

# CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

## **Rehabilitation and Recovery following Stroke**

### **Table 3: Suggested Swallow Screening and Assessment Tools**

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**Table 3: Suggested Swallow Screening and Assessment Tools**

Author/ Name of test	Components of test Details of validation study	Results of original validation study
<p><b>Daniels et al. 1997</b></p> <p>“Any Two”</p>	<p>Items included: 6 clinical features-dysphonia, dysarthria, abnormal volitional cough (includes water-swallowing test), abnormal gag reflex, cough after swallow and voice change after swallow were assessed.</p> <p>Scoring: Presence of any 2 of the items distinguished patients with/without dysphagia</p> <p>Sample: 59 acute stroke survivors were studied within 5 days of hospital admission.</p>	<p>Diagnostic standard: VMBS exam</p> <p>Prevalence of dysphagia: 74.6%</p> <p>The sensitivities and specificities of individual items ranged from 31%-76.9% and 61%-88%, respectively.</p> <p>Overall: Sensitivity: 92% Specificity: 67%</p>
<p><b>Trapl et al. 2007</b></p> <p><b>The Gugging Swallowing Screen (GUSS)</b></p>	<p>Preliminary Assessment (vigilance, throat clearing, saliva swallow) Direct swallow (semisolid, liquid, solid swallow trials)</p> <p>Scoring: Total scores ranged from 0 (worst) - 20 (no dysphagia). A cut-off score of 14 was selected</p> <p>Sample: 50 first-ever acute stroke patients with suspected dysphagia</p>	<p>Diagnostic standard: fiberoptic endoscopic evaluation using the Penetration Aspiration Scale to interpret the results.</p> <p>Prevalence of dysphagia: 73%</p> <p>First group of 19 patients using the GUSS to identify participants at risk of aspiration: Sensitivity: 100%, Specificity: 50%</p> <p>Second group of 30 patients Sensitivity: 100%, Specificity: 69%</p> <p>Interrater reliability: Kappa=0.835</p>
<p><b>Martino et al. 2009</b></p> <p><b>The Toronto Bedside Swallowing Screening Test (TOR-BSST)</b></p>	<p>Items included: presence of dysphonia before/after water swallowing test, impaired pharyngeal sensation and abnormal tongue movement.</p> <p>Scoring: pass=4/4 items; fail <math>\geq</math>1/4 items</p> <p>Sample: 311 stroke patients (103 acute, 208 rehabilitation)</p>	<p>Diagnostic standard: VMBS exam.</p> <p>Prevalence of dysphagia: 39%</p> <p>Sensitivity: 96%</p> <p>Specificity: 64%</p> <p>Interrater reliability (based on observations from 50 participants) ICC =0.92 (95% CI: 0.85-0.96)</p>
<p><b>Edmiaston et al. 2009 USA</b></p> <p><b>Acute Stroke Dysphagia Screen</b></p>	<p>Items included: Glasgow Coma Scale score &lt;13, presence of facial, tongue or palatal asymmetry/weakness. If no to all 3 items, then proceed to 3 oz. water swallowing test.</p> <p>Scoring: If there is evidence of change in voice quality, cough or change in vocal quality 1 minute after water swallowing test = fail.</p> <p>Sample: 300 acute stroke patients screened by nurses within 8 to 32 hours following admission.</p>	<p>Diagnostic standard: Mann Assessment of Swallowing Ability (MASA), performed by a SPL.</p> <p>Prevalence of dysphagia: 29%</p> <p>Sensitivity (Dysphagia): 91% Specificity: 74%</p> <p>Sensitivity (aspiration risk): 95% Specificity: 68%</p> <p>Interrater reliability: Kappa=94%</p>
<p><b>Turner-Lawrence et al. 2009</b></p> <p><b>Emergency Physician</b></p>	<p>The two-tiered bedside tool was developed by SLPs.</p> <p>Tier 1 items included: voice quality, swallowing complaints, facial asymmetry, and aphasia.</p> <p>Tier 2 items included a water swallow test, with evaluation for swallowing difficulty, voice quality compromise, and pulse oximetry desaturation (<math>\geq</math></p>	<p>Diagnostic standard: formal assessment conducted by an SLP</p> <p>Prevalence of dysphagia: 57%</p> <p>Sensitivity: 96%</p> <p>Specificity: 56%</p> <p>Interrater reliability: Kappa=0.90</p>

Author/ Name of test	Components of test Details of validation study	Results of original validation study
<b>Dysphagia Screen</b>	2%). Patients failing tier 1 did not move forward to tier 2. Scoring: Patients who passed both tiers were considered to be low-risk. Sample: a convenience sample of 84 stroke patients (ischemic/hemorrhagic) screened by 45 ER MDs.	
<b>Antonios et al. 2010</b>  <b>Modified Mann Assessment of Swallowing Ability (MMASA)</b>	12 of the 24 MASA items were retained including: alertness, co-operation, respiration, expressive dysphasia, auditory comprehension, dysarthria, saliva, tongue movement, tongue strength, gag, volitional cough and palate movement. Scoring: Maximum score is 100 (no dysphagia). A cut-off score of 94 was used to identify patients at risk of dysphagia Sample: 150 consecutive patients with acute ischemic stroke were assessed by 2 neurologists shortly after admission to hospital.	Diagnostic standard: MASA conducted by SLP Prevalence of dysphagia: 36.2% Sensitivity: 87% & 93% Specificity: 86% & 84% Interrater reliability: Kappa=0.76
<b>Schrock et al. 2011</b>  <b>MetroHealth Dysphagia Screen</b>	5 items included: Alert and able to sit upright for 10 minutes, weak, wet or abnormal voice, drooling, slurred speech and weak, or inaudible cough.  Scoring: ≥1 items answered yes=failed screen Sample: 283 patients admitted to the Emergency department with acute stroke and screened for the presence of dysphagia by nurses	Diagnostic standard: VMBS Prevalence of dysphagia at 30 days: 32% Sensitivity: 95% Specificity: 55% Interrater reliability: Kappa=0.69

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