

# Elucidating Inconsistencies in Dysphagia Management

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# Financial Disclosures

## Salary

- University of Iowa

## Research Funding

- National Institutes of Health

## Royalties

- Northern Speech Services
- Medbridge
- Critical Thinking in Dysphagia Management
- Normal Swallowing 101: Clinical Workshop
- Dysphagia Grand Rounds
- Swallowing Training & Education Portal

The Story of

CTDM

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**Awarded \$75,000 each**



**Soo-Eun Chang**

Assistant Professor  
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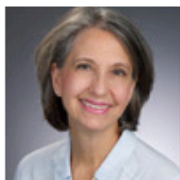
"Enhancing Speech Motor Function in Stuttering Speakers with Neuromodulation: A tDCS Study"



**Ianessa 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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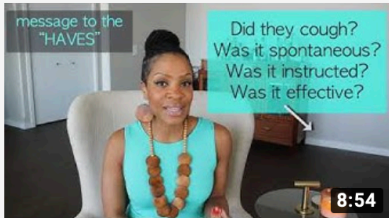
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This Point Taken is Part II of what you can and cannot determine about the cough among SLPs without imaging (CSE only) versus ...





# Ianessa Humbert

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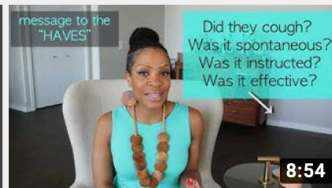


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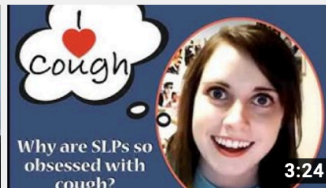
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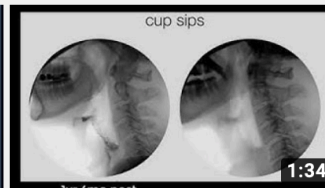
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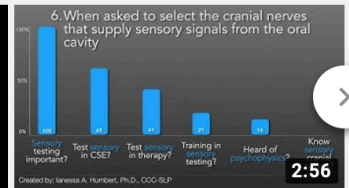
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episode with patient...

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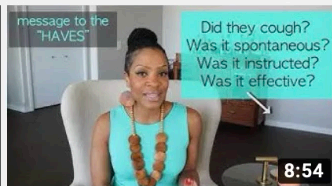
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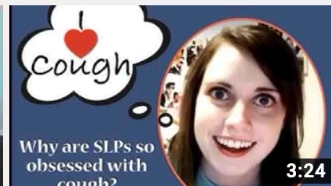
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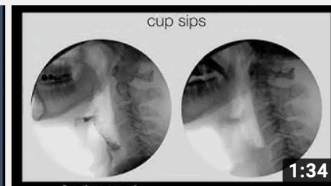
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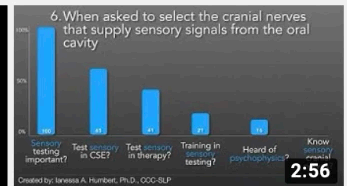
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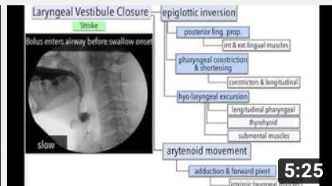
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**Point Taken: Strengths, weaknesses, opportunities, ...**

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**Epiglottic inversion strategies**

1.7K views • 4 months ago



**Normal people aspirate**

309 views • 5 months ago



**lingual function during swallow CSE?**

203 views • 6 months ago



**Thin liquid... high performance bolus**

2.5K views • 7 months ago

**Deglutition Talk** with Ianessa A. Humbert & Alicia Vose



Down  
the  
Hatch



Dr. Ianessa Humbert and Dr. Alicia Vose

The Swallowing Podcast  
[soundcloud.com](https://soundcloud.com)  
iTunes

# DIET & EXERCISE

Down the Hatch

# The Big Squeeze

Special Guest  
CORINNE JONES, PH.D., CCC-SLP  
Department of Surgery  
University of Wisconsin, Madison

Down the Hatch

Deglutition Talk with  
Janessa A. Humbert &  
Alicia K. Vose

# Wreak Havoc:

Are you sure your patients need strengthening?

P, I, E, C, I, N, G, S

T, H, E,

C, S, W, A, L, L, O, W, I, N, G

I, N, I, C, V, A, L, U, A, T, I, O, N,

L, L

# Down the Hatch

EXPERT RANT #2

Julie Barkmeier Kraemer, Ph.D.  
CCC-SLP, BCS-S, S-LP(C), Reg.  
CASLPO, ASHA Fellow

# FIFTY SHADES OF GRAY

Addressing the SLP Relationship with Radiology

Down the Hatch

Special Guest  
Jennifer Sirera R.T. (R) BHSc, CIIP  
Technology Director  
Department of Radiology  
University of Florida

Deglutition Talk with  
Janessa A. Humbert &  
Alicia K. Vose

# 2017

# Year in review!

Dysphagia Education

# Down the Hatch

Andrew Lotto Ph.D.  
Professor  
University of Florida

Evidence Based Practice

Theory Based Practice

Deglutition Talk with  
Janessa A. Humbert &  
Alicia K. Vose

# Down the Hatch

EXPERT RANT #1

Catriona Steele, Ph.D.  
CCC-SLP, BCS-S, S-LP(C), Reg.  
CASLPO, ASHA Fellow

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# WARNING



**RUGS FREQUENTLY PULLED OUT**

Due by Monday

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**SAFE  
PLACE**

**To talk**

# Crisis in Dysphagia Management?

Published and unpublished criticisms





# Crisis in Dysphagia Management?

Rosenbek 1995

*Efficacy in Dysphagia*

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“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”

# Published Criticisms

Campbell-Taylor 2008

*Oropharyngeal Dysphagia in Long-Term Care:  
Misperceptions of Treatment Efficacy*

---

“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. Its 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

“Janessa, 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....”

## SLP #1 continued ...

“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...”

SLP #1 continued ...

“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, lanessa, I just feel like its 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 I'd they're driven to do so...”

## SLP #1 continued ...

“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.”

Ianessa

“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

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## 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

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## 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”



# Health Care Reform Impact

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

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.



# Health Care Reform Impact

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

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...



# Health Care Reform Impact

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## 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).



Crisis



Critical  
Thinking

# Dual Process Theory

Humans process information using  
two distinct systems.

(Croskerry 2009; Croskerry 2009)

An orange rounded rectangle with a thin black border, containing the text "System 1".

System 1

A light blue rounded rectangle with a thin black border, containing the text "System 2".

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

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)

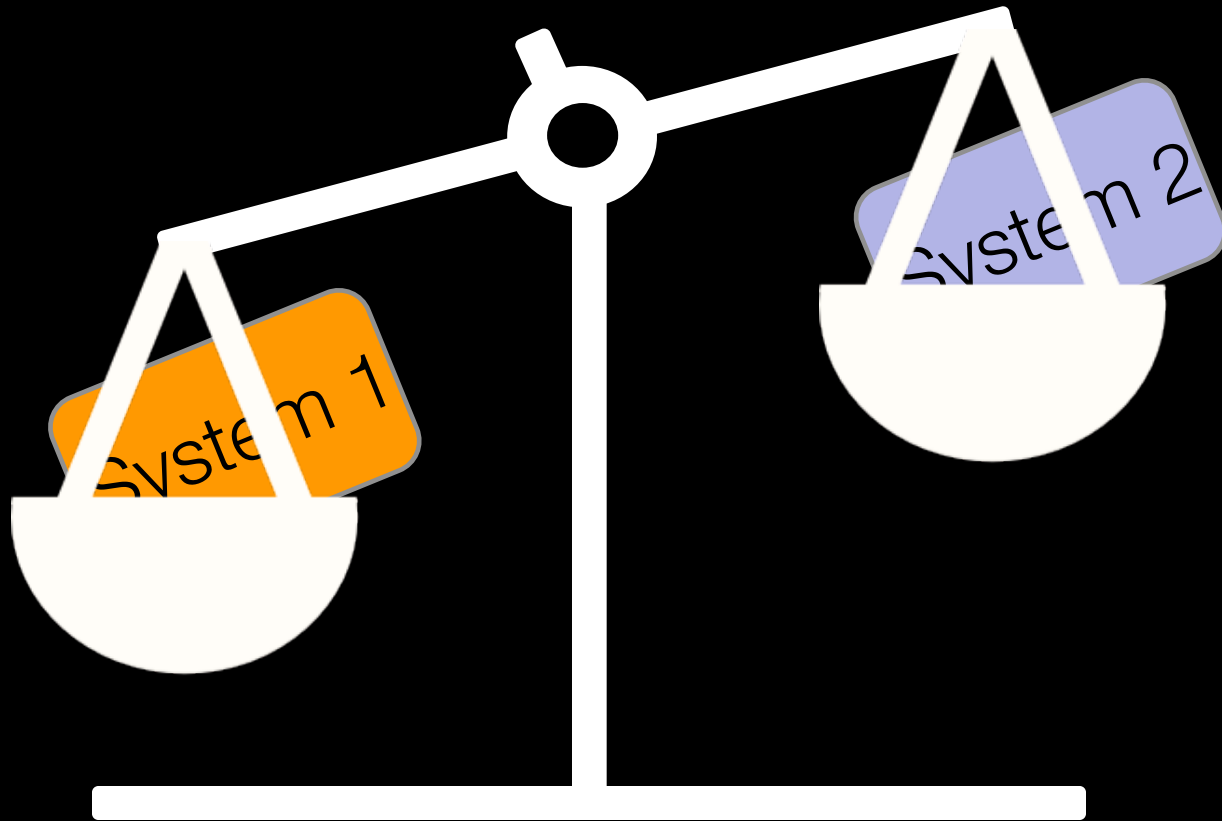
# Dual Process Theory in Clinical Decision Making



System 1

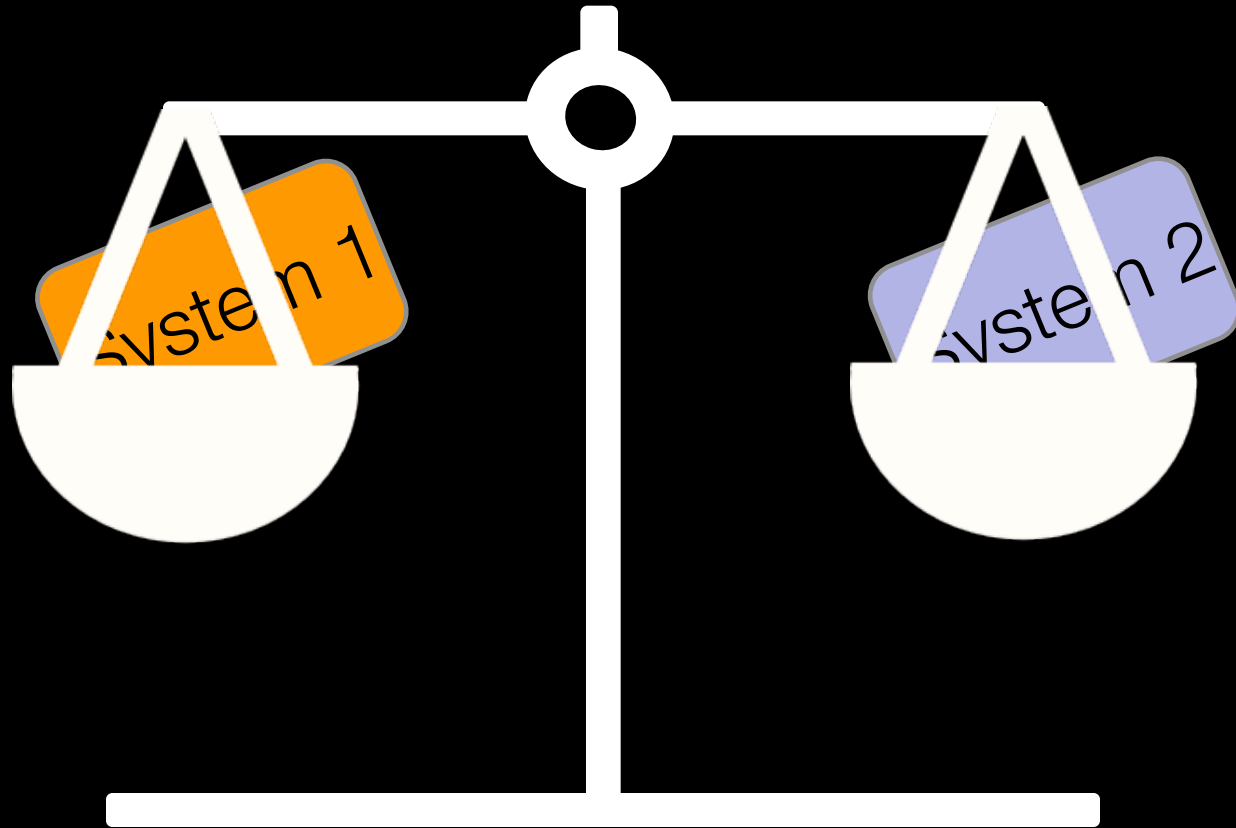
Early Clinical Experience:  
Internships  
Clinical Fellowships  
Early Independent Periods  
Switching to a new population

# Dual Process Theory in Clinical Decision Making



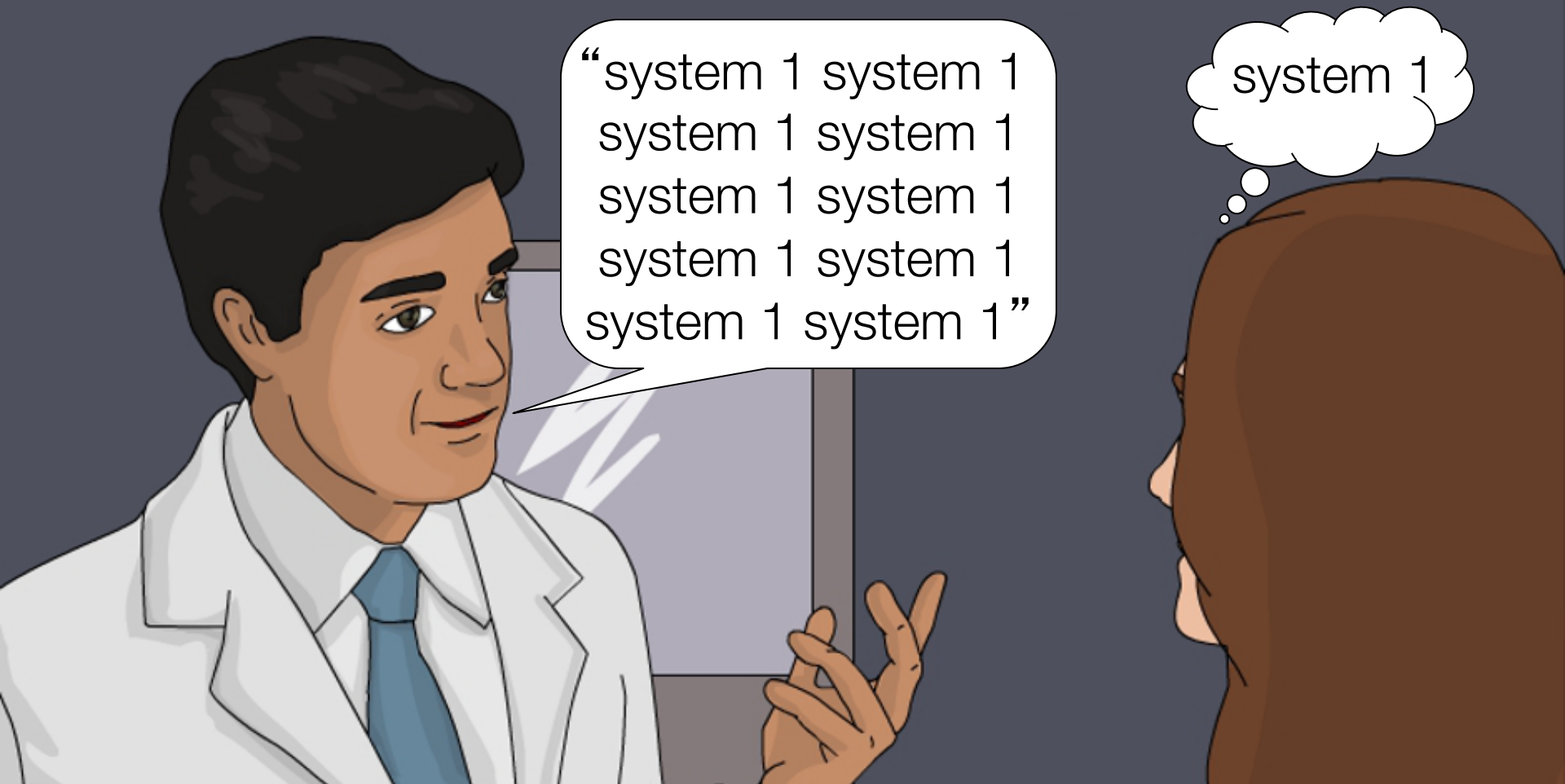
Croskerry et al (2009): humans prefer to use System 1 whenever possible, including in clinical situations.

# Dual Process Theory in Clinical Decision Making



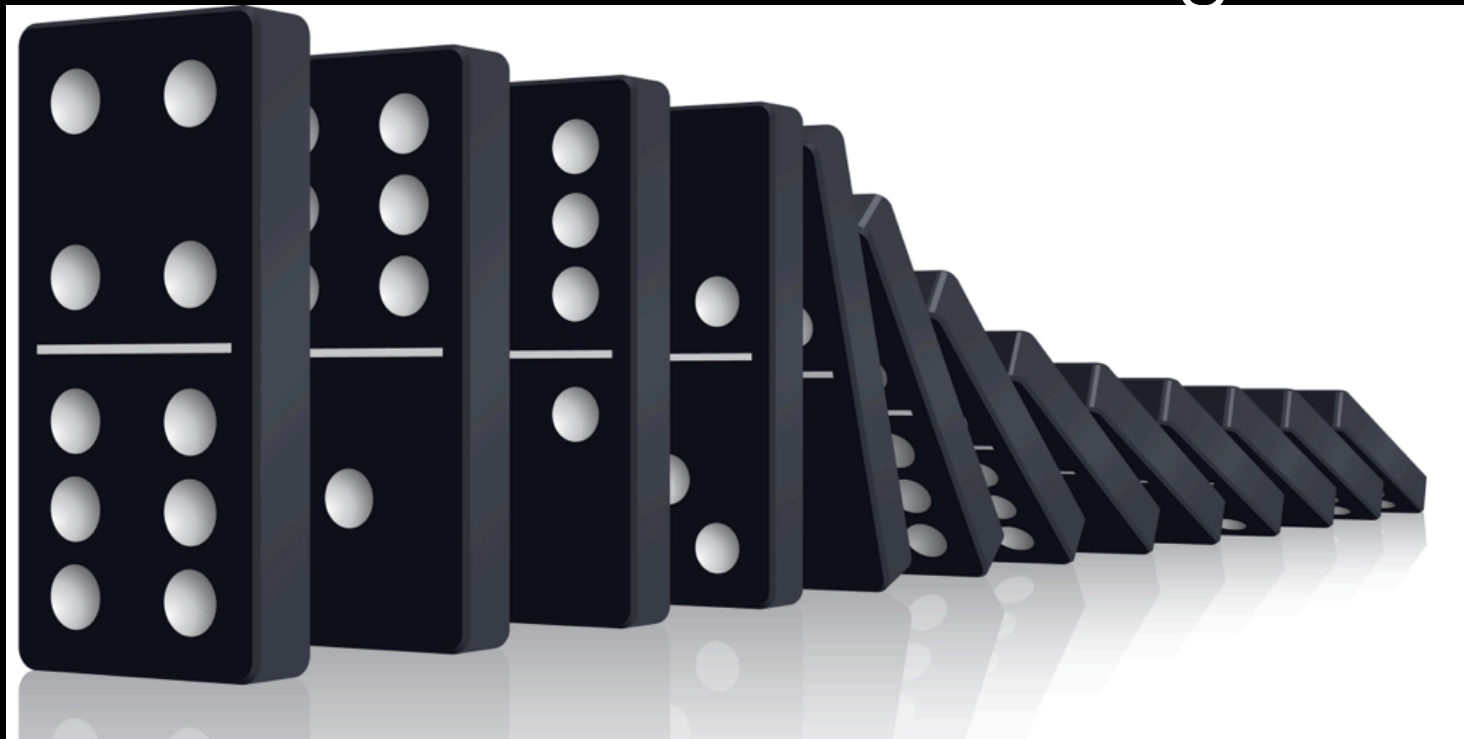
Bate (2012): better clinical decision-making occurs when there is a balance between System 1 and System 2 processing to avoid costly errors in care.

Bate et al (2012) also argues that critical thinking, based in System 2 processes, is missing from formal clinical training.



Clinicians quickly recognize a pattern of pathophysiologies 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

Slow to change, not within 1 individual's control

1. Time constraints

2. System 1 based clinical education

3. Complexity of swallowing

4. Limited understanding of physiology

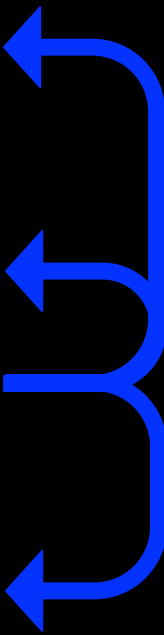
5. Weak research on treatment effects

6. Poor link between VFS, FEES and Tx

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

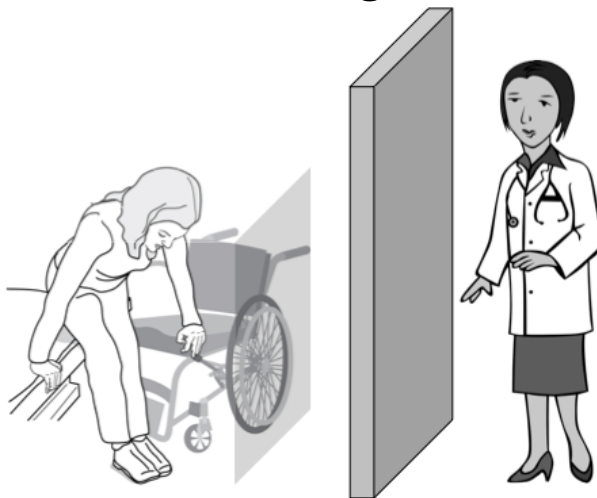
View kinematics to determine problem, severity



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

# survey results

<b>Response Options</b>	<b>Question 1: Indicate all swallowing problems identified (%)</b>
residue	98.0
penetration	40.8
aspiration	26.5
velopharyngeal function	20.4
base of tongue function	63.3
pharyngeal squeeze	81.6
swallow onset time	28.6
hyoid superior mvmnt	26.5
hyoid anterior mvmnt	57.1
laryngeal vestibule closure	40.8
<b>UES</b>	<b>93.9</b>
none	N/A



How do we apply critical  
thinking here?

Segment the swallow  
by primary goals

Two primary swallowing goals:

Airway	Bolus
protection	movement

---

How does the bolus give us clues that these goals are not being met?

# Components of each?

Airway  
protection

Hyoid excursion  
Laryngeal excursion  
Epiglottic inversion  
Arytenoid adduction

Bolus  
movement

Lingual propulsion  
Pharyngeal squeeze  
UES opening

**Table 1**

<b>Response Options</b>	<b>Question 1: Indicate all swallowing problems identified (%)</b>	<b>Question 2: Which would you target first in treatment? (%)</b>
residue	98.0	4.1
penetration	40.8	4.1
aspiration	26.5	12.2
velopharyngeal function	20.4	0.0
base of tongue function	63.3	12.2
pharyngeal squeeze	81.6	20.4
swallow onset time	28.6	0.0
hyoid superior mvmnt	26.5	8.2
hyoid anterior mvmnt	57.1	26.5
laryngeal vestibule closure	40.8	2.0
<b>UES</b>	<b>93.9</b>	<b>49.0</b>
none	N/A	8.0

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?

## Research Article

# A Survey of Clinician Decision Making When Identifying Swallowing Impairments and Determining Treatment

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

**AQ1 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 three 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.

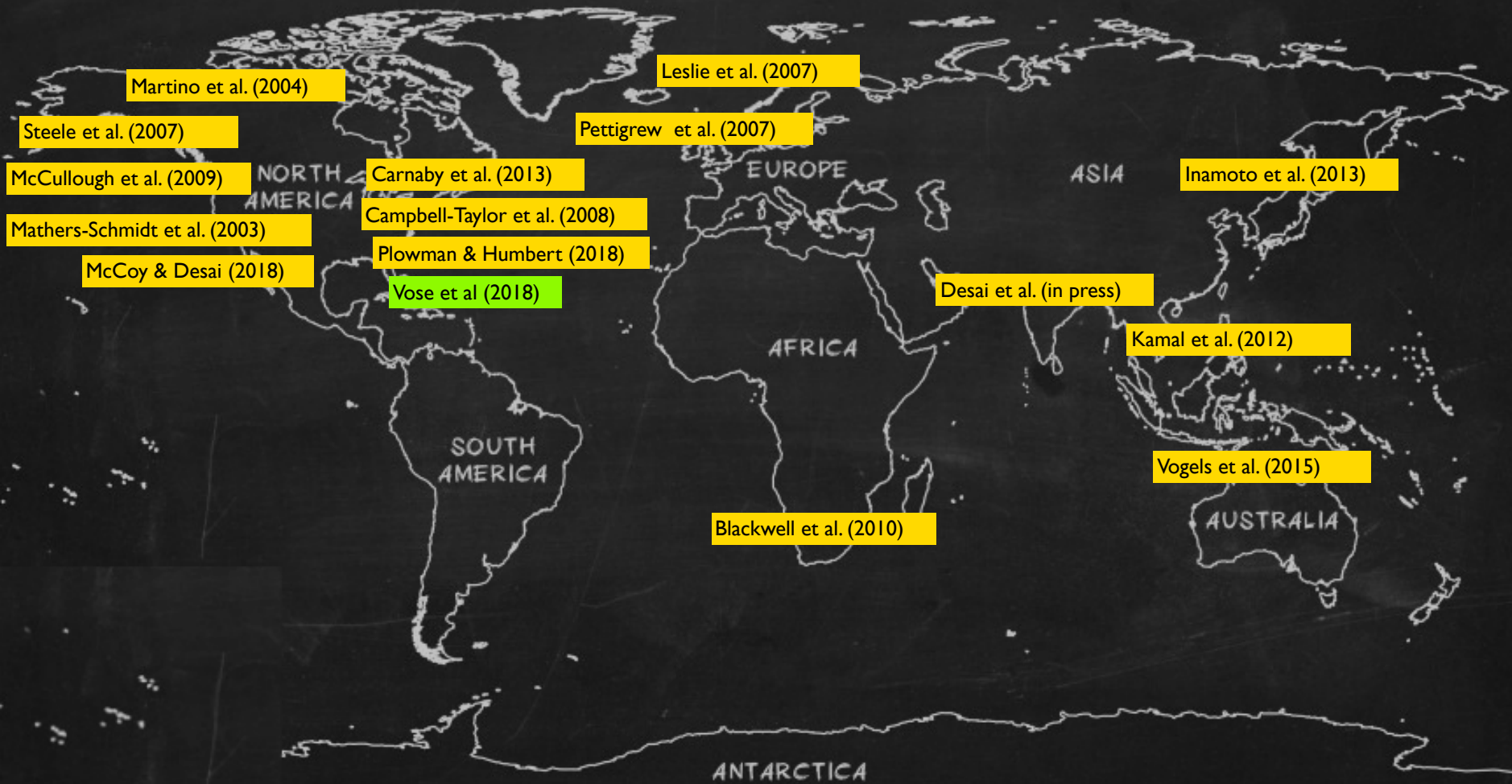
**Results:** The primary impairment in swallowing physiology was identified 67% of the time for the easy swallow, 6% for the moderate swallow, and 6% for the complex swallow. On average, practicing clinicians mislabeled 8 or more swallowing events as impaired that were within the normal physiologic range 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.

**S**peech-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 are further trained and

# Current Evidence: Variability in Dysphagia Practice Patterns Around the World



**Vose, Kesneck, Sunday, Plowman, Humbert (2018).**

A Survey of Clinician Decision Making When Identifying Swallowing Impairments and Determining Treatment

*Journal of Speech, Language, and Hearing Research, November 2018, Vol. 61:2735-2756.*

Funded by  
ASHFoundation





Vose, Kesneck, Sunday, Plowman, Humbert (2018).

A Survey of Clinician Decision Making When Identifying Swallowing Impairments and Determining Treatment

*Journal of Speech, Language, and Hearing Research*, November 2018, Vol. 61:2735-2756.

“On average, SLPs mislabelled 8 or more swallowing bolus parameters and physiological events as disordered that fell within the normal physiologic range”

**WHY?**

Funded by  
ASHFoundation



Vose, Kesneck, Sunday, Plowman, Humbert (2018).

A Survey of Clinician Decision Making When Identifying Swallowing Impairments and Determining Treatment

*Journal of Speech, Language, and Hearing Research*, November 2018, Vol. 61:2735-2756.

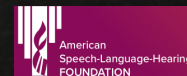
Worst Part:

One option was

“Something is wrong but I do not know what it is”

Among 303  
respondents, only **2%**  
chose this option!

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ASHFoundation



Evidence of wide spread lack of  
preparedness and poor  
standardized practice in Dysphagia  
Management

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

Vose, Kesneck, Sunday, Plowman, Humbert (2018).

A Survey of Clinician Decision Making When Identifying Swallowing Impairments and Determining Treatment

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Best Part:

There is one solution...

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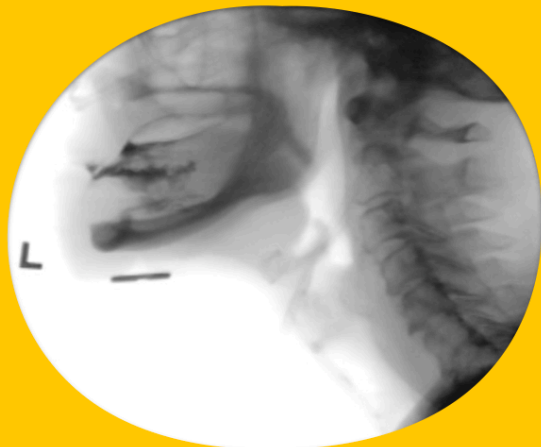


Vose, Kesneck, Sunday, Plowman, Humbert (2018).

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Easy



88%

Moderate



58%

Difficult



61%

**Guess who did the best on this test.**

**Conduct frame-by-frame analysis  
80-100% of the time!**

# ASHA SLP Health Care Survey Report: Caseload Characteristics Trends (2005–2017)

- 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)