Clinical Indicators for Instrumental Assessment of Dysphagia

Task Force on Clinical Indicators of Special Interest Division 13, Swallowing and Swallowing Disorders

These guidelines are an official statement of the American Speech-Language-Hearing Association (ASHA). They provide guidance, but are not official standards of the Association. They were developed by the Task Force on Clinical Indicators of Special Interest Division 13, Swallowing and Swallowing Disorders: Robert M. Miller (chair), Rebecca Barker, Joe Caniglia, Nancy Colodny, Cynthia D. Hildner, Brad Hutchins, Kurt Kitselman, Susan L. Langmore, Cathy Lazarus, Maureen Lefton-Greif, Richard Robinson, Gina Shelley, Marsha Sullivan, and Mark L. Kander (National Office staff). The document was further modified by the steering committee of division 13, Bonnie Martin-Harris (coordinator), Joan Arvedson, Rona Alexander, Michael Crary, Cathy Lazarus, and staff of the Governmental Relations and Public Policy Unit. Nancy Creaghead (Vice President for Professional Practices in Speech-Language Pathology, 1997-1999) served as monitoring vice president.

I. Purpose

A. The purpose of this document is to provide guidelines for the use of instrumentation in the assessment, diagnosis, management, and treatment of patients with oral, pharyngeal, and upper esophageal dysphagia. Indications and contraindications for the use of instrumentation will be discussed.

B. Previous ASHA policy statements on this topic have determined the role of speech-language pathologists in the area of dysphagia (ASHA, 1983), have provided guidelines for knowledge and skills needed by speech-language pathologists providing services to patients with dysphagia (*Asha*, 32, 1990), and have determined that instrumental diagnostic procedures for swallowing are within the scope of practice of speech-language pathologists (*Asha*, 34, 1992). ASHA Preferred Practice Patterns for the Profession of Speech-Language Pathology (ASHA, 1997) outlined clinical indications for assessment and treatment and have described the components of a clinical (noninstrumental) and instrumental examination, but to date no practice guidelines have been disseminated regarding the use of instrumental assessment procedures when evaluating patients with dysphagia.

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Index terms: Clinical indicators, clinical/bedside dysphagia examination, dysphagia, instrumental assessment, instrumentaion, swallowing.

II. Background

A. In the past decade, the profession of speech-language pathology has witnessed an increase in technology developed to assist in the assessment and treatment of dysphagia. This technology has resulted in increasing sophistication in the assessment skills of speech-language pathologists and more frequent use of this instrumentation. Increasing cost-containment and quality of life concerns argue for the most effective and efficient method of diagnosis and management of dysphagia, including the determination of whether an instrumental examination will best serve the patient.

B. Evidence-based research studies, published clinical reports, clinical experience, and clinical scenarios provided the basis for the development of these guidelines. It should be emphasized that these are practice guidelines

only. Exceptions to these guidelines will occur as the speech-language pathologist takes into consideration knowledge of all the circumstances surrounding a patient's condition. This knowledge will sometimes lead to recommendations other than those presented in this document. Therefore, clinical judgment will, at times, supersede these indications. Inherent in this premise is the expectation that the speech-language pathologist making the decision is experienced and competent in the area of dysphagia.

III. Definitions of Key Terms

A. Management. An intervention that involves changing the variables of the environment or changing behaviors of others relative to the patient's dysphagia; may be intermittent; may include establishment of maintenance programs that are implemented by others; may be done by educating caregivers or patients; ongoing activities done by other caregivers may be supervised by the speech-language pathologist; and requires a speech-language pathologist to develop, revise, and update the plan.

B. Treatment. An intervention that is intended to change the physiology or behavior of the patient is implemented for some behavior(s) that require(s) training by applying the principles of learning theory; requires direct intervention by the speech-language pathologist to the patient; and is goal-oriented with measurable outcomes.

C. Clinical/Bedside Dysphagia Examination (hereafter referred to as the clinical examination). As described in the Preferred Practice Patterns for the Profession of Speech-Language Pathology (ASHA, 1997), includes a case history, review of medical/clinical records, assessment protocols, and observations. Includes a structural and functional assessment of the muscles and structures used in swallowing, functional assessment of actual swallowing ability, and judgments of adequacy of airway protection and coordination of respiration and swallowing. It may also include an assessment of the effect of alterations in bolus delivery or use of therapeutic postures or maneuvers on the swallow. The clinical examination may include use of tools and techniques (such as cervical auscultation and pulse oximetry) to detect and monitor clinical signs of dysphagia.

D. Instrumental Dysphagia Examination (hereafter referred to as the instrumental examination). As described in the Preferred Practice Patterns for the Profession of Speech-Language Pathology (ASHA, 1997), includes fluoroscopy, endoscopy, ultrasound, and manometry. The guidelines may also refer to other instrumental procedures that may be developed in the future. Instrumental assessment includes any or all of the following: structural and functional assessment of the muscles and structures used in swallowing; functional assessment of actual swallowing ability; assessment of adequacy of airway protection and coordination of respiration and swallowing; screening of esophageal motility and gastroesophageal reflux; and assessment of the effect of changes in bolus delivery, textural alterations/bolus characteristics, or use of therapeutic postures or maneuvers on the swallow. Some instrumental procedures provide comprehensive information; others provide specific information about a particular aspect of swallowing. No attempt has been made in this document to provide guidance for the use of any specific instrumental procedure.

E. Symptoms and Signs. Symptoms refer to complaints or sensations reported by the patient and/or caregivers; signs refer to observable evidence of the dysphagia. Signs may also refer to any variable derived from the medical history, including reported symptoms by the patient.

IV. Purposes of the Clinical Examination and the Instrumental Examination

There are specific indications for both the clinical and instrumental examination. For patients with signs and symptoms of oropharyngeal dysphagia, instrumental procedures can provide more sensitive and objective documentation of findings than the clinical examination. Information gleaned from these exams can be used to make appropriate referrals and to determine appropriate management and treatment of dysphagia.

A. The purposes of the clinical examination are to enable the speech-language pathologist to:

- Integrate information from the interview/case history, review of medical/clinical records, standardized protocols, observations from the physical examination, and collaboration with physicians and other caregivers.

- Observe and assess the integrity and function of the following structures of the upper airway and digestive tract: face, jaw, lips, oral mucosa, tongue, teeth, hard palate, soft palate during nonspeech, speech, and swallowing tasks.
- Identify the presence and observe the characteristics of a dysphagia based on clinical signs and symptoms. This may include identifying factors that may affect swallowing function such as bolus size, bolus consistency, fatigue during a meal, posture, positioning, and environmental conditions.
- Identify clinical signs and symptoms of esophageal dysphagia or gastroesophageal reflux in order to make an appropriate referral to another specialty.
- Determine the need for an instrumental evaluation following the clinical examination.
- Identify and follow up with patients who may require reevaluation, instruction, intervention, or other evaluation procedures prior to instrumental evaluation.
- Determine whether the patient is an appropriate candidate for treatment and/or management, based on clinical examination findings such as medical stability, cognitive status, nutritional status, psycho-social-environmental and behavioral factors.
- Recommend, as appropriate, the route of nutritional management (i.e., oral vs. nonoral).
- Recommend clinical interventions (e.g., positioning, food and liquid consistency modifications, feeding routine alterations) and other clinical strategies designed to enhance the efficiency and safety of swallowing.
- Provide counseling, education, and training to the patient, health care providers, and care givers.

B. The purposes of the instrumental examination are to enable the speech-language pathologist to:

- Visualize the structures of the upper airway and digestive tract, including the oral cavity, velopharyngeal port, pharynx, larynx, and esophagus.
- Assess the physiologic functioning of the muscles and structures involved in swallowing and to make observations, measures and inferences of symmetry, sensation, strength, pressures, tone, range, rate of motion, and coordination or timing of movement.
- Assess coordination and effectiveness of lingual, velopharyngeal, pharyngeal, and laryngeal movement during swallowing.
- Determine presence, cause, severity, and timing of aspiration by visualizing bolus control, flow and timing, and the response to bolus misdirection.
- Visualize the presence, location, and amount of secretions in the hypopharynx and larynx, the patient's sensitivity to the secretions and the ability of spontaneous or facilitated efforts to clear the secretions.
- Screen esophageal anatomy and function for evidence of dysphagia.
- Assist in determining the safest and most efficient route (oral vs. nonoral) of nutrition and hydration intake.
- Determine with specificity the relative safety and efficiency of various bolus consistencies and volumes.
- Determine the rate or method of oral intake delivery (i.e., selection of utensils, bolus placement, bolus modifications).
- Determine the postures, positioning, maneuvers, and/or other management/treatment techniques that enhance the safety and efficiency of feeding.

V. Indications for an Instrumental Examination

A. An instrumental examination *is indicated* for making the diagnosis and/or planning effective management and treatment in patients with suspected, or who are at high risk for, oropharyngeal dysphagia based on the clinical examination when:

- The patient's signs and symptoms are inconsistent with findings on the clinical examination.

  (Baker et al., 1991; Frederick et al., 1995; Lindgren & Ekberg, 1988).

- There is a need to confirm a suspected medical diagnosis and/or assist in the determination of a differential medical diagnosis.

  (Buchholz, 1993, 1994, 1995; Celifarco et al., 1990; Ekberg et al., 1986; Ekberg et al., 1989; Gregory et al., 1992; Hayashi et al., 1997; Hogue et al., 1995; Khan & Campbell, 1994; Kluin et al., 1996; Nilsson et al., 1993; Papadopoulos et al., 1989; Putnam et al., 1992; Riminton et al., 1993; Shapiro et al.,

1996, 1997; Silbergleit et al., 1991; Sliwa & Lis, 1993; Sonies & Dalakas, 1991; Watanabe et al., 1984).

- Confirmation and/or differential diagnosis of the dysphagia is needed.

  (Ali et al., 1996; Aviv et al., 1996; Bazemore et al., 1991; Celifarco et al., 1990; Coelho, 1987; DiVito, 1998; Horner et al., 1992; Jennings et al., 1992; Jones et al., 1993; Kagel & Leopold, 1992; Lazarus et al., 1996; Lazarus & Logemann, 1987; Leopold & Kagel, 1996; Litvan et al., 1997; Logemann et al., 1993, 1994; Martin et al., 1997; Mirrett et al., 1994; Newton et al., 1994; Nilsson et al., 1996; Pauloski, 1995; Plaxico & Loughlin, 1981; Pollack et al., 1992; Putnam et al., 1992; Robbins et al., 1993; Skinner & Shorter, 1992; Sonies, 1997; Veis & Logemann, 1985; Yang et al., 1997; Zerhouni et al., 1987).

- There is either nutritional or pulmonary compromise and a question of whether the oropharyngeal dysphagia is contributing to these conditions.

  (Aviv et al., 1997a, 1997b; Granger & Craig, 1990; Holas et al., 1994; Keller, 1993; Kidd et al., 1995; Johnson et al., 1993; Langmore et al., 1998; Martin et al., 1994; Schmidt et al., 1994; Sheppard et al., 1988; Taniguchi & Moyer, 1994; Veldee & Peth, 1992; Volicer et al., 1989; Woratyla et al., 1995).

- The safety and efficiency of the swallow remains a concern.

  (Arvedson et al., 1994; Collins & Bakheit, 1997; Daniels et al., 1998; DePippo et al., 1992; Griggs et al., 1989; Horner & Massey, 1988; Horner et al., 1990, 1991; Kidd et al., 1993; Linden & Siebens, 1983; Linden et al., 1993; Morton et al., 1993, 1997; Marie et al., 1997; Murray et al., 1996; Rogers, 1993, 1994a, 1994b; Splaingard et al., 1988)

- The patient is identified as a swallow rehabilitation candidate and specific information is needed to guide management and treatment.

  (Bisch et al., 1994; Ekberg, 1986; Feinberg et al., 1992; Fujiu et al., 1995; Fujiu & Logemann, 1996; Griggs et al., 1989; Helfrich-Miller et al., 1986; Kahrilas et al., 1991; Larnet & Ekberg, 1995; Lazarra et al., 1986; Lazarus, 1993; Lazarus et al., 1993; Logemann, 1994; Logemann & Kahrilas, 1990; Logemann et al., 1989, 1995; Martin et al., 1993, Mendelsohn & Martin, 1993; Mirrett et al., 1994; Morton et al., 1993; Omae et al., 1996; Rasley et al., 1993; Rosenbek et al., 1991, 1996; Shanahan et al., 1993; Welch et al., 1993).

B. An instrumental examination *may be indicated*[*] for making the diagnosis and/or planning effective treatment in patients with suspected dysphagia based on the clinical examination and the presence of one or more of the following:

- The patient has a medical condition or diagnosis associated with a high risk for dysphagia, including but not limited to neurologic, pulmonary or cardiopulmonary, gastrointestinal problems; immune system compromise; surgery and/or radiotherapy to the head and neck; and craniofacial abnormalities.

  (Gordon et al., 1987; Groher & Bukatman, 1986; Hartelius & Svensson, 1994; Kuhlemeier, 1994).

- The patient has a previously diagnosed dysphagia and a change in swallow function is suspected. (Barer, 1989; Crary, 1995; Lazarus et al., 1994; McConnel et al., 1994; Pauloski et al., 1994; Rademaker et al., 1993; Wade & Hewer, 1987).

- The patient has a condition such as cognitive or communication deficits that preclude completion of a valid clinical examination.

- The patient has a chronic degenerative disease or a disease with a known progression, or is in a stable or recovering condition for which oropharyngeal function may require further definition for management.

  (Colice, 1992; Colice et al., 1989; de Larminat et al., 1995; Hillel et al., 1989; Kagel & Leopold, 1992; Litvan et al., 1997; Morton et al., 1997; Strand et al., 1996; Sonies & Dalakas, 1995).

C. An instrumental examination *is not indicated* when findings from the clinical examination fail to identify dysphagia or when

[*] *May be indicated* implies that the instrumental examination is subject to individual consideration of its indications for and usefulness by a speech-language pathologist with expertise in dysphagia.

findings from the clinical examination suggest dysphagia and include one or more of the following:

- The patient is too medically unstable to tolerate a procedure.
- The patient is unable to cooperate or participate in an instrumental examination.

  (Burton et al., 1992a, 1992b)
- In the speech-language pathologist's judgment, the instrumental examination would not change the clinical management of the patient.

  (Ackerman, 1996; Campbell-Taylor & Fisher, 1987; Croghan et al., 1994; Gottlieb et al., 1996; Leff et al., 1994; Logemann et al., 1992; McCann et al., 1994; Mitchell et al., 1997; Odderson et al., 1995; Peck et al., 1990; Smithard et al., 1996).

VI. Conclusion

Guidelines for the appropriate use of instrumental procedures for the assessment of oropharyngeal dysphagia are based on a critical review of the available data and expert consensus. Clinical considerations may justify a course of action at variance from these recommendations and speech-language pathologists are bound by their Code of Ethics at all times. Controlled clinical studies are needed to continue to add to the body of knowledge regarding the use of instrumentation in the assessment of dysphagia and revision may be necessary as new data are published.

VII. References

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