

generally performed at the patient's bedside or in a home or school environment and provide the clinician with increased evidence that the patient needs in-depth physiological assessment. In some situations, screening is limited to chart review and perhaps observation of eating if the patient is being orally fed, low risk, and low cost. Its purpose is to identify the highest risk patients who require further assessment.

In recent years, there has been increased interest in refining screening procedures, with the goal of eliminating the need for a videofluoroscopic study or other instrumental procedures (DePippo, Holas, & Reding, 1992; Hamlet, Nelson, & Patterson, 1990; Hamlet, Patterson, Fleming, & Jones, 1992; Nathadwarala, McGroary, & Wiles, 1994; Nathadwarala, Nicklin, & Wiles, 1992; Renner, Losinski, & Mills, 1995). However, screening procedures answer a very different set of questions than does a diagnostic procedure such as videofluorography. Screening procedures *ask and attempt to answer the question, "Is the patient dysphagic?"* They do not answer the question, *"What is the nature of the patient's physiology during swallowing?"* The latter question is answered by a diagnostic procedure. Some of the newly developed screening procedures involve continuous swallowing of larger amounts of liquid (the 3-oz water test or the timed swallowing test) (DePippo et al., 1992; Nathadwarala et al., 1992; Nathadwarala et al., 1994). These should be used very judiciously, if at all, in patients at any significant risk for aspiration, as the patient could develop a significant immediate or delayed pulmonary reaction (Batchelor, Neilson, &

Neilson, 1996). In general, when a screening procedure is examined for its accuracy in identifying the presence of a dysphagia symptom, two characteristics are statistically examined. First, the procedure should *correctly identify those individuals who are actually aspirating or have residue (true positives)*, known as procedural *sensitivity*, and those who have *none of these symptoms (true negatives)*, known as procedural *specificity*. Second, the procedure should *not generate many false positives (i.e., those who are identified as aspirating but are not actually aspirating) or false negatives (i.e., those who are aspirating but are identified as not aspirating)*. The ability of a screening procedure to identify the presence of a symptom, such as aspiration or residual food in the pharynx, has not nearly reached 100% accuracy in any of the studies that have been completed to date (any of the screening procedures (DePippo et al., 1992; Nathadwarala et al., 1992; Nathadwarala et al., 1994; Zenner et al., 1995)). Those procedures with a *higher rate of correct identification of aspirators also usually have a higher rate of false positives; that is, they overidentify patients as aspirating who are not aspirating*. At this time, it is suggested that the swallowing therapy use a noninvasive, low-risk procedure that is quick and easy. We have found that using the checklist in Table 5.1 results in sensitivity and specificity

Table 5.1

Checklist of Items for Dysphagia Screening

Screening should be quick (less than 15 minutes), easy, and inexpensive.

Check appropriate box for each item.

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	1. History of recurrent pneumonia
<input type="checkbox"/>	<input type="checkbox"/>	2. Diagnosis of <ul style="list-style-type: none"> • partial laryngectomy • oral resection • full course radiation to head or neck • anoxia • Parkinson's disease • motor neuron disease (e.g., Werdnig-Hoffmann disease) • myasthenia gravis • bulbar polio • anterior cervical spinal fusion • brainstem stroke • Guillain-Barré • laryngeal trauma
<input type="checkbox"/>	<input type="checkbox"/>	3. History of prolonged or traumatic intubation or emergency tracheostomy
<input type="checkbox"/>	<input type="checkbox"/>	4. Severe respiratory problems
<input type="checkbox"/>	<input type="checkbox"/>	5. Gurgly voice, cry
<input type="checkbox"/>	<input type="checkbox"/>	6. Coughing before, during, and/or after swallowing
<input type="checkbox"/>	<input type="checkbox"/>	7. Poor awareness and poor control of secretions
<input type="checkbox"/>	<input type="checkbox"/>	8. Infrequent swallowing (less than one saliva swallow in 5 minutes)
<input type="checkbox"/>	<input type="checkbox"/>	9. Constant copious chest secretions
<input type="checkbox"/>	<input type="checkbox"/>	10. If patient is eating, observe eating. If patient is not eating, observe saliva swallowing. Identify any of these, particularly if they change during or immediately after a meal: <ul style="list-style-type: none"> • breathing difficulty • increased secretions • voice changes (gurgly sound) • multiple swallowing per bolus • reduced laryngeal lifting on swallow • throat clearing • coughing • significant fatigue

Note. Items 1 through 4 should be obtained from brief chart review. Items 5 through 10 require brief patient observation.