



Assessment to Intervention: Tech innovation in Adult & Paediatric eating, drinking and swallowing

2 March 2026

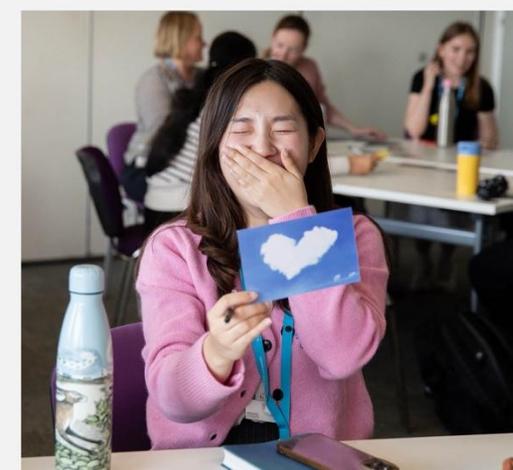




Welcome and housekeeping

Ruth Sedgewick

Head of Northern Ireland office, RCSLT



Housekeeping

- Justyna Szeller (RCSLT Host) is on hand to help with any **technical queries**; you can get in touch with her via the **chat button**
- You can send in **questions** to our speakers today by using the **Q&A button**
- This event is being recorded and will be made available on the RCSLT website and RCSLT YouTube channel

Speakers

Professor Sarah Wallace OBE FRCSLT

Consultant SLT, Wythenshawe Hospital, Manchester University NHS FT MAHSC Honorary Clinical Chair, The University of Manchester Visiting Professor, Manchester Metropolitan University & KU Leuven Vice Chair, IALP Dysphagia Committee

Vicky Thorpe

Specialist SLT & Joint Team Lead (In-patient and Feeding Team), Great Ormond Street Hospital for Children NHS FT

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Jade Farrell

Clinical Lead Speech and Language Therapist (Neuro-medical Sciences), Swansea Bay University Health Board

Alex Stewart PhD

Specialist Speech and Language Therapist, Great Ormond Street Hospital for Children



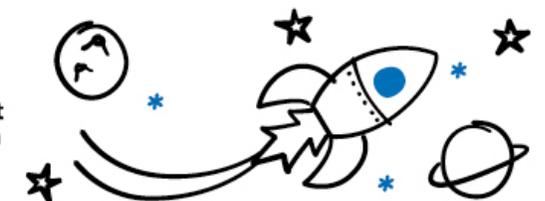
Technological innovation in FEES and critical care

Professor Sarah Wallace OBE FRCSLT

Consultant SLT, Wythenshawe Hospital, Manchester University NHS FT
MAHSC Honorary Clinical Chair, The University of Manchester
Visiting Professor, Manchester Metropolitan University & KU Leuven
Vice Chair, IALP Dysphagia Committee

Vicky Thorpe

Specialist SLT
Joint Team Lead – In-patient and Feeding Team
Great Ormond Street Hospital for Children NHS FT



Overview

Technological innovations in critical care and FEES

Emerging technologies

Benefits of technological advances for dysphagia care

Technological innovations in critical care

Artificial Intelligence and machine learning

AI-driven predictive analytics, sepsis detection

Advances in mechanical ventilation and organ support

Wearables

Smartwatch-style or smart socks for infants, real-time tracking of vital signs blood oxygen, ECG, and glucose

Digital Family Connectivity

Apps, Platforms

Virtual Reality

Trache training, VR to calm children during treatment, reduce stress, anxiety, and delirium

Smart sensors, Internet of Things

Connected medical devices for instant vitals

Tele-ICU

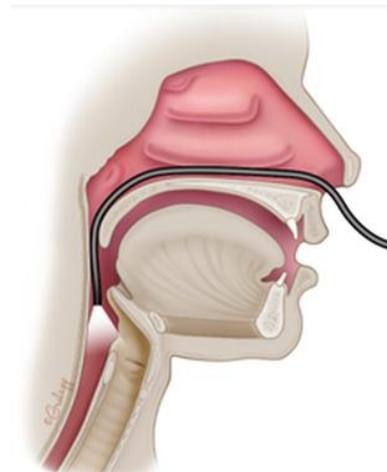
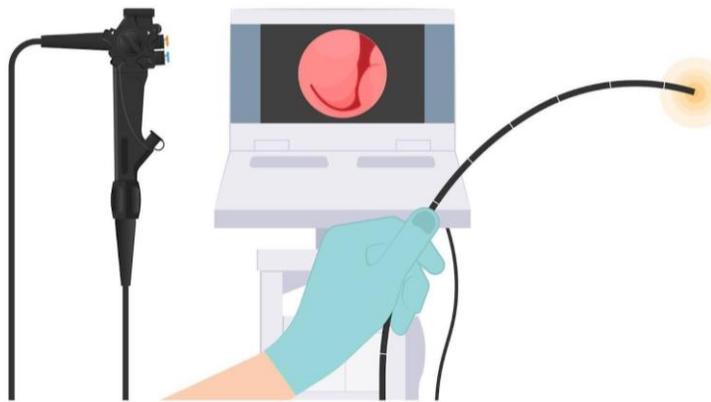
Access to experts, remote supervision

Simulation-based training

Evolution in FEES - adults

Flexible Endoscopic Evaluation of Swallowing

- First published in 1988 by Dr Susan Langmore
 - Structures, secretions, oral trials swallow, therapeutic strategies, biofeedback
- Developments in availability, protocols, clinical populations, interpretation e.g. DIGEST-FEES
- A reference tool for research into dysphagia phenotypes & treatments



Medical advances = FEES developments

Tracheostomy decannulation FEES protocol¹

FEES –Tensilon test²

FEES-Levodopa test³

Enabling early ECMO assessment⁴

Adjunct to laryngectomy assessment⁵

Expansion within paediatrics⁶, critical care⁷

Complex ventilation assessment – critical care, MI-E FEES⁸

Pandemic readiness⁹

¹Muhle et.al. 2021, ²Warnecke et.al. 2008, ³Warnecke et.al. 2016, ⁴Dixon & Wallace 2025, ⁵Coffey et.al. 2018, ⁶Pizzorni et.al. 2024, ⁷Wallace & McGrath 2021, ⁸Boggiano et.al. 2024, ⁹Boggiano et.al. 2020

Equipment

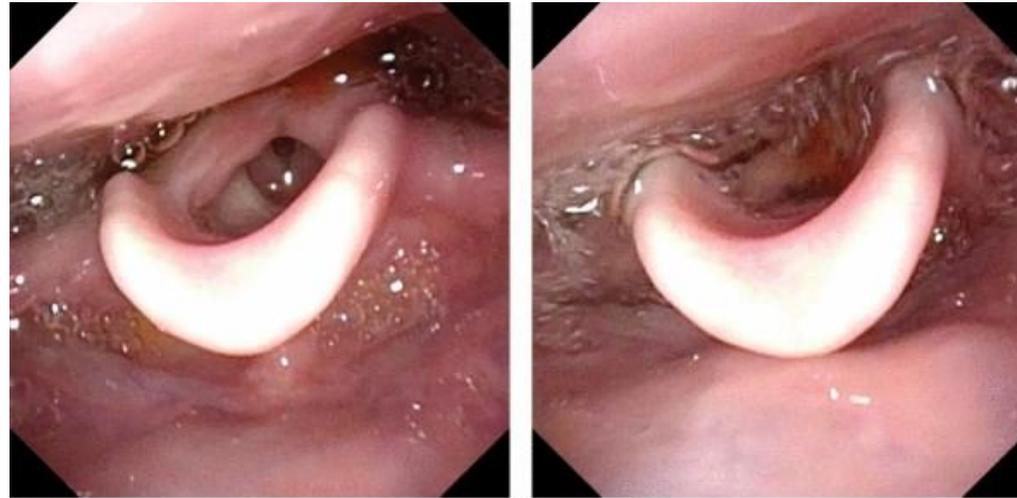
Image quality

- Camera processors and monitors – high-definition image capability
- Shift to LED light sources
- Advancement in chip-tip nasendoscope technology

Fibreoptic



Digital



Narrow Band Imaging
NBI



Impact of better image quality



Clearer, more detailed magnified view



Superior diagnostic accuracy of pathology, dysphagia



Enhanced SLT clinical knowledge and skill



BUT potential for over detection, overcautious recommendations

Compact FEES technology

Mobile, compact, all-in-one diagnostic system

Laptop enabled recording software

Facilitates FEES in community and remote settings



From this to this



Better portability for moving around the hospital

Scope decontamination advances

Chemical wash

30mins – 1 hr, high water consumption



Wipes

Convenient but wasteful



UV-C light

8 mins, 1 wipe

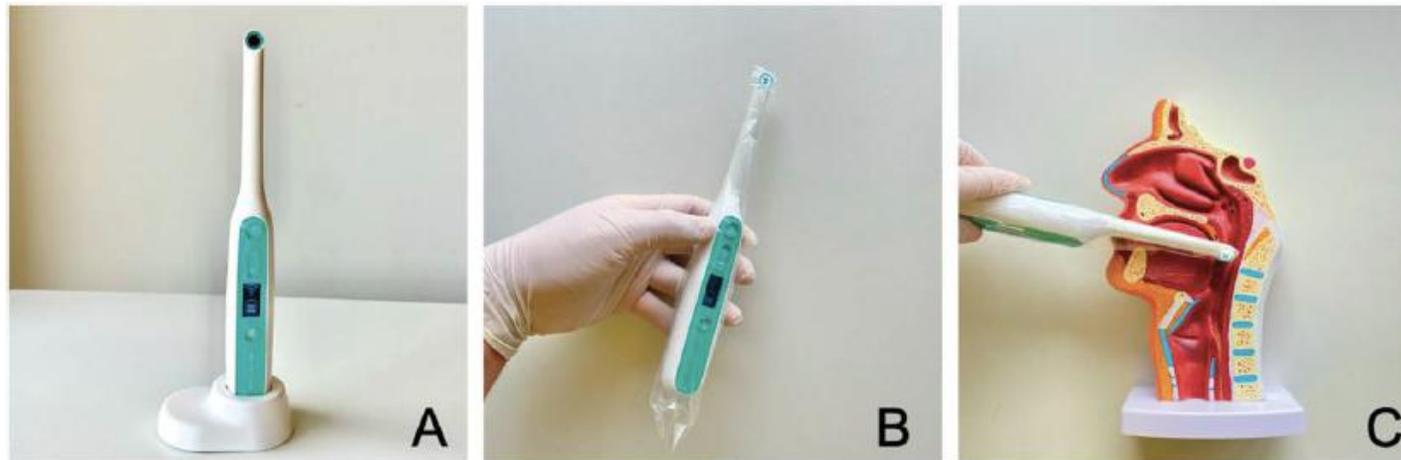


More sustainable

Miniaturisation of cameras

Wifi intraoral device

Figure 1. Intraoral camera. (A) Wireless device. (B) Equipment with disposable protect sheath cover. (C) The static endoscopic evaluation of swallowing procedure using an intraoral camera to assess swallowing.



- Potential use in low resource countries - poor access to nasendoscopes

Emerging technologies

Artificial Intelligence



FEES–CAD

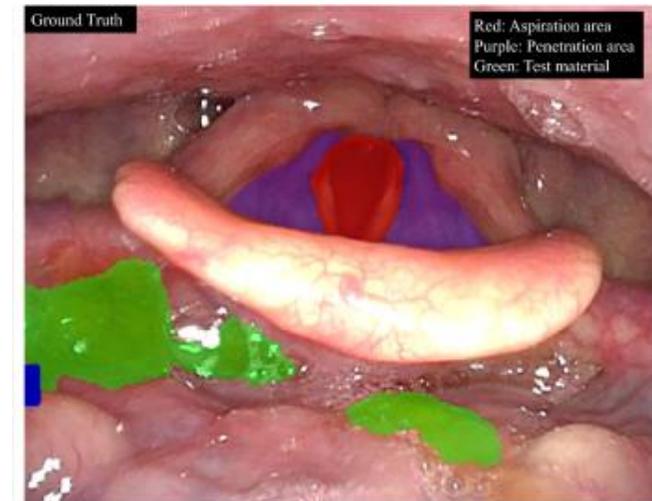
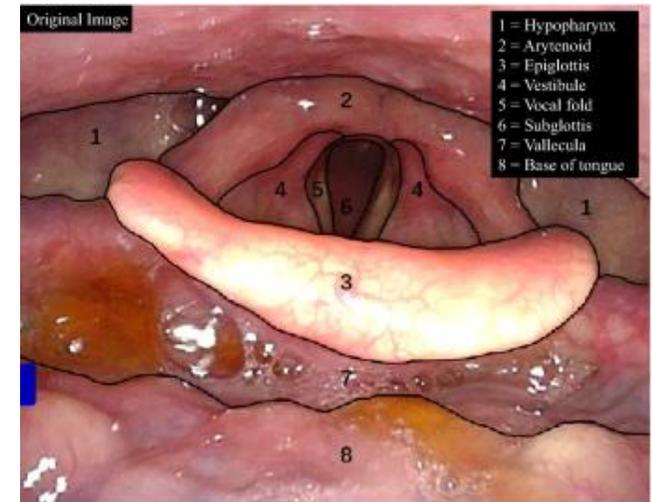
AI-assisted Computer-Aided Diagnosis system designed to analyse FEES videos

For classification & quantification of dysphagia

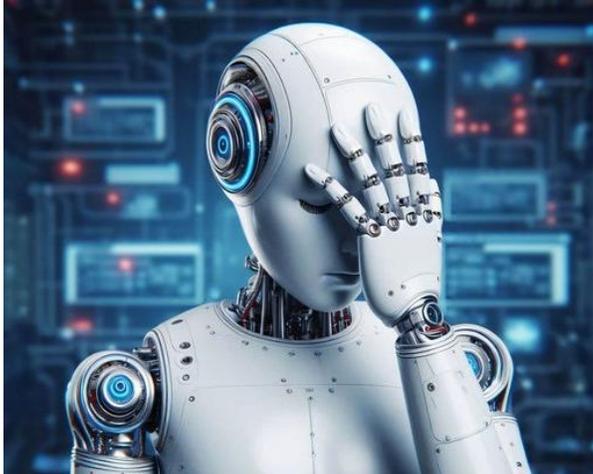
Detects penetration, aspiration and residue in the vallecula or hypopharynx

FEES-CAD

- Expert-level performance - 92.5% accuracy detecting pen-asp
- Automated segmentation of anatomical structures and bolus tracking
- Superior sensitivity to humans in identifying residue, penetration (100%) and bolus movement
- Tracks fast swallow motions and 'white-out' periods
- Assists identifying phenotypes of neurogenic dysphagia - stroke, PD, neuromuscular disease
- Generates segmented videos for ease of review



Limitations of FEES-CAD



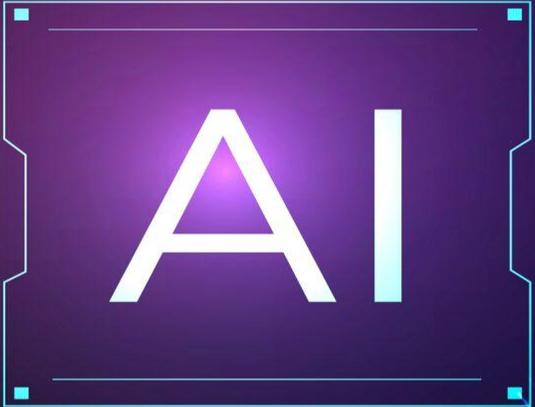
False positives for pharyngeal residue

'White-out' limits automatic analysis

Less able to discern complex cases
than humans

Algorithm needs more training on
different foods and saliva to improve
generalisability

FEES-CAD team are exploring 3D
reconstruction to aid 2D video analysis

A stylized icon of a computer chip or microprocessor. The letters 'AI' are prominently displayed in the center of the chip. The chip is surrounded by a complex network of glowing blue lines representing circuit traces, with small blue dots at various points along these lines. The background is a dark blue gradient.

AI

FEES-CAD has demonstrated that AI can augment the capability of SLTs, making FEES interpretation more efficient, accurate, and accessible

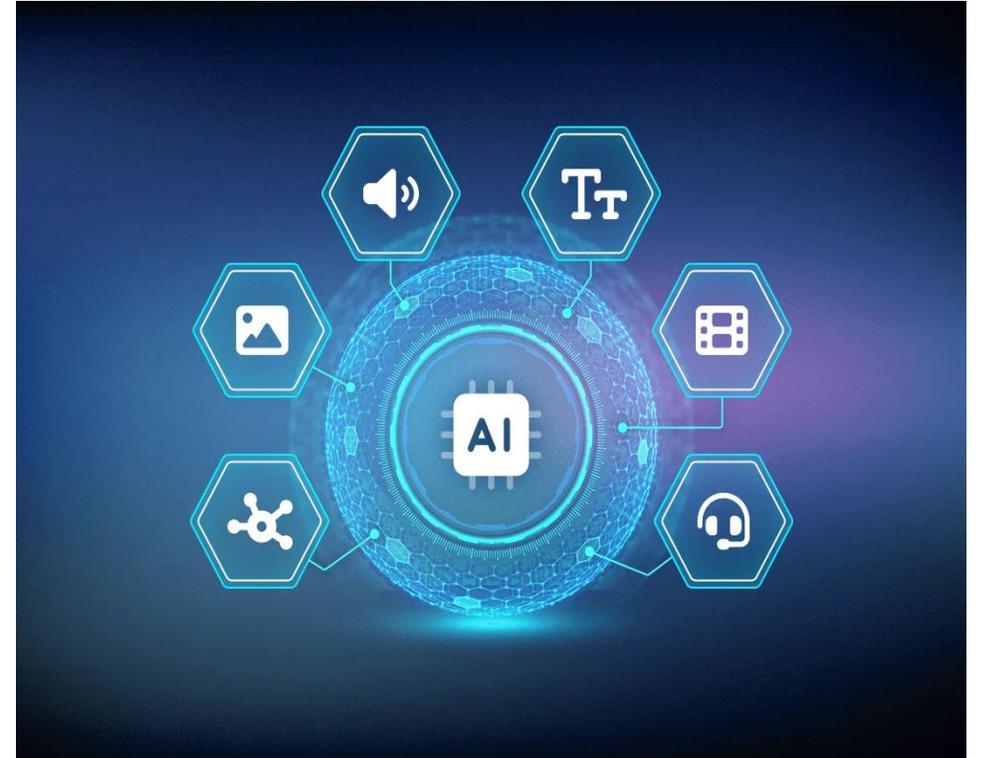
Potential of multimodal AI – data fusion

Integration of diverse data types – electronic health records, images, radiology, tests and genomics to provide precise diagnosis



How could multimodal AI work for FEES?

- Combine FEES image analysis with patient data
- Improve diagnostic accuracy beyond single-data AI models - mimics real-world dysphagia clinical reasoning
- Provide a holistic patient view
- Support more personalised dysphagia treatment
- Already guiding cancer treatments - linking tumour genomics with imaging



Considerations for multimodal AI use



Accountability for errors



Loss of professional autonomy, deskilling of critical thinking



Algorithmic bias (dataset bias) worsens healthcare inequalities



Explainability of clinical decision making (deep learning)



Data security



Ethical issues – consent, responsible use, regulatory frameworks

AI Predictive models



- FEES data could support AI machine-learning algorithm development for risk prediction and prognostication
- Underpinned by good data collection
- Enable targeting of high-risk patients and patient selection for FEES
- Already piloted in elderly frail, stroke research

Other technological possibilities for FEES & critical care



Additive technology

3D printing,
faster cutting-edge device
development



Robotics



Precision medicine

Tailor dysphagia
treatment to
genetic profile
(omics)
?add FEES dataset
to multi-omic data



Tele-medicine

Remote expert
supervision for
training / skill
d



ren r-
served services

Where is the evidence for FEES in the paediatric cohort?

Large evidence base to support the use of FEES in paediatrics¹; some controversy as to the accuracy of FEES in young children compared to VFSS²

Use and benefits of FEES in different paediatric cohorts:

- SMA1/neuromuscular³
- Neonates in NICU⁴
- Breastfed babies/infants⁵
- Complex airway & tracheostomy +/- ventilation

¹Miller et al 2020, ²Pavithran et.al. 2020 ³Mozzanica et.al. 2024 ⁴Reynolds et.al. 2016 ⁵Armstrong et.al. 2020

FEES practice and dysphagia care in paediatrics

- Paeds FEES is a developing service in UK
- SLT & ENT led service currently – improved efficiency with clinics aiming to diagnose airway pathology, swallow physiology and determine airway and feeding treatment plan
- Telepack, endoscopic video unit & 2.9mm laryngoscopes for neonates, infants and children
- Automated, objective analysis tools developed to support clinical decision-making
- Hybrid approach: rule-based analysis and deep learning strategies reliably detect swallowing abnormalities from paeds FEES videos with accuracy comparable to experts¹
- Areas to develop:
 - Valid Paeds FEES protocol & procedure²
 - Skilled workforce
 - SLT led clinics
 - Reliable & validated paediatric measurement scales (eg FEES-DIGEST) ¹Abasi et.al. 2024, ²Pizzorni et.al. 2024

How technological innovation can support dysphagia



Improve accuracy & reliability, reduce aspiration pneumonia



Shift to early, proactive, targeted, personalised care



Workforce efficient, smarter intervention



Improve equity of access across populations, healthcare settings and countries



Enhance clinical expertise through decision-support

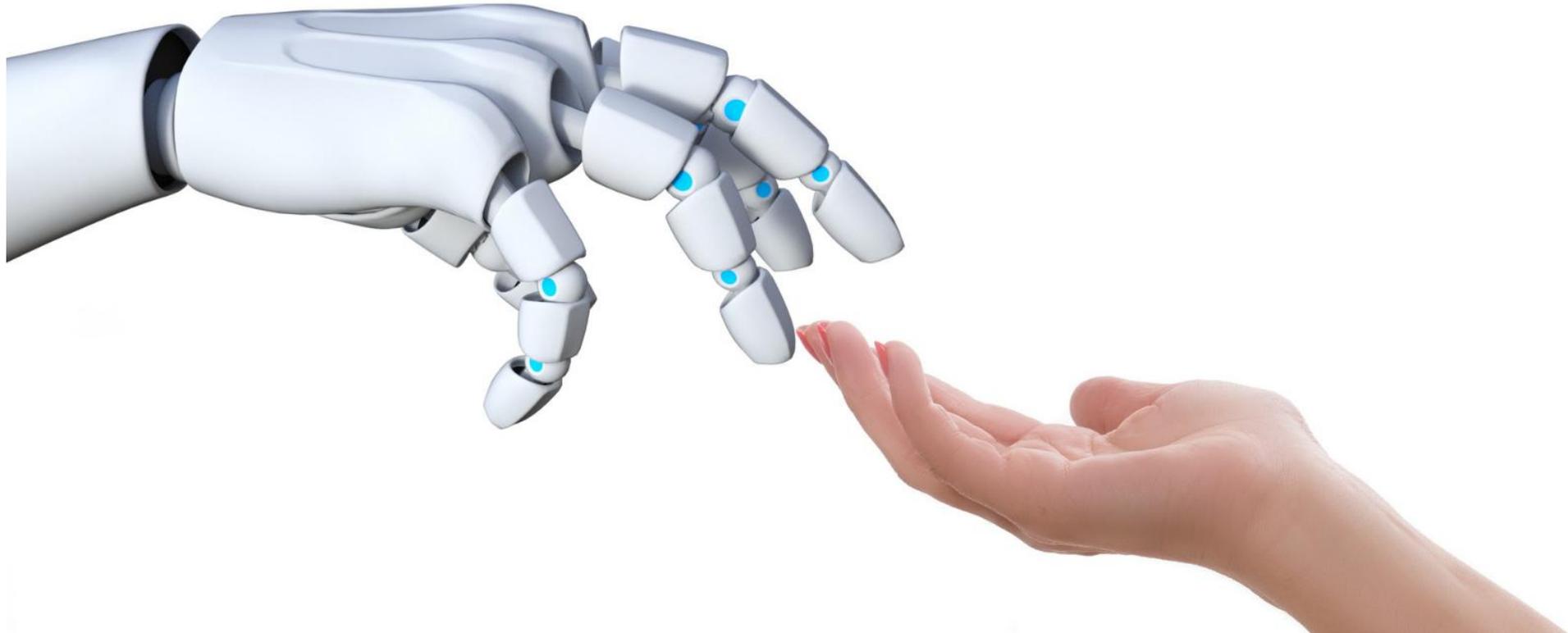


Support cutting-edge research



Improve patient outcomes

“Technology will never eliminate the need for human skill, connection and compassion”





Thank you

Any questions?

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Pharyngeal Electrical Stimulation (PES)

Advancing Dysphagia Rehabilitation

Nia Cunnah – Highly Specialist Speech and Language therapist (Stroke)

Jade Farrell – Clinical Lead Speech and Language Therapist (Neuro-medical Sciences)



PES in Swansea Bay UHB

- SLT department have purchased the PES base station and 15 catheters since March 2025
- SBUHB – first in Wales to be using PES. Treatment now spreading across other Health Boards
- 10 patients treated (March 2025 – Jan 2026)
- Continuing to evaluate data and cost savings and partner with Phagenesis and our ICU and Stroke Services to establish a long-term sustainable funding stream for catheters



sponsored by

ahpf
cymru-wales

WINNER

**Award for excellence
in rehabilitation**

Challenges facing health and social care

- Global healthcare spending increased by 40% (World Economic Forum, 2023)
- Financial constraints and growing needs are straining global health systems (WHO, 2025)
- The health sector is facing systemic and unsustainable demands (Department of Health and Social Care, 2021)

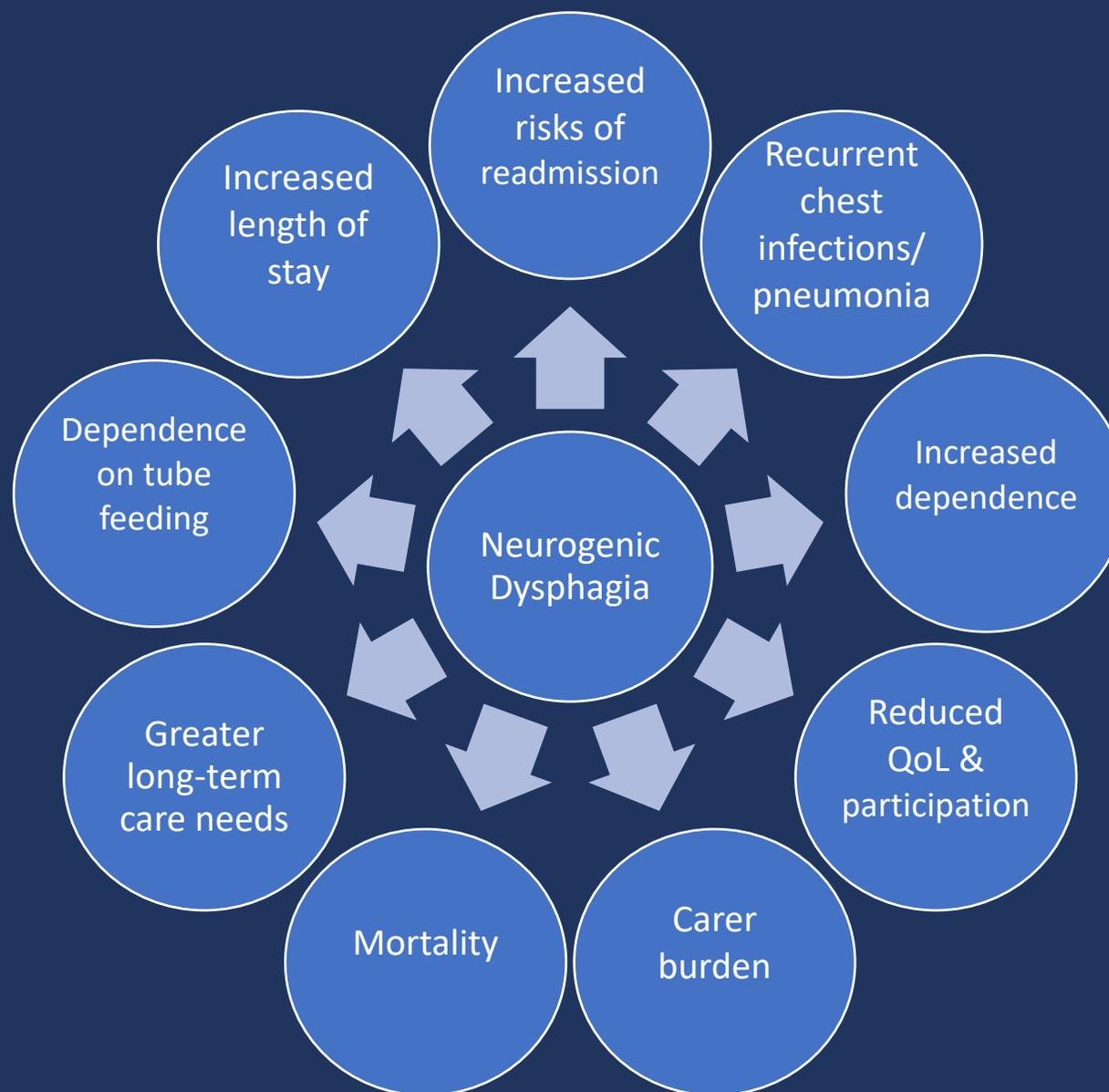
Innovation including technology enabled evidence-based rehabilitation is critical for improving outcomes and meeting rising clinical complexity and system strain

Dysphagia: Why It Matters



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Current Dysphagia Management



Current Treatment Limitations

Targets Symptoms, Not Root Cause

No direct evidence of neuroplasticity.

Limited Evidence-Base

Mixed evidence on current SOC. Lack validated treatment protocols.

Requires Active Patient Engagement

Makes early intervention more challenging.

Compensatory Interventions



- NBM or modified diets
- Alternate means of nutrition, including PEGs
- Pneumonia prevention strategies

Rehabilitative Interventions



- Swallowing exercises and manoeuvres
- Respiratory muscle strength training

Pharyngeal Electrical Stimulation

Phagenyx® Who can it help?

Patients with any of the following characteristics are ideal candidates for Phagenyx® treatment:

- ✓ Reduced or absent spontaneous swallowing
- ✓ Severely impaired swallow safety and efficiency
- ✓ Abnormal laryngeal / pharyngeal sensation

Patients with neurogenic dysphagia often experience one or more of the following:



- Excessive secretion pooling



- At risk of intubation



- Unable to decannulate



- Impaired airway protection including silent aspiration



- Significant pharyngeal residue



- At risk of PEG

Phagenyx System

Base Station
Patient-Tailored Stimulation

Dual-Action Catheter
Treatment & Feeding



Treatment Delivery



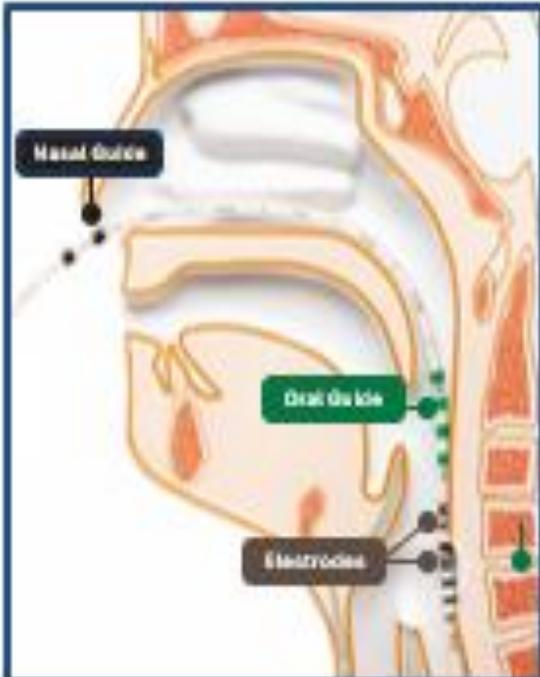
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1

Place

Insert catheter before first treatment and confirm positioning



2

Prepare

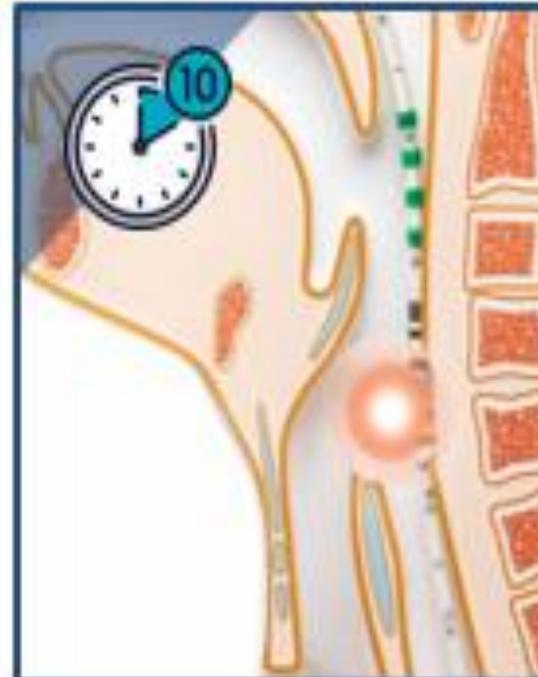
Simple interface guides users through stimulation optimization



3

Treat

Deliver 10 minutes of pharyngeal electrical stimulation



4

Repeat

Administer daily stimulation for 3-6 days



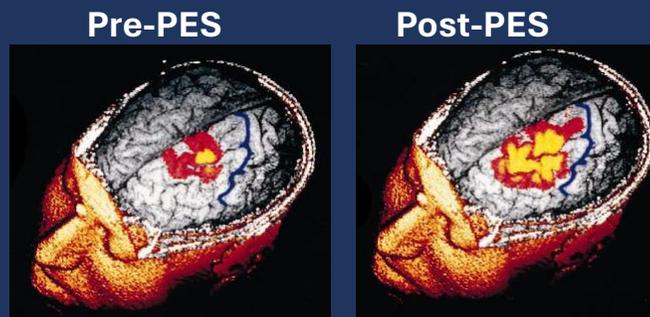
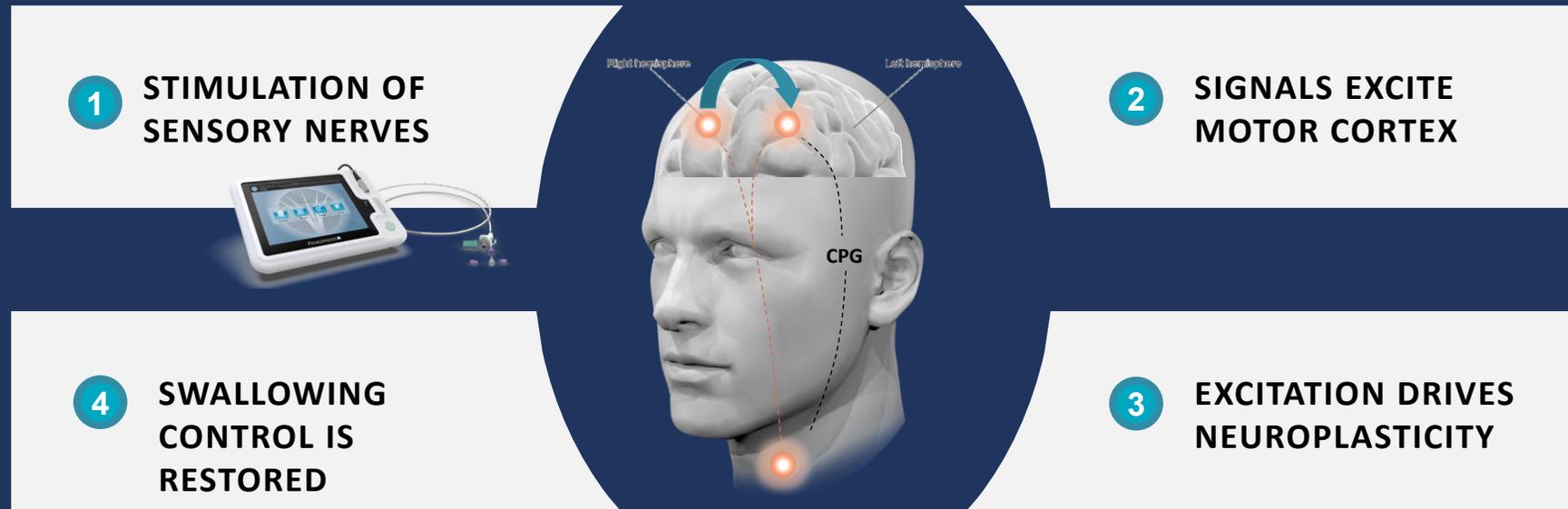
How does PES work?



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Phagenyx[®] works by overcoming peripheral desensitization, re-establishing connections and driving functional reorganization



Mechanism & Dose Optimization

13 STUDIES

Cortical reorganization validated by fMRI and MEG
Increased neurotransmitter, Substance P
Maximum tolerated stimulation intensity and duration

- 5Hz, 75% max intensity
- 10-minutes
- 3 to 6 days

Swallowing Safety & Efficiency

17 STUDIES

- Increased spontaneous swallow frequency
- Improved swallow timing
- Enhanced airway protection
- Improved secretion management
- Return to oral intake
- Faster diet advancement

Cost of Care

9 STUDIES

- Lower frequency of reintubation
- Rapid tracheostomy decannulation
- Reduced feeding tube dependency
- Length of stay reduction



PES Evidence Snapshot

- Phagenyx[®] treatment is validated by decades of rigorous clinical studies and supported by 30+ publications globally
- 2026 AHA/ASA Guidelines recognise PES as a treatment for reducing dysphagia severity, aspiration risk, and expediting decannulation (AHA/ASA Guidelines, 2026).
- Observational and cohort data show improvements in dysphagia severity and decannulation, especially in tracheotomised patients (PHADER cohort, 2020; JICS service evaluation, 2024).
- Subgroup analyse highlight early intervention and sensory threshold as predictors of benefit (Neurol. Res. & Practice, 2025).

UNITED KINGDOM

PAN-EUROPE & GERMANY

NATIONAL CLINICAL GUIDELINE FOR STROKE for the United Kingdom and Ireland

2023 edition



J Patients with tracheostomy and severe dysphagia after stroke may be considered for pharyngeal electrical stimulation to aid decannulation where the device is available and it can be delivered by a trained healthcare professional. [2023]

2023 Edition, 04 April 2023

109



<https://www.strokeguideline.org/ap/uploads/2023/04/National-Clinical-Guideline-for-Stroke-2023.pdf>



Guidance For: Tracheostomy Care

7. Routine care of the established tracheostomy

Humidification is important for patients with tracheostomies and laryngectomies, especially if the cuff is inflated and therefore the natural warmth and humidification of the nose bypassed. Humidification requirements and effectiveness should be regularly reviewed with multidisciplinary input, especially from respiratory physiotherapists. Mucolytics may be of benefit in some circumstances.

Secretions may be from below or above the glottis. Oral secretions may be significant, especially if the swallow is affected. Controlling oral secretions is beneficial for mouth care, for reducing aspiration risk and associated pulmonary infections, and may help progress a patient towards cuff deflation.

Copious secretions require multidisciplinary input respiratory physiotherapy assessment and SLT swallowing assessments are important. Strategies for managing oral secretions include:

- Good oral hygiene
- Regular sub-glottic suctioning
- Treat any lower respiratory tract infection
- Anti-sialagogues
 - Sub-lingual atropine (eye drops work well)
 - Systemic anticholinergics (hyoscine, glycopyrrrolate)
 - Salivary gland Botox injections (under image guidance)
- Improving laryngeal function
 - ACV
 - Pharyngeal Electrical Stimulation
 - Trials of cuff deflation
 - one-way valves e.g. Passy Muir

[https://www.ficm.ac.uk/sites/ficm/files/documents/2021-11/2020-08%20Tracheostomy care guidance Final.pdf](https://www.ficm.ac.uk/sites/ficm/files/documents/2021-11/2020-08%20Tracheostomy%20care%20guidance%20Final.pdf)

Guideline

EUROPEAN
STROKE JOURNAL

European Stroke Journal
2021, Vol. 4(3), 100006-CCV
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DOI: 10.1111/23969873.11039721
<https://onlinelibrary.wiley.com/doi/10.1111/23969873.11039721>
SAGE

European Stroke Organisation and European Society for Swallowing Disorders guideline for the diagnosis and treatment of post-stroke dysphagia

Rainer Dziewas^{1,2}, Emilia Michou^{3,4}, Michaela Trapl-Grundschober⁵, Avtar Lal⁶, Ethem Murat Arsavva⁷, Philip M Bath⁸, Pere Clave⁹, Jörg Glahn¹⁰, Shaheen Hamdy¹¹, Sue Powall¹¹, Antonio Schindler¹², Margaret Walshe¹³, Rainer Wirth¹⁴, David Wright¹⁵ and Eric Verin¹⁶

Abstract

Post-stroke dysphagia (PSD) is present in more than 50% of acute stroke patients, increases the risk of complications, in particular aspiration pneumonia, malnutrition and dehydration, and is linked to poor outcome and mortality. The aim of this guideline is to assist all members of the multidisciplinary team in their management of patients with PSD. These guidelines were developed based on the European Stroke Organisation (ESO) standard operating procedure and followed the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach. An interdisciplinary working group identified 20 relevant questions, performed systematic reviews and meta-analyses of the available evidence, assessed the quality of the available evidence and wrote evidence-based recommendations. Expert opinion was provided if not enough evidence was available to provide recommendations based on the GRADE approach. We found moderate quality of evidence to recommend dysphagia screening in all stroke patients to prevent post-stroke pneumonia and to early mortality and low quality of evidence to suggest dysphagia assessment in stroke patients having been identified as being at risk of swallowing dysfunction. Recommendations include: swallowing physiotherapy, acupuncture, nutrition treatment. Some of Overall, further research is needed.

Keywords
Dysphagia, swallow study, flexible endoscopy, diet, nutrition

Introduction

Recommendation 20: In patients with post-stroke dysphagia, we suggest treatment with rTMS, TES, tDCS and PES as adjunct to conventional dysphagia treatments to improve swallowing function.

Recommendation 21: In tracheotomized stroke patients with severe dysphagia, we suggest treatment with pharyngeal electrical stimulation to accelerate decannulation.

<https://journals.sagepub.com/doi/10.1177/23969873211039721>

Leitlinien für Diagnostik und Therapie in der Neurologie

AWMF-Registernummer: 036/011

Neurogene Dysphagie

3.5 Neurostimulation

Empfehlung 44: Vor Beginn einer Therapie mit einem Neurostimulationsverfahren soll das Störungsmuster so präzise wie möglich bestimmt werden.

Empfehlung 45: Alle Neurostimulationsverfahren sollen grundsätzlich als Ergänzung zur logopädischen/sprachtherapeutischen Schlucktherapie eingesetzt werden.

Empfehlung 46: Aufgrund der noch begrenzten Datenlage sollten die Neurostimulationsverfahren grundsätzlich im Rahmen von klinischen Studien oder Registern eingesetzt werden.

Empfehlung 47: Die pharyngeale elektrische Stimulation (PES) sollte zur Behandlung der Dysphagie bei tracheotomierten Schluckanfallpatienten mit supratentorieller Läsion eingesetzt werden. Der Teilnahme an prospektiven klinischen Registern wird empfohlen.

https://dnvp9c1uo2095.cloudfront.net/wp-content/uploads/2013/01/030111_LL-Neurogene_Dysphagie_2020.pdf

American Stroke Association (ASA) Guidelines - 2026



CLASS (STRENGTH) OF RECOMMENDATION	LEVEL (QUALITY) OF EVIDENCE [‡]
Class 1 (STRONG) Benefit >>> Risk Suggested phrases for writing recommendations: <ul style="list-style-type: none"> • Is recommended • Is indicated/useful/effective/beneficial • Should be performed/administered/other • Comparative-Effectiveness Phrases[†]: <ul style="list-style-type: none"> - Treatment/strategy A is recommended/indicated in preference to treatment B - Treatment A should be chosen over treatment B 	Level A <ul style="list-style-type: none"> • High-quality evidence[‡] from more than 1 RCT • Meta-analyses of high-quality RCTs • One or more RCTs corroborated by high-quality registry studies
Class 2a (MODERATE) Benefit >> Risk Suggested phrases for writing recommendations: <ul style="list-style-type: none"> • Is reasonable • Can be useful/effective/beneficial • Comparative-Effectiveness Phrases[†]: <ul style="list-style-type: none"> - Treatment/strategy A is probably recommended/indicated in preference to treatment B - It is reasonable to choose treatment A over treatment B 	Level B-R (Randomized) <ul style="list-style-type: none"> • Moderate-quality evidence[‡] from 1 or more RCTs • Meta-analyses of moderate-quality RCTs
Class 2b (WEAK) Benefit ≥ Risk Suggested phrases for writing recommendations: <ul style="list-style-type: none"> • May/might be reasonable • May/might be considered • Usefulness/effectiveness is unknown/unclear/uncertain or not well-established 	Level B-NR (Nonrandomized) <ul style="list-style-type: none"> • Moderate-quality evidence[‡] from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies • Meta-analyses of such studies
Class 3: No Benefit (MODERATE) Benefit = Risk (Generally, LOE A or B use only) Suggested phrases for writing recommendations: <ul style="list-style-type: none"> • Is not recommended • Is not indicated/useful/effective/beneficial • Should not be performed/administered/other 	Level C-LD (Limited Data) <ul style="list-style-type: none"> • Randomized or nonrandomized observational or registry studies with limitations of design or execution • Meta-analyses of such studies • Physiological or mechanistic studies in human subjects
Class 3: HARM (STRONG) Risk > Benefit Suggested phrases for writing recommendations: <ul style="list-style-type: none"> • Potentially harmful • Causes harm • Associated with excess morbidity/mortality • Should not be performed/administered/other 	Level C-EO (Expert Opinion) <ul style="list-style-type: none"> • Consensus of expert opinion based on clinical experience <p>COR and LOE are determined independently (any COR may be paired with any LOE).</p> <p>A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.</p> <p>* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).</p> <p>† For comparative-effectiveness recommendations (COR 1 and 2a; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.</p> <p>‡ The method of assessing quality is evolving, including the application of standardized, widely-used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.</p> <p>COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.</p>

- PES recognised as the only early intervention in Acute Ischemic Stroke Patients that reduces both dysphagia severity and the risk of aspiration
- Reinforces that dysphagia is not a secondary issue but directly impacts pneumonia risk, length of stay and recovery.
- Explicitly names PES as a treatment that improves swallowing and reduces aspiration – placing PES in a very small group of interventions that go beyond screening and diet modification.
- The recommendation is based on randomized and cohort evidence.

Why we invested in PES



Evidence for restorative therapy beyond compensation.



Existing FEES & VFSS infrastructure to assess and target therapy.



Learning from UK sites, trial and evidence base with positive outcomes



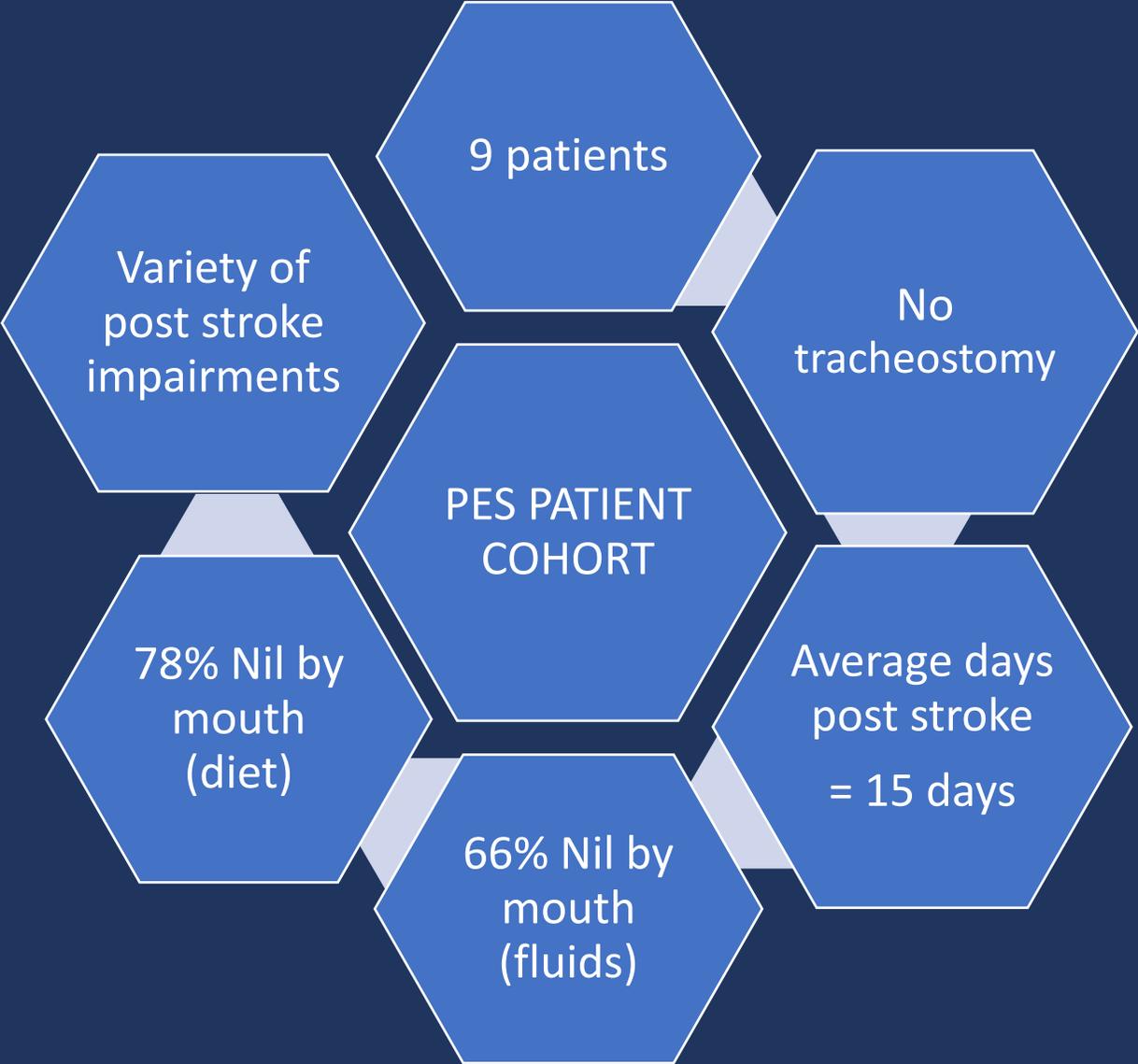
Invest to save model

PES Patient Cohort



GIG
CYMRU
NHS
WALES

Bwrdd Iechyd Prifysgol
Bae Abertawe
Swansea Bay University
Health Board



Un Bae Ar y Cyd
One Bay Way

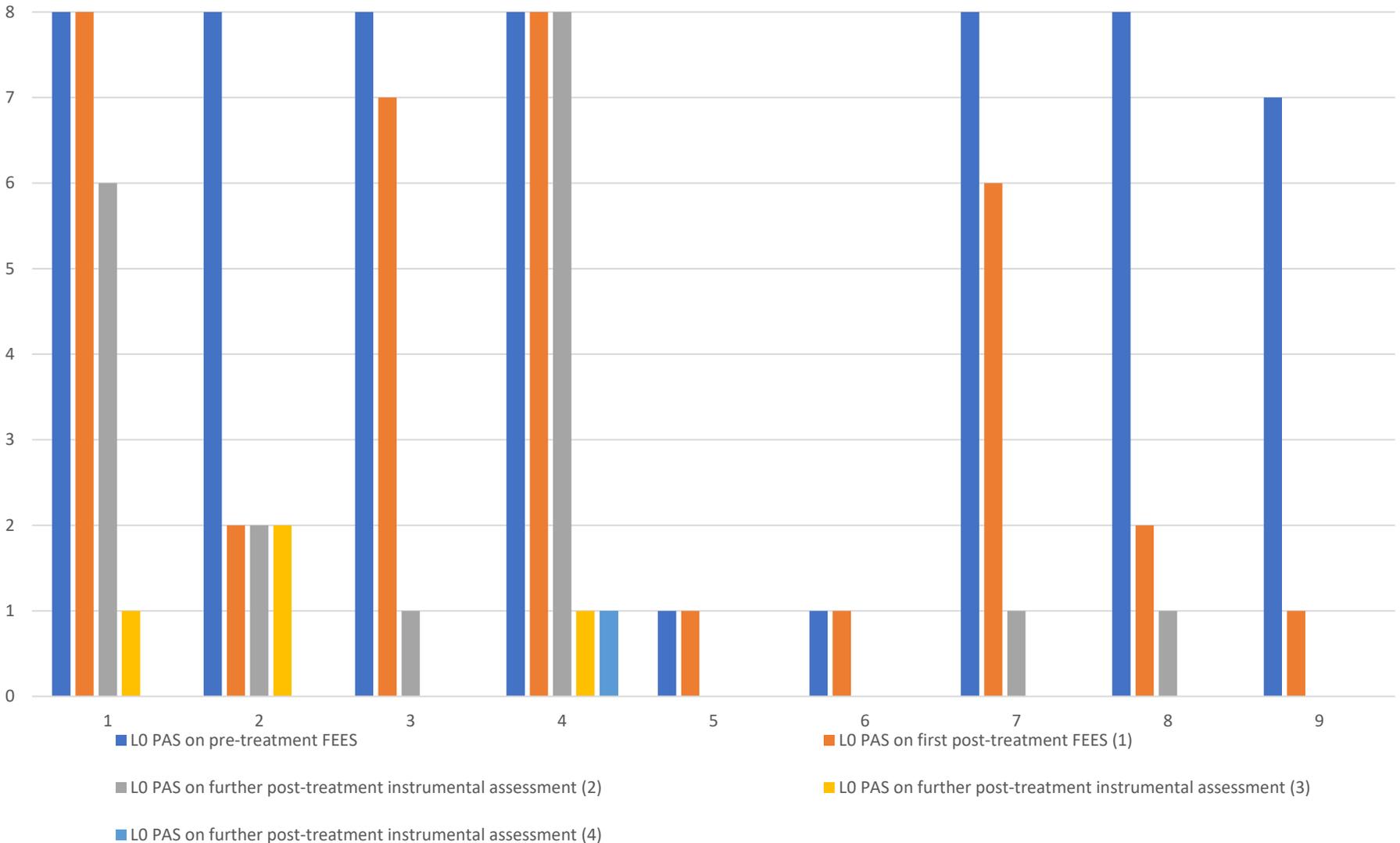
Penetration Aspiration Scale (PAS)



GIG
CYMRU
NHS
WALES

Bwrdd Iechyd Prifysgol
Bae Abertawe
Swansea Bay University
Health Board

PAS Level 0 Thin Fluids



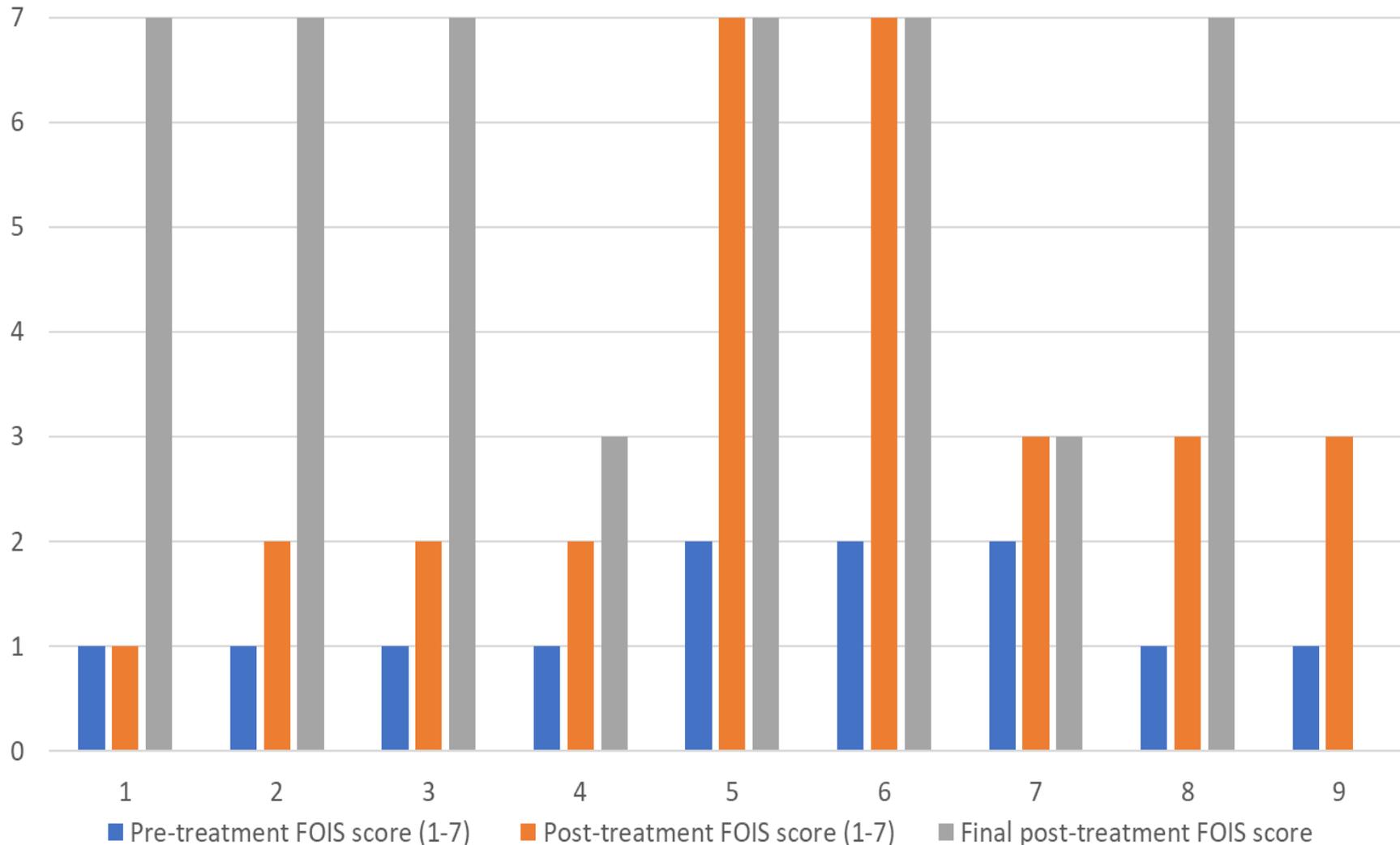
- 1 = Material does not enter airway
- 2 = Material enters airway, remains above vocal folds, is ejected from airway
- 3 = Material enters airway, remains above vocal folds, not ejected from airway
- 4 = Material enters airway, contacts vocal folds, is ejected from airway
- 5 = Material enters airway, contacts vocal folds, is not ejected from airway
- 6 = Material enters airway, passes below vocal folds, is ejected into larynx or out of airway
- 7 = Material enters airway, passes below vocal folds, is not ejected from trachea despite effort
- 8 = Material enters airway, passes below vocal folds, no effort made to eject

Functional Oral Intake Scale (FOIS)



GIG
CYMRU
NHS
WALES

Bwrdd Iechyd Prifysgol
Bae Abertawe
Swansea Bay University
Health Board



7 = Total oral intake, no restrictions

6 = Total oral intake, but avoid specific foods or liquids

5 = Total oral intake of multiple consistencies, requiring special prep

4 = Total oral intake of a single consistency

3 = Tube supplements with consistent oral intake

2 = Tube dependent, minimal oral intake

1 = Tube dependent, no oral intake

Summary



Patient Feedback



GIG
CYMRU
NHS
WALES

Bwrdd Iechyd Prifysgol
Bae Abertawe
Swansea Bay University
Health Board

The stroke affected my right side in its entirety, and I couldn't eat and drink or speak. I didn't have the PEG and in a very short space of time I'm eating and drinking normally. The treatment has been life changing!

Without that treatment Dad would still be at the point where he was on that PEG for five or six hours a day. It has made a huge difference to our lives having that PEG out



Un Bae Ar y Cyd

One Bay Way

Key Takeaways



Problem → Dysphagia carries substantial patient and system burden.



Solution → PES is an evidence based, technology-enabled therapy with guideline support (AHA/ASA Guidelines, 2026).



Impact → SBUHB experience: positive outcomes with ongoing work to continue demonstrating impact and ensuring sustainable long term funding support is available.

Diolch

Thank you

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References

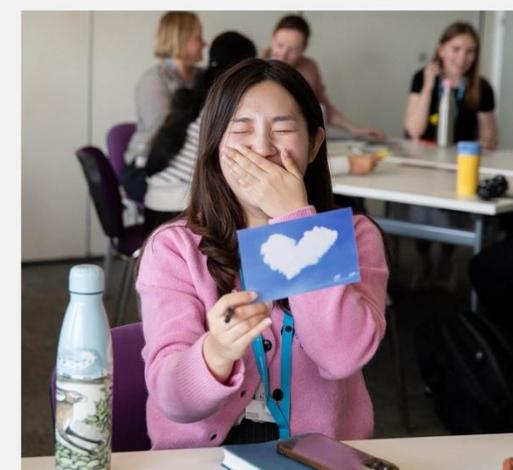
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High resolution impedance manometry: what is it and how is it changing practice?

Alex Stewart PhD

Specialist Speech and Language Therapist, Great
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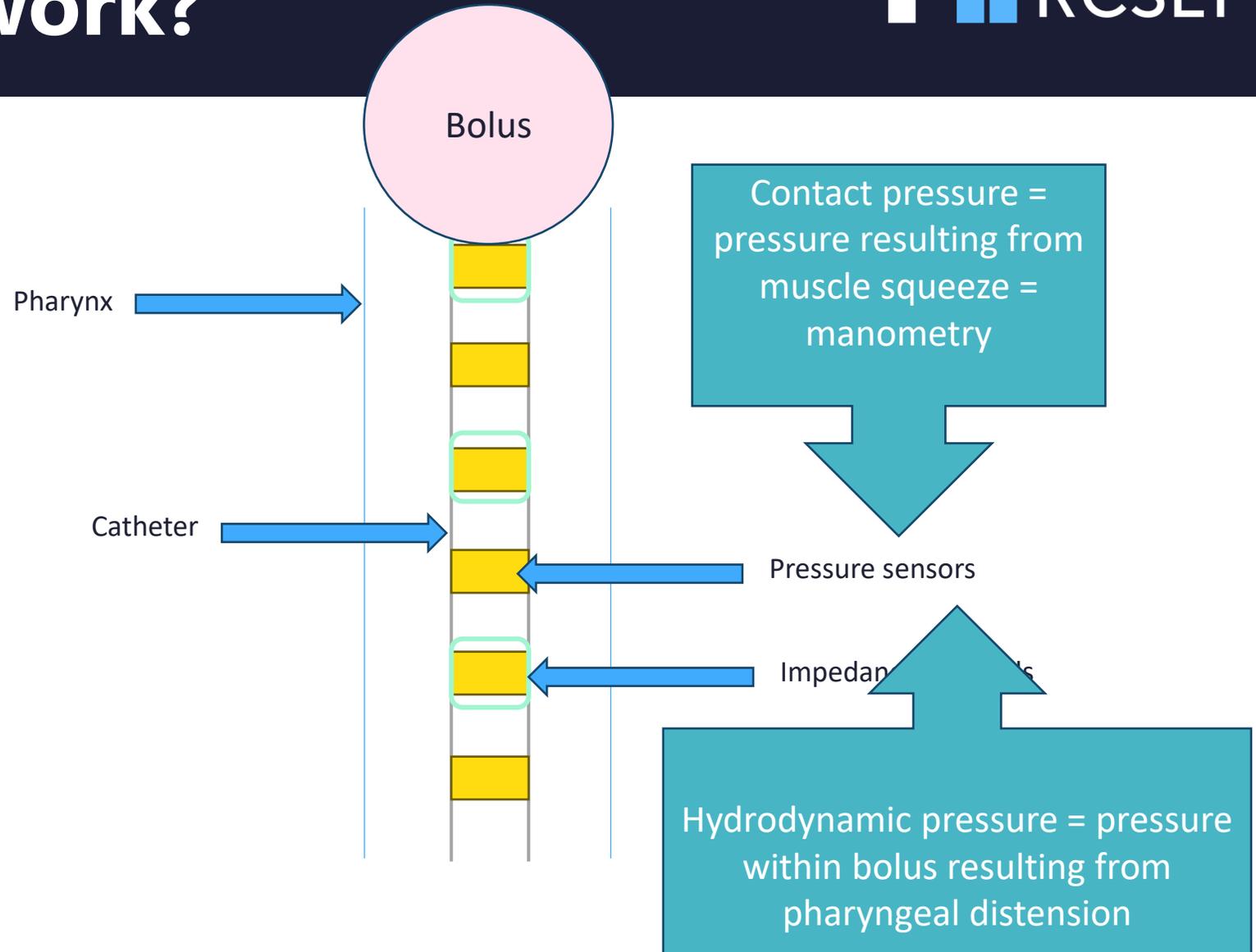


High resolution impedance manometry ■ ■ ■ RCSLT



How does HRIM work?

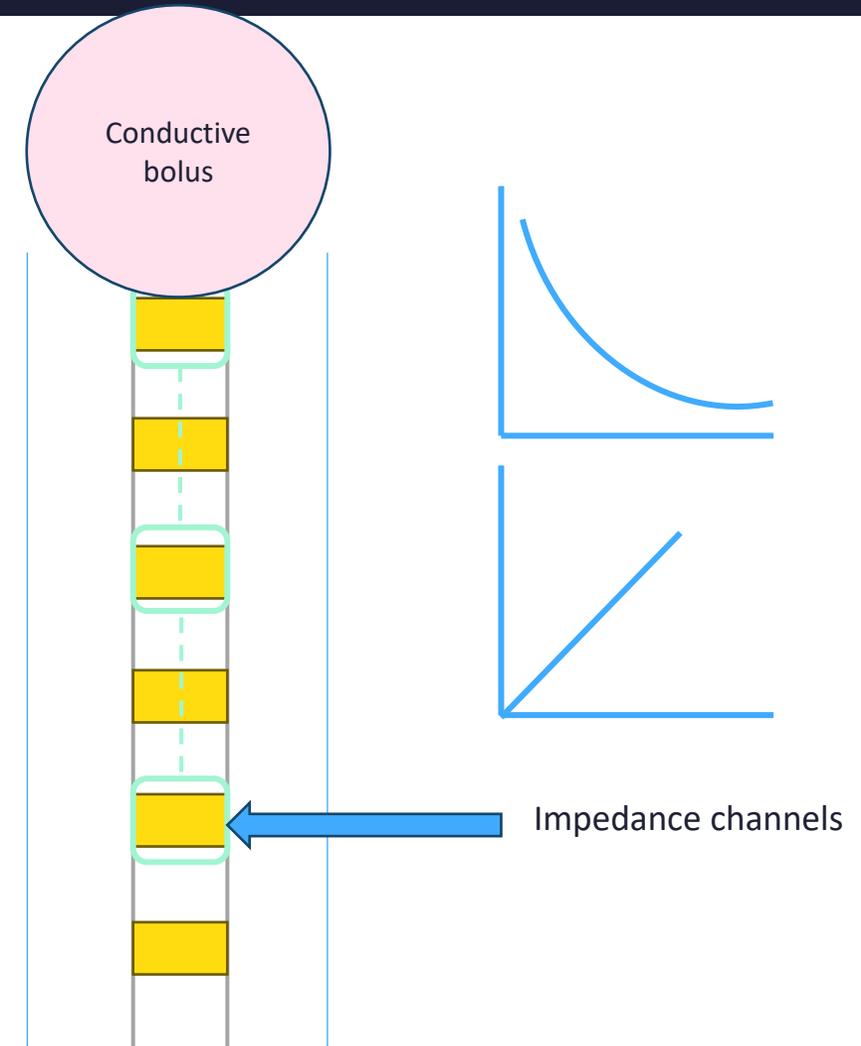
- Measure of pressure
- Effective swallowing involves pharyngeal contractility and distension to achieve pressure flow appropriate to bolus size and consistency.



Impedance measurement

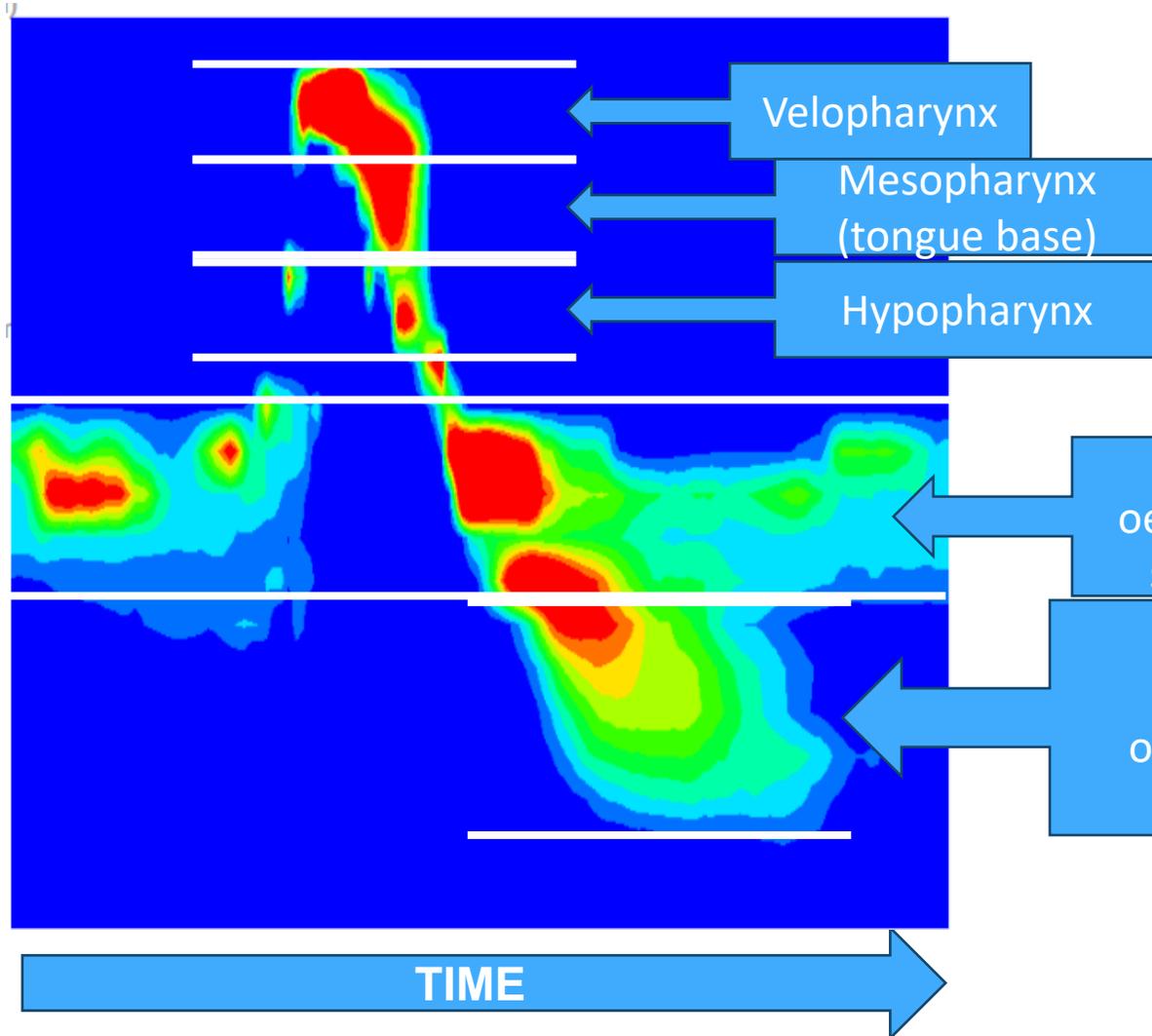
- Impedance = resistance to flow = drops with bolus presence
- Admittance = admits flow = increases with bolus presence
- Presence of bolus and flow

HRIM = PRESSURE FLOW ANALYSIS

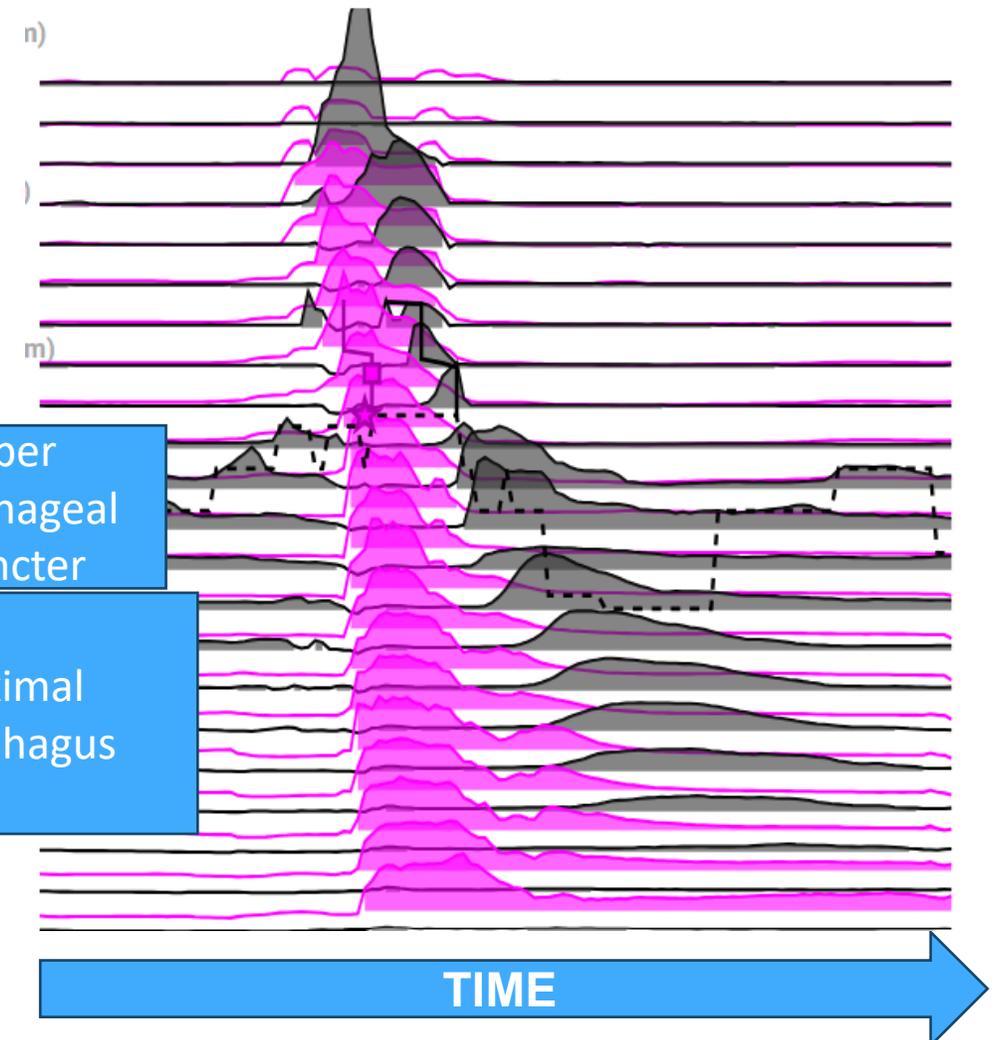


Visualising the swallow

Topography plot



Line plot



Numbers!

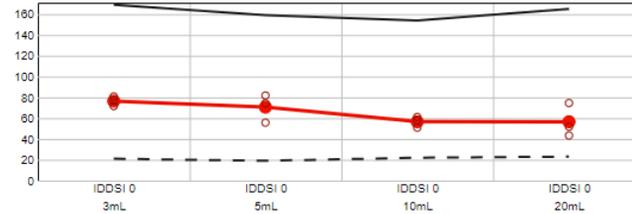
Swallow Properties		
PhCI	395.19	mmHg.s.cm
VCI	225.53	mmHg.s.cm
MCI	95.34	mmHg.s.cm
HPCI	74.32	mmHg.s.cm
UES IRP	-5.13	mmHg
UES RT	0.65	s
UES Max Adm	4.78	mS
IBP	-5.81	mmHg
Swallow Risk Index	0.37	

- Core metrics
 - Pharyngeal contraction
 - Upper oesophageal sphincter
 - Relaxation
 - Opening
- Composite
 - Risk of aspiration

And graphs!

- Normative values

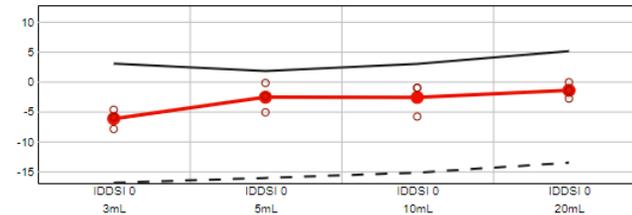
Hypopharyngeal Contractile Integral

 Include in report


Graphed Values (mmHg.s.cm) and Median

	IDDSI 0 3mL	IDDSI 0 5mL	IDDSI 0 10mL	IDDSI 0 20mL
Mean	76.44	70.60	56.62	56.52
Median	76.80	74.32	57.82	51.70
P05	21.00	19.00	22.00	23.00
P95	169.00	159.00	154.00	165.00

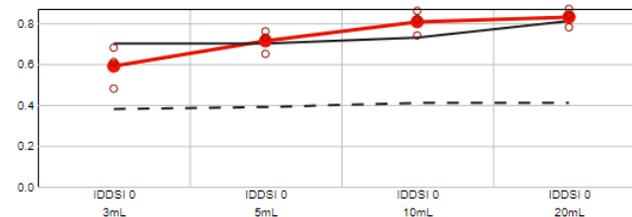
Upper Esophageal Integrated Relaxation Pressure

 Include in report


Graphed Values (mmHg) and Median

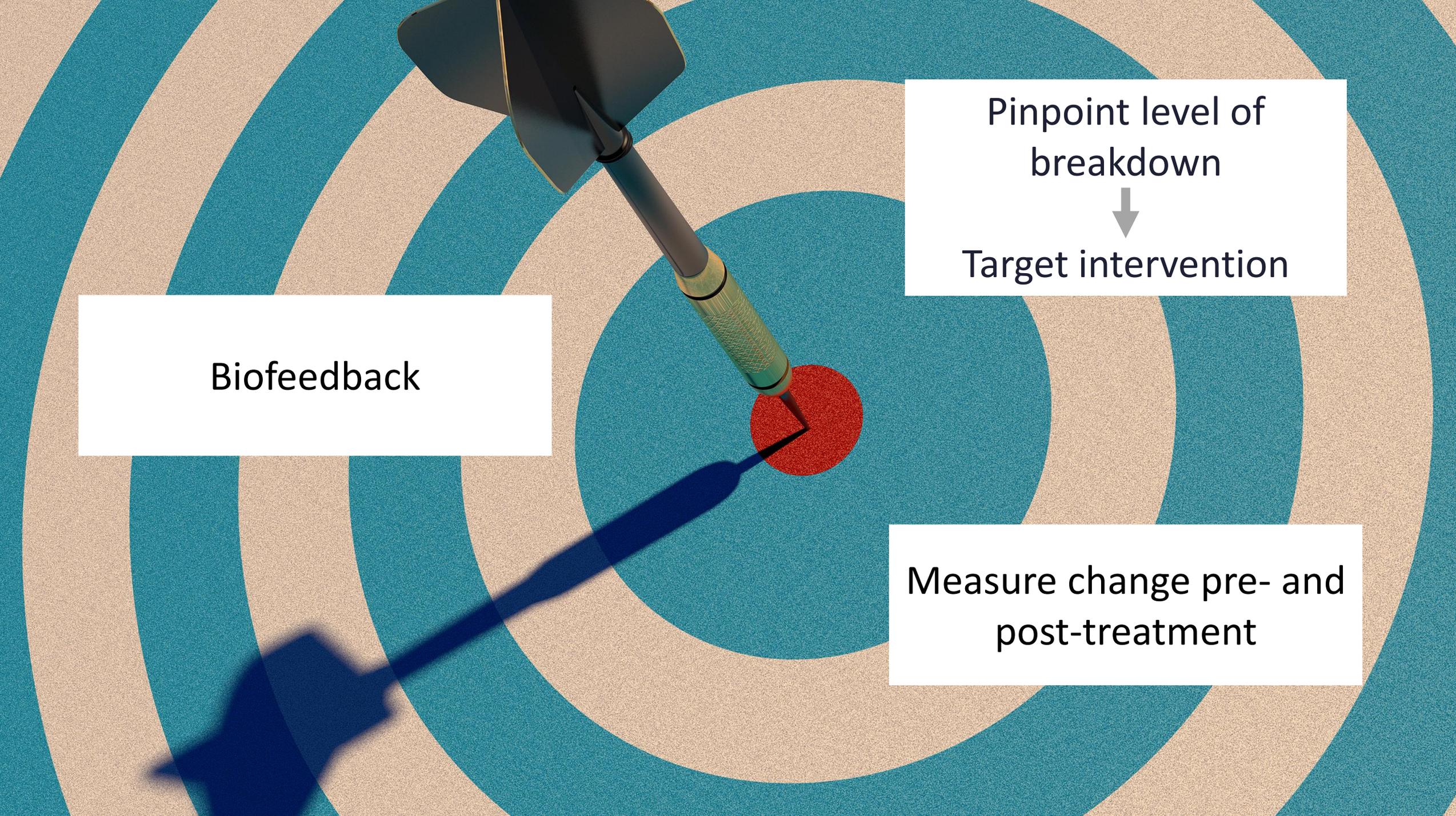
	IDDSI 0 3mL	IDDSI 0 5mL	IDDSI 0 10mL	IDDSI 0 20mL
Mean	-6.19	-2.61	-2.65	-1.48
Median	-5.95	-2.47	-1.07	-1.47
P05	-16.90	-16.10	-15.21	-13.55
P95	2.99	1.77	2.93	5.08

Upper Esophageal Sphincter Relaxation Time

 Include in report


Graphed Values (s) and Median

	IDDSI 0 3mL	IDDSI 0 5mL	IDDSI 0 10mL	IDDSI 0 20mL
Mean	0.59	0.71	0.81	0.83
Median	0.61	0.73	0.82	0.84
P05	0.38	0.39	0.41	0.41
P95	0.70	0.70	0.73	0.81



Biofeedback

Pinpoint level of
breakdown
↓
Target intervention

Measure change pre- and
post-treatment

ORIGINAL ARTICLE **OPEN ACCESS**

Defining Pharyngeal and Upper Esophageal Sphincter Disorders on High-Resolution Manometry-Impedance: The Leuven Consensus

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SLT led high-resolution manometry position paper

September 2025



High resolution manometry competency framework for speech and language therapists

September 2025

Now and the Future

- Understand swallow physiology
- Targeted interventions
- Help determine dose effects
- Improve measurable outcomes
- Develop new interventions





Q&A



Evaluation



Evaluation



Swallowing Awareness Day

18 March 2026

If you enjoyed today's webinar, please join us again on Swallowing Awareness Day to highlight people's eating, drinking and swallowing difficulties.

To find out more, visit:

<https://www.rcslt.org/events/swallowing-awareness-day-2026/>

#SwallowAware2026





Thank you



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