



Pediatric Feeding

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About Me

Speech-language pathologist

Specialize in pediatric feeding disorders

Experience across home health, outpatient, specialty clinics (GI and trach), acute care, and critical care

Currently work in Level VI and III NICU

Helped to develop pediatric feeding disorders course for UT's SLP graduate program

Clinical placement coordinator for UT SON graduate programs

Anatomy and Physiology

ANIMATION

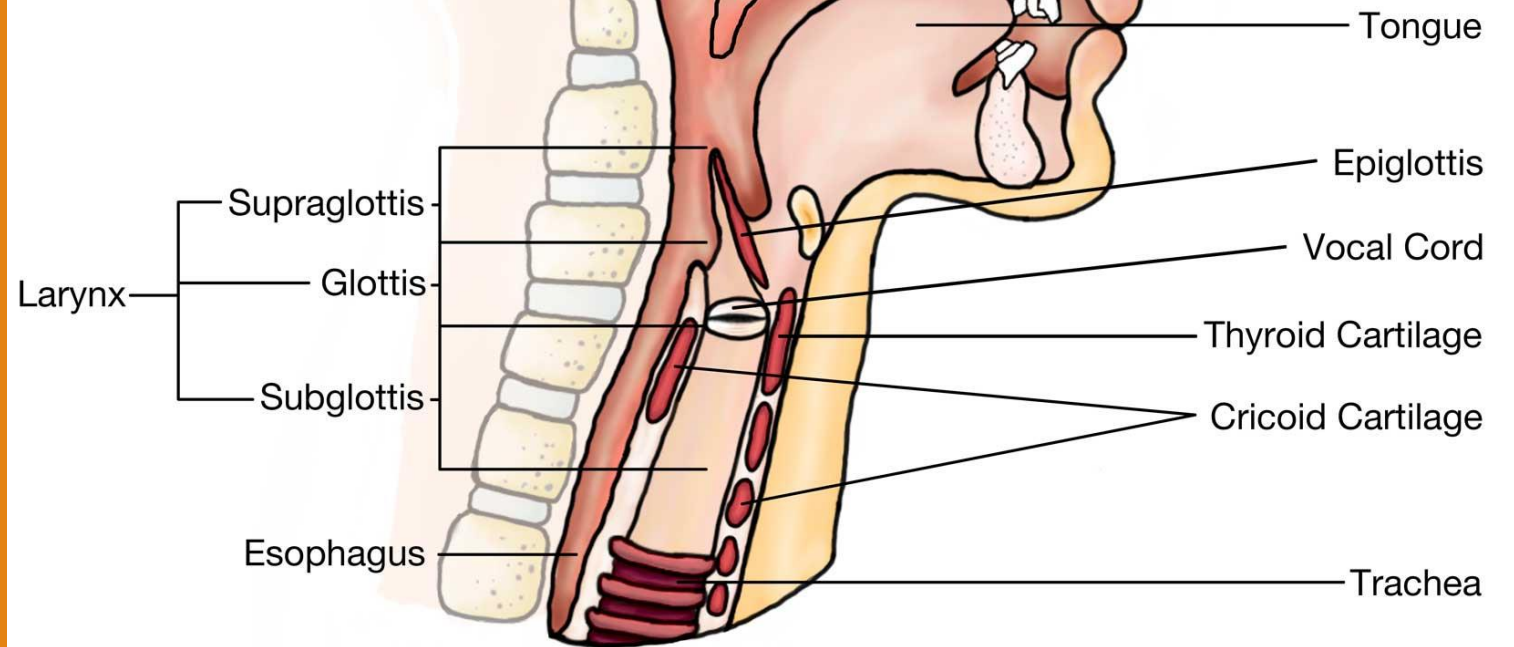


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INFANT FEEDING

Cue-Based Feeding Method

A method of feeding where caregivers attend and respond to infant cues to promote optimal feeding

Developed for use with premature infants in the NICU

Focus is individualized, developmentally appropriate feeding

- Infant directs how, when, and how much they will eat

Also known as “infant-driven feeding” or “responsive feeding”

Change from volume driven + scheduled feeding



Benefits of Cue-Based Feeding

Helps baby learn their own internal hunger and satiation cues (self-regulate)

- Reduces likelihood of obesity

Builds trust between child and caregiver

Builds trust with eating to prevent future feeding difficulties

Hunger Cues

Early hunger cues:

- Smacking/licking lips
- Opening mouth repeatedly
- Sucking
- Increased arousal

Active hunger cues:

- Rooting
- Squirming or fidgeting
- Hands to mouth

Late hunger cues:

- Head moving frantically side to side
- Crying

EARLY CUES - "I'm hungry"



- Stirring



- Mouth opening



- Turning head
- Seeking/rooting

MID CUES - "I'm really hungry"



- Stretching



- Increasing physical movement



- Hand to mouth

LATE CUES - "Calm me, then feed me"



- Crying



- Agitated body movements



- Colour turning red



Satiation Cues

Early fullness cues:

- Hand to face
- Decreased muscle tone and activity
- Looking away
- Turning head away

Late fullness cues:

- Crying
- Sleeping
- Arching
- Vomiting

Active fullness cues:

- Pushes away
- Pulls off
- Drowsy
- Closes mouth
- Biting nipple

Stress Cues

STATE	MOTOR	AUTONOMIC
Gaze aversion	Saluting	Yawning
Irritability	Finger splaying	Hiccupping
Poor alertness	Squirming	Gagging
Raised eyebrows	Arching	Sneezing
Furrowed brow	Tongue thrusting	Color change
	Turning head	Irregular respiration
	Pulling away	

Video examples

Compelling stress cues

Subtle stress cues (2:30-3:00, 5:30-6:00)

Feeding Strategies

Calm

Flow rate

Positioning

Pacing



Calm

Preferably, babies should be fed when showing early-mid signs of hunger

Ideal state to initiate feed is calm, alert

- If baby is showing late hunger cues, calm before feeding

Flow Rate

Appropriate flow rate is crucial for successful feeding

Signs flow rate is too fast:

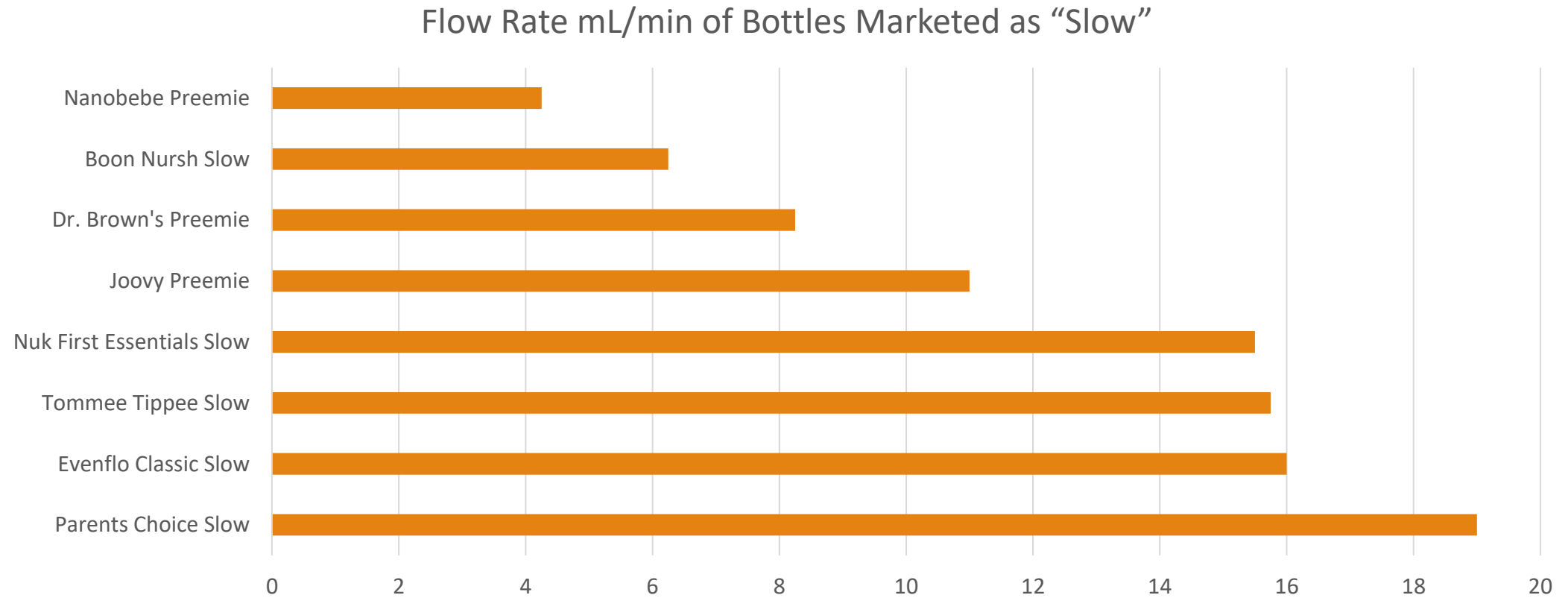
- Spilling
- Gulping
- Breath-holding
- Increased work of breath
 - Rapid fatigue/poor endurance
- Stress cues
 - Feeding refusal

Signs flow rate is too slow:

- Feeds are longer than 30 minutes
- Frustration



Variability of Flow by Bottle Brands



Positioning

Side-lying:

- Cross cradle or football hold
- Allows flow rate management
- Reduces reflux when on left side

Upright position:

- Reduces gas
- Reduces reflux

Reclined position (DBF):

- Reduces flow rate

Avoid:

- Supine
- Bottle propping



Paced Bottle Feeding

Mimics breastfeeding

Example

Provides improved control of flow rate

Responsive to baby's cues

Allows breaks

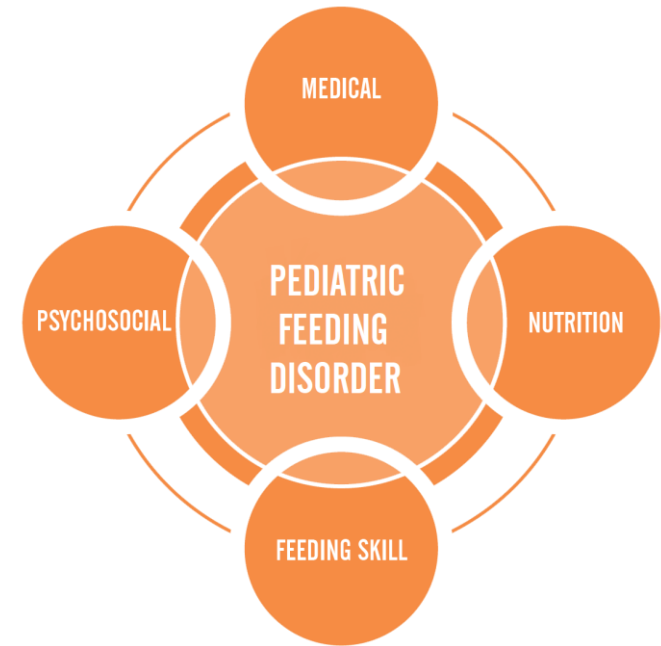
Reduces fatigue

Reduces risk of overfeeding and GI discomfort

Pediatric Feeding Disorder

“Impaired oral intake that is not age-appropriate and that is associated with medical, nutritional, feeding skill, and/or psychosocial dysfunction”

Feeding problems are estimated in 20-50% typically developing children and up to 80% of children with developmental disabilities



High Risk Populations

Premature birth

Low-birth-weight

Neurological disorders

Anatomical/structural problems of the upper airway or esophagus

Chronic illness of the GI system, heart, or lungs

Food allergies

Genetic disorders



Feeding Difficulties in Infants

Common problems reported by parents:

- Refusal/low intake
- Poor latch
- Difficulty swallowing
- Irregular breathing
- Vomiting
- Stress

Dysphagia

Signs/symptoms of aspiration:

- Coughing
 - Suspected that 89-95% of infants with dysphagia silently aspirate
- Congestion
- Wet vocal quality
- Stridor
- Stertor
- Eye-watering
- Changes in breathing
 - Breath-holding, breathing rapidly
- History of recurrent respiratory illnesses
- Unexplained fevers
- Slow feeding
- Stress with feeding
- Feeding refusal

Referral to feeding therapy


Early identification of feeding difficulties for referral to specialists is necessary

Who to refer:

- Show stress with feeding
- Physiologically unstable with feeding
- Signs of swallow dysfunction
- Poor weight gain/growth
- Impacting parent stress

NeoEAT is a FREE psychometric parent questionnaire that can be used for screening

- Three versions for exclusive breastfeeding, exclusive bottle feeding, and a combination
- Available in English, Spanish, Romanian, Tamil, Turkish, Swedish

A photograph of a man with dark hair, seen from the side, gently kissing a baby on the forehead. The baby is looking directly at the camera with a curious expression. The image is dimmed to serve as a background for the text.

Reflux – GER vs. GERD



GER

GER is a “functional or physiologic process in a healthy infant with no underlying systemic abnormalities”

- Regurgitation is normal in infants <1 year of age
- “Happy spitters”
- May have infrequent, mild signs of discomfort
- Does not impact weight gain, hydration, feeding, sleeping, or quality of life



When is it more than just spit-up?

GERD

- Significant pain/discomfort
- Feeding aversion
- Poor weight gain
- Dehydration
- Apneic events
- Arching/posturing
- Dysphagia
- Poor sleep

May benefit from further intervention from GI and/or feeding therapy

Non-Pharmacological Strategies

Positioning

- Left side-lying
- Head elevated
 - Not recommended for sleep due to SIDS

Smaller, more frequent meals

Dietary changes

- Eliminate dairy and/or soy
- Limited objective data to support thickened feeds

Hold upright following feeds

Responsive feeding

- Important for reducing over-feeding and for reducing oral aversion



TRANSITION TO SOLIDS



Solid Readiness

AAP, NIH, and WHO recommend solid introduction around 6 months **with signs of readiness:**

- Sitting with minimal support
- Head control while sitting for 15 minutes
- Reaching and bringing items to mouth
- Interest in food – watches people eat, reaches for food, leans toward it

Responsive Feeding Approach

Built on framework of responsive parenting/responsive care

- Promote children's attentiveness and interest in feeding
- Learn to self-regulate hunger/satiation
- Improve communication of needs between child and caregiver
- Progress to independent feeding
- Reduces "picky" eating

Toddler Hunger Cues

Early hunger cues:

- Opening/closing mouth
- Licking lips
- Increased arousal

Active hunger cues:

- Asking for food
- Reaching to highchair
- Bringing utensil to caregiver
- Fussing/whining

Late hunger cues:

- Crying





Toddler Satiation Cues

Early satiation cues:

- Does not open mouth until spoon at lips
- Distracted, paying attention to environment
- Grimace or pouting
- Slows or pauses
- Gaze aversion
- Turns head

Active satiation cues:

- Pushes tray or hand away
- Gives back utensil
- Falls asleep
- Refuses to open mouth
- Takes off bib
- Shakes head or says 'no'
- Throws food

- Spitting out food

- Squirming

- Fussing

Late satiation cues:

- Crying

- Sleeping

- Arching

- Vomit

Stress Cues

STATE	MOTOR	AUTONOMIC
Gaze aversion	Squirming	Yawning
Irritability	Arching	Hiccupping
Poor alertness	Tongue thrusting	Gagging
Raised eyebrows	Turning head	Sneezing
Furrowed brow	Pulling away	Color change
		Irregular respiration



Mealtime Recommendations

Respond to child's hunger and satiation cues

Ensure comfortable and supportive seating

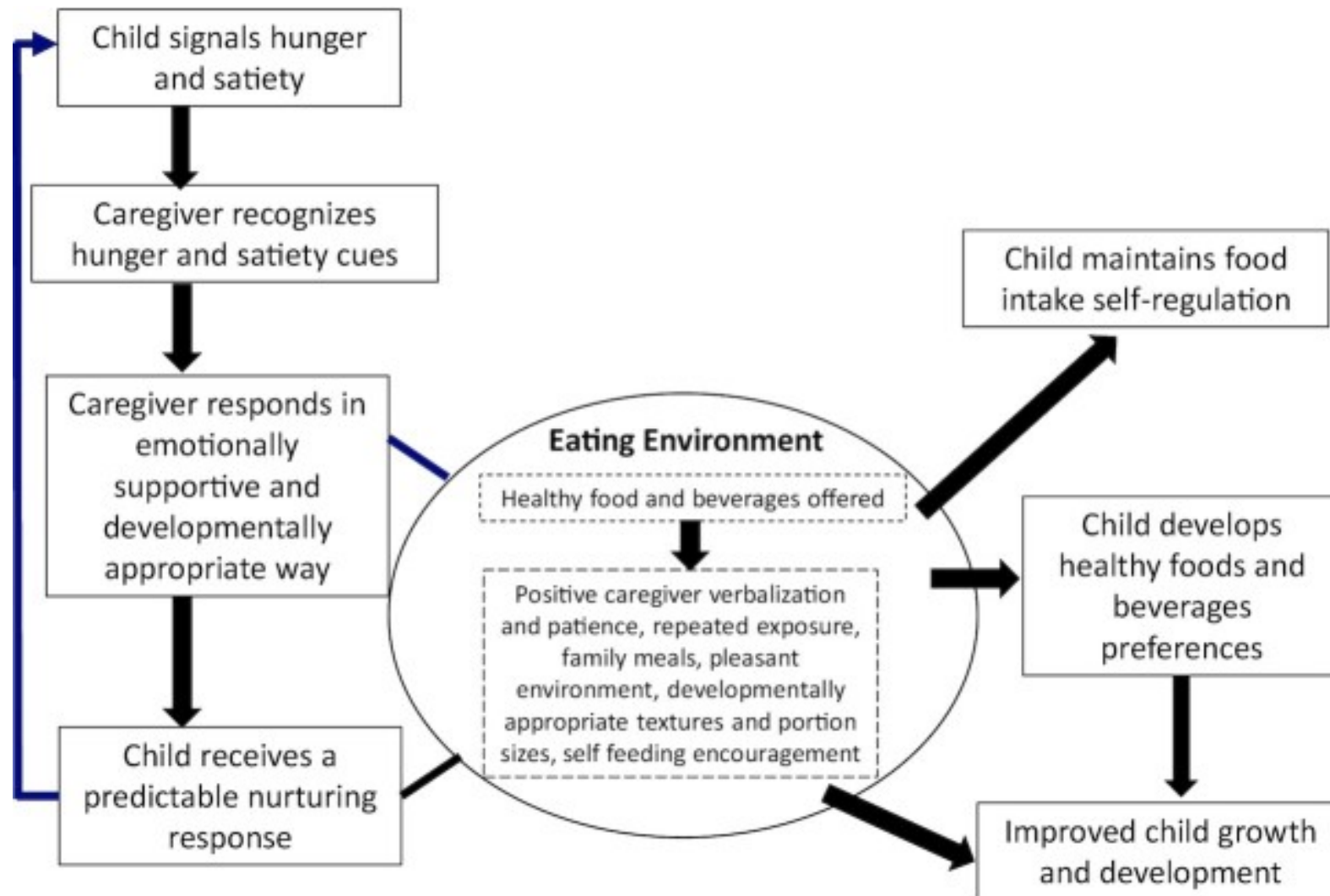
Offer diverse diet with repeated exposure of a variety of foods early on

Positive, low pressure feeding environment where playing and exploring is encouraged

Avoid distractions - mealtimes should be fun and engaging

Encourage self-feeding

- Possible with baby-led weaning, puree first, and hybrid approaches
- [Solid Starts](#) is an excellent resource for parents



Feeding Difficulties in Toddlers

25-35% in children with typical development

Increased risk for children with:

- Developmental disabilities (40-80%)
- Autism spectrum disorder (90%)
- Premature birth
- Delayed motor skills
- Medical conditions (GI, cardiac, respiratory)

Most common symptoms:

- Difficulty chewing
- Difficulty swallowing
- Poor growth
- Highly selective eater
- Increased meal-time stress
- Delayed transition to age appropriate utensils



Feeding Therapy

Refer to feeding therapy and/or specialists for children with:

- Poor growth
- Coughing or choking during mealtimes
- Delayed transition to age appropriate food and utensils
- Very selective (picky) eating
- Difficulty chewing or controlling food in their mouth
- Significant stress with mealtimes
 - Including when parents are reporting significant stress about their child eating

PediEAT is a free screener or full assessment for measuring symptoms of problematic feeding in 6 months-7 years old

- Available in English, Spanish, Argentinian Spanish, Romanian, Persian, Hebrew, German, and Greek)

Infant Case Study

Patient hx:

- Born prematurely at 36 weeks due to hypertension resulting in preeclampsia
- Mild-moderate intrauterine growth restriction
- 2 week NICU stay for respiratory distress and temperature instability

Current:

- Now 5 months old
- Slow weight gain
- Frequent respiratory symptoms
- Feeding concerns reported by parents:
 - Starts vigorous and then falls asleep after 1 oz.
 - Messy eater
 - Fast breathing
 - Pushes bottle away

Toddler Case Study

Patient hx:

- Born FT
- No pregnancy or labor complications
- Significant reflux as infant that has self-resolved

Current:

- Now 12 months old
- Mild developmental delays
- Growing and gaining weight
- Feeding concerns reported by parents:
 - Primarily drinks from bottle
 - Hates sitting in his high chair
 - Only eats pouches
 - When eating solids, primarily sucks on pieces of food

Thank you!

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