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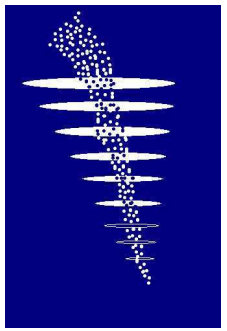
UCL Université catholique de Louvain

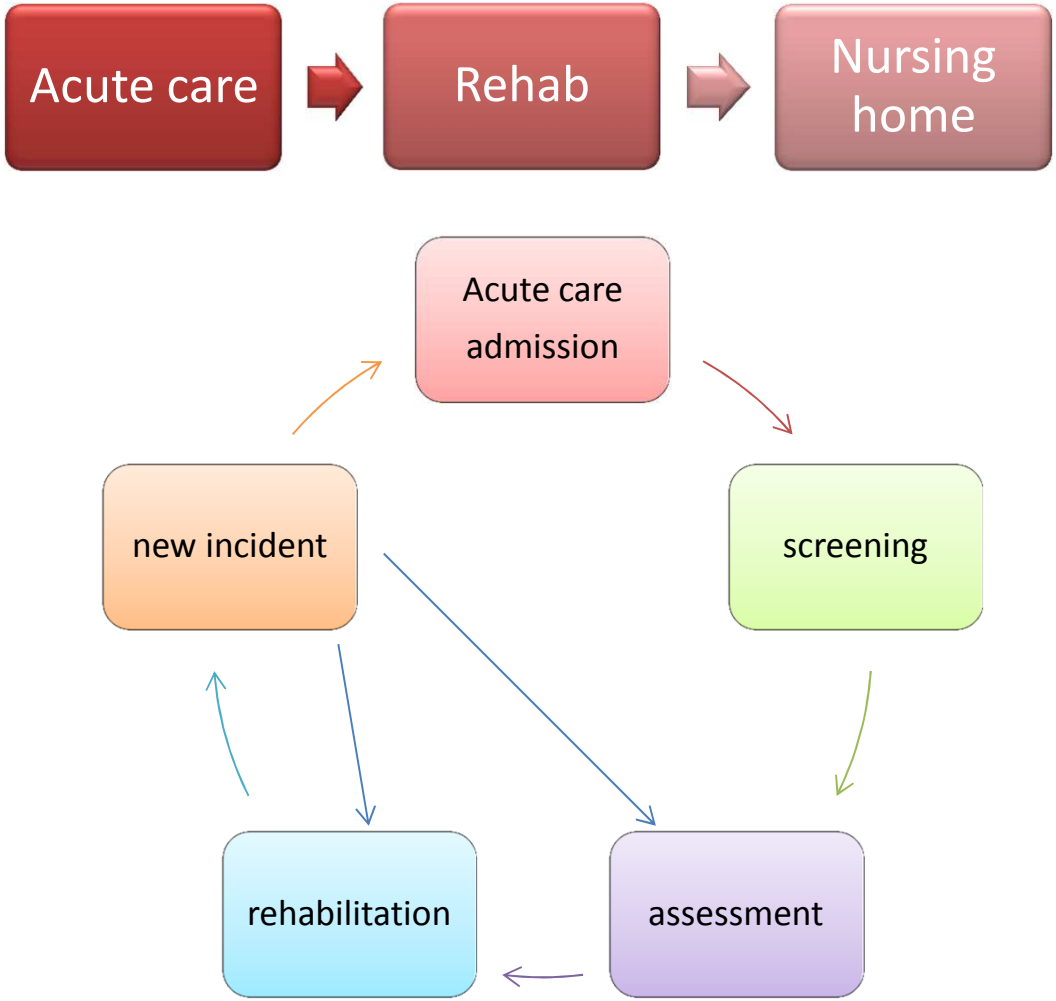
Outils principaux de dépistage de la dysphagie oropharyngée: que choisir?

G Desuter MD MSc

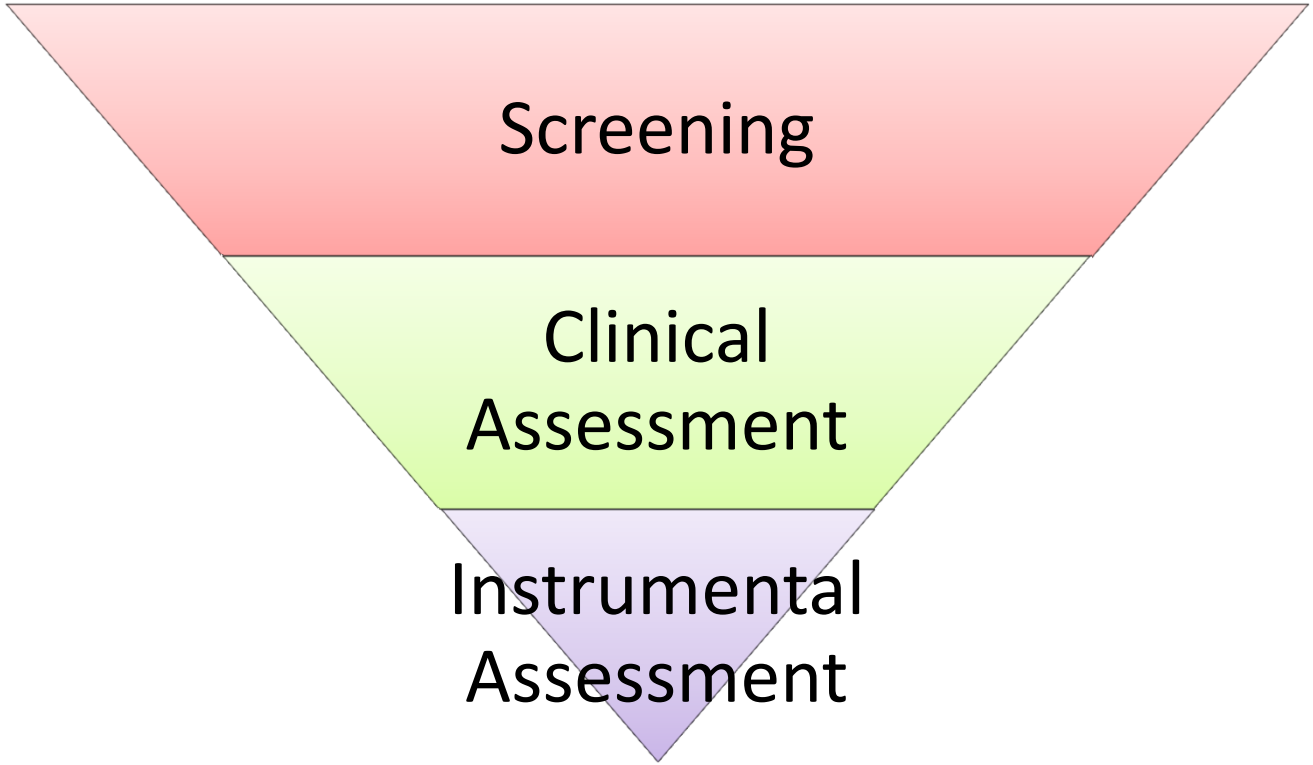
Voice and Swallowing Clinic

Brussels, Belgium

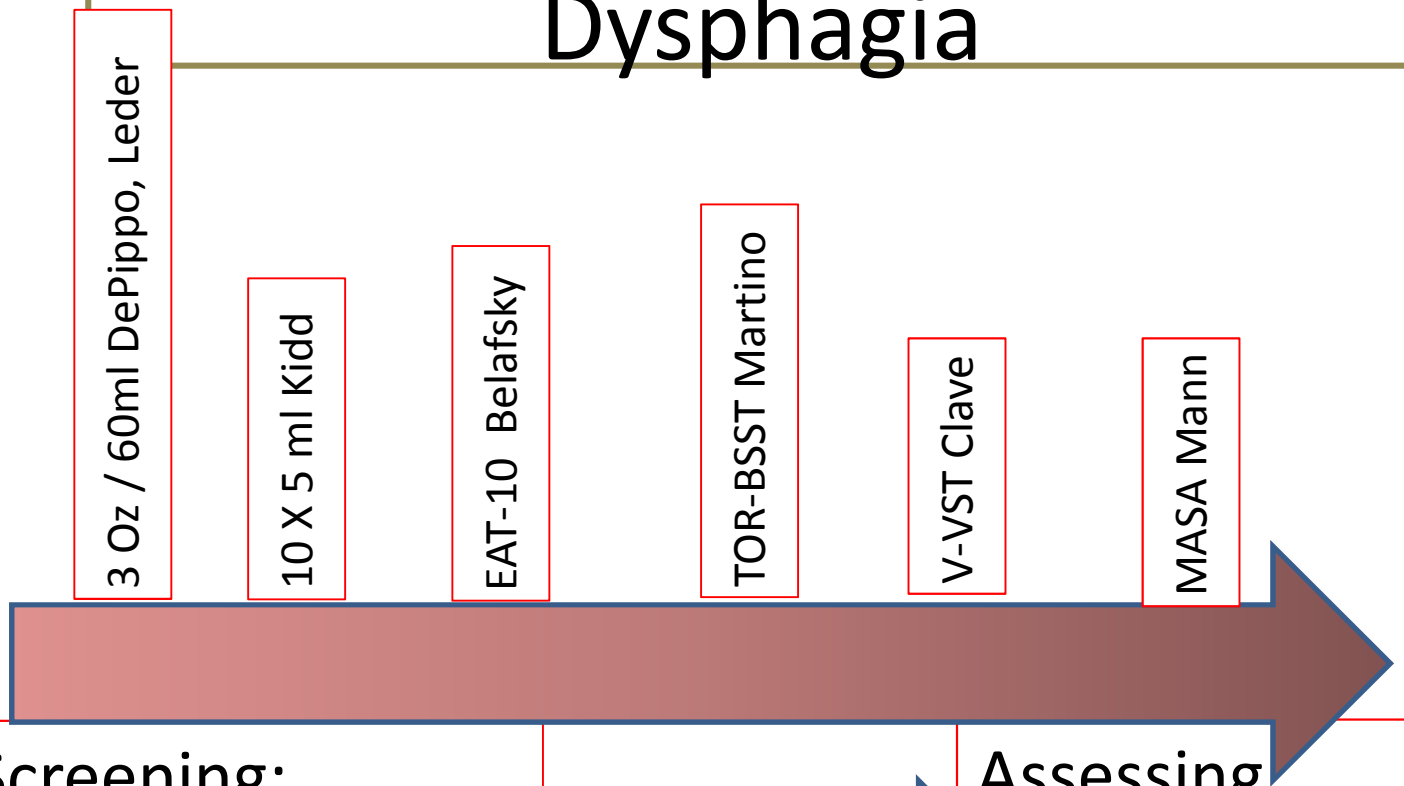



Acute care
Rehab
Nursing home
Acute care admission
screening
assessment
rehabilitation
new incident

In the ideal world….



Screening/assessment test for Dysphagia



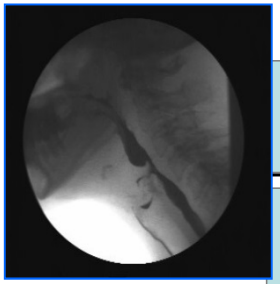
Screening:

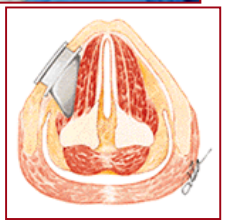
-high sensitivity
-first hours after admission
-24/7
-low risk
-fast
-low cost
-answer OPD ? : Y/N !

Assessing:

-high specificity
-highly qualified people
-insights on causes/diagnostics
-therapy orientation
-time consuming
-insights on prognostic

Clinical Pathway





Dysphagia Screening
Cough
Impaired MNA
Medical History of Aspiration Pneumonia

Work -Up
Speech Therapist Assessment
ENT Assessment
FEES

Videofluoroscopy
MBS

Videofluoromanometry
VFM

Complementary advices
Neurology
Gastro-enterology
Pneumology

Treatment Planning
Restore partial or total Oral feedi
Reduce Aspiration Risk
Treat Nutritional Inbalance

ing once a week

Non-oral Feeding Strategy
NGT
PEG
Central Line

Physiotherapy
posture
Pulmonar capacity enhancing
Bronchial clearing

Food Texture
Food counceling
Code 8000

Oral Feeding Rehabilitation
Code TOM

Medication
Against Drooling
Specific treatment

Surgery
Thracheostomy
Thyroplasty, Zenker ...
Functional laryngectomy

SCREENING & Call for the coordinator

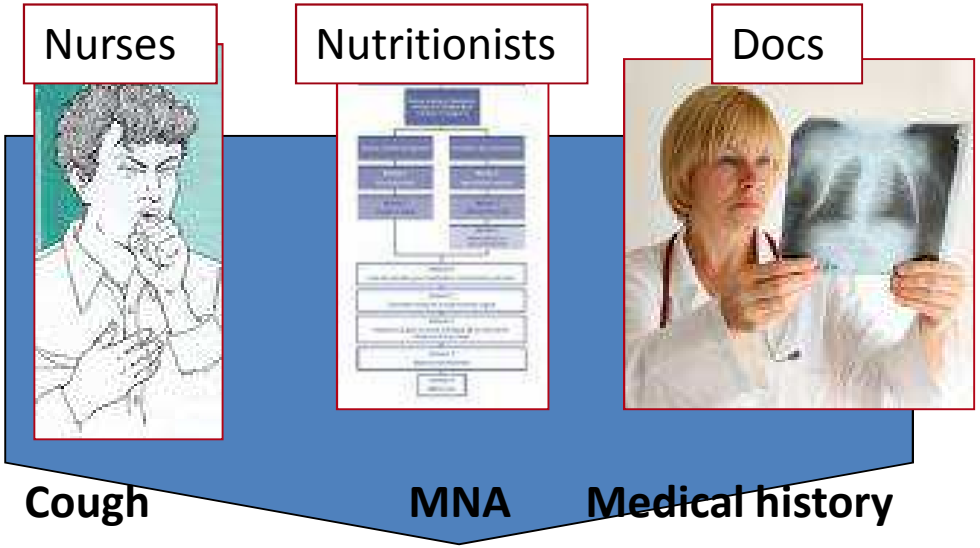
- Detection
- Gatekeeping, inclusion or exclusion of the patient within the clinical pathway

Screening & Call for the coordinator

- Screening:
  - Easy & doable by most of the caregivers
  - High sensitivity (as low False negative as possible)
- Role of the coordinator:
  - Expertise based on knowledge and experience
  - High specificity (as low False positive as possible)

Screening tools

- Screening



Cough ?
Relatively high sensitivity
Daniels et al 1997 = 62
Logeman et al 1999 = 58
Mc Cullough et al 2001 = 86

Coordinator's selection

- Clinical Swallow Examination (DePippo et al 1992) (90ml / 1min. / cough)
- Clinical features with « high » specificity
  - **Laryngeal elevation** (Sp. 84, McCullough 2001, Sp 67 Logemann 1999)
  - **Voice changes**
    - Wet Voice (Sp 78, McCullough 2001, Sp 88, daniels 1999)
    - Breathy voice (Sp 98, McCullough 2005)
  - **Oro-pharyngeal residue** (Mann, 2001)

Sensitivity / Specificity

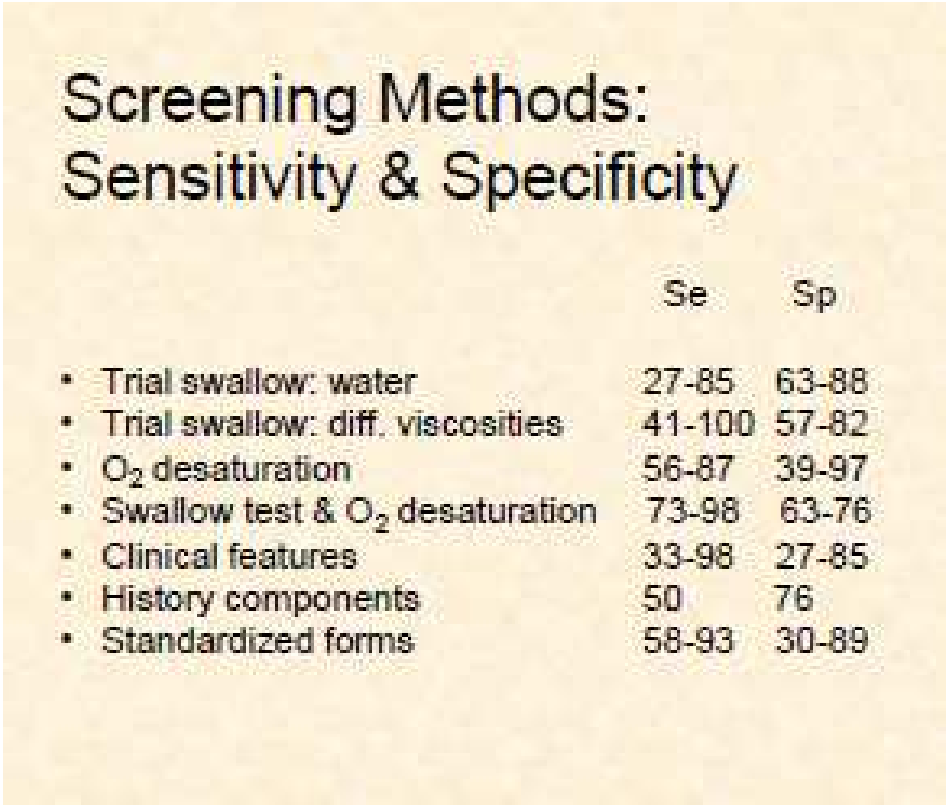
	Disease +	Disease -
Clinical Feature +	T+	F+
Clinical Feature -	F-	T-

Sensibility = TP / (TP+FN)

Specificity = TN / (FP+TN)

Sensibility/specificity

- From R. Speyer Nutricia Course Toronto



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Safe initiation of oral diets in hospitalized patients based on passing a 3-ounce (90 cc) water swallow challenge protocol

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Summary

Background: Safe and timely oral alimentation is crucial for optimum patient care.
Objective: To determine the short-term success of recommending specific oral diets, including drinking thin liquids, to acute care hospitalized patients at risk for dysphagia based on passing a 3-ounce water swallow challenge protocol.
Design: Prospective single group consecutively referred case series.
Setting: Large, urban, tertiary care, teaching hospital.
Participants: 1000 hospitalized patients.
Intervention: 3-ounce (90 cc) water swallow challenge protocol.
Measurements: Specific diet recommendations and volume (in cc) of liquid ingested at the next day's meal 12–24 h after passing a 3-ounce challenge protocol were accessed electronically from oral intake information entered on each participant's daily care logs. Eating and drinking success, clinically evident aspiration events and compliance with ordering the recommended diet were recorded. Care providers were blinded to the study's purpose.
Results: Of 1000 patients, 907 met the inclusion criteria of stable medical, surgical or neurological conditions 12–24 h after passing a 3-ounce water swallow challenge protocol. All 907 were both eating and drinking thin liquids successfully and without overt signs of dysphagia. Median volume of liquid ingested was 340 cc [interquartile range (IQR), 240–460]. Specific diet recommendations were followed with 100% accuracy.
Conclusions: A 3-ounce water swallow challenge protocol successfully identified patients who can be safely advanced to an oral diet without subsequent identification of overt signs of aspiration within 12–24 h of testing. Importantly, when a clinical 3-ounce challenge protocol administered by a trained provider is passed, specific diet recommendations, including drinking thin liquids, can be made safely and without the need for additional instrumental dysphagia testing.

Ann Otol Rhinol Laryngol. 2015 May;124(5):351-4. doi: 10.1177/0003489414558107. Epub 2014 Oct 30.

The Ability of the 10-Item Eating Assessment Tool (EAT-10) to Predict Aspiration Risk in Persons With Dysphagia.

Cheney DM[1], Siddiqui MT[1], Litts JK[2], Kuhn MA[1], **Belafsky** PC[3].

BACKGROUND: Dysphagia is common and costly. The ability of patient symptoms to predict objective swallowing dysfunction is uncertain.

PURPOSE: This study aimed to evaluate the ability of the Eating Assessment Tool (**EAT-10**) to screen for aspiration risk in patients with dysphagia.

METHODS: Data from individuals with dysphagia undergoing a videofluoroscopic swallow study between January 2012 and July 2013 were abstracted from a clinical database. Data included the **EAT-10**, Penetration Aspiration Scale (PAS), total pharyngeal transit (TPT) time, and underlying diagnoses. Bivariate linear correlation analysis, sensitivity, specificity, and predictive values were calculated.

RESULTS: The mean age of the entire cohort (N=360) was 64.40 (±14.75) years. Forty-six percent were female. The mean **EAT-10** was 16.08 (±10.25) for nonaspirators and 23.16 (±10.88) for aspirators (P<.0001). There was a linear correlation between the total **EAT-10** score and the PAS (r=0.273, P<.001). Sensitivity and specificity of an **EAT-10**>15 in predicting aspiration were 71% and 53%, respectively.

CONCLUSION: Subjective dysphagia symptoms as documented with the **EAT-10** can predict aspiration risk. A linear correlation exists between the **EAT-10** and aspiration events (PAS) and aspiration risk (TPT time). Persons with an **EAT-10**>15 are 2.2 times more likely to aspirate (95% confidence interval, 1.3907-3.6245). The sensitivity of an **EAT-10**>15 is 71%.

Instructions :

répondez aux questions suivantes en remplissant le cadre avec le score attribué.

0	1	2	3	4

aucun problème → de graves problèmes

1.	Mes problèmes de déglutition m'ont causé une perte de poids	
2.	Mes problèmes de déglutition m'empêchent de prendre mes repas à l'extérieur.	
3.	Avaler des liquides me demande un effort supplémentaire.	
4.	Avaler des solides me demande un effort supplémentaire.	
5.	Avaler des pilules me demande un effort supplémentaire.	
6.	Avaler est douloureux.	
7.	Le plaisir de manger est affecté par mes problèmes de déglutition	
8.	Quand j'avale, des morceaux restent dans ma gorge.	
9.	Je tousse quand je mange.	
10.	Je suis stressé quand je dois avaler.	

Score total:

Une score égal ou supérieur à 3 est anormal. Il faut en conclure que le patient est sujet à un symptôme dysphagique et qu'il faut prendre des mesures pour éviter les conséquences de ce symptôme.

Reference: 1. Belafsky PC, Mouadeb DA, Rees CJ, Postma GN, Allen J, Leonard RJ. Validity and Reliability of the Eating Assessment Tool (ET-10), Annals of Otology Rhinology & Laryngology 2008; 117(12):919-924.

The Toronto Bedside Swallowing Screening Test (TOR-BSST)

Development and Validation of a Dysphagia Screening Tool for Patients With Stroke

Rosemary Martino, PhD; Frank Silver, MD; Robert Teasell, MD; Mark Bayley, MD; Gordon Nicholson, MHSc; David L. Streiner, PhD; Nicholas E. Diamant, MD

Stroke February 2009

Background and Purpose—Dysphagia occurs in 55% of all acute stroke patients. Early identification of dysphagia from screening can lead to earlier treatments and thereby reduce complications. We designed and validated a new bedside dysphagia screening tool—the Toronto Bedside Swallowing Screening Test (TOR-BSST) for stroke survivors in acute and rehabilitative settings.

Methods—The TOR-BSST initially contained 5 items with proven high predictive ability for dysphagia. Trained screeners administer and score the TOR-BSST in less than 10 minutes. Trained nurses from 2 acute and 2 rehabilitation facilities administered the TOR-BSST to consecutively admitted stroke inpatients. A positive screen identified patients at risk for dysphagia. Blinded repeat screenings were conducted within 24 hours. Test-retest reliability was established with the first 50 administrations at an ICC=0.92 (CI, 0.85 to 0.96). Items were eliminated if they contributed ≤5% to the total score and were judged clinically impractical. 20% of all enrolled patients were randomly allocated to gold standard videofluoroscopic assessment of swallowing and findings rated independently by 4 blinded experts. Adequate validity was set at sensitivity ≥90% and negative predictive value ≥90%.

Results—311 stroke inpatients were enrolled; 103 acute and 208 rehabilitation. Screening was positive in 59.2% acute and 38.5% rehabilitation patients. The pharyngeal sensation item did not meet inclusion criteria and was eliminated. The TOR-BSST demonstrated excellent validity with sensitivity at 91.3% (CI, 71.9 to 98.7), and negative predictive values at 93.3% in acute and 89.5% in rehabilitation settings.

Conclusion—The TOR-BSST is a simple accurate tool to identify stroke patients with dysphagia regardless of severity and setting. (*Stroke.* **2009;40:555-561.**)

Neurogastroenterology & Motility

Neurogastroenterol Motil (2014) 26, 1256–1265 doi: 10.1111/nmo.12382

Sensitivity and specificity of the Eating Assessment Tool and the Volume-Viscosity Swallow Test for clinical evaluation of oropharyngeal dysphagia

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†Unitat d'Exploracions Funcionals Digestives, Department of Surgery, Hospital de Mataró, Universitat Autònoma de Barcelona, Mataró, Spain

‡Nestlé Research Center, Nestec Ltd, Lausanne, Switzerland

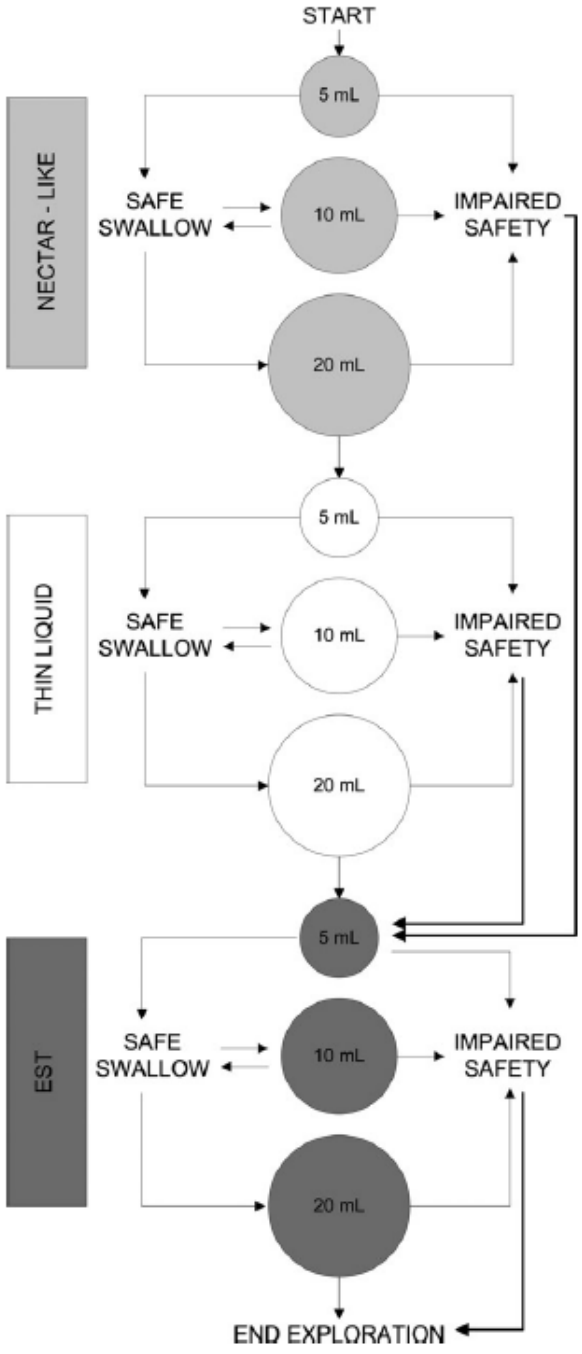


Figure 1 V-VST algorithm. Patients with safe swallow started the exploration with a 5 mL nectar bolus, followed by 10 and 20 mL nectar boluses, then performed the thin liquid series with boluses of increasing volume and finally completed the pathway with the three EST boluses to explore efficacy of swallow. If the patient presented signs of impaired safety at nectar or thin liquid viscosities, the series was interrupted and the EST series was assessed. EST, extreme spoon-thick.

Table 2 Accuracy of the EAT-10 in detecting dysphagia, impaired efficacy and safety of swallow, and aspirations at the normative cut-off 3

	EAT-10 ≥ 3					
	Sensitivity (95% CI)	Specificity (95% CI)	PPV	NPV	LHR+	LHR−
OD	0.85 (0.77–0.91)	0.82 (0.57–0.96)	0.828	0.847	4.72	0.183
Impaired efficacy	0.88 (0.80–0.94)	0.59 (0.41–0.76)	0.684	0.830	2.15	0.203
Impaired safety	0.87 (0.79–0.93)	0.68 (0.46–0.85)	0.731	0.837	3.13	0.191
Aspirations	0.83 (0.61–0.95)	0.25 (0.17–0.34)	0.525	0.592	1.11	0.680

CI, simultaneous confidence interval; PPV, positive predictive value; NPV, negative predictive value; LHR, likelihood ratio; OD, oropharyngeal dysphagia.

Table 3 Accuracy of the V-VST to detect dysphagia, impaired efficacy and safety of swallow, and aspirations

	V-VST					
	Sensitivity (95% CI)	Specificity (95% CI)	PPV	NPV	LHR+	LHR−
OD	0.94 (0.87–0.98)	0.88 (0.50–0.99)	0.98	0.70	7.83	0.068
Impaired efficacy	0.79 (0.62–0.90)	0.75 (0.45–0.92)	0.93	0.67	3.16	0.280
Impaired safety	0.87 (0.74–0.94)	0.81 (0.48–0.95)	0.93	0.46	4.58	0.160
Aspirations	0.91 (0.78–0.99)	0.28 (0.17–0.34)	0.21	0.94	1.26	0.321

CI, simultaneous confidence interval; PPV, positive predictive value; NPV, negative predictive value; LHR, likelihood ratio; OD, oropharyngeal dysphagia.

Mann Assessment of Swallowing Ability (MASA) Scoring Sheet

Alertness	2 no response to speech	5 difficult to rouse	8 fluctuates		10 alert
Cooperation	2 no cooperation	5 reluctant	8 fluctuating cooperation		10 cooperative
Auditory comprehension	2 no response to speech	4 occasional motor response if cued	6 follows simple conversation with repetition	8 follows ordinary conversation with little difficulty	10 NAD
Respiration	2 chest infection suctioning	4 coarse basal crepitations chest physiotherapy	6 fine basal crepitations	8 sputum upper airway other condition	10 chest clear
Respiratory rate (for swallow)	1 no independent control	3 some control/uncoordinated	5 able to control breath rate for swallow		
Dysphasia	1 unable to assess	2 no functional speech sounds/single words	3 expresses self in limited manner short phrases/words	4 mild difficulty finding words or expressing ideas	5 NAD
Dyspraxia	1 unable to assess	2 groping/inaccurate/partial or irrelevant responses	3 speech crude/defective in accuracy or speed on command	4 speech accurate after trial and error, minor searching movements	5 NAD
Dysarthria	1 unable to assess	2 speech unintelligible	3 speech intelligible but obviously defective	4 slow with occasional hesitation or slurring	5 NAD
Saliva	1 gross drool	2 some drool consistently	3 drooling at times	4 frothy/expectorated	5 NAD
Lip seal	1 no closure unable to assess	2 incomplete seal	3 unilaterally weak poor maintenance	4 mild impairment occasional leakage	5 NAD
Tongue movement	2 no movement	4 minimal movement	6 incomplete movement	8 mild impairment in range	10 full ROM
Tongue strength	2 gross weakness	5 unilateral weakness	8 minimal weakness		10 NAD
Tongue coordination	2 no movement unable to assess	5 gross incoordination	8 mild incoordination		10 NAD
Oral preparation	2 unable to examine	4 no bolus formation no attempt	6 minimal chew thrust gravity assisted	8 lip or tongue seal bolus escape	10 NAD
Gag	1 no gag	2 absent unilaterally	3 diminished unilaterally	4 diminished bilaterally	5 hyperreflexive NAD
Palate	2 no spread or elevation	4 minimal movement nasal regurgitation/air escape	6 unilaterally weak	8 slight asymmetry mobile	10 NAD
Bolus clearance	2 no clearance	5 some clearance/residue	8 significant clearance/ minimal residue	10 fully cleared	
Oral transit	2 no movement observed	4 delay > 10 sec	6 delay > 5 sec	8 delay > 1 sec	10 NAD
Cough reflex	1 none observed/unable to assess		5 weak reflexive cough		5 NAD
Voluntary cough	2 no attempt/ unable to assess	5 attempt inadequate	8 attempt bovine	10 NAD	
Voice	2 aphonic unable to assess	4 wet/gurgling	6 hoarse	8 mild impairment slight huskiness	10 NAD
Trache	1 trache/cuffed		5 trache/fenestrated		10 no trache
Pharyngeal phase	2 no swallow unable to assess	5 pooling/gurgling laryngeal elevation incomplete	8 laryngeal elevation mildly restricted slow initiation incomplete clearance	10 immediate laryngeal elevation clearance of material	
Pharyngeal response	1 not coping/gurgling		5 cough before/during/after swallow		10 NAD
Diet recommendations	NBM risk too great	thick vitamized slice	modified soft	soft	normal
Fluid recommendation	NBM	thick fluid (batter)	thick (honey)	thick (nectar)	normal
Swallow integrity Dysphagia Aspiration	definite dysphagia aspiration	probable dysphagia aspiration	possible dysphagia aspiration	unlikely dysphagia aspiration	

Total = ☐☐☐

MASA Score Cuttoff for Severity Groupings of Dysphagia and Aspiration

Severity Grouping	MASA Score - Dysphagia	MASA Score - Aspiration
No abnormality detected	Less than 178 - 200	Less than 170 – 200
Mild	Less than 168 - 177	Less than 149 – 169
Moderate	Less than 139 - 167	Less than 148
Severe	Less than 138	Less than 140

Mann, Giselle: *The Mann Asessment of Swallowing Ability*. 2002. Delmar Cengage Learning

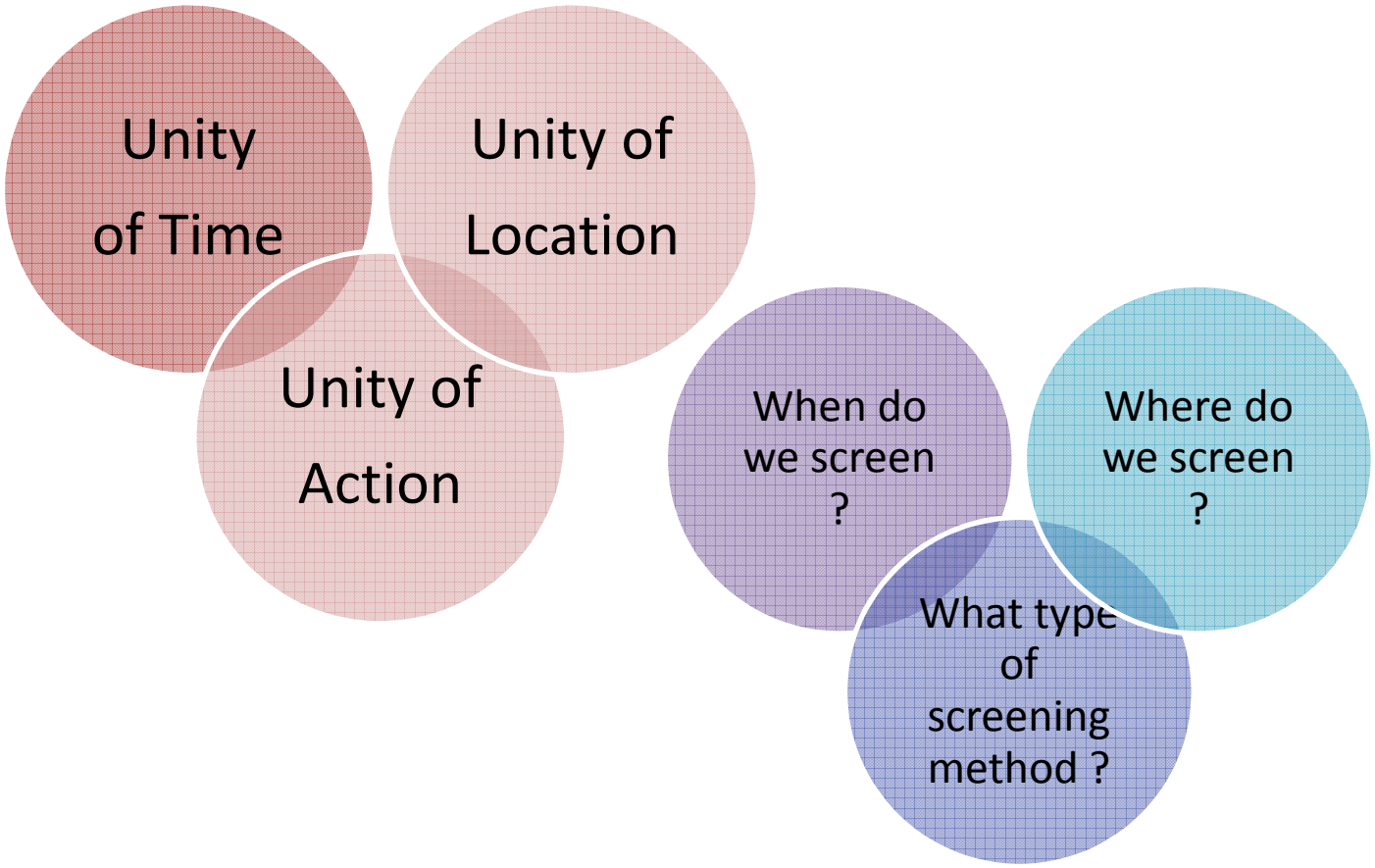
Support Care Cancer (2014) 22:595–602
DOI 10.1007/s00520-013-2011-4

ORIGINAL ARTICLE

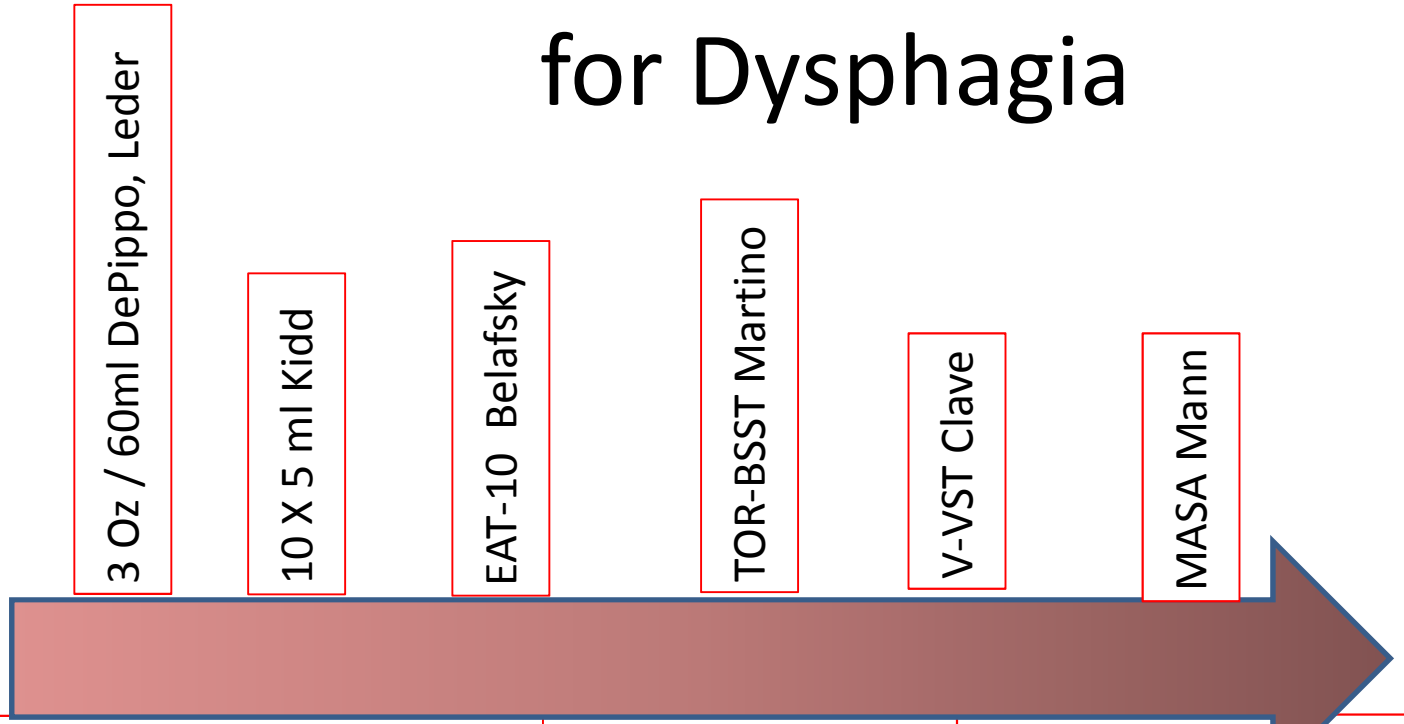
Development and validation of a cancer-specific swallowing assessment tool: MASA-C

Giselle D. Carnaby · Michael A. Crary

Ancient Greek Tragedy



Screening/assessment test for Dysphagia



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Assessing:

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Merci de votre attention

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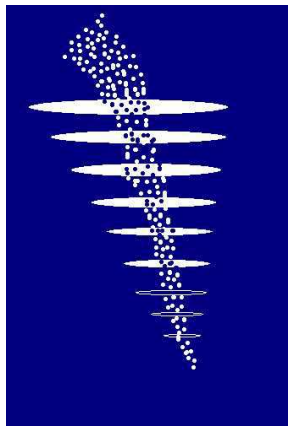

Voice & Swallowing Clinic