

# Addressing Challenges with Pediatric Feeding and Swallowing in the WIC Population

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### Disclosures

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### Objectives

1. Participants will identify patients that may be impacted by feeding difficulties in the WIC population.
2. Participants will determine strategies for improvement in feeding/swallowing in this population.
3. Participants will discuss ethical issues impacting feeding/nutrition in WIC population.

### Where do we start?



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## Neuroprotective care and feeding

### Feeding at a Glance

- Time to continue to develop *positive* motor and sensory neuro-pathways
- Critical element of patient care
- A time for family and infant to build a relationship

### Complexity of Feeding

## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

- Developmental skill
- Integration of systems
- Suck, swallow, breathe coordination
- Caloric depletion
- Environmental stressors
- Special Populations/Comorbidities

**Positive** feeding experiences during infancy lead to **positive** relationships with food and mealtimes for child and families **throughout life**.

### Neuroprotective care and feeding

**Fostering the parent-infant relationship during feeding by:**

- Supporting and guiding the parents and infant to have a *positive* feeding experience
  - Quality > Quantity
  - Safe Feeding Strategies
- Facilitating parent-baby attachment/ “dance of attachment”
  - Time for socialization/bonding
- Empower the parents to
  - Understand the infant’s behaviors.
  - Trust in establishing the parent-infant bond.
- Caregiver understands and uses the infant’s communication to guide feeding.
  - Physiologic and behavioral communication during feeding
    - Observes the infant for movement and signs of stress.
    - Modify the feeding approach in accordance with the infant’s communication.

A *lack* in continuity of the feeding approach and communication can *adversely* affect the baby’s overall feeding experiences leading to *decreased* PO intake and longer hospital stay.

### Speech-language pathologist (SLP) role in neuroprotective feeding

1. Parent/caregiver education
2. Evaluation of skills and appropriate recommendations for safe feeding
3. Demonstration and hands on support

4. Communication with nursing staff, MD, multi-disciplinary team
5. Staff education

## Successful feeding

- Experience vs. Volume
  - When an infant is learning to oral feed, the *experience* is more important than the volume of PO accepted.
  - Perfect, consistent infant practice leads to faster learning.
  - Feeding is a developmental skill.
  - The goal is to have infants become successful feeders NOT just successfully feeding (for one meal for example).

Slow and steady WINS the race!

(Ewing & Seitz, 2014)

## Suck-Swallow-Breathe

Involves the neurological, cardiac, digestive, musculoskeletal, and respiratory systems.

## SUCK

Mature Non-Nutritive Suck Ability vs Nutritive Bottle-Feeding Success

## Quote

“PRACTICE DOESN’T MAKE PERFECT, IT MAKES PERMANENT”

## Quote

“CLOCKS HAVE BATTERIES, BABIES HAVE BRAINS”

## Signs of stress or discomfort

### Major stress cues

- Coughing/Choking
- Change in color
- Bradycardia
- Breath holding or apnea

- Stridor
- Decreased O2 saturations
- Multiple swallows
- Moderate drooling

### Minor stress cues

## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

- Irritable/frantic
- Disorganized/ difficulty latching
- Respiratory fatigue
- Tachypnea or increased WOB
- Nasal flaring/blanching
- Gulping
- Minimal drooling
- Anterior loss

### The team

Collaboration for success: what does that look like for each setting?

### Who is involved

PT, MD, Parents, SLP, IBCLC, RN, RD, OT

### Bottle feeding basics

#### Bottle feeding

- Bottle feeding may alter self-regulation of intake, contributing to later obesity
  - Because the adult is in charge
  - Infants are not allowed to self-pace
  - They become over eaters
  - An infant at the breast can take as much or as little, and stop at their own pace
- No bottle nipple is most like the breast

#### Nipple types

Dr. Brown's; Lansinoh Slow Flow; Evenflo Balance; Lactationhub Gentleflow

#### Nipple types continued...

Tomme Tippee; NUK Orthodontic; Avent Naturals; MAM

#### Beware of advertising tactics. . .

# ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

## DID YOU KNOW?

Mom's Nipple Changes Shape During Nursing to the Perfect Fit™ Nipple Shape

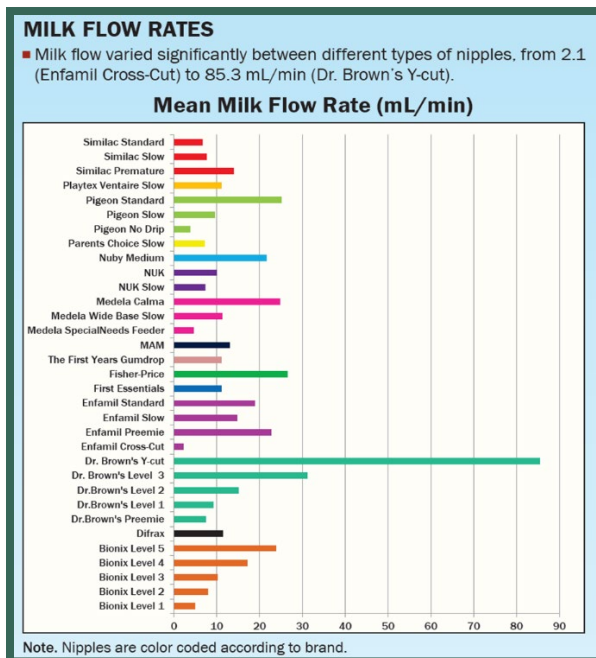


## Slow flow nipple

- Easier for infant to manage flow thus will accept more PO
- Increased breathing stability
- Babies show less signs of stress
- More similar to breast flow rate
- Helps in maintain physiologic stability during feeding
- Myth: “infant is working too hard”
  - Research indicates it is not the work of sucking that fatigues the infant but work of trying to breathe when the flow rate is beyond the infant’s capacity.

(Chang et al 2007; Eishima, 1991; Lau, 1997; Al-Sayed, Schrank and Thach, 1997, Shaker, 2022)

## Nipple flow



(Pados et. al, 2015)

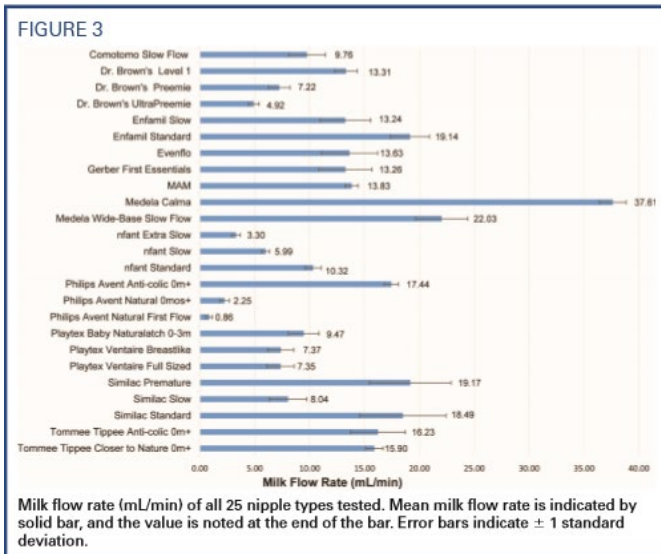
# ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

## Nipples tested

TABLE 1. Nipples Tested

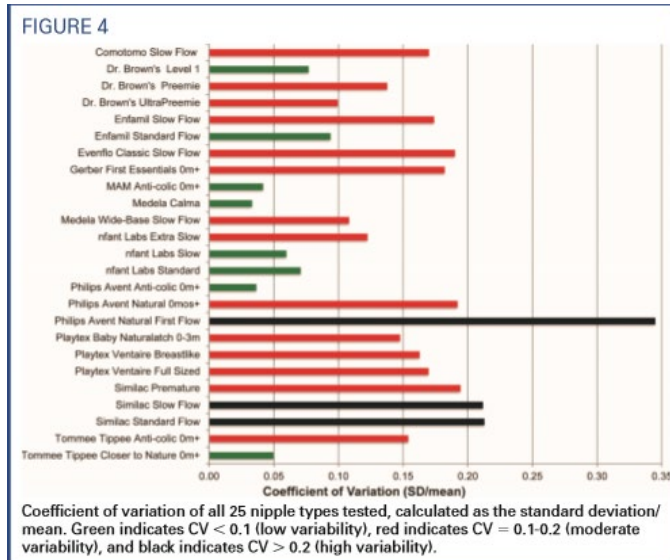
Brand	Nipple Type	Manufacturer's Label Information
Comotomo	Natural Feel Bottle	Slow Flow (0-3 mos)
Dr. Brown's	Standard-Neck Standard-Neck Standard-Neck	UltraPreemie Preemie Level 1
Enfamil	Single-use Single-use	Standard Flow (Royal Blue Collar) Slow Flow (Turquoise Collar)
Evenflo	Classic	Slow Flow 0m +
Gerber	First Essentials	0m + (Slow)
MAM	Anti-colic	0m +
Medela	Calma Breast Milk Feeding Nipple Wide-Base	All Stage Nipple Slow Flow
nfant Labs		Extra Slow Flow (Gold) Slow Flow (Purple) Standard Flow (White)
Philips Avent	Natural Natural Anti-colic	0mos + First Flow 0mos +
Playtex Baby	Naturalatch Ventaire Ventaire	0-3 m Full Sized Breastlike
Similac	Single-use Single-use Single-use	Standard Flow (Clear Collar) Slow Flow (Yellow Collar) Premature (Red Nipple)
Tommee Tippee	Anti-colic Closer to Nature	0m + 0m +

## Milk flow rate



## Variations of nipples tested

## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION



### Caregiver positioning tips for ESL

- Sit comfortably in a chair so that your feet are flat on the floor.
- Support swaddled infant with infant's head in caregivers left palm and infant's spine along caregiver's forearm. Be sure infant's shoulders, hips, and knees are aligned.
- Caregiver should use a pillow or cross his/her legs to support the infant in the elevated position.
- Infant's head and torso aligned w/ hands at midline.
  - Swaddle

### The power of communication

#### Mother/family's goals

1. Always remember, when providing support, to discuss with the mother/family their goals!
2. What are her ideas about breastfeeding?
3. How does she feel about allowing bottle feeding?
4. Find out what is most important to her and their family?
5. What are families thoughts for discharge/home life?
6. What resources are available in the community?
7. What is family able to sustain?

## Assessment and interventions: what's in your breastfeeding toolbox?

- Pre and post-feeding weight
  - Provides a guide as to amount of milk a baby is receiving during nursing.
- Flow Rate
- Respiratory
- Positioning
- Assistive Tools

## Weighing

- Best way to ensure amount infant is receiving per feed at breast is to complete pre and post weights of infant each time at breast

## Pacifiers: to use or not to use

- Continuous revolving door on research practice changes.
- Now used with oral motor movements related to breastfeeding.
- Research indicators that pacifier use may be associated with: Fewer feeds, shorter duration of suckling per 24 hours, shorter duration of exclusive breastfeeding and any breastfeeding.
  - This is discussed when using pacifiers as a substitution for feeding.
  - Rely on infant feeding cues.
- No such association were found with thumb sucking.

## Preemies and pacifiers

- May have better weight gain while tube fed and earlier hospital discharge.
- Use did not affect breastfeeding among premies (whose mothers' milk supplies are usually supported by pumping).

## Bridging the gap

## Exploring different settings for pediatric dysphagia

- Outpatient
  - Hospital/Rehab
  - Private Practice



## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

- Lactation
- Inpatient
  - Children's Hospital
  - Neonatal Intensive Care Unit
  - Lactation
- In Home
  - Home Health
- School
- Medically Fragile Daycare Centers

## Images

## Ethical considerations in pediatric feeding

### Ethics matter

- Ethical dilemmas exist when accepting a feeding specific position or creating a feeding program.
- ASHA's Code of Ethics.
  - "SLPs should be mindful of their own legal and ethical responsibilities and risks; they are obliged to "provide services or dispense products only when benefit can reasonably be expected" and not do harm."
  - "Individuals who hold the Certificate of Clinical Competence shall engage in only those aspects of the professions that are within the scope of their professional practice and competence, considering their certification status, education, training, and experience. (ASHA Code of Ethics, 2016).
- Finding Mentorship.
- Connection in your community.

## What situations may create ethical dilemmas?

- Resources
  - Financial
  - Community support
  - Provider availability

## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

- Parents involvement
  - Single or both parents
  - Other family support
  - CPS involvement
- Disagreement between providers

### Clinical eval vs. instrumental

How do I determine plan of care?

### Type of patients

- Normal infants/children
  - Oral aversion (picky/poor feeders)
  - Oral restrictions
  - Gagging/reflux
  - Poor weight gain/Failure to Thrive (FTT)
  - Sensory integration feeding issues
- Medically Complicated infants/children
  - Chronic conditions (CHD, CP, Down syndrome, BPD/chronic lung, other neurological disorders, genetic disorders)
  - Post discharge NICU patients
  - \*\*GOAL: intervene early to prevent developing feeding difficulties

### Symptoms

#### Potential problem feeders

##### GI Signs and Symptoms:

- Back arching
- Frequent congestion, particularly after meals.
- Gagging
- Decreased bowel movements or other stomach difficulties.
- Weight loss or lack of appropriate weight gain. (could also be metabolic).
- Vomiting (more than typical "spit up" for infants).

**Respiratory Signs and Symptoms:**

- Increased respiratory rate during feeding.
- Skin color change such as turning blue.
- Apnea.
- Topping frequently due to uncoordinated suck-swallow-breathe pattern.
- Desaturation (decreasing oxygen saturation levels).
- Changes in normal heart rate (bradycardia or tachycardia) in association with feeding.

## Potential problem feeders

**Dysphagia Signs and Symptoms:**

- Difficulty chewing foods that are texturally appropriate for age (may spit out partially chewed food).
- Difficulty initiating swallowing.
- Difficulty managing secretions (including non-teething related drooling of saliva).
- Coughing and/or choking during or after swallowing.
- Loss of food/liquid from the mouth when eating.
- Noisy or wet vocal quality noted during and after feeding.

**Failure To Thrive or other Difficulties with Feeding:**

- Crying during mealtimes.
- Decreased responsiveness during feeding.
- Dehydration.

**Behavioral Related Signs and Symptoms:**

- Disengagement cues, such as facial grimacing, finger splaying, or head turning away from food source.
- Frequent respiratory illnesses.
- Prolonged feeding times.
- Refusing foods of certain textures or types.
- Taking only small volumes, over-packing the mouth, and/or pocketing foods.

## Many symptoms overlap!

## Treatment after evaluation

## FEEDING THERAPY

- Evaluation of breast/bottle/solid foods for oral, pharyngeal, and esophageal phases
- Depends on age of infant/child
- Depends on etiology
  - Motor
  - Sensory
  - Dysphagia
  - Combination and comorbidities
- Breastfeeding management
  - Latch, milk supply, introduction of solids.
- Bottle feeding management
  - Flow rate, position changes, introduction of solids.
- Dysphagia Management
- Tube to PO transition
  - Aspiration risks/PO safety, reflux considerations, oral aversion possibilities.
- Picky eating management
  - Oral aversion, food chaining/shaping, SOS/other sensory therapies.

## Treatment options continued...

- Behavioral Interventions
  - Reinforcements
- Postural/Positioning Techniques
- Diet Modification
  - Thickened liquids (past age 2 years)
  - Solid texture changes
  - Non-cohesive boluses
  - Mixed Consistencies
- Equipment/Utensils
- Biofeedback
- Maneuvers

## Treatment options continued...

- Oral-Motor Treatments
  - Functional tasks
  - No oral motor just for exercises purposes
- Pacing and Cue-based Feeding Strategies
  - Both breast and bottle for infants
  - Strategies for children after infancy
- Sensory Stimulation
  - SOS
  - Sensory Integration with other activities
- Feeding Protocols
- Non-Nutritive Sucking (NNS) Facilitation
- Interdisciplinary Care
  - Working with PT/OT

## Plan of care

- Family and patient will leave with treatment options and plan of care after evaluation/session completed.
- Looking to family goals of care.
- Identify all potential member needs for interdisciplinary team.

## Medical management

### Pharmaceutical

- Proton pump inhibitors
- FDA no PPI under 1 year
- Infants can still have “gut” damage
- H2 receptor antagonist
- Ask about OTC acid buffer

### Surgical

- Nissen fundoplication
- Wrapping the fundus of the stomach around distal esophagus
- Often completed when PEG placed in infant
- Effectiveness has varied
- Stomach loses 25-50% of volume

(Arvedson & Brosky 2002)

## PPIS:

- Proton pump inhibitors include:
- Omeprazole (Prilosec, Prilosec OTC)
- Aspirin and omeprazole (Yosprala)
- Lansoprazole (Prevacid, Prevacid IV, Prevacid 24-Hour)
- Dexlansoprazole (Dexilent, Dexilent Solutab)
- Rabeprazole (Aciphex, Aciphex Sprinkle)
- Pantoprazole (Protonix)
- Esomeprazole (Nexium, Nexium IV, Nexium 24 HR)
- Esomeprazole/magnesium/naproxen (Vimovo)
- Omeprazole/sodium bicarbonate (Zegerid, Zegerid OTC)

## Beyond the clinical swallow evaluation

### Fiberoptic endoscopic evaluation of swallowing (FEES) vs. Modified barium swallow (MBS)

#### FEES

- Assesses pharyngeal phase before, during, and after the swallow
- Inferences are made about the oral (containment) phase and esophageal phase (if reflux is observed)
- Primarily from the superior view

#### MBS

- Assesses the oral, pharyngeal, and cervical esophageal phase
- Primarily from the lateral phase but can be completed in A-P view

### FEES vs. MBS

#### FEES

- Best indicated for patients who c/o choking on foods or liquids, suspicion of penetration/aspiration, especially from clinical swallowing evaluation
- May need diet upgrade or consistency change

#### MBS

- Patient may benefit from if complaints of oral stage prep problems, suspicion of penetration/aspiration

## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

- Complaints of food sticking in throat
- May need to be followed with UGI

### FEES vs. MBS limitations

#### FEES

- Can't tolerate nose insertion
- "White out" moment of swallow
- May miss penetration/aspiration
- Does not address oral and esophageal phase of swallow

#### MBS

- To reduce radiation, fluoro is turned on and off
- Prone to miss behaviors after the swallow
- Unable to view laryngeal surface anatomy
- Barium is mixed with foods, and may change viscosity

### FEES vs. MBS

#### FEES

Bonus:

- Secondary assessment of VP closure
- Assessment of laryngeal/pharyngeal surfaces and functions
- Bilateral cavity residue visibility
- Therapy biofeedback

#### MBS

Bonus:

- Screening of esophagus to lower esophageal sphincter during swallow

### FEES vs. MBS

Images

#### FEES

- Pediatric vs.
- Neonatal Scope

## ADDRESSING CHALLENGES WITH PEDIATRIC FEEDING AND SWALLOWING IN THE WIC POPULATION

- Age of child
- Anesthesia

### FEES

Images

### Thank you

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