




**KIDS INNOVATIVE DEVELOPMENTAL SERVICES, INC. (KIDS INC)**

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## DEFINITIONS

Feeding Disorder Definition

**ASHA**  
Feeding Disorders are problems with a range of eating activities that may or may not include problems with swallowing. Feeding disorders may be characterized by one or more of the following behaviors:

- Avoiding or restricting one's food intake (avoidance/restrictive food intake [ARFID] American Psychiatric Association, 2016)
  - Refusing age-appropriate or developmentally appropriate foods or liquids
  - Accepting a restricted variety or quantity of foods or liquids
- Displaying disruptive or inappropriate mealtime behaviors for developmental level
- Failing to master self-feeding skills expected for developmental levels
- Failing to use developmentally appropriate feeding utensils
- Experiencing less than optimal growth (Arvedson, 2008)

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## DEFINITIONS


ASHA (Continued)

Swallowing Disorders (Dysphagia)  
Can occur in one or more of the phases of swallowing and can result in aspiration – the passage of food, liquid, or saliva into the trachea – retrograde flow of food into the nasal cavity.

Long term effects can include:

- Food aversion
- Oral aversion
- Aspiration pneumonia and/or compromised pulmonary status
- Undernutrition or malnutrition
- Dehydration
- Gastrointestinal complications such as motility disorders, constipation, and diarrhea
- Poor weight gain or velocity and/or undernutrition
- Rumination disorder
- Ongoing need for enteral or parenteral nutrition
- Psychosocial effects on the child and his/her family
- Feeding and swallowing problems that persist into adulthood (Arvedson & Brodsky, 2002)

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## PEDIATRIC FEEDING DISORDER ICD-10 CODES

Pediatric Feeding Disorder


Coming October 1, 2022

Classification

R63.31 Pediatric Feeding Disorder – Acute  
R63.32 Pediatric Feeding Disorder – Chronic

Areas defined (Goday, P. S., et' al., 2019)  
Medical factors  
Nutritional factors  
Feeding skill factors  
Psychosocial factors

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## DIAGNOSTICS

NICU Assessment  
NOMAS – Neonatal Oral-Motor Assessment Scale : A visual observation method most commonly used to assess the non-nutritive sucking and nutritive sucking skills of infant up to approximately 8 weeks postterm. During the first 2 minutes of a regular feeding the infant's sucking skill is assessed. Training required.

M.O.S.T.  
Marshalla Oral Sensorimotor Test –  
Criterion Referenced scores for ages 4; 0 – 7;11  
Testing takes 15-20 minutes  
Assesses: numerical values are placed on oral motor movement, oral-tactile sensitivity, facial and oral tone, respiration, phonation, and resonance skills.

Beckman Oral Motor Assessment – requires training from Debra Beckman course

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## DIAGNOSTICS

**Beckman Oral Motor Evaluation Protocol**

Client Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_  
 Complete Patient Name: \_\_\_\_\_ Date of Evaluation: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Diagnosis: \_\_\_\_\_ Clinician: \_\_\_\_\_

**Signs**

- General Observation: \_\_\_\_\_
- Response to Presence and Movement: \_\_\_\_\_
- Range of Movement: Upper (U) \_\_\_\_\_ Lower (L) \_\_\_\_\_
- (U) Forward \_\_\_\_\_ (U) Backward \_\_\_\_\_ (U) Forward \_\_\_\_\_ (U) Backward \_\_\_\_\_
- (L) Forward \_\_\_\_\_ (L) Backward \_\_\_\_\_ (L) Forward \_\_\_\_\_ (L) Backward \_\_\_\_\_
- (B) Lateral \_\_\_\_\_ (B) Medial \_\_\_\_\_ (B) Lateral \_\_\_\_\_ (B) Medial \_\_\_\_\_
- (S) \_\_\_\_\_ (S) \_\_\_\_\_ (S) \_\_\_\_\_ (S) \_\_\_\_\_ (S) \_\_\_\_\_ (S) \_\_\_\_\_

Mean: \_\_\_\_\_

**Alignment Box of Tongue (T)**

(U) Forward \_\_\_\_\_ (U) Backward \_\_\_\_\_ (U) Forward \_\_\_\_\_ (U) Backward \_\_\_\_\_

Mean: \_\_\_\_\_

**Gen Massage (G)**

- Response to Presence and Movement: \_\_\_\_\_
- (U) Right Side \_\_\_\_\_ (U) Left Side \_\_\_\_\_ (U) Right Side \_\_\_\_\_ (U) Left Side \_\_\_\_\_
- (L) Right Side \_\_\_\_\_ (L) Left Side \_\_\_\_\_ (L) Right Side \_\_\_\_\_ (L) Left Side \_\_\_\_\_
- (B) Right Side \_\_\_\_\_ (B) Left Side \_\_\_\_\_ (B) Right Side \_\_\_\_\_ (B) Left Side \_\_\_\_\_
- (S) Right Side \_\_\_\_\_ (S) Left Side \_\_\_\_\_ (S) Right Side \_\_\_\_\_ (S) Left Side \_\_\_\_\_

Mean: \_\_\_\_\_

**Clonus**

- General Observation: \_\_\_\_\_
- Response to Presence and Movement: \_\_\_\_\_
- (U) Right Side \_\_\_\_\_ (U) Left Side \_\_\_\_\_ (U) Right Side \_\_\_\_\_ (U) Left Side \_\_\_\_\_
- (L) Right Side \_\_\_\_\_ (L) Left Side \_\_\_\_\_ (L) Right Side \_\_\_\_\_ (L) Left Side \_\_\_\_\_
- (B) Right Side \_\_\_\_\_ (B) Left Side \_\_\_\_\_ (B) Right Side \_\_\_\_\_ (B) Left Side \_\_\_\_\_
- (S) Right Side \_\_\_\_\_ (S) Left Side \_\_\_\_\_ (S) Right Side \_\_\_\_\_ (S) Left Side \_\_\_\_\_

Mean: \_\_\_\_\_

Referenced from:  
[www.beckmanoralmotor.com](http://www.beckmanoralmotor.com)

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# DIAGNOSTICS

## Beckman Oral Motor Evaluation Protocol Page 1

Patient Name: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

Height: \_\_\_\_\_

Weight: \_\_\_\_\_

DOB: \_\_\_\_\_

Referral: \_\_\_\_\_

Notes: \_\_\_\_\_

Referred from: [www.beckmanoralmotor.com](http://www.beckmanoralmotor.com)

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# DIAGNOSTICS

## Beckman Oral Motor Evaluation Protocol Page 2

Patient Name: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

Height: \_\_\_\_\_

Weight: \_\_\_\_\_

DOB: \_\_\_\_\_

Referral: \_\_\_\_\_

Notes: \_\_\_\_\_

Referred from: [www.beckmanoralmotor.com](http://www.beckmanoralmotor.com)

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# PRE-FEEDING SKILLS CHECKLIST

Morris and Klein (2000)

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### Developmental Pre-Feeding Checklist: A Sequential Approach

Name: \_\_\_\_\_

Age: \_\_\_\_\_

| Age       | Skills   | Present | Partial | Not Present |
|-----------|--|---------|---------|-------------|
| 1 month   | Feeding Position: Holds with the hand slightly elevated. Uses mouth.         |         |         |             |
| 3 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 5 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 7 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 9 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 12 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |

APPENDIX A. PRE-FEEDING SKILLS AND BEHAVIORAL CHECKLISTS

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# PRE-FEEDING SKILLS CHECKLIST

Morris and Klein (2000)

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### Pre-Feeding Checklist: A Sequential Approach (continued)

Name: \_\_\_\_\_

| Age       | Skills   | Present | Partial | Not Present |
|-----------|--|---------|---------|-------------|
| 15 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 18 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 21 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 24 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 30 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 36 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |

APPENDIX A. PRE-FEEDING SKILLS AND BEHAVIORAL CHECKLISTS

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# PRE-FEEDING SKILLS CHECKLIST

Morris and Klein (2000)

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### Pre-Feeding Checklist: A Sequential Approach (continued)

Name: \_\_\_\_\_

| Age       | Skills   | Present | Partial | Not Present |
|-----------|--|---------|---------|-------------|
| 42 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 48 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 54 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 60 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 66 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 72 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |

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# PRE-FEEDING SKILLS CHECKLIST

Morris and Klein (2000)

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### Pre-Feeding Checklist: A Sequential Approach (continued)

Name: \_\_\_\_\_

| Age        | Skills   | Present | Partial | Not Present |
|------------|--|---------|---------|-------------|
| 78 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 84 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 90 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 96 months  | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 102 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |
| 108 months | Feeding Position: Holds with the hand on the level of the mouth. Uses mouth. |         |         |             |

APPENDIX A. PRE-FEEDING SKILLS AND BEHAVIORAL CHECKLISTS


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## PRE-FEEDING SKILLS CHECKLIST

Morris and Klein (2000)

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**Pre-Feeding Checklist: A Sequential Approach (continued)**

| Approximate Age | Skill   | Present | With | Not Present |
|-----------------|---|---------|------|-------------|
| 12 months       | <b>Use Mouth/Chewing</b><br><b>Use Chewing (continued)</b><br>Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. |         |      |             |
| 24 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 36 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 48 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 60 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |

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## PRE-FEEDING SKILLS CHECKLIST

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**Pre-Feeding Checklist: A Sequential Approach (continued)**

| Approximate Age | Skill   | Present | With | Not Present |
|-----------------|---|---------|------|-------------|
| 12 months       | <b>Use Mouth/Chewing</b><br><b>Use Chewing (continued)</b><br>Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. |         |      |             |
| 24 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 36 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 48 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 60 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |

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## PRE-FEEDING SKILLS CHECKLIST

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**Pre-Feeding Checklist: A Sequential Approach (continued)**

| Approximate Age | Skill   | Present | With | Not Present |
|-----------------|---|---------|------|-------------|
| 6 months        | <b>Control of Feeding, Swallowing, and Breathing</b><br>Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. |         |      |             |
| 9 months        | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 12 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 15 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 18 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |

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## PRE-FEEDING SKILLS CHECKLIST

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**Pre-Feeding Checklist: A Sequential Approach (continued)**

| Approximate Age | Skill   | Present | With | Not Present |
|-----------------|---|---------|------|-------------|
| 12 months       | <b>Control of Feeding, Swallowing, and Breathing</b><br>Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. |         |      |             |
| 15 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 18 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 24 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 36 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |

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## PRE-FEEDING SKILLS CHECKLIST

Morris and Klein (2000)

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**Pre-Feeding Checklist: A Sequential Approach (continued)**

| Approximate Age | Skill   | Present | With | Not Present |
|-----------------|---|---------|------|-------------|
| 18 months       | <b>Control of Feeding, Swallowing, and Breathing</b><br>Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. |         |      |             |
| 24 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 36 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 48 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |
| 60 months       | Can transfer food from the center of the mouth to the sides and chew. Transfer food to the sides of the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth. Use the tongue and lips to hold food in the mouth.   |         |      |             |

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APPENDIX 4. PRE-FEEDING SKILLS AND SEQUENTIAL CHECKS


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## BECKMAN ORAL HYPERSENSITIVITY SCALE (2004)

Debra Beckman has great resources on her website for feeding development and articles for reference.

Here is Beckman's rating scale to quantify and rate various aspects of tolerance for stimulation, foods, and oral intake. Beckman requires training to be able to appropriately utilize her assessment protocol.

www.beckmanoralmotor.com



**ORAL HYPERSENSITIVITY SCALE**  
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|         |  |
|---------|--|
| Level 1 | <ul style="list-style-type: none"> <li>1) Tolerates minimal pressure and movement on the outside of the face</li> <li>2) Can show no item that is as firm as a finger at the back of the mouth less than 5 times in 5 seconds, bilaterally</li> <li>3) Gags 4 to 8 times a day or less with and inside, touch to the face or within the mouth, often with reflex (throwing up)</li> <li>4) Difficulty accepting adequate amounts of food and fluid by mouth</li> </ul>   |
| Level 2 | <ul style="list-style-type: none"> <li>1) Tolerates pressure and movement for necessary activities on the face with minimal resistance (cough face, blow nose)</li> <li>2) Can show no item that is as firm as a finger at the back of the mouth 5 times in 5 seconds, bilaterally</li> <li>3) Gags 4 to 8 times a day or less with and inside or touch to the face, often with reflex (throwing up)</li> <li>4) Consistently eats 4 ounces in 20 minutes of particular foods and fluids, but significant difficulty with unfamiliar foods and fluids</li> </ul> |
| Level 3 | <ul style="list-style-type: none"> <li>1) Tolerates pressure and movement on the face, but not within the mouth</li> <li>2) Can show no item that is as firm as a finger at the back of the mouth 10 times in 10 seconds, bilaterally</li> <li>3) Gags 1 to 2 times a day or less, occasionally with reflex (throwing up)</li> <li>4) Tolerates pressure and movement on the face and within the mouth, for routine activities</li> <li>5) Eaters need fluids and fluids at least once each day, but may spit it out</li> </ul>                                  |
| Level 4 | <ul style="list-style-type: none"> <li>1) Tolerates pressure and movement on the face and within the mouth, for routine activities</li> <li>2) Can show no item that is as firm as a finger at the back of the mouth 15 times in 15 seconds, bilaterally</li> <li>3) Gags 1 to 2 times a week or less which rarely results in reflex (throwing up) after gagging</li> <li>4) Swallows at least 2 ounces of novel foods and fluids of various textures and tastes 1 or more times a week</li> </ul>   |
| Level 5 | <ul style="list-style-type: none"> <li>1) Accepts pressure and movement on the face and within the mouth for novel activities</li> <li>2) Can show no item that is as firm as a finger at the back of the mouth 20 times in 20 seconds, bilaterally</li> <li>3) Rarely exhibits gagging in response to pressure and movement on the face or within the mouth, or with foods or fluids</li> <li>4) Consistent adequate oral intake of a variety of foods and fluids of various textures and tastes</li> </ul>   |

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## PHASES OF THERAPY INTERVENTION

Phases of therapy intervention

Acute Phase – Treatment during this phase includes

- diagnostics
- medical management
- positive oral sensory input
- parent perspective

Progressive Phase – Infants work on progressing through treatment hierarchies

- progressing through stages of development
- progressing through food hierarchies
- implementing social skills into mealtime, parent bonding time
- child led mealtimes
- adult lead mealtimes with our “working meal”

Maintenance Phase – Typically with older children in feeding therapy

- child led choices with mealtime
- supplemental tube feedings to maintain growth and development
- cycle feeding plans to have continued expansion of food choices
- check ins with families to feel supported in the process

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## TREATMENT TRACHEOSTOMY/VENTILATOR DEPENDENT INFANTS

ACUTE PHASE TREATMENT

- Tracheostomy/Ventilator Dependent Infants

During this acute phase, the medical team manages infant's health.

- Infant stability
  - Managing respiratory health, nutrition and growth
  - Oral-nasal airflow and impact on feeding
  - Minimizing negative touch to face
  - Minimizing negative feeding experiences

- Oral-nasal airflow and impact on feeding

- Positioning infant with equipment

- Parent education – social bonding

- Managing infant vitals and positioning with feeding attempts

- Enteral nutrition and impact on feeding

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## TREATMENT

PROGRESSIVE PHASE

- Pre-feeding skills (Overland, 2013)

- Tolerance of touch
- Non-nutritive sucking (gloved finger or pacifier)
- Lateral munching on a gloved finger or pacifier (Beckman Assessment)
- Tastes of breast milk or formula

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## PACIFIERS



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## TREATMENT

PROGRESSIVE PHASE

- Feeding Progression

- Bottle feeding trials
  - Positioning
  - Sidelying
  - Upright supported
- Bottle options
- Infant driven feedings versus volume driven feedings



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## BOTTLE FLOW RATES

Table 1. Nipples Tested, Flow Rates, and Coefficient of Variation (CV)

| Brand           | Manufacturer          | Nipple Type                                 | Mean Flow Rate (mL/min) | CV  |
|-----------------|-----------------------|---|-------------------------|-----|
| Janet           | Phillips Avent        | Classic SoftFlow (S, M, L) and Natural Flow | 8.19 (8.82-10.22)       | .15 |
| Best Free       | Best Free             | Standard Flow                               | 6.41 (5.64-8.25)        | .26 |
| Dr. Brown's     | Medi-Chek Co.         | Classic Level 1                             | 8.41 (8.08-12.21)       | .14 |
|                 |                       | Slow Flow (S, M)                            | 7.38 (6.18-8.21)        | .28 |
|                 |                       | Standard Flow (S, M)                        | 8.21 (8.42-8.85)        | .26 |
|                 |                       | Standard Level 2 (S, M)                     | 10.01 (9.76-10.86)      | .28 |
|                 |                       | Standard Level 3 (S, M)                     | 11.12 (10.81-11.78)     | .28 |
|                 |                       | Standard Flow (S, M)                        | 8.54 (7.95-10.8)        | .19 |
|                 |                       | Wide Neck Level 1 (S, M)                    | 7.18 (7.14-8.15)        | .26 |
| Evenflo         | Evenflo Feeding       | Baby's First Slow Flow (S, M)               | 12.88 (11.53-16.11)     | .14 |
|                 |                       | Classic Slow Flow (S, M)                    | 12.81 (11.51-16.88)     | .16 |
|                 |                       | Purple Classic Slow Flow (S, M)             | 8.82 (7.88-10.21)       | .11 |
|                 |                       | Standard Flow                               | 10.83 (11.04-14.83)     | .28 |
| Fisher-Price    | Fisher-Price          | Slow Flow                                   | 11.11 (8.95-11.28)      | .27 |
| Gerber          | Gerber                | Slow Flow                                   | 11.11 (8.95-11.28)      | .27 |
| MAM             | MAM USA               | Nipple 1 Slow Flow (S, M)                   | 10.88 (8.71-11.82)      | .27 |
| Merkle          | Merkle, Inc.          | Classic                                     | 12.12 (12.25-16.25)     | .28 |
|                 |                       | Wide Neck Slow Flow                         | 11.28 (8.82-14.12)      | .18 |
| Nuby            | Nuby Inc.             | Medium Flow                                 | 21.58 (20.82-22.21)     | .28 |
|                 |                       | Topper (S, M)                               | 11.12 (11.98-12.85)     | .20 |
| NUK             | NUK USA, LLC          | Classic Soft Flow (S, M)                    | 11.12 (11.98-12.85)     | .20 |
|                 |                       | Flow (S, M)                                 | 11.12 (11.98-12.85)     | .20 |
| Parent's Choice | Wald Mart, Inc.       | Standard Slow Flow (S, M)                   | 8.81 (7.82-10.28)       | .26 |
|                 |                       | Standard Flow (S, M)                        | 10.81 (9.24-14.18)      | .24 |
| Playtex         | Playtex Products, LLC | Flow (S, M)                                 | 10.81 (9.24-14.18)      | .24 |
|                 |                       | Wide Neck Slow Flow (S, M)                  | 6.81 (5.84-8.18)        | .11 |
| Simply          | Abbot Nutrition       | SimplyFlow Level 1                          | 8.81 (8.28-10.21)       | .21 |
| The First Years | TODAY'S Inc.          | Standard Slow Flow (S, M)                   | 8.81 (7.82-10.28)       | .26 |
|                 |                       | Standard Flow (S, M)                        | 11.12 (11.98-12.85)     | .28 |
| Tommee Tippee   | Merkle USA            | Flowing Soft Slow Flow (S, M)               | 10.81 (11.98-12.85)     | .28 |

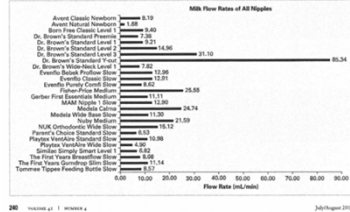
Flow chart used from (Pados, et al, 2016)

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## BOTTLE FLOW RATES

Figure 1. Milk Flow Rates of All Nipples Tested



Flow chart used from (Pados, et al, 2016)

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## TREATMENT

### PROGRESSIVE PHASE

- Feeding Progression (Overland, 2013)
  - Tube weaning protocol (Gosa, 2006)
  - Bottle to cup transition
    - Sippy cup
    - Straw cup
    - Open cup

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## TREATMENT

### PROGRESSIVE PHASE

- Feeding Progression
  - Puree transition
    - Viscosity of purees
    - Hierarchy of presentations
      - Tolerance of spoon
      - Love of water
      - Transition to whole milk
      - Predictability of feeding utensils

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## TREATMENT

### PROGRESSIVE PHASE

- Feeding Progression
  - Solids
    - Crumble/texture progression
    - Dissolvable solids
- Passy Muir Speaking Valve
  - Hospital protocols vary from facility to facility
    - Ventilator placement
    - Trach collar trials
    - Plugging trials
    - Passy Muir Speaking Valve placement

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## TREATMENT

### MAINTENANCE PHASE

- As therapists we progress forward and make changes with our clients. The maintenance phase can be a transitional phase when an infant graduates therapy or a phase that maintains skill set while in an acute phase.
  - Maintenance phase as a graduation from therapy services
    - Follow up appointments spread out over time to check in on diet changes, quantity of oral intake, or social goals related to mealtime.
  - Maintenance phase as an infant is in an acute phase
    - Infants will demonstrate progress and then regress medically
    - It is important to provide positive mealtime interactions, social bonding, or NNS or pre-feeding skills while infant is in acute phase.
    - Feeding is a continuum of care and a sliding scale of skills
  - Maintenance phase can be intermittent.

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## CLEFT LIP/PALATE ASSESSMENT

### ASSESSMENT

- It is important to assess infant anatomy as part of a transdisciplinary team.
- Evaluate infant's ability to labial seal during breast feeding or bottle feeding (i.e. cleft lip)
- Evaluate infant's ability to compress nipple to extract milk from a specialized bottle feeding system with an infant paced feeding or a feeder paced feeding. (with a cleft lip and palate or a cleft palate)
- Clefts of the lip and/or palate are the most common anomalies and may or may not be present in the context of orofacial congenital malformations and/or craniofacial syndromes (Arvedson & Brodsky, 2002)
- Infants with isolated cleft lip and/or palate that have problems with feeding mechanics and coordination of respiration and swallowing are transient in nature. (Masarei et al., 2007)
- More complex craniofacial anomalies can have significant feeding and swallowing issues secondary to upper airway obstruction, cranial nerve abnormalities, and neuromotor factors (Arvedson & Brodsky, 2002)

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## CLEFT LIP/PALATE TREATMENT

### ACUTE PHASE

- Transdisciplinary assessment for feeding recommendations.
- Enteral tube feedings if needed
- Transient phase if just cleft lip and/or palate
- If other additional medical issues that need medical assistance, acute phase may last longer.

### PROGRESSIVE PHASE

- If there are other medical complications that contribute to a delay in progression of oral feedings. Note treatment strategies discussed previously.
- Open cup drinking is recommended post surgery.
  - Open cup recommendations

### MAINTENANCE PHASE

- May transition through maintenance phase surrounding surgeries. Should be a transient phase.

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## CUPS

- Camo cup
- Medicine cup
- Silicone cup
- IKEA tea set
- Dixie cup/disposable
- Tervis slotted lid
- Starbucks iced coffee cup
- Purple recessed lid cup/straw



## DR. BROWN SPECIALTY FEEDING SYSTEM

This system works with an infant paced feeding valve. The milk flows in one direction. Milk is expressed with tongue and jaw movements to express fluid during feeding at the infant's own pace. Does not require suction. The Dr. Brown vented systems are designed to minimize air intake during feedings.

[www.seattlechildrens.org](http://www.seattlechildrens.org)



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## PIGEON NIPPLE/BOTTLE

The Pigeon nipple has a one-way valve and can be used with any bottle. The nipple comes in two sizes. The smaller nipple is a slower flow and is best for newborns. The larger nipple is best for infants 6 weeks and older.

This one-way valve works with compression and no squeezing is required. This is an infant paced feeding system. The nipple has a firm side that goes upward towards the palate and a softer side that is placed on the infant's tongue. Tightening the bottle rim slows the flow of the nipple and loosening it makes it flow faster.

[www.seattlechildrens.org](http://www.seattlechildrens.org)



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## SPECIAL NEEDS FEEDER BY MEDELA

Previously called the Haberman feeder.

This is a one-way valve to keep the milk in the nipple. The infant can compress milk from the soft nipple or the feeder can compress liquid into the infant's mouth for a feeder paced feeding.

The nipple has a Y cut shape at the tip. Turning the nipple compresses differently, changing the rate of the flow. There are three lines on the nipple to indicate flow rate.

[www.seattlechildrens.org](http://www.seattlechildrens.org)



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## CLEFT LIP/PALATE NURSER BY MEAD JOHNSON

This is a squeezable bottle for a feeder paced feeding. The nipple can be replaced with a shorter nipple. Follow infant's cues for feeder paced feedings.

[www.seattlechildrens.org](http://www.seattlechildrens.org)



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## TREATMENT

### Infant bottle feeding cleft lip/palate

- Angle nipple away from palate
- Place downward pressure on tongue to stabilize nipple and to keep the nipple out of the palatal cleft.
- Feed infant in a semi upright feeding position
  - When infant feeding in supine, infant is working against gravity. Adds to infant work and increases work of breathing if airway issues are present.
  - Infant feeding in upright position will minimize liquid flowing into the middle ear and flowing nasally.
  - Smaller meals with less quantity
  - Frequent burping due to higher incidence of air intake
- Palatal obturator with significant palatal clefts
- 6 to 18 months palate repair average

(Morris and Klein, 2000)

### Cleft lip breast and bottle feeding

- Place a finger support on cleft lip to support seal if nipple or breast tissue does not make a complete seal.
- Breast tissue may create labial seal.
- Utilize a wide based soft nipple to assist in an improved labial seal.
- Assist nipple in maintaining a midline position orally.
- 10-12 weeks of age to repair lip  
(Morris and Klein, 2000)
- Allow for full range of motion for bottle feeding to decrease risk of aspiration. (Goodwyn-Craigne, 2021)

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## BOTTLE AND BREAST FEEDING



Photos from Morris and Klein (2000)

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## QUESTIONS AND ANSWERS



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