# Pediatric Feeding and Dysphagia Newsletter

**Dear Fellow Feeders:**

**Welcome to the October issue! Here we have a fascinating article about a problem we have all encountered— the hypersensitive gag. We also learn about homemade blended formulas from Marsha Dunn Klein. I have had 3 families recently choose to make homemade formulas for their kids with great success! We introduce you to a new bottle, the Controlled Flow Baby Feeder from Bionix. As usual we have new research, Q & A, and an editorial.**

**Enjoy, Krisi Brackett**

**(Write me: feedingnews@earthlink.net)**


**Pediatric Feeding and Dysphagia Newsletter**
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**Special Points of Interest:**

- ☺ Current information
- ☺ New products
- ☺ Research and publications
- ☺ Education


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## Hypersensitive Gag Reflex and Pediatric Feeding Delays


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### Introduction

Historically, two clinical areas in speech pathology have tested the gag reflex response as part of a standard oral mechanism examination including: a) assessment of maximum velopharyngeal excursion (Mason & Simon, 1977; Pannbacker, 1985), and b) bedside evaluations of swallowing (Daniels, McAdam & Brailey, 1997). However, due to the complexity of velar movement and the inability to view the posterior pharyngeal region adequately, the gag reflex is not a good indicator of velopharyngeal movement. Testing of the gag reflex response during bedside evaluations should only be part of a complete cranial nerve battery, not as an independent criterion, because individual variance is so great. More importantly, research has shown that the presence or absence of the gag reflex response does not correlate to dysphagia or the ability of an individual to adequately protect the airway (Davies, 1995; Leder, 1996; Irwin, 1999).

### So why does the gag reflex continue to require attention?

In the pediatric feeding arena, a hypersensitive gag reflex is a relatively common phenomenon which frequently interferes with the ability to complete a thorough oral assessment, limits food advancement, and restricts treatment options. Yet, a hypersensitive gag reflex is an abnormal clinical sign which should alert the feeding specialist to pursue a complete medical history and provide medical referrals when appropriate. Children present with a hypersensitive gag


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## Inside this issue:



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reflex for a number of reasons including: 1) bilateral lesions of the corticobulbar tracts (observed in TBI populations, etc.), 2) interruption of autonomic nervous system development (e.g. NICU babies and other full-term medically fragile populations), 3) conditioned responses (behavioral food aversions, etc), 4) surgical alterations of the gastrointestinal system (e.g. complications resulting from fundoplications and NES), and 5) other gastrointestinal diseases (e.g. eosinophilic esophagitis). In complex cases, more than one pathogenesis may be involved.

## Back to basics, defining a gag reflex

For most individuals, tactile stimulation within five 'trigger zones' will elicit the gag reflex, including: the anterior and posterior faucil pillars, base of tongue, palate, uvula and posterior pharyngeal wall (Bassi, Humphris, and Longman, 2004). Upon closer inspection these "trigger zones" are all located within the posterior 1/3 of the mouth, thus from a neurologic perspective these "trigger zones" are not surprising. The posterior 1/3 of the oral cavity is innervated by the glossopharyngeal nerve (CN IX) or ninth cranial nerve which has been clearly documented as the afferent limb of this complex reflex (Martin, 1996; Zemlin, 1998). The glossopharyngeal nerve sends projection fibers or sensory information to the nucleus tractus solitarius (NTS) of the medulla. Information from the NTS then sends signals to the nucleus ambiguus (NA) (also in the medulla) which in turn activates the vagal (CN X) efferent fibers to produce the specific motor response (Logemann, 1983; Nolte, 1993: Martin and Jessell, 1996).

## Wide degree of variability in general population

Despite this rudimentary pathway description of the gag reflex, the specific neurologic underpinnings are poorly understood and the pathway does not explain the large variability, both sensory and motor, observed across individuals. For some, tactile stimuli presented more anterior to the 'trigger zones', visual stimuli (such as spoons, etc.), auditory stimuli, olfactory stimuli, and 'psychic' stimuli can also trigger a gag reflex (Landa, 1947; Kramer and Braham, 1977; Murphy, 1979; Scarborough, in process). In addition to varied sensory input, a range of motor responses can be observed. The most rigorous description of the motor response of the gag reflex is characterized as constriction of the pharynx (Martin and Jessell, 1996; Miller, 2002). However, a more traditional view of the gag reflex involves lowering of the mandible in a forward and downward trajectory, with velar and pharyngeal constriction (Leder, 1996). Another description adds a vocalization component to the traditional view; thus blurring the separation between a gag reflex and a 'retch' (Faigenblum, 1968). Concomitant responses such as vomiting, nausea and autonomic signs and symptoms (diaphoresis, lacrimation, etc.) have also been included when defining the motor component of the gag reflex (Bassi, et al., 2004). In addition to reports of different degrees of motor responses, the strength of the gag reflex is quite variable across individuals, from absent to 'hyperactive' (Chaffee, Zabara, and Tansy, 1970; Pannbacker, 1985; Perlman et al., 1989; Leder, 1996).

## What exactly does a 'hypersensitive' gag reflex mean?

Surprisingly, a clear definition of a hypersensitive gag reflex does not exist. Instead, descriptions of a 'hyper' gag reflex may be divided into two categories: a) the force/type of the motor response, and b) the place of sensory stimulation. The most common descriptions involve the strength or type of observed motor response. Such descriptions include: "severe" pulling away to tactile stimulation (Leder, 1986),

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spasms of the pharynx (Bassi et al., 2004), or a combination of reflex responses with both gagging and some aspect of the emetic or vomit response (Kramer and Braham, 1977, Miller, 2002, Bassi et al., 2004). A less common means of describing a hypersensitive gag reflex pertains to the place that the gag reflex is triggered. Historical reports of 'stubborn' gaggers described individuals who trigger a gag reflex in the anterior or middle portions of the oral cavity (Landa, 1946). Similar reports have been noted in individuals who present with a hypersensitive gag reflex during tooth brushing and an inability to shave as a result of gagging to touch to the face (Murphy, 1979). Recently, gag reflex responses to non-oral body parts and regions within the anterior oral cavity have also been documented in a group of children 3-18 months of age who presented with persistent feeding delays (Scarborough et al., 2006). To date, a correlation between the strength of the response and place of response has not been established.

### Causes of hypersensitive gag reflex

The specific neurologic cause of a hypersensitive gag reflex response is not known and is likely to be due to more than one basic neurologic mechanism. One way to evaluate the cause is through inspection of the population who exhibit the problem. Children who have a history of traumatic brain injury, specifically bilateral cotrico-bulbar tracts demonstrate a 'hypersensitive' gag reflex due to the loss of upper motor neuron inhibition (Schulze-Delrieu & Miller, 1997). In contrast, the hypersensitive gag reflex observed in NICU and full-term medically fragile infants who have a history of tube feedings has been proposed to be a result of abnormal autonomic nervous system development (Scarborough & Isaacson, 2006). Based on this theory, 'transient' tactile connections between the touch sensory fiber tracts and the nucleus tractus solitarius (NTS) are present at birth via an inhibitory interneuron. Further, the activity of the transient fibers diminishes shortly after birth as a result of swallowing during oral feedings. In the aberrant or hypergag situation these transient fibers fail to retract and consequently result in continued stimulation of the NTS with touch to areas other than the posterior 1/3 of the oral cavity (Scarborough & Isaacson, 2006).

Other children are reported to have conditioned responses to oral feedings which may lead to feeding aversions (including hypersensitive gag reflexes). Typically, for children with feeding aversions, a hypersensitive gag reflex has been reported to be a result of maladaptive parent-child interactions (Byars, Burlow, Ferguson, O'Flaherty, Santoro & Kaul, 2003). For children with this type of feeding presentation, a hypersensitive gag reflex is a conditioned negative behavior. The exact neurologic mediation of a hypersensitive gag reflex that is the result of a conditioned response is not yet known.

In adults, a heightened motor response of the gag has been linked to metabolic disturbances such as carbohydrate starvation and dehydration with ketosis (Bassi, 2004); however, in children no such data has been reported. Another report on severe gagging within the geriatric population found an increase in gastrointestinal disorders, 36%, compared to 20% of an elderly 'non-gagging' population. Children with gastrointestinal disorders (e.g. reflux, chronic constipation, eosinphilic esophagitis) have also clinically been found to present with a hypergag reflex, although the specific pathophysiology is unknown. Similar clinical reports have been made in children who have undergone surgical procedures such as a fundoplication. One of the reported side effects is "gagging/retching" syndrome. Although the exact neurologic mechanism is not known at this time, the gut has direct connections with the NTS of the medulla and vagus nerve, both of which are involved with basic afferent/efferent loop of the gag reflex.

### Clinical Implications

Like many other areas of pediatric treatment one of the challenges for the professional is making clinical

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judgments based on observed behaviors. A 'hypersensitive' gag reflex is one observed behavior which has major implications for our pediatric feeding population. By obtaining a thorough history of the child with a hypersensitive gag reflex, the clinician may better determine a potential cause of the abnormal response. Treatment techniques to remediate the hypersensitive gag reflex have been plentiful; but rarely does one technique work for all populations.

## Interventions of a Hypersensitive Gag Reflex

A number of attempts over time have been made to remediate the hypersensitive gag reflex, particularly in the adult populations. Some early attempts noted in the dental literature included swabbing the mouth with diluted cocaine, using distraction by 'disengaging the patient's mind from its tangle of gagging stimuli' and redirecting it towards some other interest, exercising maximum will power, and altering the dental appliance to minimize the amount of area stimulated when placed in the oral cavity (Landa, 1947). Early reports also found surgical resection of the uvula as successful for individuals with a stubborn gag (Kramer, 1977). Other less invasive approaches have suggested voluntarily increasing the respiratory rate (Chaffee, et al 1970), having the patient hold their breath (Kramer, 1977), hypnosis (Bartlett, 1973), relaxation in conjunction with hypnosis (Murphy, 1979), behavior modification, suggestion, systematic desensitization, sensory flooding, and medications (Kramer, 1977; Bassi et al., 2004). Acupuncture to the upper part of the ear between the concha and triangular fossa has been found to normalize the gag reflex (Fiske & Dickinson, 2001). More recently, combinations of acupuncture and hypnosis have been recommended to treat a hypersensitive gag reflex in long-term therapy needs (Eitner, Wichmann and Holst, 2005a, b). One acupressure point on the chin (Cheng Jiang REN-24) has also been reported to successfully control the gag reflex during maxillary impression procedures as noted in a brief clinical report (Vachiramon and Wang, 2002). None of these techniques have been reported with children.

Behavioral psychologists in the pediatric feeding arena have developed successful behavioral feeding programs which address feeding aversions (including a hypersensitive gag reflex) as a result of conditioning or a breakdown of the child-caregiver interactions. Specific behavior management techniques including reinforcement patterns (both positive and negative), shaping, discrimination training and extinction to name a few, are used to remediate feeding aversions (Burklow, McGrath & Kaul, 2002; Patel, Piazza, Martinez, Volkert & Santana, 2002). Professionals who run these programs have done an exceptional job in documenting the specifics related to their success. And although these programs have been successful with remediating a hypersensitive gag reflex in some children, not all children respond to this type of treatment.

Clinical research has recently been initiated in our lab based on the use of a hand pressure point to alter the gag reflex response in neurologically intact individuals (Scarborough, Bailey- Van Kure, & Hughes, 2007, in process). This technique has been developed to address mediating a hypersensitive gag reflex in situations related to abnormal autonomic nervous system development. However, more extensive research will be required before we can add this technique to our clinical repertoire.

Finally, in an attempt to begin to unravel the neurologic conundrum of the hypersensitive gag reflex, animal research is currently underway in our lab. We have begun the process of utilizing c-fos immunohistochemistry and immunofluorescence to begin to map the gag reflex including the specific neurotransmitters involved (Scarborough & Isaacson, 2007), in hopes that some day future feeding specialists might have answers to a complex and frustrating clinical problem.

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# On the Research Front:

**Staiano, A., Boccia, G., Salvia, G., Zapulli, D., & Clouse, R. (2007). Development of esophageal peristalsis in preterm and term neonates. *Gastroenterology*. 132:1718 – 1725.**

High-resolution manometry demonstrates a chain of 3 sequential pressure segments that represent esophageal peristalsis in children and adults. Manometry was performed in 16 preterm and 14 term neonates to determine the ontogenesis of esophageal motility with regard to this segmental architecture. The authors concluded that the second pressure segment in the midesophagus (proximal smooth-muscle region) is well developed before term. Presence of other segments significantly improves at term, but peristalsis remains incomplete in nearly half of swallows. Control mechanisms for both striated- and smooth-muscle esophageal regions are incompletely developed in neonates, the outcome of which could participate in infant reflux disease.

**Kelly BN, Huckabee ML, Jones RD, & Frampton, CM. (2007) The early impact of feeding on infant breathing-swallowing coordination. *Respir Physiol Neurobiol*. May 14;156(2):147-53. Epub 2006 Oct 7.**

This study assessed the coordination of nutritive and non-nutritive swallowing with breathing in 10 healthy term infants from birth to 1 year of age. Swallows were classified into five respiratory-phase categories: mid-inspiration (II), mid-expiration (EE), inspiratory-expiratory cusp (IE), expiratory-inspiratory cusp (EI), and mid-pause (P). Significant condition effects were found in up to four respiratory-phase categories (II, IE, EI, and P). The condition effect was minimal from 9 months with only IE swallow proportions differing between conditions. These data suggest a 'critical period' in infantile neural response to oropharyngeal stimulation during feeding and that the impact of this on infants with neurological and/or respiratory disorders should be further investigated.

# Homemade Blended Formulas : A Nutritional Option for Tube Fed Children

by Marsha Dunn Klein, M.Ed., OTR/L and Suzanne Evans Morris, PhD, CCC-SLP

(Adapted with permission from the Introduction of Homemade Blended Formula Handbook)

Many families who are providing tube feedings for their children have asked, "Why can't I feed this child the nutrition I feed my other children?" or "What can I offer my child besides the same formula every day?" or "How would I go about providing real blended food through the tube?" or "Can I still use the commercial formula and just add a little food?" or "Where would I start"?

These families have often asked dietitians, pediatricians and other feeding team members these questions, only to have them admit to having little or no experience with blended foods in tube feedings. Much to the frustration of families, many of these professionals have asked them, "Why would you **want** to offer something besides commercial formula?" Some professionals have said, "Well, I've never had anyone ask that question, but let's learn together." We, as feeding team members, need to find ways to support the families who ask "why?" "how?" and "what?" and other professionals who have limited experiences and want to learn.

**What is a homemade blended formula?**

Historically, these types of tube feeding formulas have been called "blender feedings," "blenderized formula," or "blenderized tube feedings." In our support of families, we have added the word "homemade" to celebrate the personal and nurturing nature of the preparation. We define a **homemade blended formula** as any formula that a parent makes that modifies a standard formula with "real "foods. It could be a commercial formula with a small amount of baby food fruit or vegetable added, or three meals a day of blended food with commercial formula at night, or a complete diet of homemade blended foods, or many options in between.

**Historical perspective**

The use of gastrostomy tubes, knowledge of the digestive system and nutrition, and the technology of tube feedings has developed over centuries. In the 60s and early 70s, when many of us began supporting families of tube fed children, there were far fewer tubes, so our experience with tube feedings was limited. Only the sickest children received supplemental feedings. Tubes were predominantly limited to larger catheter tubes. Infants received tube feedings with their infant formulas. However, as they grew, their parents added baby foods to the formula or pureed family foods and did the best they could to get the food through the tube. Our collective experience was predominantly "blenderized feedings."

By the mid 1970s, formula companies developed specialized tube formulas based on detailed nutritional research, which provided a better understanding of micronutrients and total nutritional daily requirements. Families moved from blending table foods to the use of commercial formulas. These formulas became an easier option for families. Dietitians and physicians supported the use of these formulas because they offered nutrition based on the newest research. They knew just how many calories, macronutrients and micronutrients the child was receiving. It was easily quantifiable, very portable, pasteurized and balanced. Families were sent home with cases of formula, a specific time schedule, and a prescribed number of ounces per feeding. Tube feedings often became just one more procedure required of parents when their medically fragile children returned home from the hospital. The tube feeding process and its vocabulary of doses and ounces and mls or ccs inadvertently emphasized the medical nature of nutrition and increased the separation from the family meal and the feeding relationship that parents dreamt of for their children.

Today, technology has greatly changed and made tube feedings much easier for children and their families.

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They're more portable, more efficient and less restrictive. We also have become a more health-conscious and better-informed society. We're learning daily from research literature and the popular press about foods we should add or remove from our diets. We're increasing our understanding of the importance of diversified diets as the best way to provide the micronutrients needed for optimum health. Parents are rightfully asking if one formula, one diet or one recipe can provide all the nutritional variation needed to maximize nutrition, health and growth for their tube-fed children.

In addition many parents are asking about homemade blended formulas as a way to empower themselves in making personal choices about foods. Many parents report that preparing homemade blended formulas gives them more control in their children's growth and feeding, and allows them to nurture their tube-fed children with food as they would orally fed children.

**Supporting parents**

As we consider how to support families making a homemade blended formula choice, we realize we already have a large amount of information about what to feed children, how much to feed them at different ages, what nutrients are needed for optimal growth and how to interact with children at mealtimes. There's limited research, however, into how to translate this information for tube fed children and their nutrition, and it's dominated by information about commercial formulas and their benefits.

Commercial formulas need not be the only option. Many parents are feeding their children homemade blended formulas and have had very positive experiences. Instead of being written up in scientific journals, these positive experiences have been shared anecdotally through professional discussions and from parent to parent by phone, Internet mailing lists and online chat rooms. We need to encourage and support research about homemade blended formulas. Historically, good research is designed from a broad collection of personal and clinical experiences, which enables researchers to ask meaningful questions.

**Team approach**

It's our belief and experience that supporting families in the decision-making process necessary for making homemade blended formulas requires a team approach. The parent is the leader of the team. We trust the instincts and knowledge of parents as they make everyday decisions about feeding their orally fed children. And we need to trust parents of tube fed children to make nutritional decisions for their children. The special considerations of tube feeding technology and special diets, and the translation of oral feeding knowledge to tube feeding, often requires additional team support. When parents are considering serving homemade blended formulas, it's very important to work closely with their children's health care team, starting with the primary care physician.

In supporting families who choose a homemade blended formula option we need to realize that mealtimes are personal in nature, whether they're oral or tube mealtimes. What works for one family and one child may not work well for another family and child. Parents need guidelines for providing blended meals through a tube,

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but more importantly we need to help them find ways to listen to their child and move forward in offering food as the child indicates readiness. Each child and family is different.

The choices families make in their journeys with tube feeding reflect their family circumstances and dynamics, and their children's specific nutritional needs. No equipment or diet defines what makes mealtimes work. The essence of the tube- feeding mealtime lies in the bigger picture. Positive and successful mealtimes are defined by how tube feedings are offered, how blended foods are introduced, how cues are read, and how we listen to children.

It's not our perspective that every child who receives tube feedings should be given a homemade blended formula. Rather, it's our intent to offer information so parents and professionals can make informed choices for feeding children who receive nutrition through a feeding tube.

*For more information on homemade blended formulas for tube fed children, see the newly published, Homemade Blended Formula Handbook by Marsha Dunn Klein and Suzanne Evans Morris, which is now available through Mealtime Notions, LLC (www.mealtimenotions.com). It offers more information on homemade blended diets for tube fed children. It is a compilation of reproducible articles that support families and professionals who are working together to offer homemade blended formulas. It provides a starting point for making homemade blended formulas and a sharing of information, based on what we already know about feeding children. It incorporates what we know about mealtime experiences and what helps children grow, and combines this knowledge with the experiences of parents and other professionals who have contributed to this book.*

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- Controlled flow allows various caregivers to provide consistent feedings.

Enables babies of different ages or medical circumstances to begin feeding at levels appropriate to their needs.

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Check out the controlled flow baby feeder case on page 10

# Case by Case.... Transitioning to Oral Feeds… A Complicated Case

By Amy Thorpe, M.Ed., CCC/SLP

Background: JC, a 4 month old male, was a term baby born with a tracheo-esophageal fistula (TEF). TEF repair was completed and esophageal dilation was performed 5 times to reduce stricturing. Primary method of nutrition was via G-tube feeds with intermittent attempts of oral feeds as tolerated. Upon evaluation at the bedside, JC demonstrated functional oral motor development and an appropriate non-nutritive suck. He appeared interested in the bottle and demonstrated a coordinated suck/swallow/breathe ratio during oral feeding. Shortly after oral feeding was initiated, signs and symptoms of distress became apparent characterized by postural arching, color changes and refusal of the bottle. A video fluoroscopic evaluation of swallowing (VFSS) was conducted to assess oral, pharyngeal and esophageal phases of swallowing.

Results of the VFSS revealed functional oral and pharyngeal phases of swallowing with no aspiration or pharyngeal stasis. Esophageal phase of the swallow was abnormal characterized by significant stasis in the distal esophagus above the level of the TEF repair secondary to a narrowing of the esophageal space and delayed esophageal motility. Liquids were noted to pass through the esophageal stricture with a delay.

The patient was observed under fluoroscopy using both a standard flow Enfamil nipple and a slow flow level 1 and 2 on the Bionix Controlled Flow Feeder. Results with the Enfamil standard flow nipple significantly increased the amount of esophageal stasis and patient discomfort was apparent characterized by postural arching and crying. External pacing was required to reduce the amount of bursts to no more than 5-6 per pause in attempts to reduce esophageal stasis. In addition, several minutes were required to clear to stasis. Results with the Bionix Controlled Flow Feeder on level 1 and 2 revealed a significant reduction in esophageal stasis due to the reduced amount of formula being presented during nippling, allowing the infant to continue nippling at a rate of 20-22 bursts per pause without the presence of significant esophageal stasis. The patient was organized and calm during the slow flow rate process. When the flow rate was raised above a level 3, esophageal stasis increased and patient disorganization observed.

Intervention and Outcome: A primary goal for JC was to continue the ability to maintain oral feeding skills and development, maintain esophageal motility and continue exposure to oral feeding without developing aversive feeding responses due to physiologic complications. When the patient was placed on a slow, controlled feeding rate of bolus delivery which did not compromise the integrity of the esophagus, response to oral feeds was positive. JC was able to successfully orally feed 30 ml's of formula every 3 hours in 10-15 minutes using a level 2 on the Bionix Controlled Flow Feeder daily with supplemental G-tube feedings. Aversive feeding behaviors were not noted during oral feeding attempts with the controlled flow rate.

JC received 3 additional esophageal dilations aiding in reducing the esophageal stricture. As the stricture reduced, the flow rate of the formula was increased on the Controlled Flow Feeder with no aversive behaviors observed.

At the conclusion of esophageal dilation, VFSS was repeated. Results indicated a significant improvement in esophageal motility and a significant reduction in esophageal stasis. JC was able to nipple at a flow rate of 5 on the Controlled Flow Feeder with minimal stasis or disorganized feeding patterns. Over a period of weeks, oral intake was gradually increased and JC was successfully transitioned to a standard flow rate nipple. Currently, tube feeds are not required and JC is taking full oral feeds from a standard flow rate nipple.

Conclusion: Through the gradual and systematic increase of flow rate and amount of bolus presented using the Controlled Flow Feeder, JC was able to maintain oral feeding skills without developing aversive feeding responses. He is currently taking full oral feeds and is beginning to transition to stage 2 foods without difficulty. Parents are thrilled with his progress and he continues to do well!

(Note: Amy brought the idea of the Controlled Flow Baby Feeder to Bionix and helped develop it)

## Editorial: Love– ins, peace rallies, and why can't we just all get along by Krisi Brackett MS SLP/CCC

Let me say it again; feeding is complicated. It is a multifactorial, multidisciplinary, ever-changing kind of a problem. Can you do it alone? Sure if you have degrees in medicine, speech pathology, occupational therapy, physical therapy, psychology, and nutrition to name a few and you work 7 days per week.

I remember at my first job, there was an ongoing turf battle between speech, physical and occupational therapy about who should be picking up the acute care feeding kids. It got so bad that one poor kiddo was admitted and saw speech in the afternoon and then physical therapy in the evening. The doc's were so confused about who to consult they wrote orders for both of us– so the poor kid was double consulted and the kicker is that he paid twice for the exact same recommendations.

I've seen turf battles between disciplines, between therapy services and feeding teams in the same hospital, between facilities in the same town, and even between therapists of the same discipline. I have also known and worked with experienced and competent feeding interventionists who held degrees in SLP, OT, PT, nursing and social work.

So why can't we all get along? Why do we insist on sectioning up the body per our respective disciplines, fighting about who is the most qualified to see feeding kids when we really and truly should be working together. Each discipline involved in feeding has a unique set of skills they bring to the table and while there is no standard approach to intervention with these little guys or education for the interventionists, shouldn't we be looking at these kids as a whole and trying to bring them the best service possible?

When I look back, I regret my part in the turf battle but it takes two. I've tried hard as I have gotten older (and more experienced) to avoid these types of situations. One way I do this is by not picking up kids who have an existing feeding therapist (unless we can work together) because I know that I may make different recommendations that could confuse the parents or caregivers. I also encourage feeding therapists to study and work toward understanding all of the various components of feeding disorders and how they come together. That way they will understand how the various disciplines can work together to remediate feeding problems instead of working against each other. It does not mean that we all have to have the same treatment approach, in fact it is just the opposite. We should embrace the fact that there are different ways to get home and we should have an understanding of all of the routes. If yours doesn't work then we should be referring or consulting with our colleagues.

As a contract and private practice SLP, I have eliminated many of the turf battles in my professional life. However, I continue to hear about them dividing our field. I encourage all therapists to examine the part they play in building team relationships. Keep the child first not our ego's!

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# Q & A: Regarding the use of thickeners in children answered by Suzanne Evans Morris Ph.D.

I have mixed feelings about thickeners with infants and children. I do thicken liquids, but on a very individual basis. One of the differences between children and adults is that kids are much more inclined to say "no" to things that make them uncomfortable. So that if children are aspirating and are uncomfortable with this, they frequently will just refuse to drink. Adults who have a previous history of drinking, are often more willing to put up with more discomfort and inconvenience to take a thin and safer liquid such as water.

I've never really liked the commercial thickeners because of their basic composition of corn starch or gums. Corn is a high-risk allergen for young children and it is already in formulas etc. I see no need to flood the infant or young child's body with more corn. Gums such as xanthum gum seem problematic to me because if they are aspirated (which they probably are) then the cilia in the lungs may have a greater challenge sweeping out this foreign residue.

I use natural thickeners such as pureed infant fruit or rice cereal to create just the amount of thickening that a child needs. I often will use a small cut-out cup to give this thickened liquid rather than trying to get it to move through a bottle and nipple. The thickening is very helpful in slowing down the speed with which the liquid enters the mouth and moves backward for swallowing. Because it is heavier, it also provides more sensory input. This combination seems to help many children develop and use a more mature suck-swallow-breathe coordination which may reduce or eliminate aspiration. I also think we need to look at the overall diagnosis and history of the swallowing problem with children who have a history of aspiration. If the feeding and swallowing challenges are more persistent (i.e. probably not resolved enough to gain enough food or fluid orally within a couple of months), I think it makes much more sense to consider a gastrostomy tube. This allows the child to get the fluids that are needed to be healthy and allows the therapist the ability to use a smaller amount of thickened liquid to actively work to improve the basic swallowing coordination if the child can do this safely.

It is a real challenge to work with kids therapeutically to improve the overall feeding pattern and develop a positive relationship with food and liquid when the focus must be primarily on getting in enough nutrition and hydration that the child can thrive. - Suzanne Evans Morris, Ph.D.