Clinical Considerations in Addressing Complex Pediatric Feeding and Swallowing Issues

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My Goals for Today...

1. Provide reference materials for pediatric feeding/swallowing therapists

2. Lead an open discussion about prevalent feeding/swallowing issues
Communication

- **Autonomic system-pattern of respiration**
  (pauses, tachypnea), color changes (red, pale, dusky, mottled), and visceral signs (e.g., spit up, gag, burp).

- **Movement - postural alignment**
  (hyperflexed, extended), muscle tone (flaccid, hypertonicity) movement patterns in extremities, trunk, head and face, and level of motor activity.

- **State - the range of available states of consciousness**
  (i.e., deep sleep, quiet alert, and crying), the smoothness of transition between them, and the clarity of their expression.

- **Attention - the infant's ability to orient and focus**
on environmental stimuli, such as face, sounds, or objects.
Aspiration

• **Primary aspiration:** Aspiration on a bolus that comes from above the airway. Aspirated material is usually saliva, fluid, or food.

• **Secondary aspiration:** Aspiration on a bolus that comes from below the airway. Aspirated material has usually been refluxed or vomited up from the gut (emesis), or has built up above a stricture or holed up in the esophagus.
Defining Textures

- Fluids
- Pureed Foods
- Mashed Foods
- Soft Pieces
- Soft Mechanical
- Hard Mechanicals
- Mixed Textures
## Average Breast Milk and Formula Requirement for Infants and Toddlers
(per unit of body weight per day)

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Requirement</th>
<th>Calorie Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1-4</td>
<td>30-120 mL/kg/day</td>
<td>&lt;2 oz/lb/day</td>
</tr>
<tr>
<td>Day 5 to 3 months</td>
<td>150 mL/kg/day</td>
<td>&lt;2.5 oz/lb/day</td>
</tr>
<tr>
<td>Preterm and other</td>
<td>Up to 180-200 mL/kg/day</td>
<td>&lt;3 oz/lb/day</td>
</tr>
<tr>
<td>high risk neonates</td>
<td></td>
<td></td>
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<tr>
<td>3 to 6 months</td>
<td>120 mL/kg/day</td>
<td>&lt;2 oz/lb/day</td>
</tr>
<tr>
<td>6 to 12 months</td>
<td>90 mL/kg/day (+food)</td>
<td>&lt;1.5 oz/lb/day</td>
</tr>
<tr>
<td>1 to 2 years</td>
<td>Up to 90 mL/kg/day</td>
<td>&lt;1.5 oz/lb/day</td>
</tr>
</tbody>
</table>

Note: Average breast milk and standard formula contains 67 kcal per 100 mL (20 kcal/oz).

Groher 2010
Stages of Cognitive Development (Based on Work of Piaget) and Implications for Feeding

- **Sensorimotor** - Birth to 2 years-
  - Infants trust their caregivers to give them “safe” foods. Infants learn from observing their caregivers’ reaction to foods and their behavior.

- **Preoperational** - 2 to 7 years
  - Children may form phobias (fear or emotional responses to foods that are paired in time with an adverse event)

- **Concrete Operations** - 7 to 11 years
  - Children begin to understand that they can alter foods to suit their preferences.
Alternatives to Thickening Fluids

• Given some of the potential issues regarding the use of thickened fluids (as detailed previously), many therapists and families are keen to try other approaches to avoid or reduce the need to thicken fluids for children with swallowing impairments.

• These approaches include changes to positioning, use of special feeding equipment, and active pacing.

• The goal of these strategies is to slow the fluid flow during feeding or to interrupt the feeding process intermittently to allow the child to regain physiologic stability.
Factors Affecting the Thickness of Thickened Fluids

- Type of thickening agent
- Type of base fluid
- Amount of base fluid
- Temperature
- Standing time
References for Nutritional Guides

• WHO (World Health Organization):
  www.who.int/publications/guidelines/nutrition/en/

• AAP (American Academy of Pediatrics):
  http://pediatrics.aappublications.org/content/117/2/544.full

• ESPHGAN (European Society for Paediatric Gastroenterology Hepatology and Nutrition)
  www.espghan.org/guidelines/nutrition/
### Comparison of Food Allergies and Food Intolerances

<table>
<thead>
<tr>
<th>Feature</th>
<th>Food Allergy</th>
<th>Food Intolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Onset</td>
<td>Infants and Toddlers (<em>mostly</em>)</td>
<td>Any age</td>
</tr>
<tr>
<td>Family History</td>
<td>Atopic: asthma, eczema, hay fever</td>
<td>Commonly irritable bowel, hives, headaches, mouth ulcers</td>
</tr>
<tr>
<td>Reaction Timing</td>
<td>Immediate (<em>minutes through to 1-2h</em>)</td>
<td>Hours through days</td>
</tr>
<tr>
<td>Reaction Reproducibility</td>
<td>Reproducible</td>
<td>Variable</td>
</tr>
<tr>
<td>Mechanism</td>
<td>Immune (<em>IgE antibodies</em>)</td>
<td>Nonimmune (<em>irritation of nerve endings</em>)</td>
</tr>
<tr>
<td>Food Triggers</td>
<td>Specific food proteins: most often cow’s milk, soy, eggs, wheat, peanuts, tree nuts, fish and shellfish</td>
<td>Natural food chemicals (<em>salicylates, amines, glutamates</em>), Food additives, highly fermentable foods, components of dairy foods (<em>e.g., lactose</em>), components of some cereals (<em>e.g., gluten</em>)</td>
</tr>
<tr>
<td>Tests</td>
<td>Skin prick tests; Blood tests (<em>RAST</em>); measure IgE to specific allergens</td>
<td>Elimination diet; Food challenges</td>
</tr>
<tr>
<td>Dietary Management</td>
<td>Complete avoidance of single foods</td>
<td>Comprehensive dietary modification; maintain overall chemical intake below reaction threshold</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Egg, milk: usually outgrown Peanut, tree nuts, seafood: often persist</td>
<td>Lifelong susceptibility; Variable tolerance; Symptoms can come and go</td>
</tr>
</tbody>
</table>

Hodge 2009
Treatment Approaches

Research shows that incorporating a combination of approaches is effective

• Behavioral Interventions
• Sequential Oral Sensory Approach to Feeding
• Sensorimotor Interventions
• Beckman Oral Motor Training
References for Feeding Therapists

- ASHA - *Practice Portal - Pediatric Dysphagia*
  [www.asha.org/Practice-Portal/Clinical-Topics/Pediatric-Dysphagia/](www.asha.org/Practice-Portal/Clinical-Topics/Pediatric-Dysphagia/)

- SpeechBite

- Feeding Matters
  [https://www.feedingmatters.org](https://www.feedingmatters.org)

- Pediatric Feeding Association
ASHA Resources

- Consumer Information: Feeding and Swallowing Disorders (Dysphagia) in Children
- Dysphagia Management for School Children: Dealing with Ethical Dilemmas
- Pediatric Assessment Templates
  - Infant Medical/Feeding History and Clinical Assessment Form (.pdf)
  - Pediatric Feeding History and Clinical Assessment Form (.pdf)
  - VFSS Template for Infant with Liquid Intake Only (.pdf)
  - VFSS Template for Infants and Children Consuming Purees Through Table Foods (.pdf)
  - Glossary of Terms and Conditions (.pdf)
- Radiation Safety for the SLP
- Sample Forms: Swallowing and Feeding Services in Schools (.pdf)
- Swallowing and Feeding Services in Schools (On Demand Webinar)
- Work Setting Resources: NICU
References

- **U.S. Food and Drug Administration.** (2013). *FDA expands caution about simply thick.* Retrieved from [www.fda.gov/ForConsumers/ConsumerUpdates/ucm256250.htm](http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm256250.htm).