



réanimation 2021

PARIS 9-11 JUIN

Palais des Congrès de Paris
Porte Maillot

Red Flags et déglutition

Déclaration de liens

Mon intervention ne présente aucun
conflit d'intérêt

Comment identifier au cours du raisonnement clinique une situation où la déglutition d'aliments ou de liquides pourrait être dangereuse ou non indiquée pour le patient ?



Pneumopathie
Réanimation
Polyneuropathie
Inhalation
Démence
Eveil
Encombrement
AVC
Dysphagie
Toux
Intubation
SNG
Radiothérapie
Fausse route
Désaturation
Âge
Trachéotomie
Soins intensifs
Dispositifs médicaux
VOIX
Parkinson

Un risque potentiel



CHEST

Special Features

The Incidence of Dysphagia Following Endotracheal Intubation

A Systematic Review

*Stacey A. Skoretz, MSc; Heather L. Flowers, MEd, MHSc;
and Rosemary Martino, MA, PhD*

Chest. 2010

3 à 62 % des patients
présentent des troubles de
déglutition en post-extubation

12.4 % des patients de réanimation
présentent des troubles de déglutition en
post extubation

Dysphagia in Mechanically Ventilated ICU Patients (DYNAMICS): A Prospective Observational Trial

*Joerg C. Schefold, MD¹; David Berger, MD¹; Patrick Zürcher, MD¹; Michael Lensch¹; Andrea Perren²;
Stephan M. Jakob, MD, PhD¹; Ilkka Parviainen, MD, PhD³; Jukka Takala, MD, PhD¹*

Crit Care Med. 2017

It is recommended to screen every patient on the presence of red flags (contra-indications) and relative contra-indications to consider (possible) risks and benefits before and during every physiotherapy treatment.

The criteria mentioned below are contra-indications for mobilizations out of bed and physical activities of intensive patients and have to be taken into consideration during the clinical reasoning process.

An intensivist needs to be consulted in case of a patient showing one of the following conditions before mobilization/physical activities.

Red Flags (level 1) *

Heart rate

- Recent myocardial ischemia
- Heart rate <40 and >130 beats/min

Blood pressure

- Mean Arterial Pressure (MAP) < 60 mmHg and > 110 mmHg

Oxygen Saturation

- $\leq 90\%$

Parameters of Ventilation

- Fractional concentration of inspired oxygen (FiO_2) ≥ 0.6
- Positive End Expiratory Pressure (PEEP): ≥ 10 cm H_2O

Respiratory Frequency

- Respiratory Frequency > 40 breath/min

Level of consciousness of patient

- Richmond Agitation Sedation Scale (RASS) score: -4, -5, 3, 4

Doses inotropic

- High inotrope doses
 - Dopamine ≥ 10 mcg/kg/min
 - Nor/adrenaline $\geq 0,1$ mcg/kg/min

Temperature

- $\geq 38.5^\circ C$
- $< 36^\circ C$

Relative contra-indications (level 3 and 4) *

Clinical View

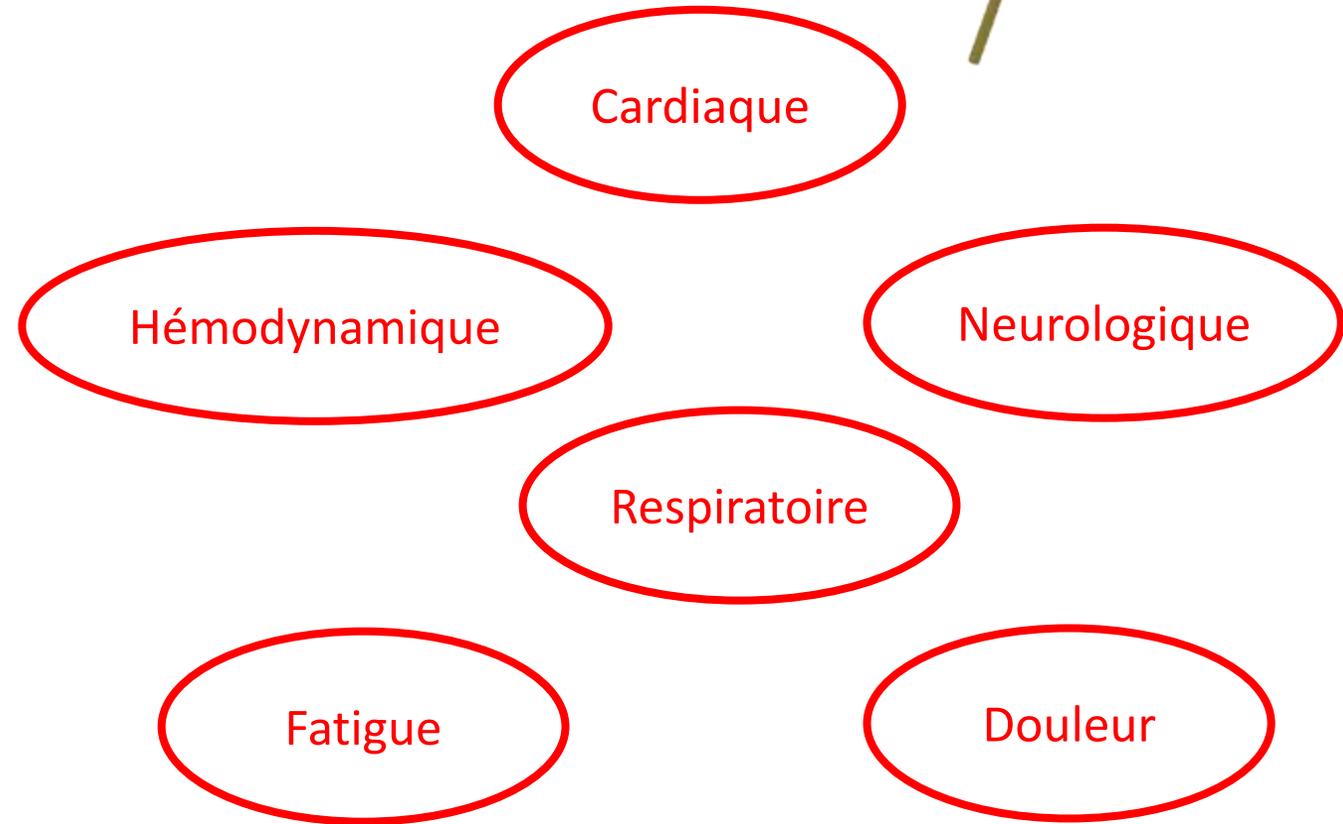
- Decreased level of awareness/consciousness
- Sweating
- Abnormal face color
- Pain
- Fatigue

Unstable fractures

Presence of lines that make mobilization unsafe.

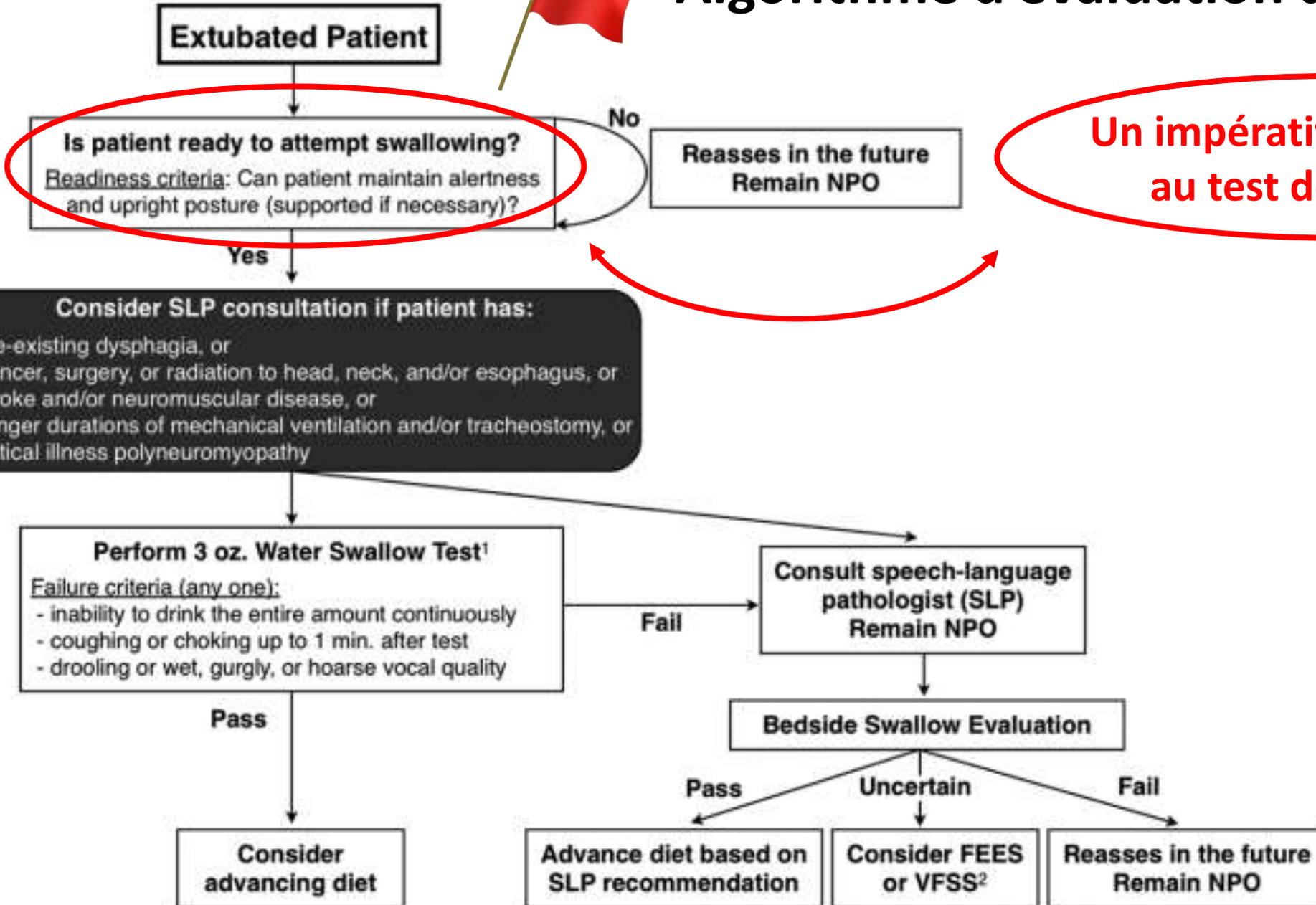
Neurological instability: Intra Cranial Pressure (ICP) ≥ 20 cm H_2O

Cadre général



Sommers, clin rehabil. 2015

Algorithme d'évaluation de la déglutition



Un impératif : les prérequis au test de déglutition

GUSS
(Gugging Swallowing Screen)

1. Preliminary Investigation / Indirect Swallowing Test

Vigilance (The patient must be alert for at least for 15 minutes)	YES	NO
Cough and/or throat clearing (voluntary cough)	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Saliva Swallow:	1 <input type="checkbox"/>	0 <input type="checkbox"/>
• Swallowing successful		
• Drooling	0 <input type="checkbox"/>	1 <input type="checkbox"/>
• Voice change (hoarse, gurgly, coated, weak)	0 <input type="checkbox"/>	1 <input type="checkbox"/>
SUM:	(5)	
	1-4* Investigate further	5= Continue with part 2

2. Direct Swallowing Test (Material: Aqua bi, flat teaspoon, food thickener)

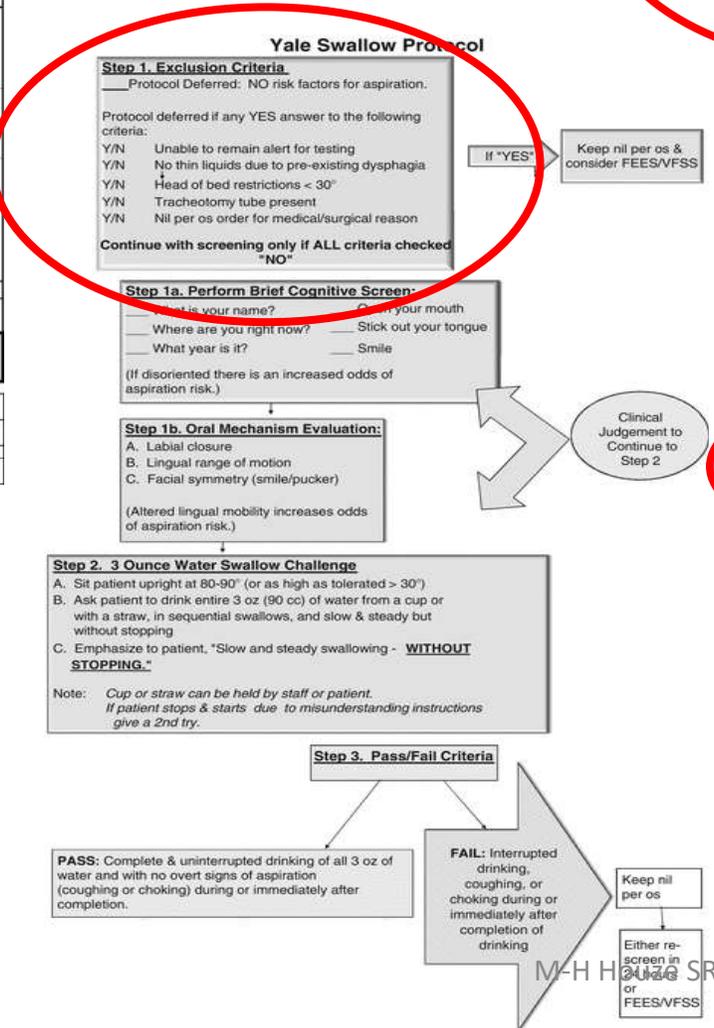
In the following direction	1 -	2 -	3 -
	SEMI-SOLID*	LIQUID**	SOLID ***
DEGLUTITION:			
• Swallowing not possible	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• Swallowing delayed (> 2 sec) (Solid textures > 10 sec)	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
• Swallowing successful	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
COUGH (involuntary): (before, during or after swallowing - wait 3 minutes later)			
• Yes	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• No	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
DROOLING:			
• Yes	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• No	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
VOICE CHANGE: (listen to the voice before and after swallowing - Patient should speak „D“)			
• Yes	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• No	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
SUM:	(5)	(5)	(5)
	1-4* Investigate further 5= Continue Liquid	1-4* Investigate further 5= Continue Solid	1-4* Investigate further 5= Normal
SUM: (Indirect Swallowing Test AND Direct Swallowing Test)	----- (20)		

* First administer ½ up to a half teaspoon Aqua bi with food thickener (pudding like consistency). If there are no symptoms apply 3 to 5 teaspoons. Assess after the 5th spoonful.

** 3.5, 10, 20 ml Aqua bi - If there are no symptoms continue with 30 ml Aqua bi (Daniels et al. 2003; Gottlieb et al. 1996) Assess and stop the investigation when one of the criteria is observed!

*** Clinical: dry heave; FEES: dry bolus which is dipped in coloured liquid

* Use functional investigations such as Videofluoroscopic Evaluation of Swallowing (VFES), Fiberoptic Endoscopic Evaluation of Swallowing (FEES)



Stage 1

THIS ONLY APPLIES TO THOSE PATIENTS WHO HAVE BEEN INTUBATED >72 HOURS

	Yes	No
Extubated >24 hours	1 <input type="checkbox"/>	0 <input type="checkbox"/>
RASS: 0 - +1	1 <input type="checkbox"/>	0 <input type="checkbox"/>
CAM ICU: Negative	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Intubated > 72 Hours	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Nasogastric Tube Insitu (patency and position assured)	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Stridor Present	0 <input type="checkbox"/>	1 <input type="checkbox"/>
Ask patient to cough and/or throat clear	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Observe a saliva swallow: swallowing successful	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Drooling	0 <input type="checkbox"/>	1 <input type="checkbox"/>
Voice change (hoarse, gurgly, weak)	0 <input type="checkbox"/>	1 <input type="checkbox"/>
SUM	(10)	

If score <10, place patient NBM for 4 hours. If after 4 hours score <9 please seek medical advice



Stage 2

Perform a Direct Swallowing test

First administer 3mls of water	Pass	Fail
If patient is successful in swallowing the first amount, proceed with increasing amounts:		
Administer 5mls of water	Pass	Fail
Administer 10mls of water	Pass	Fail
Administer 20mls of water	Pass	Fail
Administer 50mls of water	Pass	Fail
If patient passes the 50mls of water may proceed to soft diet		
Observe the patient after each amount. Discontinue the trial is any 4 aspiration signs – deglutition, cough, drooling and voice change are positive, if so refer to Speech pathology for a formal review.		

If patient fails any one section of the direct swallow test, place NBM and please seek medical advice and/or a Speech Pathologist referral

Development Of The V-VST

- Protocol: Set-up6**
1. Patient sitting, back resting against seat and feet on the floor. Avoid hyperextension of neck.
 2. Clinician sitting in front and slightly below patient.
 3. Pulse-oximeter on right finger collect baseline readings 2 min prior to test commencement.
 4. Bolus placed by clinician in patient's mouth via syringe.



Clavé, P. (2014). *Beside Clinical Assessment of Dysphagia - Volume-Viscosity Swallow Test (V-VST)*. Retrieved from: https://www.nestlenutrition-institute.org/resources/online-conferences/Pages/Beside_Clinical_Assessment_of_Dysphagia_Volume_Viscosity_Swallow_Test_VVST.aspx

6Rofes, L., Arreola, V., & Clavé, P. (2012). The volume-viscosity swallow test for clinical screening of dysphagia

Prérequis au test de déglutition



Etat de vigilance incompatible avec l'évaluation :

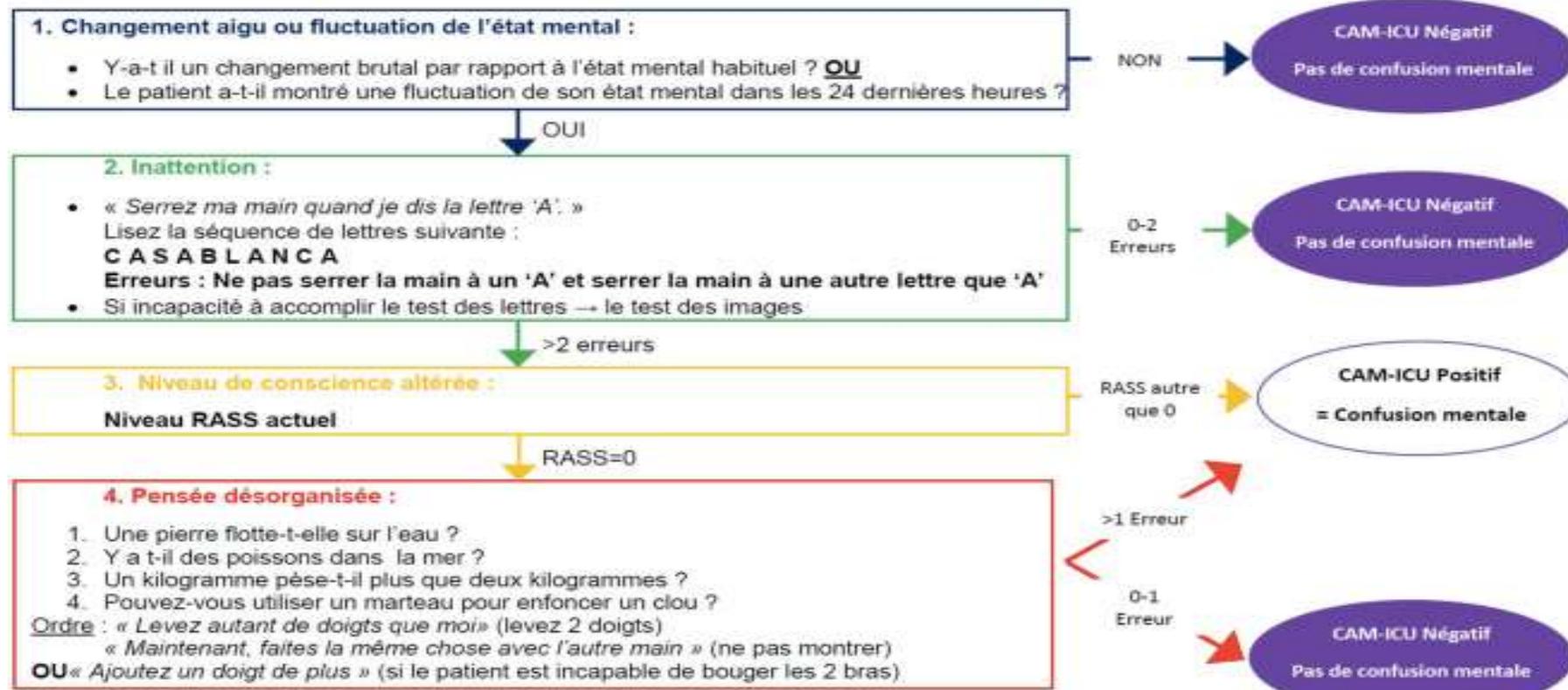
- ✓ Vigilant moins de 15 min.
- ✓ Echelle Rass : **niveau < 0 ou niveau > +1**

Niveau	Description	Définition
+ 4	Combatif	Combatif, danger immédiat envers l'équipe.
+ 3	Très agité	Tire, arrache tuyaux ou cathéters et/ou agressif envers l'équipe.
+ 2	Agité	Mouvements fréquents sans but précis et/ou désadaptation au respirateur
+ 1	Ne tient pas en place	Anxieux ou craintif, mais mouvements orientés, peu fréquents, non vigoureux, non agressifs
0	Eveillé et calme	
- 1	Somnolent	Pas complètement éveillé, mais reste éveillé avec contact visuel à l'appel (>10s).
- 2	Diminution légère de la vigilance	Reste éveillé brièvement avec contact visuel à l'appel (<10s).
- 3	Diminution modérée de la vigilance	N'importe quel mouvement à l'appel (ex : ouverture des yeux), mais pas de contact visuel.
- 4	Diminution profonde de la vigilance	Aucun mouvement à l'appel, n'importe quel mouvement à la stimulation physique (friction non nociceptive de l'épaule ou du sternum)
- 5	Non réveillable	Aucun mouvement, ni à l'appel, ni à la stimulation physique (friction non nociceptive de l'épaule ou du sternum)

Prérequis au test de déglutition

Etat de confusion incompatible avec l'évaluation :

✓ Echelle CAM-ICU : **négative**



Prérequis au test de déglutition



- ✓ Installation en position redressée ou assise impossible.
- ✓ Etat respiratoire précaire : présence de signes de détresse, d'un stridor ou d'une saturation en oxygène < 90%.
- ✓ Incapacité à se désencombrer : toux et raclement volontaires absents ou inefficaces.
- ✓ Troubles de déglutition de la salive : présence d'une stase salivaire, d'une incontinence salivaire, de toux réflexe, d'une voix modifiée.

Algorithme d'évaluation de la déglutition

Extubated Patient

Is patient ready to attempt swallowing?
Readiness criteria: Can patient maintain alertness and upright posture (supported if necessary)?

No
**Reasses in the future
 Remain NPO**

Yes

Consider SLP consultation if patient has:

- Pre-existing dysphagia, or
- Cancer, surgery, or radiation to head, neck, and/or esophagus, or
- Stroke and/or neuromuscular disease, or
- Longer durations of mechanical ventilation and/or tracheostomy, or
- Critical illness polyneuromyopathy

Population

Comorbidités
 Diagnostic d'entrée
 Traitements
 Complications

Perform 3 oz. Water Swallow Test¹
Failure criteria (any one):
 - inability to drink the entire amount continuously
 - coughing or choking up to 1 min. after test
 - drooling or wet, gurgly, or hoarse vocal quality

Pass

Consider advancing diet

Fail

**Consult speech-language pathologist (SLP)
 Remain NPO**

Bedside Swallow Evaluation

Pass

Advance diet based on SLP recommendation

Uncertain

Consider FEES or VFSS²

Fail

**Reasses in the future
 Remain NPO**

Macht, Crit Care Med. 2013

Facteurs de risques

REVIEW

Dysphagia in the intensive care unit: epidemiology, mechanisms, and clinical management

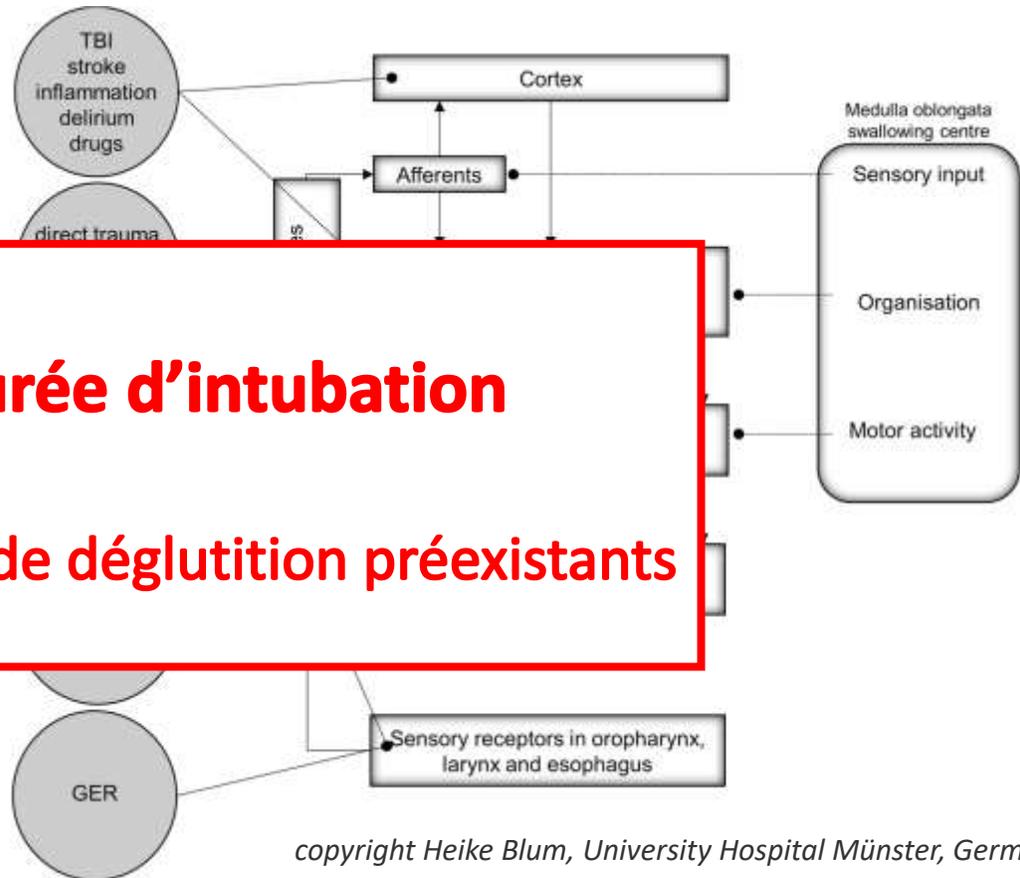
Patrick Zuercher^{1*}, Céline S. Moret¹, Rainer Dziewas² and Joerg C. Schefold¹



Comorbidités
Diagnostic d'entrée
Traitements
Complications



Durée d'intubation
Troubles de déglutition préexistants



copyright Heike Blum, University Hospital Münster, Germany

Crit Care, 2019

Facteurs de risques



ICU-Acquired Swallowing Disorders

Madison Macht, MD¹; Tim Wimbish, MS, CCC-SLP²; Cathy Bodine, PhD, CCC-SLP³; Marc Moss, MD¹

Comorbidités
Diagnostic d'entrée
Traitements
Complications



TABLE 1. Risk Factors for Swallowing Disorders in Critically Ill Patients

Risk Factors
Preexisting dysphagia
Cancer, surgery, or radiation to head, neck, and/or esophagus
Delirium, excessive sedation, and/or dementia
Stroke or neuromuscular disease
Longer durations of mechanical ventilation
Multiple intubations
Tracheostomy
Severe gastroesophageal reflux
Paralytics and/or critical illness polyneuromyopathy
Supine bed position
Perioperative transesophageal echocardiogram

Facteurs de risques

Macht et al. *Critical Care* 2013, **17**:R119
<http://ccforum.com/content/17/3/R119>



RESEARCH

Open Access

Post-extubation dysphagia is associated with longer hospitalization in survivors of critical illness with neurologic impairment

Madison Macht^{1*}, Christopher J King¹, Tim Wimbish², Brendan J Clark¹, Alexander B Benson¹, Ellen L Burnham¹, André Williams³ and Marc Moss¹

Table 1 Univariate analysis of risk factors for post-extubation dysphagia

Characteristic	Dysphagia severity		P value
	None/mild (n = 75)	Moderate/severe (n = 109)	
Tracheostomy	6 (8)	30 (28)	<0.01
Ventilator days	4 (2-8)	10 (5-16)	<0.01
Mechanical ventilator >7 days	19 (25)	69 (63)	<0.01

93% des patients présentent un trouble de déglutition



Trachéotomie
Durée de ventilation

Facteurs de risques



Finding the red flags: Swallowing difficulties after cardiac surgery in patients with prolonged intubation



Emma Daly, MSc ^a, Anna Miles, PhD ^{a,*}, Samantha Scott, BSc ^b, Michael Gillham, FCICM, FANZCA ^b

^a The University of Auckland, Auckland, New Zealand

^b Auckland District Health Board, Auckland, New Zealand

Multiple logistic regressions of predictors for confirmed dysphagia

Variable	P	Odds ratio	Confidence interval (%)
Postoperative stroke	<.001	7.14	1.79-28.40
History of stroke	<.01	3.34	1.01-10.91
Tracheostomy	<.01	2.50	1.04-5.99

17% des patients présentent des troubles de déglutition



AVC
Trachéotomie

J Crit Care, 2016

Facteurs de risques



Oropharyngeal dysphagia in **older persons** – from pathophysiology to adequate intervention: a review and summary of an international expert meeting

Rainer Wirth,^{1,2} Rainer Dziewas,³ Anne Marie Beck,⁴ Pere Clavé,⁵ Shaheen Hamdy,⁶ Hans Juergen Heppner,^{7,8} Susan Langmore,⁹ Andreas Herbert Leischker,¹⁰ Rosemary Martino,¹¹ Petra Pluschinski,¹² Alexander Rösler,¹³ Reza Shaker,¹⁴ Tobias Warnecke,³ Cornel Christian Sieber,^{2,15} and Dorothee Volkert²

Dysphagia After **Stroke**

Incidence, Diagnosis, and Pulmonary Complications

Rosemary Martino, PhD; Norine Foley, BAsC; Sanjit Bhogal, MSc; Nicholas Diamant, MD; Mark Speechley, PhD; Robert Teasell, MD

Dysphagia after Nonsurgical Head and Neck **Cancer Treatment**: Patients' Perspectives

Janet A. Wilson, MD, FRCS¹, Paul N. Carding, PhD, FRCSLT¹, and Joanne M. Patterson, PhD, MRCSLT¹

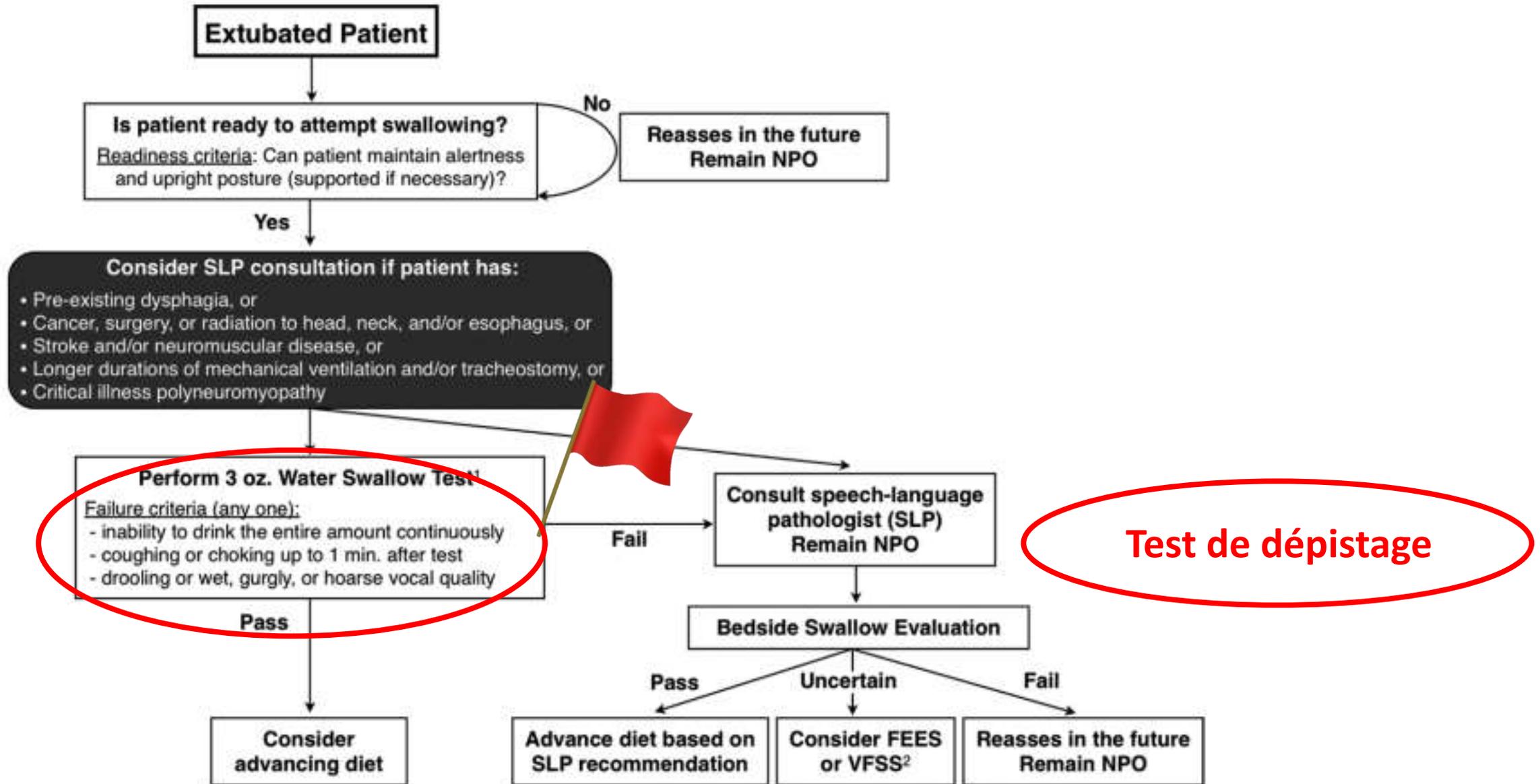
Reflex Cough and Disease Duration as Predictors of Swallowing Dysfunction in **Parkinson's Disease**

Michelle S. Troche¹ · Beate Schumann² · Alexandra E. Brandimore¹ · Michael S. Okun³ · Karen W. Hegland^{3,4}

Assessment, Diagnosis, and Treatment of Dysphagia in Patients Infected With **SARS-CoV-2**: A Review of the Literature and International Guidelines

José Vergara¹, Stacey A Skoretz^{2,3,4}, Martin B Brodsky^{5,6,7}, Anna Miles⁸, Susan E Langmore⁹, Sarah Wallace^{10,11}, Jaishika Seedat¹², Heather M Starmer¹³, Lee Bolton¹⁴, Pere Clavé¹⁵, Susana Vaz Freitas^{16,17,18}, Hans Bogaardt¹⁹, Koichiro Matsuo²⁰, Cinthia Madeira de Souza²¹, Lucia Figueiredo Mourão²²

Algorithme d'évaluation de la déglutition



Macht, Crit Care Med. 2013

GUSS

(Gugging Swallowing Screen)

Name: _____
Date: _____
Time: _____

1. Preliminary Investigation/Indirect Swallowing Test

	YES	NO
Vigilance (The patient must be alert for at least for 15 minutes)	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Cough and/or throat clearing (voluntary cough) (Patient should cough or clear his or her throat twice)	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Saliva Swallow:	1 <input type="checkbox"/>	0 <input type="checkbox"/>
• Swallowing successful		
• Drooling	0 <input type="checkbox"/>	1 <input type="checkbox"/>
• Voice change (hoarse, gurgly, coated, weak)	0 <input type="checkbox"/>	1 <input type="checkbox"/>
SUM:	(5)	
	1 - 4= Investigate further! 5= Continue with part 2.	



2. Direct Swallowing Test (Material: Aqua bi, flat teaspoon, food thickener, bread)

In the following order:	1 → SEMISOLID*	2 → LIQUID**	3 → SOLID ***
DEGLUTITION:			
• Swallowing not possible	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• Swallowing delayed (> 2 sec.) (Solid textures > 10 sec.)	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
• Swallowing successful	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
COUGH (involuntary): (before, during or after swallowing - until 3 minutes later)			
• Yes	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• No	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
DROOLING:			
• Yes	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• No	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
VOICE CHANGE: (listen to the voice before and after swallowing - Patient should speak „D“)			
• Yes	0 <input type="checkbox"/>	0 <input type="checkbox"/>	0 <input type="checkbox"/>
• No	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
SUM:	(5)	(5)	(5)
	1 - 4= Investigate further! 5= Continue Liquid	1 - 4= Investigate further! 5= Continue Solid	1 - 4= Investigate further! 5= Normal
SUM: (Indirect Swallowing Test AND Direct Swallowing Test)	----- (20)		

* First administer ½ up to a half teaspoon Aqua bi with food thickener (pudding-like consistency). If there are no symptoms apply 3 to 5 teaspoons. Assess after the 5th spoonful.
** 3, 5, 10, 20 ml Aqua bi - if there are no symptoms continue with 50 ml Aqua bi (Daniels et al. 2000; Gottlieb et al. 1996) Assess and stop the investigation when one of the criteria is observed!
*** Clinical: dry bread; FEES: dry bread which is dipped in coloured liquid
† Use functional investigations such as Videofluoroscopic Evaluation of Swallowing (VFES), Fiberoptic Endoscopic Evaluation of Swallowing (FEES)

NAME	AGE			PATHOLOGY					
BASAL OXYGEN SATURATION	98%								
Viscosity	NECTAR			LIQUID			PUDDING		
Volume	5	10	20	5	10	20	5	10	20
EFFICACY SIGNS									
Lip Seal	OK	OK	OK	OK			OK	OK	OK
Oral Residue	NO	NO	NO	OK			OK	OK	OK
Piecemeal Deglutition	1	1	1	1			1	1	1
Pharyngeal Residue	NO	NO	NO	OK			OK	OK	
SAFETY SIGNS									
Cough	NO	NO	NO				OK	OK	OK
Voice Change	NO	NO	NO	OK			OK	OK	OK
Oxygen Desaturation	98	98	98	OK			98	98	98
RECOMMENDED VISCOSITY - VOLUME									
Viscosity	LIQUID	NECTAR	PUDDING						
Volume	Small	Medium	Large						
	5mL	10mL	20mL						

7Clavé, P. (2014). *Beside Clinical Assessment of Dysphagia - Volume-Viscosity Swallow Test (V-VST)*. Retrieved from: https://www.nestlenutrition-institute.org/resources/online-conferences/Pages/Beside_Clinical_Assessment_of_Dysphagia_Volume_Viscosity_Swallow_Test_VVST.aspx



Présence de critères de danger

- ✓ Toux ou étouffement: avant pendant ou après déglutition
- ✓ Voix : modifiée, mouillée, crépitante, rauque, voilée
- ✓ Désaturation > 3%

Présence de critères d'inefficacité

- ✓ Stase salivaire, incontinence buccale
- ✓ Stase ou résidus alimentaires
- ✓ Déglutitions multiples

Take home message



✓ Caractéristiques de la population



✓ Absence des prérequis au dépistage



✓ Présence de critères de fausse route lors du test

