

# The Barnes Jewish Hospital Stroke Dysphagia Screen

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- No conflicts of interest to report

# The Joint Commission

- Primary Stroke Center
- Must track harmonized measures

# Standardized Stroke Measure Set

- DVT Prophylaxis
- Discharged on Antithrombotic Therapy
- Patients with A-Fib Receiving Anticoagulation Therapy
- Thrombolytic Therapy Administered
- Antithrombotic Therapy by End of Hospital Day Two
- Discharged on Cholesterol Reducing Medication
- **Dysphagia Screening**
- Stroke Education
- Smoking Cessation/Advice/Counseling
- Assessed for Rehabilitation

# Why Screen?

- Dysphagia associated with higher mortality<sup>1</sup>
  - Dysphagia is strongly correlated with pneumonia<sup>2</sup>
  - Significant relationship between dysphagia and malnutrition<sup>3</sup>
- 1-Smithard DG et. Al. Can bedside assessment reliably exclude aspiration following acute stroke? *Age Ageing* 1998; 27, 99-106
  - 2-Mann G, Hankey G, Cameron D. Swallowing function after stroke- prognosis and prognostic factors at 6 months. *Stroke* 1999; 30 (4), 744-748
  - 3-Finestone H, Greene-Finestone L, Wilson E, Teasell R. Malnutrition in stroke patient on the rehabilitation service and at follow-up: prevalence and predictors. *Arch Phys Med and Rehabil* 1995; 76, 310-316

# Dysphagia Prevalence

- 1902 stroke admits from June 1<sup>st</sup> 2006- April 5<sup>th</sup> 2008 at BJH.
- 612 with dysphagia (32%)

# Defining a screen

- Reliable
- Valid
- Sensitive
- Easily Administered
- Require Minimal Training

# What is available

	"Any Two"	BDST	Timed Test	3 oz water test	BSA	SSA	GUSS	ASDS
Subjects	59	139	115	44	129	200	50	300
Concurrent Validity	Yes with VFSS	No	No	Yes with VFSS	Yes with VFSS	No	Yes with FEES	Yes with MASA
Sensitivity-Dysphagia	92% for at least moderate dysphagia	n/a	n/a	n/a	n/a	97%	n/a	91%
Sensitivity-Aspiration	n/a	n/a	100%	76%	68%	n/a	100%	95%
Inter-rater reliability	n/a	n/a	n/a	n/a	n/a	88%	83%	92%
Test-Retest reliability	n/a	n/a	n/a	n/a	n/a	n/a	n/a	93%
Specificity	67%	n/a	52%	59%	67%	90%	50%	Aspiration=74% Dysphagia=68%



# Principles for Development

- Clinical indicators should not be cumbersome to administer
- Components must be able to be evaluated objectively
- Each item needs research evidence supporting its relationship to dysphagia



Barnes-Jewish Hospital Stroke Center

ADDRESSOGRAPH

### 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?	<input type="checkbox"/>	<input type="checkbox"/>
2) Is there Facial Asymmetry/Weakness?	<input type="checkbox"/>	<input type="checkbox"/>
3) Is there Tongue Asymmetry/Weakness?	<input type="checkbox"/>	<input type="checkbox"/>
4) Is there Palatal Asymmetry/Weakness?	<input type="checkbox"/>	<input type="checkbox"/>
5) Are there signs of aspiration during the 3 oz water test?	<input type="checkbox"/>	<input type="checkbox"/>

- > 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  
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# Consciousness

- Glasgow Coma Scale
  - Provides objective measure for consciousness
  - Reliable
  - Level of consciousness correlates with aspiration\*

\*Smithard DG et. Al. Can bedside assessment reliably exclude aspiration following acute stroke? *Age Ageing* 1998; 27, 99-106

# Dysarthria

- Strong correlation with oropharyngeal dysphagia and dysarthria\*
- Term “dysarthria” deemed to be too subjective
- Separate items evaluated that can independently or jointly result in dysarthria
- 4 out of 5 cranial nerves involved with swallowing are assessed

\*Logemann J, Veis S, Colangelo L: A screening procedure for oropharyngeal dysphagia. *Dysphagia* 1999, 14, 44-51

# 3 oz water trial

- When used alone, a sensitivity of .76 to identify aspiration.\*

\*Depippo KL, Holas MA, Reding MJ: Validation of the 3-oz water swallow test for aspiration following stroke. *Archives of Neurology* 1992; 49, 1259-1261

# Methods

- Established reliability
  - 50 nurses viewed a video and scored the screen
  - 15 nurses randomly selected to review the video 2 weeks later
  - Results: Inter-rater reliability was 93.6, test-retest reliability was 92.5

# Validating the Screen

- Between June, 2006 and December 2006: 480 patients were admitted to the stroke service at Barnes Jewish Hospital
- All stroke patients receive a clinical bedside swallowing evaluation by speech pathologist as standard of care
- Each patient was also evaluated by nursing with BJH-SDS
- SLP and nurse were blinded to the results

# The Clinical Bedside

- Mann Assessment of Swallowing Ability (MASA)
- Standardized on 128 stroke patients
- Concurrent validity established using a modified barium swallow
- Provides score and severity scale for both dysphagia and aspiration risk



# Interpreting the MASA

Severe	MASA Score- Dysphagia	MASA Score- Aspiration
No Abnormality	178-200	170-200
Mild	168-177	149-169
Moderate	139-167	$\leq 148$
Severe	$\leq 138$	$\leq 140$

# Interpreting the MASA

Severe	MASA Score- Dysphagia	MASA Score- Aspiration
No Abnormality	178-200	170-200
Mild	168-177	149-169
Moderate	139-167	$\leq 148$
Severe	$\leq 138$	$\leq 140$

# Methods

- If patient has any parameter impaired on the BJH-SDS, they fail the screen
- Used the 178 cut-off for dysphagia and the 170 for aspiration during analysis

# Results

- 300 subjects were consented and had the MASA and BJH-SDS
- Mean time from admission to screen was 8 hours
- Mean time from admission to MASA was 32 hours

# Results

- Sensitivity for dysphagia: 91%
- Specificity for dysphagia: 74%
- Sensitivity for aspiration: 95%
- Specificity for aspiration: 68%

# Implementation

- Initial training
- Ongoing training

# Initial Training

- Currently completed by a speech language pathologist
- Competency established by observation from a certified nurse

# Ongoing Training

- Completed during yearly competencies
- Skills day
- Written test
- Video test



?QUESTIONS?

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