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**School-Based Dysphagia Management:
Necessary Considerations for the Speech-Language Pathologist**

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**School-Based Dysphagia Management:
Necessary Considerations for the Speech-Language Pathologist**

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Dedication

I dedicate this to my Mom and Dad. Thank you for your continuous support and love.

Abstract

School-Based Dysphagia Management: Necessary Considerations for the Speech-Language Pathologist

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Many articles have addressed effective school-based dysphagia management practices. There is not a defined best practice plan available for speech-language pathologists, as the information is spread among various published articles. Four optimal outcomes and the most relevant management suggestions to help guarantee achievement of these outcomes are described. Sufficient information found from published articles describes the areas of referral, team responsibilities, assessment, Individualized Education Plan formulation, and treatment in school-based dysphagia management. This information, along with additional suggestions not frequently mentioned in the articles was added to a proposed school-based dysphagia management model. This model is

intended for use as a guide for speech-language pathologists in the schools who do not have a management plan available for use.

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Chapter 1: Background

Over the past 40 years, speech-language pathologists (SLPs) have been increasingly involved in the evaluation and treatment of individuals with swallowing disorders. As a result, since the 1970's, the demand for SLPs involvement with dysphagia has increased and the school based SLPs' scope of practice has expanded to include dysphagia management (Miller & Groher, 1993). In the 2008 Schools Survey Report: Caseload Characteristics (ASHA, 2008), it was documented that 9% of public school SLPs regularly provide services to students with dysphagia. With recent improvements in medical technology, more children born with etiologies resulting in a swallowing disorder survive infancy and as a result enter the public schools. Dysphagia treatment is no longer primarily provided in a medical setting. As more children need dysphagia services during the school day, treatment and management of swallowing disorders is now a part of the public school SLP's responsibility (Logeman & O'Toole, 2000).

Federal laws require that dysphagia management be provided in schools, as long as it is educationally necessary. The Individuals with Disabilities Education Act (IDEA) is a federally mandated special education law that regulates the special education process in schools. It was originally passed in 1975 in order to provide a free appropriate public education to children with disabilities. A free appropriate public education (FAPE) for children with disabilities provides "special education and related services designed to meet their unique needs and prepare them for further education, employment, and independent living" (IDEA, 2004, p.5). FAPE is individualized to the child and provides

the resources to meet particular needs in the personal, educational and professional realms of the child's life.

Children who fall under the IDEA mandate include those from three to 22 years of age. Fourteen categories of disability are defined under this act. IDEA defines a child with a disability as a child "with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities" (IDEA, 2004, p.6). Dysphagia is not specifically included in this list of disabilities, but can be categorized under "other health impairment" (IDEA, 2004, p.6).

Based on the provisions contained in the IDEA, a free appropriate public education is made available for children with dysphagia in the public school. These children would be provided a publicly funded education that meets their educational and functional needs and gives them access to the general curriculum. This education is provided according to the child's Individualized Education Plan (IEP), a document that is designed for each child who receives special education. The IEP lists goals for the student and places them in their least restrictive environment (LRE), or the school environment which provides the maximum outcome for the student (IDEA, 2004).

The American Speech-Language-Hearing Association is a professional organization that develops practice guidelines, ethics codes, and other documents for speech-language pathologists. The *Scope of Practice in Speech-Language Pathology*

(2007) is a document that defines the limits and boundaries of responsibility within the field of speech-language pathology. According to this document, a licensed SLP can provide services such as “screenings, assessments, diagnoses, treatment, counseling, and referrals” to individuals who have problems in the areas of “oral, pharyngeal, laryngeal, and esophageal” aspects of feeding or swallowing due to “respiratory, pharyngeal, laryngeal, oral, neurological, or genetic deficits, or dysphagia caused by neonatal difficulties” (ASHA, 2007, p.6).

The *Knowledge and Skills Needed by Speech-Language Pathologists Providing Services to Individuals with Swallowing and/or Feeding Disorders* is an ASHA publication with the purpose of aiding the SLP in dysphagia management. The document lists the competencies needed in dysphagia and the roles, knowledge, and skills that the SLP may need in the work environment (ASHA, 2002). This document is useful to the school-based SLP because it provides an extensive, but not exhaustive, list of areas to be knowledgeable when working with children with dysphagia.

A publication meant particularly for the school-based SLP, the *Guidelines for Speech-Language Pathologists Providing Swallowing and Feeding Services in Schools*, was issued in 2007. Information is provided about management issues, management procedures, and roles of other professionals in dysphagia management, such as the classroom teacher and physical therapist. The information from this publication is useful to school-based SLPs because it provides a rationale for providing services for dysphagia in schools. According to the *Guidelines*, dysphagia management in schools is

educationally relevant for three reasons. First, students must remain safe while eating in school. Since breakfast and lunch are served during the school day, the appropriate food, utensils, and personnel must be provided to the student to minimize the students' risk of choking or aspiration. The second case for educational relevance is if students are nourished adequately during the school day, they will be more likely to pay attention to the curriculum. Additionally, students will be more likely to attend school if they remain healthy. The final case for educational relevance is that students need to learn and develop the skills to eat in a safe and timely manner (if possible) with peers (ASHA, 2007).

While many articles have been published addressing effective school-based dysphagia management practices, there is not a defined best practice plan for dysphagia in many schools. The information is scattered in various published articles. This report will assist in the collection of information needed for optimal outcomes of school based dysphagia management. This will be completed by describing the optimal outcomes of school based management, reviewing models currently used in schools, and providing recommendations for management.

Chapter 2: Dysphagia in the Schools

Dysphagia is a complex syndrome that is defined as difficulty with swallowing and/or feeding function (Murry and Carrau, 2009). In children, dysphagia can result from structural abnormalities, neurological dysfunction, or behavioral difficulties. If not treated properly, dysphagia has devastating effects including aspiration, malnutrition, and dehydration.

In the public schools, children with dysphagia will likely be treated by a team of school-based professionals including speech-language pathologists, occupational therapists, school nurses, social workers, and physical therapists.

The optimal outcomes of dysphagia management in the schools are to 1) provide maximum opportunities for a normal education, 2) keep the child satisfied, safe, and well-nourished while in the school environment, 3) ensure parent satisfaction with dysphagia management, and 4) ensure that the SLP remains competent in the practice of public school dysphagia.

School-based service populations

The school-age population in this report is defined as 6-21 years of age. Some of the most common etiologies of students with dysphagia include children who were born prematurely, born with fetal alcohol syndrome, cerebral palsy, Down syndrome, autism spectrum disorders, and/or structural anomalies, such as cleft lip/palate. An overview of these six populations will be described according to the following: etiology, overall deficits, dysphagia-specific deficits, and typical problems upon entering school.

Prematurity

Etiology

When infants are born prior to 37 weeks gestation, they are considered to be preterm, or premature. Full-term infants are born between 38 and 40+ weeks. Premature birth can result as a consequence of many different factors. These could include substance abuse, smoking, poor prenatal care, emotional instability, low socioeconomic status, and genetic predisposition. However, many babies that are born premature have no identifiable cause for the early birth (Fraker & Walbert, 2003).

Overall Deficits

Premature infants can be born with many conditions that impact their respiration, neurology, and physical strength. There may be respiratory problems, and muscle tone variations. These could result in irregular breathing, fatigue and weak suck (Fraker & Walbert, 2003).

Dysphagia-Specific Deficits

Infants born prematurely are susceptible to significant feeding problems since they may not be fully developed anatomically, physiologically or cognitively. Some important pre-feeding milestones develop in utero. These include the gag reflex, the sucking reflex and the rooting reflex. For example, the gag reflex begins developing at 26 weeks gestation. Infants born prior to this gestational period will have a difficult time remaining safe while eating, as they will be less able to detect if food has reached the back of the throat. The development of the ability to suck begins between 32 and 34

weeks gestation. A baby born prior to full-term will have a weak suck, resulting in the inability to receive adequate amounts of food without assistance (Fraker & Walbert, 2003).

Along with the lack of reflexes which are usually not fully developed until 34-36 weeks gestational age, there are a number of other factors that can impact a preemies' ability to feed at birth. These factors include temperament, lung development, and medication side effects.

The temperament or attitude of a premature baby can cause negative outcomes in feeding. The premature infant tires more easily than a full term infant, which reduces the amount of adequate food intake. Premature infants are also more orally sensitive and therefore reluctant to participate in feeding activities. Malnutrition is a vital concern in premature infants (Fraker & Walbert, 2003).

Lung development is a vital process in infant growth. A premature infant is susceptible to inadequate lung development, which will decrease the coordination of the suck, swallow, and breathe sequence. The infant takes more effort to breathe, so interrupting breathing with food will cause the infant more distress. Premature infants can develop a condition called apnea, which is the cessation of breathing for more than 15 seconds. Respiratory distress syndrome is seen in infants with underdeveloped lungs (Fraker & Walbert, 2003).

Side effects of medications can affect processes linked to feeding. Medications given to a premature infant can cause changes in breathing or digestive problems such as

an upset stomach. These problems can become long term if the child needs to continue taking the medication as they grow. Breathing and digestive problems may persist and cause the child to have chronic feeding problems as they enter school (Fraker & Walbert, 2003).

Typical Problems in School

Improved practices in the medical field have led to increased survival rates for premature infants. Premature infants born as early as 21 weeks gestation are surviving due to advanced medical technology (Fraker & Walbert, 2003). With more children surviving prematurity, there will be more children entering the educational system with a swallowing or feeding disorder since many of the physical and cognitive problems continue into the school years (Power-deFur, 2000; O'Donoghue & Dean-Claytor, 2008; Homer, 2003).

Prematurity can lead to both cognitive and motor deficits which impact feeding development. One diagnosis that often results from prematurity is cerebral palsy.

Cerebral Palsy

Etiology

Cerebral Palsy is a non-progressive congenital neurological disorder which affects the development of movement and posture from birth through the lifespan (Bax, Goldstein, Rosenbaum, Leviton, & Paneth, 2005). It affects 1.7 – 2.0 children per every 1000 births, resulting in about 8000 new cases per year in the United States. Classification of cerebral palsy is defined by muscle tone differences and limb

abnormalities (Wu, Croen, Shah, Newman, & Najjar, 2006). The muscle tone may be described as spastic, ataxic, athetoid, or mixed (United Cerebral Palsy, 2001). Limb movement may be classified as monoplegic, paraplegic, hemiplegic, and quadriplegic (Wu, Croen, Shah, Newman, & Najjar, 2006).

Overall Deficits

Children with cerebral palsy have difficulties controlling and coordinating limb movement. Some use a wheelchair or an assistive device such as a walker for mobility. Paralysis can occur in one, some, or all limbs, and is described as monoplegia, hemiplegia, diplegia, or quadriplegia. Monoplegia is when one limb is affected by paralysis. Hemiplegia means that one side of the body – left or right – is paralyzed. Diplegia occurs when either both arms or both legs are affected and quadriplegia is when all limbs are paralyzed (United Cerebral Palsy, 2001).

Muscle tone in children with cerebral palsy can be described as stiff, slow, uncoordinated, or a mixed combination. Spastic, ataxic, and athetoid are all specific terms which indicate the tonicity of the muscles in cerebral palsy. Spastic cerebral palsy is the most commonly diagnosed. It involves spastic, or stiff muscles that are constantly contracted. Classification of spastic cerebral palsy is dependent on which limbs display paralysis or weakness. Spastic cerebral palsy can present as monoplegia, hemiplegia, diplegia, or quadriplegia (United Cerebral Palsy, 2001; Wu, Croen, Shah, Newman, & Najjar, 2006). Difficulty with balance and depth perception is characteristic of individuals with ataxic cerebral palsy. This type of cerebral palsy is rare and only seen in

5-10 percent of people with the disorder. They may also have difficulty with coordination, and voluntary movements may be accompanied by a tremor. Slow and uncontrolled muscle tone of the limbs, face, and tongue is characteristic of athetoid cerebral palsy. This form is slightly more common than ataxic; it is seen in 10-20 percent of people with cerebral palsy. The slow movement increases as the child is experiencing emotional stress. When the characteristic of more than one type is seen in a child, it is identified as mixed cerebral palsy. Mixed forms of cerebral palsy are common and mostly seen as a mixed spastic-athetoid type (United Cerebral Palsy, 2001).

Dysphagia-Specific Deficits

Difficulties with control and coordination can also be expressed in the child's speech and feeding. Muscle tone problems, along with physical abnormalities, behavior problems, and developmental delays contribute to feeding problems. In infancy, weak musculature leads to poor lip seal, decreased cheek and lip tone, and poor suck. Weak musculature of the oral cavity and poor posture/head position can cause food spillage. An excessive tongue thrust interferes with the posterior food transport for swallowing and an inadequate cough reflex puts the child at risk for aspiration. A slow or inadequate swallow may cause residue to be left in the oral cavity after a swallow, which can result in aspiration or penetration of the bolus (Fraker & Walbert, 2003).

Typical Problems in School

In the school setting, the SLP will be involved in the management of children with cerebral palsy by trying to improve speech, language, and feeding abilities. Cerebral

palsy is a non-progressive disorder; so length of therapy needed for these skills is dependent on the individuals' strengths and weaknesses (Dahl, Thommessen, Rasmussen, & Selberg, 1996).

Level of feeding problems depends on the severity of the disorder. Factors include type and degree of muscle tone deficits, positioning, cognitive and sensory factors. For example, a child with severe spasticity may be more difficult to feed than a child with a moderate spasticity due to inadequate body positioning and increased stiffness of muscles. Positioning is important during feeding because it helps the food to be swallowed properly and safely. The SLP will have to decide how to position students with inefficient posture due to weak musculature. Severity of cognitive deficits affects the eating environment of the child. A child with a severe cognitive delay may not be aware of how to handle the eating situation or have no self-feeding skills. A child with a sensory disorder will demonstrate food aversion and increased hypersensitivity to foods (Dahl, Thommessen, Rasmussen, & Selberg, 1996).

Children with cerebral palsy will also need an SLP to help increase effective communication. SLPs will manage both feeding and oral communication therapy as these two systems share common structures and physiology. The child may have difficulties with verbal and nonverbal communication, such as articulation, voice production, gestures, and facial expression. For children with no verbal production, an augmentative communication device such as a picture board can be used to communicate (Dahl, Thommessen, Rasmussen, & Selberg, 1996).

Fetal Alcohol Syndrome

Etiology

Fetal Alcohol Syndrome (FAS) is a condition in which physical, behavioral, and cognitive deficits manifest in a child who was exposed to alcohol in utero. It is the leading cause of birth deficits, affecting two in every 1000 births (Banakar, Kudlur, and George, 2009).

There is no definite answer on the amount of alcohol ingestion that causes FAS. Exposure to alcohol in different trimesters affects the fetus differently. During the first trimester, alcohol exposure has a negative effect on organ and craniofacial development, which will cause malformations of facial features. Use of alcohol in later trimesters causes decreased fetal growth, inadequate fetal nutrition, and deficits in CNS development (Thackray & Tiff, 2001).

Overall Deficits

Children with FAS experience a number of developmental problems. Infants are irritable, hypersensitive, and have difficulty bonding with parents. Characteristic facial features are an upturned nose, thin upper lip, droopy eyelids, and a flat midface. At school-age these facial features are still noticeable and the behavioral and cognitive deficits become more obvious. Behavioral deficits include impulsivity, aggression, mood fluctuations, temper tantrums, and difficulty with social interactions. Cognitive deficits include memory problems and slow processing. The child may also have a speech or hearing problem (Thackray & Tiff, 2001).

Dysphagia-Specific Deficits

Infants with FAS have severe feeding problems in the first few months of life. Delays in oral motor development lead to a poor suck which limits the amount of liquid ingested. Infants with FAS tire easily, which also limits the amount of liquid ingested. These two problems are believed to be factors in identified growth deficiencies of children with FAS (Driscoll, Streissguth, & Riley, 1990). Cleft palate can occur in children with FAS, which causes difficulty keeping food in the oral cavity during feeding (Banakar, Kudlur, & George, 2009).

Typical Problems in School

The sleeping disturbances, feeding problems, emotional instability, sensory overload, and growth problems that are caused by FAS do not completely disappear as children reach school age. These problems may persist throughout the child's lifetime and manifest as hyperactivity, social problems, language deficits, learning difficulties, and impaired judgment (Banakar, Kudlur, & George, 2009).

Down Syndrome

Etiology

Trisomy 21, or Down syndrome, is caused by an existence of an extra 21st chromosome. Down syndrome affects one out of every 800-1100 births (Fraker & Walbert, 2003). The chances of having a baby with Down syndrome increase as the mother's age increases (National Institute of Child Health and Human Development, 2010).

Overall Deficits

Down syndrome is mainly characterized by cognitive deficits, poor growth, and typical physical features such as a flat face, upwardly slanted eyes, small hands and feet, and poor muscle tone. Children tend to have mild to moderate mental retardation, with average IQs ranging from 35-70, delayed language, and motor development. A hearing loss of 15-20 decibels is present in up to 89% of individuals. The hearing loss contributes to the language delay. Around 50% of individuals with Down syndrome have a congenital heart disease which may cause high blood pressure of the lungs. Seizure disorders affect up to 13% of this population (National Institute of Child Health and Human Development, 2010).

Dysphagia-Specific Deficits

Children with Down syndrome experience a variety of feeding and swallowing difficulties relating to musculature, oral cavity structure, respiratory, and behavioral problems. Hypotonicity is the key problem underlying most of the musculature difficulties. During infancy, hypotonicity can lead to poor suck, excessive drooling, the tendency to keep the mouth open during feeding, and the delayed transition from liquid to solid foods. Common structural abnormalities seen in children with Down syndrome include delayed/unorganized growth of teeth, reduced muscle tone, and an enlarged tongue. Tongue protrusion can prevent food from entering the oral cavity or can lead to spillage (Cichero & Murdoch, 2006). Chronic respiratory infections affect some children with Down syndrome. Most of these children are mouth breathers and therefore may have

a dry mouth. This causes difficulty in chewing and swallowing due to decreased saliva (Cichero & Murdoch, 2006). Behavioral feeding problems may be present in children with Down syndrome. Food selectivity by texture is the most common, and children with Down syndrome may only prefer low textured or pureed foods due to hypersensitivity (Field, Garland, & Williams, 2003). Additionally, they may have trouble progressing to a larger variety of textures (Frazier & Friedman, 1996).

Typical Problems in School

Children with Down syndrome often demonstrate problems with attention, conduct, and social withdrawal. They may not be included in the regular education classroom full time. In the area of feeding, these children may need services in school for behavioral problems such as food aversion, or to decrease the negative effects that low tone, structural abnormalities, and respiratory deficits have on swallowing function (Coe *et al*, 1999).

Autism Spectrum Disorders

Etiology

Autism Spectrum Disorders (ASD) are a group of conditions characterized by difficulties with social interactions, communication, and behavior patterns. ASD affects about 6 per 1,000 children, with a male to female ratio of 4 to 1. The cause of autism is unknown, although many theories exist. In the early 1940's, people believed the cause to be due to poor parenting. Recently, environmental factors such as mercury-based vaccines and pollutants have been blamed for causing ASD. Currently, genetic

predisposition to ASD is the leading cause (Howlin, 2006).

Overall Deficits

Parents are often the first to notice symptoms of ASD in their own children around the age of 18 months. Social problems, absence of imaginative play, and inadequate joint attention skills are noticed by parents. Also, children with ASD will display typical development until 18-24 months, which is when they lose speech skills. Around preschool years, ages 3-5, children with ASD demonstrate ritualistic and stereotyped behaviors (Howlin, 2006).

Dysphagia-Specific Deficits

Children who are on the autism spectrum will often exhibit behavior problems related to feeding (Fraker & Walbert, 2003). These behaviors include food refusal, presentation selectivity – such as the use of specific utensils, dishes and eating locations, texture preference, and restricted variety (Schreck, Williams, & Smith, 2004). These behaviors can be condensed into a condition known as feeding aversion. The mildest form of feeding aversion is the picky eater, whose food refusal does not lead to insufficient nutrition or growth. However, children who have a moderate or severe form of food aversion may be compromising health and development. Children that become undernourished acquire the health status “failure to thrive,” or FTT, which indicates that the child’s growth -height, weight, or head circumference -, is delayed (Fraker & Walbert, 2003).

Typical Problems in School

Food selectivity is the most common feeding problem in children with ASD. More severe problems with feeding such as aspiration are only found in children with ASD who also have concomitant health issues. Feeding difficulties are influenced by physiological factors such as sensory processing, gastrointestinal problems, and behavioral factors such as ritualistic behaviors, anxiety, and social skills. The school-based SLP will encounter these problems and need to provide support to these children in order to enhance their eating experience (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

Sensory processing difficulties in children can lead to overstimulation or under stimulation from stimuli. In feeding, sensory processing issues can turn into overreactions to taste and smell and limited food preferences related to taste and texture. In addition, overstimulation from the cafeteria environment, such as lights, children moving constantly, loud voices, and the various smells of food can place increased stress on the child as they may have difficulty filtering the sensory input. As a result, children may scream, try to leave the environment, become aggressive, or shut down (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

In children with ASD who have gastrointestinal (GI) issues, poor appetite and food selectivity are common problems. Parents may also prefer their child to be on a special diet to relieve problems associated with GI problems. Children may not be able to express when they are feeling sick or uncomfortable, which can lead to frustration of the child and the school staff that is working with the child (Twachtman-Reilly, Amaral, &

Zebrowski, 2008).

Ritualistic behaviors are common in children with ASD. In feeding, this translates to feeding rituals in which the child prefers to eat in the same manner for each meal. For example, the child may not want foods to touch each other, want the food prepared a certain way, or want to use particular utensils (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

Executive function deficits can cause anxiety during meals for children with ASD. Lack of ability to self-monitor may cause the child to prematurely finish the meal. Self-monitoring skills are also important for the child to stay on task with feeding sequences (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

Cleft Lip and Palate

Etiology

Cleft lip and palate is a birth defect in which the upper lip and/or hard palate were not completely fused in utero. Cleft lip and palate occurs in 1 out of every 700 births worldwide, and 1 in every 2000 births in the United States (Scherer & Kaiser, 2007). Around 50% of cases of cleft palate only (CPO) and 70% of cases of cleft lip with or without cleft palate (CP/L) occur without a concomitant disorder. The cause of this defect is unknown, but research has led to genetic and environmental factors such as toxins, drugs, and smoking, and medications (Murray, 2002).

Overall Deficits

Physical appearance of cleft lip and palate varies. A cleft lip can be unilateral or

bilateral, where there is a cleft on the left, right, or both sides of the lip. A cleft palate can be partial or full, where the cleft extends partially across the palate or completely across the palate. Misalignment or displacement of teeth may also occur. Children with cleft lip and palate have deficits in feeding and speech (Scherer & Kaiser, 2007).

Surgical repair and speech therapy are the usual treatment options for clefts. Most children in the United States will undergo surgery to repair the cleft. Cleft lip repair is recommended at three months of age. Cleft palate repair is recommended at one year of age. Early intervention involves feeding therapy. Speech and language therapy is also provided because children will develop articulation errors and be reluctant to communicate, resulting in receptive and/or expressive language delays (Scherer & Kaiser, 2007).

Dysphagia-Specific Deficits

Children with craniofacial abnormalities such as cleft lip and/or palate will have a decreased adequacy in feeding. The ability to swallow is present, although the ability to suck is compromised, due to an inability to close off the nasal cavity and generate negative intraoral pressure. The same problem occurs with cleft lip. The inability to create a seal with the lips leads to the failure to decrease intraoral pressure, therefore causing a weak suck. Surgically repairing a cleft lip or palate will improve infants' ability to create negative intraoral pressure in the oral cavity, thus helping them to achieve adequate suck during feeding (Clarren, Anderson, & Wolf, 1987).

Typical Problems in School

Cleft lip and palate is typically repaired in the United States before the child becomes old enough to attend school. However, the child may still have some speech and language problems that need to be addressed. Delayed development of sounds is common in children who have had a cleft lip or palate. Expressive language development can be slow to progress. A child with a cleft lip or palate will develop some compensatory articulation strategies to make up for the sounds he had trouble pronouncing. For example, moving the production of sounds that require lip or palate function, such as p, b, t, d, k, g, f, v, th, s, and z to the back of the mouth for easier pronunciation, is a compensatory strategy that needs to be addressed in speech therapy. These patterns are typically seen up to two years after the surgery, but without proper identification and attention, they may still persist in a school-aged child. For expressive language difficulties and low vocabulary, therapy can also be provided in schools by SLPs to increase language competence (Scherer & Kaiser, 2007).

This wide variety of dysphagia etiologies calls for an organized process in the schools that will lead to successful management. A crucial part of this process is the wide range of knowledge regarding both feeding development and the effect on this process due to the various disorders. Any proposed model must include ways for the SLP to stay current regarding best practice in this area. Child safety, education, parental satisfaction, and abundance of laws must also be considered when creating an organized model for dysphagia management in the schools.

Chapter 3: Current School-Based Dysphagia Management Suggestions

The six disorders described in Chapter 2 are the primary disorders treated by SLPs in public schools. Therefore, it is important to have a well-established model for dysphagia management in the public school system to address a broad spectrum of disorders.

A school-based model should achieve the following results: 1) provide maximum opportunities for a normal education, 2) keep the child satisfied, safe, and well-nourished while in the school environment, 3) ensure parent satisfaction with dysphagia management, and 4) ensure that the SLP remains competent in the practice of public school dysphagia. Achievement of these four goals should provide the best chance for optimal outcomes for the student, the student's family, and the SLP. Outcome 1 is especially important since it will give the child the opportunity to achieve academic goals as mandated by law. It should also be in the school's best interest to provide the best education possible to each student who attends. Outcome 2 is important for the student's health. The ability to eat and stay well-nourished in the school environment is important to both educational and health outcomes. A child who cannot be provided nutrition within the school environment will miss classes, have increased behavior problems, and be inadequately nourished. Parent satisfaction with dysphagia management procedures (outcome 3) will reduce the likelihood of complaints or disputes to the school, and demonstrate to the parent that the school staff cares about the students they serve. Competence of the SLP (outcome 4) is not only necessary to maintain certification, but

also is important for remaining updated on new research in the field in order to provide the best service to the students. The American Speech-Language-Hearing Association, as well as state associations and state licensure boards, require that SLPs maintain competence by regularly taking continuing education classes.

Based on the most important factors in the areas of referral, assessment, staffing responsibilities, IEP processes, and treatment of dysphagia in schools, criteria were chosen that would lead to successful achievement of the four optimal outcome goals. Databases from 2000 to 2010 were searched for information relating to school-based dysphagia management in those areas. Eleven articles were found that contained information pertinent to the establishment of a public school dysphagia management model (Angell, Bailey, & Stoner, 2008; Arvedson, 2000; Bailey & Lugg, 2009; Bailey, Stoner, Angell, & Fetzer, 2008; Davis-McFarland, 2008; Homer, 2003; Homer, 2009; Huffman & Owre, 2008; Lefton-Greif & Arvedson, 2008; Miller, 2009; Power-deFur, 2000).

The information contained in these articles will be divided into the five key areas of the dysphagia management process. These five areas follow the procedures presented by the IDEA for management of students for services within the public schools. They are referral, management team responsibilities, assessment, IEP procedures, and treatment. The descriptions will include a discussion on how the models meet the four goals.

Listed in Table 3.1 below are the criteria, articles reviewed, and areas addressed in those articles. The following discussion will relate to how well these plans both meet the requirements of the IDEA and the goals of dysphagia management (IDEA, 2004).

Table 3.1: Suggestions for School-Based Dysphagia Management by Reference

	Criteria											
	Parental Input	Protocol to Identify Students	Multidisciplinary	Support of Staff	Competence of Professionals Maintained	Real-Life Observation	Culturally Relevant	IEP Presentation	Information in IEP	Collaboration w/ Medical Professionals	Flexibility	Culturally Relevant
Citation	Referral		Team Responsibilities			Assessment		IEP Formulation		Treatment		
Angell, Bailey, & Stoner, 2008			X		X						X	
Arvedson, 2000	X					X						
Bailey & Lugg, 2009	X				X			X	X			
Bailey, Stoner, Angell, & Fetzer, 2008	X			X	X						X	
Davis-McFarland, 2008	X						X		X			X
Homer, 2003	X	X	X	X	X	X		X		X		
Homer, 2009	X		X						X	X		
Huffman & Owre, 2008			X		X							
Lefton-Greif & Arvedson, 2008			X			X				X		
Miller, 2009										X		
Power-deFur, 2000					X							

Management Suggestions

Referral

A good referral process should reduce both the under identification and over identification of students. Criteria presented in the articles state that the referral process must include parental input and that there should be a protocol to identify students. Of the 11 articles reviewed, six articles presented information regarding the criteria for the referral process of students in schools.

Parental Input

Parental input in the referral process is important for optimal outcome #3, ensuring that the parents are satisfied with dysphagia management. Arvedson (2000) discusses the fact that the parents know the most about the child's medical, developmental, social, feeding, and family histories. The culture and socioeconomic status of the family may also be important for determining what the family can or will do regarding the child's dysphagia treatment options (Arvedson, 2000). The parents can provide important information regarding many different aspects of the child's development such as the culture, health, development, behavior, and academics. This information will help to guide the SLP in making decisions about management (Bailey & Lugg, 2009, Davis-McFarland, 2008).

Communication is the main component to involving the parents in the management process (Davis-McFarland, 2008). Establishing a relationship with parents is a way to facilitate trust, which is an effective method to promote the best outcomes

from the child (Bailey & Lugg, 2009). One example of effective communication is found in the St. Tammany Parish Schools. According to Homer (2003), the St. Tammany Parish Schools in Louisiana first inform the parents of a feeding problem when a referral has been made by an SLP or occupational therapist (OT). The professionals inform the parents of the possibility of a disorder and inquire if they were aware of the problem. This may be the first time the parents are hearing about the possibility of a feeding problem with their child, so it is important for the SLP to establish a positive relationship with the parent at this time (Homer, 2003). Providing the parents with brochures and reassurance is a suggestion from Homer (2009) to establish a positive relationship with the child's parents. Informing the parents that their opinion is valued may encourage the parents to get involved with management procedures (Homer, 2009, Bailey, Stoner, Angell, & Fetzer, 2008).

Need for an established protocol

An established protocol for identification and referral of students to a speech-language pathologist is necessary for consistency in assessment and treatment. An established plan of action is similar to a support system because it is directional and detailed so that the SLP knows what to do with every child.

Homer (2003) discusses the purpose of an established protocol for referral. One of the goals for the St. Tammany School System Dysphagia Team is to identify students at risk for dysphagia. The first step to identifying these students is to survey SLPs and OTs about students on their current caseload. The survey is a checklist that requires the person

completing it to look for clinical dysphagia symptoms in students such as drooling, refusal to eat, food remaining in mouth, and medical history of swallowing problems. A case manager, who is also the SLP, is then assigned to the students who were identified as at-risk in order to assess the degree of swallowing function in each student. The student's parents are notified of the concerns and the school requests a further consultation (Homer, 2003).

Team responsibilities

A good process for assigning team members and their duties is important to keep dysphagia management organized and controlled. Of the 11 articles reviewed, 8 referred to the criteria regarding responsibilities of the various dysphagia team members. A dysphagia team should be multidisciplinary, have support available, and maintain competence of professionals involved.

Multidisciplinary Team

Huffman and Owre (2008) emphasize that while a multidisciplinary team is required, it can be a challenge to maintain. Team members must be able to be cooperative, possess exceptional communication skills, and be cooperative with all team members (Huffman & Owre, 2008).

For comprehensive management of the student, a multidisciplinary team is recommended (Angell, Bailey, & Stoner, 2008). Homer (2003) emphasizes the significance of multidisciplinary collaboration in the St. Tammany schools. Each team member contributes a certain level of knowledge to complete the service model (Homer,

2003). In the schools, a functional team would involve members such as a case manager/speech-language pathologist, school principal, parent, occupational therapist, and school nurse. Additional professionals who may be involved are the social worker, teacher, dietician, cafeteria worker, and physician (Angell, Bailey, & Stoner, 2008; Homer, 2003; Huffman & Owre, 2008).

The case manager oversees the management of the student and is typically the SLP. The case manager's duties include: assigning roles to other team members, following procedural guidelines, documenting progress of the student, and maintaining communication with the student's physician (Homer, 2003). The case manager communicates with the other team members and encourages collaboration and cooperation between them in order to have the most effective teamwork possible (Huffman & Owre, 2008). The SLPs also provide dysphagia therapy to the students, write the IEP plan, and train and oversee other professionals (Homer, 2003).

The school principal has the ultimate responsibility for the students in the school. This person is involved in the child's management team because he holds full responsibility of all procedures in the school. For reasons of liability, the principal must be informed and knowledgeable of all aspects of care for students in the school (Homer, 2003).

One of the parents' roles on the team is to be the communication point between the school and physician. Many of the students referred for dysphagia evaluations within public school have a medical diagnosis. The parents are essential to optimal outcomes as

they know the child best and can often provide information about medical factors that may be impacting the swallowing problem. Parents will be trained on all precautions specific to the child. Demonstrations, written directions, and videotaped samples are provided to facilitate training (Homer, 2003).

Occupational therapists maintain the daily living activities in people's lives. For dysphagia management, occupational therapists have knowledge of feeding positions and alternative equipment, and can assist with many aspects of management. (Homer, 2003)

The school nurse's medical knowledge is especially important to the dysphagia team. She helps with management by training school staff and assisting with emergencies. The nurse has a broad understanding of the overall health of the child and the impact of concomitant disorders (Homer, 2003).

Homer (2003) describes three types of multidisciplinary teams for a school setting. In a school district with several competently trained SLPs, a school-based team is recommended for treatment. A school-based team is most realistic for the SLP that works at only one school during the day. The school-based team has many advantages; the most important one being that most of the team members are attending the school every day or are very close in location to the school. It is also easier to get in contact with the other team members. In case of emergency, the school nurse and SLP are already at the school (Homer, 2003).

In a small school district with few SLPs, the district team approach may be the best choice. The competently trained SLP is assigned to more than one school in the

district, and may not be readily available at any particular school. This approach involves more traveling, which may lead to less time available to treat (Homer, 2003).

Homer (2003) states that a combination approach of school-based and district based is the best option for school districts in which some, but not all SLPs are trained in dysphagia management. This approach requires that some SLPs to travel to other schools but have a campus they mainly work in. Some schools in the district will rely on an SLP from another school to periodically attend (Homer, 2003).

Collaboration between school and medical teams is necessary to meet all needs of the student, especially the student with a complex medical problem. Lefton-Greif and Arvedson (2008) encourage the method of collaboration between school-based and medically-based dysphagia teams. This helps both teams to stay updated on current information about the students' needs. It also helps school-based teams decide on what is best for the child in order to allow them access to the best education possible (Homer, 2009; Lefton-Greif & Arvedson, 2008).

Support of Staff

A support system is necessary for the achievement of all four outcome goals. Support can come from internal or external resources. Education, encouragement, and competence all result from support of the dysphagia team.

External support, such as information from an outside medical source, is helpful for informing the SLP about medical terms and needs for a specific child. Internal support from school administrative staff is necessary for the SLP to remain competent in

service delivery. This could involve participating in continuing education opportunities or backup when a complaint is made. The SLP should feel as though the school district will provide materials, information, and defense if necessary (Bailey, Stoner, Angell, & Fetzer, 2008).

According to Homer (2003), support is found internally from the dysphagia team and from school administrators. In order to receive support from the school, the dysphagia team needs to educate other staff members on what dysphagia is and how many students it affects in the school. As the most knowledgeable team member in dysphagia, the SLP should be able to lead this endeavor (Homer, 2003).

Team Competence

Maintaining competence is an important aspect of dysphagia management. In order to achieve outcome #4, the SLP must take the initiative in remaining clinically competent to serve the dysphagia population. Proper training of team members will also ensure that the student is safe while in school, which will lead to achievement of outcome #2.

Homer (2003) highlights the ethical necessities of competence. Maintenance of clinical competence is required by the American Speech-Language-Hearing Association. Older SLPs may not have the proper educational or clinical experience from school; however they still need to become clinically competent in dysphagia management if these types of students are in their caseload (Homer, 2003).

Huffman & Owre (2008) discuss certification needs along with clinical competence. Knowledge of dysphagia is not only required ethically, but is also a large part of receiving the certification in speech-language pathology. Even certified SLPs need to continue to receive education in dysphagia for maintaining professional growth (Huffman & Owre, 2008).

Bailey & Lugg (2009) emphasize the importance of training every team member involved in dysphagia management. Team members need to be additionally prepared to keep the student safe, especially those who are directly involved in feeding, evaluations, treatment plans, and training of other team members. Competence will also reduce the occurrence of liability claims if the school proves that they have taken action to educate team members (Bailey & Lugg, 2009).

Bailey, Stoner, Angell, & Fetzer (2008) suggested that SLPs who feel inadequately educated or trained in school-based dysphagia management are hesitant to provide services to those students. They are uncomfortable handling the situation and are fearful of endangering the student. Proper training will reduce those fears in SLPs and give them a foundation for safe management skills (Bailey, Stoner, Angell, & Fetzer, 2008).

According to Angell, Bailey, & Stoner (2008), parents of school-aged children reported that incompetency issues are a problem, but can be resolved. These parents discussed that they are able to bear a clinician's inadequacies as long as they are willing to learn more about the student's medical problems. They reported that a lack of

competency as unsatisfactory when the SLP appears to be disinterested, afraid, or lack compassion for their child. Overall, parents involved with this research viewed incompetency as a weakness of dysphagia management (Angell, Bailey, & Stoner, 2008).

In order to be certified by the American Speech, Language and Hearing Association, Master's degree programs for speech-language pathology are required to ensure that graduates meet all competencies contained within the SLP's scope of practice. However, educational and clinical experience in dysphagia at the University level may not be adequate for independent practice of public school dysphagia speech therapy. Power-deFur (2000) discussed the skills that SLPs must possess in order to provide effective services to dysphagia clients. This knowledge is necessary for working with the dysphagia population, and it is implied that knowledge may need to be acquired from external or separate sources. Those skills include identifying at-risk individuals, conducting examinations, determining decisions for management, providing treatment, providing education, training, and counseling, being on an interdisciplinary team, and conducting research (Power-deFur, 2000, p. 77).

Assessment

Information regarding the criteria identified for assessment practices used in schools was addressed in four of the articles reviewed. Assessment of students should include a real-life observation of the child's eating and be culturally relevant. Ideally, assessment practices in schools should lead to a complete understanding of the child's feeding problems and help with goal formation.

Real Life Observation

According to Arvedson (2000), one of the components of assessment is an observation of the student's eating, drinking, and swallowing habits. Direct observation is helpful for goal formation. Feeding examination can also help with determining cranial nerve function, biting and chewing patterns, and food preferences (Arvedson, 2000).

Because the parent is present for the child's feedings outside of school, a parent-child feeding interaction can be the most helpful in determining how the child's stress level, parental affect, and nonverbal/verbal communication between parent and child affects the child's eating behaviors (Arvedson, 2000).

School based SLPs have the benefit of observing several of the child's meals for further assessment. A real life observation helps the SLP to determine if the child can safely eat orally in a school setting and if there is anything that could assist the child during feeding (Lefton-Greif & Arvedson, 2008).

Homer (2003) suggests that part of the observation should take place during the child's daily meal period at school. The SLP could observe the child's behaviors and make suggestions to the teacher about how to help facilitate eating for this child if accommodations are not already made (Homer, 2003).

Culturally Relevant Assessment

Culture is a broad term that has a significant influence on all aspects of a person's life, including beliefs about illness, disability, and medicine. The values, knowledge,

customs, family structure, experiences, and attitudes that encompass the definition of a culture impact a person's character, behavior, and beliefs.

Culturally relevant assessment is important to attain respect from families of different cultures. According to Davis-McFarland (2008), this begins with an ethnographic interview. The SLP who is unfamiliar with a culture may want to conduct an interview with the child's parents as part of the assessment process. This type of interview encourages open ended, non-biased questions that are created to get the most relevant information out of the parents in their own words. The SLP can be well informed of the family's beliefs about dysphagia and its management. A family's opinion of illness or a negative view of medical practices is an important aspect to learn about a family (Davis-McFarland, 2008).

Formulation of Individualized Education Plan (IEP)

According to the Individuals with Disabilities Education Act, addressing dysphagia in public schools is part of the school's legal responsibility. An organized plan for IEP formulation will lead to a well written document describing the student's health and academic status and report the plan that will be taken while the student attends school. An IEP is ethically necessary to provide the student with the maximum opportunity for a proper education.

The criteria that was chosen for IEP practices was found in four of the 12 articles. The information contained in IEPs and the presentation of the IEP should be well

established in a school to maintain organization and congruence in the student's treatment between professions.

Presentation of IEP

Homer (2003) described the procedure that is followed by the St. Tammany School System in Louisiana. The IEP meeting is the next step following the assessment. The meeting includes people most involved with the student, such as the teacher, parent, SLP, nurse, and principal (Homer, 2003). Team members that are directly involved with the child's feeding should attend the meeting (Bailey & Lugg, 2009). Others may be involved in the meeting as well; there is no limit to how many people can attend the meeting.

The meeting begins with a description of the student's health and academic concerns. The parent may also discuss issues that are present in the home. An emergency plan of action is discussed in case the student becomes endangered from choking. Training for this procedure is also discussed. Further evaluations and referrals are planned, and the plan of action is written (Homer, 2003).

Bailey & Lugg (2009) emphasize the importance of communication during the IEP process. Adequate communication between all involved professionals is important for maintaining consistency in the dysphagia team. Any changes made to the treatment plan must be documented for all team members to see immediately (Bailey & Lugg, 2009).

Information contained in IEP

A thorough IEP will contain sufficient information that describes how the child functions with feeding in the school environment. Additionally, the IEP should contain activities, procedures, and training needed to work with the child (Homer, 2009). The IEP should be written by professionals that work with the child and who have a competent knowledge base of dysphagia and any other concomitant disorders the child has. The child's parents should also be able to provide input to what is planned and written in the IEP (Davis-McFarland, 2008). The procedures and activities documented in the IEP should be able to provide the student with a free appropriate public education as required by IDEA. The IEP should be accessible to all team members involved with the child to be able to provide the care described in the IEP (Bailey & Lugg, 2009).

Treatment

A good treatment process will lead to successful management of dysphagia. Criteria chosen related to treatment practices were mentioned in seven of the 11 articles. Treatment of dysphagia in schools should involve and provide for collaboration with medical professionals, be personalized and flexible to each student, and be culturally relevant.

Collaboration with Medical Professionals

According to Miller (2009), collaboration between school-based and medically-based dysphagia teams will result in effective management of the student. Collaboration between these two teams is especially important for those students with complex medical problems. The family is noted as the link between the school and the medical teams since

they have established contact with both. Cooperation from both teams will lead to the student being able to perform at his maximum ability in school (Lefton-Greif & Arvedson, 2008).

“Reciprocal communication” is stressed by Miller (2009) as an important goal of collaboration. This means that there is communication going both ways between the two teams. The school-based team needs information regarding the student’s medical history and also needs to be able to request additional testing (Homer, 2003; Homer 2009; Miller, 2009). The medically-based team may need to assist the student in transitioning from the medical to the school setting. The hospital can provide information regarding accommodations that will be necessary for the student, and can provide the student’s current feeding goals (Miller, 2009).

Flexibility

Treatment plans need to be personalized to each student. Even two students with the same condition may need different accommodations made in the school because of severity differences or cultural differences. Flexibility will ensure that the student is safe in school, and will also lead to increased parental satisfaction.

In order to become flexible in treatment planning, the SLP must know a broad range of treatment strategies to use appropriately with each student. The personality and concomitant disorders must be considered. For example, if a student has a sensory integration disorder, he may need lower lighting or a quieter location to be comfortable while eating (Angell, Bailey, & Stoner, 2008).

To become more flexible, consultations from medical dysphagia teams are encouraged. These consultations may be even more necessary for students with complex medical problems. Professionals from the medical team may have more experience with the disorder and will be able to provide management ideas (Bailey, Stoner, Angell, & Fetzer, 2008).

Culturally Relevant Treatment

Understanding individual family culture is crucial to successful outcomes. Culture can have many different meanings and involve various elements of a person's existence. In dysphagia management, culture can refer to family dynamics such as food preferences, eating environments, opinions on medical professionals and treatments, and amount of family involvement.

Culturally relevant treatment, similar to assessment, is important to attain respect from families. According to Davis-McFarland (2008), this is achieved through adequate communication with the student's parents (Davis-McFarland, 2008). The SLP must maintain an open form of communication with the parents in order to fully understand their culture and beliefs. The SLP can design a treatment plan for the student based on their beliefs, family structure, and lifestyle, in order to further involve the parents (Davis-McFarland, 2008).

Chapter 4: Proposal for a Public School Dysphagia Management Model

Although many important points were covered in the published articles, there are additional procedures and criteria that are crucial to the four outcome goals. For optimal dysphagia outcomes within the public school setting, a model should be implemented that contains the factors which are important to meet these goals. The five components of dysphagia management – referral, team responsibilities, assessment, IEP formulation, and treatment – will be summarized on five separate charts. Furthermore, additional procedures and criteria that should be included in dysphagia management, but not mentioned thoroughly in articles, will be described on five different charts.

Table 4.1: Summarized Criteria and Key Points for Referral

Criteria	Key Points
Parental input	<p><i>Arvedson, 2000:</i></p> <ul style="list-style-type: none"> • Parents know most about child’s history • Culture/SES important to determine what family can and will do • Parent’s information helps SLP make decisions about management <p><i>Davis-McFarland, 2008:</i></p> <ul style="list-style-type: none"> • Communication with parents a main component of management <p><i>Bailey & Lugg, 2009:</i></p> <ul style="list-style-type: none"> • Establishing a relationship with parents facilitates trust <p><i>Homer, 2003:</i></p> <ul style="list-style-type: none"> • Parent is informed when referral has been made • Encourage parents to get involved
Protocol to identify students	<p><i>Homer, 2003:</i></p> <ul style="list-style-type: none"> • First step to identifying students is to survey current special education caseload managers that have concerns with students • Parents notified and further consultation requested

Table 4.2: Additional Suggestions for Referral

<p>Problem:</p> <ul style="list-style-type: none">• Dysphagia does not occur in isolation. It is a symptom of a disorder. No articles discuss the need to pay closer attention to students with conditions that lead to a high rate of dysphagia. <p>Solution:</p> <ul style="list-style-type: none">• Provide extra focus on children diagnosed with a condition that commonly leads to high rate of dysphagia.
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Referral

The purpose of a good referral process is to reduce inaccurate identification of students. Parental input should be included in this process to get all information needed about the student and to keep the parent involved so there can be synchronicity between feedings at home and at school. The parent should be informed immediately when a concern is noted in order to request additional testing (Homer, 2003). According to Arvedson (2000), the parents often know the most about the student's history, so they will be able to share various details about the student with the school team. Culture is important because it helps the SLP and other professionals know what decisions to make regarding management (Arvedson, 2000).

It is very important to establish a trusting relationship with the parents in order to keep communication flowing and comfortable between the two parties, as communication plays a large role in the management process (Davis-McFarland, 2008; Bailey & Lugg, 2009).

A written protocol for identifying students is important for consistent referrals. The special education staff should be asked to fill out surveys regarding students they feel

may be in danger during school feedings. The parents of those children should then be notified of the concerns (Homer, 2003).

Sufficient information was found in the articles about referral procedures in schools. However, a missing element was the fact that professionals need to pay more attention to those students that have disorders with a high rate of dysphagia, such as cerebral palsy. Arvedson (2000) discusses the fact that feeding and swallowing disorders are the result of an underlying diagnosis and that there are a wide range of disorders that have an increased probability of dysphagia. This fact leads to the necessity of paying more attention to certain students, but was not discussed in any of the articles.

Table 4.3: Summarized Criteria and Key Points for Team Responsibilities

Criteria	Key Points
Multidisciplinary	<p><i>Huffman & Owre:</i></p> <ul style="list-style-type: none"> • Team members must be communicative and cooperative <p><i>Angell, Bailey, & Stoner, 2008:</i></p> <ul style="list-style-type: none"> • Multidisciplinary team creates comprehensive management <p><i>Homer, 2003:</i></p> <ul style="list-style-type: none"> • Each team member contributes their level of knowledge • Three types of multidisciplinary teams – school-based, district based, and combination <p><i>Huffman & Owre, 2008:</i></p> <ul style="list-style-type: none"> • Functional team involves professionals that are involved with the child in school and in medical field
Support staff	<p><i>Bailey, Stoner, Angell, & Fetzer, 2008:</i></p> <ul style="list-style-type: none"> • External support can provide additional help to SLP <p><i>Homer, 2003:</i></p> <ul style="list-style-type: none"> • Support comes from other team members and school administrators • Educating school staff is important to receive support
Competence of professionals maintained	<p><i>Homer, 2003:</i></p> <ul style="list-style-type: none"> • Competence is ethically necessary <p><i>Huffman & Owre, 2008:</i></p> <ul style="list-style-type: none"> • Competence is necessary to remain certified <p><i>Bailey & Lugg, 2009:</i></p> <ul style="list-style-type: none"> • Training every team member involved in dysphagia management is important for student’s safety <p><i>Bailey, Stoner, Angell, & Fetzer, 2008:</i></p> <ul style="list-style-type: none"> • Proper training will reduce fears of inadequacy <p><i>Angell, Bailey, & Stoner, 2008:</i></p> <ul style="list-style-type: none"> • Parent satisfaction with management depends on SLP’s willingness to learn and their level of interest and fear <p><i>Power-deFur, 2000:</i></p> <ul style="list-style-type: none"> • Knowledge of dysphagia may need to be found from sources outside of Master’s degree programs

Table 4.4 Additional Suggestions for Team Responsibilities

<p>Problem:</p> <ul style="list-style-type: none">• Articles only discuss information to get from the medical team• Articles do not discuss specific roles/responsibilities of medical team, key difficulties in communication, or amount of access to medical team <p>Solution:</p> <ul style="list-style-type: none">• Need a thorough explanation of medical team and their roles, how to communicate with them, and any common problems faced when working with them.
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Team Responsibilities

A multidisciplinary team is important because the combined knowledge of all professionals will lead to the best comprehensive management outcomes (Angell, Bailey, & Stoner, 2008). However, to get the intended outcomes, the team must be cooperative, communicative, and contributive (Homer, 2003; Huffman & Owre, 2008).

Support staff in the schools is needed so that the dysphagia team can have access to extra resources if necessary. Support may not be readily available if the school is not properly educated on dysphagia. Educating other staff members is an important part of receiving support (Homer, 2003).

Competency is ethically necessary and legally mandated (Homer, 2003; Huffman & Owre, 2008). SLPs are obligated to maintain continuous competency in their field. Training other team members is an important step to make sure that the dysphagia team is also competent. Proper training will reduce anxiety and fear of dysphagia treatment and increase parent satisfaction with treatment (Angell, Bailey, & Stoner, 2008; Bailey, Stoner, Angell, & Fetzer, 2008)

Ample procedures for team responsibilities of dysphagia management in schools were found in the eleven articles. However, there should be more information regarding the roles and responsibilities of medical dysphagia team members. While the need for collaboration between the school-based and medically-based dysphagia teams was discussed, information specific to the medical team was not explained in detail. The following questions should have been answered in the articles: *What are the roles of the medical team? What professions are involved? How much access does the school team have to the medical team?* In addition, a discussion about any problems that are faced when communicating with a medical team should have been described in order to give the school-based team information on what to expect when collaborating outside of the school.

Another problem was that only one article (Homer, 2003) thoroughly discussed the roles of the team members. This information is crucial to success, and should have been discussed in more articles. Following the above criteria will lead to successful team leadership, communication, and productivity.

Table 4.5: Summarized Criteria and Key Points for Assessment

Criteria	Key Points
Real-life Observation	<i>Arvedson, 2000:</i> <ul style="list-style-type: none">• Direct observation is helpful for goal formation• Parent-child feeding observation good for determining the child's typical feeding temperament <i>Lefton-Greif & Arvedson, 2008:</i> <ul style="list-style-type: none">• Real life observation shows if child is safe to eat orally in school <i>Homer, 2003:</i> <ul style="list-style-type: none">• SLP can make suggestions to teacher while observing during meal time
Culturally Relevant	<i>Davis-McFarland, 2008:</i> <ul style="list-style-type: none">• Ethnographic interview is first step• Families have different opinions regarding illness and medical practices

Table 4.6: Additional Suggestions for Assessment

<p>Problem:</p> <ul style="list-style-type: none">• Limited information on assessment procedures found in articles. <p>Solution:</p> <ul style="list-style-type: none">• An established protocol would help the management team have organization and consistency in assessment.
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Assessment

Real-life observation of the child's eating allows the SLP to form goals based on what was seen (Arvedson, 2000). The child's temperament may lead to establishment of a behavior related goal. A picky eater may have a goal related to increased food selection. This type of observation is also helpful to see the child's level of safety while feeding during school (Lefton-Greif & Arvedson, 2008). Suggestions can be made to the teacher during the observation if the SLP notices something that can be changed immediately (Homer, 2003).

Culturally relevant assessment was introduced in one of the articles. The first step to gaining respect and understanding is by conducting an ethnographic interview with the child’s parents. The SLP and the dysphagia team need to realize that different families have different opinions regarding medical practices.

Limited information was found in the articles on assessment practices. More information is needed regarding culturally relevant assessment. In addition, having a protocol for assessment available would create a more consistent assessment procedure.

Table 4.7: Summarized Criteria and Key Points for Formulation of Individualized Education Plan (IEP)

Criteria	Key Points
Organized IEP Presentation	<p><i>Homer, 2003:</i></p> <ul style="list-style-type: none"> • Staff who are directly involved with management and the parent should attend meeting <p><i>Bailey & Lugg, 2009:</i></p> <ul style="list-style-type: none"> • Communication is important for maintaining consistency in the dysphagia team
Information contained in IEP	<p><i>Homer, 2009:</i></p> <ul style="list-style-type: none"> • IEP should contain all necessary information needed to work with the child <p><i>Davis-McFarland, 2008:</i></p> <ul style="list-style-type: none"> • IEP should be written by professional with a thorough knowledge base • Parental input should be included <p><i>Bailey & Lugg, 2009:</i></p> <ul style="list-style-type: none"> • IEP should allow student to receive a free appropriate public education

Table 4.8: Additional Suggestions for Formulation of Individualized Treatment Plan (IEP)

<p>Problem:</p> <ul style="list-style-type: none">• Team members should be able to access documents daily on student's progress, in order to stay updated in the student. There was no information on how team members could stay updated on a regular basis besides IEP meetings. <p>Solution:</p> <p>There should be an organized way to monitor progress of the student. Also, other team members should be able to access this documentation on a daily basis.</p>
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Formulation of Individualized Education Plan (IEP)

An organized IEP presentation is important for communicating with the other team members and the child's parents. All team members and the student's parents should attend the IEP meeting in order to provide input and receive information from the others (Homer, 2003). Communication is an important part in the IEP presentation. Each team member should be allowed the opportunity to present information during the meeting or contribute to the written IEP (Bailey & Lugg, 2009).

The information in the IEP is equally as important as team involvement in the presentation. The IEP needs to contain all information needed to work with the child and should be accessible to all of the team members (Homer, 2009). The IEP should be written by someone with a thorough knowledge and should include any relevant parental input (Davis-McFarland, 2008). This document should allow the student to have a free appropriate public education as mandated by IDEA (Bailey & Lugg, 2009).

A few of the articles described IEP procedures. Enough information was in these articles to begin brainstorming ideas about a formal IEP process to use in the school.

Furthermore, the IEP formulation process should include an organized way to monitor progress in the student. Each team member should be able to access an updated IEP document or goal progression document to be current on the student’s progress.

Table 4.9: Summarized Criteria and Key Points for Treatment

Criteria	Key Points
Collaboration with medical professionals	<p><i>Miller, 2009:</i></p> <ul style="list-style-type: none"> • Collaboration will result in effective management of students with complex medical problems • Family is link between school and medical teams • Reciprocal communication is an essential element in collaboration
Flexibility to each student	<p><i>Angell, Bailey, & Stoner, 2008:</i></p> <ul style="list-style-type: none"> • SLP needs to know broad range of treatment options <p><i>Bailey, Stoner, Angell, & Fetzer, 2008:</i></p> <ul style="list-style-type: none"> • Consultations from medical dysphagia teams is encouraged to get additional information <p><i>David-McFarland, 2008:</i></p> <ul style="list-style-type: none"> • Culture and family preference also needs to be considered when making treatment decisions
Culturally relevant	<p><i>Davis-McFarland, 2008:</i></p> <ul style="list-style-type: none"> • SLP must maintain adequate form of communication with parents • SLP can design treatment plan based on beliefs, family structure, and lifestyle of the student’s family

Table 4.10: Additional Suggestions for Treatment

<p>Problem:</p> <ul style="list-style-type: none"> • Children with certain disorders such as autism often have behavioral problems associated with feeding. • No articles discussed an opportunity for generalization from school to home. <p>Solution:</p> <ul style="list-style-type: none"> • Behavioral training for team should be provided prior to dealing with children. • Strategies learned in school should be transferred to home practice if possible and practical, especially for children that need consistency, such as those on the autism spectrum.
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Treatment

Collaboration with medical professionals is a very important relationship to establish, especially for the school-based team that is dealing with a student with complex medical problems. The family can serve a role in dysphagia management here by becoming the link between the school-based and medically-based dysphagia teams. Establishment of reciprocal communication is necessary for effective collaboration.

Each student is going to need a different management plan. This is why flexibility for each student is so important. The SLP should know a broad range of treatment options or be able to consult medical professionals to get information. The student's culture and family preference also needs to be considered when making management decisions.

Culturally relevant treatment is a good way to make the school feeding environment similar to the student's home feeding environment. The SLP needs to establish effective communication with the parent in order to make the best decisions while respecting the family's beliefs and customs.

Sufficient information was found in the articles regarding school-based dysphagia treatment. After reviewing the treatment practices used in schools, additional criteria were developed that could contribute to achievement of the four outcome goals.

Treatment in schools should provide the possibility of generalization from school to the home environment. The strategies that students learn in school should transfer and be used in the student's home feeding, especially in children that thrive from consistency, such as those on the autism spectrum (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

Another factor that could contribute to successful management is behavior management training for special populations. Children with concomitant disorders that lead to subsequent behavioral eating problems are more difficult to deal with and the SLP should be able to curve this behavior and lead to successful goal accomplishment (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

Final Remarks

Dysphagia management causes stress for the patient, family, and professionals involved. Overall, there is sufficient information found in published articles that describes school-based dysphagia management models. This information was spread out among many published articles and should be combined in one document to merge ideas. This report has combined practical criteria with current information and summarized what is available.

Communication was a recurring theme found in the articles. From referral to treatment, communication between team members, medical professionals, families, and school staff was noted to be critical for management success.

Family involvement was also mentioned frequently. Involving the family as much as possible in management will show that there is an appreciation and respect for the family's opinions, values, and concerns.

Criteria that was not sufficiently discussed in the articles was mainly in the areas of assessment, IEP formulation, and treatment. These additional criteria should be

researched further as they could lead to significant improvements in dysphagia management and increase overall satisfaction with school staff, students, and families.

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