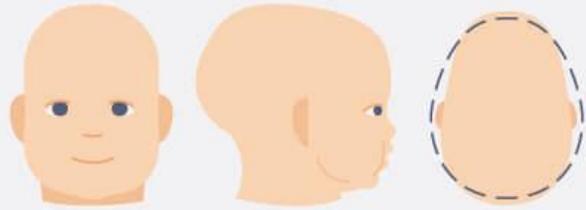
Implications for  
speech/language later



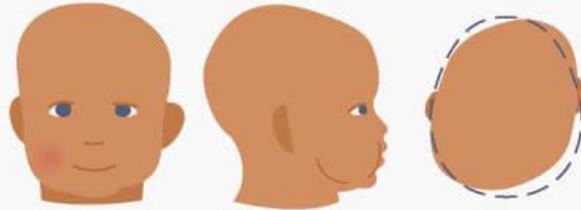
# Musculoskeletal

- Head Shaping
  - Dolichocephaly





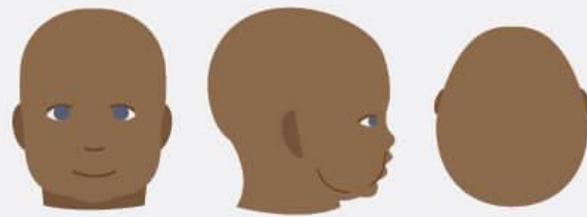
Scaphocephaly  
Dolichocephaly



Plagiocephaly



Brachycephaly



Within normal range



# HEAD SHAPING

# Summary of involved systems



Respiratory:



Cardiac:



Gastroenterological:



Neurologic:



Hematology:



Ophthalmic:



Musculoskeletal:

# First SLP Session

# Developmental Care

# Oral Feeding

# Developmentally Adjusted Schedule



# Graduation

- Age
- Length of Stay
- Weight
- Disposition



# DEVELOPMENTAL ASSESSMENT CLINIC (DAC)



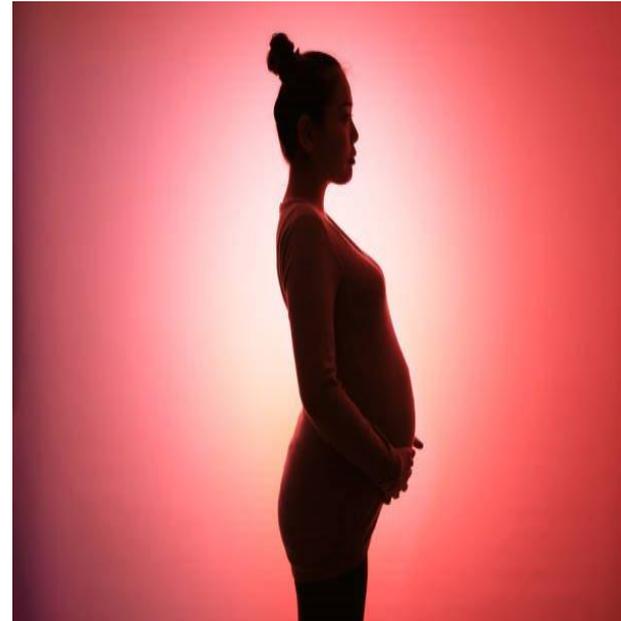
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## Case Study: Leo

A tale of a sensitive soul...and belly.

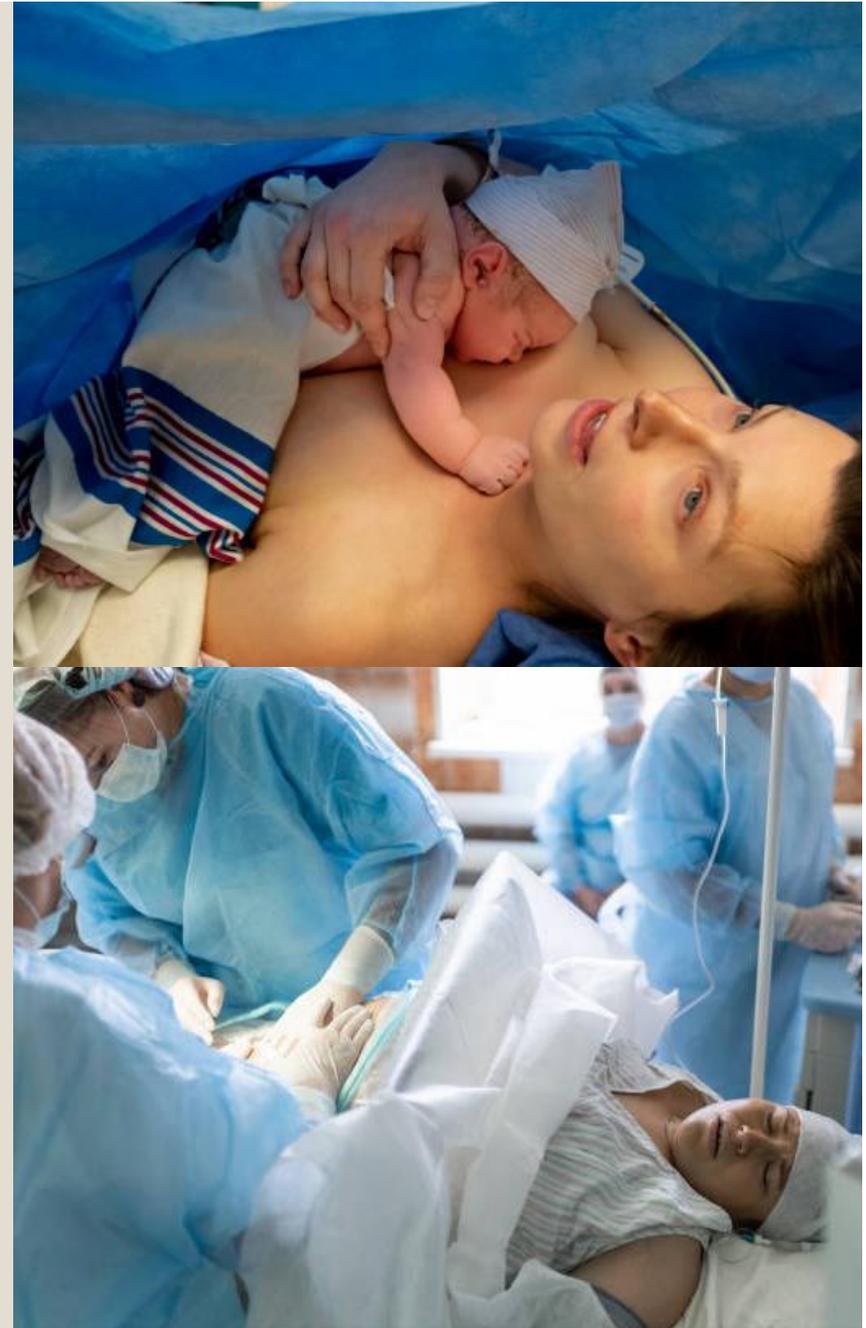
# Maternal history/Pregnancy History

- Antenatal History
- Prenatal care
- Medications in pregnancy
- Medications at delivery
- Fever? Infection?



# Birth Conditions

- Length of Labor
- Babys tolerance of labor
- Fluid characteristics
- Amniotic Fluid characteristics
- APGARs
- Respirations at birth and supports needed





# Birth outcomes

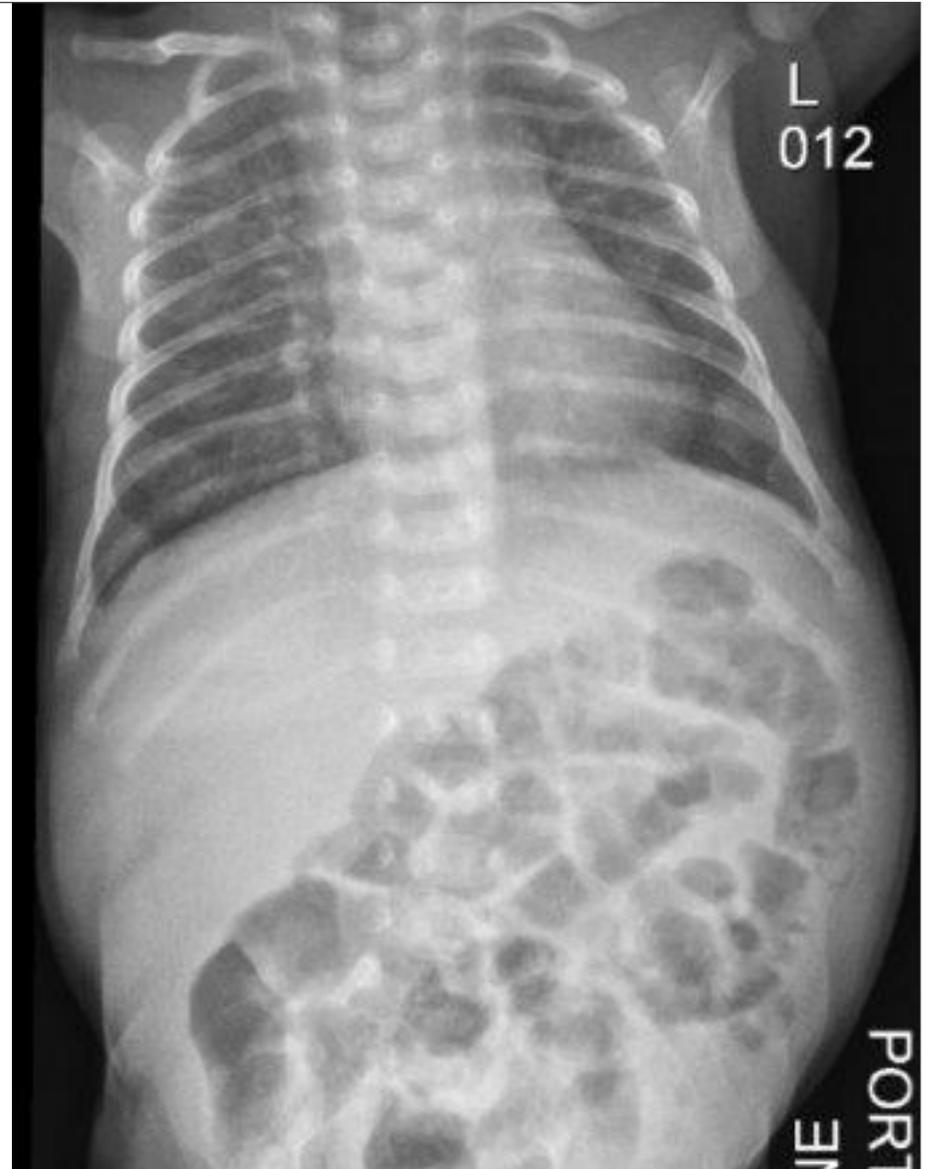
- Cord gases
- Respiratory support
- Moms condition
- Parental bonding? Parental stress?



# Respiratory

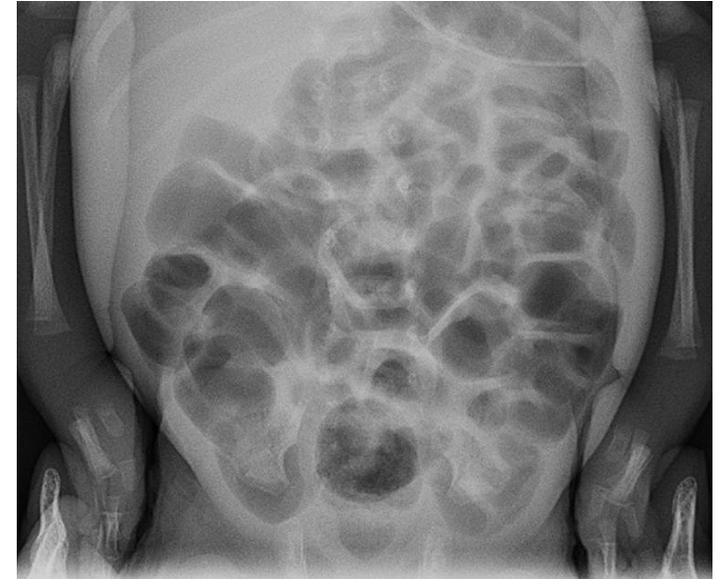
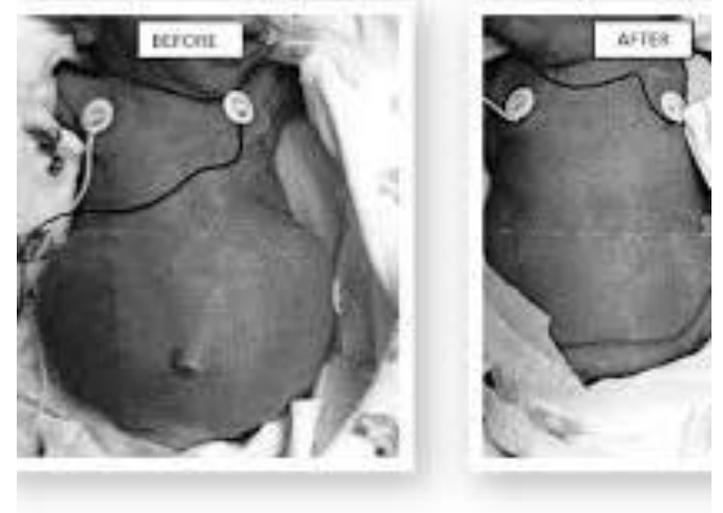
- Type/length of respiratory support
- Implications of supports
- Skin to skin implications/bonding
- Medications during respiratory support
- Positioning

# CHRONIC LUNG DISEASE (CLD)



# Nutrition

- How/when is nutrition delivered
- Type of Nutrition
- Types of medications
- Timing
- Baby's specific tolerance



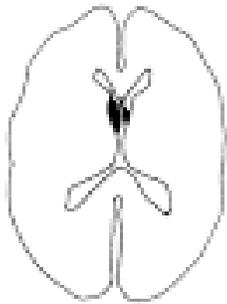
# Hematology

- Phototherapy
- Anemia

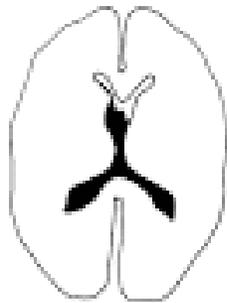


**Grades of intraventricular hemorrhage  
(cross-section view of the brain)**

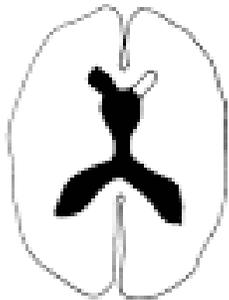
Grade I: Bleeding near ventricle



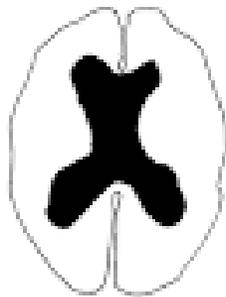
Grade II: Blood in ventricle



Grade III: Enlarged ventricle



Grade IV: Enlarged ventricle  
with blood in brain tissue



# INTRAVENTRICULAR HEMORRHAGE

# Summary of involved systems



Respiratory:



Cardiac:



Gastroenterological:



Neurological:



Hematology:



# First SLP Session

- Timing and why it matters
- Habilitative vs. Rehabilitative
- Findings
- Recommendations
- Plan of care
- Other disciplines involved
- Fluidity in plan
- Parental involvement and empowerment
- Communication



NICU VFSS



# Gas and Reflux management



# THERAPEUTIC TOUCH AND MASSAGE



Developmental  
care



GRADUATION



## Outpatient Feeding Follow-up

# Questions/Discussion :)





# THANK YOU!

Please feel free to reach out with any further questions:

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[kisabel1@hfhs.org](mailto:kisabel1@hfhs.org)

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