A Holistic Approach to

Pediatric

Feeding and Swallowing

ICCD Conference 2025

Introduction

Education [University of Northern Iowa, RMUoHP]

- Bachelor of Arts, 2020
- Master of Arts, 2022
- Clinical Doctorate, Anticipated August 2025

Certifications [CNT, BCS-S]

- Anticipated Summer 2025

Employment [Huntsville Hospital, Foundations Ped. Therapy]

- July 2023-Current
- March 2025-Current

Disclosures

Financial:

- Full-time, salaried employee at Huntsville Hospital/Women and Children
- Paid independent contractor at Foundations Pediatric Therapy

Non-Financial:

- Pediatric Speech-Language Pathologist (3 years)
- SLPD Candidate
- Conducting research [neonatal feeding and swallowing/caregiver education]

Learning Objectives

1. Understand the transformational role of the pediatric speech-language pathologist across settings.
2. Summarize the ways speech-language pathologists use a whole-child approach to feeding assessments and interventions.
3. List at least three disciplines the speech-language pathologist collaborates with to manage patients with pediatric feeding and swallowing disorders.
4. Demonstrate strategies to interact with, empower, and support caregivers to facilitate long-term feeding success in their children.

Typical Feeding and Swallowing Development

Fetal Development

Week 3:

- The brain and heart begin forming

Weeks 4-8:

- The structures of swallowing begin to develop [larynx, tongue, palate, arytenoids, and epiglottis]
- The brain and all 12 cranial nerves are present

(Miluk, n.d.)

Fetal Development

Weeks 9-12:

- The hard and soft palate fuse
- The central nervous system [CNS] is functioning
- Initiation of swallowing in-utero

Weeks 13-16:

- The pharyngeal swallow continues developing
- Suckling and swallowing behaviors continue emerging

Weeks 17-20:

- The pharyngeal swallow strengthens
- The fetus begins swallowing more amniotic fluid
    - 20+ weeks of practice in-utero; 500-1000mls of amniotic fluid/day

(Miluk, n.d.)

Fetal Development

Weeks 21-25:

- The upper and lower respiratory systems develop

Weeks 26-29:

- The lungs are capable of breathing air with difficulties
- Primitive reflexes begin to develop
  - Rooting
  - Transverse Tongue
  - Tongue Thrust
  - Phasic Bite
  - Swallowing
  - Gag

(Miluk, n.d.)

Fetal Development

Weeks 30-33:

- Interest in oral stimulation emerges [outside of utero]

Weeks 34:

- A stable non-nutritive suck [NNS] pattern
- Emerging suck-swallow-breathe behaviors [outside of utero]

(Miluk, n.d.)

Infant Development

Weeks 37-44:

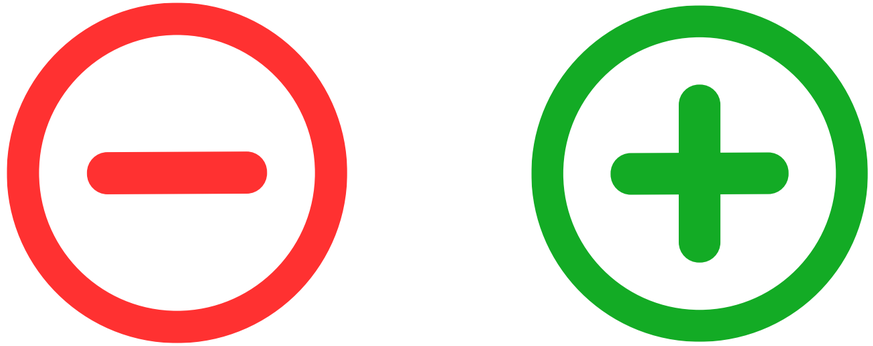
- A mature and coordinated suck-swallow-breathe [SSB] sequence is established
  - Requires no invasive oral interventions
  - Immediate initiation of feeding

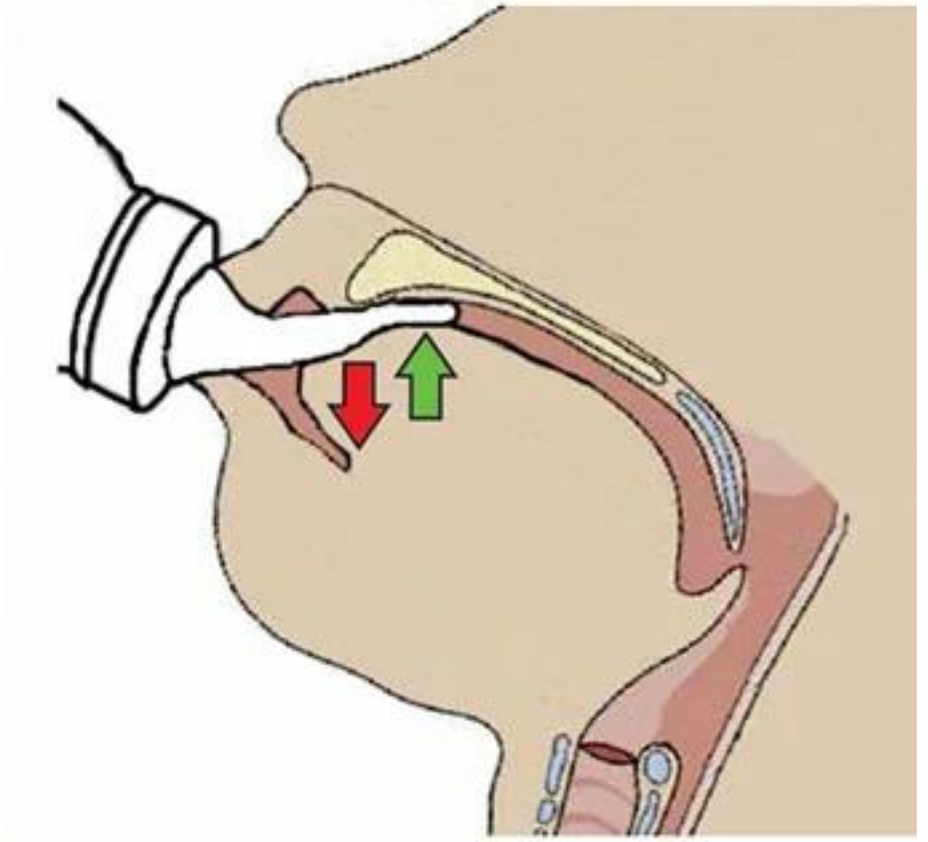
(Miluk, n.d.)

Infant Development

Sucking Mechanisms for Coordinated Feeding

Suction + Compression = Expression





(Lau, 2016; Story et al., 2000)

Infant/Toddler Development

0-3 months	Breast /Bottle 	Suckle nipple
4-6 months	Purees (baby food, baby cereal)	Suckle spoon 
6-9 months	soft mashed table foods (banana, avocado) and table food purees (mashed potatoes) 	Munching, sippy cup, finger feeding 
9-12 months	Hard munchables (crackers, cheerios, pretzels), teethers, Mixed or lumpy textures (beans, casseroles) 	Gnawing and beginning to chew ** eliminate pacifiers and nipples
12-18 months	Soft solids (berries, cooked vegetables) advanced to regular solids (sandwich, fruit) as tolerated by dentition 	Pincer grasp, holds spoon, scoops food to mouth, lateral tongue movement, rotary chew, straw drinking
18-24 months	Regular diet (meats, soups, raw fruits and veg, nuts) as tolerated by dentition cut into small pieces	Mature chewing, total self feeding, uses fork, open cup 

(Stone, n.d.)

Feeding/Swallowing Disorders

Feeding/Swallowing Disorders

- Pediatric Dysphagia
  - Oral
  - Pharyngeal
  - Esophageal

- Pediatric Feeding Disorder (PFD)
  - Impaired oral intake that is not age-appropriate, associated with medical, nutritional, feeding skills, and/or psychosocial dysfunction
    - Medical
    - Nutritional
    - Feeding Skill
    - Psychosocial

(ASHA, 2023; ASHA, 2014; Feeding Matters, 2020)

Medical: Structural Based:	Nutritional: Sensory Based	Feeding Skill: Motor Based	Psychosocial: Experience Based
Impaired structure/function of GI system	Impaired sensory processing	Difficulties with postural/tone movement	Mismatch between feeding abilities and expectations
Impaired structure/function of cardiorespiratory system	Difficulties accepting, processing, and tolerating foods	Trouble with coordination and timing	Underlying mental and/or behavioral challenges
Impaired structure/function of aerodigestive system	Restricted quality/quantity and/or variety/volume	Challenges processing various consistencies	Social influences (child-caregiver interactions, cultural expectations)
Impaired structure/function of neurological system	Risk for malnutrition and dehydration	Risk for oral and/or pharyngeal deficits	Environmental factors (limited access to supports, insufficient responses, redirections, or reinforcements)

Warning Signs of PFD

- Failure to advance with texture/taste
- Challenges processing age-appropriate foods
- High rates of resistive behaviors
- Changes in weight
- Prolonged feeding times

(ASHA, 2023)

Speech-Language Pathology: Neonatal ICU

Preterm Birth

Extremely Preterm: < 28 weeks

Very Preterm: 28-32 weeks

Moderately Preterm: 32-34 weeks

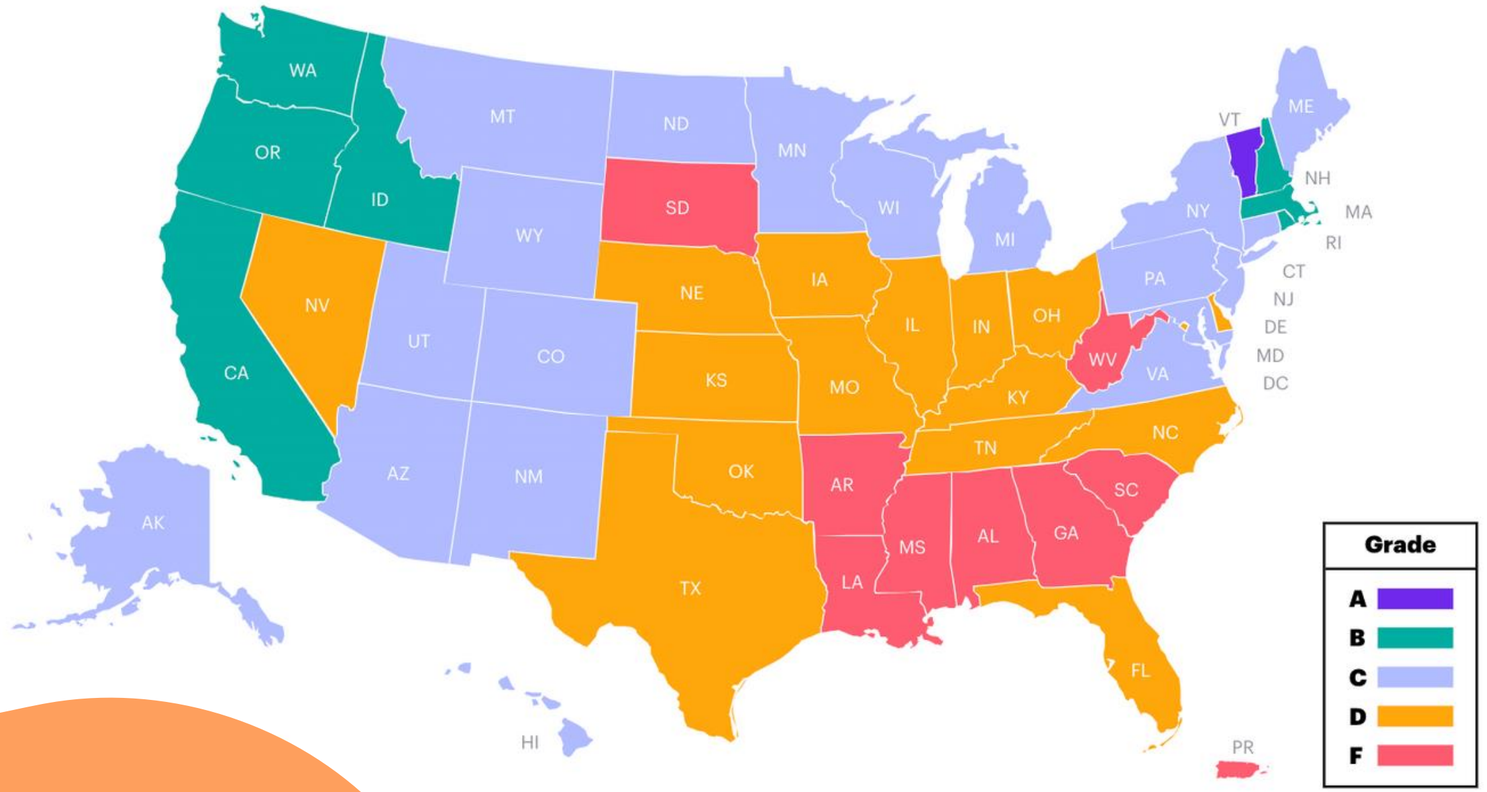
Late Preterm: 34-36 weeks

(WHO, 2023)

Prevalence of Preterm Births

In the United States [2023]:

- 370,000 babies [10.4%]
- National grade of D+ for three consecutive years

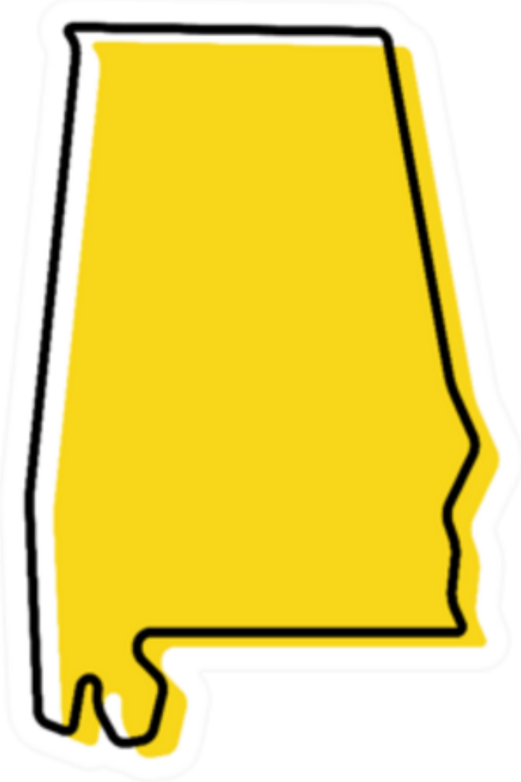


(March of Dimes, 2024)

Prevalence of Preterm Births

In Alabama [2023]:

- 7,469 babies [12.9%]
- Preterm birth grade: F



(March of Dimes, 2024)

Prevalence of Preterm Births

In Iowa [2023]:

- 3, 733 babies [10.4%]
- Preterm birth grade: D+

(March of Dimes, 2024)

Neonatal Intensive Care Unit

Level 1 [Newborn/Wellborn Nursery]

- Provide routine care to healthy preterm [35-37 weeks] and term babies

Level 2 [Specialized Care Nursery]

- Provide care to moderate and late preterm infants [> 3.3lbs] and term infants needing additional support

(March of Dimes, 2024)

Neonatal Intensive Care Unit

Level 3

- Provide critical care for babies born under 32 weeks gestation

Level 4

- Provide the highest level of medical care for premature and newborn infants presenting with the most complex and critical conditions

(March of Dimes, 2024)

Patient Populations

- Premature infants [22-36 weeks gestation]
- Term infants
- Various diagnoses
  - Genetics
  - Neurological disorders
  - Respiratory disorders
  - Cardiac conditions
  - Trach and vent

(Isabell & Boguth, 2020)

Patient Populations

- Various Diagnoses Cont...
  - Gastrointestinal disorders
  - Airway abnormalities
  - Craniofacial abnormalities
  - Tethered oral tissues
  - Neonatal abstinence syndrome
  - Feeding and swallowing
- Cognition and communication

(Isabell & Boguth, 2020)

Impacts on Feeding & Swallowing

- Absent or immature oral reflexes
- Weak or inefficient feeding skills
- Poor coordination of suck-swallow-breathe (SSB) sequence
- Slowed progression toward full oral feeds
- Unstable autonomic parameters during feeding
- Stridor
- Aspiration
- Gastroesophageal or nasopharyngeal reflux

(NANT., 2022)

NICU Skills and Attributes

- **Role 1.0** Identification of infants at risk for and with existing developmental, communication, cognition, feeding, and swallowing problems
- **Role 2.0** Conduct clinical assessment of the infant and family for communication, cognition, feeding, and swallowing problems [including neurodevelopmental problems]
- **Role 3.0** Conduct instrumental evaluation of the infant for feeding and swallowing problems
- **Role 4.0** Provide support and intervention/treatment for the infants' communication, cognition, feeding, and swallowing problems

(ASHA, 2004)

NICU Skills and Attributes

- **Role 5.0** Provide education, counseling, and support to families, other caregivers, and staff regarding preferred practices in the NICU to support current and future communication, cognition, feeding, and swallowing skills
- **Role 6.0** Collaborate with other team members in identifying the need for additional assessments and consultations
- **Role 7.0** Collaborate with family and other team members regarding management decisions for care of the infant and family
- **Role 8.0** Maintain quality control/risk management

(ASHA, 2004)

NICU Skills and Attributes

- **Role 9.0** Provide discharge/transition planning and follow-up care
- **Role 10.0** Educate and supervise SLPs, including clinical fellows and students in training
- **Role 11.0** Provide public education and advocacy for serving infants and families in the NICU

(ASHA, 2004)

Transforming our Approach

Speech-Language Pathologist ⟶ Transdisciplinary Approach

Transdisciplinary Approach:

- Integrate the typical development of the infant and caregivers into the environment of the NICU using theories and scopes of practice from speech-language pathology, occupational therapy, and physical therapy

(Craig & Smith, 2020)

Transforming our Approach

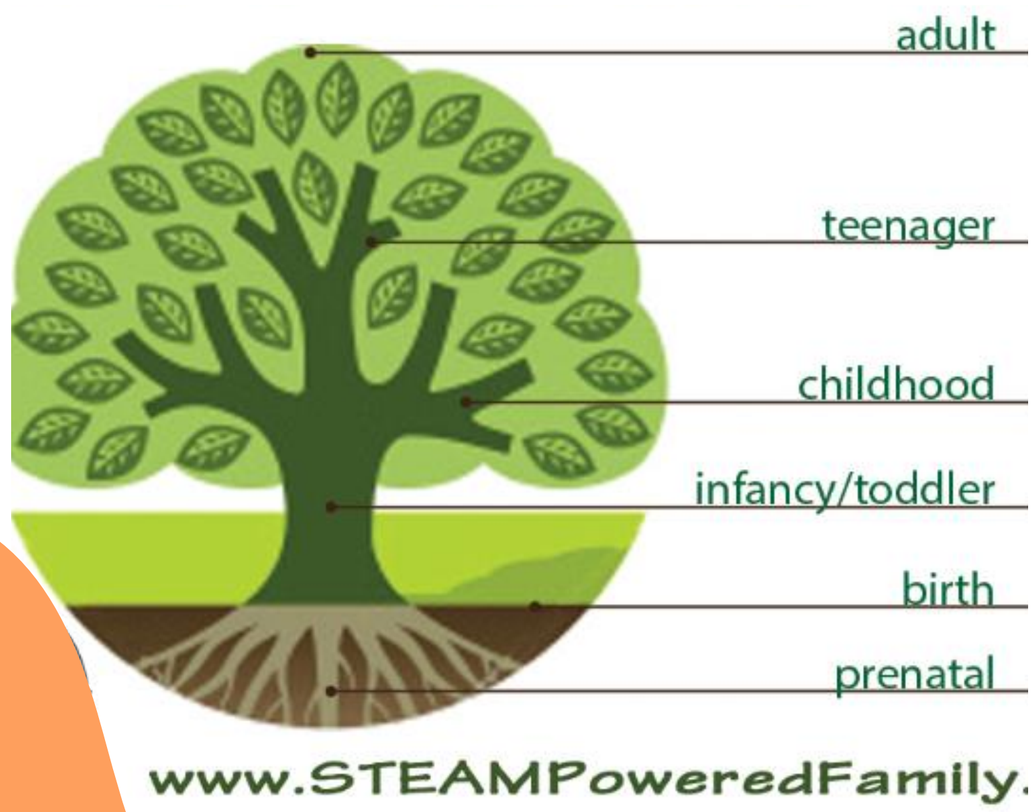
Speech-Language Pathologist ⟶ Transdisciplinary Approach

- Advanced knowledge of perinatal development
- Advanced knowledge of infant feeding and swallowing

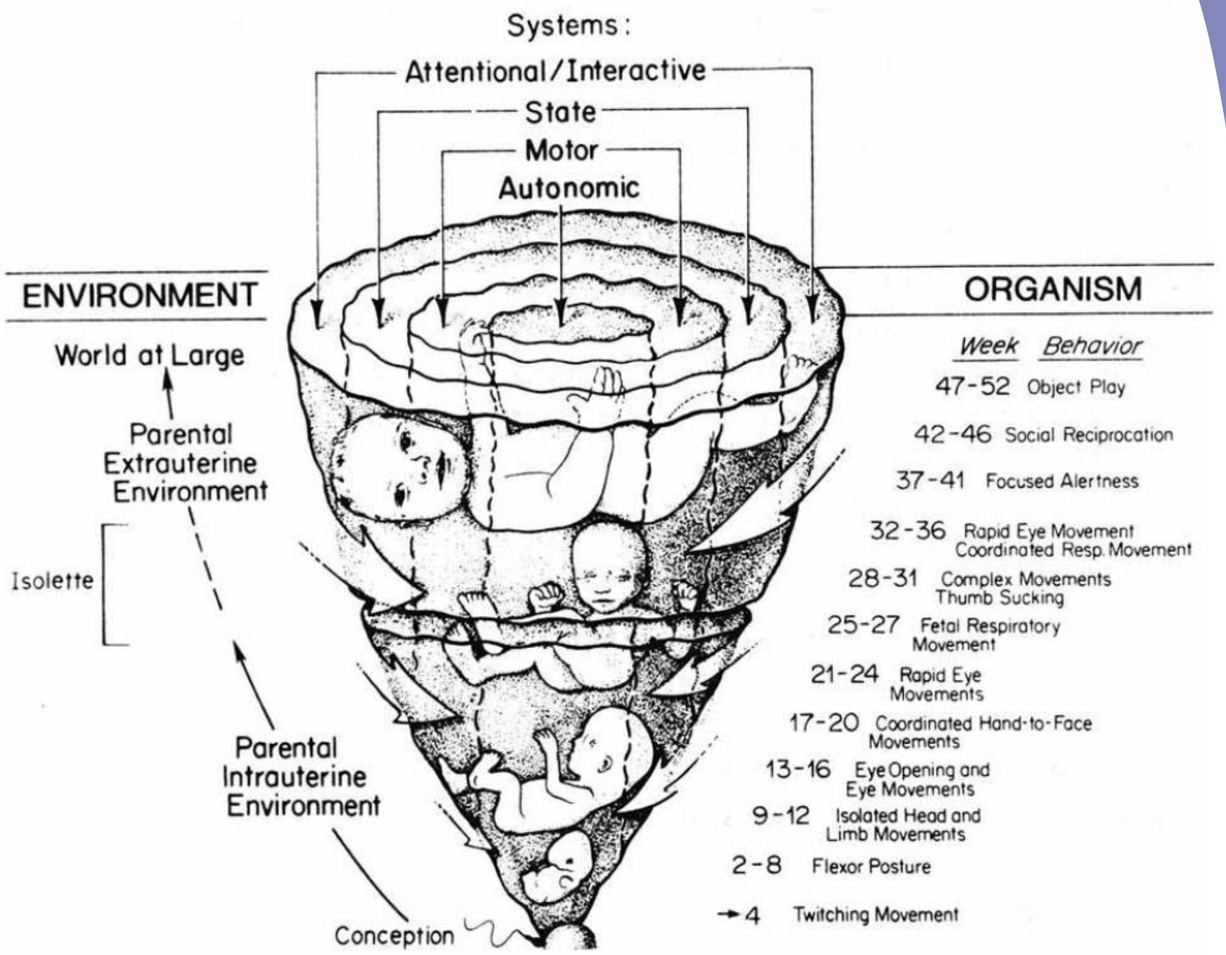
- Mentorship opportunities
- Immersive training
- Strong foundational knowledge of developmental theories and neurodevelopment
- Strong foundational knowledge of family-centered practices

(Craig & Smith, 2020)

Theories Influencing our Practice



The Trauma Tree



The Synactive Theory

(Craig & Smith, 2020; Wilcox, 2022)

Developmental Care

Developmental Care = An approach to individualize care of infants to maximize neurological development and reduce long-term cognitive and behavioral problems

Goal =To support more positive experiences for improved outcomes through life

- Reducing stress
- Conserving energy and enhancing recovery
- Protecting sleep
- Supporting emerging behaviors at each stage of neurodevelopmental maturation
- Encouraging and supporting parents in the primary caregiver role
- Enhancing family emotional and social well-being

(Ackerman, 1992)

Developmental Care - Why Bother?

Advances in neonatal care = higher survival rates of extremely preterm infants

Long-Term Developmental Outcomes

- Chronic respiratory, cardiac, renal, and endocrine system disorders
- Behavioral and emotional challenges
- Neurodevelopmental impairments
- Developmental delays
- Motor and sensory abnormalities
- Social and emotional disabilities
- Poorer academic performance

(Ackerman, 1992)

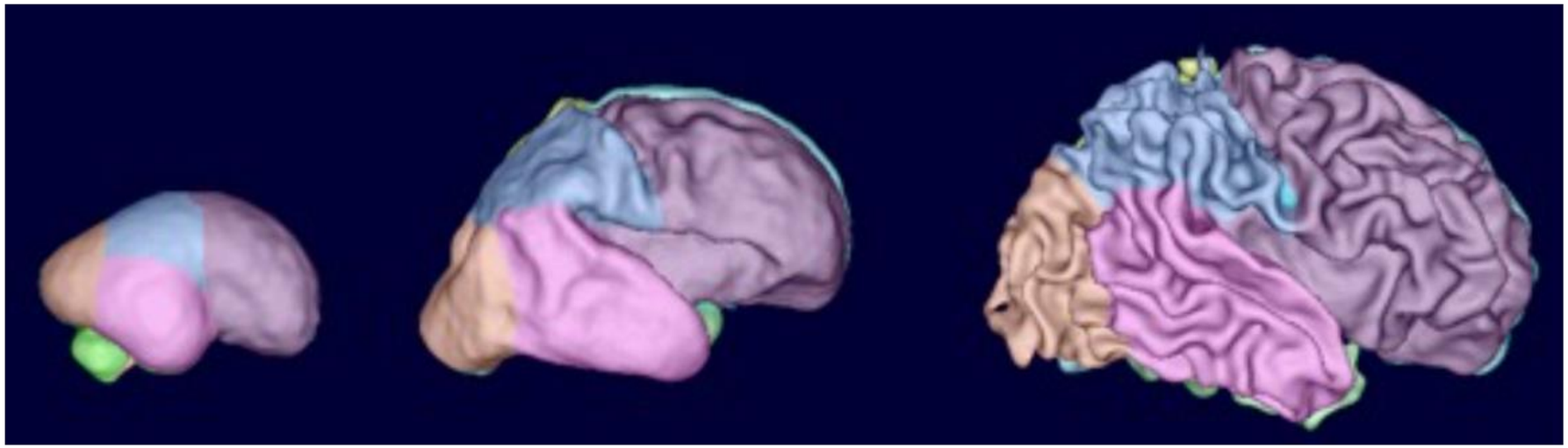
Neuroplasticity & Brain Development

Neuroplasticity = The ability of the brain to develop synaptic connections in response to stimuli associated with activities and experiences

Neuroprotection = Interventions that promote brain development and prevent neuronal injury in the developing infant related to stress and/or pain

(Chung et al., 2020; Cleveland Clinic, 2020; Jin, 2023)

Neuroplasticity & Brain Development



< 35 weeks | 35 weeks | 40+ weeks

- At 34 weeks, 53% of the brain cortical volume is developed [time most infants initiate feeds]

(Ackerman, 1992)

Transforming our Approach

The Neonatal Integrative Developmental Care Model

(Altimier & Phillips, 2016)

The Neonatal Integrative Care Model

Core Measure #7

Feeding Requires the Involvement and Coordination of...

- 31 muscles
- 6 cranial nerves
- CNS

(Altimier & Phillips, 2016)

NICU Feeding Culture

Volume-Driven Culture

Success = The amount of milk consumed each feed

Infant...

- Readiness
- Cues
- Behaviors
- Tolerance

Implementation of...

- Strict feeding schedules
- Non-individualized feeding strategies
- Inconsistent feeding practices/supports
- Pushes past infant cues

(Shaker, 2013; Spagnoli et al., 2024; Thomas et al., 2021)

Volume-Driven Feeding

Negative Implications

Contributes To...

- Prolonged feeding times that interfere with sleep cycles
- Higher likelihood of infant fatigue, feeding regression, and tube dependency
- Elevated risk for feeding complications
- Higher likelihood for readmission post-discharge
- Reduced infant-caregiver bonding
- Increased feelings of caregiver stress and frustration

(Shaker, 2013; Spagnoli et al., 2024; Thomas et al., 2021)

Volume-Driven Feeding

Food for Thought

55% of former NICU babies demonstrate feeding difficulties at 6+ months of life

39% of NICU parents report disorganized feeding patterns at 6-12 months

50% of former NICU parents report problematic feeding at 18-24 months

(Shaker, 2013; Spagnoli et al., 2024; Thomas et al., 2021)

NICU Feeding Culture

Cue-Based/Infant-Driven Feeding (IDF)

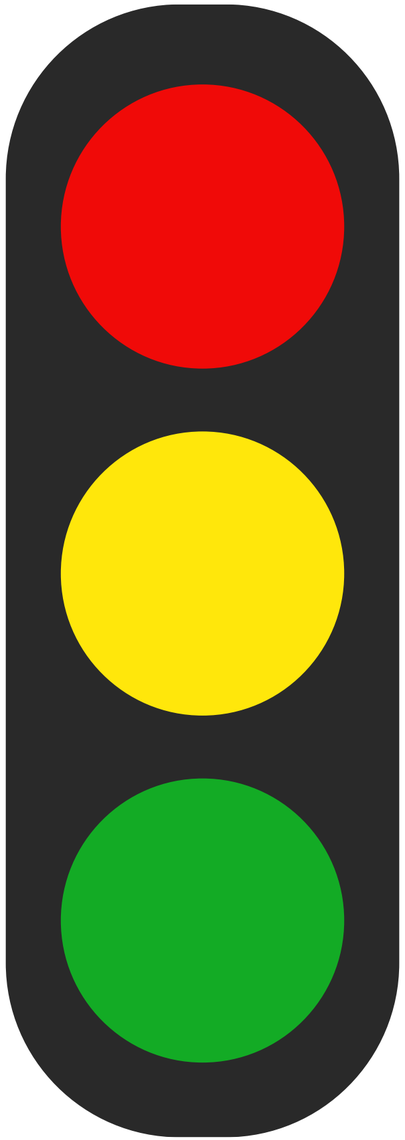
Quality > Quantity

What is done WITH the infant

What is done TO the infant

(Shlomai et al., 2024; Newland et al., 2013)

Traffic Light Feeding Cues



Disengaged and needs to stop

Disengaged and needs a break

Happy and engaged

(O’brien, 2016)

Green Cues

GO!

- Awake and alert
- Hands at midline
- Sustained engagement in NNS

- Relaxed face
- Calm body

- Maintaining eye contact
- Stable breathing

- Rooting to hands
- Munching on fingers

Yellow Cues

SLOW!

- Drowsy/sleep state
- Yawning

- Wide eyes

- Avoiding eye contact
- Turning from bottle/nipple

- Closing eyes tightly shut
- Fussing

- Furrowed brows
- Splayed fingers

Red Cues

STOP!

- Extended position
- Sleep state

- Weak/absent latch
- No active feeding efforts

- Retractions

- Coughing and choking
- Color changes

- Spillage
- Gulping
- Biting on nipple

- Pursed lips

Speech-Language Pathology: Wellborn Nursery and Pediatric ICU

Wellborn Nursery

WBN = A level I NICU that provides basic routine care and monitoring to moderate-late preterm and term babies

(Dr. Brown's Medical, 2020)

PICU

ICU = An organized system for the provision of care to **critically ill patients** that provides **intensive and specialized** medical and nursing care and an enhanced capacity for monitoring with multiple modalities of physiologic organ support to sustain life during a period of life-threatening organ system insufficiency

(Dr. Brown's Medical, 2020)

SLP Roles in the PICU and WBN

- Offering rehabilitative vs habilitative care
- Provide skilled feeding and swallowing assessments [birth-18 years]
  - Ongoing assessment of age-related swallow differences and swallow difficulties
  - Assess a patient's risk for aspiration
- Formulate recommendations in critically ill patients to support safe and functional progression with oral feeding
- Integral in progressing patient toward baseline feeding/swallowing skills

- **Prevalence of SLPs in the PICU** = 8.5%

(Santiago et al., 2024)

WBN Patient Populations

Moderate/Late Preterm Infants:

- Infants born 35-36 weeks gestation

Term Infants:

- Reduced waking & state maintenance
- Limited volume intakes

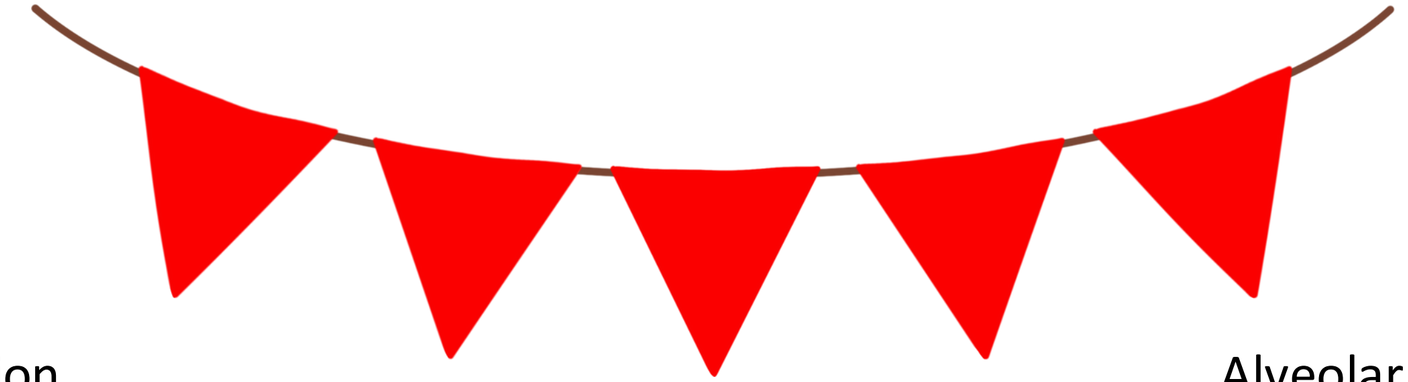
IDM:

- Reduced waking & state maintenance
- Variable volume intakes

(Isabell & Boguth, 2020)

WBN Patient Populations

Craniofacial Abnormalities: Complete/incomplete, bilateral/unilateral, hard/soft palate, submucous cleft



Reduced or absent suction

Alveolar notch/ridge

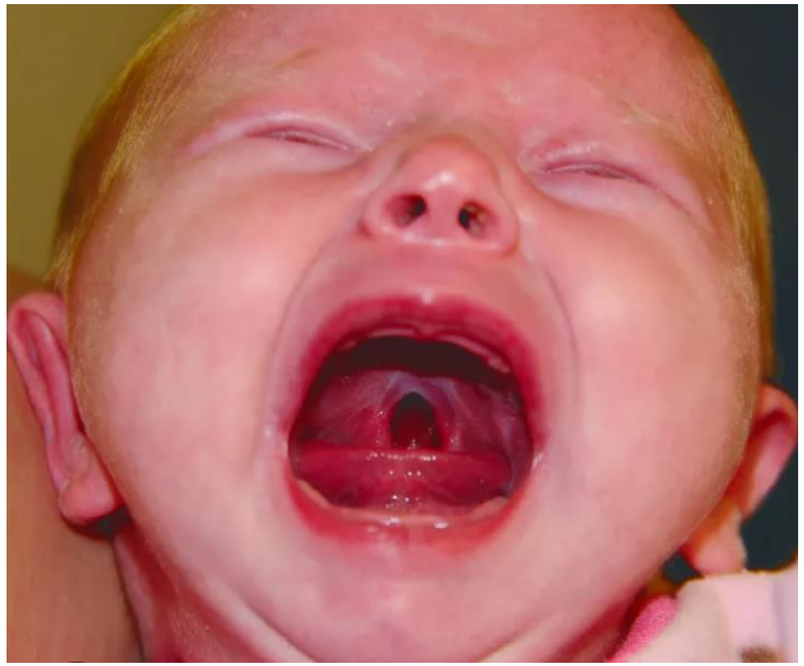
Increased nasal congestion

Instability with PO

Nasal regurgitation

(John Hopkins, n.d.)

WBN Patient Populations



PICU Patient Populations

Premature/Infants

Premature/Infants: Preterm or term infants that have received medical care within the NICU or WBN

- Chronic babies [22-28 weeks]
  - Immediate readmission: 5-7%
  - Readmission [first 12 months]: 15-16%
  - Readmission [first 18-22 months]: 45%
- Late preterm babies [32-36 weeks]
  - Readmission rate: 4.0%
- Different initial encounter
- Discharged from WBN

(Hannan et al., 2020; Kardum et al., 2022; King & Randall, 2020; Young et al., 2013)

PICU Patient Populations

Cardiac Compromise

CHD: Various heart problems that affect the heart's structure and function (mild to severe)

- Septal defect
- Valve problem(s)
- Murmur
- Heart failure

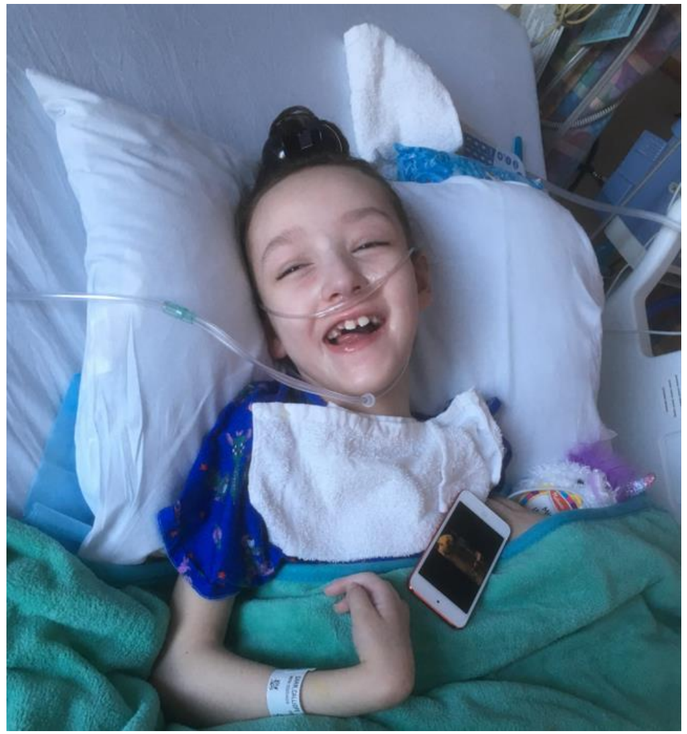
(King & Randall, 2020; Jones et al., 2020; Norman et al., 2022)

PICU Patient Populations

Neurological Concerns

Neurological Conditions: A variety of conditions that may affect the brain, spinal cord, and nerves that contribute to various developmental, cognitive, motor, and sensory impairments

- Seizures
- Head trauma
  - Accident
  - Abuse
  - Injury
- Anoxic brain injury
  - Hypoxic-ischemic encephalopathy [HIE]
  - Cerebral palsy

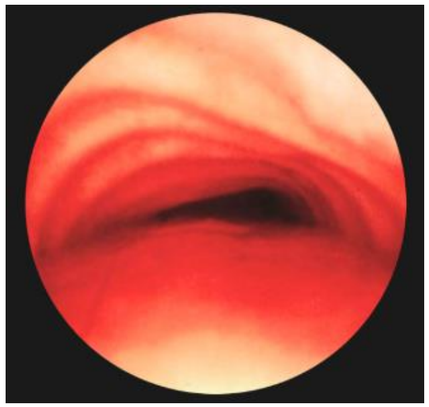


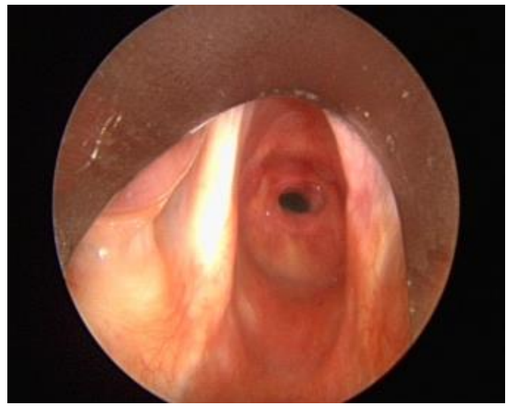
(Engel-Hoek et al., 2015; King & Randall, 2020; Marchand & Motil, 2006)

PICU Patient Populations

Aerodigestive Disorders

Aerodigestive Disorders: Conditions that occur due to abnormalities within the lungs, airways, and upper digestive tract



(ASHA, n.d.; Miller & Willging, 2007)

PICU Patient Populations

Respiratory Distress/Failure

RDS: A acute or chronic condition that contributes to difficulties breathing and often leads to the need for respiratory intervention(s)

- RSV, PNA, COVID-19, flu
- Tachypnea
- Apnea
- Chronic lung disease (CLD)
- Bronchopulmonary dysplasia (BPD)
- Asthma
- Mechanical ventilation/O2 supports

(Cannning et al., 2021; King & Randall, 2020; Lefton-Greif & Arvedson, 2016)

PICU Patient Populations

Post-Extubation

- Intubated > 48-hours
- Contributing Factors (6)
  - Trauma
  - Neuromuscular weakness
  - Altered sensation
  - Impaired cognition
  - Gastroesophageal reflux
  - Dyssynchronous breathing and swallowing

(King & Randall, 2020; Melo et al., 2022; Yogo et al., 2024)

PICU Patient Populations

Post-Extubation

- Prevalence of Post-Extubation Dysphagia
  - For every 1-hour, risk increases by 1.7%
  - Patients < 25 months, risk increases by 3.4%
- Risk Factors
  - < 24 months
  - Neurological comorbidities
  - Withdrawal symptoms
  - Use of neuromuscular blocking agents
  - Duration of intubation

(Hoffmeister et al., 2019; King & Randall, 2020; Silva et al., 2022)

PICU Patient Considerations

PICU Patient Considerations

- Environment and equipment
- ICU delirium
- Medical status
  - Stable?
  - Procedures
  - Sedation and medication
  - Respiratory supports

(Dalgleish et al., 2016; Ignite Healthwise, 2024; King & Randall, 2020; Malas, 2017; Murphy et al., 2018)

Speech-Language Pathology: Outpatient Clinic

SLP Roles in Outpatient

- Offer rehabilitative vs habilitative care
- Provide differential diagnostic and therapeutic services
  - Assist in ruling out/confirming presence of a pediatric feeding disorder
- Formulate recommendations for safest, least restrictive diet
- Promote safe and successful mealtime experiences
- Provide routine caregiver training and support
- Work alongside comprehensive team to facilitate long-term feeding success

(ASHA, 2014)

Outpatient Patient Populations

Common Diagnoses and Disorders:

- Autism spectrum disorder (ASD)
- Syndromes
- Genetic Disorders
- Pediatric Feeding Disorders
  - Medical
  - Nutritional
  - Feeding Skill
  - Psychosocial
- Dysphagia
- Craniofacial abnormalities
- Anatomical abnormalities
  - Lingual and labial restrictions
- Pediatric brain injury
- Former preterm infants

Outpatient Referrals

- Frequent coughing/choking with intake
- Known history of dysphagia and/or aspiration
- Dependent on alternative means of nutrition
- Poor weight gain/failure to thrive
- Poor progression toward age-appropriate diet
- Poor oral manipulation
- Frequent gagging with foods
- Restrictive eating behaviors/limited food inventory
- Gastroesophageal reflux

(ASHA, 2014)

15-Minute Break

Assessments

Assessment

A Holistic Assessment:

- “A holistic approach to evaluation is stressed with a primary goal for every child to receive adequate nutrition and hydration without health complications and with no stress to the child or caregiver” (Arvedson, 2008)

(Goday et al., 2019)

Clinical Assessment

Oral Mechanism Examination

- Face
- Jaw
- Lips
- Tongue
- Hard and soft palate
- Oral muscles
- Secretions and management

(Graham, 2021)

Feeding Readiness

Feeding Readiness = A dynamic process that monitors the behaviors and cues an infant demonstrates to determine if they are interested, ready, and safe to feed by mouth

(Gennattasio et al., 2015; Holloway, 2014)

Feeding Readiness

Components of Assessment [3]

Vitals

Behavioral State

1 - Deep sleep	2- Light sleep	3 - Drowsy	4 – Alert	5 - Active alert	6 – Crying
• Regular breathing • Eyes closed and no eye movements • No spontaneous movements except startles	• Eyes closed • Rapid eye movement often observed under closed lids • Low activity level and sucking movements can occur • Breathing may be irregular	• Eyes may be open but dull and heavy lidded, dazed look, closed or fluttering eyelids • Variable activity level, responses often delayed and motor activity at a minimum • Can be waking up or may go back to a deeper sleep	• Bright-eyed look and their motor activity will be minimal • Able to focus their attention on visual or auditory stimuli	• Eyes open, considerable motor activity • Brief fussing vocalisations	• Intense crying which is difficult to break through • High motor activity

Feeding Cues

(Griffith et al., 2017; Wolff, 1987)

Feeding Readiness

Readiness Scale

1	Infant is awake/alert prior to care time and demonstrating strong hunger cues.	Safe to progress toward feeding.
2	Infant transitions to an awake/alert state during cares and demonstrates hunger cues, accepts pacifier, and has stable vitals.	Safe to progress toward feeding.
3	Infant transitions to an awake state for brief period during cares but falls back asleep. No hunger cues are demonstrated. Infant may be unstable with pacifier or cares.	Not safe to progress toward feeding.
4	Infant remains asleep during cares with no change in tone or demonstration of hunger cues.	Not safe to progress toward feeding.
5	Infant has significant changes in vitals and is unsafe to progress toward feeding EVEN IF awake and demonstrating hunger cues.	Not safe to progress toward feeding.

Feeding Readiness

Example Videos

Feeding Quality

Feeding Quality = Encourages caregivers to observe the infant's feeding behaviors and performance during feeding that suggest the infant is tolerating the feed well and is coordinated, emergent with their feeding skills, or requires caregiver assistance while feeding

(Ludwig & Waitzman, 2007)

Feeding Quality

Components of Assessment [3]

Engagement

Tolerance

Coordination

(Ludwig & Waitzman, 2007)

Feeding Quality

Quality Scale

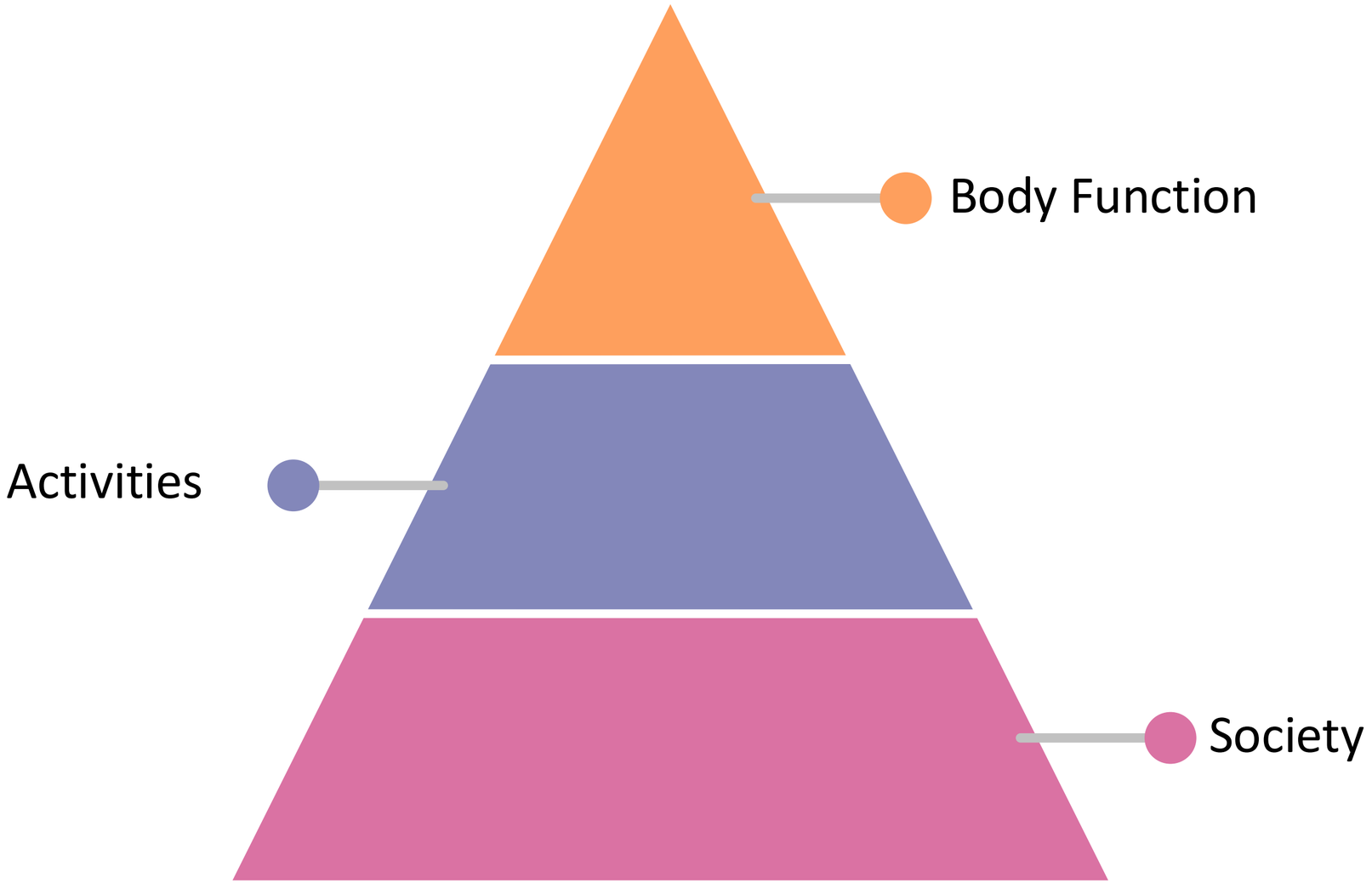
1	Infant feeds with a coordinated suck-swallow-breathe pattern throughout the feed.
2	Infant begins the feed with a coordinated suck-swallow-breathe pattern, but as the feed progresses, they fatigue and become less organized.
3	Infant sucks but has disorganized and variable swallow and breathe integration. You may see slow cues demonstrated.
4	Infant has a weak and disorganized sucking pattern with an uncoordinated swallow. They may need several rest breaks or additional feeding supports.
5	Infant is unable to coordinate the suck-swallow-breathe pattern and demonstrates stop cues, including changes in vitals, increased work of breathing, or disengagement in the feed.

Clinical Assessment

Bottle and Breastfeeding

- Clinical Swallow Examination:
  - Positioning
  - Flow rate
  - Feeding modalities
  - Stability
  - Fluid management
  - Coordination
  - Need for and response to feeding supports
  - Stamina
  - Suspected airway protection
  - Caregiver comfort/skill

Clinical Evaluation [3 Levels]



(Arvedson et al., 2002; WHO, 1997)

Clinical Assessment

General History

- Pregnancy and birth
- Diagnoses
- Medications
- Procedures
- Specialists
- Sleep
- Allergies
- Sensory tolerance
- Developmental milestones

(Miluk, n.d.)

Clinical Assessment

Feeding History

- Birth
- Current feeding
  - Skills
  - Consistencies and textures
  - Volumes
  - Modalities
  - Changes in status
  - Perceived swallow function
  - Quality
  - Weight gain/growth
  - URI
  - GERD

(Miluk, n.d.)

Clinical Assessment

PICU Considerations

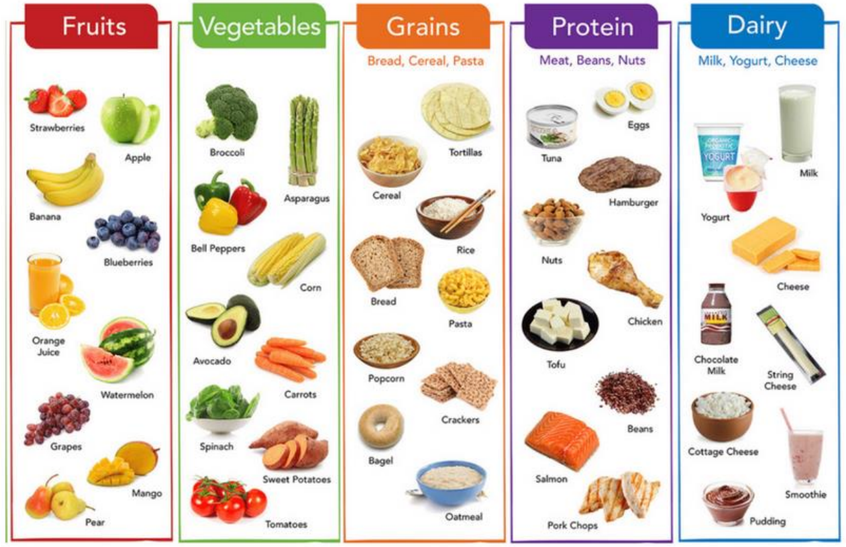
- Status for functional/safe feeding
  - Alertness
  - Medication status/plan
  - Respiratory support
  - Timing of extubation
- Baseline feeding modalities vs current available supports
- Positioning
- Short-term supports to facilitate safe feeding

(Dr. Brown's, 2020)

Clinical Assessment

Outpatient Considerations

- Appropriate mealtime behaviors [pre-feeding]
- Baseline feeding hierarchy progression
- Acceptance of feeding modality
- Range and texture of developmentally appropriate foods



(Miluk, n.d.)

Clinical Assessment

Outpatient Considerations

- Oral skills across consistencies
- Need for and response to feeding supports
- Mealtime behaviors
- Caregiver administered trials/behaviors
- Considerations for appropriate interventions and referrals

(Miluk, n.d.)

Clinical Assessment

Resources

PEDIATRIC EATING ASSESSMENT TOOL (PediEAT)

My child…	Never	Almost Never	Some times	Often	Almost Always	Always	Score
39. throws food or pushes food away	0	1	2	3	4	5	
40. prefers to drink instead of eat	0	1	2	3	4	5	
41. prefers crunchy foods	0	1	2	3	4	5	
42. eats better when entertained	0	1	2	3	4	5	
43. takes more than 30 minutes to eat	0	1	2	3	4	5	
44. needs mealtime to be calm	0	1	2	3	4	5	
45. wants the same food for more than two weeks in a row	0	1	2	3	4	5	
Items below are scored from 5 to 0							
46. likes to eat	5	4	3	2	1	0	
47. eats a variety of foods (fruits, vegetables, proteins, etc.)	5	4	3	2	1	0	
48. is willing to stay seated during mealtime	5	4	3	2	1	0	
49. opens their mouth when food is offered	5	4	3	2	1	0	
50. is willing to touch food with their hands	5	4	3	2	1	0	
PROBLEMATIC MEALTIME BEHAVIORS SUBSCALE SCORE							

SELECTIVE / RESTRICTIVE EATING							
My Child…	**Never**	**Almost Never**	**Some times**	**Often**	**Almost Always**	**Always**	**Score**
51. will eat mixed texture foods	5	4	3	2	1	0	
52. will eat food warmer than room temperature	5	4	3	2	1	0	
53. is willing to feed self (if younger in age, holds cup, feeds self crackers)	5	4	3	2	1	0	
54. keeps food in mouth when eating (food means non-liquids)	5	4	3	2	1	0	
55. keeps liquids in mouth when drinking	5	4	3	2	1	0	
56. keeps their tongue inside mouth during eating	5	4	3	2	1	0	

2023-2-25

Gastrointestinal and Gastroesophageal Reflux (GIGER) Scale for Infants and Toddlers

Directions: We are interested in learning about your child's gastrointestinal and gastroesophageal reflux symptoms. When filling this out, think about what is typical for your child in the past week. The GIGER is intended for use in children up to 2 years old.

Self-Regulation Abilities	5	4	3	2	1	0	
My child…	**Never**	**Almost Never**	**Sometimes**	**Often**	**Almost Always**	**Always**	**Score**
1. enjoys eating.	☐	☐	☐	☐	☐	☐	
2. is calm and relaxed when eating.	☐	☐	☐	☐	☐	☐	
3. sleeps well lying flat on his/her back.	☐	☐	☐	☐	☐	☐	
4. is easy to console when upset (for example, stops crying when held or offered a pacifier).	☐	☐	☐	☐	☐	☐	
5. eats enough to grow the way he/she should.	☐	☐	☐	☐	☐	☐	
6. acts hungry before meals.	☐	☐	☐	☐	☐	☐	
Items below are scored according to the numbers at right.	0	1	2	3	4	5	
	Never	**Almost Never**	**Sometimes**	**Often**	**Almost Always**	**Always**	**Score**
7. has trouble sleeping.	☐	☐	☐	☐	☐	☐	
8. needs to be encouraged to keep eating (such as, by touching or talking).	☐	☐	☐	☐	☐	☐	
Self-Regulation Abilities Subscale Score							

FEEDING IMPACT SCALES

Directions: This questionnaire is about how your child's feeding impacts you and your family. For each statement, please answer each question with your child in mind. Check the box to show how much you agree or disagree with each statement.

	1	2	3	4	5	
Feeding Impact - Family	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Score**
1. We have to plan ahead when eating somewhere other than our home.	☐	☐	☐	☐	☐	
2. Family mealtime is longer because of my child's feeding.	☐	☐	☐	☐	☐	
3. Other caregivers (grandparents, babysitters) have difficulty feeding my child.	☐	☐	☐	☐	☐	
4. The number of appointments my child has affects our family.	☐	☐	☐	☐	☐	
5. My child's feeding affects his/her siblings.	☐	☐	☐	☐	☐	
6. My child's feeding care affects my family financially.	☐	☐	☐	☐	☐	
7. There is more stress in my family because of my child's feeding.	☐	☐	☐	☐	☐	
8. Family members do not want to watch my child because of his/her feeding needs.	☐	☐	☐	☐	☐	
9. My family avoids social activities due to my child's feeding needs.	☐	☐	☐	☐	☐	
Items below are scored according to the numbers at the right:	5	4	3	2	1	
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Score**
10. We can easily find a babysitter for our child.	☐	☐	☐	☐	☐	
11. My extended family understands my child's feeding needs.	☐	☐	☐	☐	☐	
12. My family enjoys eating in a restaurant.	☐	☐	☐	☐	☐	
13. Mealtime is pleasant for my family.	☐	☐	☐	☐	☐	
Total Feeding Impact - Family Score						

2025-2-4

(Pados, 2021.)

Clinical Assessment

Instrumental Assessments

(Pados, 2021.)

Interventions

Interventions

NICU

Pre-Feeding Activities = Interventions used to improve oral motor skills [the organized and coordinated movements of the mouth, lips, tongue, and cheeks to promote safe and efficient feeding and swallowing skills]

Feeding Supports = Various strategies used to support and maintain self-regulation, stability, and coordination during a feed

(Brantes et al., 2021; Shaker, 2017)

NICU Interventions

Pre-Feeding

Touch and Handling

Perioral Stimulation

Non-Nutritive Suck

(Barlow et al., 2010; Grabill et al., 2023; Pickler et al., 2021)

NICU Interventions

Pre-Feeding

Pacifier Selection for NNS

Taste Stimulation

(Segala et al., 2022; Ziegler et al., 2020)

NICU Interventions

Feeding Supports

Swaddling

Sidelying Position

Pacing

(Smith et al., 2023; Ventura & Drewelow, 2023)

Let’s Practice!

- Swaddling
- Elevated sidelying position

- Pacing
  - Half full nipple
- Pacing [4-5 sucks]
  - Tilting nipple
  - Tilting infant and bottle/nipple
  - Removing bottle

NICU Interventions

Slow Flow Nipples and Bottle Selection

TABLE 3. Results of Cluster Analysis

Flow Category	Nipple Brand and Type	Mean Flow Rate (Range)
Extra Slow	Philips Avent Natural First Flow	0.86 (0.15-1.19)
	Philips Avent Natural 0mos+	2.25 (1.49-2.74)
	nfant Labs Extra Slow	3.30 (2.6-3.77)
	Dr. Brown's UltraPreemie	4.92 (4.09-5.73)
Slow	nfant Labs Slow	5.99 (5.10-6.62)
	Dr. Brown's Preemie	7.22 (4.35-8.37)
	Playtex Ventaire Full Sized	7.35 (5.65-10.29)
	Playtex Ventaire Breastlike	7.37 (6.10-9.86)
	Similac single-use Slow Flow	8.04 (6.59-13.28)
	Playtex Baby Naturalatch 0-3m	9.47 (7.66-12.88)
	Comotomo Slow Flow (0-3 mos)	9.76 (6.05-12.49)
	nfant Labs Standard	10.32 (9.12-11.79)
Medium	Enfamil single-use Slow Flow	13.24 (9.93-17.39)
	Gerber First Essentials	13.26 (9.85-20.17)
	Dr. Brown's Level 1	13.31 (11.51-14.59)
	Evenflo Classic Slow Flow 0m+	13.63 (10.66-20.64)
	MAM Anti-colic 0mos+	13.83 (13.04-15.68)
	Tommee Tippee Closer to Nature 0m+	15.90 (14.05-17.08)
	Tommee Tippee Anti-colic 0m+	16.23 (11.28-20.30)
Fast	Philips Avent Anti-colic 0mos+	17.44 (16.31-18.5)
	Similac single-use Standard Flow	18.49 (10.55-26.61)
	Enfamil single-use Standard Flow	19.14 (14.09-21.78)
	Similac single-use Premature	19.17 (13.53-26.82)
	Medela Wide-Base Slow Flow	22.03 (17.97-25.61)
Very Fast	Medela Calma	37.61 (35.54-39.96)

(Pados, 2018; Smith et al., 2023)

NICU Interventions

Specialty Feeders

Dr. Brown's Specialty Feeder

Haberman

Pigeon Feeder

(Pados, 2018; Smith et al., 2023)

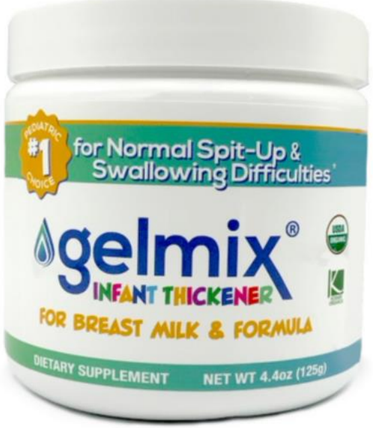
Let’s Practice!

Scenario: An infant on your caseload is discharging. The infant has used the **enfamil slow-flow nipple**. Parents ask for nipple recommendations post-discharge. What are some options you can share with them.

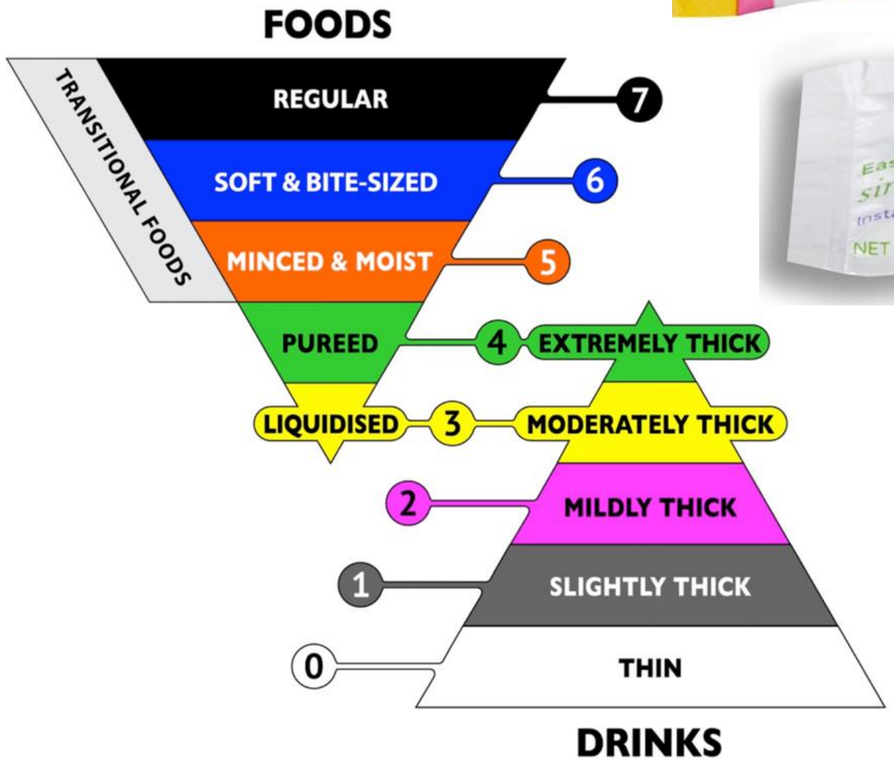
Use the flow rate chart and bottles to help formulate recommendations.

Interventions

Diet Modifications



IDDSI
International Dysphagia Diet Standardisation Initiative
www.iddsi.org



(Dodrill, 2024)

Interventions

Outpatient Supports

Positioning

Oral Motor Tools

Adaptive Tools

(Beck, 2021; Dodrill, 2024)

Interventions

Outpatient Supports

Feeding Hierarchy

Feeding Approaches/Training

- Sequential-Oral-Sensory [SOS] Approach
- Get Permission Approach
- Beckman Oral Motor Approach

(Dodrill, 2024)

Let’s Practice

Patient: 18-month-old male [former 26-weeks] with poor progression toward age-appropriate solids, gagging with advanced textures, and food pocketing

Brainstorm: What domain(s) are impacted by his PFD and intervention strategies to support feeding progression?

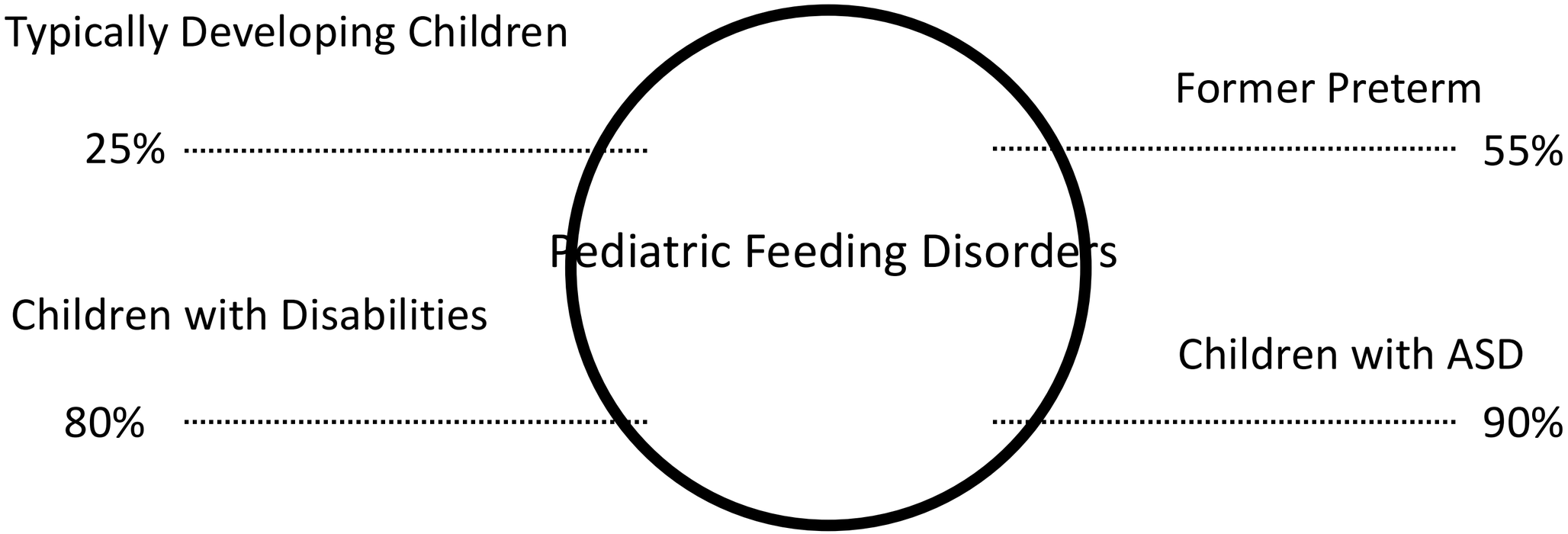
Let’s Practice

Patient: 4-year-old female [former term] with dx of ASD; chief complaint of restricted diet and slow weight gain/growth (9th percentile)

Brainstorm: What domain(s) are impacted by her PFD and intervention strategies to support feeding progression?

Interdisciplinary Collaboration

Interdisciplinary Collaboration



(Field et al., 2003; Ross & Arvedson, 2022; Schreck, 2004; Sullivan et al.,2000)

Interdisciplinary Collaboration

Team:

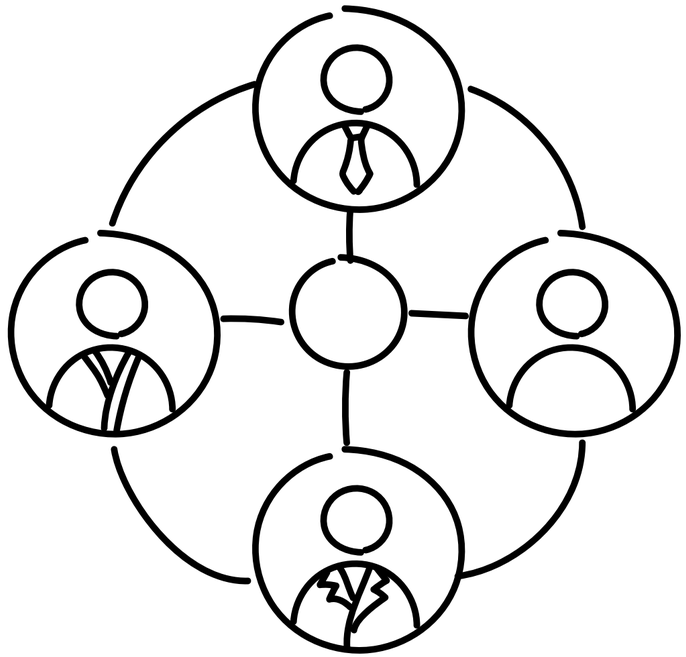
- Patient
- SLP
- Supporting professionals
- Dietitian
- Doctor(s)
  - Pediatrician
  - Specialists
- Caregivers
  - Parents/family caregivers
  - Childcare providers
  - Teachers/aides

(Field et al., 2003; Ross & Arvedson, 2022; Schreck, 2004; Sullivan et al.,2000)

Interdisciplinary Collaboration

Importance and Benefits:

- Dynamic assessment
- Address all contributing factors
- Individualized plan of care
- Effective treatment
- Optimal long-term outcomes



(Field et al., 2003; Ross & Arvedson, 2022; Schreck, 2004; Sullivan et al.,2000)

Interdisciplinary Collaboration

Caregiver Education and Training

Family-Centered Care

(Dorfman et al., 2021; Regis, 2023)

Family-Centered Care

Importance and Benefits:

- Builds trust
- Enhances caregiver understanding
- Decreases familial anxiety and stress
- Improves caregiver confidence and sense of ability
- Better long-term outcomes
- Enhances overall satisfaction/success

(Dorfman et al., 2021; Regis, 2023)

Family-Centered Care

Strategies:

- Individualized learning preferences
- Self-reported outcome measures
- Understand cultural traditions/backgrounds
- Treating at home
- Group feeding sessions

(Dorfman et al., 2021; Regis, 2023)

Summary

Takeaway Points

- The foundation for successful feeding/swallowing is established at day of life 1
- SLPs are both habilitative and rehabilitative healthcare providers
- Our roles are unique and specific to each setting
- We must provide holistic assessment/treatment
- Interdisciplinary collaboration is essential
- Familial involvement is critical for short and long-term success

Q&A

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