

<b>Subject: Outpatient Therapy for Feeding and Swallowing Disorders and Neuromuscular Electrical Stimulation</b>		<b>Original Effective Date:</b> 8/30/2007
<b>Guidance Number:</b> MCG-039	<b>Revision Date(s):</b> 10/2010, 10/30/2013	
<b>Medical Coverage Guidance Approval Date:</b> 10/30/13		

## PREFACE

*This Medical Guidance is intended to facilitate the Utilization Management process. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (i.e., will be paid for by Molina) for a particular member. The member's benefit plan determines coverage. Each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their providers will need to consult the member's benefit plan to determine if there are any exclusions or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid members. CMS's Coverage Database can be found on the following website: <http://www.cms.hhs.gov/center/coverage.asp>.*

## FDA INDICATIONS

Outpatient Therapy is not subject to FDA regulation.<sup>41</sup>

An electrical stimulation device, VitalStim<sup>®</sup> (Empi, Inc., St. Paul, MN) was developed for the treatment of dysphagia. It was granted 510(k) premarket approval by the U.S. Food and Drug Administration (FDA) in 2001.<sup>41</sup> The VitalStim Experia<sup>®</sup> clinical device (Empi, Inc., St. Paul, MN) received 510(k) approval in 2007. These are classified as Class II devices by the FDA with the listed indication for use: muscle re-education by application of external stimulation to the muscles necessary for pharyngeal contraction.

## CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

*The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this Molina medical coverage guidance (MCG) document and provide the directive for all Medicare members. The directives from this MCG document may be followed if there are no available NCD or LCD documents available and outlined below.*

### NCD for Speech Language Therapy for the Treatment of Dysphagia (170.3)<sup>1</sup>

Speech -language pathology services are covered under Medicare for the treatment of dysphagia, regardless of the presence of a communication disability. Patients who are motivated, moderately alert and have some degree of deglutition and swallowing functions are appropriate candidates for dysphagia therapy. Elements of the therapy program can include thermal stimulation to heighten the sensitivity of the swallowing reflex, exercises to improve oral-motor control, training in laryngeal adduction, compensatory swallowing techniques, positioning and dietary modifications. Design all programs to ensure swallowing safety of the patient during oral feedings and maintain adequate nutrition.

### Electrical Stimulation for Dysphagia NCD<sup>1</sup>

CMS does not have a national coverage policy (NCD) available for this specific topic.

### Electrical Stimulation for Dysphagia LCD<sup>1</sup>

There were several Medicare Local Coverage Determination's (LCD) available for this specific topic as of October 10, 2010. None of the LCD's recommends coverage for this technology. The LCD's indicate that surface electrical stimulation in the treatment of dysphagia is being used by some Medicare providers as an adjunct to "usual care". There is insufficient scientific or clinical evidence to consider this device as reasonable and necessary for the treatment of dysphagia within the meaning of §1862(a)(1)(A) of the Social Security Act and will not be covered by this Intermediary.

Please search the Medicare Local Coverage Determination (LCD) search website for coverage criteria that may be available in your specific region at: <http://www.cms.gov/mcd/search.asp?clickon=search>

#### INITIAL COVERAGE CRITERIA

Outpatient therapy may be authorized in members with a swallowing disorder or children with feeding disorders when **ALL** of the following criteria are met <sup>20</sup>: [**ALL**]

- The swallowing or feeding disorder is the result of an underlying medical condition (not an all-inclusive list); **and**[**ONE**]
  - Cerebrovascular accident
  - Head and neck trauma
  - Neuromuscular degenerative diseases (Oculopharyngeal Muscular Dystrophy, Myasthenia Gravis, Friedreich's Ataxia etc.)<sup>48</sup>
  - Congenital or static encephalopathies<sup>48</sup>
  - Cancer (Oral, oropharyngeal, laryngeal, head and neck cancer)
  - Progressive Neurological Diseases (Parkinson's, Amyotrophic lateral sclerosis etc.)
  - Prematurity
  - Post surgical or treatment complication of cancer or other disease processes. ( Examples include radiation or surgical treatment of head and neck cancer, tracheotomy complications, etc)
  
- Prescriber is the member's primary care physician or their physician designee and provides a written order; **and**
  
- Initial evaluation and therapy performed by a qualified speech-language or occupational therapist <sup>58</sup> who has determined a treatable swallowing/feeding disorder exists; **and**
  
- Documentation of one of the following <sup>16 18</sup>: [**ONE**]; **and**
  - an abnormal Videofluorographic swallowing (VFSS) study or other appropriate testing with Speech Language Pathologist or qualified occupational therapist evaluation; **OR**
  - difficulty coordinating sucking or swallowing in infants
  
- Documentation of plan of care to include the following:[**ALL**]:

- Objective, measurable, and functional descriptions of an individual's deficits
- Plan of care with specific treatment techniques and/or exercises to be used
- Frequency and duration of treatment plan
- Functional, measurable, and long-term and short-term goals and how measured and reported every two weeks
- Reasonable estimate of when goals will be reached and define the objective determinates of when they plateau
- Level and complexity of services requested can only be rendered safely and effectively by a licensed speech-language pathologist or occupational therapist.
- Requested therapy provides, specific, effective, and reasonable treatment based upon the individual's diagnosis and physical condition, include corresponding CPT codes that will be billed
- Feasibility of training parent(s) or caregiver(s) based on outlined goals; strategy to transition care to patient or caregiver maintenance program
- Amount of intake per swallow
- Appropriate and safest diet
- Feeding techniques and need for self-help eating/feeding devices
- Food consistencies (texture and size)

*Note:* A series of 1-3 visits may be necessary to train the parent(s) or caregiver(s). Training may have occurred during inpatient hospitalization.

#### Initial Authorization- Number of Treatments<sup>35</sup>

**NOTE:** There are no universal guidelines on the number of treatments for each diagnosis nor is there consistent evidence on which to base a decision.

- The teaching of a member or caregiver is required to strengthen muscles and improve feeding techniques
  - A series of 1-3 visits may be necessary to train the parent(s) or caregiver(s)
  - Documentation must support the need for the long-term supervision of a licensed therapist for swallowing or feeding rehabilitation
- Note:** *The emphasis is on training the member/caregiver usually completed in 1-3 sessions, the patient should be performing these exercises on their own as directed by the SLP. Periodic follow-up may be necessary to confirm proper techniques, gauge progress and to upgrade or downgrade diets as appropriate.*

#### **CONTINUATION OF THERAPY**

Continuation of treatment may be authorized for two week intervals when all of the following criteria are met:[ALL]<sup>42</sup>

- Documentation from written progress reports to include **ALL** of the following:[ALL]<sup>43</sup>
  - Start of care date

- Time period covered by the report
- Communication diagnosis
- Statement of current status compared to the evaluation baseline data and prior progress reports, including objective measures of communication in functional terms that relate to the treatment goals
- Member's response to treatment and progress toward goals
- Changes in prognosis and reason for the change
- Changes in the plan of care and reason for the change
- Consultations with other prior approved professionals, when applicable
- Signature and title of qualified professional responsible for the therapy
- Timeframes and Endpoints

### **Discontinuation of Outpatient Therapy**

- Indications for discontinuation of services include one or more of the following criteria:[ONE]<sup>43</sup>
  - Goals have been achieved
  - Treatment is refused or the member is non-compliant (e.g., member unwilling to participate, treatment attendance is inconsistent or poor, and documented efforts to address these issues have been unsuccessful)<sup>43</sup>
  - Maximum potential for improvement has been achieved
  - Feeding and/or swallowing skills no longer adversely affect the individual's health status
  - Swallow is adequate for oral and pharyngeal saliva accumulations
  - Nutritional and hydration needs are optimally met by alternative means (e.g., percutaneous endoscopic gastrostomy)
  - Medical condition develops that precludes treatment
  - Measurable improvements have not been demonstrated as indicated by the treatment plan within a reasonable timeframe
  - Individual state benefit coverage limitations have been exhausted

### Total Number of Visits:

**NOTE:** There are no universal guidelines on the number of treatments for each diagnosis nor is there consistent evidence on which to base a decision.

- Members on a modified diet following stroke may be reassessed at minimum intervals of two to three months during the first year following stroke<sup>9</sup>

### **COVERAGE EXCLUSIONS**

All other requests for treatment that do not meet the 'Coverage Criteria' section above may **not** be authorized including the following:[ONE]

- Diagnosis of one of the following:[ONE]

- profound incapacitating stroke
- vascular dementias
- Alzheimer's dementias

**AND**

- a documented mini mental state examination (MMSE) score of  $\leq 10/30$ .<sup>47, 22</sup>

**NOTE:** The determination of severity should be documented upon request by the treating physician. Milder forms of these diagnoses (MMSE scores of 11 or higher) may actually be suitable.<sup>47</sup>

- Neuromuscular stimulator to treat dysphasia as efficacy remains unproven.<sup>20</sup>
- Thermal Stimulation procedures<sup>35</sup>
- Procedures that can be effectively performed by a nonprofessional (e.g., caregiver, family member or school system) after instruction and training are completed, such as nondiagnostic routine, repetitive and reinforced services or procedures
- Duplicate therapies of the same treatment from two different Rehabilitative providers (Occupational or Physical Therapy in conjunction with Speech Therapy).
- Long term rehabilitative services when significant therapeutic improvement is not expected
- Maintenance therapy in which no additional functional progress is being made or unless a change in status occurs that would require reevaluation
- Feeding issues resulting from food aversion

**DESCRIPTION OF PROCEDURE/SERVICE/PHARMACEUTICAL**

Swallowing/feeding therapy is considered a form of speech therapy and occupational therapy. Difficulty with swallowing, eating and drinking is also known as dysphagia or a deglutition disorder. Dysphagia suggests the presence of an organic abnormality and is considered an alarm symptom requiring immediate evaluation of the passage of foods from the oral cavity to the stomach.<sup>16</sup> Pain in swallowing may accompany dysphagia this is referred to as odynophagia. An inability to swallow is known as aphagia.

Dysphagia at any age is classified according to which phase of swallowing is affected.<sup>16,44</sup> There are three classifications of dysphagia: oropharyngeal, esophageal, and functional dysphagia.<sup>21</sup> Oropharyngeal disorders impact the function of the oropharynx, larynx, and upper esophageal sphincter. Neurogenic disorders, myogenic disorders and oropharyngeal tumors are the most common underlying mechanisms for oropharyngeal dysphagia. Esophageal dysphagia impacts the body of the esophagus, the lower esophageal sphincter, or cardia, and is most commonly as a result of mechanical causes or a motility disturbance. Functional dysphagia occurs

in patients when no cause can be identified. There may be impaired control of the tongue causing difficulty in initiating swallowing. Food transport to the esophagus may be impaired causing pharyngeal dysfunction.

In infants, difficulties in swallowing may include difficulties with the sucking reflex.<sup>17</sup> The sucking reflex initiates swallowing in the infant by stimulation of the lips and deeper parts of the oral cavity. The mandible, maxilla, upper gums, lips, palate, and cheeks are necessary for compression of the nipple and expression of contents. Any defects in these areas may create swallowing issues. Infants that do not learn sucking or chewing skills at the specific times in their development may have difficulties with swallowing and feeding.

Swallowing and feeding disorders in infants and children are often complex and may have multiple causes.<sup>26,44</sup> Some of the more common underlying medical conditions that may cause dysphagia may include, but are not limited to neurological disorders (e.g., cerebral palsy), disorders affecting suck-swallow-breathing coordination (e.g., bronchopulmonary dysplasia), structural lesions (e.g., neoplasm), connective tissue disease (e.g., muscular dystrophy), iatrogenic causes (e.g., surgical resection, medications), anatomic or congenital abnormalities (e.g., cleft lip and/or palate). Children may experience choking and aspiration, refusal to eat, maladaptive behaviors during eating, oral sensorimotor impairments, and an acceptance of a restricted variety of liquid or food.<sup>28</sup>

Strategies that are used with adults are often difficult to teach children. Therapies directed toward strengthening swallowing musculature may be useful for children with a swallowing or feeding disorder due to an underlying medical condition. Feeding therapy for infants and children may include the following strategies:<sup>27</sup>

- Exercising mouth muscles for strength
- increasing tongue movement
- improving chewing
- increasing acceptance of different foods and liquids
- improving sucking and/or drinking ability
- coordinating the suck-swallow-breath pattern (for infants)
- altering food textures and liquid thickness to ensure safe swallowing

Infants and children with cleft lip and/or palate can usually feed by mouth with some adjustments. The extent of the cleft often correlates with the infant's ability to feed.<sup>23</sup> Patients who have clefts limited to the soft palate usually have normal sucking, whereas infants who have hard palate clefts are often unable to generate the negative pressure needed for normal sucking because of the oronasal communication.<sup>25</sup> Impaired sucking can lead to weight loss and failure to thrive as the infant expends more energy in feeding than he or she is able to ingest. Children who have craniofacial anomalies are at high risk for speech-language and swallowing disorders.

The most common signs and symptoms of dysphagia are coughing or choking while eating, or the sensation of food sticking in the throat or chest.<sup>19,21</sup> Signs and symptoms of dysphagia may also include: difficulty initiating swallowing, drooling, unexplained weight loss, change in dietary habits, recurrent pneumonia, change in voice or speech, nasal regurgitation, and dehydration. Infants may exhibit a feeding disorder with signs and symptoms that include: refusal to eat or drink, failure to gain weight, aversions to specific food types or textures, recurrent

pneumonias and chronic lung disease.<sup>17</sup> Consequences of dysphagia and feeding disorders may be severe and may include: dehydration, malnutrition, aspiration, choking, pneumonia, and death.

### Therapy for Feeding and Swallowing Issues

The goals of therapy include to the ability to eat and swallow, prevent aspiration, and to improve and optimize nutritional status.<sup>20</sup>

Therapy for swallowing issues provide various techniques to help facilitate impaired swallowing these include compensatory swallowing maneuvers<sup>22</sup> (e.g., dietary modifications, postural changes, alterations in swallowing behavior, or external manipulations such as taking liquid with a spoon, dental appliances in the mouth to occlude nasopharyngeal defects and assist the tongue with bolus propulsion). Rehabilitative interventions are performed to improve the underlying ability of the person to swallow faster, stronger or in a quicker manner.<sup>22</sup> The long-term goal is to improve swallowing without the need for any intervention. Examples of rehabilitative interventions include exercises for the tongue, larynx or pharynx. Compensatory/ rehabilitative techniques are a combination of the two therapies. Examples include the use of increased sensory stimulation (e.g., sour taste, ice, thermal stimulation, electrical stimulation) or the use of swallow maneuvers that require patient effort (Mandelsohn maneuvers, effortful swallow, or suprasuperglottic swallow). These interventions have shown immediate positive effects on swallow but a permanent effect has not been tested.

### Electrical Stimulation for Dysphagia

Electrical stimulation has been proposed as a treatment for dysphagia. This may involve either direct electrical stimulation of the oral structure, or transcutaneous stimulation of the throat musculature. The goal of therapy is to stimulate muscle, re-educate and improve the swallowing function.<sup>20, 32</sup>

### Thermal stimulation

This procedure involves rubbing or tapping the patient's anterior faucial pillar with an iced dental mirror. During each treatment this rubbing or tapping is performed about 5 times. The patient is instructed to swallow and may be given liquids through a straw. The additional stimulation provided by the iced mirror is hypothesized to alert the nervous system and provide a swallowing response to occur more rapidly than normal.<sup>35</sup>

## **GENERAL INFORMATION**

### Summary of Medical Evidence

Initial treatment of swallowing and feeding disorders is aimed at treating the underlying cause depending on the etiology, surgery or pharmacologic therapy being used. The cause of many of the disorders resulting in dysphagia may not be amenable to pharmacologic therapy or surgery. In these cases, a referral to a speech-language pathologist or qualified occupational therapist for evaluation is appropriate. Swallowing and feeding disorders may be a result of a wide variety of medical conditions. There is some positive evidence from randomized-control trials to support the efficacy of therapeutic interventions. Swallowing therapy has been a

standard of care used to treat this condition. Children with feeding disorders due to an underlying medical condition may be assisted with feeding therapy. Treatment of food aversion is considered behavioral and training in nature and not medically necessary.

### Interventions Associated with Feeding Issues in children

A Cochrane review was conducted to determine whether non-nutritive sucking (NNS)/oral exercise in preterm infants influences: weight gain, energy intake, heart rate, oxygen saturation, length of hospital stay, intestinal transit time, age at full oral feeds, or any other clinically relevant outcomes.<sup>13</sup> The review consisted of 21 studies, 15 were randomized controlled trials. There was a significant benefit of decreased length of stay days with NNS. No benefit was demonstrated from other clinical variables (weight gain, energy intake, heart rate, oxygen saturation, intestinal transit time, and post-conceptual age at full oral feeds). The review identified positive clinical outcomes of NNS including transition from tube to bottle feeds and better bottle feeding performance. No negative outcomes were reported in any of the studies. There were also a number of limitations of the presently available evidence related to the design of the studies, outcome variability, and lack of long-term data. The authors concluded NNS in preterm infants would appear to have some clinical benefit.

Owen and associates (2012) conducted a study of inter-professional assessment and treatment in children with feeding difficulties. Inter-professional assessment and treatment has emerged as an optimal approach to reduce parental anxiety and increase children's acceptance of a wider variety of foods. Participants, including 30 children (mean age of  $26 \pm 8.2$  months) meeting inclusion/exclusion criteria and their families, attended a program consisting of 4 sessions, and a 1-month follow-up. Parents completed the Behavioral Pediatrics Feeding Assessment Scale pre- and posttreatment and Goal Attainment Scaling (GAS). Paired t tests indicate that the composite scores for frequency of feeding difficulties were on average significantly less posttreatment compared with pretreatment, and composite scores for frequency of parental problems with feeding were also significantly less post-treatment. These results were reflected in the composite scores for both feeding difficulties and parental problems with feeding on child- and parent-related items. The median for the GAS was +2 (range, -2 to +2). Written parental responses in the GAS reflected 2 major themes: satisfaction with the program and a desire for more individualized attention. These results offer preliminary evidence suggesting that an inter-professionally led parent group, with contributions from clinical nutrition, occupational therapy, psychology, and speech-language pathology professionals, is effective in treating young children with feeding difficulties.<sup>53</sup>

### Interventions Associated with Cleft lip and Palate

A series of randomized controlled studies involving babies with unilateral cleft lip and palate (and no other abnormalities) compared use of infant orthopedics during the first year of life versus no use of infant orthopedics.<sup>25</sup> The studies failed to find any clinically significant effects from the use of infant orthopedics on facial appearance, feeding and nutritional status, maxillary dimensions, or dental occlusion.

### Swallowing Interventions for Dysphagia Associated with Parkinson's Disease



Smith and colleagues (2012) conducted a systematic review of compensatory and rehabilitative interventions for dysphagia in Parkinson's disease. Relevant studies were analyzed for their robustness and potential clinical applications. General conclusions were drawn based on the evidence base identified and the lack of evidence supporting both compensatory and rehabilitative methods of treating dysphagia in Parkinson's disease. The review directs clinicians and researchers towards areas that require further investigation. The review concluded that to date, compensatory methods of treating dysphagia in Parkinson's disease have received more research attention than rehabilitative methods and yet neither approach has a strong evidence base. This review argues that rehabilitative methods could possibly have greater potential to increase swallowing safety and improve quality of life in the long-term than compensatory methods alone. However, at present there is a lack of research in this area.<sup>54</sup>

### Oropharyngeal Dysphasia

A systematic review evaluated the effects of therapy intervention in oropharyngeal dysphagia.<sup>14</sup> Bolus modification (e.g., adjusting the viscosity, volume, temperature or acidity of the bolus) and management by the use of compensatory techniques were evaluated in seven studies (one randomized-control trial and six non-randomized clinical trials using statistical analysis). The one-randomized trial following 6 months of intervention demonstrated significantly more episodes of pneumonia than the group with an unaltered diet. The results of the non-randomized control studies demonstrated thicker food consistencies were safer in patients with unilateral vocal fold paralysis, nonprogressive brain diseases and neurodegenerative diseases. Facilitation techniques (compensatory techniques and/or rehabilitative techniques) that include surface electrical stimulation or thermal application at the anterior faucial pillars were evaluated in four small randomized-control trials. There was no strong evidence to support the effectiveness of facilitation interventions. Swallow postures and swallow maneuvers were evaluated in one randomized-control trial of 27 patients with post-pharyngeal radiotherapy, abnormal upper esophageal sphincter opening, cardiovascular disease, and neurological pathology. Sham exercise showed no significant changes in biomechanical parameters, real exercises showed significant therapy effects. There were varying results with other non-randomized studies. Various studies using combinations of interventions were evaluated; four were randomized-control trials. The results of combination therapies varied. There were some positive results but no definitive patterns of conclusions were drawn. The authors concluded that statistically significant positive effects are found but methodological problems were identified (e.g., heterogeneity of study designs, small sample size, lack of no control group, spontaneous recovery is not accounted in the conclusions). Although some positive significant outcome studies have been published, there is need for further research using randomized controlled trials.

### Stroke and Dysphagia Treatments

A randomized-control trial of 306 hospitalized patients with clinical dysphagia following acute stroke were randomly assigned to receive usual care (n=102), prescribed by the attending physician; standard low-intensity intervention (n=102), comprising swallowing compensation strategies and diet prescription three times weekly for up to a month; or standard high-intensity intervention and dietary prescription (n=102), direct swallowing exercises and dietary modification at least daily for up to a month. The primary outcome measure was survival free of an abnormal diet at 6 months. Analysis was done by intention to treat. Compared with usual care and

low-intensity therapy, high-intensity therapy was associated with an increased proportion of patients who returned to a normal diet ( $p=0.04$ ) and recovered swallowing ( $p=0.02$ ) by 6 months. The authors concluded that the results of the study provide reasonably reliable data to support the potential value of behavioral swallowing intervention after acute stroke to help with the return to pre-stroke swallowing function and minimization of dysphagia-related adverse outcomes.<sup>12</sup>

A clinical trial randomized 115 stroke patients between the ages of 20 and 90 into one of three treatment groups.<sup>10</sup> There was no true “no treatment” group due to ethical considerations. Group A received one formal dysphagia treatment with education to the patient and significant caregivers. Education included diet consistency chosen by the patient and recommendations and training in the appropriate use of compensatory swallowing techniques without daily reinforcement by the therapist. Group B received the same training but the diet was prescribed by the therapist based upon the modified barium swallow results. Patients in this group were reevaluated by the therapist every other week for diet and exercised recommendations. Group C received the same initial education but were seen daily in a mealtime management group where additional instructions and reinforcement of compensatory swallowing techniques were given. There was no significant difference between the groups for the occurrence of medical complications. Patients in group B tended to develop pneumonia sooner than those in Group A. The authors concluded that the intensity of treatment using diet alteration and compensatory swallowing techniques did not affect the development of medical complications. The authors recommended Group A therapy of one formal dysphagia treatment and education with patient/caregiver completion of treatment.

A systematic review of all randomized controlled trials evaluated therapeutic swallowing interventions for dysphagia treatment post-stroke.<sup>6</sup> Fifteen studies were included that covered a broad range of treatments, including: texture-modified diets, general dysphagia therapy programs, non-oral (e.g., enteral) feeding, medication and physical and olfactory stimulation. There was heterogeneity of the treatments evaluated and the outcomes assessed which precluded the use of pooled analyses. The review concluded that general swallowing treatment programs are associated with a reduced risk of pneumonia in the acute stages of stroke. Swallowing therapies and interventions in current practice appear to be based on clinical experience and approaches that are physiologically based. The authors concluded that there is a need for high-quality research to identify effective dysphagia treatments post-stroke.

### Electrical Stimulation for Dysphagia

There is insufficient evidence in the published, peer-reviewed scientific literature to conclude that electrical stimulation is effective in the treatment of dysphagia.<sup>20</sup> Well-designed, randomized, controlled clinical trials are needed to demonstrate the effect and the clinical benefit of electrical stimulation for this condition.

A systematic review of the literature examined the effects of neuromuscular electrical stimulation (NMES) on swallowing and neural activation.<sup>33</sup> Ten of fourteen studies were considered exploratory research (non-experimental design conducted on non-disordered populations or used NMES as a condition to examine swallowing abilities instead of an intervention). Many of the studies were noted to have significant methodological limitations. The authors concluded that the review “reveals that surface NMES to the neck has been most extensively studied with promising findings, yet high-quality controlled trials are needed to provide evidence of efficacy. Surface NMES to the palate, faucial pillars, and pharynx has been explored in Phase I

research, but no evidence of efficacy is currently available. Intramuscular NMES has been investigated in a single Phase I exploratory study.”

A meta-analysis was conducted to evaluate the effect of transcutaneous NMES on swallowing rehabilitation.<sup>38</sup> The review included 7 studies with 255 dysphagia patients with multiple etiologies (cancer, head trauma, stroke, cancer and respiratory failure). Two trials were controlled studies with 103 enrollees in the treatment group and 76 in the control group. The five other trials used a before-after-design, with 76 patients receiving treatment. Therapeutic outcome was evaluated using a swallowing scale, weight gain, functional eating, residue on a swallowing x-ray study, or laryngeal elevation. The treatment was provided over 1 to 24 weeks, with a number of total treatment sessions varying across the studies. A significant summary effect size was identified for the application of NMES for swallowing ( $p < .001$ ). The heterogeneity was significant for the combined trials ( $p < .10$ ). When two outlier trials were removed, the heterogeneity was no longer significant ( $p < .08$ ). The best-evidence synthesis demonstrated indicative findings in favor of NMES for swallowing. The authors concluded that, a small but significant summary effect size for transcutaneous NMES for swallowing was found in this preliminary study. The small number of studies and low methodological grading for these studies warrants caution to be taken in interpreting these findings. The authors recommend further independent trials with rigorously controlled designs and intent-to-treat analyses to be conducted to establish whether NMES for swallowing has greater efficacy than traditional swallowing treatments alone.

#### Hayes, Cochrane, UpToDate

*Hayes* does not have a medical technology directory report for speech therapy as a treatment for dysphagia, feeding or swallowing disorders.

#### *Cochrane*

A Cochrane review (2012) was conducted to examine the effectiveness of interventions for oropharyngeal dysphagia in children with neurological impairment. The review included randomised controlled trials and quasi-randomised controlled trials for children with oropharyngeal dysphagia and neurological impairment. Two studies were based on oral sensorimotor interventions for participants with cerebral palsy compared to standard care and a third study trialed lip strengthening exercises for children with myotonic dystrophy type 1 compared to no treatment. The review demonstrates that there is currently insufficient high-quality evidence from randomised controlled trials or quasi-randomised controlled trials to provide conclusive results about the effectiveness of any particular type of oral-motor therapy for children with neurological impairment. There is an urgent need for larger-scale (appropriately statistically powered), randomised trials to evaluate the efficacy of interventions for oropharyngeal dysphagia.<sup>55</sup>

A Cochrane review (2012) was conducted to assess the effectiveness of interventions for the treatment of dysphagia (swallowing therapy), and nutritional and fluid supplementation, in patients with acute and subacute (within six months from onset) stroke. 33 studies were included that involved 6779 participants who received swallowing therapy: acupuncture, drug therapy, neuromuscular electrical stimulation, pharyngeal electrical

stimulation, physical stimulation (thermal, tactile), transcranial direct current stimulation, and transcranial magnetic stimulation. The review concluded that there remains insufficient data on the effect of swallowing therapy, feeding, and nutritional and fluid supplementation on functional outcome and death in dysphagic patients with acute or subacute stroke. Behavioural interventions and acupuncture reduced dysphagia, and pharyngeal electrical stimulation reduced pharyngeal transit time. Compared with NGT feeding, PEG reduced treatment failures and gastrointestinal bleeding, and had higher feed delivery and albumin concentration. Nutritional supplementation was associated with reduced pressure sores, and increased energy and protein intake.<sup>56</sup>

A Cochrane review (2009) was conducted to assess the effect of different management strategies for dysphagic stroke patients, including whether therapy improves swallowing and clinical outcome.<sup>11</sup> Six studies were identified that assessed feeding and swallowing treatment strategies in stroke patients, with two studies that assessed the effect of swallowing therapy. These two trials indicated that formal swallowing therapy was associated with a nonsignificant reduction in end-of-trial dysphagia as compared to standard of care. The authors concluded that too few studies have been performed involving too few patients, further research is required to assess how and when patients are fed, and the effect of swallowing or drug therapy on dysphagia.

A Cochrane review (2004) was conducted to identify the most appropriate intervention for dysphagia in people with chronic, untreatable, non-inflammatory muscle disease.<sup>7</sup> There were no randomized-control trials available to determine the benefit of dietary modification, swallowing maneuvers, or other interventions. The authors indicated more research is needed.

A Cochrane review (2004) was performed to evaluate the effects of feeding interventions in babies with cleft lip and/or palate on growth, development and parental satisfaction.<sup>24</sup> There were four randomized controlled trials evaluated and included in this review. Study comparisons were made with squeezable versus rigid feeding bottles (two studies), breastfeeding versus spoon-feeding (one study) and maxillary plate versus no plate (one study). No statistically significant differences were demonstrated for any of the primary outcomes when comparing bottle types, squeezable bottles were less likely to require modification. No statistically significant difference was shown for infants fitted to use a maxillary plate compared to no plate. A statistically significant difference in weight (kg) at 6 weeks post-surgery was shown in favor of breastfeeding when compared to spoon-feeding parental satisfaction.

### *UpToDate*

A report called Diagnosis and treatment of oropharyngeal dysphagia<sup>20</sup> indicates that the goals of treatment of oropharyngeal dysphagia are to improve food transfer and to prevent aspiration. Following stroke, head or neck trauma, surgery, or in degenerative neurologic diseases, rehabilitation can be achieved through techniques that facilitate oral intake. Neuromuscular electrical stimulation involves direct stimulation of muscles to recruit motor units and increase muscle strength. It has been applied to patients with oropharyngeal dysphagia in an attempt to improve swallowing function however further studies are needed to clarify the role of this technique.

## Professional Societies/Organizations

*The American College of Chest Physicians (ACCP)* published evidenced–based clinical practice guidelines (2006) regarding cough and aspiration of food and liquids due to oral-pharyngeal dysphagia.<sup>3</sup> The guidelines outline that the treatment of dysphagic patients by a multidisciplinary team, including early evaluation by a speech-language pathologist, is associated with improved outcomes. The ACCP also notes that, “Effective clinical interventions such as the use of compensatory swallowing strategies and the alteration of food consistencies can be based on the results of instrumental swallowing studies.” These guidelines further indicate that electrical stimulation “for patients with muscular weakness during swallowing, muscle strength training, with or without electromyographic biofeedback, and electrical stimulation treatment of the swallowing musculature are promising techniques, but cannot be recommended at this time until further work in larger populations is performed.”<sup>3</sup>

*The Scottish Intercollegiate Guidelines Network* developed a national clinical guideline (2010) following evidence review regarding management of patients with stroke.<sup>4</sup> The guidelines recommend diet modification and compensatory techniques should be provided to all stroke patients following full swallowing assessment.

*The Ontario Heart and Stroke Foundation* have developed guidelines for managing dysphagia.<sup>9</sup> These guidelines indicate that a Speech-Language Pathologist should recommend an individualized management plan to include feeding strategies, swallowing therapy, changes in fluid or food consistency and oral care. Stroke survivors receiving modified diets or enteral feeding for alterations in swallowing status should be reassessed regularly beginning with the first week after the stroke. The recommended minimal reassessment intervals are every two to three months during the first year following a stroke and then every six months. The severity of the swallowing impairment or rate of improvement may require alteration of the reassessment schedule. Education is provided to explain the nature of the dysphagia and recommendations for management and follow-up to both the caregivers and the patient.

### **CODING INFORMATION**

<b>CPT</b>	<b>Description</b>
6010F	Dysphagia screening conducted prior to order for or receipt of any foods, fluids or medication by mouth (STR)
92506	Evaluation of speech, language, voice, communication, and/or auditory processing
92507	Treatment of speech, language, voice, communication, and/or auditory processing disorder; individual
92526	Treatment of swallowing dysfunction and/or oral function for feeding
92610	Evaluation of oral and pharyngeal swallowing function
92611	Motion fluoroscopic evaluation of swallowing function by cine or video recording
92612	Flexible fiberoptic endoscopic evaluation of swallowing by cine or video recording;
92613	Flexible fiberoptic endoscopic evaluation of swallowing by cine or video recording; physician interpretation and report only
92700	Unlisted otorhinolaryngological service or procedure, Use if flexible fiberoptic or endoscopic

	evaluation of swallowing is performed without cine or video recording.
97003	Occupational therapy evaluation
97004	Occupational therapy re-evaluation

HCPCS	Description
E0745	Neuromuscular stimulator, electronic shock unit NOT COVERED
G0153	Services of a speech and language pathologist in home health or hospice settings, each 15 minutes
G0161	Services performed by a qualified speech-language pathologist, in the home health setting, in the establishment or delivery of a safe and effective speech-language pathology maintenance program, each 15 minutes
S9128	Speech therapy, in the home, per diem
S9129	Occupational therapy, in the home, per diem
S9152	Speech therapy, reevaluation (Only one speech therapy evaluation (CPT 92506, S9152) is allowed for a course of treatment)
V5364	Dysphagia screening

ICD-9	Description
787.20-787.29	Dysphagia

ICD-10 CM	Description
I69.091-I69.991	Dysphagia follow (nontraumatic subarach hemorrhage, nontraumatic intracerebral hem, nontraum intracranial hemorrhage, cerebral infarction, oth cerebrovascular diseases, uns cerebrovascular diseases)
R13.0	Aphagia
R13.10-R13.19	Dysphagia (unspecified, oral phase, oropharyngeal phase, pharyngeal phase, pharyngoesophageal phase, other)

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