AMERICAN
SPEECH-LANGUAGE-
HEARING
ASSOCIATION

Knowledge and Skills Needed by Speech-Language Pathologists Performing Videofluoroscopic Swallowing Studies

ASHA Special Interest Division 13, Swallowing and Swallowing Disorders

Reference this material as: American Speech-Language-Hearing Association. (2004). *Knowledge and Skills Needed by Speech-Language Pathologists Performing Videofluoroscopic Swallowing Studies* [Knowledge and Skills]. Available from www.asha.org/policy.

Index terms: assessment, swallowing, videofluoroscopy

DOI: 10.1044/policy.KS2004-00076

About This Document

This policy statement is a revision of the knowledge and skills portion of the Videofluoroscopy or Videofluorography section of a 1992 policy document entitled, “Instrumental Diagnostic Procedures for Swallowing.” This revision was completed by a working group supported by the American Speech-Language-Hearing Association (ASHA) Special Interest Division 13, Swallowing and Swallowing Disorders, chaired by Susan Hiss with members Karen Dikeman, Jordan Green, Alice Inman, Lisa Kelchner, Cathy Lazarus, and Claire Miller. Amy Hasselkus served as the National Office liaison. Alex Johnson (2000–2002 vice president for speech-language pathology) and Celia Hooper (2003–2005 vice president for speech-language pathology) were the monitoring vice presidents. This document was approved by ASHA's Legislative Council in March 2003.

****

Introduction

This knowledge and skills document is an official statement of ASHA. The ASHA Scope of Practice in Speech-Language Pathology states that the practice of speech-language pathology includes providing services for swallowing (dysphagia) and feeding problems. The Preferred Practice Patterns for the Profession of Speech-Language Pathology are statements that define universally applicable characteristics of practice. Individuals who practice in these areas are required to hold the Certificate of Clinical Competence in Speech-Language Pathology and abide by the Code of Ethics, including the Principle of Ethics II Rule B, which states, “Individuals shall engage in only those aspects of the profession that are within their competence, considering their level of education, training, and experience.”

The purpose of this document is to outline the knowledge and skills needed by speech-language pathologists (SLPs) conducting videofluoroscopic swallowing studies in both adult and pediatric populations. These knowledge and skills form the basis for assessing clinical competency in this specialized area of practice. According to an ASHA report, 30% of practicing SLPs are involved in the clinical management of dysphagia (ASHA, 2002). The 2002 ASHA Speech-Language Pathology Health Care Survey indicates that in those settings where SLPs provide services, they are the preferred provider of dysphagia services, with 85% of respondents indicating that they are the only professional in their facility who provides primary dysphagia services (ASHA, 2002). Unmanaged oropharyngeal dysphagia is associated with airway obstruction, aspiration pneumonia, death, malnutrition, and a decreased quality of life. The prevalence of dysphagia among individuals older than 50 years ranges from 16% to 22%. (Bloem, Lagaay, van Beek, Haan, Roos, and Wintzen, 1990; Lindgren & Janson, 1991). In addition, the number of infants and children presenting with identified or suspected feeding and swallowing disorders has increased significantly. Continued advancements in medical technology have allowed for the survival of an increasing number of medically fragile and high-risk infants and children who frequently present with symptoms of dysphagia and require swallowing evaluation and management.

A swallowing evaluation typically begins with a clinical swallowing evaluation and incorporates an oral-mechanism examination with test boluses as indicated. If clinical signs of oropharyngeal dysphagia are observed during a clinical swallowing evaluation or risk factors are identified, then an instrumental

swallowing evaluation is recommended, assuming the individual's status is consistent with clinical indicators, as outlined in the ASHA document, "Clinical Indicators for Instrumental Assessment of Dysphagia" (ASHA, 2000). SLPs employ primarily one of two types of instrumental evaluations: the videofluoroscopic swallowing study and/or the videoendoscopic evaluation (ASHA, 2002). Currently, the videofluoroscopic swallowing study is more widely used. The information obtained from the clinical and instrumental examinations is used to determine appropriate management and treatment of swallowing disorders as well as to make appropriate referrals. The implementation of the videofluoroscopic swallowing study requires advanced and specific skills in order to determine an appropriate test protocol, make online decisions regarding management options during the examination, assess oral, pharyngeal, and esophageal swallowing physiology, make specific functional diagnoses and dietary recommendations, and understand issues relative to radiation equipment and safety. An SLP must possess certain knowledge and skills specific to the videofluoroscopic study. This document identifies the knowledge and skills needed to ensure that the SLP conducts competent and thorough videofluoroscopic swallowing studies.

Terminology

The videofluoroscopic swallowing study has acquired various names: modified barium swallow (MBS), oropharyngeal motility study (OPMS), cookie swallow, rehabilitation swallow test, video swallow, and videofluorography. This document refers to the instrumental assessment as the videofluoroscopic swallowing study.

Knowledge and Skills

The videofluoroscopic swallowing study is a dynamic radiographic study. The examination images oral, pharyngeal, and cervical-esophageal bolus flow during swallowing. Anatomic and/or physiologic abnormalities are identified relative to swallowing. During the study, the effects of modifications in bolus size, bolus texture, patient positioning, compensatory maneuvers, and sensory enhancement techniques on bolus flow are evaluated to determine optimum swallow safety and efficiency.

Fundamentals

A. Knowledge required:

1. Normal and abnormal aerodigestive anatomy and physiology for respiration, airway protection, and swallowing.
2. Normal and abnormal neuroanatomy and neurophysiology for respiration, airway protection, and swallowing.
3. The interrelationships of the oral, pharyngeal, and esophageal phases of swallowing.
4. The interrelationship of respiration and swallowing.
5. Anatomical landmarks as viewed fluoroscopically in the lateral and anterior-posterior planes.
6. Typical age-related changes in anatomy and physiology of the swallow.
7. Changes in swallowing anatomy and physiology related to various medical conditions/surgical procedures.
8. The potential effects of common medications on swallowing.
9. Functional outcome measures in swallowing management.
10. Existing efficacy studies and evidence-based practice related to swallowing.

Assessment

A. Knowledge required:

1. Individual's swallowing complaint and pertinent medical history.
2. The range of symptoms that may be reported by individuals, caretakers, or parents that reflect possible oral, pharyngeal, and/or esophageal dysphagia.
3. The indications and contraindications for the videofluoroscopic swallowing study.
4. The advantages and limitations of the videofluoroscopic swallowing study.
5. The elements of a comprehensive videofluoroscopic swallowing study.
6. The risks of aspiration.
7. When to terminate the study based on the severity of aspiration and/or ineffectiveness of therapeutic techniques.
8. Abnormal findings as related to underlying anatomy and pathophysiology.
9. Appropriate treatment interventions and their rationale, including, but not limited to: postural changes, maneuvers, bolus modifications (e.g., viscosity, volume), delivery method (e.g., spoon, cup, bottle, nipple type), and sensory enhancement techniques to improve safety and efficiency of the swallow.
10. Cognitive-communication, behavioral, and psychological issues that may impact swallowing and participation in the videofluoroscopic swallow study.
11. Ethnocultural factors that may impact participation in the study.
12. The role of the radiologist or other physician, radiology technologist, and speech-language pathologist in the videofluoroscopic swallowing study.
13. The basic operating principles of facility-specific recording equipment and archiving protocols.

B. Skills required:

1. Equipment
   a. Ensure appropriate functioning of video recording equipment.
   b. Ensure appropriate functioning of seating or positioning devices.
   c. Utilize appropriate disinfecting protocols for equipment, as appropriate.
   d. Work with radiology equipment specialist to assure optimum videofluoroscopic image quality.
   e. Ensure availability and appropriate functioning of suctioning equipment.
2. Exam preparation
   a. Obtain medical and swallowing history, including cultural and/or linguistic factors that may influence the patient's preferences and attitudes towards swallowing/feeding.
   b. Identify the indicators for videofluoroscopic swallowing study versus other imaging or motility studies.
   c. Obtain informed consent (as mandated by facility) and maintain complete and adequate documentation.
   d. Assemble the appropriate feeding equipment (e.g., nipples, bottles, utensils, chair, cups).
   e. Prepare standard bolus types and viscosities prior to the examination according to facility-specific protocol and results of most recent clinical swallowing evaluation.

f. Anticipate the varying needs of the individual being assessed and prepare appropriate foods/contrast materials.
g. Position the individual for optimal imaging and functional assessment.
h. Prepare the individual for optimum performance (e.g., suctioning as appropriate; oral care, etc.).
i. Position the viewing monitor to allow for online visualization of study.
j. Educate the individual regarding the purpose and process of examination, as appropriate.
k. Communicate the reason for the exam to the radiologist or other medical staff.

3. Conducting the examination
   a. Identify radiographic anatomical landmarks.
   b. Present bolus types in a calibrated and consistent pattern.
   c. Identify swallowing anatomy and physiology, normal and abnormal.
   d. Evaluate the integrity of airway protection before, during, and after swallowing.
   e. If appropriate, examine typical feeding conditions (e.g., self-feeding, personal food preferences, specific food complaints).
   f. Obtain lateral and anterior-posterior views, as appropriate.
   g. If swallow is abnormal, implement postures, maneuvers, sensory enhancements, and bolus modifications, as appropriate, based upon radiographic findings and individual's overall functioning level.
   h. Evaluate the effectiveness of postures, maneuvers, bolus modifications, and sensory enhancement techniques.
   i. Evaluate the individual's tolerance of and ability to perform and repeat appropriate therapeutic interventions.
   j. Conduct the examination in a timely manner to minimize radiation exposure.
   k. Monitor possible adverse reactions to the examination (e.g., changes in breathing pattern, level of alertness, agitation, pallor, etc.).

Management

A. Knowledge required:
1. Different types of oral (e.g., “dysphagia diets”) and non-oral intake methods and their concomitant medical risks.
2. Appropriate recommendations and treatment based on study results.
3. Referral sources for the purpose of conferring and collaborating regarding patient management.
4. Ethical, ethnocultural, social, and quality of life issues when making decisions concerning swallowing management.
5. When to refer for additional instrumental swallowing examinations (e.g., FEES).
6. When to reevaluate swallowing function via videofluoroscopic study.
7. Use of videofluoroscopy as a tool to educate patients, family, other caregivers, and staff.
8. How to document results that are concise, thorough, objective, and interpretive.

B. Skills required:
1. Review the recorded videofluoroscopic swallow study.

2. Identify and document the anatomic and physiologic swallow disorder(s) of the oral preparatory, oral, and pharyngeal phases.
3. Identify and document the impact of anatomic and physiologic swallow disorder(s) (i.e., location and severity of residue, laryngeal penetration, presence, timing, and approximate percentage of aspiration).
4. Document the patient's apparent awareness of and response to residue, laryngeal penetration, and/or aspiration and document response (i.e., cough, throat clear, second swallow).
5. Document compensatory postures, maneuvers, delivery methods, sensory enhancements, and bolus modifications attempted and the effectiveness of each.
6. Document the individual's tolerance of and response to study (e.g., ability to follow directions, fatigue factor, and ability to repeat therapeutic interventions).
7. If esophageal screening is completed, describe any suspected anatomic and/or physiologic abnormalities of the esophagus which might impact the pharyngeal swallow, deferring to radiology for diagnostic statements.
8. Discuss the results and consult with appropriate medical personnel in a collaborative model, as possible.
9. Provide recommendations regarding:
    a. Oral versus non-oral delivery of nutrition and hydration.
    b. Specific oral intake modifications (e.g., volume, viscosity, texture, etc.).
    c. Therapeutic interventions for meals.
    d. Positioning.
    e. Safe feeding precautions.
    f. Dysphagia rehabilitation treatment plan consistent with exam findings.
    g. Need for and timing of reevaluation.
    h. Necessary referrals.
    i. Patient's cultural preferences and attitudes towards eating/diet.
10. Provide a prognostic statement.
11. Educate the patient and family/caregiver as to the findings and recommendations, including options and relative advantages/ disadvantages.
12. Educate the staff (e.g., nursing, CNAs, care-planning team, teachers, aides) as to findings and recommendations.
13. Provide the results of the examination to the referral source.
14. Ensure that documentation is interpretive, clear, thorough, and legible.
15. Follow-up with patient and caregivers to assess appropriateness of recommendations and ensure recommendations are understood and followed, as possible.
16. Advocate for patient services related to swallowing/feeding, as needed.

Regulatory Issues and Professional Standards

A. Knowledge required:

1. Universal precautions, infection control (refer to facility-specific policies and procedures as well as Centers for Disease Control), and general patient safety.
2. The fundamental scientific principles of ionizing radiation and its biological effects, and of general radiation safety precautions.
3. Facility-specific emergency management plans.

4. CPR and basic life saving techniques.
5. Suctioning techniques, as allowed by state and facility laws and regulations.
6. Quality control and risk management.
7. ASHA's Code of Ethics and Scope of Practice in Speech-Language Pathology.
8. ASHA's speech-language pathology practice policy documents related to dysphagia.
9. State and facility regulations and policies regarding the presence of medical personnel during examination (e.g., physician and/or radiology technologists).
10. Personal and professional liability risks, and the scope of personal and facility malpractice coverage.
11. Any facility requirements for obtaining informed consent from the individual or parent/guardian.

B. Skills required:

1. Safety
   a. Identify and discuss facility radiation safety policies with the radiation safety officer.
   b. Participate in periodic radiation safety training per facility protocol.
   c. Incorporate radiation safety techniques (e.g., time, distance, shielding) for all individuals within the radiology suite during the examination.
   d. Inform appropriate personnel (e.g., radiation safety officer) of any special circumstances that might impact the clinician's ability to participate in the videofluoroscopic swallowing exam and take appropriate action to ensure personal safety.
   e. Participate in periodic facility-specific training regarding the use of suctioning (if allowed), CPR, basic life saving techniques, universal precautions, infection control, general patient safety, quality control, and risk management.

Glossary

Dysphagia Diets: oral diet modified in food properties, such as texture or viscosity, to meet the needs of a particular dysphagic individual. Optimally prescribed after instrumental assessment to compensate for identified physiologic and/or structural swallowing abnormalities, which impact the ability to tolerate a regular texture diet. Often prescribed in “stages” designed to facilitate safety, while potentially advancing a patient toward a more “regular” texture.

Ethnocultural: referring to the intricacies of the influence of ethnicity and culture on an individual's sense of self and behavior. The ethnocultural understanding of a person (or people) implies an awareness of the perceptions, actions, background, belief, and lifestyle choices that define that person's thoughts, feelings, and behavior.

Maneuver: an adaptive swallowing technique that aims to alter a client's swallow physiology thus increasing swallowing safety and efficiency. An example of a swallowing maneuver may be the super-supraglottic swallow, which is a voluntary airway protection maneuver.

Postural change: an adaptive swallowing technique that incorporates changing a client's body positioning to alter bolus flow through the oropharyngeal chamber in an effort to increase swallowing safety and/or efficiency. An example of a postural change would be turning the head to the weaker side to redirect the bolus flow through the stronger side of the pharynx.

Sensory enhancement techniques: techniques designed to augment sensory input to the central nervous system, such as altering temperature, taste, texture, and bolus volume and viscosity, to improve swallow functioning (e.g., initiation of tongue movement and/or triggering of the pharyngeal swallow).

Team: collection or representation of different disciplines and/or specialists. May be multidisciplinary, interdisciplinary, or transdisciplinary as an approach to assessment and management of complex patients with swallowing and feeding disorders.

Viscosity: a measure of the intrinsic ability of a fluid to resist shear force. Viscosity is quantified as the ratio of shear stress to shear rate (i.e., rate of fluid deformation) (Steele, Van Lieshout, and Goff, 2003).

References and Resources

American Speech-Language-Hearing Association. (1997). *Preferred practice patterns for the profession of speech-language pathology*. Rockville, MD: Author.

American Speech-Language-Hearing Association. (2000). Clinical indicators for instrumental assessment of dysphagia (guidelines). In *ASHA Supplement* (Vol. 20, pp. 18-19). Rockville, MD: Author.

American Speech-Language-Hearing Association. (2001). Code of ethics (revised). *ASHA Leader, 6*(23), 2.

American Speech-Language-Hearing Association. (2001). *Scope of practice in speech-language pathology*. Rockville, MD: Author.

American Speech-Language-Hearing Association. (2001). Roles of speech-language pathologists in swallowing and feeding disorders: Technical report. *ASHA Supplement, 22*, 75-79.

American Speech-Language-Hearing Association. (2002). Knowledge and skills for speech-language pathologists performing endoscopic assessment of swallowing. *ASHA Supplement, 22*, 107-112.

American Speech-Language-Hearing Association. (2002). Knowledge and skills needed by speech-language pathologists providing services to individuals with swallowing and/or feeding disorders. *ASHA Supplement, 22*, 81-88.

American Speech-Language-Hearing Association. (2002). *2002 Omnibus survey caseload report*. Rockville, MD: Author.

Arvedson, J. C., & Lefton-Greif, M. A. (1998). *Pediatric videofluoroscopic swallow studies: A professional manual with caregiver guidelines*. San Antonio: Communication Skill Builders.

ASHA Speech-Language Pathology Health Care Survey. 2002. http://www.asha.org/community/slp/healthcare.cfm

Association for Professionals in Infection Control and Epidemiology (APIC). 2002. *I & II*. Washington: DC. http://www.apic.org

Battle, D. E. (1998). Communication disorders in multicultural populations. In Boston, MA: Butterworth-Heinemann.

Bloem, B. R., Lagaay, A. M., van Beek, W., Haan, J., Roos, R. A. C., & Wintzen, A. R. (1990). Prevalence of subjective dysphagia in community residents aged over 87. *British Medical Journal, 300*, 721-722.

Centers for Disease Control. http://www.cdc.gov

Huckabee, M. L., & Pelletier, C. A. (1999). *Management of adult neurogenic dysphagia*. San Diego, CA: Singular Publishing Group.

Lindgren, S., & Janson, L. (1991). Prevalence of swallowing complaints and clinical findings among 50–70 year old men and women in an urban population. *Dysphagia, 6*, 187-192.

Newman, L. A., Cleveland, R. H., Blickman, J. G., Hillman, R. E., & Jaramillo, D. (1991). Videofluoroscopic analysis of the infant swallow. *Investigative Radiology, 10*, 870-873.

Newman, L. A., Keckley, C., Peterson, M. C., & Hammer, A. Swallowing function and medical diagnoses in infants suspected of dysphagia *Pediatrics*, 2001, *108*, 1 4. http://www.pediatrics.org/cgi/content/full/108/6/e106

Steele, C. M., Van Lieshout, P. H. H. M., & Goff, H. D. (2003). The rheology of liquids: A comparison of clinicians' subjective impressions and objective measurement in press. *Dysphagia, 18*, 1-14.