

## **Critical Review: Who Has a Role in Swallowing?**

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Speech and Language Pathologists (SLPs) are trained in, and provide clinical services for, both the assessment and management of swallowing disorders. The current review compares results of dysphagia screenings between SLPs and other healthcare professionals, and examines their role in dysphagia of acute stroke patients. Limited legislation regulating dysphagia services in Ontario has resulted in this overlap of multiple professions including dysphagia assessment and treatment in their scope of practice. Overall, the literature suggests that while other healthcare professionals can be trained to screen for dysphagia, SLPs have the most in-depth knowledge, training, rigors standards and guidelines, and should continue to be the primary service providers for swallowing services both independently and in a multidisciplinary team.

### ***Introduction***

Swallowing occurs more than 1000 times per day in healthy individuals. This behaviour, which supplies nourishment, hydration, and is central in social activities, significantly reduces quality of life if it is lost or impaired (CASLPO, 2007). The role of the Speech and Language Pathologist (SLP) in swallowing involves both the assessment and management of swallowing disorders, which has been within the curricula of SLP graduate studies in Ontario since 1998 (CASLPO, 2007).

Following a stroke, dysphagia (swallowing disorders) affects up to 67% of acute stroke patients, and as many as 50% of stroke patients in the months thereafter (Turner-Lawrence, 2009). Dysphagia has been shown to prolong hospital stays, and predisposes patients to aspiration pneumonia, which causes about 35% of deaths after acute stroke (Turner-Lawrence, 2009). With the population of seniors growing rapidly, patients suffering from dysphagia will become even more common (Heart and Stroke, 2006).

The SLP has been identified in the literature as the clear dysphagia expert, and the healthcare professional who should be primarily responsible for patients with swallowing disorders (Heart and Stroke, 2006; Huhmann et al., 2004); however, it has become increasingly common for healthcare professionals other than SLPs to perform swallowing screenings (Heart and Stroke, 2006). One reason suggested for this trend is to allow for increasingly rapid screening and referral to the SLP for further assessment and treatment of dysphagia (Heart and Stroke, 2006). Early detection of dysphagia is crucial to lower rates of morbidity, malnutrition, hospital stay, and other medical complications (Heart

and Stroke, 2006; Huhmann et al., 2004; Turner-Lawrence, 2009; Weinhardt et al., 2008). Surprisingly, the act of both assessment and treatment of dysphagia is not provincially (Ontario) or federally (Canada) regulated.

Neither the Federal Government of Canada or the Government of Ontario legislate which professions should or could be the “best qualified” to undertake dysphagia assessment and management (Government of Ontario, 1991). Position statements provided by SLP colleges and associations describe SLPs as the most trained and therefore the best qualified professionals (CASLPA, 2007), while other professions such as Registered Dietitians (Weinhardt et al., 2008), Occupational Therapists (Clark et al., 2007), and registered nurses have published position papers stating that swallowing services are also within their scope of practice (Butt & Lam, 2005; Canadian Association of Occupational Therapists, 2007). This critical review examines the evidence of screening tools created for healthcare professionals outside of SLP by evaluating comparative studies of SLPs and other professionals completing swallowing screenings for acute stroke patients.

### ***Objectives***

The primary objective for this paper was to investigate and compare the health professions involved in swallowing screening.

### ***Methods***

#### Search Strategy

Through the University of Western Ontario’s library databases including ScholarsPortal, PubMed, Web of

Science, ScienceDirect, and also Google Scholar, a literature review using key words was conducted. The following key terms were searched: (SLP OR speech language pathologist OR speech therapist) AND (compar\*) AND (swallowing OR dysphagia) AND (assessment OR screening). These searches generated comparative studies of SLPs versus other healthcare professionals conducting dysphagia screenings. Using the reference list from some of these generated studies, other articles of interest were also searched and included.

Google searches, as well as reviewing colleges and associations of SLPs and other health care professions were used to generate the scopes of practice documents, as well as association-published articles, position papers, and practice standards and guidelines.

#### Selection Criteria

Gathering studies specifically based on the selection criteria was difficult, as the narrow scope of comparative studies in the area of swallowing has not been extensively researched, as evidenced by the limited number of articles found.

Studies selected compared screenings of dysphagia by SLPs and by other professionals to evaluate degree of agreement of the presence of dysphagia. Articles that discussed healthcare professionals' involvement in swallowing were also used.

#### Data Collection

Results of the literature review yielded direct comparative studies (4): comparing SLP screen to Registered Dietitians, Registered Nurses, and Emergency Physicians. An expert opinion about the role of Registered Dietitians in dysphagia, and an expert opinion on the role of Occupational Therapists in swallowing. Lastly, (4) scopes of practice documents for SLPs, Registered Dietitians, and Occupational Therapists were also included.

### **Results**

In Ontario, both the federal and provincial governments have given liberty to the respective colleges to determine each professions' scope of practice. These regulatory bodies for healthcare professions strive to provide practicing individuals with specific guidelines of their professions' responsibilities, reflecting their level of training and knowledge. The scope of practice for SLP describes SLPs as being ethically bound to provide services that are consistent with the scope of their *competence, education, and experience* (CASLPA, 2008). Practice Standards and Guidelines are also provided by regulating bodies to ensure the healthcare

professional is providing quality care services (CASLPO, 2007). With each regulatory body providing their own professionals with these guidelines, naturally, overlap in what occupations are able to do, occurs.

#### *Speech-Language Pathologists*

To become clinically certified in Canada, CASLPA requires Speech-Language Pathologists to meet certain hours of clinical experience. Educational requirements include a Master's degree in Speech-Language Pathology to practice in all jurisdictions in Canada (CASLPA, 2008). It outlines that SLPs can practice alone or as part of an inter-professional team in swallowing and feeding disorders of the adult and pediatric populations including oral-motor function. The CASLPA (2008) document specifically states that university and/or college education and training related to communication sciences and disorders and swallowing is required. Ontario SLPs have a Practice Standards and Guidelines by their regulating body, CASLPO, which details how SLPs must make decisions regarding proper dysphagia screening, assessment, and management. It considers legislation, and is overall an essential document for Ontario SLPs providing quality and regulated care of stroke patients.

#### *Speech-Language Pathologists and Registered Dietitians*

The College of Dietitians of Ontario (2007) provides the roles of Registered Dietitians (RD) within the multidisciplinary dysphagia team, with the RD's roles increasingly becoming more involved with not only diet, but dysphagia management. Their policy states that, "dysphagia is a nutrition related disorder and, therefore, dysphagia screening, assessments, treatment and management are within the scope of practice of RDs in Ontario" (College of Dietitians, 2007). This was generated from an Ontario-wide survey where members self-reported their skills of dysphagia, and how they obtained these skills. The college encouraged personal furthering of dysphagia education including day-to-day experience, workshops, and training from SLPs.

Huhmann, Decker, Byham-Gray, and Maillet (2004) conducted a single-blinded, between groups, nonrandomized clinical trial to assess agreement between an SLP and Registered Dietitian (RD) on dysphagia risk following screening of 32 acute stroke patients (mean age 72;63) over 6 months. The principal investigator, the RD, conducted all RD screenings in this study using the *RD Dysphagia Screening Tool*, and completed a physical assessment training course including instruction on dysphagia screening, and several hours practicing dysphagia screening. The SLP

used the *bedside dysphagia evaluation*, a comprehensive dysphagia full assessment. The screenings were performed on the same 32 patients by both the SLP and the RD; however, results were blinded between the professionals. The *K* statistic was used to assess agreement on dysphagia risk, which yielded “excellent agreement” ( $K = .80$ ).

Strengths of the Huhmann et al. (2004) study included the single-blinded aspect of testing. However, this study also had a number of limitations. A significant bias of results may have taken place as the principle investigator of this study was also the RD whose scores were being used in the statistical analyses. Furthermore, because there was only one RD and one SLP who conducted the screening and, likely had worked together in the same hospital before, this study only compares two individuals on their level of agreement on dysphagia screenings. It should be noted that 1 patient was identified by the SLP and not by the RD as at risk for dysphagia. The small sample size may have also affected statistical results.

Huhmann et al. (2004) stated that due to the differences between the RD and SLP dysphagia screening tools, specific components could not be compared. A standard dysphagia screening tool should have been established prior to this study, or, perhaps a simpler comparison, “is patient a risk for dysphagia, yes or no”. Due to the lack of information about the screening tool development, content, and the inability to compare specifics to the SLP bedside screening, reliable agreement statistics may not have been accurately obtained. Furthermore, because the RD used a screening, and the SLP used an assessment, major differences in patient evaluation were present. Overall this study provides suggestive clinical evidence that RDs can effectively use the *RD Dysphagia Screening Tool* to reliably predict patients with dysphagia, with equivocal validity of study methods and statistical analysis.

Jeri Logemann, a leading SLP in dysphagia, with Martin-Harris (2001), cautioned against misleading research with limited research participants. They explain the hazards in allowing other health professionals determine patients having dysphagia, especially when even 1 patient is missed in such a small experimental population. They highlight 2 important aspects of research pertaining to having health professionals, other than SLPs, perform screening: (1) that articles must detail how the professional is trained to determine risk of dysphagia, and (2) the criteria that exists for evaluating the health professional’s knowledge and skills in the area of dysphagia (Logemann & Martin-Harris, 2001). Logemann and Martin-Harris (2001) agree that a team-management

approach is successful in the treatment and management of dysphagia.

Logemann is a well-known expert in dysphagia, however, in her evaluation of the literature on RDs screening for dysphagia, she does not cite outside evidence, but rather, personal opinion. Logemann & Martin-Harris (2001) were cited in this article as having written a letter to the authors of a comparative study concluding that RDs could accurately screen for dysphagia. Therefore, the content cannot be considered research, one may, however, allow that the authors’ high degree of knowledge in the area of dysphagia permit their candid comments on the subject to be considered. Overall, although this may be suggestive clinical evidence, validity of this report is virtually non-existent.

#### *Speech-Language Pathologists and Registered Nurses*

Weinhardt, Hazelett, Barrett, Lada, and Enos (2008) conducted a between groups nonrandomized clinical trial, to establish the validity of a Registered Nurse (RN) bedside dysphagia screening rating compared to the Speech Therapist (ST) bedside screening tool ratings. Screenings were completed on the same 83 subjects by RNs and STs, and agreement resulted in 94% of cases. It should be noted that RN passed 2 patients on the screen, while the SLP failed them (false negatives).

This study used a screening protocol designed for an RN, and created by a neurologist, a ST and a clinical nurse specialist from the stroke unit. In the study, each item of the protocol is explained, liquid and food trials are in logical order, the screen has reportedly high sensitivity and specificity scores (numbers not given), and substantial evidence for each item’s inclusion is provided. The ST trained all RNs in the stroke unit on using the protocol and the RNs had to demonstrate administering it to five patients under direct ST supervision. Participants of this study had to meet minimum cognitive and alertness criteria prior to the screen as outlined in the National Institutes of Health Stroke Scale. Within the hour the patient was screened by the RN, the SLP screened using the same RN protocol, thus the patient’s medical status presumably did not change (i.e. the RN always preceded the ST). The RN made the following recommendations: remain NPO until ST swallowing evaluation; or advance to a “safe” diet.

The authors and collaborators of this study were diverse in their fields, allowing for a more unbiased view of the screening results. Although a strength of this study is the thorough explanation of the protocol and high level of evidence supporting the RN dysphagia screen,

statistics to support the “agree” (94% of cases) outcomes are not explained whatsoever. Another strength of this study was its high number of participants, allowing for stronger evidence of their findings. Overall this study provides suggestive clinical evidence that under the guidance and training of an SLP, RDs can be trained to screen with a screening tool that is well-researched, and suggestive validity of its study procedures and statistical analysis.

In Edmiaston et al. (2009), a between groups nonrandomized clinical trial study, the authors sought to compare a screening tool for nurses (*the Acute Dysphagia Screen*) to the SLP *Mann Assessment of Swallowing Ability* (MASA) to identify dysphagia and risk of aspiration. This prospective study used 300 patients admitted to the stroke unit. Sensitivity for dysphagia was 91%, and specificity was 74%. The positive (54%) and negative (95%) predictive values were generated. These numbers reveal that *the Acute Dysphagia Screen* (ADS) accurately reveals patients with dysphagia who actually have dysphagia. The test-retest reliability revealed a good result of 92.5%. It should be noted that 8 patients were passed on the ADS that were failed by the MASA.

A strength of this study was the care the authors placed in the development of the ADS tool. The authors extensively reviewed past research on screening tools using “essential” criteria: high sensitivity; high reliability; quick administration; and minimal training for reliable administration. The authors looked to improve upon past screening tools by learning from previous tools designed for professionals outside of SLP. The considerations they took when creating the screen were as follows: (1) had to be easy to administer; (2) the measures had to be present; (3) the screening components had to be objective; and (4) each item had to be supported by research. Also, the large number of participants increased the validity to more compelling evidence of the authors’ findings.

Limitations of the Edmiaston et al (2009) study were explained by the authors, who acknowledged that their shortcomings would be used to improve future studies. They explained that spontaneous recovery may have occurred between the administration of the ADS and the MASA. Also, that future studies should compare their screening tool with a modified barium swallow for better validation. This was the only study to indicate using instrumental evaluation as a means of comparison. Another limitation observed was the extremely brief SLP training on using the screening tool, totaling 10 minutes. No direct observation of the nurses administering the test face-to-face with a patient took place. Overall, this well-designed single group study

provided compelling clinical evidence that research in the development of a screening tool, and rigorous statistical testing of the tool can provide RNs with accurate dysphagia screening tools.

#### *Speech-Language Pathologists and Emergency Physicians*

Turner-Lawrence et al. (2009) studied the sensitivity of a dysphagia screening administered by Emergency Physicians (EP) on 84 acute stroke patients, using a between groups nonrandomized clinical trial study. They hypothesized that a pass on a screen by an EP would also yield the same results on a formal assessment by an SLP. Over 1.3 years, patients with acute stroke were assessed within 24 hours of symptom onset. The 2-tiered screening approach for the EPs was developed by the Department of Speech Pathology. Forty-five EPs conducted the dysphagia screening, and the only training received was an explanation of the tool by one of the researchers. Within 24 hours of the ED screening, a standardized dysphagia assessment was performed by the SLP, blinded to previous results. Any diet modifications by the SLP was this study’s measure standard for presence of dysphagia.

A strength of this study was the analysis of both the sensitivity (96%) and specificity (56%) ratings of the ED screen, as well as the positive (2.2) and negative (0.08) likelihood ratio when comparing the accuracy of the ED dysphagia screen to the SLP evaluation. The authors included confidence intervals, strengthen the statistical analysis of this article. These numbers indicate that the ED screen is strong in its ability to show those with dysphagia actually have dysphagia. Another strength of this article is the detailed explanation of both the study methods and the results generated, making this study easy to replicate even in a busy hospital environment with multiple professionals and patients. The *k* statistic was used, and resulted with a simple agreement of 97% between the SLPs and EDs results of dysphagia presence. The authors described their methods and statistical analysis procedures in detail, allowing for others to replicate this study.

The limitations of the Turner-Lawrence et al. (2009) study were accurately outlined by the authors, including the heterogeneity of the cohort (stroke severity or legion location not considered); and selection bias for patients with moderate to high stroke severity due to less severe cases being discharged from acute care. One third of patients experienced a hemorrhagic versus an ischemic stroke. However, because the authors detailed these short-comings, this added to the excellent integrity and analysis of the research. The article described extensive literature and sound reasoning behind their 2-tiered

system, specifically citing articles for each item included on the screen. Overall this well-designed single group study provides suggestive clinical evidence that more conservative screens may be most effectively used by healthcare professionals other than SLPs to ensure all patients at risk of dysphagia are screen accurately.

### *Occupational Therapists and Dysphagia*

The Canadian Association of Occupational Therapists (2007) state that 0.16% of Canadian OTs work in feeding and swallowing services. Traditional roles of the OT include physical aspects of feeding including assessing difficulties bringing food into the mouth, and motor or sensory deficits of processing food in the mouth (Clark et al., 2007). Clark and colleagues (2007), in their expert-opinion paper, describe the OT as also responsible for management of dysphagia, and feeding dysfunction related to cognitive and neurological impairments, and that they possess the knowledge and skills necessary for evaluation and intervention in these areas. The OT has, “baseline knowledge in feeding, eating and swallowing but can provide advanced level knowledge and skills in the field of dysphagia management” (Clark et al., 2007). The article states that an OT may have a lead role providing dysphagia services; however, that the OT has entry-level knowledge and skills to evaluate swallowing function (Clark et al., 2007). This qualitative study indicates that over time, the OT will develop individual additional individual expertise. It does, however, describe how exactly OTs have knowledge of dysphagia, and may be a good checklist for an OT in dysphagia management to at least possess the listed skills.

This article does not explain how the OT gains more knowledge, and how this knowledge is assessed to be adequate for dysphagia management. It is vital that professionals dealing with dysphagia have in-depth training on normal and disordered swallows. Overall, this article provides equivocal evidence that OTs may be qualified to play a role in dysphagia care.

### ***Discussion and Conclusions***

The current literature available that compares the competencies of SLPs and other health professionals focuses on screening of dysphagia in acute care settings. The primary goal of these studies is to decrease the waiting time for acute stroke patients to be labeled as at risk for dysphagia and begin dysphagia management with the SLP. The literature is consistent in describing the SLP as central expert of dysphagia assessment and management. However, if full clinical or instrumental assessments and/or management of dysphagia is being considered by other health professionals, it is clear that

more robust research, and standardized training must take place to examine dysphagia competency of other professionals. Furthermore, increasing educational requirements, on-the-job training, and clinical experience in dysphagia is essential for other health professionals to be consistent and reliable in their dysphagia screenings. Evidence-supported screenings would help in this process.

Screening tools must be researched, and established based on evidence and guidance of the dysphagia expert, the SLP. Suggested research steps to create a statistically sound screening would be (1) an evaluation of the creation of a dysphagia screening tool describing evidence of included items, and SLP contributions. Also, training using the screen should be outlined and administered by the SLP to specified healthcare providers. (2) A double-blinded comparison study of the screening tool administered by a trained healthcare provider versus a clinical swallowing evaluation or an instrumental assessment by an SLP. Methods and results must provide detail on specificity, sensitivity, the K-statistic of agreement percentage. Critical criteria of the effective use of the screening tool should be that patients with dysphagia risk should *never* pass the screening tool. (3) Re-evaluate the use of the screening tool. One must also consider the risk of health providers other than SLPs screening acute stroke patients for their risk of dysphagia. A standard evaluation of minimum requirements of swallowing knowledge must be established. Overall, a multidisciplinary approach to dysphagia care must always be the priority in the acute care setting. Professionals learn from each other’s expertise while maintaining professional boundaries (Huhmann et al., 2004).

Thus, while rigorous training on dysphagia screenings for many health professionals working with stroke patients could allow for more rapid determination and care of dysphagia, formal assessments and management of dysphagia must be maintained by those professionals best trained. Overall, the literature has consistently referred to the work of the SLP in dysphagia as the central professional. Perhaps to move toward more professionals providing essential and time-dependent screening could be considered with increased training, education, and standardization from regulatory bodies, but with the SLPs continuing to utilize their extensive graduate training and hours of experience to ethically provide essential dysphagia management in the acute care setting.

### ***Clinical Implications***

The multidisciplinary team model is the best framework for dysphagia management. An acute care stroke team

consisting of the professionals reviewed in this critical review would bring valuable expertise and perspective to the patients. Because of the standardized training and requirements of the SLP in anatomy and physiology of swallowing and dysphagia, this author believes that the dysphagia management should be led by the SLP, and the SLP must be sure to adequately train the team with screening tools that are researched, evaluated, and have gone through rigorous statistical analysis.

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