THE SPEECH-LANGUAGE PATHOLOGIST’S ROLE IN DYSPHAGIA SERVICES
INTRODUCTION

Dysphagia is a swallowing disorder, characterized by an impaired ability to safely move food or liquid from the mouth to the stomach. Normal swallowing depends on coordinated movement of muscles in the oral cavity, pharynx, larynx and esophagus. Swallowing efficiency and safety can be compromised by any difficulty involving the oral, pharyngeal, or esophageal phases of swallowing.

Dysphagia results from both congenital and acquired pathologies, including, but not limited to, stroke, progressive neurologic disorders (e.g., multiple sclerosis, Huntington’s Disease, Parkinson’s Disease, amyotrophic lateral sclerosis), cancer, developmental disability, traumatic brain injury, genetic conditions, cerebral palsy, craniofacial anomalies and cognitive, behavioural, or psychiatric disorders. Swallowing difficulty may also be a consequence of chronic deconditioning or certain medical interventions (e.g., intubation, tracheotomy, medication).

Incidence of dysphagia is high. A comprehensive systematic review of all published literature between 1966 and 2005 indicates that up to 78% of stroke survivors present with dysphagia (Martino, Foley, Bhogal, Diamant, Speechley, & Teasell, 2005), as do approximately 50% of patients with Parkinson’s Disease (Leopold & Kagel, 1997) and 45% of patients with head and neck cancer (Nguyen, Moltz, Frank, Vos, Smith, Karlsson, Dutta, Midyett, Barloon, & Sallah, 2005). Visible signs of swallowing difficulty have also been identified in an estimated 80% (i.e., 165,000) of institutionalized elderly in Canada (Steele, Greenwood, Ens, Robertson, & Seidman-Carlson, 1997). In addition, research suggests that 85-90% of children with cerebral palsy will, at some point in life, have difficulty swallowing (Reilly, Skuse, & Poblete, 1996).

Safe and effective management of dysphagia is crucial. Left untreated, swallowing disorders are associated with morbidity and mortality. For example, high-level evidence indicates that the increased risk for pneumonia is three times greater for those with stroke and dysphagia and eleven times greater for those with severe dysphagia (Martino et al., 2005). In addition, Sharma, Fletcher, Vassallo, and Ross (2001) linked stroke mortality to dysphagia. Specifically, consequences of untreated dysphagia include malnutrition, dehydration, pulmonary infections (including aspiration pneumonia), airway obstruction, increased length of hospital stay, reduced social interaction/quality of life, increased requirement for institutional care, and death (ASHA, 2002a; CASLPO, 2000; Ferraris, Ferraris, Moritz, & Welch, 2001; Marik and Kaplan, 2003; Martino et al., 2005; Sharma et al., 2001).

The Ontario Association of Speech-Language Pathologists and Audiologists (OSLA) is in a unique position to comment from a clinical perspective on matters relating to dysphagia and the practice of speech-
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language pathology. Our speech-language pathologist members are health care professionals who are dedicated to the prevention, identification, assessment, management, and rehabilitative treatment of dysphagia and communication disorders, as well as patient/client and caregiver education and counselling regarding these disorders.

THE LINK BETWEEN COMMUNICATION DISORDERS AND DYSPHAGIA

The clinical perspective required to manage dysphagia is obtained through advanced academic training in speech-language pathology, as the functions of speech and deglutition use similar structures and muscles and share some common neurological pathways (Logemann, 1985). Research has identified a high co-occurrence of speech, language, and swallowing disorders (e.g., Lapointe and McFarland, 2004; Martin and Corlew, 1990). Specifically, Martin and Corlew’s study (completed in a large tertiary Veterans Administration medical centre) found that 90% of patients with swallowing disorders (identified radiographically) also exhibited communication impairment (i.e., cognitive communication, voice, and/or articulation difficulties, dysarthria, aphasia, and/or alaryngeal speech).

The research cited above also highlighted the benefit of having speech-language pathologists manage both communication and swallowing disorders. In the course of conducting traditional assessment for motor speech or voice, speech-language pathologists detect signs and symptoms relevant to swallow function (e.g., lip seal, tongue movement, velopharyngeal competence, laryngeal protection). Similarly, when assessing dysphagia, observations regarding cognitive and communication status offer crucial information regarding cranial nerve and neurologic function that can affect the swallow. Without advanced training in speech-language pathology, complex interactions between communication and swallowing are missed and can lead to management complications.

ASSESSMENT AND MANAGEMENT OF DYSPHAGIA

Assessment and treatment of dysphagia cannot be reduced to technical tasks. A comprehensive dysphagia assessment includes, but is not limited to, case history, patient/client and caregiver interview, oral motor and sensory assessment, swallowing trials (with use of strategies as appropriate), instrumental assessments as indicated (e.g., videofluoroscopic swallowing studies, fiberoptic endoscopic evaluations of swallowing), counselling, communication of results, and an interpretive report. Treatment and management may include, but are not limited to, compensatory strategies and manoeuvres (e.g., altering food textures, altering pace and volume of sips/bites/spoonfuls, changing the feeding utensils, positioning), exercises to improve oral motor function (e.g., range of motion, timing, coordination), exercises to improve
laryngeal strength, biofeedback, self-monitoring, prosthetic intervention, environmental strategies (e.g., reducing distractions, altering the feeding schedule, training feeders), and education and counselling regarding therapy, strategies and risk factors (CASLPO, 2000).

At minimum, safe and effective dysphagia management requires an in-depth understanding in a number of areas, such as:

1. Anatomy, physiology and underlying neuro-mechanisms of the upper aero-digestive tract
2. Oropharyngeal dysphagia
3. Clinical (non-instrumental) assessment, including:
   a. Oral motor and sensory function
   b. Voice
   c. Resonance
   d. Motor Speech
4. Instrumental assessment (e.g., videofluoroscopic swallowing studies, fiberoptic endoscopic evaluations of swallowing)
5. Upper esophageal dysphagia (and awareness of motility disorders)
6. Structural head and neck disorders
7. Tracheotomy tubes and ventilator dependence
8. Evidence-based treatment protocols and techniques
9. Best practice guidelines

In addition, dysphagia management requires simultaneous consideration of the following patient-specific factors:

1. Cognitive and behavioural function
2. Expressive and receptive language ability
3. Level of consciousness
4. Oral hygiene
5. Pulmonary function and status
6. Secretion management
7. Nutrition and hydration risk factors
8. Ability to self feed and/or availability/skill of feeders
9. Mobility status and positioning/postural changes
10. Age
11. Risk of deconditioning/failure to thrive
12. Co-morbid medical conditions
13. Pharmacological influences
14. Living environment and cultural background
15. Caregiver supports
16. Palliative care
Safe and effective dysphagia management, as outlined in the Preferred Practice Guideline for Dysphagia (CASLPO, 2000), requires careful clinical judgment. Significant risk of harm is associated with inappropriate administration of test swallows, misinterpreted results, and/or unsuitable recommendations. For example, if patients/clients who cannot chew are given solid foods during assessment or at meals, they risk having chunks of food fall into the airway and block airflow. Alternatively, patients/clients who are unnecessarily placed on a modified diet (e.g., pureed foods with thick liquid) risk malnutrition, dehydration, and decreased quality of life.

**CLINICAL & ACADEMIC PREPAREDNESS OF SPEECH-LANGUAGE PATHOLOGISTS**

Skills to competently manage dysphagia cannot be taught or acquired in isolation. Comprehensive assessment, interpretation and management requires an in-depth understanding of interactions between dysphagia and anatomy, physiology, voice, motor speech, and structurally-related disorders, which is garnered during graduate level training in speech-language pathology. Dysphagia management skills are further honed through mentorship in the workplace and continued education. A sample curriculum that contributes to the depth and breadth of knowledge that speech-language pathologists bring to dysphagia management is outlined below (Department of Speech-Language Pathology, University of Toronto):

<table>
<thead>
<tr>
<th>Dysphagia Related Coursework</th>
<th>Entry-Level Training</th>
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<tbody>
<tr>
<td>Anatomy</td>
<td>60 Hours</td>
</tr>
<tr>
<td>Speech Physiology and Acoustics</td>
<td>60 Hours</td>
</tr>
<tr>
<td>Voice Disorders</td>
<td>45 Hours</td>
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<tr>
<td>Motor-Speech Disorders</td>
<td>60 Hours</td>
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<tr>
<td>Structurally-Related Disorders</td>
<td>45 Hours</td>
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<tr>
<td>Swallowing Disorders</td>
<td>30 Hours (2 hour minimum on pediatric dysphagia)</td>
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<tr>
<td>Principles of Clinical Practice</td>
<td>45 Hours</td>
</tr>
<tr>
<td>Neurology/Structurally-Related Disorders Clinical Practicum</td>
<td>300 Hours (8 Weeks Full Time)</td>
</tr>
<tr>
<td>Clinical Practicum in Student’s chosen area of practice</td>
<td>375 Hours (10 Weeks Full Time)</td>
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</tbody>
</table>
There is a convergence of opinion amongst experts within and outside speech-language pathology in Canada and internationally that this training builds the foundation for speech-language pathologists to comprehensively, efficiently and safely assess and treat dysphagia (e.g., ASHA, 2002b; Australian Society for Geriatric Medicine, 2004; HSFO, 2006; Scottish Intercollegiate Guidelines Network, 2004).

THE DYSPHAGIA TEAM

While the clinical perspective required to manage dysphagia is obtained through advanced training in speech-language pathology, a team approach is essential. A comprehensive dysphagia team enables early identification of dysphagia symptoms, assessment of nutritional status, successful implementation of strategies for safe swallowing and feeding, monitoring of swallowing status, comprehensive education, and smooth transitions between providers and care sites (e.g., hospital to community). In addition to speech-language pathologists, dysphagia teams may include dietitians, nurses, occupational therapists, pharmacists, physicians, respiratory therapists, physiotherapists, social workers and dentists, all of whom work closely with patients/clients and caregivers.

SUMMARY

Safe and effective dysphagia management requires careful clinical judgment, as significant risk of harm is associated with inappropriate assessment, misinterpreted results, and unsuitable recommendations. Skills to competently manage dysphagia cannot be taught or acquired in isolation. Comprehensive assessment, interpretation and management requires an in-depth understanding of interactions between dysphagia and anatomy, physiology, voice, motor speech and structurally-related disorders, which is garnered during graduate level training in speech-language pathology. This training builds the foundation for speech-language pathologists to comprehensively, efficiently and safely assess and treat swallowing disorders as key members of the dysphagia team.
REFERENCES

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


Scottish Intercollegiate Guidelines Network (2004). Management of patients with stroke: Identification and
management of dysphagia.
