Speech-language pathologists (SLPs) are experiencing growing numbers of children on their school caseloads requiring dysphagia management (Arvedson, 2000). According to an omnibus survey conducted by the American Speech-Language-Hearing Association (ASHA, 2003), 13.8% of school-based SLPs were treating children with dysphagia or swallowing and feeding disorders. A more recent national survey conducted jointly by ASHA’s Special Division 13 (Swallowing and Swallowing Disorders) and Special Division 16 (School-Based Issues) reported that 35% of SLPs practicing in the schools serve students with dysphagia (Owre, 2006). This trend indicates an increasing demand for swallowing management among school-based SLPs.

This dramatic rise in the provision of swallowing services in the schools stems from several factors, including recent advances in medical technology, changes in health care coverage for inpatient medical services, and compliance to federal mandates for children with special needs.

Advances in Medical Technology

Recent advances in medical technology have reduced mortality rates for premature neonates as well as infants who are considered at risk secondary to genetic, congenital, or postnatally acquired conditions (Palfrey et al., 1992; Rehm, 2002). Although mortality rates are decreasing, the number of surviving children with severe

ABSTRACT:

Purpose: The number of children requiring dysphagia management in the schools is increasing. This article reports survey findings relative to speech-language pathologists’ (SLPs) training and self-rated confidence to treat children with swallowing and feeding disorders in the schools.

Method: Surveys were completed by 222 SLPs representing Virginia and its contiguous states. Queries on dysphagia training targeted formal education, on-the-job experiences, and current caseload information. In addition, participants self-rated their confidence to treat dysphagia.

Results: Statistically significant relationships between training and self-confidence levels were demonstrated. Specifically, participation in continuing education and currency of educational activities revealed significant and moderately strong correlations to self-reported confidence to treat children with dysphagia in the school setting.

Conclusion: Findings support continuing education as a correlate to self-reported confidence to treat dysphagia in the school setting among SLPs in Virginia and its contiguous states. Further research is merited to ascertain if these findings reflect national trends. Quantifiable, cost-effective, and evidenced-based dysphagia training, consultancy, and management models are needed if school-based SLPs are to meet the increasing challenges of their diverse caseloads.

Key WORDS: dysphagia, feeding, swallowing, training, confidence
disabilities and chronic medical conditions is increasing. These children will enter the educational setting requiring specialized attention including, but not limited to, their swallowing and feeding needs (Brown, 1993; Power-deFur, 2000; Tyler & Colson, 1994).

**Changes in Health Care Coverage**

Logemann and O’Toole (2000) reported that transitions in the provision of health care services such as decreased lengths of stay in hospital and rehabilitation settings has increased the number of children requiring dysphagia services in the schools. This continuing shift from inpatient to outpatient care delivery models has increased the percentage of medically complex children who are regularly receiving tube feedings, tracheostomy care (e.g., suctioning), and oral medication administration in the schools (O’Brien & Huffman, 1998). Ryan (2006) reported that the needs of the school population are “more diverse, needy, and exceptional than at any other point in history” (p. 15). Given the array of specialized needs for these children, interdisciplinary team management within the school complemented by collaboration with community-based medical providers is advised (Arvedson, 2000).

**Compliance to Federal Mandates**

In the United States, all children are entitled to a free and appropriate public education (FAPE). The Education for All Handicapped Children Act (1975) states that children with disabilities should receive educational instruction tailored to their individualized needs. With reauthorization of this legislation as the Individuals With Disabilities Education Improvement Act of 2004 (IDEA), more emphasis is focused on the support or related services required for children with disabilities to benefit from their school experience (Power-deFur, 2000). Children with dysphagia may qualify for swallowing and feeding management in the schools under the classification of “other health impairment” because dysphagia may negatively affect children’s overall health, subsequently limiting their ability to participate fully in their educational program (Arvedson & Rogers, 1997; O’Toole, 2000).

---

**SWALLOWING AND FEEDING WITHIN THE SCOPE OF PRACTICE FOR SLPs: A BRIEF HISTORY**

Although some SLPs, particularly in medical facilities, had provided dysphagia services for several preceding decades, formal recognition and guidance for SLPs managing this disorder were not detailed until the 1987 publication of *Roles of Speech-Language Pathologists in Swallowing and Feeding Disorders* (ASHA, 1987). This report outlined definitions, provided guidance for clinical preparation, discussed interventions, and identified research needs. Throughout the 1990s, ASHA published numerous publications focusing on swallowing and feeding management to further direct practitioners in this specialized service area. These documents included but were not limited to *Knowledge and Skills Needed by Speech-Language Pathologists Providing Services to Dysphagic Patients/ Clients* (ASHA, 1990), *Instrumental Diagnostic Procedures for Swallowing* (ASHA, 1992), *Graduate Curriculum on Swallowing and Swallowing Disorders (Adult and Pediatric)* (ASHA Special Interest Division 13, 1997), and *Guidelines for the Roles and Responsibilities of the School-Based Speech-Language Pathologist* (ASHA, 1999). Of interest and relevant to this research, *Guidelines for Speech-Language Pathologists Providing Swallowing and Feeding Services in Schools* (ASHA, 2007) was recently approved by ASHA’s Legislative Council. This is the first document from ASHA that provides SLPs with focused and detailed guidance on swallowing and feeding management specific to the school setting.

The upward trend of swallowing and feeding management in the schools merits further understanding of the practicing SLPs’ knowledge and skills to confidently treat children with dysphagia in this environment. To the authors’ knowledge, there is no published research on school-based practitioners’ training and confidence to manage dysphagia in the school setting. A review of the literature revealed one related study on training and confidence that was conducted by Manley, Frank, and Melvin (1999). This study focused on SLPs’ training and confidence to manage tracheostomized patients within a medical setting. Results suggested that graduates after 1992 felt more prepared to manage swallowing in tracheostomized clients than did graduates before 1992. Further, only 47.3% of the surveyed respondents felt prepared to assess and treat patients with a tracheostomy tube.

Research focused on practicing school-based SLPs’ training and confidence to manage dysphagia in the school setting is indicated. An understanding of this topic is particularly critical given the absence of this information within the literature, the relative recency of dysphagia within the scope of practice for SLPs, and the upward trend of children requiring swallowing management in the school setting.

The current investigation expands on a survey that was piloted previously in Virginia (O’Donoghue, Creel, & Jones, 2004). The purposes of the present investigation were to acquire additional information regarding the training of school-based SLPs in pediatric swallowing and feeding disorders as well as to measure their self-reported confidence to treat dysphagia. The current study was conducted using the pilot survey instrument. The number of participants was expanded to include the states contiguous to Virginia (i.e., Maryland, North Carolina, Tennessee, and West Virginia). It was anticipated that results of the extended investigation would enhance insight and provide direction of future training efforts for SLPs serving children with dysphagia in the schools.

---

**A REVIEW OF THE PILOT STUDY**

Results of the survey piloted in Virginia (O’Donoghue et al., 2004) will be discussed briefly. Survey respondents in Virginia included 69 master’s-level SLPs currently practicing in the schools. Surveys were available at two regional conferences held within Virginia (i.e., the Speech-Language and Hearing Association of Virginia conference and the James Madison University Innovations in Clinical Communication Disorders conference). A percentage rate for participation was not calculated for the pilot project because the denominator was uncertain. Chi-square analysis using the Statistical Package for the Social Sciences (SPSS) was employed to determine statistical significance (α = .01) relative to the aforementioned research questions. Formal education and reported confidence to treat dysphagia revealed a direct and significant ($p = .003$, $r = .355$) relationship between year of graduation and
self-reported confidence to treat. Participants who graduated after 1994 reported greater confidence in managing swallowing and feeding disorders than did respondents who graduated before 1994. An indirect (i.e., negative correlation coefficient) and significant relationship \( (p = .001, r = -.582) \) was found between postdegree training and reported confidence to treat. Of interest, pilot findings for Virginia suggested that the more continuing education achieved, the lower the self-confidence rating reported. The inverse of this finding is of concern. That is, less continuing education was correlated with a higher self-confidence rating. Of utmost concern from the pilot investigation was the finding that 9% of respondents reported their self-confidence to treat dysphagia as positive even though they reported limited or no applicable coursework, continuing education, or hands-on experience in pediatric swallowing and feeding.

The remainder of this article will discuss the research questions, methodology, analysis, and conclusions for the expanded project surveying the states contiguous to Virginia. Although a nationwide survey was preferred, the additional costs (e.g., mailing lists, postage) associated with this level of investigation were prohibitive. Data from the pilot investigation in Virginia will be aggregated into the reported findings. This compilation of data was methodologically appropriate because the survey instrument was identical to that of the pilot study (i.e., the instrument required no revisions).

### THE RESEARCH QUESTIONS

- Is there a relationship between year of graduation and self-reported confidence to treat dysphagia?
- Is there a relationship between postdegree training (continuing education units [CEUs]) and SLPs’ self-reported confidence levels?
- Is there a relationship between the presence of a dysphagia team in the schools and SLPs’ self-reported confidence levels?
- What are the findings that describe the SLPs’ dysphagia experiences in the schools relative to caseload, teamwork, and self-reported confidence ratings?

### METHOD

#### Participants

A randomized and customized mailing list was obtained from ASHA. The mailing list was customized by requesting mailing labels for master’s-level SLPs holding the ASHA certificate of clinical competence in Maryland, North Carolina, Tennessee, and West Virginia who reported their primary employment to be in the schools. In addition, the requested mailing list was proportioned to reflect the representative number of SLPs who were practicing in each state (i.e., because the number of SLPs in Maryland is higher than the number of SLPs in West Virginia, the number of surveys mailed to Maryland was higher than the number that was sent to West Virginia). Four hundred surveys were sent with postage provided on the return envelope. Mailed surveys were completed by 153 school-based therapists across the states sampled. Sixty-nine surveys had been completed in the Virginia pilot, yielding a total of 222 respondents. A respectable 38% response rate was achieved. Table 1 displays the number of surveys mailed, the number of surveys returned, and the response rate per state.

Demographics of survey respondents revealed all participants to hold a master’s degree and the ASHA certificate of clinical competence. Figure 1 provides the demographics of respondents by year of graduation. Graduates before 1994 represent 68% of the sample; graduates after 1994 constitute 32% of the sample.

#### Survey Instrument

School-based SLPs completed the survey instrument “Speech-Language Pathologists and Dysphagia in the Schools” (provided in the Appendix). Participants responded to questions on dysphagia training and experiences. Three areas targeting training and experiences were queried in the survey.

- Formal education (e.g., swallowing and feeding coursework completed during the master’s degree program). The survey instrument was intentionally designed with more striation in the 1990s given the proliferation of guiding documents throughout this decade related to graduate training programs and preferred dysphagia practices.
- On-the-job training (e.g., continuing education and CEU opportunities and participation).
- Caseload information (e.g., the number of students with dysphagia on the caseload, the presence of a dysphagia team, and the disciplines represented on the dysphagia team).

In addition, participants responded to a fourth area providing a self-assessment of their confidence to manage dysphagia in the school setting. The stimulus item was “I feel confident treating children with disorders of the swallowing mechanism.” Participants responded to this statement using a 4-point scale (1 = strongly disagree, 2 = somewhat disagree, 3 = agree, 4 = strongly agree).

For the states contiguous to Virginia, a stimulus item stating, “Have you ever completed this survey?” was added at the beginning of the survey to remove the chance of multiple surveys from one individual (e.g., if an SLP in Virginia had relocated to North Carolina, this could be a confounding issue). The remainder of the survey instrument remained unchanged from the pilot investigation.

<table>
<thead>
<tr>
<th>State</th>
<th># Surveys mailed</th>
<th># Surveys returned</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maryland</td>
<td>151</td>
<td>49</td>
<td>31%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>155</td>
<td>65</td>
<td>42%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>49</td>
<td>19</td>
<td>39%</td>
</tr>
<tr>
<td>Virginia</td>
<td>Not applicable</td>
<td>69</td>
<td>Uncertain</td>
</tr>
<tr>
<td>West Virginia</td>
<td>45</td>
<td>20</td>
<td>44%</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td>222 (including Virginia)</td>
<td>38%</td>
</tr>
</tbody>
</table>

*The Virginia rate is not included in the total response rate because the denominator is uncertain.
Data Management

Data collected from the pilot investigation in Virginia and the expanded states surveyed were aggregated. To ensure optimal data quality, all surveys were reviewed carefully and responses were coded independently by both authors. Intermittent missing data points were coded as such, but the remainder of respondents’ responses were included for analysis. Agreement between the coders was 100%.

RESULTS

Analysis of data addressing the questions of relationships was completed using Spearman’s rho correlations via the SPSS statistical package. These results are provided in Table 2 (SPSS Spearman’s rho correlations, α = .01). A discussion of statistical results per research question is provided.

Question 1: Relationship Between Year of Graduation and Self-Reported Confidence

Based on these data, there is a significant yet relatively weak relationship (p = .001, r = .282) between graduation year and self-reported confidence levels. Earlier graduates reported a lower confidence level (rating themselves at either a 1 or 2) than did more recent graduates. This finding suggests that the absence of formal dysphagia coursework or the time since dysphagia coursework was completed may negatively affect confidence levels reported by earlier graduates. Table 3 details the self-reported confidence levels by year of graduation.

Question 2: Relationship Between Postdegree Training and Self-Reported Confidence

Results of this study found a significant and moderately strong relationship (Utts & Heckard, 2004) (p = .001, r = -.457) between continuing education activities in dysphagia and self-reported confidence. However, the correlation coefficient achieved was negative, indicating an inverse relationship. That is, respondents with CEUs in dysphagia were less confident to treat students with dysphagia than were respondents with no CEUs in dysphagia. Conversely, respondents with fewer CEUs in dysphagia were more confident to treat students with dysphagia than were respondents with CEUs in dysphagia. When this variable was queried to include recency of dysphagia CEUs (i.e., within the past 2 years), a significant and moderately strong positive relationship occurred (p = .001, r = .453). This indicates that the more continuing education hours acquired within the past 2 years, the higher the respondents rated their confidence to treat dysphagia. Currency of CEU experiences appears to be an important factor relative to self-confidence ratings.

Question 3: Relationship Between the Presence of a Dysphagia Team and Self-Reported Confidence

For this sample, no significant relationship existed between the presence of a school dysphagia team and participants’ self-reported confidence to treat dysphagia (p = .471). This finding should be approached with some caution because only 16 of the 222 respondents (i.e., 7.2%) reported a school swallowing team. Subsequently, the finding on this question may be skewed by a small sample size and limited variation to adequately address the question posed.

Question 4: Findings That Describe the SLPs’ Dysphagia Practices Relative to Caseload, Teamwork, and Self-Reported Confidence

This question is addressed using the generated descriptive statistics. In this sample, 21% of respondents reported providing...
swallowing treatment on their current caseload. The respondents with a current dysphagia caseload reported a significantly higher self-confidence rating than did those individuals with no swallowing cases \( (p = .002) \). However, the correlation coefficient was relatively weak \( (r = .223) \), so interpretation of this finding should be approached with some caution. It is important to note that of the 21\% of SLPs reporting dysphagia cases, most reported serving only 1 to 3 cases.

Only 7.2\% of survey participants identified the presence of a dysphagia team in their school, and team member composition varied greatly within this small group. A larger sample size with established dysphagia teams would be necessary to report any trends for this area.

With regard to SLPs’ self-reported confidence ratings to treat dysphagia in the school setting, the majority of respondents indicated a low self-rating. Figure 2 displays the participants’ self-confidence ratings.

As is illustrated above, 76\% of the SLPs in this sample indicated their confidence level as low. Although this indicates a probable disparity between what SLPs are responsible to manage and their training, these individuals acknowledge their limitations. Of greater concern, 15\% of respondents who rated their confidence as high (i.e., 3 or 4) had limited or no coursework in dysphagia, did not work in a team, and had no continuing education or experience treating children with swallowing disorders.

**DISCUSSION AND CLINICAL IMPLICATIONS**

Swallowing and feeding management in the schools appears to be increasing (ASHA, 2003; Owre, 2006). Results of this study revealed that the majority of surveyed school-based SLPs in Virginia, Maryland, North Carolina, Tennessee, and West Virginia reported a low self-confidence level relative to dysphagia treatment. Findings revealed significant relationships between formal education as well as continuing education and self-confidence ratings. Continuing education hours accrued within the past 2 years related positively to higher confidence ratings. Interestingly, there was an inverse relationship between continuing education (without a time specification) and reported self-confidence ratings. That is, respondents with CEUs in dysphagia were less confident to treat students with dysphagia than were respondents with no CEUs in dysphagia. Conversely, respondents with no CEUs in dysphagia were more confident to treat students with dysphagia than were respondents with CEUs in dysphagia. Of serious concern, this survey found that there were SLPs who reported high self-confidence ratings to treat students with dysphagia even though they had minimal identifiable education, training, or team support for this specialized practice area. Although this study cannot confirm explanations for these findings, it suggests that individuals with recent continuing education experiences have received enough foundational training to understand their limitations. Further, more recent graduates were more likely to have completed a formal dysphagia course during their academic preparation.

This study provides some preliminary understanding of the training and self-reported confidence for dysphagia management among school-based SLPs. The fact that many SLPs reported a low self-confidence to manage children with swallowing and feeding disorders in the school setting suggests that SLPs may not be prepared clinically to respond to children in their schools with dysphagia. More concerning is the finding that there are SLPs who have limited to no applicable training in childhood swallowing and feeding disorders yet feel confident to undertake this specialized service area in a school setting. Although this group represents a small portion of SLPs surveyed, the potential consequences for the children, the schools, and the clinicians themselves should not be underestimated.

The clinical implications from this study encompass several important issues. Many school-based SLPs are now faced with a clinical population that they have neither the training nor the confidence to manage. This investigation also suggests that some SLPs are not aware of their lack of preparation to intervene in these cases. Continuing education to expand foundational knowledge and skills is indicated to change this situation. Clinicians must understand when they are beyond their realm of clinical expertise and should seek appropriate consultations and referrals (either within the school system or externally from local medical providers). SLPs should have demonstrated competency before engaging in dysphagia management. The low volume of cases (1–3 children per caseload reported in this study) coupled with the potential consequences of mismanagement (e.g., upper respiratory infections, undemutrition, dehydration, death) in this area of practice will make achieving and maintaining clinical competency challenging for both practicing SLPs and their school systems. Defined procedures and protocols for dysphagia screening, assessment, and treatment in a school setting are indicated to optimize safe, efficient, and effective interventions for children with swallowing and feeding disorders.

This survey reveals a disparity between training and self-reported confidence to treat dysphagia in the school setting among SLPs in Virginia and its contiguous states. Further research is merited to ascertain if these findings reflect national trends. Quantifiable, cost-effective, and evidenced-based dysphagia training, consultancy, and management models are indicated if school-based SLPs are to meet the increasing demands of their diverse caseloads.

**REFERENCES**


Received November 29, 2006
Revision received November 28, 2007
Accepted April 13, 2007
DOI: 10.1044/0161-1461(2008/019)

Contact author: Cynthia O'Donoghue, 701 Carrier Drive, MSC4304, Communication Sciences and Disorders, James Madison University, Harrisonburg, VA 22804. E-mail: odonogcr@jmu.edu.
## APPENDIX. THE SURVEY INSTRUMENT

Speech-Language Pathologists and Dysphagia in the Schools

Have you ever completed this survey?  YES  NO
If YES, discontinue and thanks for your previous input.
If NO, please continue. Your input is valuable.

### I. Formal Education

1. What year did you graduate from the program that granted your highest degree in speech-language pathology?
   

2. What is your highest degree in speech-language pathology?
   
   Bachelor's  Master's  Doctorate

3a. Did you have a course in dysphagia in your academic curriculum?
   
   Yes  No

3b. If yes, did you have information specific to pediatric dysphagia?
   
   Yes  No

4. How many credit hours was the course or courses?

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### II. CEUs/On-the-Job Training

5a. Has your district held workshops on pediatric swallowing?
   
   Yes  No

5b. If yes, do you attend?  Yes  No  Sometimes

6. Have you attended state-level workshops on swallowing?
   
   Yes  No

7a. Have you acquired CEUs in dysphagia?  Yes  No

7b. If yes, how many in the past 2 years?

   1–9 hours  10–19 hours  20 hours or more

### III. Caseload Information

8. Do you currently have IEP goals that encompass swallowing?
   
   Yes  No

9. How many students do you currently have on your caseload with swallowing issues?

10a. Do you have a dysphagia team?  Yes  No

10b. If yes, circle the members of your dysphagia team:

   Special Ed.  PT  Psychiatrist  Nursing  OT  ST  Dietitian
   Other  Other

11. If you are not feeding the children with dysphagia in your school, who is?

### IV. Self-Assessment

Please respond to the below statement with an answer of 1–4.

1 = strongly disagree  3 = agree
2 = somewhat disagree  4 = strongly agree

I feel confident treating children with disorders of the swallowing mechanism.

1  2  3  4