The Source® for Dysphagia

Updated & Expanded

Nancy B. Swigert

Skill Area:	Dysphagia
Age Level:	Adults

LinguiSystems®

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About the Author

Nancy B. Swigert, M.A., CCC-SLP, is director of Swigert & Associates, Inc., a private practice which has been providing services in the Lexington, Kentucky area for over 20 years. The practice is contracted by Central Baptist Hospital in Lexington to administer and staff the inpatient and outpatient departments where Nancy spends the majority of her time. Nancy developed the multi-disciplinary Dysphagia Team at the hospital. She has also served as a consultant to a variety of other health care facilities in Kentucky concerning their dysphagia programs.

Nancy has lectured extensively on dysphagia at state, regional, national, and international conferences. She is the author of two other books for LinguiSystems, *The Source for Dysarthria* and *The Source for Pediatric Dysphagia*. Nancy has also published information on functional outcomes for dysphagia in other resources. She is very active in the American Speech-Language-Hearing Association, including serving as its president in 1998.

Dedication

To Jeri Logemann, whose teaching and writing initially sparked my interest in dysphagia, and whose continued mentorship is invaluable.

To the colleagues in my private practice who take on extra work to allow me time for projects such as this. Thanks especially to Verity, Michelle, Janice, Hope, Kim, and Holley. Interacting with them on a daily basis keeps it fun!

Most of all, to my husband, Keith, whose patience and support never cease to amaze me.

Acknowledgment

I am fortunate to provide services at Central Baptist Hospital and to work with talented and dedicated professionals there. Special thanks to Larry Gray, M.Div., Vice-President for Mission Effectiveness, for his guidance concerning medical ethics; to Sharon Wallace, RD/LD, DSc., for teaching me about nutrition; to Ronald G. Mobley, B.S., R.R.T., for sharing his expertise on respiratory care; and to Lonnie Wright, M.S.L.S. and Jeff Kurz, medical librarians who manage to find the most obscure references just when I need them.

Illustrated by Margaret Warner and Cindy Maxwell
Edited by Lauri Whiskeyman
Page Layout by Lisa Parker

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Introduction

Working with adults with dysphagia is a challenging and rewarding part of the practice of speech-language pathology. I am fortunate to have the opportunity to evaluate and treat patients in a variety of settings and find that I continually learn from them how to be a better dysphagia clinician. This book is a compilation of what I have learned and how I have applied that information to different practice settings. It is meant to be a practical resource for you to use on a day-to-day basis, but also has reference information which will help you when you encounter a challenging patient. It should be just one of many you use to build your knowledge and skills in dysphagia management.

The Source for Dysphagia was first printed in 1996. Since that time, advances in research have resulted in new treatment techniques and enhancements in the evaluation of patients with dysphagia. This edition provides up-to-date information in these areas. In addition, we have continued to develop more teaching materials, handouts, etc. that have made our work easier. I wanted to share those materials with you.

Most chapters contain significant revisions, such as:

- updated information on billing and coding issues
- numerous patient and staff education materials on issues from gag reflex to why instrumental exams are needed
- more in-depth information on videofluoroscopic studies and how to perform and interpret them, as well as information on FEES®
- an entirely new framework for short-term goals and treatment objectives based on symptoms observed and the physiological cause of each symptom which should make it much easier to plan treatment

In addition, the book contains two new chapters:

- special considerations in the ICU, including information on tracheostomies, ventilators, the blue dye test, and suctioning
- outcomes and efficacy data, including information you can use to document effectiveness of your treatment

In these challenging times in health care, patients with dysphagia are fortunate that speech-language pathologists remain dedicated to providing quality services. I hope *The Source for Dysphagia* helps you evaluate and treat patients more effectively and more efficiently, and helps in your quest to become the best dysphagia clinician you can be.

Nancy

Information to Obtain from Chart Review

Patient _____

Medical History

- ❑ Admit diagnosis
- ❑ Functional problems observed
- ❑ Level of alertness
- ❑ Previous diagnoses and treatment
- ❑ Advance directive
- ❑ Premorbid status

Medications

- ❑ Cause mental status change/sedation
- ❑ Antibiotics
- ❑ GERD meds
- ❑ How presented to patient
- ❑ Other meds:

_____

Referral

- ❑ Reason for referral
- ❑ Signed physician's order

Respiratory Status

- ❑ Lung sounds
- ❑ Chest x-rays
- ❑ Oxygen therapy and mode of delivery
- ❑ Recent intubations
- ❑ Ventilator
- ❑ Tracheostomy
  - ❑ status of cuff
  - ❑ tracheostomy speaking valve

Signs and Symptoms of Dysphagia

- ❑ Temperature
- ❑ Drooling/increased secretions
- ❑ Weight loss
- ❑ Coughing/choking
- ❑ Pocketing
- ❑ Pneumonia
- ❑ Changes in diet
- ❑ Patient complaint
- ❑ Dehydration
- ❑ Reflux

Nursing Assessment

- ❑ Cognitive assessment
- ❑ Observations of patient
- ❑ Previous living situation
- ❑ Family support/involvement
- ❑ Sensory impairments

Nutrition/Hydration

- ❑ Current diet
- ❑ Dietary restrictions
- ❑ Alternate method of feeding

Other Evaluations/Procedures

- ❑ GI series
- ❑ Barium swallow
- ❑ Neurological consult
- ❑ Dietary consult
- ❑ Surgery
- ❑ Radiation therapy

Swallowing Questionnaire to Provide Additional History

Patient _____ SLP _____

Date _____

1. Do you have any problems with swallowing? ❒ yes ❒ no

   If so, when did the problem start? _____

   _____

   Briefly describe the difficulty. _____

   _____

2. Did the start of your swallowing problem relate to other medical problems you have? ❒ yes ❒ no

   If so, please describe: _____

   _____

3. When you eat or drink, do you have episodes of coughing? ❒ yes ❒ no

   When you eat or drink, do you have episodes of choking? ❒ yes ❒ no

4. Do you wear dentures when you eat? ❒ yes ❒ no

5. Does food or drink ever "go down the wrong way"? ❒ yes ❒ no

6. Does your food generally require special preparation before you can eat it? ❒ yes ❒ no

   If so, please describe: _____

   _____

7. Do you avoid certain foods because they are difficult to swallow? ❒ yes ❒ no

   If so, please list examples: _____

Swallowing Questionnaire to Provide Additional History, *continued*

8. Do you find food in your mouth after you swallow? ❒ yes ❒ no

9. Do you have difficulty keeping food or drink in your mouth? ❒ yes ❒ no

10. Do liquids ever come back through your nose when you swallow them? ❒ yes ❒ no

11. Do you ever feel that food gets "stuck" in your throat? ❒ yes ❒ no

    If so, describe where it feels stuck. _____

12. Do you regularly wake up at night coughing? ❒ yes ❒ no

13. Do you often wake up with a bad/sour taste in your mouth? ❒ yes ❒ no

14. Is your swallowing problem intermittent / constant? (Circle one.)

15. Has your swallowing problem changed over time? ❒ yes ❒ no

    If so, please describe: _____

    _____

16. Are there any factors that make your swallowing problem worse? ❒ yes ❒ no

    If so, please describe: _____

    _____

17. Do you have more difficulty swallowing when in any certain position? ❒ yes ❒ no

    If so, please describe: _____

    _____

18. Have you had pneumonia recently? ❒ yes ❒ no

    If so, when? _____

    _____

19. Has your voice changed in the past year? ❒ yes ❒ no
    If so, check all that apply:

    ❒ hoarse ❒ quieter
    ❒ whispery/breathy ❒ other _____

20. Did the changes in your voice start gradually / suddenly? (Circle one.)

21. What was the date of onset of your voice change? _____

22. Has your speech changed in the past year? ❒ yes ❒ no
    If so, check all that apply:

    ❒ slurring
    ❒ need to clear your throat more
    ❒ talking through your nose
    ❒ other _____

23. Did the changes in your speech start gradually / suddenly? (Circle one.)

24. What was the date of onset of your speech change? _____

25. Have you had any previous swallowing or throat problems? ❒ yes ❒ no

    If so, please describe: _____

    _____

How Feeding Tubes Compare

Types of Tubes	Description	Indications	Advantages	Disadvantages
Nasogastric (NG tube)	• available in a variety of sizes • placed into the nares through the naso-pharynx, down the esophagus, into the stomach • radiopaque (shows up on an x-ray to verify placement)	• usually used short term (less than 6 weeks) • patient's GI tract has to be functioning • often used for patients with swallowing disorders secondary to neurological impairment, tumors of the head and neck or esophagus	• putting tube into the stomach is more natural than directly into the intestine • stomach acid helps destroy microorganisms and may reduce the risk of infection • intermittent feedings may be better tolerated in the stomach	• some patients find the tube uncomfortable • sometimes difficult for the patient to self-feed around a feeding tube • sometimes patients pull at the tubes and have to have their hands restrained • may be contraindicated for patients at high-risk for aspiration as it keeps the lower esophageal sphincter slightly open and may permit reflux • easily dislodged by the patient or can be placed incorrectly into the trachea
Nasoduodenal or Nasojejunal	• very similar to NG tube, but the tip goes through the stomach into the duodenum or jejunum • may be used post-operatively if the patient has had gastric surgery	• same as NG tube	• may be less risk for aspiration	• same as NG tube

How Feeding Tubes Compare, *continued*

Types of Tubes	Description	Indications	Advantages	Disadvantages
Gastrostomy (G-tube)	• surgically placed directly into the stomach (very few tubes are surgically placed unless the patient is already undergoing abdominal surgery)	• used for long-term feedings • patient's GI tract has to be functioning • often used for patients with swallowing disorders secondary to neurological impairment, tumors of the head and neck or esophagus	• same as NG tube but more comfortable and aesthetic	• requires surgery to place
Percutaneous Endoscopic Gastrostomy (PEG tube)*	• same as G-tube but placed under local anesthesia or conscious sedation at bedside	• same as G-tube	• same as G-tube	• contraindicated for patients with peritonitis, esophageal obstruction, morbid obesity, or severe gastroesophageal reflux
Jejunostomy (J-tube)	• tube surgically placed directly into the jejunum	• for long-term feeding • also used for short-term feeding after GI tract surgery	• may be lower aspiration risk since the tube is in the jejunum and not in the stomach • tube can't be misplaced in the trachea • more comfortable and aesthetic	• same as PEG tube

* Percutaneous Endoscopic Jejustomy (PEJ tube) — similar to PEG tube; tube inserted in jejunostomy

CPT Codes for Dysphagia Evaluation & Treatment

CPT Code	Description from manual	Time units?	Example of use
92525	Evaluation of swallowing and oral function for feeding (includes both clinical bedside evaluation and instrumental assessment [i.e., videofluoroscopy])	No	Used for bedside dysphagia evaluation and/or instrumental assessment (i.e., MBS or FEES® if you did not pass the scope)*
92526	Treatment of swallowing dysfunction and/or oral function for feeding	No	Treatment provided during therapeutic trials with food/liquid; training patient in use of any compensatory strategies
92511	Nasopharyngoscopy with endoscope	No	With FEES® if you actually inserted the endoscope; could be billed as separate procedure which occurred along with 92525 (bedside evaluation)
97530	Therapeutic activities, direct (one-on-one) patient contact by the provider—use of dynamic activities to improve performance	Yes, per each minute unit	During therapeutic feeding at a meal, you may be instructing the patient to carry over use of the super-supraglottic swallow maneuver to increase safety of swallow. This may include some caregiver training.
97112	Neuromuscular re-education of movement, balance, coordination, kinesthetic sense, posture, and proprioception	Yes, each 15-minute unit	Performing thermal/tactile stimulation to reestablish quick initiation of pharyngeal swallow; performing oral neuromuscular facilitation exercises

* It is not appropriate for the SLP to bill her part of the modified barium swallow under 74230. That code is for the Radiologist.

CPT Codes for Dysphagia Evaluation & Treatment, *continued*

CPT Code	Description from manual	Time units?	Example of use
97110	Therapeutic procedures, one or more areas; therapeutic exercises to develop strength and endurance, range of motion, and flexibility	Yes, each 15-minute unit	Performing the effort swallow to strengthen base of tongue and posterior pharyngeal wall movement; performing range of motion exercises
97535	Self care/home management training (e.g., activities of daily living [ADL] and compensatory training, meal preparation, safety procedures, and instructions in use of adaptive equipment); direct one-on-one contact by provider	Yes, each 15-minute unit	Teaching patient and caregiver about the kinds of textures the patient can take safely, and making sure the caregiver can help the patient follow compensatory techniques

For those codes which are associated with 15-minute units, HCFA has provided the following guide to help you determine how many units to list:

1 unit	=		1 minute to	<	23 minutes
2 units	=	>	23 minutes to	<	38 minutes
3 units	=	>	38 minutes to	<	53 minutes
4 units	=	>	53 minutes to	<	68 minutes
5 units	=	>	68 minutes to	<	83 minutes
6 units	=	>	83 minutes to	<	98 minutes
7 units	=	>	98 minutes to	<	113 minutes
8 units	=	>	113 minutes to	<	128 minutes

Physician Referral Form

Patient _____ Date _____

The patient appears to present:

- ❒ oral dysphagia
- ❒ pharyngeal dysphagia
- ❒ esophageal dysphagia

Patient exhibits the following symptoms of oral dysphagia:

- ❒ drooling
- ❒ holding food in mouth
- ❒ decreased ability to chew
- ❒ impaired salivary gland performance
- ❒ oral lesions
- ❒ increased time to complete meal

Patient exhibits these conditions which may indicate an oral and/or pharyngeal dysphagia:

- ❒ tracheostomy tube
- ❒ weight loss
- ❒ surgery to head/neck

Patient exhibits the following clinical signs of aspiration or possible pharyngeal dysphagia:

- ❒ coughing
- ❒ choking
- ❒ history of pneumonia
- ❒ temperature spikes
- ❒ wet vocal quality
- ❒ breathy vocal quality
- ❒ decreased lung sounds

Speech-Language Pathologist: Please complete the following:

- ❒ Bedside/Clinical Evaluation Needed
- ❒ Referral for instrumental exam (e.g., modified barium swallow, FEES®)

Physician's Signature _____

Bedside Dysphagia Evaluation — Summary Sheet for Speech-Language Pathology — Form A

Date _____ Patient _____
Admit Date _____ Physician _____
Admit Diagnosis _____
Medical History _____
_____
Medications _____
Current Method of Nutrition: ❒ PO _____ diet ❒ NPO NG/PEG/TPN
History/Duration of Swallowing Problems _____
_____
Respiratory Status: ❒ O_2 nasal/face mask/trach collar ❒ Intubated from _____ to _____
❒ Trach placed on _____ Trach type _____ ❒ Ventilatory support: _____ hours
❒ Eval done with patient on/off vent ❒ Cuff inflated/deflated ❒ Passy-Muir valve on/off

Dysphagia Diagnosis

_____

Long-Term/Functional Goals (Circle goals to be addressed.)

These goals are set for a _____ time period.

1. Patient will safely consume _____ diet with _____ liquids without complications such as aspiration pneumonia.
2. Patient will be able to eat foods and liquids with more normal consistency.
3. Patient will be able to complete a meal in less than _____ minutes.
4. Patient will maintain nutrition/hydration via alternative methods.
5. Patient's quality of life will be enhanced through eating and drinking small amounts of food and liquid.

Recommendations

_____ NPO — consider alternative feeding: _____
_____ NPO until instrumental exam
_____ trial therapeutic feeding only (no meal trays)
_____ tube feedings will be held a minimum of two hours before each meal
_____ PO: _____
liquids: _____spoon / cup / straw
meds: _____
_____ supplemental tube feedings
_____ SLP to treat _____ meals/day
_____ no therapeutic feeding by SLP indicated
_____ instrumental exam ❒ MBS ❒ FEES®
_____ Speech/language eval
_____ OT eval
_____ ENT consult re: _____
_____ re-eval pending: _____
_____ positioning/feeding precautions as posted
_____ chin-down _____ upright 90° _____ liquid wash
_____ head rotation R/L _____ multiple swallows
_____ reflux precautions
_____ Dietitian to interview patient/family to determine food preferences
_____ calorie count
_____ review chart for spiked temps
_____ feed with trach cuff up / down
Passy-Muir off / on
_____ suction per trach after each meal
_____ other: _____
_____ Treatment by SLP (See Treatment Plan)

*Recommendations marked with * are pending results of an instrumental exam revealing if patient is safe to eat.

Patient/Family Teaching Goals

Was patient/family teaching completed? ❒ yes ❒ no
(See *Teaching Fact Sheet for PO Feeding*.)

_____
Speech-Language Pathologist

Bedside Dysphagia Evaluation — Summary Sheet for Speech-Language Pathology and Occupational Therapy — Form B

Date _____ Patient _____
Admit Date _____ Physician _____
Admit Diagnosis _____
Medical History _____
_____
Medications _____
Current Method of Nutrition: ❒ PO _____ diet ❒ NPO NG/PEG/TPN
History/Duration of Swallowing Problems _____
_____
Respiratory Status: ❒ O_2 nasal/face mask/trach collar ❒ Intubated from _____ to _____
❒ Trach placed on _____ Trach type _____ ❒ Ventilatory support: _____ hours
❒ Eval done with patient on/off vent ❒ Cuff inflated/deflated ❒ Passy-Muir valve on/off

Dysphagia Diagnosis _____
_____

Long-Term/Functional Goals (Circle goals to be addressed.)

These goals are set for a _____ time period.

1. Patient will safely consume _____ diet with _____ liquids without complications such as aspiration pneumonia.
2. Patient will be able to eat foods and liquids with more normal consistency.
3. Patient will be able to complete a meal in less than _____ minutes.
4. Patient will maintain nutrition/hydration via alternative methods.
5. Patient's quality of life will be enhanced through eating and drinking small amounts of food and liquid.

Recommendations

_____ NPO — consider alternative feeding: _____
_____ NPO until instrumental exam
_____ trial therapeutic feeding only (no meal trays)
_____ tube feedings will be held a minimum of two hours before each meal
_____ PO: _____
liquids: _____spoon / cup / straw
meds:_____
_____ supplemental tube feedings
_____ SLP to treat _____ meals/day OT to treat _____ meals/day
_____ no therapeutic feeding by SLP indicated _____ no treatment at meals by OT
_____ instrumental exam ❒ MBS ❒ FEES®
_____ Speech/language eval
_____ OT eval
_____ ENT consult re: _____
_____ re-eval pending: _____
_____ positioning/feeding precautions as posted
_____ chin-down _____ upright 90° _____ liquid wash
_____ head rotation R/L _____ multiple swallows
_____ reflux precautions
_____ Dietitian to interview patient/family to determine food preferences
_____ calorie count
_____ review chart for spiked temps
_____ feed with trach cuff up / down
Passy-Muir off / on
_____ suction per trach after each meal
_____ other: _____
_____ Treatment by SLP (See Treatment Plan) _____ Treatment by OT (See Treatment Plan)

*Recommendations marked with * are pending results of an instrumental exam revealing if patient is safe to eat.

Patient/Family Teaching Goals

Was patient/family teaching completed? ❒ yes ❒ no
(See *Teaching Fact Sheet for PO Feeding*.)

_____
Occupational Therapist

_____
Speech-Language Pathologist

Bedside Dysphagia Evaluation for All Settings – Form C

Patient _____ Date _____
Facility _____ SLP _____

Oral-Motor Evaluation ❒ CNA

1. **Structure**
   Note any abnormalities _____
   edentulous yes no dentures yes no
   wears dentures when eating yes no dentures in during eval yes no
2. **Awareness/Control of Secretions**
   _____ drooling _____ excess secretions in mouth _____ wet breath sounds
3. **Assessing Jaw, Lips, and Tongue**
   Jaw Control CNA + / —

   Labial Function CNA
   lip spread /i/ + / — lip round /u/ + / —
   lip closure at rest lip smacking + / —
   symmetry + / — lip closure on /pʌpʌpʌ/ + / —
   droop R L
   sentence (*Please put the paper by the back door.*) + / —

   Lingual Function CNA
   protrusion + / — retraction + / —
   lick lips + / — lateralization to corners R + / — L + / —
   lateralization to buccal cavity R + / — L + / — elevation of tip + / —
   elevation of back + / — repetitive elevation of tip + / —
   repetitive elevation of back + / —
   fine lingual shaping (*Say something nice to Susan on Sunday.*) + / —
4. **Velar Function** CNA
   prolonged /a/: symmetry during elevation + / —
   Resonance: _____ normal _____ hypernasal _____ hyponasal
5. **Reflexes** CNA
   swallow reflex + / — gag reflex + / — palatal reflex + / —

Laryngeal Examination ❒ CNA

Tracheostomy Tube: _____ yes no
cuffed yes no
finger occluded PM valve other _____
Vocal Quality: normal hoarse breathy wet
Voluntary Cough: strong weak absent
Throat Clearing: strong weak absent
Pitch Range: # of notes _____
Volume Control: noticeable change in loudness + / — ability to control loudness + / —
Phonation Time: # seconds prolonged /a/ _____
Valving for Speech: # syllables/breath group _____

Respiratory Status ❒ CNA

Patient swallows during inhalation/exhalation. Patient can hold breath for _____ seconds.
Patient breathes from nose/mouth.

Cognition/Communication ❒ CNA

Orientation day _____ date _____ year _____ place _____
Follows One-Step Directions + / — with cues without cues
Follows Two-Step Directions + / — with cues without cues
Expressive Language gestures/points uses single words uses phrases
Intelligibility unintelligible dysarthria apraxia confused speech
Short-Term Memory
Can patient retell techniques? yes no
Hearing Acuity _____
wears hearing aid(s) yes no right _____ left _____
hearing aid(s) in for eval yes no

Comments: _____

Patient _____ Patient # _____

Swallowing

Key				Compensatory Techniques	
+	skill is adequate	S	straw	TS	thermal stimulation
—	skill is inadequate	SP	spoon	CD	chin down
N/A	not applicable for that texture	C	cup	HR	head rotation
		CO	cut-out cup	BS	bolus size
				EP	external pressure

		Texture						
Ability to prepare bolus								
labial closure	+ / —							
lingual elevation	+ / —							
lingual lateralization	+ / —							
mastication	+ / —							
Ability to manipulate bolus								
lingual function	+ / —							
oral transit time	+ / —							
Ability to maintain bolus								
back of tongue control	+ / —							
labial closure	+ / —							
cheeks	+ / —							
lingual lateralization	+ / —							
clears oral cavity in one swallow	+ / —							
# swallows per bolus								
Pharyngeal Phase								
initiate reflex in _____ seconds	+ / —							
Laryngeal Characteristics								
vocal quality	+/describe							
cough/throat clearing	+ / —							
elevation of larynx	+ / —							

Comments _____

Oral Phase Short-Term Goals/Treatment Objectives

(Circle goals to be addressed.) These goals are for ____ days/weeks. For related treatment objectives, see SLP Treatment Plan.

1.	(AL/jc)	Patient will improve jaw closure to reduce anterior loss to keep food and liquid in the mouth while eating.	
2.	(AL/lc)	Patient will improve lip closure to reduce anterior loss to keep food and liquid in the mouth while eating.	
3.	(AL/os)	Patient's oral sensation will improve to reduce anterior loss to keep food in the mouth while eating.	
4.	(BF/os)	Patient's oral sensation will increase to improve the ability to put food/liquid into a cohesive bolus to reduce the risk of food residue falling into the airway.	
5.	(BF/tm)	Patient will increase tongue movement to improve the ability to put food and liquid into a cohesive bolus to reduce the risk of food falling into the airway.	
6.	(BF/tc)	The tone in patient's cheek(s) will increase to improve the ability to put food and liquid into a cohesive bolus to reduce the risk of food residue falling into the airway.	
7.	(BP/tm)	Patient will increase tongue movement to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	
8.	(BP/oc)	Patient will increase oral coordination to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	
9.	(BP/os)	Patient's oral sensation will increase to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	
10.	(BP/ag)	Patient will increase awareness of food/liquid and utensils in the mouth to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	

Speech-Language Pathologist	Date	Time	Procedure

Bedside Dysphagia Evaluation – Summary Sheet for Skilled Nursing Facilities – Form D

Date _____
Patient _____ Birthdate _____ Age _____
Physician _____ Room # _____
Medical Diagnosis _____
_____
Medical History _____
_____
Medications _____
Current Method of Nutrition: ❒ PO _____ diet ❒ NPO NG/PEG/TPN
Precautions _____
_____
History/Duration of Swallowing Problems/Recent Change _____
_____
Swallowing Function Prior to Onset/Recent Change _____
_____
Previous Evaluation/Treatment _____
_____

Evaluation Findings/Summary _____
_____
_____
Positive Expectation to Begin Service _____
_____
_____
Need for Skilled Service _____
_____
_____

Dysphagia Diagnosis _____
_____
_____

Recommendations

_____ NPO — consider alternative feeding: _____
_____ NPO until instrumental exam
_____ trial therapeutic feeding only (no meal trays)
_____ tube feedings will be held a minimum of two hours before each meal
_____ PO: _____
liquids: _____spoon / cup / straw
meds: _____
_____ supplemental tube feedings
_____ SLP to treat _____ meals/day OT to treat _____ meals/day
_____ no therapeutic feeding by SLP indicated _____ no treatment at meals by OT
_____ instrumental exam ❒ MBS ❒ FEES®
_____ Speech/language eval
_____ OT eval
_____ ENT consult re: _____
_____ re-eval pending: _____
_____ positioning/feeding precautions as posted
_____ chin-down _____ upright 90° _____ liquid wash
_____ head rotation R/L _____ multiple swallows
_____ reflux precautions
_____ Dietitian to interview patient/family to determine food preferences
_____ calorie count
_____ review chart for spiked temps
_____ feed with trach cuff up / down
Passy-Muir off / on
_____ suction per trach after each meal
_____ other: _____

*Recommendations marked with * are pending results of an instrumental exam revealing if patient is safe to eat.

Recommendations, *continued*

_____ Treatment by SLP (See Treatment Plan) _____ Treatment by OT (See Treatment Plan)

_____ functional maintenance _____ rehab dining

Frequency of service _____ Duration of service _____

Discharge Plan _____

_____

Long-Term Goals (Circle goals to be addressed.)

These goals are set for a one-month time period.

1. Patient will safely consume _____ diet with _____ liquids without complications such as aspiration pneumonia.
2. Patient will be able to eat foods and liquids with more normal consistency.
3. Patient will be able to complete a meal in less than _____ minutes.
4. Patient will maintain nutrition/hydration via alternative methods.
5. Patient's quality of life will be enhanced through eating and drinking small amounts of food and liquid.
6. Patient's caregivers and family will demonstrate understanding of compensatory techniques to feed patient safely.

Oral Phase Short-Term Goals/Treatment Objectives

(Circle goals to be addressed.) These goals are for _____ days/weeks. For related treatment objectives, see SLP Treatment Plan.

1.	(AL/jc) Patient will improve jaw closure to reduce anterior loss to keep food and liquid in the mouth while eating.	
2.	(AL/lc) Patient will improve lip closure to reduce anterior loss to keep food and liquid in the mouth while eating.	
3.	(AL/os) Patient's oral sensation will improve to reduce anterior loss to keep food in the mouth while eating.	
4.	(BF/os) Patient's oral sensation will increase to improve the ability to put food/liquid into a cohesive bolus to reduce the risk of food residue falling into the airway.	
5.	(BF/tm) Patient will increase tongue movement to improve the ability to put food and liquid into a cohesive bolus to reduce the risk of food falling into the airway.	
6.	(BF/tc) The tone in patient's cheek(s) will increase to improve the ability to put food and liquid into a cohesive bolus to reduce the risk of food residue falling into the airway.	
7.	(BP/tm) Patient will increase tongue movement to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	
8.	(BP/oc) Patient will increase oral coordination to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	
9.	(BP/os) Patient's oral sensation will increase to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	
10.	(BP/ag) Patient will increase awareness of food/liquid and utensils in the mouth to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.	

_____ _____ _____

Speech-Language Pathologist License # Date

I certify the above patient requires therapy services, is under a plan of care established or reviewed every 30 days by me, and requires the above treatment specified on a continuing basis with the following changes:

Physician Notice: (Circle one) I do / do not find it necessary to see this patient within the next 30 days.

_____ _____

Physician Date

Sample Letter to Physician – A

Date _____

RE: Dysphagia management

Dear Dr. _____,

I understand you are interested in knowing the cost of a bedside screening for dysphagia as well as the cost of instrumental procedures such as a modified barium swallow study or Fiberoptic Endoscopic Evaluation of Swallowing (FEES®) because you are reluctant to order these without knowing the cost. The attached sheet details not only the cost, but provides the kind of information that can be gained from a bedside evaluation vs. a modified barium swallow study or FEES®.

In addition, I've included some references which confirm what we have seen in studies here — that up to 60% of patients are silent aspirators. The modified barium swallow study allows detection of aspiration and determination of techniques, diet changes, and postures which may prevent aspiration and allow the patient to eat safely. The FEES® provides similar information. Certainly you agree that the cost of an instrumental exam is less than the cost of treatment for aspiration pneumonia.

I would welcome the opportunity to discuss this information with you if you have further concerns about the cost of these evaluations. We provide a high quality, cost-effective service that is of great benefit to the patient, physician, and family.

Thank you for your interest.

Sincerely,

_____

Speech-Language Pathologist

Suggested readings

1. Linden, P. and A. Siebens. "Dysphagia: Predicting Laryngeal Penetration." *Archives of Physical Medicine and Rehabilitation*, Vol. 64, 1983, pp. 281-284.

2. Ott, D. J., R. G. Hodge, L. A. Pikna, M. Y. M. Chen, and D. W. Gelfand. "Modified Barium Swallow: Clinical and Radiographic Correlation and Relation to Feeding Recommendations." *Dysphagia*, Vol. 11, 1996, pp. 187-190.

3. Smith, C. H., J. A. Logemann, L. A. Colangelo, A. W. Rademaker, and B. R. Pauloski. "Incidence and Patient Characteristics Associated with Silent Aspiration in the Acute Care Setting." *Dysphagia*, Vol. 14, No. 1, 1999, pp.1-7.

4. Splaingard, M., B. Hutchins, L. Sulton, and G. Chaudhuri. "Aspiration in Rehabilitation Patients: Videofluoroscopy vs. Bedside Clinical Assessment." *Archives of Physical Medicine and Rehabilitation*, Vol. 69, August 1988, pp. 637-640.

Bedside Screening

Speech-language pathology and occupational therapy perform this screening together. Speech-language pathology's assessment of oral-motor skills provides information about how the patient can form, maintain, and manipulate a bolus. The speech-language pathologist (SLP) also assesses basic communication and cognitive skills, and makes judgments about laryngeal closure and elevation, essential for airway protection.

Occupational therapy assesses visual perceptual skills, fine motor skills, and head and neck control. The assessment of these functions helps determine the patient's ability to self-feed.

Cost: _____

Information obtained from bedside screening:

Bedside screenings provide the most information about type and texture of food a patient can handle in the oral phase and about a patient's ability to self-feed.

Modified Barium Swallow Study

Modified barium swallow studies are performed by radiology and speech-language pathology. The modified barium swallow study is the best way to assess whether a patient is aspirating. Of course, the main intent of the study is not to rule out or confirm aspiration, but to determine the type(s) or texture(s) of food a patient can take without aspiration. It also helps to determine any postural changes or compensatory techniques which might be needed to allow the patient to eat or drink without aspiration. It's much more a trial therapeutic study than a straight diagnostic study.

Cost: _____

Decisions typically made from information obtained from a modified barium swallow study are:

- whether the patient should eat by mouth
- which compensatory techniques the patient needs to prevent aspiration

Fiberoptic Endoscopic Evaluation of Swallowing (FEES®)

The SLP may utilize fiberoptic endoscopic evaluation during the bedside assessment of the patient. This procedure involves passing the endoscope transnasally so that the tip of the endoscope hangs in the hypopharynx. The SLP can then observe premature movement of the bolus of food over the back of the tongue and possibly into the airway before the swallow. Residue in the pharynx after the swallow can be observed to see if the residue is going to spill into the airway. The actual moment of swallowing is not visible as the scope is obliterated when the glottis closes. Use of this procedure does not preclude the need for a modified barium swallow, but does allow the SLP to determine at bedside which patients are candidates for videofluoroscopic assessment.

Cost: _____

Decisions typically made from information obtained utilizing FEES® at bedside:

- whether patient is aspirating and should be made NPO
- if texture changes can eliminate the aspiration
- if patient is swallowing safely and does not need further instrumental assessment

Sample Letter to Physician – B

Date _____

Dear Dr. _____,

Thank you for agreeing to meet with us to discuss protocols for clinical (bedside) screenings, fiberoptic endoscopic evaluation of swallowing (FEES®), and videofluoroscopic evaluations (modified barium swallow studies). As you know, dysphagia intervention has several goals.

1. To prevent or significantly decrease risk for aspiration pneumonia. A secondary benefit of this goal is to decrease length of stay and patient complications.
2. To return the patient to safe PO feeding status to obtain adequate nutrition and hydration.
3. For patients who cannot yet return safely to full PO, the goal is to allow the presentation of some foods and liquids by mouth therapeutically to help improve the patient's prognosis for returning to full PO.
4. In certain cases in which the prognosis is poor that the patient will return to full PO, dysphagia therapy may be designed to allow the patient to take some food or liquid safely by mouth to improve the quality of life.

Clinical (bedside) screening yields very important information about the oral preparatory and oral voluntary phases of the swallow. In addition, it provides important information such as the patient's level of alertness, appropriate positioning for feeding, and ability to self-feed.

However, aspiration cannot be confirmed nor ruled out with certainty using only a clinical (bedside) screening, even when the patient is tracheostomized. Several studies have indicated that as many as 60% of patients judged to be safe feeders on a clinical evaluation are actually found to be silent aspirators when an instrumental assessment is performed. (See suggested readings list at end of letter.)

A procedure called fiberoptic endoscopic evaluation (FEES®) may be utilized at bedside by the SLP. This procedure involves passing an endoscope transnasally into the hypopharynx so that the patient's airway can be observed before and after, but not during, the swallow. The procedure allows the clinician to determine if the patient is safe to eat or should not be eating at all. The procedure also allows for more selective referral of patients for modified barium swallow studies.

A videofluoroscopic evaluation of swallowing (modified barium swallow study) is the best way to know whether the patient is aspirating or is at significant risk for aspiration and to plan treatment. The intent of the study is not merely to confirm if the patient is aspirating. The main point of completing this study is to determine if there are compensatory or positioning techniques that can be used, or food consistency and texture changes that can be implemented which would allow the patient to eat some foods safely without aspirating. These determinations cannot be made on the basis of a clinical (bedside) evaluation.

Each of the assessments yields different information. When a clinical and instrumental exam are performed, a complete picture is obtained about the patient's abilities.

Some physicians don't want their patients to undergo a videofluoroscopic evaluation of swallowing because they might aspirate. However, these same patients are often fed on the floor where, of course, they also might aspirate. The difference is that a modified barium swallow study is a very controlled procedure where small amounts of a benign substance (barium sulfate) are presented and if aspiration occurs, it is immediately seen. In contrast, beginning trial feedings on the floor without a modified barium swallow study can mean that up to 60% of patients might be aspirating. This might not be known until sometime later when the patient develops aspiration pneumonia. (The safety of the medium used during the studies is explained in the fourth article in the suggested readings list.)

We would be happy to have you observe a procedure at any time or to discuss this information in more detail. Thank you so much for taking the time to read this information.

Sincerely,

_____

Speech-Language Pathology Department

Suggested readings:

1. Gelfand, D. W. and D. J. Ott. "Barium Sulfate Suspensions: An Evaluation of Available Products." *American Journal of Roentgenology*, Vol. 138, 1982, p. 935.

2. Leder, S. B., C. T. Sasaki, and M. I. Burrell. "Fiberoptic Endoscopic Evaluation of Dysphagia to Identify Silent Aspiration." *Dysphagia*, Vol. 13, No. 1, 1998, pp. 19-21.

3. Linden, P., K. Kuhlemeier, and C. Patterson. "The Probability of Correctly Predicting Subglottic Penetrations and Clinical Observations." *Dysphagia*, Vol. 8, 1993, pp. 170-179.

4. Ott, D. J. and D. W. Gelfand. "Gastrointestinal Contrast Agents: Indications, Uses, and Risks." *Journal of the American Medical Association,* Vol. 249, 1983, p. 2380.

5. Ott, D. J., R. G. Hodge, L. A. Pikna, M. Y. M. Chen, and D. W. Gelfand. "Modified Barium Swallow: Clinical and Radiographic Correlation and Relation to Feeding Recommendations." *Dysphagia*, Vol. 11, 1996, pp. 187-190.

6. Sorin, R., S. Somers, W. Austin, and S. Bester. "The Influence of Videofluoroscopy on the Management of the Dysphagic Patient." *Dysphagia*, Vol. 2, 1988, pp. 127-135.

7. Splaingard, M., B. Hutchins, L. Sulton, and G. Chaudhuri. "Aspiration in Rehabilitation Patients: Videofluoroscopy vs. Bedside Clinical Assessment." *Archives of Physical Medicine and Rehabilitation*, Vol. 69, August 1988, pp. 637-640.

Education Materials

The handouts on pages 77-115 may be helpful in patient, family, and staff education.

What Is Being Evaluated on a Bedside Dysphagia Screening?

Patient: _____ Date: _____

A bedside dysphagia screening is performed by a speech-language pathologist (SLP). It assesses a patient's swallowing skills and determines if further in-depth testing is needed. A tray of food with different textures and temperatures is used during the screening. Liquids are presented from a spoon, a cup, and a straw.

Both the patient and the patient's family can provide valuable information about changes in the patient's eating habits. For instance, is the patient avoiding certain foods or drinks or complaining that certain things are hard to swallow?

The SLP will:

- ask questions about the patient's swallowing problems
- read the patient's medical history
- assess how well the patient can use his/her lips and tongue, as good lip and tongue movement are needed in order to eat and drink
- listen to the patient's voice (If the patient's voice is weak and breathy, it may mean that the patient's vocal cords aren't closing tightly. This might indicate that the patient can't close the vocal cords tightly to protect the airway during a swallow.)
- see how well the patient can follow directions (It may be necessary for the patient to learn some techniques to swallow safely.)

If an occupational therapist (OT) is participating in the evaluation, she will assess the following:

- strength and coordination of the arm and hand the patient will use to eat
- the patient's ability to see the utensils and food on all parts of the tray
- the patient's ability to sit and hold his/her head up, at midline
- the patient's ability to open packages, use utensils, and take food to his/her mouth

Using the tray of food, the SLP will determine how well the patient can use his/her lips, cheeks, and tongue to take food into his/her mouth, control and manipulate the food, and swallow. The SLP will watch for any possible signs of aspiration (which means food or liquid is entering the airway). Some of these signs are coughing and choking, wet sounding voice, throat clearing, swallowing multiple times for a small bite, or limited movement of the larynx in the neck (determined by feeling for movement).

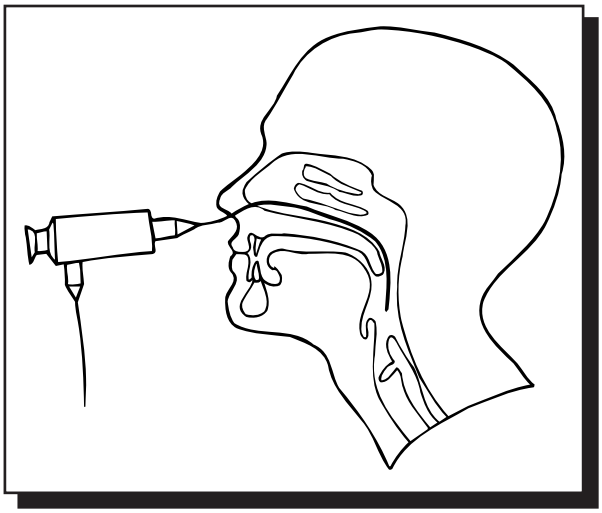
The SLP and the OT may be able to make recommendations about how the patient should eat (e.g., types of food and liquid, position, kinds of utensils) at the end of the bedside screening. However, many patients who are aspirating show no signs (e.g., coughing). This is called silent aspiration, and as many as 60% of patients with dysphagia may be silent aspirators. For that reason, the SLP may recommend a more thorough evaluation of swallowing. This might be an x-ray procedure called a modified barium swallow (or videofluoroscopy) or a procedure performed at bedside with an endoscope. The SLP can explain the difference between the two procedures and why one might be recommended instead of the other.

What You'll See on Fiberoptic Endoscopic Evaluation (FEES®)

Patient: _____ Date: _____

The FEES® is performed by the speech-language pathologist (SLP), usually at bedside. A small endoscope is passed into the patient's nose and then down into the throat. A small amount of anesthetic may be placed in the nose to make the patient more comfortable during the procedure. The endoscope is attached to a light source and to a camera so that the study can be recorded. The tip of the endoscope hangs right above the larynx.

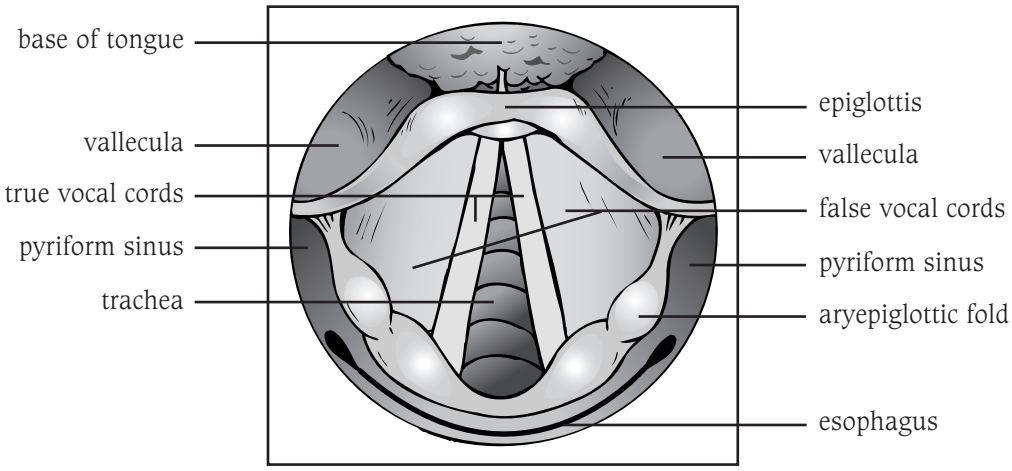
Once the endoscope is in place, the SLP can observe what is happening in the patient's throat before and after the swallow. At the moment of the swallow, the screen will go blank. This is because the larynx is lifting and closing. The camera's view is blocked until after the swallow when the patient releases his/her larynx and breathes.



During the exam, the SLP will:

- assess how well the soft palate lifts to close off the opening into the nasal cavity
- observe the back of the tongue moving as the patient makes sounds like "k"
- observe the larynx: during quiet breathing, when the patient is asked to take a breath and hold it, and when the patient makes sounds
- give the patient small amounts of food and liquid (usually dyed blue or green so it is easier to see) to observe if any of the food or liquid is entering the airway

Special compensatory techniques may be tried during the exam, such as having the patient take a thicker liquid or hold his/her breath before swallowing. These techniques will allow the SLP to determine if such techniques can keep the food or liquid from getting into the airway.



What You'll See on a Modified Barium Swallow Study

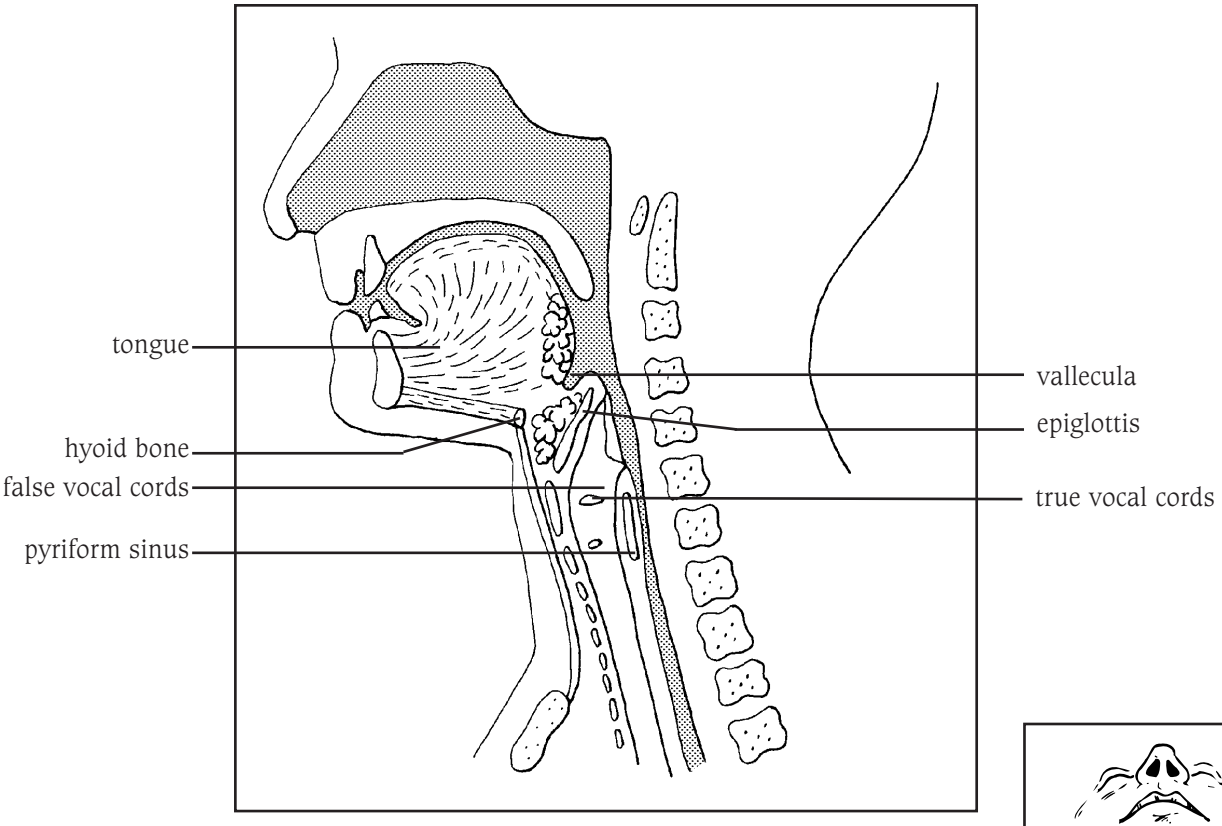
A videofluoroscopic evaluation of swallowing is also called a modified barium swallow study.

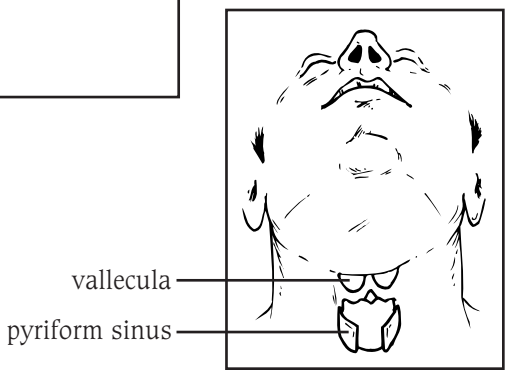
The speech-language pathologist and radiologist will observe the patient's swallowing ability to see if any food or liquid enters the airway instead of going down the esophagus. They will also observe to see if there is any pooling, where material is left in the valleculae and the pyriform sinuses after the swallow. If material is left in these areas, there is a chance it can later fall into the airway.

The patient may be asked to try different techniques such as changes in posture or changes in food texture. For example, the patient may be asked to tuck his/her chin to see if that improves airway protection. The esophageal phase may be screened while the patient is sitting up or we may have the patient lie on the table on his/her side and/or back to observe how the food moves through the esophagus and into the stomach, and whether the patient has a hernia or gastroesophageal reflux.

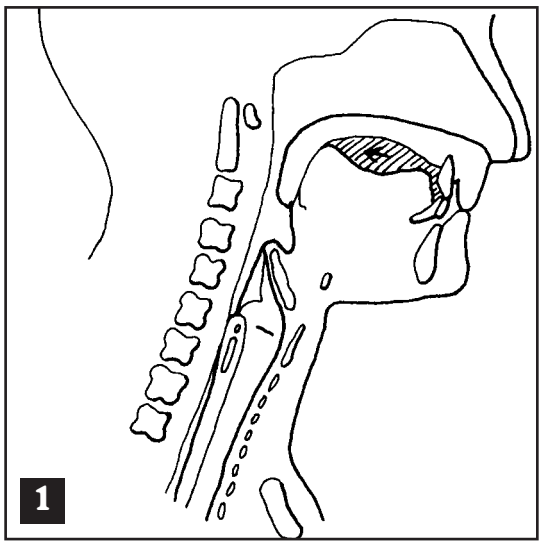
The patient will also be observed from the front to determine:

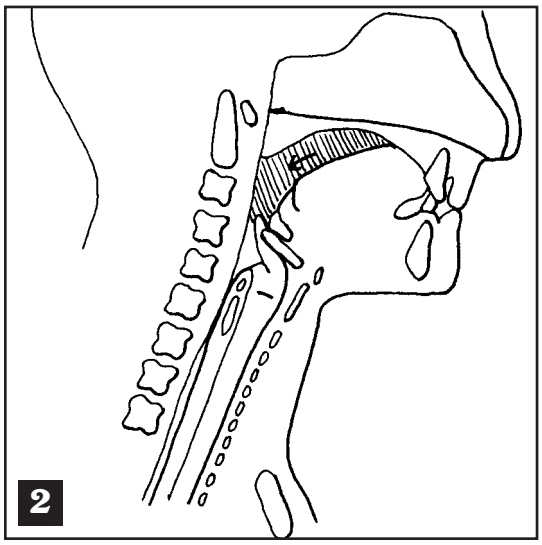
- movement of the vocal folds to see if they're closing tightly to protect the airway
- if the barium material moves through the area symmetrically
- if the pooling in the valleculae and pyriform sinuses is symmetrical

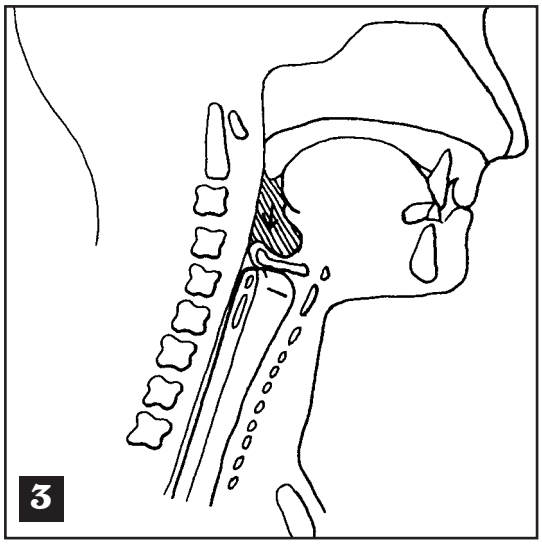


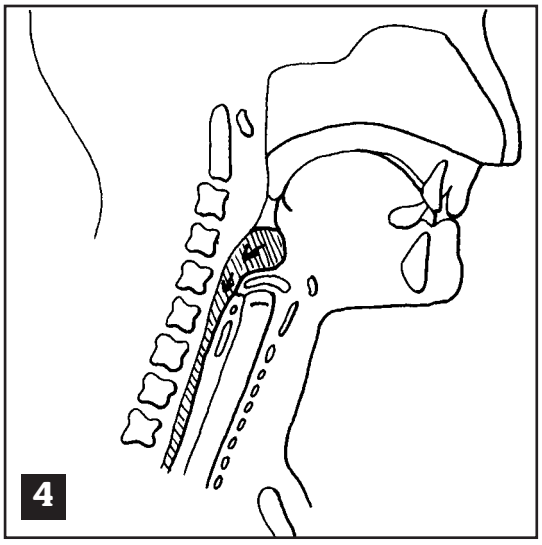


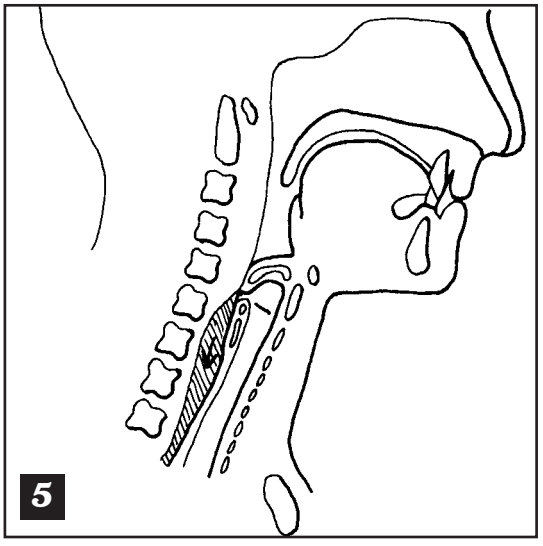
Stages of Swallow











Questions & Answers About the Modified Barium Swallow

Patient_____

Your appointment is on _____ at _____ A.M. / P.M.

Your physician has referred you for a modified barium swallow study, a special x-ray of your swallowing skills. This study is performed in the Radiology/X-ray Department at _____.

Can I eat before I come?

Yes. You do not have to have an empty stomach for this test.

How long will the study take?

Once you are in the X-ray suite, the study should take no longer than 30 minutes, including discussing the results. We will make every effort to keep your waiting time to a minimum.

What does the study involve?

You'll be given small amounts of liquid to drink, a pudding-like texture to eat, and a cookie to swallow while video x-rays are taken. If there are particular foods that cause you difficulty like dry foods or pills, you may be asked to try to swallow them.

While you are seated, both a side view and a front view will likely be done. If you have problems with heartburn, you may also be asked to lie down and drink more liquid so that the esophagus can be assessed.

When will I know the results?

The speech-language pathologist or radiologist will talk with you immediately after the study to tell you what was seen and make recommendations. Your physician (and speech-language pathologist if you are already being treated by one) will be called and each will receive a detailed written report.

Can my family observe?

We are happy to have one member of your family accompany you and observe the study.

Who can I call if I have other questions?

Contact the Speech-Language Pathology Department at _____. We will be happy to answer any questions.

Teaching Fact Sheet for PO Feeding

1. Suggested techniques for positioning a patient for safe feeding may include:
   - sitting up as straight as possible at 90°
   - placing a pillow or towel roll behind the back and neck
   - tucking the chin
   - turning the head to one side

2. Compensatory techniques to assist in safe feeding may include the following. The SLP can provide detailed information about any appropriate techniques.

   To compensate for oral problems:
   - lip support
   - external pressure to cheek
   - reminding patient to sweep mouth with tongue

   To compensate for residue:
   - effort swallow
   - alternate sips of (thickened) liquids every few bites
   - swallowing twice for each bite/sip

   To compensate for decreased lifting of the larynx:
   - Mendelsohn maneuver

   To compensate for delayed swallow:
   - thermal/tactile stimulation
   - alternating bites of cold food

   To compensate for decreased closure of the larynx:
   - super-supraglottic swallow
   - periodic cough/throat clear

3. Signs and symptoms of aspiration:
   - coughing
   - choking
   - throat clearing
   - wet gurgling voice after swallowing
   - increased temperature
   - leakage of food or saliva around tracheostomy or mouth

Patients having silent aspiration DO NOT cough or choke, and may appear to swallow safely.

4. Signs and symptoms of difficulty with oral-phase swallowing:
   - pocketing of food
   - drooling
   - weak lip closure

5. If thickened liquids are ordered, all liquids should be made the same consistency by using _____. Follow the directions on the can. Thicken to _____ consistency.

6. Proper technique for administering medications will be posted on the Swallowing Guidelines sheet. Observe the patient while swallowing medications. Then check inside the mouth for pocketing or inability to swallow.

7. Oral care should be given after each meal. A lip moisturizer is suggested for dry lips. If the patient is on thickened liquids, make sure he/she doesn't swallow plain water during oral care.

Note: The “facts” on this page correspond directly to the family goals on page 83.

Family Goals for Safe Feeding

_____ 1. Family demonstrates the ability to safely position the patient.
- ❒ positioning the patient upright at 90º
- ❒ placing a pillow behind the back and neck if needed
- ❒ using other positioning changes recommended by the SLP:

_____

_____ 2. Family demonstrates the ability to help the patient use specific compensatory techniques for meals that have been taught to him/her.

To compensate for oral problems:
- ❒ lip support
- ❒ external pressure to cheek
- ❒ reminding patient to sweep mouth with tongue

To compensate for decreased lifting of the larynx:
- ❒ Mendelsohn maneuver

To compensate for decreased closure of the larynx:
- ❒ super-supraglottic swallow
- ❒ periodic cough/throat clear

To compensate for residue:
- ❒ effort swallow
- ❒ alternate sips of (thickened) liquids every few bites
- ❒ swallowing twice for each bite/sip

To compensate for delayed swallow:
- ❒ thermal/tactile stimulation
- ❒ alternating bites of cold food

_____ 3. Family is able to state signs and symptoms of aspiration.

_____ 4. Family is able to state signs and symptoms of difficulty with oral-phase swallowing.

_____ 5. Family demonstrates the ability to thicken liquids to appropriate consistency.

_____ 6. Family demonstrates the ability to administer medications.

_____ 7. Family demonstrates the ability to perform oral care.

Swallowing Exercises

Patient: _____ Date: _____

You need to work on specific exercises to strengthen certain muscles and improve coordination of your swallowing. The exercises you need to perform are checked on the list below. Step-by-step directions on how to perform the exercises can be found on pages 85-91.

I have indicated whether you should do the exercise with or without any liquid/food in your mouth. If you should practice with saliva only, saliva is circled. If you are to perform the exercise with a swallow of food or liquid, then food is circled and I have written in which food or liquid you can use.

Perform the exercises _____ times a day.

1. ❒ improve lip closure

2. ❒ improve tongue movement
   - ❒ forward/backward movement
   - ❒ side-to-side movement
   - ❒ lifting of back of tongue

3. ❒ improve lifting of the larynx
   - ❒ Mendelsohn maneuver saliva/food: _____
   - ❒ falsetto

4. ❒ improve closure of the larynx
   - ❒ supraglottic swallow saliva/food: _____
   - ❒ super-supraglottic swallow saliva/food: _____
   - ❒ breath hold/Valsalva maneuver
   - ❒ push-pull with phonation
   - ❒ head rotation with phonation

5. ❒ improve base of tongue movement and strength
   - ❒ tongue base retraction
   - ❒ super-supraglottic swallow saliva/food: _____
   - ❒ pretend to gargle
   - ❒ pretend to yawn
   - ❒ effort swallow saliva/food: _____

6. ❒ improve movement of back wall of throat
   - ❒ tongue hold
   - ❒ pretend to gargle
   - ❒ pretend to yawn

7. ❒ improve timing, initiation, and overall coordination of swallow
   - ❒ thermal/tactile stimulation saliva/food: _____
   - ❒ three-second prep saliva/food: _____
   - ❒ suck-swallow
   - ❒ sour bolus lemon swab/lemon ice
   - ❒ cold bolus ❒ food: _____ ❒ liquid: _____
   - ❒ neurosensory stimulation
   - ❒ super-supraglottic swallow saliva/food: _____
   - ❒ Mendelsohn maneuver saliva/food: _____

8. ❒ improve forward movement of the larynx
   - ❒ head lift

How to Perform the Swallowing Exercises

Patient: _____ Date: _____

1. Lip Closure

These exercises are used if you are having trouble keeping food from falling out of the front of your mouth, having trouble taking food off a spoon, or having trouble sucking from a straw.

- ❒ Purse your lips and protrude as far forward as possible and hold.
- ❒ Pull your lips back into a wide smile and hold.
- ❒ Smack your lips together forcefully.

2. Tongue Movement

These exercises are used to help you move the food around in your mouth and keep it from falling over the back of your tongue too soon.

- ❒ forward/backward movement
  - ❒ Stick your tongue out of your mouth as far as possible and hold. Try to keep your tongue in the middle while you do this.
  - ❒ Pull your tongue back as far as you can in your mouth, as if you are trying to scratch the back wall of your throat with the back of your tongue.
  - ❒ Lift the tip of your tongue to the roof of your mouth. Move the tip back as far as you can, keeping the tip on the roof of your mouth.
- ❒ side-to-side movement
  - ❒ Put the tip of your tongue in your right cheek as far back as you can and hold it. Repeat with tip of tongue in left cheek.
  - ❒ Smile. Put the tip of your tongue in the corner of your lips on the right, then move it to the left.
- ❒ lifting back of tongue

  Repeat these words ending with "k." Make a hard, forceful "k" each time you say a word.

walk	talk	work	pack	pike	peek
back	bake	bike	book	hike	jack
lake	look	like	lick	lark	make
mark	nick	pick	sick	shake	take
wake	black	truck	rake	rack	hawk

3. Lifting of Larynx

- ❒ Mendelsohn maneuver saliva/food: _____

  This technique is designed to keep the larynx, or voice box, at its highest point. It is used if you have food sticking in your throat which might fall into your airway.

Place your fingers lightly on your neck to feel how the larynx/voice box lifts as you swallow. You will notice that at the very peak of the swallow, the larynx is lifted to its highest point in the neck, and when the swallow is finished, the larynx falls down again.

1. Swallow with your fingers lightly on your larynx.
2. When you feel your larynx get to its highest point, hold it up by pushing your tongue hard against the roof of your mouth and keeping it there. (The base of the tongue is attached to the hyoid bone, which is attached to the larynx, and that is why pushing the tongue up keeps the larynx up.)
3. Keep the larynx lifted for _____ seconds.

❒ falsetto

This is designed to increase the amount of elevation of the larynx. Elevation is helpful if you have food residue in your throat which might fall into your airway.

1. Say "eee." Sing one continuous note while saying "eee" and go up into the falsetto range. Hold that high note.

4. Closure of the Larynx

❒ supraglottic swallow saliva/food: _____

This technique is designed to close the airway at the level of the vocal cords. This is useful if food is getting into your airway during the swallow.

1. Take a breath.
2. Let a little out.
3. Hold your breath tightly.
4. Swallow.
5. Cough.
6. Swallow again.

❒ super-supraglottic swallow saliva/food: _____

This technique is similar to the supraglottic swallow, but is designed to achieve closure of the airway not only at the vocal cords, but above the vocal cords too. It is useful if food or liquid is getting into the airway before or during the swallow. It can also help improve the timing of the swallow so that the larynx starts moving without a delay as well as helping the base of the tongue move.

1. Take a breath.
2. Let a little out.
3. Hold your breath as tightly as possible.
4. Swallow, squeezing as hard as you can.
5. Cough.
6. Swallow again.

❒ breath hold/Valsalva maneuver

This technique is designed to improve closure at the vocal cords. This is helpful if food or liquid is getting into the airway during the swallow.

1. Take a breath.
2. Bear down and hold your breath. You should not hold your breath with your lips, but in your throat, like you do if you are trying to lift something very heavy.
3. Hold for _____ seconds and then let go.

❒ push-pull with phonation

This technique gets the vocal cords closing together more tightly. This is helpful if food or liquid is getting into the airway during the swallow.

1. Place one or both hands under your chair, and pull as if you were trying to lift your chair up with you in it. (You can also do this by standing up and pushing against the wall, as if you were trying to move the wall.)
2. Hold your breath tightly.
3. Let go of your breath (still pulling) and say "ahh."

❒ head rotation with phonation

Head rotation brings the weaker vocal cord closer to the strong vocal cord. This is helpful if you have weakness on one side of the throat which lets food or liquid get into your airway. Your head should not be tipped, but turned to look over one shoulder.

1. Turn your head to the left/right.
2. Hold your breath tightly.
3. Let go of your breath and say "ahh."

5. Base of Tongue Movement and Strength

❒ tongue base retraction

This helps strengthen the base of the tongue. (Note: This part of the tongue is not visible when looking into the mouth as it is actually the "front wall" of your throat.) If the base of the tongue is weak, it lets food residue build up in the throat. This residue could then fall into your airway.

1. Pull the back of your tongue as far back as you can in your mouth. Pretend you are trying to scratch the back wall of your throat with the back of your tongue.
2. Hold the tongue in this position for several seconds. (Note: Do not lift the tip of your tongue. This exercise is for the very back of your tongue, not for the tip.)

❒ super-supraglottic swallow saliva/food: _____

This technique is similar to the supraglottic swallow, but is designed to achieve closure of the airway not only at the vocal cords, but above the vocal cords too. It is useful if food or liquid is getting into the airway before or during the swallow. It can also help improve the timing of the swallow so that the larynx starts moving without a delay as well as helping the base of the tongue move.

1. Take a breath.
2. Let a little out.
3. Hold your breath as tightly as possible.
4. Swallow, squeezing as hard as you can.
5. Cough.
6. Swallow again.

❒ pretend to gargle

This is designed to increase movement of the back wall of the throat and the base of the tongue. It is helpful if you have food residue sticking high in your throat.

1. Look up toward the ceiling.
2. Pretend you have liquid in your mouth.
3. Pretend to gargle.

❒ pretend to yawn

This technique is designed to increase movement of the back wall of the throat and the base of the tongue. This helps reduce the amount of food residue in the upper throat.

1. Open your mouth wide.
2. Start to yawn. You will feel all the muscles open wide in your throat and mouth.

❒ effort swallow saliva/food: _____

The effort swallow is designed to get more movement of the base of the tongue and to help push the food down so there is not as much left in pockets in your throat.

1. Squeeze all of your mouth and throat muscles as hard as possible (as if trying to swallow a ping-pong ball).
2. Swallow.

6. Movement of Back Wall of Throat

❒ tongue hold

This technique is designed to help the back wall of the throat move forward to meet the base of the tongue. This helps reduce the amount of food residue high in the throat.

1. Protrude your tongue slightly from your mouth.
2. Hold it gently with your teeth.
3. Swallow while keeping your tongue protruded.

❒ pretend to gargle

This is designed to increase movement of the back wall of the throat and the base of the tongue. It is helpful if you have food residue sticking high in your throat.

1. Look up toward the ceiling.
2. Pretend you have liquid in your mouth.
3. Gargle.

❒ pretend to yawn

This technique is designed to increase movement of the back wall of the throat and the base of the tongue. This helps reduce the amount of food residue in the upper throat.

1. Open your mouth wide.
2. Start to yawn. You will feel all the muscles open wide in your throat and mouth.

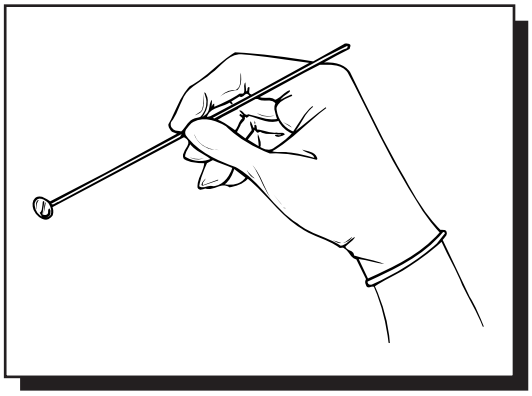
7. Timing, Initiation, and Overall Coordination of Swallow

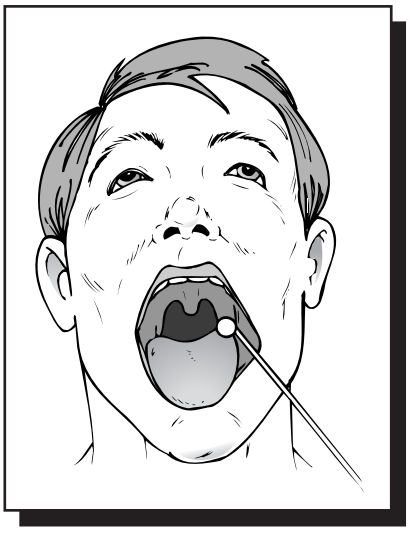
If your swallowing reflex doesn't start as soon as food enters your throat, the delay can cause the food or liquid to fall into your airway.

❒ thermal/tactile stimulation saliva/food: _____

This technique is performed using a size 00 laryngeal mirror.

1. Hold the mirror like a pencil so you can easily rotate it in your hand.
2. Dip it in ice.
3. Rub it up and down five times on one of the anterior faucial arches.
4. Dip the mirror back into the ice quickly.
5. Rotate it so the flat head of the mirror is facing the other direction.
6. Rub it on the other faucial arch.
7. Swallow. (Note: If you are to use food, put the food in your mouth after Step 6.)





❒ three-second prep saliva/food: _____

1. Think about getting ready to swallow while someone counts to three or you count to three in your head.
2. When you get to three, swallow.

❒ suck-swallow

1. Using exaggerated movements of the tongue and jaw, pretend you are noisily sucking a really thick milkshake through a very thin straw.
2. Suck for several seconds, and then swallow.

❒ sour bolus

Foods that are sour can help the swallow reflex start sooner.

❒ lemon swab (to be used if you are not allowed to have thin liquids)

1. Suck on a lemon swab for several seconds.
2. Swallow.

❒ lemon ice (to be used if you are allowed to have thin liquids)

1. Take a small amount (about 1/4 teaspoon) of lemon ice into your mouth.
2. Suck the lemon ice for about one second.
3. Swallow.

❒ cold bolus

Alternate bites or sips of very cold food/liquid. (Note: Your SLP may also ask that you eat only cold foods.)

❒ neurosensory stimulation

1. Fill a finger of a latex glove with water or crushed ice.
2. Tie it off.
3. Freeze it.
4. Suck on it.
5. Swallow.

❒ super-supraglottic swallow saliva/food: _____

This technique is similar to the supraglottic swallow, but is designed to achieve closure of the airway not only at the vocal cords, but above the vocal cords too. It can also help improve the timing of the swallow so that the larynx starts moving without a delay as well as helping the base of the tongue move.

1. Take a breath.
2. Let a little out.
3. Hold your breath as tightly as possible.
4. Swallow, squeezing as hard as you can.
5. Cough.
6. Swallow again.

❒ Mendelsohn maneuver saliva/food: _____

This technique is designed to keep the larynx, or voice box, at its highest point. It is used if you have food sticking in your throat which might fall into your airway.

Place your fingers lightly on your neck to feel how the larynx/voice box lifts as you swallow. You will notice that at the very peak of the swallow, the larynx is lifted to its highest point in the neck, and when the swallow is finished, the larynx falls down again.

1. Swallow with your fingers lightly on your larynx.
2. When you feel your larynx get to its highest point, hold it up by pushing your tongue hard against the roof of your mouth and keeping it there. (The base of the tongue is attached to the hyoid bone, which is attached to the larynx, and that is why pushing the tongue up keeps the larynx up.)
3. Keep the larynx lifted for _____ seconds.

8. Forward Movement of the Larynx

❒ head lift

In order to reduce the amount of food residue in the pockets in the throat called pyriform sinuses, the larynx has to lift up and move forward in the neck. This helps a muscle at the top of the esophagus open so that food can enter the esophagus and travel to the stomach. If you have problems with your neck (e.g., arthritis), you may not be able to do this exercise. There are two parts to this exercise, sustained and repetitive.

Sustained

1. Lie flat on your back with no pillow under your head.
2. Lift your head to look at your toes.
3. Keep your shoulders flat on the floor/bed.
4. Hold that position for 60 seconds.
5. Release.
6. Repeat twice.

Repetitive

1. Lift your head.
2. Look at your toes.
3. Let your head go back down.
4. Repeat 30 times (almost like sit-ups for the neck).
5. Rest a minute.
6. Repeat twice (total of 90 “sit-ups”).

Lifestyle Modifications for Patients with Gastroesophageal Reflux Disease

Discuss these recommendations with your physician. The following are changes which provide relief to some patients who suffer from reflux, or what is commonly called heartburn. Ask your physician about any medications you're taking that could reduce esophageal pressure, as this could contribute to your symptoms.

1. Always eat in a relaxed setting.

2. Eat small meals throughout the day rather than one large meal.

3. Try separating solids and liquids. Don't drink during your meals.

4. Always include some protein foods like lean meat, poultry, cottage cheese, or low-fat cheese in each meal.

5. Keep fat content of meals low.

6. You might avoid the following items as some people report that certain foods irritate the reflux:
   - caffeine (found in coffee, tea, cola)
   - mint
   - alcohol
   - chocolate or cocoa
   - chili powder and other spices
   - cured and spiced meats like sausages and hot dogs
   - pepper
   - citrus juices (orange, lemon)
   - pickled items
   - acidic foods (tomato)

7. Don't eat right before you lie down to rest, go to sleep at night, or recline in a chair. Allow about 30-45 minutes after eating before lying down. (Note: This also applies to drinking a glass of water before bed or taking pills before bed.)

8. Elevate the head of your bed six inches. This is best done with blocks under the legs at the head of the bed. It's not effective to add extra pillows.

Other Things You Can Change

1. If overweight, lose weight.

2. Avoid tight clothing.

3. Stoop. Don't bend over.

4. Avoid lifting heavy objects.

5. Stop smoking.

Dysphagia Screening Tool for Nursing

Patient: _____ Date: _____

Check any of the following symptoms which you may observe or find documented in the chart or learn in discussions with patient or family:

- ❒ recent unexplained weight loss
- ❒ patient avoids certain foods or consistencies
- ❒ patient coughs or chokes
- ❒ patient has food left in mouth after meal
- ❒ patient shows some drooling
- ❒ history of pneumonia, which may not necessarily have been specified as aspiration pneumonia
- ❒ wet, gurgly vocal quality
- ❒ patient swallows multiple times for a single bite/sip

Check for any of the following problems noted in your assessment of the patient or in the chart:

- ❒ spiking temperatures
- ❒ unclear lung sounds, particularly at the base (not necessarily only in the right lower lobe)

If any of these symptoms exist, consider referral for assessment of swallowing.
Contact SLP at _____.

Return to _____ by _____.

Swallowing Guidelines

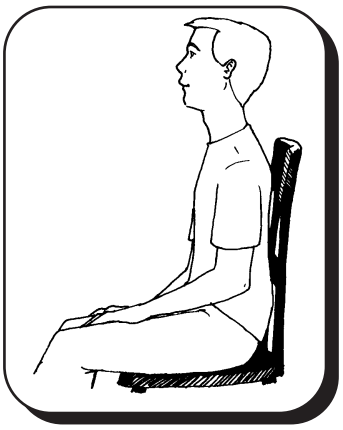
Patient _____

Room _____ Date _____

This patient has been evaluated by the Speech-Language Pathologist and the following guidelines are necessary to assure safe intake of food and liquids.

Sit upright at 90°.

Stay upright for at least 30 minutes after taking anything by mouth.



Put chin on chest for swallowing. An extra pillow behind the head is a good reminder.

If voice becomes wet or gurgly, ask patient to cough or clear his/her throat.

Diet: _____

Liquids: Thin liquids are okay. Patient can have ice chips, water, juice, coffee, etc. Use a:

straw cup spoon cut-out cup

Medicine: _____

Additional Recommendations:

_____

_____

_____

Swallowing Guidelines

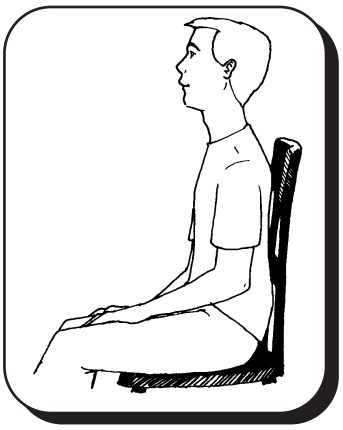
Patient _____

Room _____ Date _____

This patient has been evaluated by the Speech-Language Pathologist and the following guidelines are necessary to assure safe intake of food and liquids.

Sit upright at 90°.

Stay upright for at least 30 minutes after taking anything by mouth.



Put chin on chest for swallowing. An extra pillow behind the head is a good reminder.

If voice becomes wet or gurgly, ask patient to cough or clear his/her throat.

Diet: _____

Liquids: NO THIN LIQUIDS. NO ICE CHIPS.

All liquids must be thickened to syrup consistency. Nutra-Thik can be used to thicken water, juices, coffee, etc. Mix one tablespoon into 6 fluid ounces. Stir well or shake to eliminate lumps. Use a:

straw cup spoon cut-out cup

Medicine: _____

Additional Recommendations:

_____

_____

_____

Swallowing Guidelines

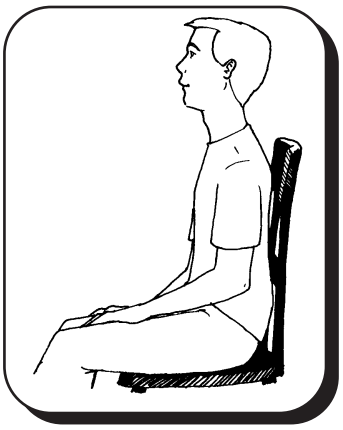
Patient _____

Room _____ Date _____

This patient has been evaluated by the Speech-Language Pathologist and the following guidelines are necessary to assure safe intake of food and liquids.

Sit upright at 90°.

Stay upright for at least 30 minutes after taking anything by mouth.



Put chin on chest for swallowing. An extra pillow behind the head is a good reminder.

If voice becomes wet or gurgly, ask patient to cough or clear his/her throat.

Diet: _____

Liquids: NO THIN LIQUIDS. NO ICE CHIPS.

All liquids must be thickened to honey consistency. Nutra-Thik can be used to thicken water, juices, coffee, etc. Mix one and a half tablespoons per 6 fluid ounces. Stir well or shake to eliminate lumps. Use a:

straw cup spoon cut-out cup

Medicine: _____

Additional Recommendations:

_____

_____

_____

Swallowing Guidelines

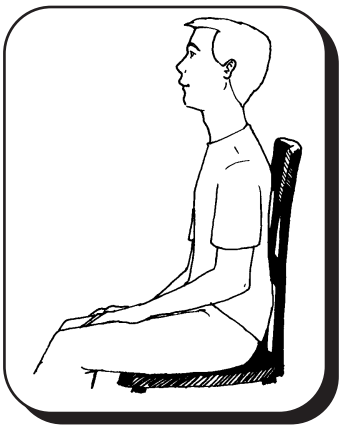
Patient _____

Room _____ Date _____

This patient has been evaluated by the Speech-Language Pathologist and the following guidelines are necessary to assure safe intake of food and liquids.

Sit upright at 90°.

Stay upright for at least 30 minutes after taking anything by mouth.



Put chin on chest for swallowing. An extra pillow behind the head is a good reminder.

If voice becomes wet or gurgly, ask patient to cough or clear his/her throat.

Diet: _____

Liquids: NO THIN LIQUIDS. NO ICE CHIPS.

All liquids must be thickened to pudding consistency. Nutra-Thik can be used to thicken water, juices, coffee, etc. Mix two tablespoons per 6 fluid ounces. Stir well or shake to eliminate lumps. Use a:

straw cup spoon cut-out cup

Medicine: _____

Additional Recommendations:

_____

_____

_____

Swallowing Guidelines

Patient _____

Room _____ Date _____

NPO

This patient has been evaluated by the Dysphagia Team and is not safe to take anything by mouth.

Patient should **NOT** have:

- water
- ice chips
- anything else by mouth

Please call the Speech-Language Pathologist if you have any questions.

Swallowing Guidelines

Patient _____

Room _____ Date _____

Patient must sit upright at 90° when taking PO medications.

Swallowing Guidelines

Patient _____

Room _____ Date _____

Patient is at risk for aspiration.

If patient chokes, clears throat, or has a wet voice, STOP FEEDING and talk to a nurse who will contact the Speech-Language Pathologist.

Swallowing Guidelines

Patient _____

Room _____ Date _____

PATIENT IS A SILENT ASPIRATOR.

Patient does not cough or choke when food/ liquid enters airway.

To promote safe feedings, strictly follow swallowing guidelines.

Reflux Precautions

Patient _____

Room _____ Date _____

- Sleep with head of bed elevated 30°.
- Don't lie down for 30-45 minutes after eating or drinking.
- Eat smaller meals throughout the day.
- Avoid coffee, spicy foods, citrus fruits, tomatoes, chocolate, and peppermint.
- Avoid late evening snacks.

General In-service on Dysphagia

Note: Provide snacks for staff members. Have them chew to see if they can tell when the three phases of swallowing occur.

Mix up fruit juice in syrup, honey, and pudding thicknesses in small medicine cups so staff can try it. Usually most staff members are surprised that the taste of the thickened liquid is not changed, but only the texture.

I. Information about normal swallowing

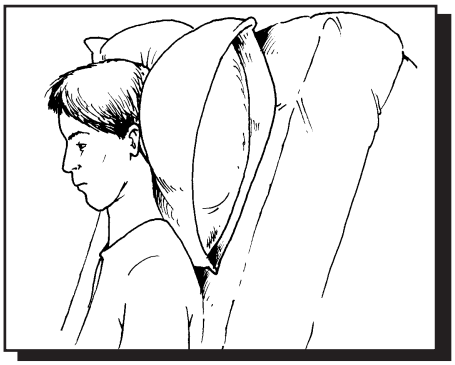
Three phases of swallowing:

- oral phase to prepare the bolus
- oral voluntary phase to move the bolus back
- pharyngeal phase as soon as the swallowing reflex is triggered

II. Importance of positioning

Have each person take a small sip of water and swallow it while sitting upright. Then have each person lie flat, take a small sip of water, and try to swallow it.

- Discuss how a person uses the back of her tongue to keep a bolus in her mouth until she's ready to swallow.
- Discuss how putting a person in a reclined position may cause a bolus to move too quickly over the base of the tongue.
- Demonstrate a chin-down posture and how to achieve this with a towel roll or extra pillow behind the patient's head.



III. Textures of foods

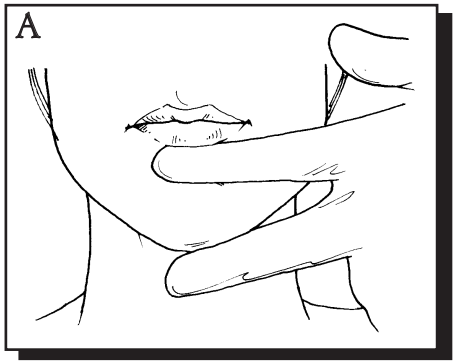
- Explain why thin liquids are often hard for patients to swallow. Remind the attendees of how they felt leaning back with thin liquid in their mouths. Be sure to mention that things like ice cream, sherbet, Jell-O, and ice chips turn into thin liquids in the mouth.
- Have participants try some of the thicker liquids.
- Explain different thicknesses of liquids which the patient can control more easily in the mouth.
- Discuss why pureed foods are easier for patients to handle if they have trouble forming a bolus.
- Discuss why we make recommendations for foods to be one texture only, as it's harder to manipulate something in the mouth with two textures (like milk and cereal).

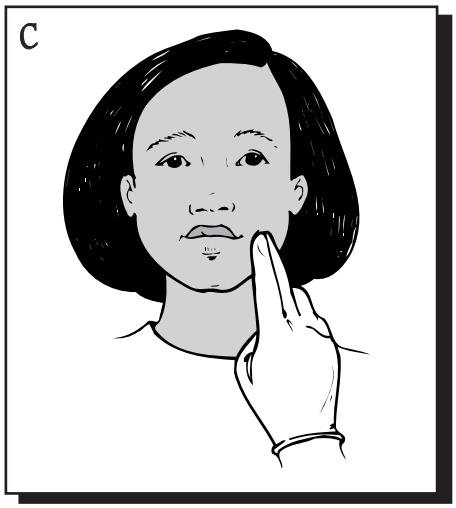
IV. Aspiration

- Describe what aspiration is. If possible, show a videotape with an example of aspiration.
- Explain silent aspiration, including the fact that 60% of patients with dysphagia are silent aspirators.

After you explain these techniques, have staff members try them on each other.

- Demonstrate the way to provide jaw and lip support. (See picture A.)
- Demonstrate how to monitor for a swallow by placing fingers lightly on the larynx. (See picture B.)
- Demonstrate how to give external pressure to the cheek to decrease pocketing. (See picture C.)
- Describe multiple swallows and explain how they help clear oral residue or residue in the valleculae and pyriform sinuses.
- Describe a liquid wash. Some patients can safely use a liquid wash to clear their mouths, but some may aspirate a liquid wash.
- If the staff is interested, you might demonstrate some more specialized techniques like the supraglottic swallow and the Mendelsohn maneuver. (See Chapter 7, pages 206 and 207.)





V. Share all precaution signs with staff members. (See pages 94-102.)

Pre- and Post-Test for Staff Education on Dysphagia

Name _____

1. There are five phases of swallowing. True False

2. Tipping a patient's head back will help her swallow. True False

3. If a patient aspirates, she will always cough. True False

4. Patients sometimes get food caught in their cheeks because they can't feel it there. True False

5. Adding thickener to juice changes the taste. True False

6. If a patient is NPO, she can't have water but she can have ice chips. True False

7. One of the most common positions to help prevent aspiration is:
   a. leaning forward
   b. tipping head back
   c. lying on right side
   d. tucking chin down to chest

8. Which of the following are considered thin liquids?
   a. water
   b. mashed potatoes
   c. ice cream
   d. a and c

9. Which of the following is easiest to form into a ball before swallowing?
   a. water
   b. cereal in milk
   c. pudding
   d. rice

10. Aspiration means that food:
    a. is spit out
    b. goes into the lungs
    c. gets caught in the throat
    d. is swallowed

ANSWERS

1. False	6. False		
2. False	7. d		
3. False	8. d		
4. True	9. c		
5. False	10. b		

Why Is an Instrumental Examination of Swallowing Needed?

Patient: _____ Date: _____

Can a bedside/clinical screening of swallowing tell as much as an instrumental examination?

No. The bedside/clinical evaluation is a thorough assessment of oral-phase disorders such as weak lip closure resulting in anterior loss, or reduced tongue control which interferes with the patient's ability to form a bolus. However, for disorders of the pharyngeal phase (e.g., reduced laryngeal closure with aspiration, reduced base of tongue strength with pharyngeal residue), the bedside/clinical exam is really a screening tool.

Management of dysphagia has followed a medical model, identifying patients at risk through a screening, and then completing a more thorough diagnostic evaluation on patients identified as at risk for pharyngeal disorders. The instrumental diagnostic evaluation is crucial in determining which treatment techniques are needed. (Note: A medical analogy is that a cardiac stress test is considered a screening. Another diagnostic procedure, such as cardiac catheterization, would be performed before determining the kind of treatment the patient needs [e.g., medical management, surgery, balloon dilation].)

Similarly, a bedside screening might reveal some symptoms of pharyngeal dysphagia. But each symptom can have multiple causes. For example, if the patient coughs during the assessment, aspiration might be strongly suspected. However, this cough might be due to aspiration during the swallow secondary to poor vocal fold closure, or because of mistiming of laryngeal elevation/closure, or might even be due to aspiration after the swallow from residue in the pyriform sinuses caused by reduced laryngeal elevation. Each of these physiological causes of the symptom of coughing requires a very different treatment technique.

What are the instrumental procedures used?

The most frequently used procedure is the modified barium swallow study, a videofluoroscopic procedure performed by the radiologist and speech-language pathologist. Lateral and anterior/posterior (A-P) views are obtained of the oral and pharyngeal regions while the patient swallows a variety of textures of liquids and foods impregnated with barium.

A second instrumental procedure is the Fiberoptic Endoscopic Evaluation of Swallowing (FEES®). This procedure is performed by the speech-language pathologist, who places the endoscope transnasally for a view of the pharynx while the patient swallows saliva or food and liquid (usually dyed blue or green for better visualization).

Is one instrumental procedure better than another?

The modified barium swallow is considered by most practitioners to be the gold standard evaluation for the pharyngeal phase of the swallow. It allows for analysis of the structures and movements of the oral, pharyngeal, and esophageal anatomy before, during, and after the act of swallowing.

The FEES® allows direct visualization of the upper airway before the swallow and after the swallow. At the moment of the swallow, the view from the scope is obliterated as the larynx closes. After the swallow, the airway can again be visualized to determine if any material has entered the airway. The FEES® can be performed at bedside, and is probably best used as an adjunct to the bedside screening.

How does an instrumental exam help determine appropriate treatment?

Particularly during the modified barium swallow, different compensatory postures and other maneuvers can be tried to observe the effect on swallowing safety. For instance, if a patient is observed to aspirate thin liquids during the swallow, the patient can be presented with thicker liquids to see if the slower movement of the bolus allows time for airway closure. The patient might also be asked to use a maneuver called the super-supraglottic swallow to establish voluntary closure of the airway. Some of these compensations can be assessed with the FEES® as well. FEES® can also be used during treatment as a biofeedback tool.

How well do screening procedures at the bedside predict who is at risk for aspiration?

There are different procedures which have been used at bedside to determine if the patient is aspirating. DePippo et al. (1992) described a procedure called the *3-oz. Water Swallow Test for Aspiration Following Stroke*. They report a 76% sensitivity and conclude that their test is sensitive enough to be useful as a screening tool for MBS referral. However, the authors recommend that the 3-oz. Water Swallow Test be used in conjunction with a clinical symptom checklist when determining which patients should be referred for further study. However, Garon et al. (1995) tested the reliability of the 3-oz. Water Swallow Test utilizing the cough reflex as the sole indicator of aspiration and found that only 35% of patients who were found to be aspirating on the modified barium swallow had coughed at bedside, for a silent aspiration rate of 65%.

Research studies designed to identify which symptoms/behaviors exhibited at bedside can accurately predict aspiration continue. For example, Logemann et al. (1999) report on a 28-item screening test designed to identify patients who aspirate, have an oral stage disorder, a pharyngeal delay, or a pharyngeal stage disorder. Their results identified variables that could classify patients as having or not having aspiration 71% of the time, pharyngeal delay 72% of the time, and pharyngeal stage swallowing problems 70% of the time. This is important work, as it will provide speech-language pathologists the information they need to avoid over- or under-referral for instrumental exams. However, as stated above, identifying which patients are or are not aspirating is only a small part of dysphagia management. The more important component is determining appropriate treatment strategies.

What is the cost/benefit ratio of instrumental exams?

The most obvious cost benefit of instrumental exams is that patients who are aspirating can be identified and an appropriate management plan determined. In this way, the chances of these patients developing aspiration pneumonia is reduced. The cost of treating an aspiration pneumonia is estimated to be approximately $15,000. This makes the cost of evaluation and treatment of dysphagia very cost effective. In addition, the instrumental exam often reveals that the patient's diet can be upgraded (Martin-Harris et al., 1998), eliminating the extra cost of tube feeding. The instrumental exam also allows for precise identification of the physiologic cause of the symptoms, which allows the speech-language pathologist to select the appropriate treatment techniques. In this way, guesswork is avoided and no time is wasted in therapy on unnecessary or inappropriate techniques.

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Answers to Frequently Asked Questions About Dysphagia

Patient: _____ Date: _____

Why no ice chips?

Patients are placed on a diet with no thin liquids because they are aspirating thin liquids. When ice chips are placed in the patient's mouth, they turn into liquid and are aspirated.

What good are thickened liquids?

Thin liquids are the hardest thing to control in the mouth and keep together in a bolus. As the liquids travel through the throat past the larynx, it is easier to aspirate thin liquids because they break apart and some of it can fall into the larynx. Thickened liquids are easier to keep together in one piece. Thick liquids also move more slowly through the pharynx, giving the larynx more time to close and protect the airway.

Why can't I tell if a patient is aspirating at bedside?

Studies confirm that up to 60% of patients who aspirate are silent aspirators. That means that food or liquid may enter the airway through the larynx with absolutely no reaction by the patient.

What good are postural changes?

Some postural changes can provide increased airway protection. Others can direct the food down the stronger side of the throat.

How is a modified barium swallow different from a barium swallow?

Barium Swallow	*Modified Barium Swallow*
Patient lying down	Patient sitting up
Patient given whole bottle of liquid barium to drink	Patient given small controlled amounts of a variety of textures
Assesses esophagus and stomach	Assesses oral and pharyngeal stages of the swallow; may screen esophagus
Diagnostic in nature only	Trial therapy as much as diagnostic

How would I know if my patient is at risk for aspiration?

If you have a patient who is debilitated secondary to lengthy illness or disease, a patient with a tracheostomy tube, a patient who is bedridden, and/or a patient with any type of neurological diagnosis, he or she may be at risk for aspiration.

What are some signs of dysphagia?

Signs of oral phase dysphagia include pocketing of food in the cheeks, losing food or liquid out the front of the mouth, or residue of food long after the patient has finished eating. Signs of pharyngeal dysphagia are coughing or choking during a meal or a wet, gurgly vocal quality.

If my patient has a gag reflex, doesn't that mean he/she is swallowing fine?

The gag is a protective reflex, but is totally unrelated to swallowing. Recent studies confirm that many people who swallow normally have no gag reflex. The studies have also found that individuals with intact gag reflexes can have significant pharyngeal dysphagia with aspiration.

Why is oral care so important?

Some patients who are aspirating are also at risk for aspirating their own secretions. Many patients have gram negative bacilli and such secretions are one of the worst things that can be aspirated. Aggressive oral care, particularly in patients who are NPO because of aspiration, is critical.

Why is it important for patients to sit at 90° when eating?

Many patients with dysphagia have decreased back of tongue control. This allows food or liquid to fall over the back of the tongue with risk of it entering the airway. If the patient is even slightly reclined when eating, it greatly increases the risk of premature loss of food over the back of the tongue.

Why do patients need to sit up for 30 minutes after eating?

Patients may have residue of food left in the valleculae (formed between the base of the tongue and the epiglottis) and/or the pyriform sinuses (formed by the cricopharyngeus muscle at the base of the larynx, very near the entrance to the airway). This is usually caused by reduced laryngeal elevation or reduced strength of the base of the tongue as the person swallows. When food remains in the valleculae and pyriform sinuses, patients are at risk for the food falling into the airway. Therefore, it is important that they sit up until they are able to clear this residue.

How do I make a referral if I think my patient has some problems with swallowing?

A referral to speech-language pathology to assess swallowing requires a physician's order. You can contact the physician directly to ask for the order or you can ask the SLP to screen the patient (this is a no charge service) and contact the physician for you. Most SLPs prefer that the physician write an order that states "Dysphagia evaluation with modified barium swallow if indicated." This eliminates the need to contact the physician a second time for the order for the modified barium swallow study if one is indicated.

If a patient is NPO, can I give him/her medication(s) by mouth?

No. If patients are made NPO it is because they are considered at very high risk for aspiration. Therefore, giving them pills by mouth places them at risk for aspirating those pills. Most patients who are made NPO have an alternative feeding source placed (e.g., NG tube).

How can I give patients medication(s) if they can't take thin liquids?

If the patient can still manipulate the whole pill within his/her mouth, you may try placing the whole pill in a spoonful of yogurt, applesauce, pudding, or other slippery material.

However, some patients may need to have the pill crushed and mixed with the spoonful of slippery material. Be sure to check the patient's mouth after you've given him/her the pill to make sure it has been swallowed and not pocketed in the cheek or on the tongue.

The Gag Reflex

Patient: _____ Date: _____

What does the gag reflex have to do with swallowing?

The short answer is . . . NOTHING. The gag reflex is not elicited during a normal swallow.

What is a gag reflex?

The gag reflex is a protective response. It is designed to keep foreign material from entering the pharynx and airway.

What happens physically when a person gags?

The mandible lowers, the tongue moves down and forward, the pharynx constricts, and the velum lifts.

Doesn't the velum lift during swallowing?

Yes. It lifts to keep food and liquid from entering the nasopharynx. However, one study (Leder, 1996) demonstrated the physiologic differences between the velum lifting during phonation and the lifting of the velum during the gag reflex. There may also be physiologic differences in the lifting of the velum during the gag and swallowing.

Can a patient without a gag reflex swallow safely?

Yes. The Leder study found that 86% of patients referred for dysphagia evaluations because they did not have a gag reflex were able to eat at least a pureed diet.

Do all normal individuals have a gag reflex?

One study assessed the gag reflex in 140 healthy subjects (half elderly and half young). They found the reflex to be absent in 37% (Davies et al.,1995).

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The Fallacy of the Inflated Cuff

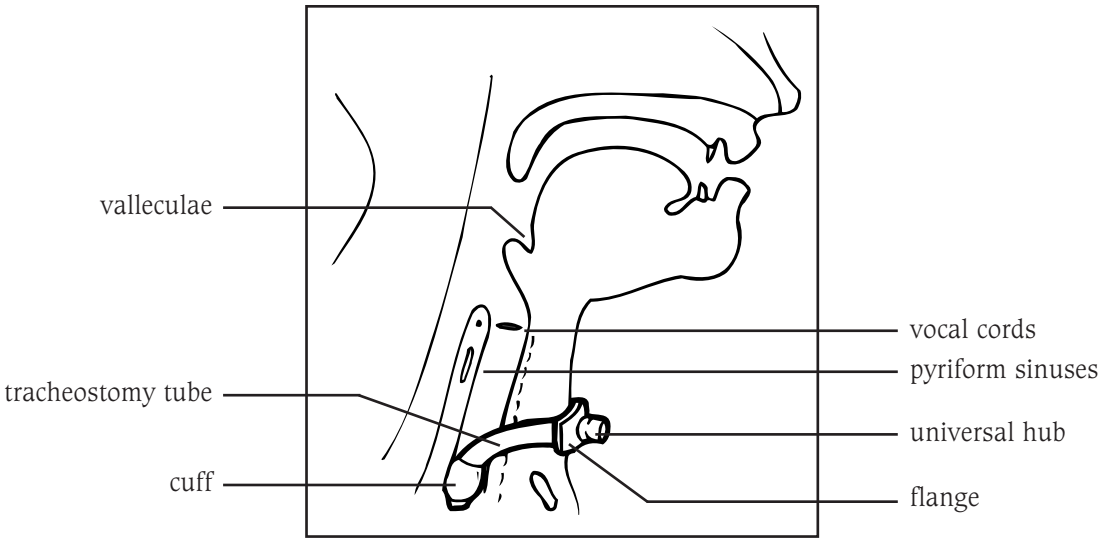
Patient: _____ Date: _____

It is a misperception that an inflated cuff protects a patient from aspiration. Aspiration is defined as food or liquid passing below the vocal cords. In fact, if food reaches the cuff, the patient has aspirated.

- The tracheostomy tube is placed below the larynx, which means the cuff is well below the larynx too.
- If food reaches the cuff, it has already passed the following natural protective mechanisms:

  true vocal fold closure
  false vocal fold closure
  arytenoid tipping
  laryngeal elevation which results in tipping of the epiglottis

- If food reaches the cuff, it will move further into the trachea around the cuff. The width of the trachea expands slightly with each inhalation, allowing some leakage around the cuff. If the cuff is deflated, any material on top of the cuff will fall into the lungs.
- If food or liquid passes all of the body's natural protective mechanisms to keep food and liquid out of the lungs, and it reaches the cuff, then that patient is not safe to eat/drink anything by mouth.



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Questions & Answers About Aspiration and Aspiration Pneumonia

Patient: _____ Date: _____

Is aspirating food or liquid always the cause of aspiration pneumonia?

Most pneumonia in institutionalized elderly is believed to be secondary to microaspiration of oral pharyngeal secretions that have been pathologically colonized.

How does aspirating cause pneumonia?

Aspirated materials entering the airway can cause atelectasis (i.e., incomplete expansion or collapse of pulmonary alveoli, or of a segment, lobe, or lobes of a lung) and can alter mucociliary clearing action. Both of these predispose a patient to pneumonia.

Will I know that the patient has aspirated?

You may not. Some patients cough and choke when they aspirate, but up to 60% of patients may be silent aspirators. That is, they don't cough or even clear their throats when they aspirate.

Do patients who are tube fed get pneumonia?

Studies of artificially-fed nursing home patients have shown that neither jejunostomy nor gastrostomy tubes help protect against aspiration in those who are known to aspirate.

Are all infiltrates secondary to aspiration pneumonia?

No. Infiltrates can occur secondary to pneumonia, atelectasis, pulmonary infection, drug reaction, or even neoplasm.

Is pneumonia easy to diagnose?

No. Pneumonia is often hard to diagnose because the classic symptoms of cough, dyspnea, sputum production, and chest pain are often lacking in the elderly. Fever may not be present, or if it is, may be attributed to more common causes such as a urinary tract infection or decubitus ulcers.

Can patients aspirate without developing aspiration pneumonia?

Yes. One study identified shifting and fleeting lung infiltrates in both oral and artificially-fed major aspirators. These radiographic abnormalities lasted only hours or a few days and were sometimes associated with a low-grade fever or upper respiratory illness. They suspect these infiltrates represented aspirated materials that filled subsegmental airways and were subsequently cleared.

How long after an occurrence of aspiration before a temperature spike is noted?

There is no definitive answer. It depends on what and how much is aspirated, overall pulmonary health of the patient, and whether they are taking antibiotics that might mask an infection. Pneumonia can develop quickly or gradually over several weeks.

Of what benefit is a chest x-ray to the diagnosis of pneumonia?

Chest films are often suboptimal and portable rather than standard, which makes it more difficult to judge. The chest x-ray of a patient with aspiration may not look different than a chest x-ray of a patient with a community acquired pneumonia.

Pneumonia in the elderly will continue to be visible on chest x-rays, with infiltrates lasting a mean of five weeks.

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Instrumental Exam Consult

Patient _____ Date _____
Patient # _____

On _____, a special evaluation of this patient's swallowing was completed. The patient received a:

- ❒ modified barium swallow
- ❒ fiberoptic endoscopic evaluation of swallowing

Special instructions based on the results of that evaluation include:

_____

_____

_____

_____

_____

_____

You can call us at _____ any time if you have any questions.

_____
Speech-Language Pathologist

Outpatient Instrumental Exam Referral Form _____

Patient _____ Birthdate _____ Age _____
Address (if patient lives at home) _____
_____
Patient's Phone_____ Physician _____
Physician Address _____
Facility _____
Facility Address _____
Facility Phone_____
Person Making Referral _____Relationship to Patient _____

A. **Medical History** _____
_____

B. **Code Status** _____

C. **Tracheostomy** type _____
cuffed / uncuffed fed with cuff up / down
If cuff is down, speaking valve used? yes / no

D. **Medications** _____
_____

E. **Presence/History of Pneumonia/Aspiration** _____

F. **Present Complaint** _____
_____

G. **Esophageal Symptoms** _____

H. **Onset of Dysphagia** _____

I. **Previous Instrumental Exam or Bedside Evaluation Results** _____
_____

J. **Current Diet/Intake** _____
_____

K. **Independent Sitting Balance/Transfers** _____
_____

Referral Information taken by _____ Date _____

Modified Barium Swallow Report

Patient _____ Date _____
Birthdate _____ Age _____ Patient # _____
Referral Physician _____
Patient's Address _____ Phone _____

History _____

_____

_____

_____

Why Study Is Needed _____

_____

_____

Procedure

The patient was seen for a modified barium swallow/videofluoroscopic evaluation with radiology and speech-language pathology. _____ consistencies (_____) were presented for analyses of three / four phases of the swallow.

Oral Preparatory Phase

This phase involves oral movements immediately before initiation of the voluntary stage of the swallow.

thin liquids _____

thick liquids _____

pudding _____

cookie _____

Oral Voluntary Phase

This phase begins when the tongue initiates posterior movement of the bolus. It typically takes less than one second to complete.

thin liquids _____

thick liquids _____

pudding _____

cookie _____

Pharyngeal Phase

This phase begins with the triggering of the swallow reflex. Normally the swallowing reflex is triggered as the bolus contacts the anterior faucial arches. Normal transit time from anterior faucial arches to cricopharyngeal juncture is one second or less.

thin liquids _____

thick liquids _____

pudding _____

cookie _____

A-P View _____

Cervical Esophageal Phase _____

Effects of Treatment Strategies Attempted _____

Duke Ratings Oral Prep: _____ Reflex Initiation: _____ Pharyngeal Phase: _____
A-P View: _____ Aspiration: _____ Pharyngeal-Esophageal Screening: _____

Penetration-Aspiration Rating _____

Summary and Need for Service _____

Diagnosis _____

Positive Expectation to Begin Service _____

Patient/Caregiver Teaching _____

_____

_____

Short-Term Goals

These goals reflect disordered physiology related to the pharyngeal phase. (Goals for the oral phase are found on the bedside evaluation form, page 57.)

_____ Patient will improve back of tongue control to keep food from falling over the back of the tongue and into the airway.

_____ Patient will decrease delay in initiation of pharyngeal swallow to reduce food falling into the airway during the delay before the swallow.

_____ Patient will increase closure of the true vocal folds to keep food from falling into the airway during the swallow.

_____ Patient will improve rate of laryngeal elevation/timing of closure to keep food from falling into the airway during the swallow.

_____ Patient will increase laryngeal elevation to reduce residue in the pyriform sinus(es) and reduce risk of the residue falling into the airway after the swallow.

_____ Patient will increase anterior movement of the hyolaryngeal complex to reduce residue in the pyriform sinuses and reduce the risk of the residue falling into the airway after the swallow.

_____ Patient will improve laryngeal elevation to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

_____ Patient will improve arytenoid tipping/closure at entrance to the airway to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

_____ Patient will improve the rate of laryngeal elevation/timing of closure to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

_____ Patient will increase base of tongue movement to reduce vallecular residue (unilateral or bilateral) to reduce the risk of the residue being aspirated after the swallow.

_____ Patient will increase movement of the posterior pharyngeal wall to reduce vallecular residue to reduce the risk of the residue being aspirated after the swallow.

_____ Patient will increase laryngeal elevation to reduce vallecular residue to reduce the risk of the residue being aspirated after the swallow.

_____ Patient will increase movement of pharyngeal wall(s) to reduce residue on pharyngeal wall(s) (unilateral or bilateral) to reduce the risk of the residue being aspirated after the swallow.

_____ Patient will increase movement of the tongue base to reduce bilateral residue on pharyngeal walls to reduce the risk of the residue being aspirated after the swallow.

_____ No skilled treatment indicated. Comments:_____

Recommendations

Patient _____ Date _____ Patient # _____

❑ NPO

❑ PO Diet Recommendations

Dysphagia Diet

- ❑ Level I (runny pureed)
- ❑ Level II (thick pureed, pudding liquids)
- ❑ Level III (pureed and some soft; liquids: syrup/honey/pudding)
- ❑ Level IV (soft cohesive; liquids: syrup/honey/pudding)
- ❑ Level V (mech. soft; regular liquids)

Food Presentation

- ❑ bolus size: ½ tsp/1 tsp
- ❑ cut-out cup
- ❑ cup
- ❑ straw
- ❑ spoon only
- ❑ no straw
- ❑ no syringe

Food Placement

- ❑ left side mouth/visual field
- ❑ right side mouth/visual field
- ❑ present food from front to increase sensory input

Positioning

- ❑ sitting up at 90°
- ❑ head turned to _____
- ❑ chin tuck _____
- ❑ stay seated upright ___ minutes after meals

Status

- ❑ patient can self-feed without supervision
- ❑ verbal cues/standby assistance
- ❑ dependent to be fed by SLP only/staff/family

Presentation of Meds

- ❑ pills/tablets whole followed by liquids/applesauce/ thick liquid
- ❑ pills/tablets must be crushed and mixed with applesauce
- ❑ no liquid meds
- ❑ meds via tube

Nutrition

- ❑ primary nutrition by tube
- ❑ trial PO during therapy only
- ❑ hold tube feedings _____ prior to oral feeding

Charting/Monitoring

- ❑ weekly heights
- ❑ calorie count
- ❑ monitor temperature _____
- ❑ listen for vocal quality throughout meal

Other

- ❑ reflux precautions—see attached

_____

_____

_____

c = compensatory techniques to use during meal
f = facilitation/treatment techniques

Selected treatment techniques to begin.
Others can be chosen to achieve short-term goals.

Oral Dysphagia

- ❑ labial closure (c, f)
- ❑ lingual elevation exercises (f)
- ❑ lingual lateralization exercises (f)
- ❑ lingual A-P exercises (f)
- ❑ lingual back of tongue exercises (f)
- ❑ compensations for oral residue (c)
  - ❑ sweep mouth with tongue
  - ❑ sweep mouth with finger
  - ❑ external pressure to cheek
  - ❑ rinse mouth/expel after meal

Decreased Laryngeal Elevation

- ❑ Mendelsohn maneuver/SEMG (c, f)
- ❑ falsetto/laryngeal elevation exercises (f)

Decreased Laryngeal Closure

- ❑ supraglottic (safe) swallow (c, f)
- ❑ super-supraglottic swallow (c, f)
- ❑ laryngeal closure exercises (f)
- ❑ encourage cough (c)

Decreased Base of Tongue Strength/ Posterior Pharyngeal Wall

- ❑ tongue hold (f)
- ❑ tongue base retraction (f)
- ❑ pretend to gargle (f)
- ❑ pretend to yawn (f)
- ❑ effort swallow (c, f)

Delayed Swallow

- ❑ thermal/tactile stimulation (c, f)
- ❑ three-second prep (c, f)
- ❑ slurp swallow (c, f)
- ❑ sour bolus (c, f)
- ❑ cold bolus (c, f)
- ❑ neurosensory stimulation (f)

Decreased Anterior Movement of Hyolaryngeal Complex

- ❑ head lift (f)

Misc. Compensation for Oral/Pharyngeal Dysphagia

- ❑ alternate (thick) liquid swallow every bite/PRN (c)
- ❑ discourage liquid wash between bites (c)
- ❑ multiple swallows (patient does/does not need cues) (c)
- ❑ empty mouth before next bite (c)
- ❑ cue patient to slow down (c)

Re-evaluation

- ❑ if condition changes
- ❑ before discontinuing any of these recommendations
- ❑ can advance food only at bedside
- ❑ can advance food and liquids at bedside
- ❑ other _____

Signature _____

FEES® Report

Patient _____ Date _____
Birthdate _____ Age _____ Patient # _____
Referral Physician _____
Patient's Address _____ Phone _____

History _____

_____

_____

_____

Why Study Is Needed _____

_____

_____

Procedure

The patient was seen for fiberoptic endoscopic evaluation of swallowing _____. The patient was positioned in (bed, chair) for the exam. _____ assisted in positioning the patient and presenting test materials. The procedure examined anatomy and physiology of the swallowing mechanism. The scope was passed transnasally through the R/L nostril with/without topical anesthetic.

Anatomy and Physiology

Velopharyngeal Closure _____
Secretion Management _____
Swallow Frequency _____
Back of Tongue Movement _____
Laryngeal Structure During Respiration _____
Airway Closure _____
Phonation _____
Pharyngeal Musculature _____

_____

Swallowing

ice chips _____

_____

pureed foods _____

_____

soft solid foods _____

_____

hard, chewy, crunchy foods _____

_____

thin liquids _____

_____

_____

thick liquids _____

_____

Effects of Treatment Strategies Attempted _____

_____

_____

_____

Sensory Testing _____

Summary and Need for Service _____

_____

_____

_____

_____

_____

_____

Diagnosis _____

Positive Expectation to Begin Service _____

_____

_____

Patient/Caregiver Teaching _____

_____

_____

Short-Term Goals

These goals reflect disordered physiology related to the pharyngeal phase. (Goals for the oral phase are found on the bedside evaluation form, page 57.)

_____ Patient will improve back of tongue control to keep food from falling over the back of the tongue and into the airway.

_____ Patient will decrease delay in initiation of pharyngeal swallow to reduce food falling into the airway during the delay before the swallow.

_____ Patient will increase closure of the true vocal folds to keep food from falling into the airway during the swallow.

_____ Patient will increase laryngeal elevation to reduce residue in the pyriform sinus(es) and reduce risk of the residue falling into the airway after the swallow.

_____ Patient will improve laryngeal elevation to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

_____ Patient will improve the rate of laryngeal elevation/timing of closure to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

_____ Patient will increase laryngeal elevation to reduce vallecular residue to reduce the risk of the residue being aspirated after the swallow.

_____ Patient will increase movement of pharyngeal wall(s) to reduce residue on pharyngeal wall(s) (unilateral or bilateral) to reduce the risk of the residue being aspirated after the swallow.

_____ No skilled treatment indicated. Comments:_____

Recommendations

Food Presentation _____

_____

Food Placement _____

_____

Positioning _____

_____

Status _____

_____

Presentation of Meds _____

_____

Schedule _____

_____

_____

_____

Charting/Monitoring _____

_____

Other _____

_____

Compensatory Techniques to Use During Meal _____

Facilitation/Treatment Techniques _____

Re-evaluation _____

_____

Speech-Language Pathologist

Barium Cookie Recipe

Ingredients

1 c. granulated sugar
4 T. butter
1 egg
¼ c. milk
1 t. vanilla
2 c. flour (all-purpose, sifted)
1 t. baking soda
¼ t. salt
10 T. (about ¾ c.) barium powder (You can get this from the Radiology Dept.)

Directions

Preheat the oven to 375°.

Beat the butter in a large bowl until soft, adding the sugar gradually. Blend until creamy. In another bowl, combine the egg, milk, and vanilla. Beat and set aside.

In a third bowl, combine the flour, baking soda, salt, and barium powder. Mix well. Add the flour mixture and the milk mixture to the butter and sugar in three parts, alternating small amounts of each. Beat the batter after each addition. You may need to add extra milk if the batter is too sticky, so add gradually.

Using a teaspoon, place ½-inch portions of dough onto a greased baking sheet. You might want to sprinkle each cookie with sugar before baking.

Bake for about nine minutes. Cool before eating. These cookies freeze well.

Yield: approximately 75 cookies

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
diffuse falling of bolus over back of tongue with or without aspiration	poor back of tongue control	chin-down posture	to widen the valleculae and catch more of the material and protect the airway by positioning trachea under tongue	oral-motor exercises for back of tongue • hard /k, g/ • exert pressure on tongue blade with back of tongue
		smaller bolus size	will allow the valleculae to hold the amount better without it spilling over with chance of aspiration	
		thicker consistency	patient may have better control of thicker consistency with the tongue	
		different utensil (e.g., cup, cut-out cup, spoon, straw)	some patients are more coordinated when drinking from one or the other	
bolus moves over the back of the tongue with delayed pharyngeal swallow with or without aspiration	delayed pharyngeal swallow*	thermal/tactile stimulation	to stimulate the reflex	cold bolus/neurosensory stimulation suck-swallow oral gestures help facilitate the swallow (and also help with saliva management)
		sour bolus	to stimulate the reflex	
		chin-down posture	to widen the valleculae and provide better protection of the airway	
		change in texture	patient's swallow may initiate at different times for different textures	
		three-second prep	thinking about swallowing is part of the neural preparation	
		change in bolus size (increase or decrease)	may not see delay with larger bolus; may be able to hold smaller bolus in recesses during delay	

*Need to treat delay if greater than two seconds or if patient aspirates during the delay.

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
aspiration during the swallow	reduced closure of true vocal cords	chin-down posture	to widen the valleculae and provide better airway protection by positioning larynx under tongue	breath hold/modified Valsalva laryngeal closure exercises
		change in texture	sometimes patients don't aspirate during the swallow on thicker textures	
		change in bolus size	may not aspirate on smaller bolus sizes	
		supraglottic swallow	achieves closure of true folds	
		super-supraglottic swallow	achieves closure not only at the true and false cords but above	
		head rotation*	to close off half of the larynx and help stronger cord (if there is one) move toward the weaker cord	

*At this point, you may want to put the patient in A-P view to see if the residue is asymmetrical or if contrast material moves down one side or the other. The residue will be in the weaker side of the pharynx and you would want to try turning the patient's head toward that side.

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
aspiration during the swallow OR penetration into the upper laryngeal vestibule but the residue remains and is aspirated after the swallow or appears to be a significant risk for aspiration	not a true delay, but what appears to be a mistiming of laryngeal elevation/timing of closure	controlling bolus size chin-down posture try different utensils (e.g., cup, cut-out cup, spoon, straw) super-supraglottic swallow Mendelsohn maneuver change in texture	patients may be able to coordinate timing of the swallow better with a smaller amount to widen the valleculae and provide better airway protection some patients are more coordinated when drinking from one or the other improves speed of onset of laryngeal elevation normalizes overall timing of pharyngeal swallow events thicker liquids move more slowly to allow time for closure	
residue in pyriform sinuses	reduced laryngeal elevation	not necessarily anything if patient doesn't aspirate from this residue		falsetto/laryngeal elevation exercises Mendelsohn maneuver super-supraglottic swallow

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
residue in pyriform sinuses and patient either aspirates after the swallow or appears to be at significant risk for aspiration after the swallow	reduced laryngeal elevation	reduce bolus size	choose a bolus size that doesn't overload the pyriform sinuses	falsetto SEMG biofeedback
		Mendelsohn maneuver	to maintain laryngeal elevation and allow pyriforms to empty	
		multiple swallow	the second swallow may clear the residue	
		liquid or thickened liquid wash	this wash may clear out the residue (however, you also have to be careful because the liquid may wash directly into the airway)	
		super-supraglottic	speeds onset of laryngeal elevation and the cough may clear any aspirated material	
		head rotation	facilitates UES opening, closes pyriform on one side, thus reducing amount of residue which may be aspirated	
	reduced anterior movement of hyolaryngeal complex	Mendelsohn maneuver	to maintain laryngeal elevation and allow pyriforms to empty	head lift
		multiple swallows	the second swallow may clear the residue	
		reduce bolus size	choose a bolus size that doesn't overload the pyriform sinuses	
		head rotation	facilitates UES opening; closes pyriform sinuses on one side, thus reducing amount of residue that remains and may be aspirated	

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
penetration into the upper laryngeal vestibule, but the residue remains and is aspirated after the swallow or appears to be a significant risk for aspiration (Note: If the penetrated material is expelled and swallowed with the rest of the bolus, you don't have to try anything as the patient is not aspirating. However, if the amount of penetration appears to place patient at risk, try these techniques.)	reduced laryngeal elevation	chin-down posture super-supraglottic swallow change of texture controlling bolus size Mendelsohn maneuver	to widen the valleculae and provide better airway protection improves speed of onset of laryngeal elevation and thus may eliminate penetration patients sometimes don't penetrate thicker textures patients may only penetrate large bolus sizes improves overall timing of the swallow and thus may eliminate the penetration	falsetto/laryngeal elevation exercises SEMG biofeedback

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
penetration into the upper laryngeal vestibule, but the residue remains and is aspirated after the swallow or appears to be a significant risk for aspiration (Note: If the penetrated material is expelled and swallowed with the rest of the bolus, you don't have to try anything as the patient is not aspirating. However, if the amount of penetration appears to place patient at risk, try these techniques.)	reduced closure at entrance to airway because of reduced arytenoid tipping	chin-down posture control bolus size super-supraglottic swallow change of texture	to widen the valleculae and provide better airway protection patients may only penetrate large bolus size provides closure at entrance to airway patients sometimes don't penetrate thicker textures	falsetto/laryngeal elevation exercises

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques to Try During the Study	Why?	Additional Therapy Techniques
vallecular residue or residue on pharyngeal walls with aspiration after the swallow from the residue (Note: If patient is not aspirating residue, you don't have to try anything. However, if the amount of residue is significant, the risk of aspiration exists.)	reduced base of tongue pressure	effort swallow	increases the pressure placed by the base of the tongue against posterior pharyngeal wall	pretend to gargle* pretend to yawn*
		super-supraglottic swallow	in addition to increasing the effort of laryngeal closure, it increases tongue base movement and may push the bolus through	
		reduce bolus size	so as not to overload the valleculae	
		multiple swallow	second swallow may clear the residue	
		liquid or thickened liquid wash (Note: May pair with chin-down; widens valleculae in some patients and allows residue to be washed out.)	this wash may clear out the residue (however, you also have to be careful because the liquid may wash directly into the airway)	
		head rotation	moves epiglottis into a protective position, improves laryngeal closure and closes vallecula on one side (usually doesn't work as well for vallecular residue as for pyriform residue)	

*Have the patient try these techniques under fluoro to see if either/both improve movement of tongue base.

Appendix A: Cue Sheets for Choosing Compensatory Strategies During a Modified Barium Swallow, *continued*

If You See This	What Might Be Causing It?	Techniques To Try During the Study	Why?	Additional Therapy Techniques
vallecular residue or residue on pharyngeal walls with aspiration after the swallow (Note: If patient is not aspirating residue, you don't have to try anything. However, if the amount of residue is significant, the risk of aspiration exists.)	reduced posterior pharyngeal wall movement	effort swallow liquid or thickened liquid wash multiple swallow head rotation	increases the pressure placed by the base of the tongue against posterior pharyngeal wall this wash may clear out the residue (however, you also have to be careful because the liquid may wash directly into the airway) second swallow may clear the residue to close vallecula on one side (usually doesn't work as well for vallecular residue as for pyriform residue)	tongue hold pretend to gargle* pretend to yawn*
vallecular residue with aspiration after the swallow	reduced laryngeal elevation	multiple swallow liquid wash control bolus size Mendelsohn maneuver head rotation	second swallow may clear the residue this wash may clear out the residue (however, you also have to be careful because the liquid may wash directly into the airway) so as not to overload valleculae achieves better elevation and may help push the material out of the valleculae moves epiglottis into a protective position, improves laryngeal closure and closes vallecula on one side (usually doesn't work as well for vallecular residue as for pyriform residue)	laryngeal elevation exercises/falsetto SEMG biofeedback

*Have the patient try these techniques under fluoro to see if either/both improve movement of tongue base.

Appendix B: FEES® Examination Protocol

Anatomic-Physiologic Assessment

A. Velopharyngeal Closure
At juncture of velum and nasopharynx, view sphincteric closure as the patient swallows and phonates oral and nasal sounds and sentences. Administer liquid while scope is in nose if nasal reflux is to be assessed.

B. Appearance of Hypopharynx and Larynx at Rest
Scan around entire HP to note appearance, symmetry, and abnormalities that warrant an ENT referral for suspected pathology.

C. Handling of Secretions and Swallow Frequency
Observe amount and location of secretions in lateral channels, laryngeal vestibule, and/or subglottally. Note this over a two- to five-minute segment as you proceed with the exam. Also note frequency of dry swallows over a period of at least two minutes. Optional: Drop green food coloring on tongue to mix with saliva if you need a better view.

D. Base of Tongue
Task: Say "kuh-kuh-kuh" several times.
Observe extent of movement and symmetry.

E. Respiration
Observe laryngeal structures for rest breathing. Note extent, symmetry, and rate of movement.
Task: Sniff or deep inhalation (note abduction).

F. Airway Protection
Task: Cough.
Task: Hold your breath at the level of the throat.
Task: Hold your breath very tightly.
Task: Hold your breath to the count of 7.

G. Phonation
Task: Hold "ee."
Task: Repeat "hee-hee-hee" 5 to 7 times.
Task: Count from 1 to 10.
Task: Glide upward in pitch.

H. Pharyngeal Musculature
Task: Hold your breath and blow out cheeks forcefully.
Observe the depth and symmetry of pyriform sinuses.
Task: Strain your voice and grunt or say "ee" in a very loud, high voice.
Observe middle and inferior constrictors. Note extent and symmetry of contraction.

Swallowing Food and Liquid

All foods/liquids are dyed green with food coloring.

Guidelines

- Increase amount with each presentation unless aspiration occurs.
- Repeat any amount that results in aspiration unless severe aspiration.
- Discontinue that amount if aspiration occurs twice.
- Try less than 5cc *only* if patient at very high risk for aspirating.
- Give measured amounts if exact bolus size needs to be known; otherwise give functional amounts such as teaspoons, tablespoons, and/or drinks from cup or straw.
- Give instructions to swallow on command only to sort out the specific nature of an observed problem with spillage; otherwise let patient swallow at his or her own rate.
- Give material that is light in color so that it will be visible.

Order of Consistencies will vary, depending on patient needs and the problems observed. Suggested consistencies to try to include the following:

Ice chips (½ tsp. of ice chips dyed green)
Begin with this consistency if patient is NPO at present and/or appears to be at high risk for aspiration (e.g., has standing secretions in hypopharynx).

Repeat this several times. Note the effect on clearance of secretions, ability of patient to swallow the ice chips, and sensitivity of patient to any aspiration of ice chips.

Pureed foods (5cc, 10cc, 15cc of applesauce, pudding, etc.)

Soft solid food (e.g., cheese sandwich)
Allow the patient to take a bite-sized portion.

Hard, chewy, crunchy food
Give this consistency if regular diet is being considered.

Thin liquid (5cc, 10cc, 15cc, 20cc, 5 consecutive swallows)
Milk or other translucent thin liquid (white in color) is good for visibility.

Thick liquid (5cc, 10cc, 15cc, 20cc, 5 consecutive swallows)
Give this consistency if indicated (from performance on thin liquids or pureed).
Give nectar and honey consistencies for more precise information.

Therapeutic Positions, Maneuvers, and Other Alterations in Bolus Delivery

Apply these at all appropriate points in the exam — generally as soon as the problem is observed. Use the strategy appropriate for the observed problem, including head turn; chin tuck; effortful swallow; supraglottic swallow or modification of this; Mendelsohn maneuver; dry swallows; and delivery by spoon, straw, or cup.

Hypopharyngeal/Laryngeal Sensory Testing

Can be directly tested by lightly touching the pharyngeal mucosal wall with the tip of the scope, then the base of the tongue, and, if no response, the tip of the epiglottis. If quantitative measure of sensory threshold can be obtained, this is preferable.

Karnell, M. P. and S. Langmore. *FEES® Examination Protocol*. In *Medical Speech-Language Pathology: A Practitioner's Guide*. NYC: Thieme Medical Publishers, Inc., 1998, p. 576.

Appendix C: Observation Rating Scales

Duke University Rating of Radiologic Swallowing Abnormalities[1]

Oral Preparatory Phase

0 Profound dysfunction: oral stasis, no material is propelled into the pharynx

1 Severe dysfunction: effortful oral preparation, dispersion of the bolus along the tongue and into the buccal cavities, significant oral residue after the swallow that is not cleared, extreme slowness and inefficiency in propelling the bolus into the pharynx, no masticatory ability, drooling usually occurs

2 Moderate dysfunction: slow oral preparation and motility of boluses, mastication very slow but thorough, some residue along the tongue, inefficiency and effort in propelling the bolus into the pharynx, drooling may occur

3 Mild dysfunction: mildly slow bolus preparation, but adequate bolus cohesion and motility; mastication slower than normal but thorough; mild lip incompetency with drooling may be present

4 Normal control and bolus transit, no oral residue, mastication is brisk and thorough

Reflex Initiation Phase

0 Profound: absent reflex

1 Severe: reflex initiated in the lower pharynx (pyriform sinuses) after prolonged pooling

2 Moderate: reflex initiated in the lower pharynx after brief hesitation

3 Mild: reflex initiated in the midpharynx (vallecular spaces) after brief hesitation

4 Normal: reflex initiated at the back or base of the tongue (above the epiglottis), no hesitation in bolus motility from posterior tongue into pharynx

Pharyngeal Phase

0 Profound residue: reflex is minimal or absent and the bolus fills the mid- and lower pharynx, suctioning or vigorous pharyngeal gag and cough are required to clear the pharynx

1 Severe residue: more than half the bolus remains in the pharynx after the swallow; much effort required to clear the residue, possibly requiring sips of liquid barium or water; poor peristalsis typically associated with: (a) weak propulsion force of tongue at reflex initiation, (b) visibly reduced laryngeal elevation and epiglottic tilting, and/or (c) incomplete midpharyngeal and laryngopharyngeal closure during the swallow

2 Moderate residue: more than 10% but less than 50% of the bolus remains in the mid- and/or lower pharynx, requires an extra swallow to clear, usually occurs in association with (a-c) above

3 Mild residue: less than 10% of a small bolus remains in the mid- and/or lower pharynx after the first swallow.

4 Normal: no residue, slight coating only may be present

Pharyngeal Appearance Observed in Anterior-Posterior Projection

0 No pharyngeal transit: profound residue in the mid- and/or lower pharynx bilaterally, usually seen only when the reflex is absent

1 Severe: bilateral pharyngeal weakness characterized by moderate or severe residue in the bilateral pharyngeal spaces (midpharynx, lower pharynx, or both), often the pharynx will appear bilaterally patulous or bilateral pulsion diverticula will be observed

2 Moderate: pharyngeal hemiplegia characterized by definite asymmetry, pharyngeal motility only on the opposite (functional) side

3a Mild: pharyngeal hemiparesis characterized by bilateral pharyngeal transit that is visibly superior on the opposite side and/or the hemiparetic side may show a pyriform sinus "droop," and/or the hemiparetic side may show hypotonia of the thyro-hyoid membrane presenting as a "pulsion diverticulum"

3b Slight: postural abnormality; pharyngeal asymmetry with no observable anatomic or physiologic basis (e.g., due to torticollis, poor sitting balance, or head deviation due to neglect, distractibility, etc.) (Note: When non-dysphagic individuals turn or tilt the head to one side, pharyngeal asymmetry is a normal finding, but pharyngeal asymmetry is considered to be abnormal when head and neck postures are involuntary.)

4 Normal: both symmetrical appearance and symmetrical bolus transit, no anatomic or physiologic abnormalities observed

Aspiration

0 Profound: more than trace aspiration (audible or silent), may include repeated instances of aspiration despite postural or other modifications to prevent aspiration. If the reflex is absent, risk for aspiration is profound and also warrants a rating of "zero." (Note: "trace" refers to less than 10% of the bolus)

1 Severe: more than trace aspiration (audible or silent), may include repeated instances of aspiration despite postural or other modifications to prevent aspiration

2 Moderate: trace silent aspiration (no laryngeal cough during aspiration through the larynx is referred to as "silent aspiration")

3 Mild: trace audible aspiration (when aspiration occasions a cough, it is referred to as "audible aspiration")

4 No aspiration (risk for aspiration may be present and should be noted relative to other observations)

Pharyngeal-Esophageal Phase Screening

0 Absent swallow reflex, no relaxation of the upper esophageal sphincter (UES), no material enters the esophagus

1 Severe pyriform sinus residue, sporadic or effortful passage of food or liquid into the upper esophagus, definite indication that the UES is failing to relax, usually associated with a severely incomplete swallowing reflex and reduced laryngeal excursion

2 Residue is present in the pyriform sinus(es) in equal or greater amount than in the vallecular space(s), suggesting UES dysfunction; potentially secondary to one or more of the following: (a) decreased pharyngeal peristalsis; (b) dyscoordination (mistiming) of pharyngeal peristalsis and cricopharyngeal relaxation (the material is eventually cleared from the pharynx, but repeated swallows are necessary); (c) incomplete relaxation of the upper esophageal sphincter - when larger boluses are administered, the caliber of the UES is diminished and manometry may be indicated; (d) hypotonia of the UES and/or dyscoordination of UES relaxation manifest as reflux from the upper esophagus into the pyriform sinuses after the swallow

3 Residue is present in the vallecular space(s) primarily; adequate relaxation of the UES, but the evaluation is limited to small boluses only (larger boluses were precluded by the presence of, or risk for, aspiration)

4 Normal relaxation of the UES, evaluated using a gulp or large naturalistic swallow(s)

8-Point Penetration-Aspiration Scale[2]

1 Material does not enter the airway.
2 Material enters the airway, remains above the vocal folds, and is ejected from the airway.
3 Material enters the airway, remains above the vocal folds, and is not ejected from the airway.
4 Material enters the airway, contacts the vocal folds, and is ejected from the airway.
5 Material enters the airway, contacts the vocal folds, and is not ejected from the airway.
6 Material enters the airway, passes below the vocal folds, and is ejected into the larynx or out of the airway.
7 Material enters the airway, passes below the vocal folds, and is not ejected from the trachea despite effort.
8 Material enters the airway, passes below the vocal folds, and no effort is made to eject.

[1] Horner, J. et al. "Swallowing in Torticollis Before and After Rhizotomy." *Dysphagia*, Vol. 7, No. 3, 1992, pp. 123-125. (Duke Rating Scale)

[2] Rosenbek, J. et al. "A Penetration-Aspiration Scale." *Dysphagia*, Vol. 11, 1996, p. 94.

Symptom/Physiological Cause/Safety or Function Issue

Symptom	Physiology	Safety/Function	Short-Term Goal	Code
anterior loss	decreased jaw closure	food falls out front of mouth	Anterior Loss/jaw closure	AL/jc
	decreased lip closure	food falls out front of mouth	Anterior Loss/lip closure	AL/lc
	decreased oral sensation	food falls out front of mouth	Anterior Loss/oral sensation	AL/os
decreased bolus formation	decreased oral sensation	food remaining in mouth food falling into airway	Bolus Formation/oral sensation	BF/os
	decreased tongue movement *(includes tongue shaping)*	food remaining in mouth food falling into airway	Bolus Formation/tongue movement	BF/tm
	decreased tone in cheeks	food remaining in mouth food falling into airway	Bolus Formation/tone in cheeks	BF/tc
decreased bolus propulsion	decreased tongue movement	food remaining in mouth food falling into airway	Bolus Propulsion/tongue movement	BP/tm
	decreased oral coordination	food remaining in mouth food falling into airway	Bolus Propulsion/oral coordination	BP/oc
	decreased oral sensation	food remaining in mouth food falling into airway	Bolus Propulsion/oral sensation	BP/os
	agnosia	food remaining in mouth not able to eat enough food falling into airway	Bolus Propulsion/agnosia	BP/ag
aspiration before the swallow	decreased back of tongue control	food in airway	Aspiration Before/tongue control	AB/tc
	delayed pharyngeal swallow with food in valleculae before swallow, falling directly into airway or food in pyriforms before the swallow	food in airway	Aspiration Before/delayed reflex	AB/dr

Symptom/Physiological Cause/Safety or Function Issue, *continued*

Symptom	Physiology	Safety/Function	Short-Term Goal	Code
aspiration during the swallow	decreased closure of larynx	food in airway	Aspiration During/laryngeal closure	AD/lc
	mistiming of laryngeal elevation and closure	food in airway	Aspiration During/ mistiming of laryngeal closure	AD/mc
aspiration after from pyriform sinus residue	decreased laryngeal elevation	food falling into airway	Aspiration After/pyriform/ laryngeal elevation	AA/p/le
	decreases anterior movement of hyolaryngeal complex	food falling into airway	Aspiration After/pyriform/ hyolaryngeal movement	AA/p/hm
aspiration after from penetration into laryngeal vestibule	decreased laryngeal elevation	food falling into airway	Aspiration After/laryngeal vestibule/ laryngeal elevation	AA/lv/le
	decreased arytenoid tipping	food falling into airway	Aspiration After/laryngeal vestibule/ arytenoid tipping	AA/lv/at
	slow or mistimed closure of larynx	food falling into airway	Aspiration After/laryngeal vestibule/mistiming of closure	AA/lv/mc
aspiration after from vallecular residue (unilateral or bilateral)	decreased base of tongue movement	food falling into airway	Aspiration After/valleculae/ tongue base	AA/v/tb
	decreased anterior movement of posterior pharyngeal wall	food falling into airway	Aspiration After/valleculae/ posterior pharyngeal wall	AA/v/ppw
	decreased elevation of larynx	food falling into airway	Aspiration After/valleculae/ laryngeal elevation	AA/v/le
residue in pyriform sinus(es) lateral pharyngeal wall(s) with aspiration	decreased pharyngeal wall contraction	food falling into airway	Aspiration After/walls/ pharyngeal wall movement	AA/w/pw
	decreased base of tongue movement	food falling into airway	Aspiration After/walls/ tongue base	AA/w/tb

Long-Term/Functional Goals

1. Patient will safely consume _____ diet with _____ liquids without complications such as aspiration pneumonia.
2. Patient will be able to eat foods and liquids with more normal consistency.
3. Patient will be able to complete a meal in less than _____ minutes.
4. Patient will maintain nutrition/hydration via alternative means.
5. Patient's quality of life will be enhanced through eating and drinking small amounts of food and liquid.

Master List of Short-Term Goals

Short-Term Goal 1	Anterior Loss/jaw closure	(AL/jc)
Short-Term Goal 2	Anterior Loss/lip closure	(AL/lc)
Short-Term Goal 3	Anterior Loss/oral sensation	(AL/os)
Short-Term Goal 4	Bolus Formation/oral sensation	(BF/os)
Short-Term Goal 5	Bolus Formation/tongue movement	(BF/tm)
Short-Term Goal 6	Bolus Formation/tone in cheeks	(BF/tc)
Short-Term Goal 7	Bolus Propulsion/tongue movement	(BP/tm)
Short-Term Goal 8	Bolus Propulsion/oral coordination	(BP/oc)
Short-Term Goal 9	Bolus Propulsion/oral sensation	(BP/os)
Short-Term Goal 10	Bolus Propulsion/agnosia	(BP/ag)
Short-Term Goal 11	Aspiration Before/tongue control	(AB/tc)
Short-Term Goal 12	Aspiration Before/delayed reflex	(AB/dr)
Short-Term Goal 13	Aspiration During/laryngeal closure	(AD/lc)
Short-Term Goal 14	Aspiration During/mistiming of closure	(AD/mc)
Short-Term Goal 15	Aspiration After/pyriform/laryngeal elevation	(AA/p/le)
Short-Term Goal 16	Aspiration After/pyriform/hyolaryngeal complex movement	(AA/p/hm)
Short-Term Goal 17	Aspiration After/laryngeal vestibule/laryngeal elevation	(AA/lv/le)
Short-Term Goal 18	Aspiration After/laryngeal vestibule/arytenoid tipping	(AA/lv/at)
Short-Term Goal 19	Aspiration After/laryngeal vestibule/mistiming of closure	(AA/lv/mc)
Short-Term Goal 20	Aspiration After/valleculae/tongue base	(AA/v/tb)
Short-Term Goal 21	Aspiration After/valleculae/posterior pharyngeal wall	(AA/v/ppw)
Short-Term Goal 22	Aspiration After/valleculae/laryngeal elevation	(AA/v/le)
Short-Term Goal 23	Aspiration After/walls/pharyngeal wall	(AA/w/pw)
Short-Term Goal 24	Aspiration After/walls/tongue base	(AA/w/tb)

Treatment Objectives to Achieve Short-Term Goals

c	=	compensatory techniques compensate for a deficit
f	=	facilitation techniques to improve function
c, f	=	compensatory techniques that facilitate return of function
d	=	diet texture changes

Short-Term Goal 1 — Anterior Loss/jaw closure (AL/jc)

Patient will improve jaw closure to reduce anterior loss to keep food and liquid in the mouth while eating.

Treatment Objectives

AL/jc-1 Patient will eliminate loss of food/liquid out the front of mouth when clinician provides jaw support on _____ of _____ trials. (c)

AL/jc-2 Patient will open jaw against resistance provided by clinician on _____ of _____ trials. (f)

AL/jc-3 Patient will close jaw against resistance provided by clinician on _____ of _____ trials. (f)

AL/jc-4 Patient will take only _____ liquids with/without cues on _____ of _____ trials. (d)

AL/jc-5 Patient will avoid foods in liquid base with/without cues. (d)

Short-Term Goal 2 — Anterior Loss/lip closure (AL/lc)

Patient will improve lip closure to reduce anterior loss to keep food and liquid in the mouth while eating.

Treatment Objectives

AL/lc-1 Patient will eliminate loss of food/liquid from front of mouth when clinician provides support to upper/lower lip(s) on _____ of _____ trials. (c)

AL/lc-2 Patient will achieve lip closure around object (Lifesaver on string, Popsicle, ice cube) for _____ seconds on _____ of _____ trials. (f)

AL/lc-3 Patient will achieve lip closure against resistance provided by clinician placing fingers on upper and lower lips on _____ of _____ trials. (f)

AL/lc-4 Patient will pucker lips (as if to blow a kiss) on _____ of _____ trials. (f)

AL/lc-5 Patient will achieve lip closure while keeping jaw open on _____ of _____ trials. (f)

AL/lc-6 Patient will puff cheeks and keep lips tightly sealed on _____ of _____ trials. (f)

AL/lc-7 Patient will hold tongue depressor between closed lips (not teeth) for count of 10 on _____ of _____ trials. (f)

AL/lc-8 Patient will grin (retracting corners of lips) as wide as possible without showing teeth on _____ of _____ trials. (f)

AL/lc-9 Patient will take only _____ liquids with/without cues on _____ of _____ trials. (d)

AL/lc-10 Patient will avoid foods in liquid base with/without cues. (d)

Short-Term Goal 3 — Anterior Loss/oral sensation (AL/os)

Patient's oral sensation will improve to reduce anterior loss to keep food in the mouth while eating.

Treatment Objectives

AL/os-1 Patient will report increased sensitivity to cold when clinician rubs lips with cold spoon on _____ of _____ trials. (f)

AL/os-2 Patient will take only ____ liquids with/without cues on _____ of _____ trials. (d)

AL/os-3 Patient will avoid foods in liquid base with/without cues. (d)

Short-Term Goal 4 — Bolus Formation/oral sensation (BF/os)

Patient's oral sensation will increase to improve the ability to put food/liquid into a cohesive bolus to reduce the risk of food residue falling into the airway.

BF/os-1 Patient will use external pressure with fingers on cheek to decrease pocketing with/without cues on _____ of _____ trials. (c)

BF/os-2 Patient will place bolus of food on stronger side with/without cues on _____ of _____ trials. (c)

BF/os-3 Patient will clean buccal cavity with fingers/tongue during/after meal with/without cues on _____ of _____ trials. (c)

BF/os-4 Patient will "rinse and spit" at end of each meal with/without cues on _____ of _____ trials. (c)

BF/os-5 Patient will alternate thin/_____-thickened liquid wash every _____ bite(s) with/without cues on _____ of _____ trials. (c)

BF/os-6 Oral sensitivity input will be heightened by providing pressure with the spoon when boluses are presented. (c)

BF/os-7 Patient will eat only foods that form a cohesive bolus with/without cues. (d)

BF/os-8 Patient will only eat pureed foods with/without cues. (d)

BF/os-9 Oral sensitivity will be heightened by patient taking foods that require some mastication. (d)

BF/os-10 Oral sensitivity will be heightened by presenting boluses of a distinct flavor/temperature/texture (specify: _____). (d)

Short-Term Goal 5 – Bolus Formation/tongue movement (BF/tm)

Patient will increase tongue movement to improve the ability to put food and liquid into a cohesive bolus to reduce the risk of food falling into the airway.

Treatment Objectives

BF/tm-1 Patient will place bolus on stronger side with/without cues on _____ of _____ trials. (c)

BF/tm-2 Patient will tilt head to stronger side with/without cues on _____ of _____ trials. (c)

BF/tm-3 Patient will "rinse and spit" at end of each meal with/without cues on _____ of _____ trials. (c)

BF/tm-4 Patient will use multiple swallows for _____ consistencies with/without cues on _____ of _____ trials. (c)

BF/tm-5 Patient will alternate thin/_____-thickened liquid wash every _____ bite(s) with/without cues on _____ of _____ trials. (c)

BF/tm-6 Patient will move tongue in clockwise motion between teeth and closed lips on _____ of _____ trials. (f)

BF/tm-7 Patient will protrude tongue to try to touch the chin and nose with tongue tip on _____ of _____ trials. (f)

BF/tm-8 Patient will push up with back of tongue against tongue depressor on _____ of _____ trials. (A helpful cue is to ask the patient to make a /k/.) (f)

BF/tm-9 Patient will click tongue against roof of mouth on _____ of _____ trials. (f)

BF/tm-10 Patient will push tongue tip out against tongue depressor on _____ of _____ trials. (f)

BF/tm-11 Patient will push blade of tongue upward against tongue depressor on _____ of _____ trials. (f)

BF/tm-12 Patient will push R/L lateral border of tongue against tongue depressor on _____ of _____ trials. (f)

BF/tm-13 Patient will protrude tongue into R/L cheek on _____ of _____ trials. (f)

BF/tm-14 Patient will protrude tongue tip into R/L cheek against resistance provided by clinician through external pressure on _____ of _____ trials. (f)

BF/tm-15 Patient will eat only foods that form a cohesive bolus with/without cues. (d)

BF/tm-16 Patient will only eat pureed foods with/without cues. (d)

Short-Term Goal 6 — Bolus Formation/tone in cheeks (BF/tc)

The tone in patient's cheek(s) will increase to improve the ability to put food and liquid into a cohesive bolus to reduce the risk of food residue falling into the airway.

Treatment Objectives

BF/tc-1 Patient will use external pressure with fingers to cheek to decrease pocketing with/without cues on _____ of _____ trials. (c)

BF/tc-2 Patient will clean buccal cavity with fingers/tongue during/after meal with/without cues on _____ of _____ trials. (c)

BF/tc-3 Patient will place bolus of food on stronger side with/without cues on _____ of _____ trials. (c)

BF/tc-4 Patient will rinse and spit at end of each meal with/without cues on _____ of _____ trials. (c)

BF/tc-5 Patient will alternate thin/_____-thickened liquid wash every _____ bite(s) with/without cues on _____ of _____ trials. (c)

BF/tc-6 Patient will produce "oo" and then "ee" with exaggerated lip movement on _____ of _____ trials. (f)

BF/tc-7 Patient will pucker lips, then move lips from side to side on _____ of _____ trials. (f)

BF/tc-8 Patient will only eat foods that form a cohesive bolus with/without cues. (d)

BF/tc-9 Patient will only eat pureed foods with/without cues. (d)

Short-Term Goal 7 — Bolus Propulsion/tongue movement (BP/tm)

Patient will increase tongue movement to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.

Treatment Objectives

BP/tm-1 Patient will place bolus of food/liquid on midline of tongue with/without cues on _____ of _____ trials. (c)

BP/tm-2 Patient will place bolus of food/liquid on stronger side of mouth with/without cues on _____ of _____ trials. (c)

BP/tm-3 Patient will tip chin up slightly to help bolus move back in the mouth on _____ of _____ trials. (c) (Caution: This can be done only if the patient is not at risk for any aspiration as confirmed through a modified barium swallow.)

BP/tm-4 Patient will take small sip of liquid/_____-thickened liquid with bolus to help move the food backward with/without cues on _____ of _____ trials. (c)

BP/tm-5 Patient will take small sip of liquid/_____-thickened liquid after swallowing food to help clear residue from mouth with/without cues on _____ of _____ trials. (c)

BP/tm-6 Patient will move lemon swab placed between tongue and hard palate from front to back on _____ of _____ trials. (f)

BP/tm-7 Patient will sweep tongue from alveolar ridge to junction of hard and soft palate on _____ of _____ trials. (f)

BP/tm-8 Patient will pop tongue against hard palate on _____ of _____ trials. (f)

BP/tm-9 Patient will eat only foods that form a cohesive bolus with/without cues on _____ of _____ trials. (d)

BP/tm-10 Patient will avoid very sticky foods with/without cues on _____ of _____ trials. (d)

BP/tm-11 Patient will eat only pureed foods with/without cues. (d)

Short-Term Goal 8 — Bolus Propulsion/oral coordination (BP/oc)

Patient will increase oral coordination to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.

Treatment Objectives

BP/oc-1 Awareness of bolus will be increased through downward pressure of the spoon on the tongue on _____ of _____ trials. (c)

BP/oc-2 Patient will be allowed to self-feed liquids/solids from spoon/cup/straw/fingers on _____ of _____ trials. (c)

BP/oc-3 Awareness of bolus will be increased through temperature/taste/size of bolus on _____ of _____ trials. (d)

BP/oc-4 Awareness of bolus will be increased through presentation of foods that require mastication on _____ of _____ trials. (d)

Short-Term Goal 9 — Bolus Propulsion/oral sensation (BP/os)

Patient's oral sensation will increase to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.

Treatment Objectives

BP/os-1 Awareness of bolus will be increased through downward pressure of the spoon on the tongue on _____ of _____ trials. (c)

BP/os-2 Patient will be allowed to self-feed liquids/solids from spoon/cup/straw/fingers on _____ of _____ trials. (c)

BP/os-3 Patient will use effort swallow with/without cues on _____ of _____ trials. (c)

BP/os-4 Patient will move lemon swab placed between tongue and hard palate from front to back on _____ of _____ trials. (f)

BP/os-5 Awareness of bolus will be increased through temperature/taste/size of bolus on _____ of _____ trials. (d)

BP/os-6 Awareness of bolus will be increased through presentation of foods that require mastication on _____ of _____ trials. (d)

Short-Term Goal 10 — Bolus Propulsion/agnosia (BP/ag)

Patient will increase awareness of food/liquid and utensils in the mouth to improve the ability to move a bolus to the back of the mouth in a coordinated fashion to reduce the risk of it falling into the airway.

Treatment Objectives

BP/ag-1 Awareness of bolus will be increased through downward pressure of the spoon on the tongue on _____ of _____ trials. (c)

BP/ag-2 Empty cup or spoon will be presented when patient is holding bolus in oral cavity on _____ of _____ trials. (c)

BP/ag-3 Awareness of bolus will be increased through temperature/taste/size of bolus on _____ of _____ trials. (d)

BP/ag-4 Awareness of bolus will be increased through presentation of foods that require mastication on _____ of _____ trials. (d)

Short-Term Goal 11 — Aspiration Before/tongue control (AB/tc)

Patient will improve back of tongue control to keep food from falling over the back of the tongue and into the airway.

Treatment Objectives

AB/tc-1 Patient will use chin-down posture for _____ consistencies with/without cues on _____ of _____ trials. (c)

AB/tc-2 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AB/tc-3 Patient will use a cut-out cup/cup/straw/spoon for all liquid intake with/without cues on _____ of _____ trials. (c)

AB/tc-4 Patient will exert pressure with back of tongue up against tongue depressor on _____ of _____ trials. (A helpful cue is to ask the patient to try to say a /k/.) (f)

AB/tc-5 Patient will produce forceful /k/ at the end of words on _____ of _____ trials. (f)

AB/tc-6 Patient will take only liquids of _____ consistency with/without cues on _____ of _____ trials. (d)

AB/tc-7 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 12 — Aspiration Before/delayed reflex (AB/dr)

Patient will decrease delay in initiation of pharyngeal swallow to reduce food falling into the airway during the delay before the swallow.

Treatment Objectives

AB/dr-1 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AB/dr-2 Patient will use chin-down posture for _____ consistencies with/without cues on _____ of _____ trials. (c) (Note: May not be helpful if bolus reaches pyriforms during the delay.)

AB/dr-3 Patient will use a cut-out cup/cup/straw/spoon for all liquid intake with/without cues on _____ of _____ trials. (c)

AB/dr-4 Patient will empty mouth before next bite with/without cues on _____ of _____ trials. (c)

AB/dr-5 Patient will decrease length of time from command to swallow to onset of swallow from _____ to _____ seconds following thermal-tactile application/neurosensory stimulation/cold bolus/sour bolus/three second prep/suck-swallow on _____ of _____ trials. (c,f) (Note: When choosing more than one technique, separate treatment objectives can be written by using letters (a), (b), etc.)

AB/dr-6 Patient will decrease length of time from command to swallow to onset of swallow from _____ to _____ seconds after thermal application/neurosensory stimulation/cold bolus/sour bolus/three second prep/suck swallow on carryover swallows at end of session on _____ of _____ trials. (c,f) (Note: When choosing more than one technique, separate treatment objectives can be written by using letters (a), (b), etc.)

AB/dr-7 Patient will initiate swallow within 1-2 seconds of command to swallow without any stimulation on _____ of _____ trials. (c,f)

AB/dr-8 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

AB/dr-9 Patient will take only liquids of _____ consistency with/without cues on _____ of _____ trials. (d)

Short-Term Goal 13 — Aspiration During/laryngeal closure (AD/lc)

Patient will increase closure of the true folds to keep food from falling into the airway during the swallow.

Treatment Objectives

AD/lc-1 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AD/lc-2 Patient will empty mouth before next bite with/without cues on _____ of _____ trials. (c)

AD/lc-3 Patient will use cut-out cup/cup/straw/spoon for liquid presentations with/without cues on _____ of _____ trials. (c)

AD/lc-4 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AD/lc-5 Patient will use chin-down for _____ consistencies with/without cues on _____ of _____ trials. (c)

AD/lc-6 Patient will use supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AD/lc-7 Patient will demonstrate Valsalva maneuver (breath hold) on _____ of _____ trials. (f)

AD/lc-8 Patient will take only liquids of _____ consistency with/without cues on _____ of _____ trials. (d)

AD/lc-9 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 14 — Aspiration During/mistiming of closure (AD/mc)

Patient will improve rate of laryngeal elevation/timing of closure to keep food from falling into the airway during the swallow.

Treatment Objectives

AD/mc-1 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AD/mc-2 Patient will empty mouth before next bite with/without cues on _____ of _____ trials. (c)

AD/mc-3 Patient will use cut-out cup/cup/straw/spoon for liquid presentations with/without cues on _____ of _____ trials. (c)

AD/mc-4 Patient will use chin-down for _____ consistencies with/without cues on _____ of _____ trials. (c)

AD/mc-5 Patient will use super-supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c,f) (Note: Improves speed of onset of laryngeal elevation.)

AD/mc-6 Patient will use Mendelsohn maneuver for _____ consistencies with/without cues on _____ of _____ trials. (c,f) (Note: Normalizes timing of pharyngeal swallow events.)

AD/mc-7 Patient will take only liquids of _____ consistency with/without cues on _____ of _____ trials. (d)

AD/mc-8 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 15 — Aspiration After/pyriform/laryngeal elevation (AA/p/le)

Patient will increase laryngeal elevation to reduce residue in the pyriform sinus(es) and reduce risk of the residue falling into the airway after the swallow.

Treatment Objectives

AA/p/le-1 Patient will alternate thin/_____ consistency liquid wash every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/p/le-2 Patient will use multiple swallows for each bite with/without cues on _____ of _____ trials. (c)

AA/p/le-3 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/p/le-4 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/p/le-5 Patient will remain seated upright at 90° with/without cues for 30 minutes after any PO intake. (c)

AA/p/le-6 Patient will use Mendelsohn maneuver for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AA/p/le-7 Patient will use super-supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AA/p/le-8 Patient will produce /i/ in continuous fashion, including falsetto, on _____ of _____ trials. (f)

AA/p/le-9 Patient will increase laryngeal elevation via SEMG biofeedback on _____ of _____ trials. (f)

AA/p/le-10 Patient will avoid sticky foods with/without cues. (d)

AA/p/le-11 Patient will take only liquids of _____consistency with/without cues. (d)

AA/p/le-12 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 16 — Aspiration After/pyriform/hyolaryngeal complex movement (AA/p/hm)

Patient will increase anterior movement of the hyolaryngeal complex to reduce residue in the pyriform sinuses and reduce the risk of the residue falling into the airway after the swallow.

Treatment Objectives

AA/p/hm-1 Patient will alternate thin/_____ consistency liquid wash every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/p/hm-2 Patient will use multiple swallows for each bite with/without cues on _____ of _____ trials. (c)

AA/p/hm-3 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/p/hm-4 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/p/hm-5 Patient will remain seated upright at 90° with/without cues for 30 minutes after any PO intake. (c)

AA/p/hm-6 Patient will use Mendelsohn maneuver for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AA/p/hm-7 Patient will perform head lift maneuver for _____ seconds on _____ of _____ trials. (f)

AA/p/hm-8 Patient will perform _____ repetitive head lift maneuvers. (f)

AA/p/hm-9 Patient will avoid sticky foods with/without cues. (d)

AA/p/hm-10 Patient will take only liquids of _____ consistency with/without cues. (d)

AA/p/hm-11 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 17 – Aspiration After/laryngeal vestibule/laryngeal elevation (AA/lv/le)

Patient will improve laryngeal elevation to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

Treatment Objectives

AA//lv/le-1 Patient will control bolus size to ____ with/without cues on _____ of _____ trials. (c)

AA/lv/le-2 Patient will use chin-down posture for _____ consistencies with/without cues on _____ of _____ trials. (c)

AA/lv/le-3 Patient will use supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c) (Note: Compensatory as patient will expectorate residual material left above larynx.)

AA/lv/le-4 Patient will use Mendelsohn maneuver for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AA/lv/le-5 Patient will use super-supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c,f) (Note: Improves speed of onset of laryngeal elevation.)

AA/lv/le-6 Patient will produce /i/ in continuous fashion, including falsetto on _____ of _____ trials. (f)

AA/lv/le-7 Patient will increase laryngeal elevation via SEMG biofeedback on _____ of _____ trials. (f)

AA/lv/le-8 Patient will take only liquids of _____ consistency with/without cues. (d)

AA/lv/le-9 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 18 — Aspiration After/laryngeal vestibule/arytenoid tipping (AA/lv/at)

Patient will improve arytenoid tipping/closure at entrance to airway to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

Treatment Objectives

AA/lv/at-1 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/lv/at-2 Patient will use chin-down posture for _____ consistencies with/without cues on _____ of _____ trials. (c)

AA/lv/at-3 Patient will produce /i/ in continuous fashion, including falsetto, on _____ of _____ trials. (f)

AA/lv/at-4 Patient will use super-supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AA/lv/at-5 Patient will take only liquids of _____ consistency with/without cues. (d)

AA/lv/at-6 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 19 — Aspiration After/laryngeal vestibule/mistiming of closure (AA/lv/mc)

Patient will improve the rate of laryngeal elevation/timing of closure to reduce penetration into the upper laryngeal vestibule to reduce the risk of the penetrated material being aspirated after the swallow.

Treatment Objectives

AA/lv/mc-1 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/lv/mc-2 Patient will use chin-down posture for _____ consistencies on _____ of _____ trials. (c)

AA/lv/mc-3 Patient will use supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c) (Note: Compensatory as patient will expectorate residual material in the larynx.)

AA/lv/mc-4 Patient will use Mendelsohn maneuver for _____ consistencies with/without cues on _____ of _____ trials. (c,f) (Note: Normalizes timing of pharyngeal swallow events.)

AA/lv/mc-5 Patient will use super-supraglottic swallow for _____ consistencies with/without cues on _____ of _____ trials. (c,f) (Note: Improves speed of onset of laryngeal elevation.)

AA/lv/mc-6 Patient will produce /i/ in continuous fashion, including falsetto on _____ of _____ trials. (f)

AA/lv/mc-7 Patient will only take liquids of _____ consistencies with/without cues. (d)

AA/lv/mc-8 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 20 — Aspiration After/valleculae/tongue base (AA/v/tb)

Patient will increase base of the tongue movement to reduce vallecular residue (unilateral or bilateral) to reduce the risk of the residue being aspirated after the swallow.

Treatment Objectives

AA/v/tb-1 Patient will take no larger than _____ bolus size with/without cues on _____ of _____ trials. (c)

AA/v/tb-2 Patient will empty mouth before next bite with/without cues on _____ of _____ trials. (c)

AA/v/tb-3 Patient will stay seated upright at 90° for 30 minutes after any PO with/without cues. (c)

AA/v/tb-4 Patient will use multiple swallows with/without cues on _____ of _____ trials. (c)

AA/v/tb-5 Patient will use thin/_____ consistency liquid wash with/without chin-down to widen valleculae every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/v/tb-6 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/v/tb-7 Patient will use effort swallow with/without cues on _____ of _____ trials. (c,f)

AA/v/tb-8 Patient will use super-supraglottic swallow with _____ consistencies on _____ of _____ trials. (c,f) (Note: Improves tongue base retraction.)

AA/v/tb-9 Patient will demonstrate tongue base retraction on _____ of _____ trials. (f)

AA/v/tb-10 Patient will pretend to gargle on _____ of _____ trials. (f)

AA/v/tb-11 Patient will pretend to yawn on _____ of _____ trials. (f)

AA/v/tb-12 Patient will avoid sticky foods with/without cues on _____ of _____ trials. (d)

AA/v/tb-13 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 21 — Aspiration After/valleculae/posterior pharyngeal wall (AA/v/ppw)

Patient will increase movement of the posterior pharyngeal wall to reduce vallecular residue to reduce the risk of the residue being aspirated after the swallow.

Treatment Objectives

AA/v/ppw-1 Patient will take no larger than _____ bolus size with/without cues on _____ of _____ trials. (c)

AA/v/ppw-2 Patient will empty mouth before next bite with/without cues on _____ of _____ trials. (c)

AA/v/ppw-3 Patient will stay seated upright at 90° for 30 minutes after any PO with/without cues. (c)

AA/v/ppw-4 Patient will use multiple swallows with/without cues on _____ of _____ trials. (c)

AA/v/ppw-5 Patient will use thin/_____ consistency liquid wash with/without chin-down to widen valleculae every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/v/ppw-6 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/v/ppw-7 Patient will use effort swallow with/without cues on _____ of _____ trials. (f)

AA/v/ppw-8 Patient will swallow saliva using tongue hold on _____ of _____ trials. (f)

AA/v/ppw-9 Patient will pretend to gargle on _____ of _____ trials. (f)

AA/v/ppw-10 Patient will pretend to yawn on _____ of _____ trials. (f)

AA/v/ppw-11 Patient will avoid sticky foods with/without cues on _____ of _____ trials. (d)

AA/v/ppw-12 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 22 — Aspiration After/valleculae/laryngeal elevation (AA/v/le)

Patient will increase laryngeal elevation to reduce vallecular residue to reduce the risk of the residue being aspirated after the swallow.

Treatment Objectives

AA/v/le-1 Patient will alternate thin/_____ consistency liquid wash with/without chin-down to widen valleculae every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/v/le-2 Patient will use multiple swallows for each bite with/without cues on _____ of _____ trials. (c)

AA/v/le-3 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/v/le-4 Patient will remain seated upright at 90° with/without cues for 30 minutes after any PO intake. (c)

AA/v/le-5 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/v/le-6 Patient will use Mendelsohn maneuver for _____ consistencies with/without cues on _____ of _____ trials. (c,f)

AA/v/le-7 Patient will increase laryngeal elevation via SEMG biofeedback on _____ of _____ trials. (f)

AA/v/le-8 Patient will produce /i/ in continuous fashion, including falsetto, on _____ of _____ trials. (f)

AA/v/le-9 Patient will avoid sticky foods with/without cues. (d)

AA/v/le-10 Patient will take only liquids of _____ consistency with/without cues. (d)

AA/v/le-11 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 23 – Aspiration After/walls/pharyngeal wall (AA/w/pw)

Patient will increase movement of pharyngeal wall(s) to reduce residue on pharyngeal wall(s) (unilateral or bilateral) to reduce the risk of the residue being aspirated after the swallow.

Treatment Objectives

AA/w/pw-1 Patient will alternate thin/_____ consistency liquid wash with/without chin-down to widen valleculae every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/w/pw-2 Patient will use multiple swallows for each bite with/without cues on _____ of _____ trials. (c)

AA/w/pw-3 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/w/pw-4 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/w/pw-5 Patient will remain seated upright at 90° with/without cues on _____ of _____ trials. (c)

AA/w/pw-6 Patient will use effort swallow with/without cues on _____ of _____ trials. (c,f)

AA/w/pw-7 Patient will swallow saliva using tongue hold on _____ of _____ trials. (f)

AA/w/pw-8 Patient will avoid sticky foods with/without cues on _____ of _____ trials. (d)

AA/w/pw-9 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

Short-Term Goal 24 — Aspiration After/walls/tongue base (AA/w/tb)

Patient will increase movement of the tongue base to reduce bilateral residue on pharyngeal walls to reduce the risk of the residue being aspirated after the swallow.

Treatment Objectives

AA/w/tb-1 Patient will alternate thin/_____ consistency liquid wash with/without chin-down to widen valleculae every _____ bite(s) with/without cues on _____ of _____ trials. (c)

AA/w/tb-2 Patient will use multiple swallows for each bite with/without cues on _____ of _____ trials. (c)

AA/w/tb-3 Patient will control bolus size to _____ with/without cues on _____ of _____ trials. (c)

AA/w/tb-4 Patient will use head rotation to R/L with/without cues on _____ of _____ trials. (c)

AA/w/tb-5 Patient will remain seated upright at 90° with/without cues on _____ of _____ trials. (c)

AA/w/tb-6 Patient will use tongue base retraction on _____ of _____ trials. (f)

AA/w/tb-7 Patient will pretend to gargle on _____ of _____ trials. (f)

AA/w/tb-8 Patient will pretend to yawn on _____ of _____ trials. (f)

AA/w/tb-9 Patient will avoid sticky foods with/without cues on _____ of _____ trials. (d)

AA/w/tb-10 Patient will avoid foods in liquid base with/without cues on _____ of _____ trials. (d)

The goals are worded as compensatory techniques (i.e., being used with food during a meal). Therefore, if you choose to use the goal as a facilitory technique without food, you may have to reword the treatment objective. For example, Treatment Objective AA/lv/le-4 "Patient will use Mendelsohn maneuver for pudding consistencies with/without cues on 7 of 10 trials" would be worded that way if you use it in a compensatory fashion during meals. If, however, you see the patient only for facilitation without the presentation of food, you might reword it to say "Patient will use Mendelsohn maneuver for saliva swallows with/without cues on 7 of 10 trials."

Dysphagia Diet Level I

Rationale: This diet is for patients with severely impaired swallowing who have significant pooling in the hypopharynx with sticky foods. Foods that are sticky (like peanut butter) or non-cohesive (like rice) are omitted.

Description: The diet is a modified pureed diet with runny smooth textures. All foods should have a honey consistency and homogeneous textures with no nuts, seeds, or lumps. All liquids including water, broth, and strained soups should be thickened to honey consistency.

Nutritional Adequacy: This diet does not provide adequate fluid or nutrients to meet the Recommended Dietary Allowances. Consider tube feedings to meet requirements. This diet is not intended for long-term use.

Food Group	Foods Allowed
beverages/milk	All liquids must be thickened to a honey consistency, including water.
meats and meat substitutes (4-6 servings/day)	pureed meat with gravy or broth added to achieve a honey consistency, custard-style blended yogurt
starches, breads, and cereals (6-11 servings/day)	mashed potatoes with gravy, Cream of Wheat, rice cereal
fruits (2-4 servings/day)	pureed fruits without skins or seeds, thickened juices
vegetables (3-5 servings/day)	pureed vegetables without skins or seeds, thickened juices
soups	pureed, strained soups thickened to a runny honey consistency
desserts	sherbet, ice cream
condiments	margarine, butter, artificial sweetener, sugar, gravy, sour cream, ketchup, mustard, steak sauce, mayonnaise, herbs, spices

Dysphagia Diet Level II

Rationale: This diet is for patients with severely impaired swallowing who are receiving swallowing re-training. Foods that are sticky (like peanut butter) or non-cohesive (like rice) are omitted. This diet may be appropriate for persons with severely reduced oral preparatory phase abilities and reduced laryngeal closure.

Description: The diet is a modified pureed diet with thick, smooth textures. All foods should have a pudding consistency. All liquids including water, broth, and strained soups should be thickened to pudding consistency.

Nutritional Adequacy: This diet does not provide adequate fluid or nutrients to meet the Recommended Dietary Allowances. Consider tube feedings to meet requirements. This diet is not intended for long-term use.

Food Group	Foods Allowed
beverages/milk	All liquids must be thickened to a pudding consistency, including water.
meats and meat substitutes (4-6 servings/day)	pureed meat, pureed cottage cheese, custard-style blended yogurt
starches, breads, and cereals (6-11 servings/ day)	mashed potatoes with gravy, whipped sweet potatoes, Cream of Wheat, rice cereal, oatmeal
fruits (2-4 servings/day)	pureed fruits without skins or seeds, thickened juices
vegetables (3-5 servings/day)	pureed vegetables without skins or seeds, thickened juices
soups	pureed, strained soups thickened to a pudding consistency
desserts	pudding
condiments	margarine, butter, artificial sweetener, sugar, gravy, sour cream, ketchup, mustard, steak sauce, mayonnaise, herbs, spices

Dysphagia Diet Level III

Rationale: This diet is for patients with impaired swallowing who can chew some very soft foods, but cannot swallow thin liquids safely. This diet may be appropriate for persons with moderately impaired oral preparatory phase abilities and/or pharyngeal disorders.

Description: Most foods are still pureed with the addition of some textures which form a cohesive bolus. Foods that are sticky, non-cohesive, or a mixed consistency are omitted. All liquids, including water, are thickened to honey, syrup, or pudding consistency.

Nutritional Adequacy: This diet provides nutritional adequacy as indicated by the Recommended Dietary Allowances, depending upon amount consumed. More frequent feedings may be necessary. Monitor fluid intake.

Food Group	Foods Allowed
beverages/milk	All liquid including water must be thickened to a honey, syrup, or pudding consistency. Milk shakes, buttermilk, eggnog, fruit nectars, tomato, and V8 juice are acceptable if liquids are required to be only syrup thick.
meats and meat substitutes (4-6 servings/day)	pureed meat, plain baked fish without bones, macaroni and cheese, cottage cheese, pimento cheese, custard-style blended yogurt, pureed soup beans
starches, breads, and cereals (6-11 servings/ day)	oatmeal, Cream of Wheat, rice cereal, grits, pancakes, mashed potatoes with gravy, whipped sweet potatoes, baked potato without skin, canned yams
fruits (2-4 servings/day)	applesauce, soft baked apples without peel, banana, pureed fruit
vegetables (3-5 servings/day)	pureed vegetables, plain vegetable soufflé
soups	strained soups thickened to proper consistency
desserts	pudding, cheesecake without crust
condiments	margarine, butter, artificial sweetener, sugar, honey, syrup, gravy, sour cream, cream cheese, cheese sauce, ketchup, mustard, steak sauce, mayonnaise, herbs, spices

Dysphagia Diet Level IV

Rationale: This diet is for patients whose oral skills have improved to the point that they can chew and form a bolus with many foods. It is based on a mechanical soft diet and the foods should maintain a cohesive texture. These patients would still be at risk with thin liquids and mixed consistency foods.

Description: Textures are soft with no tough or stringy foods. In addition, no nuts, seeds, or raw foods are allowed. Meats should be ground. All liquids should be thickened.

Nutritional Adequacy: This diet provides nutritional adequacy as indicated by the Recommended Dietary Allowances, depending upon amount consumed.

Food Group	Foods Allowed	Foods to Avoid
beverages/milk	as advised	as advised
meats and meat substitutes (4-6 servings/day)	ground meats, scrambled eggs, fried eggs, poached eggs, hard-boiled eggs, plain baked fish, breaded baked fish, tuna fish, tuna fish salad, salmon loaf, chicken salad, macaroni and cheese, cottage cheese, pimiento cheese, cheese slices, blended yogurt, casseroles made with appropriate ingredients	stringy meats and cheese, fried meats, dry meat, tough meats, sausage, bacon, hot dogs, peanut butter
starches, breads, and cereals (6-11 servings/day)	all hot cereals, pancakes, waffles, doughnuts, muffins, biscuits, corn bread, crackers, all potatoes (no skin), noodles, pasta	cold cereals containing nuts or dried pieces of fruit, bread, bagels, English muffins, French toast, dinner rolls, rice
fruits (2-4 servings/day)	canned pears, peaches, apricots, applesauce, soft baked apples (no peel), apple slices (no peel), bananas, strawberries, blueberries, cherries, stewed prunes	fresh fruit and berries not listed, dried fruits, fruit cocktail, mixed fruit salad, citrus sections, grapes, raisins
vegetables (3-5 servings/day)	soft-cooked vegetables drained well, soufflés, corn pudding, beans, winter squash, casseroles made with appropriate ingredients	salads; coleslaw; mixed vegetables; corn; tomatoes; succotash; sauerkraut; yellow squash; and raw, steamed crunchy vegetables
soups	creamed soups	all other soups, broth
desserts	pudding; ice cream; sherbet; frozen yogurt; cream pies; cheesecake; pies or cobblers made with allowed fruits; soft cookies; chocolate, butterscotch, and caramel sauces	cakes, hard cookies, Jell-O, hard candy, chewing gum, chewy desserts
condiments	margarine, butter, sugar, artificial sweetener, honey, syrup, jelly, jam, sour cream, cream cheese, cheese sauce, gravy, mustard, ketchup, mayonnaise, steak sauce, barbecue sauce, herbs, spices	nuts, coconut, seeds, olives, pickles, relishes, stringy cheese sauce, any foods not listed

Dysphagia Diet Level V

Rationale: This diet is very similar to Level IV, but is designed for patients who are safe with thin liquids.

Description: Textures are soft with no tough or stringy foods. In addition, no nuts; seeds; raw, crisp, or deep-fried foods are allowed.

Nutritional Adequacy: This diet is designed to provide an adequate quantity of nutrients as indicated by the Recommended Dietary Allowances, depending upon amount consumed.

Food Group	Foods Allowed	Foods to Avoid
beverages/milk	all allowed	none
meats and meat substitutes (4-6 servings/day)	ground meat, eggs, macaroni and cheese, meat loaf, baked fish, salmon loaf, tuna fish, tuna fish salad, cheese slices, cottage cheese, pimiento cheese, grilled cheese, yogurt, chicken salad, casseroles made with appropriate ingredients	fried, dry, tough, stringy meats; peanut butter; melted stringy cheese; sandwiches not listed
starches, breads, and cereals (6-11 servings/day)	all hot cereals, dry cereals not containing nuts or dried fruit pieces, pancakes, waffles, muffins, biscuits, corn bread, doughnuts, crackers, noodles, pasta, rice, stuffing, dumplings, potatoes (no skin), bread, toast, dinner rolls	dry cereals containing nuts or dried fruit, granola, bagels, English muffins, muffins containing nuts, bread sticks, French bread
fruits (2-4 servings/day)	canned fruits, soft baked apples (no peel), citrus sections, cherries, congealed fruit salads, apple wedges (no peel), bananas, strawberries, blueberries, stewed prunes, melons, flaked coconut	fresh fruits and berries not listed, raisins, dried fruits
vegetables (3-5 servings/day)	soft-cooked vegetables, soufflés, beans, corn, summer squash, winter squash, chopped spinach and greens, mixed vegetables, tomatoes, sauerkraut, casseroles made with appropriate ingredients	raw, crisp, crunchy vegetables; salads; cole slaw
soups	all allowed	none
desserts	soft cookies; pudding; ice cream; sherbet; Jell-O; cake; cheesecake; cream pies; fruit pies or cobblers made with allowed fruits; chocolate, caramel, or butterscotch sauces	hard cookies, hard candy, chewing gum, chewy desserts
condiments	margarine, butter, sugar, artificial sweetener, honey, syrup, jelly, sour cream, cream cheese, cheese sauce, gravy, mustard, ketchup, mayonnaise, steak sauce, barbecue sauce, relishes, herbs, spices	nuts, olives, pickles, stringy cheese sauce, seeds, jams, popcorn, chips

Appendix E: Competency Validation Tool

Name:_____ Unit:_____ SLP:_____

Objective: To provide the patient with a clear airway before, during, and after swallowing evaluations and treatment, as well as during the use of Passy-Muir Valves.

CRITICAL BEHAVIORS	SUCCESSFULLY MET			
	YES	DATE/ INITIALS	On The Job	Simulation
1. Collect necessary equipment to perform suctioning.				
2. Explain purpose of procedure.				
3. Position the patient appropriately.				
4. Turn on suction equipment and set vacuum regulator to correct negative pressure.				
5. Wash hands.				
6. Put on non-sterile gloves.				
7. Remove yaunker from the suction unit.				
8. Open sterile catheter package on clean surface.				
9. Set up sterile solution container on sterile field and fill with sterile water.				
10. Place sterile gloves over non-sterile gloves.				
11. Connect vacuum tubing from suction unit to catheter.				
12. Lubricate catheter by dipping it into sterile water, then grasp air entrainment adapter with one hand.				
13. Hyperoxygenate patient with 100% O_2 for 1 minute. If not on vent, instruct patient to take deep breaths.				
14. Expose the airway.				
15. Hold catheter by connecting tubing, turn catheter until natural curve points in direction of bronchus to be suctioned.				
16. Insert catheter into tracheobronchial tree without application of suction until resistance met.				
17. Instruct patient to cough to allow catheter to pass into trachea.				
18. Apply suction while rotating and withdrawing catheter.				
19. Hyperoxygenate patient before repeating.				
20. Allow patient to rest.				
21. If cuff is inflated, deflate and follow procedures 14-20 again.				
22. Monitor patient's respiratory status.				
23. Perform oral-pharyngeal suctioning following lower airway suctioning.				
24. Discard gloves and suctioning supplies.				
25. Wash hands.				
26. Reassess patient's respiratory system for expected and unexpected outcomes.				
27. Document procedure in patient's record.				

Comments:_____

*Validation signature documents direct observation of criteria in accordance with hospital policy and procedure.

Initials	Signature/Title	Initials	Signature/Title