Elucidating Inconsistencies in Dysphagia Management

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- Normal Swallowing 101: Clinical Workshop
- Dysphagia Grand Rounds
- Swallowing Training & Education Portal
The Story of
CTDM
Clinical Research Grant Recipients

These $50,000–$75,000 grants support scientists with a research doctorate within the discipline of communication sciences and disorders to support investigations that will advance knowledge of the efficacy of treatment and assessment practices. Project funding is available for mentored treatment research, independent treatment research, or collaborative treatment research as specified in grant guidelines.

2014

Awarded $75,000 each

Soo-Eun Chang
Assistant Professor
University of Michigan
"Enhancing Speech Motor Function in Stuttering Speakers with Neuromodulation: A tDCS Study"

Janessa A. Humbert
Assistant Professor
Johns Hopkins University
"Creating Swallowing Physiologists by Applying Physiology to Clinical Decision-Making"

Linda D. Vallino
Head, Craniofacial Outcomes Research Laboratory
Nemours/Alfred I. DuPont Hospital for Children
"Automating Speech Intelligibility Assessment in Children with Cleft Palate"
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This Point Taken is Part II of what you can and cannot determine about the cough among SLPs without imaging (CSE only) versus ...
Dr. Ianessa Humbert and Dr. Alicia Vose

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Neurophysiology
Lab - SNL

Ianessa Humbert
@dr_deglutition

Down the Hatch
@downthehatchSLP
Crisis in Dysphagia Management?

Published and unpublished criticisms
“In 1969 an alarm sounded throughout the aphasiology community when the efficacy of aphasia treatment was challenged in a Medical World News article. Part of that article's message was that aphasic patients arrive at the hospital not walking and not talking and walk out not talking. The future of aphasia treatment was described as "bleak." Alarmed and challenged, the aphasiology community began collecting efficacy data. No such alarm has yet sounded in dysphagia.”
Crisis in Dysphagia Management?

Rosenbek 1995

Efficacy in Dysphagia

“Time, however, is short. Somewhere, someone doubtless has toyed with the idea of shattering the glass that covers the alarm bell. Dysphagia programs are simply too visible and too prosperous to be ignored or allowed to continue proclaiming their efficacy without more convincingly demonstrating it”
Published Criticisms
Campbell-Taylor 2008
Oropharyngeal Dysphagia in Long-Term Care: Misperceptions of Treatment Efficacy

“Many of the allied health professionals who are involved in the field are not required to have any background in the medical basic sciences including physiology, biochemistry, systemic pathophysiology, neurobiology, pharmacology, immunology, and others”.
Published Criticisms

Campbell-Taylor 2008
Oropharyngeal Dysphagia in Long-Term Care: Misperceptions of Treatment Efficacy

“No practitioners are required to have board-certified approval before offering swallowing services”
“In many graduate programs, dysphagia courses may not be offered or provided as a section of another course. Coursework is still not mandated in all programs and time constraints often allow only courses on the basic concepts of dysphagia.”

Subject to interpretation
Examples from the internet...

Facebook professional groups
SLP #1

“I am confident that I can feel if someone swallowed successfully versus attempts but doesn't.... I feel for the swallow and never go by sight alone. I can feel how many swallows were attempted and whether it's piecemeal swallow via laryngeal palpation. I'm still not sure what the answer is, lanessa, if you don't have FEES or MBSS on-site. This is where our clinical judgement comes into play.”
Ianessa Humbert

“I think the point is that feeling confident is not confirmation. It's ok to say that you don't know what actually happened (because it is impossible to). I think that the more we give credence to a clinical approach without instrumental, the more that we tell our administrators that we can do just fine without it. We need to be a voice for our patients to say that they need it. How do you train novel swallowing maneuvers without knowing what they are actually doing?”
SLP #1

“Ianessa, I understand your point. However, despite SLP advocacy for instrumentals, some facilities/companies do not understand, have the budget for, or understand the need to buy the expensive equipment, even with the best reasons provided by SLPs (I should know--I've been researching and proposing all kinds of ideas to the PD and director of the facility for a year now and it's just not going to happen). It's easy for people who have easy access to instrumentals to tell other less fortunate SLPs to fight for it. So, yes, this thread does sound a little like racism...."
“It's so frustrating because having a FEES on site will save companies money and provide better patient care, but they are full of businessmen who cannot see past the numbers a lot of time. So what can these clinicians do? We are forced to feel for the signs, look for the signs, do our research on the pt, his medications, and assess for stimulability for diet modifications, compensatory strategies, and exercises, all according to EBP. We have standardized swallow assessments. We can write very specific goals to measure tx progress. We have to do what we can with what we have in our facilities...”
“I just hope you're not suggesting SLPs without instrumentals don't know what they're doing. Not all SLPs are careless about A&P. Not all VitalStim certified clinicians are poor analytical thinkers about electrode placement in relation to deficits. I mean no disrespect, Ianessa, I just feel like it's unfair to recommend something when that something is out of reach. There has to be alternatives. I believe clinicians can hone their skills to be more accurate if they're driven to do so...”
“While I enjoy reading your research, I feel like no one has really touched on the main issues here: We all know instrumentals are the best for diagnosing and tracking progress... That's not a new concept But what should SLPs be doing to become more accurate when instrumentals aren't accessible? How can we better train these kinds of clinicians? How can we advance the field of SLP so that expensive testing isn't the only way to get the answers?”
SLP #2

“Well SLP#1 think of it this way- the best Neurologist in the world has to order tests to look at someone's brain- they don't guess- they look at MRIs and MRAs. Etc. They have imaging and so do we. Until we have X-ray vision we need instrumentals. We shouldn't be guessing. We can have an hypothesis about a patient but We have to know the problem before we can treat effectively. Bonnie Martin Harris said at her seminar- we have to start advocating for equipment and tests and so forth. Things our patients NEED.”
“There need to be national standard like in other fields! It's not like some ENTs get scopes if they are lucky while others don't if the admins don't see the need. Our problem is that, as you said SLP#1, our programs are not rigorous enough for swallowing across the country. They don't influence practice at a medical center. If this was the case for GIs, SLP#1, would you be comfortable having your esophagus diagnosed and treated with no imaging bc the GI you are seeing is less fortunate? Please don't think that I can even attempt to judge which SLPs are smarter based on having instrumental evals, I don't think that is the question (nor do I care to). Nor is the question whether VS certified folks are more or less critical thinkers.”
Ianessa

“The issue is that a rising tide lifts all boats. So if we can get everyone to think more critically and get everyone equipment then we hope the effect on pt care improves across the board. As a field, we can't just "make do" for the long haul.”
Any of this sound familiar?

What are your thoughts on these published and unpublished criticisms?
Health Care Reform Impact

Current Healthcare Climate: What Does it Mean for SLPs Managing Patients With Dysphagia?

Nancy Swigert
Baptist Health Lexington-
Speech-Language Pathology
Lexington, KY
Swigert & Associates
Lexington, KY
Health Care Reform Impact

Current Healthcare Climate: What Does it Mean for SLPs Managing Patients With Dysphagia?

The healthcare community’s goal: Reduce costs, produce better patient outcomes.

Forster et al. (2012): “The nation’s quality and cost problems are rooted in the dominant fee-for-service payment system, which has created a healthcare ‘production’ model driven by volume and based on incentives to do more, rather than to do better.”
The fee-for-service payment system: Demand that certain outcomes be reached in order to be paid and that negative outcomes (e.g., readmission, infection) be decreased to avoid penalties.
As a profession, we theoretically applaud the application of evidence-based standards; however, we sometimes have difficulty coming to agreement on what the evidence-based standard should be...
Current Healthcare Climate: What Does it Mean for SLPs Managing Patients With Dysphagia?

Our field lacks agreement on standardization of terminology used by SLPs in describing feeding and swallowing disorders.

For example, one clinician’s “flash penetration” is another clinician’s “high penetration”.

Instrumental exams vary widely, with studies supporting the lack of inter and intra-rater reliability (McCullough et al., 2000, 2001).
Dual Process Theory

Humans process information using two distinct systems.

(Croskerry 2009; Croskerry 2009)

System 1

System 2
Dual Process Theory

System 1
Intuitive  
Fast  
Automatic  
Derived by developing rules of thumb, shortcuts, patterns

System 2
Analytical  
Strategic  
Involving careful, rational evaluation of available evidence
Dual Process Theory in Clinical Decision Making

System 1 processing, in clinicians, is developed through experience, repetition, formal academic training, and observing the behaviors of other clinicians (Bate, Hutchinson et al. 2012)
Dual Process Theory in Clinical Decision Making

System 1

Early Clinical Experience:
  Internships
  Clinical Fellowships

Early Independent Periods
Switching to a new population
Dual Process Theory in Clinical Decision Making

Croskerry et al (2009): humans prefer to use System 1 whenever possible, including in clinical situations.
Dual Process Theory in Clinical Decision Making

Bate (2012): better clinical decision-making occurs when there is a balance between System 1 and System 2 processing to avoid costly errors in care.
Bate et al (2012) also argues that critical thinking, based in System 2 processes, is missing from formal clinical training.

“system 1 system 1 system 1 system 1 system 1 system 1 system 1 system 1 system 1 system 1”
Clinicians quickly recognize a pattern of pathophysiologicals and move intuitively into decisions about treatments that they have experience with based on anecdotal evidence of success (Bates 2012)

Domino Effect Thinking
Which do you think is dominant in clinical decision making in dysphagia management?

System 1  OR  System 2
Example:
After aspiration is identified, safety is often prioritized leading immediately to compensatory strategies.

The question:
“What can they eat”
Often leads to testing bolus modification.

The question:
“How can they continue to safely eat ___”? Often leads to testing postural adjustments.
Barriers to using System 2 processing for dysphagia rehabilitation

1. Time constraints
2. System 1 based clinical education
3. Complexity of swallowing
4. Limited understanding of physiology
5. Weak research on treatment effects
6. Poor link between VFS, FEES and Tx

Slow to change, not within 1 individual’s control
Revisit:
Barriers to using System 2 processing for dysphagia rehabilitation

Could reduce impact of other barriers

1. Time constraints
2. System 1 based clinical education
3. Complexity of swallowing
4. Limited understanding of physiology
5. Weak research on treatment effects
6. Poor link between VFS, FEES and Tx
Why is this critical?
Lets look at SLP practice in the view of other rehab disciplines: PT
Problem: High risk of falling when transitioning between bed and wheelchair.

- **Pre-treat eval**: View kinematics to determine problem, severity. Make treatment plans based on kinematics.
- **Treatment**: Provide treatment in another room, while listening for signs and symptoms of falling.
- **Post-treat eval**: Review kinematics to determine treatment effects. Adjust treatment and mobility recommendations.
Elucidating inconsistencies in clinical decision-making
Preliminary data:
Survey results from 49 SLPs
<table>
<thead>
<tr>
<th>Response Options</th>
<th>Table 1</th>
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<tbody>
<tr>
<td></td>
<td>Question 1: Indicate all swallowing problems identified (%)</td>
</tr>
<tr>
<td>residue</td>
<td>98.0</td>
</tr>
<tr>
<td>penetration</td>
<td>40.8</td>
</tr>
<tr>
<td>aspiration</td>
<td>26.5</td>
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<tr>
<td>velopharyngeal function</td>
<td>20.4</td>
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<td>base of tongue function</td>
<td>63.3</td>
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<td>pharyngeal squeeze</td>
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<tr>
<td>swallow onset time</td>
<td>28.6</td>
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<tr>
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<tr>
<td>hyoid anterior mvmnt</td>
<td>57.1</td>
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<td>laryngeal vestibule closure</td>
<td>40.8</td>
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<tr>
<td>UES</td>
<td>93.9</td>
</tr>
<tr>
<td>none</td>
<td>N/A</td>
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How do we apply critical thinking here?

Segment the swallow by primary goals
Two primary swallowing goals:

**Airway protection**

**Bolus movement**

How does the bolus give us clues that these goals are not being met?
<table>
<thead>
<tr>
<th>Components of each?</th>
<th>Airway protection</th>
<th>Bolus movement</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hyoid excursion</td>
<td>Lingual propulsion</td>
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<tr>
<td></td>
<td>Laryngeal excursion</td>
<td>Pharyngeal squeeze</td>
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<td></td>
<td>Epiglottic inversion</td>
<td>UES opening</td>
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<td></td>
<td>Arytenoid adduction</td>
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<tr>
<td>Response Options</td>
<td>Question 1: Indicate all swallowing problems identified (%)</td>
<td>Question 2: Which would you target first in treatment (%)</td>
</tr>
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<tr>
<td>residue</td>
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When asked to provide a rationale for the selected treatment target(s), many responses were not based on swallowing physiology.
“Target decreasing any penetration or aspiration of foods/liquids so that the patient may increase PO intake safely”
“There is residue sitting on top of the esophageal sphincter. It could build up and then spill over into airway”
“Looks as though the bolus was thin liquid and so residue will likely increase with thicker consistencies. If the residue issue isn't addressed they will likely be NPO, if not already.”
We did not ask for a physiological rationale, because we wanted to know how respondents tend to think about rationales.
These responses are examples of how focusing on the bolus, rather than the physiology responsible for moving the bolus, is common practice in dysphagia management.
Others provided a physiological rationale that was not associated with the disordered function that was selected for treatment.
From one respondent who would only treat pharyngeal squeeze:

“Cricopharyngeal opening is minimal and results in significant post-swallow pyriform sinus residues. This puts the patient at risk of aspiration and should therefore be targeted first”

Does this support why pharyngeal squeeze, in particular, should be targeted in treatment?
Some respondents provided sound physiological rationales for targeting (abnormal) hyo-laryngeal movement to impact UES function.

However

1. Hyo-laryngeal function is normal
2. It appears as though the UES is not relaxing, so super human hyo-laryngeal movement might not even work?
A Survey of Clinician Decision Making When Identifying Swallowing Impairments and Determining Treatment

Alicia K. Vose, a,b,c Sara Kesneck, b Kirstyn Sunday, b Emily Plowman, a,b and Ianessa Humbert a,b

Purpose: Speech-language pathologists (SLPs) are the primary providers of dysphagia management; however, this role has been criticized with assertions that SLPs are inadequately trained in swallowing physiology (Campbell-Taylor, 2008). To date, diagnostic acuity and treatment planning for swallowing impairments by practicing SLPs have not been examined. We conducted a survey to examine how clinician demographics and swallowing complexity influence decision making for swallowing impairments in videofluoroscopic images. Our goal was to determine whether SLPs’ judgments of swallowing timing impairments align with impairment thresholds available in the research literature and whether or not there is agreement among SLPs regarding therapeutic recommendations.

Method: The survey included 3 videofluoroscopic swallows ranging in complexity (easy, moderate, and complex). Three hundred thirty practicing SLPs in dysphagia management participated in the survey in a web-based format (Qualtrics) with frame-by-frame viewing capabilities. SLPs’ judgments of impairment were compared against impairment thresholds for swallowing timing measures based on 95% confidence intervals from healthy swallows reported in the literature.

Results: The primary impairment in swallowing physiology was identified 67% of the time for the easy swallow, 6% for the moderate swallow, and 6% for the complex swallow. On average, practicing clinicians mislabeled 8 or more swallowing events as impaired that were within the normal physiologic range compared with healthy normative data available in the literature. Agreement was higher among clinicians who report using frame-by-frame analysis 80% of the time. A range of 19–21 different treatments was recommended for each video, regardless of complexity.

Conclusions: Poor to modest agreement in swallowing impairment identification, frequent false positives, and wide variability in treatment planning recommendations suggest that additional research and training in healthy and disordered swallowing are needed to increase accurate dysphagia diagnosis and treatment among clinicians.

Speech-language pathologists (SLPs) are the primary health care providers who manage dysphagia. A report from the American Speech-Language-Hearing Association (ASHA) indicates that the caseload of SLPs working in health care settings primarily involves management of swallowing disorders (ASHA, 2007, 2015). Swallowing is also a required competency in the curriculum for accredited academic programs in speech-language pathology (Communication Sciences and Disorders; ASHA, 2015). Thus, as primary providers of dysphagia care, SLPs should be among the most knowledgeable practitioners on swallowing physiology in both health and disease. Nonetheless, the role of SLPs as the primary service provider in dysphagia has been challenged, with some assertions that SLPs are inadequately trained in swallowing physiology (Campbell-Taylor, 2008). Experts in the field have further raised concerns regarding the efficacy of dysphagia rehabilitation outcomes (Langmore, 1995; Logemann, 2012; Rosenbek, 1995). Given current health care standards in the United States and abroad, if dysphagia management is not considered to be a skilled, physiology-based behavioral intervention, financial reimbursement could be reduced or denied. This could have serious negative effects on the SLPs’ scope of practice and significantly impact the availability of dysphagia care for patients.
“On average, SLPs mislabelled 8 or more swallowing bolus parameters and physiological events as disordered that fell within the normal physiologic range”

WHY?
Worse Part:

One option was “Something is wrong but I do not know what it is” among 303 respondents, only 2% chose this option!
Evidence of widespread lack of preparedness and poor standardized practice in Dysphagia Management

Problem Further Impacted: SLPs spend most of their time managing dysphagia

Best Part:

There is one solution...
Conduct frame-by-frame analysis 80-100% of the time!
35% of SLPs in schools managing dysphagia

Clinicians practicing in the area of dysphagia must possess adequate skills, training and experience, in order to earn recognition as ‘dysphagia specialists’ in health-care settings. (Coyle, 2015)