Rijimo sutrikimas po patirto insulto ir jo patikros protokolas

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Klaipėdos jūrininkų ligoninė
2017 03 31

Rijimo sutrikimo dažnumas po insulto

- 37% - 45% naudojant pradinę patikrą,
- 51% - 55% vadovaujantis klinikiniu ištyrimu,
- 64% - 78% instrumentų pagalba.

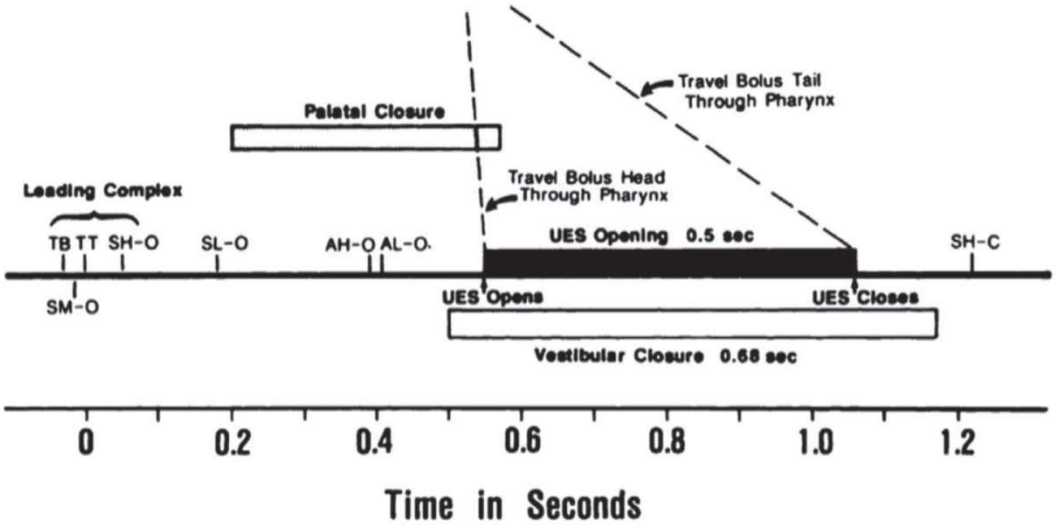
Martino R. Dysphagia after stroke: incidence, diagnosis, and pulmonary complications. Stroke. 2005 Dec;36(12):2756-63.

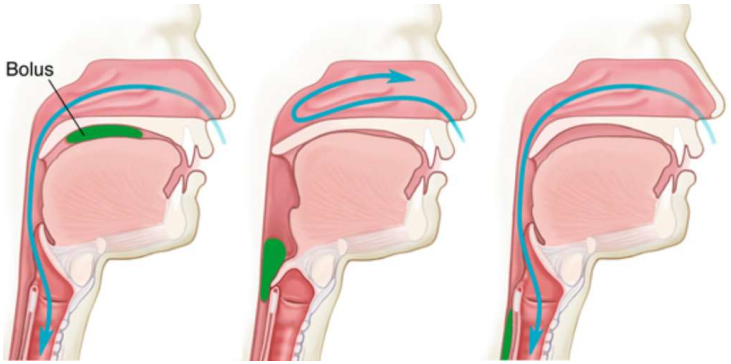
Poinsultinio rijimo sutrikimo keliama našta

1. Fizinė
2. Psichologinė
3. Socialinė
4. Finansinė

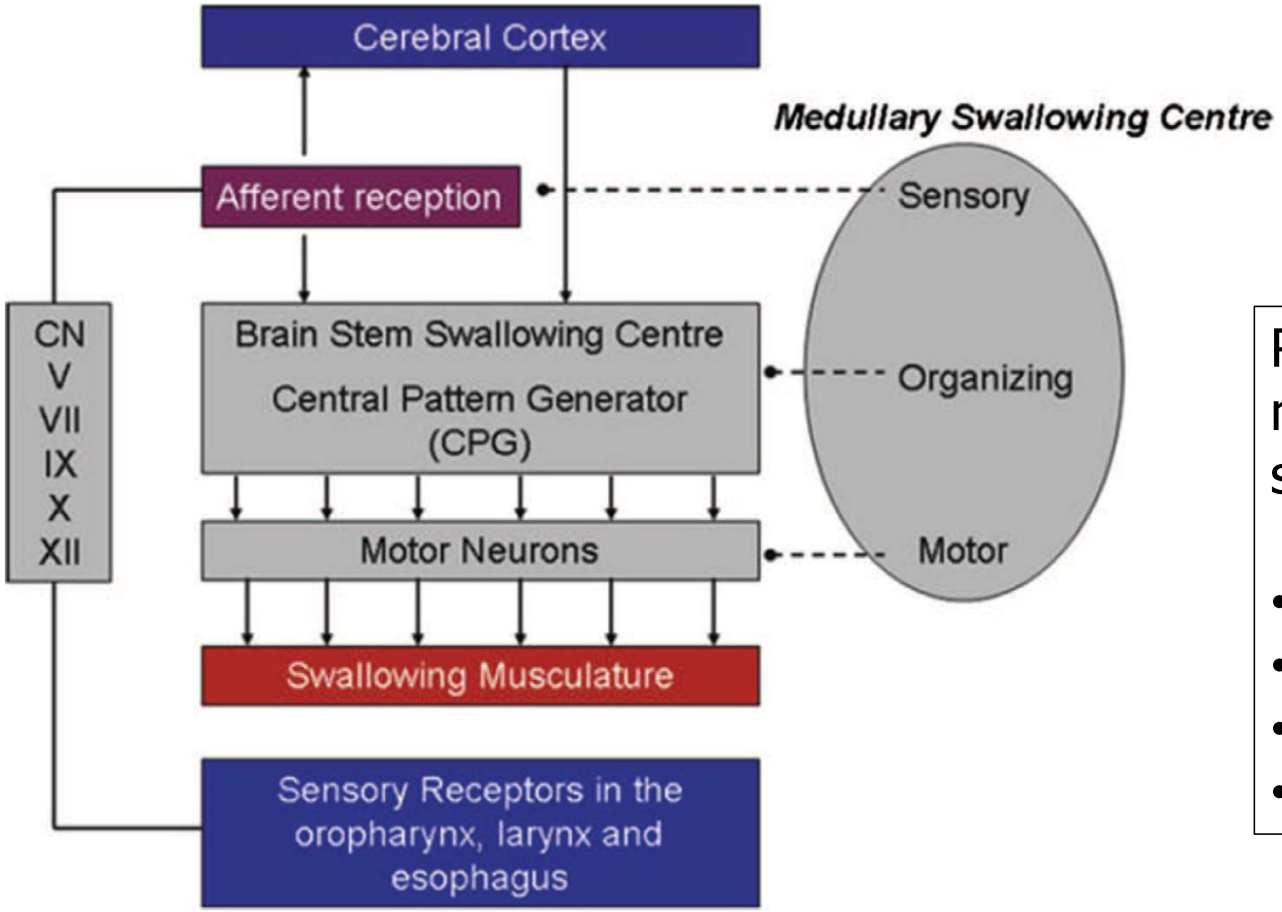
Dziewas R, Beck AM et al. Recognizing the Importance of Dysphagia: Stumbling Blocks and Stepping Stones in the Twenty-First Century. Dysphagia. 2017 Feb;32(1):78-82.

Rijimo fiziologija





AJR Am J Roentgenol 1990;154(5):962

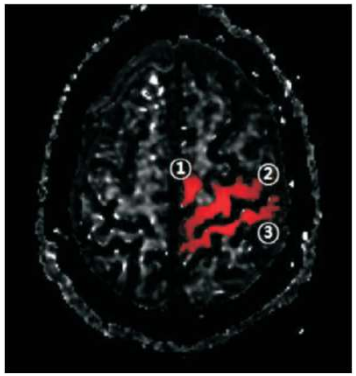


Rijimo sutrikimas ir neurologinių sistemų pažaida:

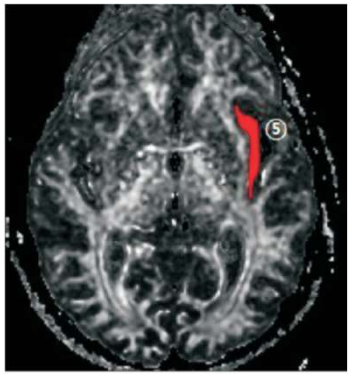
- Motorinė
- Sensorinė
- Erdvinio dėmesio
- Praksijos (?)

Shaw SM, Martino R. The normal swallow: muscular and neurophysiological control. Otolaryngol Clin North Am. 2013 Dec;46(6):937-56

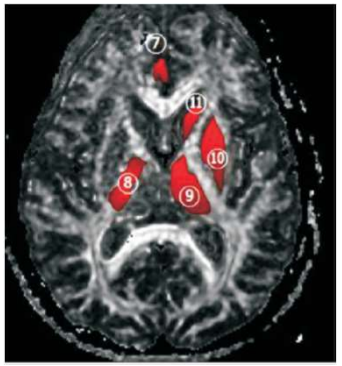
Disfagijos ryšys su supratentoriniu pakenkimu



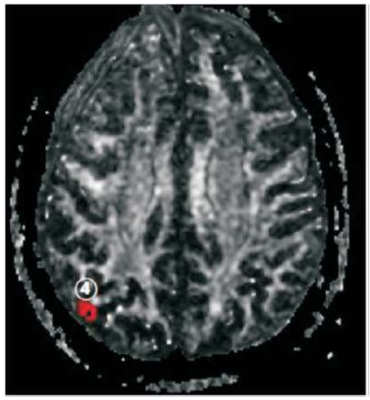
1 – papildančioji motorinė žievė
2 – pirminė motorinė žievė
3 – pirminė somatosenorinė žievė



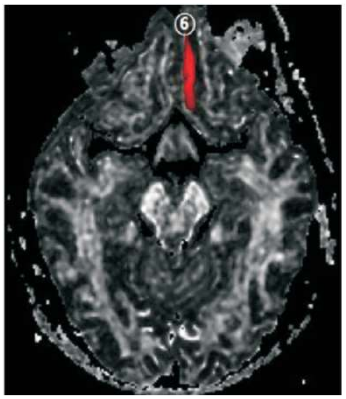
5 – sala



7 – juostinis vingis
8 – vidinės kapslės užpakalinė alkūnė
9 - gumburas
10 – kiautas ir blyškusis kamuolys
11 – uodeguotasis branduolys



4 - parietookcipitalinė



6 – orbitofrontalinė žievė

Ann Rehabil Med 2016;40(4):637-646

European Society for Swallowing Disorders

ESSD Position Statements:

Screening, Diagnosis and Treatment of Oropharyngeal Dysphagia in Stroke Patients

- Statement on Screening. All acute stroke patients should be kept nil per os until their swallowing ability is screened, by trained health care professionals, using a reliable and valid screening tool. Screening should be completed as soon as the patient is awake and alert. Screening identifies patients at risk for dysphagia and prioritizes patients for a full assessment.

http://www.myessd.org/docs/position_statements/ESSD_Position_Statements_on_OD_in_stroke_patients_-_4_01_13.pdf

Rijimo sutrikimo vertinimas patyrusiems insultą

Rijimo sutrikimo patikra (atranka)

↓

Klinikinis rijimo įvertinimas

↓

Instrumentinis įvertinimas

Farrell & O'Neill. (1999). Towards better screening and assessment of oropharyngeal swallow disorders in the general hospital. Lancet, 354, 355-356.

Rijimo sutrikimo patikros po patirto insulto rezultatas ir insulto baigčių prognozė

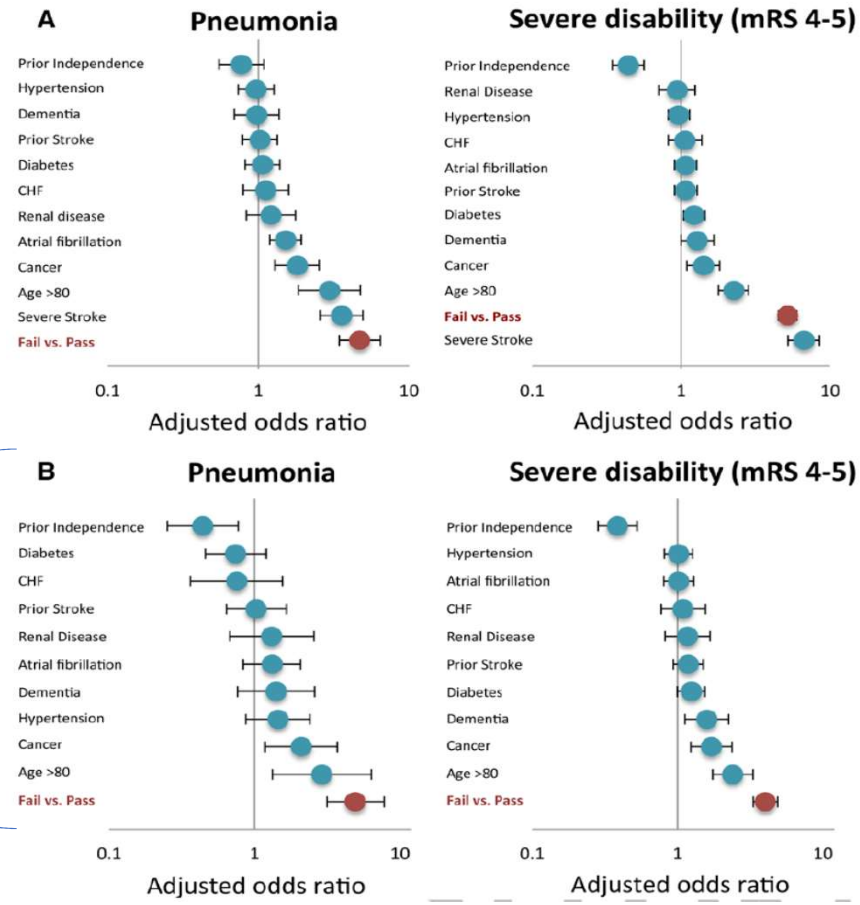
Original Contribution

Predictors and Outcomes of Dysphagia Screening After Acute Ischemic Stroke

Stroke. published online March 8, 2017

- Teigiamas rijimo sutrikimo patikros rezultatas susijęs su blogomis baigtimis, įskaitant **pneumoniją** (koreguotas ŠS 4.71; 95% CI, 3.43–6.47) ir **sunkų neįgalumą** (koreguotas ŠS 5.19; 95% CI, 4.48–6.02).
- Panašios asociacijos stebėtos ir lengvo insulto subkohortoje.

Subkohorta „lengvas insultas“



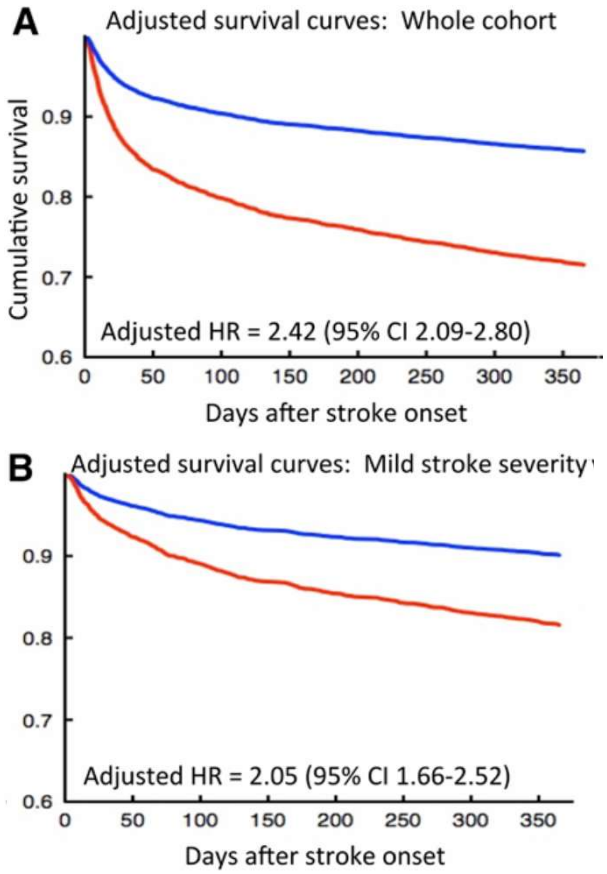
Disfagijos patikros po patirto insulto rezultatas ir insulto baigčių prognozė

Original Contribution

Predictors and Outcomes of Dysphagia Screening After Acute Ischemic Stroke

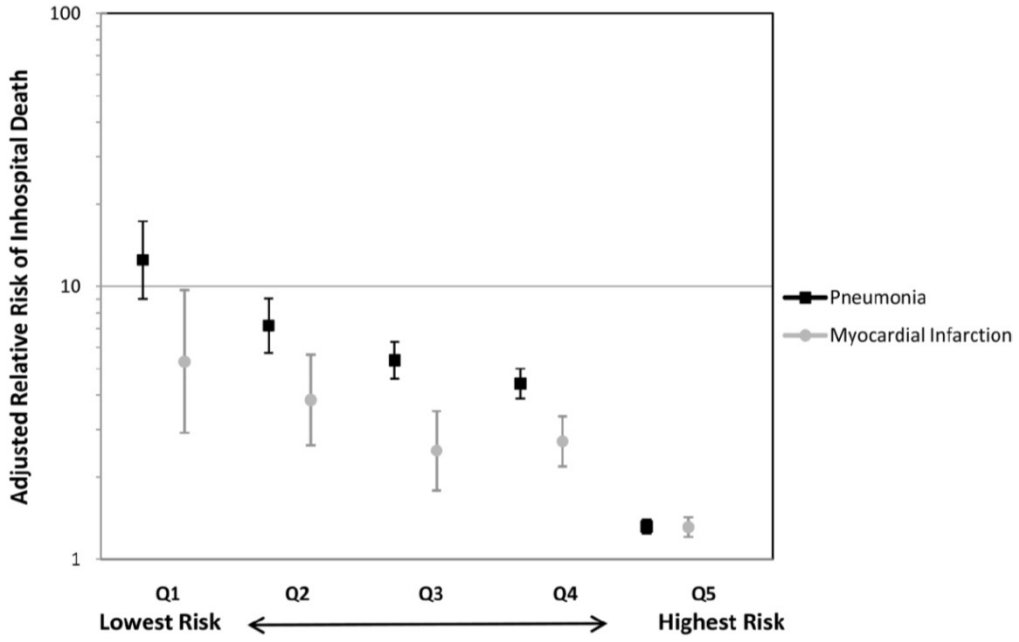
Stroke. published online March 8, 2017

- Teigiamas rijimo sutrikimo patikros rezultatas susijęs su blogomis baigtimis, įskaitant **mirtingumą 1 metų laike** (koreguotas ŠS 2.42; 95% CI, 2.09–2.80).
- Panašios asociacijos stebėtos ir lengvo insulto subkohortoje.



Mirtingumas nuo pneumonijos po patirto insulto

J Stroke Cerebrovasc Dis. 2012 January ; 21(1): 61–67.



- Imties dydis – **183 976** pacientai;
- Mirties susijusios su pneumonija koreguota santykinė rizika - 2.0 (95% CI 1.9–2.1);
- Didžiausia rizika mirti nuo pneumonijos pacientams su mažiausia pneumonijos rizika.

Nebyli aspiracija ir pneumonija

- Nebyli aspiracija, - tai boliuso subgliotinis prasiskverbimas nesukeliantis kosulio reflekso būdingas 40% pacientų su rijimo sutrikimu.
- Aspiracija pneumonijos riziką didina bent 7 kartus.
- Pnemonijos rizika esant nebyliai aspiracijai 6 kartus didesnė nei aspiracijai su kosuliu.

Daniels SK. Aspiration in patients with acute stroke. Arch Phys Med Rehabil. 1998 Jan;79(1):14-9.

Ryšys tarp laiko iki rijimo sutrikimo atrankos ir su insultu susijusios pneumonijos

RESEARCH PAPER

The association between delays in screening for and assessing dysphagia after acute stroke, and the risk of stroke-associated pneumonia

Bray BD, Smith CJ, Cloud GC, et al. J Neurol Neurosurg Psychiatry 2017;88:25–30.

- Rijimo sutrikimo atranka atlikta 55 838 (88%) pacientų patyrusių insultą.
- Stebėtas dozės – efekto ryšys tarp pneumonijos rizikos ir laiko iki rijimo sutrikimo patikros.

Table 2 OR for SAP in univariable and multivariable models of time from admission to dysphagia screening

	Time (min)	OR	95% CI	p Value
Univariable (n=55 838)				
1st quartile	0–79	REF		
2nd quartile	80–176	0.89	0.81 to 0.98	0.016
3rd quartile	177–344	0.85	0.77 to 0.94	0.001
4th quartile	≥345	1.33	1.21 to 1.46	<0.0001
Multivariable, including NIHSS (n=42 655)				
1st quartile	0–79	REF		
2nd quartile	80–176	0.94	0.83 to 1.05	0.27
3rd quartile	177–344	1.06	0.94 to 1.20	0.36
4th quartile	≥345	1.36	1.20 to 1.53	<0.0001
Multivariable, including level of consciousness (n=55 838)				
1st quartile	0–79	REF		
2nd quartile	80–176	0.92	0.83 to 1.01	0.08
3rd quartile	177–344	0.89	0.81 to 0.99	0.03
4th quartile	≥345	1.14	1.03 to 1.24	0.008

All multivariable models were also adjusted for age, sex, stroke type, prestroke functional level, place of stroke and comorbidity, and measure of stroke severity (NIHSS or level of consciousness).
SAP, stroke-associated pneumonia; NIHSS, NIH Stroke Scale

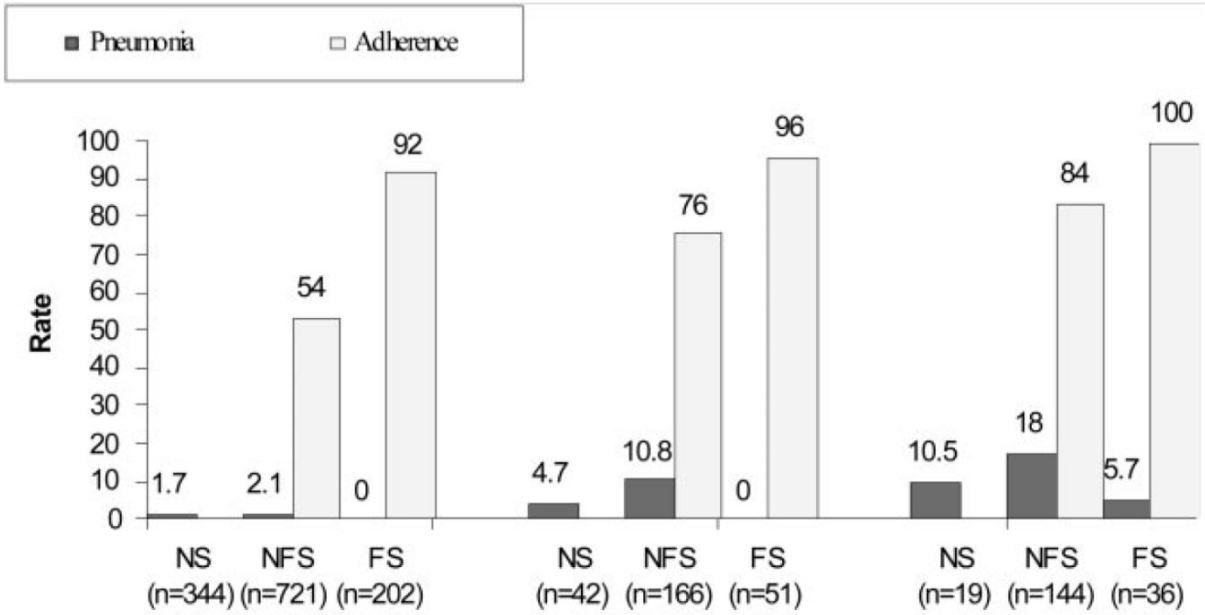
Formali rijimo sutrikimo atranka mažina pneumonijos riziką ir mirtingumą

Formal Dysphagia Screening Protocols Prevent Pneumonia

Judith A. Hinchey, MD; Timothy Shephard, RN, CN; Karen Furie, MD, MPH; Don Smith, MD;

***Stroke*. 2005;36:1972-1976.**

- Formali rijimo sutrikimo atranka susijusi su reikšmingai mažesne pneumonijos rizika (2.4% *versus* 5.4%; *P* 0.0016)
- Mirties galimybė esant pneumonijai padidėja 5.4 kartus (95% CI, 3.2 - 9.0)



NS - patikra neatlikta; NFS - patikra neformali; FS - patikra formali

Rijimo sutrikimo patikros sisteminės apžvalgos

1	Martino R, Pron G, Diament N. Screening for oropharyngeal dysphagia in stroke: insufficient evidence for guidelines. Dysphagia. 2000;15:19–30.
2	Perry L, Love CP. Screening for dysphagia and aspiration in acute stroke: a systematic review. Dysphagia. 2001;16:7–18.
3	Ramsey DJC, Smithard DG, Kalra L. Early assessment of dysphagia and aspiration risk in acute stroke patients. Stroke. 2003;34:1252–7.
4	Bours GJJW, Speyer R, Lemmens J, Limburg M, De Wit R. Bedside screening tests vs. video-fluoroscopy or fibreoptic endoscopic evaluation of swallowing to detect dysphagia in patients with neurological disorders: systematic review. J Adv Nurs. 2009;65(3):477–93.
5	Daniels SK, Anderson JA, Willson PC. Valid items foe screening dysphagia risk in patients with stroke: a systematic review. Stroke. 2012;43:892–7.
6	Schepp SK, Tirschwell DL, Miller RM, Longstreth WT Jr. Swallowing screens after acute stroke: a systematic review. Stroke. 2012;43:869–71.
7	Kertscher B, Speyer R, Palmieri M, Plant C. Bedside screening to detect oropharyngeal dysphagia in patients with neurological disorders: an updated systematic review. Dysphagia. 2014 Apr;29(2):204-12.
8	Poorjavad M, Jalaie S. Systemic review on highly qualified screening tests for swallowing disorders following stroke: Validity and reliability issues. J Res Med Sci. 2014 Aug;19(8):776-85.
9	Jiin-Ling Jiang a, b, Shu-Ying Fu a, Wan-Hsiang Wang b, c, Yu-Chin Ma. Validity and reliability of swallowing screening tools used by nurses for dysphagia: A systematic review. Tzu Chi Medical Journal 28 (2016) 41-48.
10	Fedder WN. Review of Evidenced-Based Nursing Protocols for Dysphagia Assessment. Stroke. 2017 Mar 9.

State-of-the-Science Nursing Review

Review of Evidenced-Based Nursing Protocols for Dysphagia Assessment

Wende N. Fedder, DNP, RN, MBA

Stroke April 2017

Assessment Name	Considerations for Implementation	Administration Time (in min)	Validation for Use by Nurses
VFSS (per ASHA, highly valid, reliable, sensitive, and specific in clinical determination of aspiration and dysphagia)	Cost prohibitive; requires patient compliance; technician expertise; patient exposure elevated to toxic barium; often not available 24/7	15–60	No
Barnes Jewish Hospital Stroke Dysphagia Screen (also known as Acute Stroke Dysphagia Screen)	Validated against MASA; sensitivity for dysphagia and aspiration >90%; specificity 74%; reliability 94%	<2	Yes, with 10-min training
Burke Dysphagia Screening Test	Not valid for aspiration or dysphagia screening; lacks reliability, sensitivity, and specificity data; authors report test is for dysphagia-related medical complications not dysphagia screening; sensitivity for dysphagia-related medical complications was 92%	<10 min	Yes, for dysphagia-related complications
Gugging Swallow Screen	Validated; reliability, sensitivity, and specificity established	<10 min	No; SLP administered
Massey Bedside Swallow Screen	Small study; not validated against VF	<15 min	Yes
Modified MASA	N/A (not performed by RNs). Validated, sensitivity 87% to 93%; specificity 84% to 86%; reliability 76%	<10	No; published for use by physicians
Simple Swallow Provocation Test	Not validated by VF; low sensitivity <70%, does not require patient cooperation; limited applicability	Variable	Yes; with training
Swallow screen by emergency physician	N/A (not performed by RNs). Validated; sensitivity 96%, specificity 56%, reliability 90%	<3	No; published for use by physicians
3 oz Water Test	Validated in >1 study; questionable reliability unless combined with other tests. Specificity established; sensitivity <80% for aspiration	<5	Yes
Toronto Bedside Swallow Screening	Validated for use across clinical settings (copyright protected); sensitivity 96%; specificity 64%; reliability 92% (adherence to copyright protections required)	<10	Yes, with 4 h training
Yale Swallow Protocol	Validated: reliable and useful; not recommended for patients who require tracheotomy, ongoing mechanical ventilation, or pulmonary toilet; sensitivity 100%; specificity 64%; reliability 100%	Simple clinical screen	Yes

ASHA indicates American Speech-Language-Hearing Association; MASA, Mann Assessment of Swallowing Ability; N/A, not available; RN, registered nurse; SLP, speech-language pathologist; VF, videofluoroscopy; and VFSS, Videofluoroscopic Swallowing Study.

Yale Swallow Protocol

Step 1: Exclusion Criteria

___ Yale Swallow Protocol Deferred due to NO concern for aspiration risk.

Any YES answer to the following risk factors will also defer administration to protocol:

Yes	No	
___	___	Unable to remain alert for testing.
___	___	Eating a modified diet (thickened liquids) due to pre-existing dysphagia.
___	___	Existing enteral tube feeding via stomach or nose.
___	___	Head-of-bed restrictions <30°.
___	___	Tracheostomy tube present.
___	___	Nil per os by physician order.

If the patient's clinical status changes resulting in a new risk for aspiration, the protocol must be readministered before oral alimentation or medications are ordered.

Step 2: Administration Instructions

If patient is deemed an aspiration risk and all exclusion criteria in Step 1 are checked "NO," proceed with protocol:

- Brief Cognitive Screen:

  What is your name?
  Where are you right now?
  What year is it?

- Oral-Mechanism Examination

  Labial closure
  Lingual range of motion
  Facial symmetry (smile/pucker)

- Perform 3-ounce water swallow challenge:

  Sit patient upright at 80-90° (or as high as tolerated >30°).
  Ask patient to drink the entire 3 ounces (90cc) of water from a cup or with a straw, in sequential swallows, and slow and steady but without stopping. (Note: Cup or straw can be held by clinician or patient.) Assess patient for interrupted drinking and coughing or choking during or immediately after completion of drinking.

  Note: Information from the brief cognitive screen and oral mechanism examination provide information on odds of aspiration risk with the 3-ounce water swallow challenge and should not be used as exclusionary criteria for screening.

Step 3: Pass/Fail Criteria

Results and Recommendations

____ PASS: Complete and uninterrupted drinking of all 3 ounces of water without overt signs of aspiration, i.e., coughing or choking, either during or immediately after completion.

- If patient passes, collaborate with MD/PA/LIP to order appropriate oral diet. If dentate, order a soft solid consistency or regular consistency diet. If edentulous, order a liquid and puree diet.

____ FAIL: Inability to drink the entire 3 ounces in sequential swallows due to stopping/starting or patient exhibits overt signs of aspiration, i.e., coughing or choking, either during or immediately after completion.

- If patient fails, keep nil per os (including medications) and discuss with the MD/PA/LIP the need for an objective swallowing evaluation by speech-language pathologist.
- Readminister the protocol in 24 h if patient shows clinical improvement.

(Taken from: Suiter, D.M., Sloggy, J., & Leder, S.B. (2014). Validation of the Yale Swallow Protocol: A prospective double-blinded videofluoroscopic study. *Dysphagia, 29,* 199-203.)

UNIVERSITY HEALTH NETWORK

TOR-BSST

The Toronto Bedside Swallowing Screening Test

(addressograph)

DATE:_____ TIME:_____ Patient Number:_____

A) Before water intake: (Mark either normal, abnormal or unable to assess for each task.)

	Normal	Abnormal	Unable to assess
1. Have patient say 'ah' and judge voice quality.	☐	☐	_____
2. Ask patient to stick their tongue out and then move it from side to side.	☐	☐	_____
3. Stroke posterior wall of throat on each side and ask patient if they can feel it.	☐	☐	_____

B) Water Intake: While the patient is sitting upright give **10 x 5ml (teaspoon)** boluses followed by **a sip from a cup**. Ask patient to **say "ah"** after each swallow. *If any **coughing or change in voice quality** occurs, **stop the test** and check appropriate box. **Do not mark normal findings** in this section. If you are unable to continue the water swallows to your satisfaction of patient safety, record the reason for terminating in the **Unable to Assess** box.*

1 TSP. SWALLOWS	***Cough during/ after swallow***	***Wet voice after swallow***	***Unable to Assess (Give reason)***
Swallow 1	☐	☐	_____
Swallow 2	☐	☐	_____
Swallow 3	☐	☐	_____
Swallow 4	☐	☐	_____
Swallow 5	☐	☐	_____
Swallow 6	☐	☐	_____
Swallow 7	☐	☐	_____
Swallow 8	☐	☐	_____
Swallow 9	☐	☐	_____
Swallow 10	☐	☐	_____
2) Free drinking from a cup	☐	☐	_____
3) Drool during water swallows?	☐		

C) After water intake:

	Normal	Abnormal	Unable to Assess
1. Have patient say 'ah' again and judge voice quality	☐	☐	_____

D) Results: ☐ **Passed** (no abnormal results) ☐ **Failed** (1 or more abnormal results)

If Failed initiate referral to SLP

Nurse's Signature: _____

Barnes-Jewish Hospital Stroke Center

The Center for Stroke and Cerebrovascular Disease

Barnes-Jewish Hospital | Washington University in St. Louis Physicians

NATIONAL LEADERS IN MEDICINE

BJH STROKE DYSPHAGIA SCREEN

Date:_____

To be completed on all patients upon admission with diagnosis of stroke. If any of the following questions are answered with a yes, stop and refer to speech pathology.

		YES	NO
1.	Is the Glasgow Coma Scale LESS than 13?	☐	☐
2.	Is there Facial Asymmetry/Weakness?	☐	☐
3.	Is there Tongue Asymmetry/Weakness?	☐	☐
4.	Is there Palatal Asymmetry/Weakness?	☐	☐
5.	Are there signs of aspiration during the 3 oz. water test?	☐	☐

- If all findings for the first 4 questions are **NO**, proceed to the 3 oz. water test.
- Administer 3 oz. of water for sequential drinks, note any throat clearing, cough, or change in vocal quality immediately after and 1 minute following the swallow. If clearing, coughing, or change in vocal quality is noted, refer to speech therapy.
- If all of the answers to the above questions are **NO**, then start the patient on a regular diet.

_____

R.N. Signature

Assessment methodology and form developed by Barnes-Jewish Hospital, Speech Pathology Services.

Rijimo patikros protokolų palyginimas

Protokolai	Jautrumas	Specifiškumas	Teigiama prognostinė vertė	Neigiama prognostinė vertė	Rijimo sutrikimo patikros trukmė	Slaugytojos mokymo trukmė
Yale rijimo protokolas (*Yale swallowing protocol*)	100%	64%	77,8%	100%	Nenurodyta	Nenurodyta
Ūminio insulto rijimo sutrikimo patikros testas (*Barnes Jewish Hospital Stroke Dysphagia Screen or Acute Stroke Dysphagia Screen*)	94%	66%	71%	93%	<2 min	10 min
Toronto rijimo sutrikimo patikros testas* (*Toronto Bedside Swallowing Screening Test*)	96%	64%	76,5%	93.3%	<10 min	4 val.

*adherence to copyright protections required