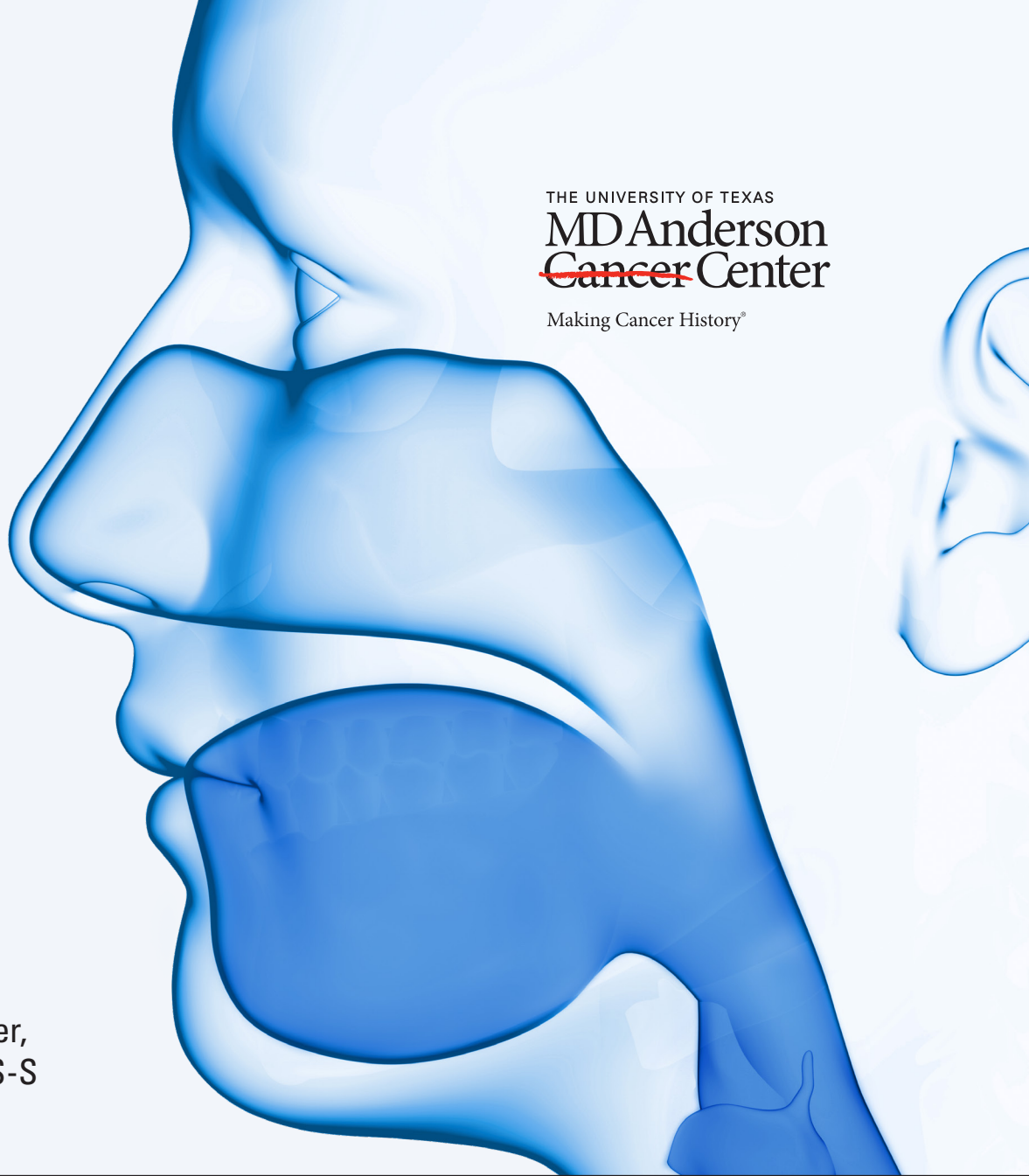


# DIGEST™ | FEES

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~~Cancer Center~~  
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The DIGEST methodology was initially developed for use in videofluoroscopic swallowing studies or modified barium swallow (MBS) studies, however many swallowing clinicians also use flexible endoscopic evaluations of swallowing (FEES) in their clinical practice. Given the lack of a similar grading scale for use with FEES studies, the DIGEST methodology was adapted for use in FEES. DIGEST-FEES has shown similar validity and reliability to DIGEST<sup>1</sup> The overall intent of DIGEST-FEES is consistent with the original method for videofluoroscopy:

**to provide an overall rating of safety, efficiency, and pharyngeal impairment.**


In this section we will discuss differences in DIGEST-FEES relative to videofluoroscopy and provide rating details specific to FEES.

**The primary difference in DIGEST-FEES relates to residue estimation for Efficiency grading.**

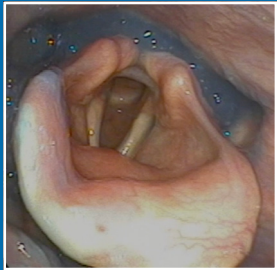
Pharyngeal residue uses a different operating definition and thresholds in DIGEST-FEES as will be discussed below. Otherwise, the same operational definitions, framework, logic of the decision tree, PAS and residue modifiers, bolus protocol and administration guidelines apply to DIGEST-FEES as detailed in the primary DIGEST manual for videofluoroscopy. To avoid redundancy, FEES raters are referred to the primary manual for these details.

► **FIGURE 1. SUMMARY OF DIGEST™ - FEES**

**Step 1:**  
SLP rates pharyngeal bolus clearance on all bolus trials in a standardized MBS protocol



**Swallow Safety**  
Per patterns of penetration-aspiration events (rated by Penetration-Aspiration Scale)



**Swallow Efficiency**  
Per patterns of post-swallow pharyngeal residue

**Step 2:**  
SLP applies DIGEST-FEES criteria per flowsheet below to derive DIGEST-FEES grade (Starmer H, et al, JSLHR, 2021)

Project: \_\_\_\_\_ Rater: \_\_\_\_\_ Video Identifier: \_\_\_\_\_

**DIGEST-FEES™@2**

**Safety Grade**

**Maximum Penetration-Aspiration Scale Score**  
-Maximum PAS score over all bolus trials  
-Rate based on liquid, pudding, and solid (cracker/cookie) bolus presentations  
-Do NOT rate a bolus trial after strategies were applied

**PAS-1-2**  
No PAS or flash pen above TVF → Grade 0

**PAS-3-4**  
Silent pen above TVF or flash pen to TVF  
Single event → Grade 0  
Intermittent or chronic → Grade 1

**PAS-5-6**  
Silent pen to TVF or flash asp  
Single event, not gross → Grade 1  
Intermittent or chronic → Grade 2

**PAS-7-8**  
Not cleared, silent or serrate  
Single event, not gross → Grade 1  
Intermittent, not gross → Grade 2  
Chronic, not gross → Grade 3  
Gross, not chronic → Grade 3  
Chronic and gross → Grade 4

**Frequency/pattern of PAS**  
If **max PAS ≥ 5** select how frequently the maximum PAS range: 3-4, 5-6 or PAS 7-8 occurred:  
 Single event  
 Single+ (max PAS 7-8 only)  
 Intermittent (on multiple but <50% of trials on a single consistency)  
 Chronic (majority [≥50%] of thin liquid trials and/or on >1 consistency)

**Amount of PAS**  
If **max PAS ≥ 5** amount of barium on or below TVF based on worst performance on any single bolus:  
 Trace (resembles faint coating, droplets or trickle of barium on/below TVF)  
 Neither trace nor gross  
 Gross (>25% of bolus volume)

**Efficiency Grade**

**Maximum Percent of Pharyngeal Residue (% PR)**  
-Maximum estimated percentage (proportion) of bolus residue in pharynx over all bolus trials  
-Rate based on liquid, pudding, and solid (cracker/cookie) bolus presentations  
-Rate based on estimated percent of pharyngeal residue after initial swallow attempt of each bolus  
-Do NOT rate based on oral residue  
-Do NOT rate a bolus trial after strategies were applied

**% PR: < 10%** → All bolus types presented → Grade 0

**% PR: 10-33%** → Any bolus type (liquid, pudding, and/or cracker/cookie) → Grade 1

**% PR: 34-66%**  
Solids only (cracker and/or cookie) → Grade 2  
Liquid and/or pudding → Grade 3

**% PR: > 66%**  
Any (but not all) bolus types presented → Grade 3  
All bolus types presented → Grade 4

**Pattern of Residue**  
(Across liquid, pudding, or cracker/cookie bolus types)

DIGEST Score (Interaction of Assigned Safety and Efficiency Grades)					
	S0	S1	S2	S3	S4
E0	0	1	2	3	3
E1	1	1	2	3	3
E2	1	2	3	3	3
E3	2	2	3	3	4
E4	3	3	3	4	4

1 = Mild      2 = Moderate      3 = Severe      4 = Life threatening

1 = mild, 2 = moderate, 3 = severe, 4 = life threatening/profound

## RATING PARAMETERS FOR SAFETY

DIGEST-FEES was developed in alignment with DIGEST™ v2, and the flowsheet for Safety rating in DIGEST-FEES matches the version 2 DIGEST flowsheet for modified barium swallow (MBS) study identically. There are no operational differences (relative to MBS) for rating Safety (See DIGEST Manual - Safety Grade, Page 7). This section will review considerations for determining penetration-aspiration scores (PAS) specific to FEES.

First it is important to define the boundaries of the laryngeal vestibule that constitute **laryngeal penetration**. These boundaries were established by an expert panel based upon prior definitions provided by FEES developer, Susan Langmore (Personal communication, DIGEST-FEES consensus meeting July 2019). Specifically, when considering where on the rim of the laryngeal surface of the epiglottis the airway is breached, the rater should consider:

**whether gravity would likely pull the material into or out of the larynx.**

If it is likely gravity would pull the material deeper into the laryngeal vestibule,

**it is considered penetration.**

Similarly, when considering the aryepiglottic folds, arytenoids, and interarytenoid space, the rater should consider the likely effect of gravity on the material. Graphically, anything inside the black border depicted in the image below would be considered supraglottic penetration (e.g. PAS 2-5 (Figure 2)).

### ► FIGURE 2. LARYNGEAL VESTIBULAR BOUNDARIES FOR PENETRATION



## “ON-THE-CUSP” PENETRATION/ASPIRATION RATINGS

### When penetration/aspiration seems to occur because of verbal clinician cues.

Because PAS is not scored for DIGEST methods after compensations are cued by the clinician, penetration/aspiration events altered by clinician cueing are also not considered for DIGEST-FEES ratings.

When the clinician cues the patient to cough too quickly to observe the natural airway clearance, it will make it more difficult to accurately determine PAS (and Safety grades). The rater only scores PAS based on what is observed before the cue to cough was given.

- Scenario: Patient is presented with a cup sip of thin liquid and aspirates; the patient is immediately prompted to cough prior to any spontaneous cough (early clinician cue leads to potentially inflated PAS score)
- Rating: Score as a PAS of 8. (This scenario highlights the importance of allowing some time to determine what a patient’s actual response to aspiration events may be and not cueing too quickly)

### When you can't get ideal subglottic visualization but suspect aspiration.

This is a challenging scenario, particularly when trying to visualize aspiration in the posterior trachea. Here the clinician must rely on clinical judgment to best estimate the bolus path. If it is clear that material has travelled through the inter-arytenoid space to the level of the true vocal folds and the patient coughs up material that has evidence of colored contrast, it would be appropriate to deduce that aspiration likely occurred. It must be emphasized, however, that such deductions are based on visualization of the bolus into the path of the subglottic airway with visualization of subsequent ejection of bolus from the lower airway. *A cough alone is not adequate evidence to presume aspiration.*

- Scenario: Patient is presented with a cup sip of thin liquids and the bolus is observed to track through the interarytenoid space to the level of the glottis. The patient coughs up a contrast- tinted bit of mucous.
  - Rating: Score as a PAS of 6 if there is no further evidence of contrast within the trachea.
- Scenario: Patient is presented with a cup sip of thin liquids. No material is noted to enter the laryngeal vestibule. The patient coughs after the swallow.
  - Rating: Score as a PAS of 1 since there is no visible evidence of airway infiltration.

## PAS: WHEN IT'S MESSY

### When bolus material in airway from a prior episode of penetration/aspiration is not cleared prior to subsequent trial

Here, the clinician needs to make their best judgement about whether new material has accumulated in the laryngeal vestibule.

- Scenario: Patient has a trace coating of puree residue in the superior aspect of the laryngeal vestibule after the first puree bolus. After the second puree bolus, there is a visible increase in residue in the superior laryngeal vestibule.
  - Rating: Score the first puree bolus as PAS 3 and the second puree bolus as PAS 3 as there was evidence of new uncleared penetration with each bolus trial.
- Scenario: Patient has a trace coating of puree residue in the superior aspect of the laryngeal vestibule after the first puree bolus. After the second puree bolus there is no appreciable increase in residue. (visible bolus residue decreases or stays same)
  - Rating: Score the first puree bolus as PAS 3 and the second puree bolus as PAS 1 as there was no evidence of additional penetration on the second puree trial. (Do not double count residue from prior bolus)

### Aspiration of secretions versus bolus material. When it is hard to tell.

There are times when there is a glistening in the tracheal region that is not obviously dyed (blue/white/green, etc.), but also not clear. In this circumstance, the rater is encouraged to consider bolus trials that have been given, and the pattern of any prior airway entry and residue to judge the likelihood that the material in the subglottic region is truly part of a prior bolus. This highlights the importance of appropriately coloring boluses, particularly those that are thin liquids. Adding a drop of white and blue food coloring may help to distinguish the difference between bolus and secretions.

- Scenario: Patient has completed all thin liquid bolus trials and had two episodes of penetration to the true vocal folds across all trials. Just prior to administering a puree bolus, the clinician observes a slightly blue tinted glisten in the subglottic region.
  - Rating: Score the last thin liquid trial as PAS 8 as it is reasonable to deduce that this glisten reflects delayed aspiration from the prior penetration events.
- Scenario: Patient has completed all thin liquid bolus trials with PAS scores of 1 for all and no residue pooling in the pharyngeal recesses. Just prior to administering a puree bolus the clinician observes a slight glisten in the subglottic region.
  - Rating: Score all liquid trials as PAS 1 as there is no visible evidence that airway infiltration has occurred.

### When there is a cough without visualization of penetration or aspiration.

Many things may result in a cough, including the presence of the scope itself. A cough should not be assumed to reflect penetration or aspiration and should not be considered in isolation as evidence of airway entry when assigning PAS scores.

- Scenario: Patient is given a 10cc thin liquid bolus and penetration is noted to the level of the vocal folds with an immediate cough and ejection of the material.
  - Rating: Score as a PAS of 4.
- Scenario: Patient is given a 10cc thin liquid bolus and no penetration or aspiration is observed. The patient coughs prior to the next bolus trial.
  - Rating: Score as a PAS of 1 since there is no visible evidence of airway infiltration.

### How to judge a swallow when there is not complete white out.

In situations where the pharyngeal swallow is very weak, you may see a “pink out” or no white out at all due to lack of pharyngeal constriction and apposition of the base of tongue to the pharyngeal wall. When there is a lack of a white out, the clinician must make their best judgement about whether a swallow has occurred. Consider movement of other structures within the visualized field. For example, you may see a slight rise in the larynx, adduction of the arytenoids, or vocal fold closure.

- Scenario: A patient is given a 5cc thin liquid bolus which enters the pharynx without white out noted. The clinician observes superior movement of the laryngeal vestibule and slight constriction of the pharynx.
  - Rating: Rate this as a swallow despite lack of white out.
- Scenario: A patient is given a 5cc thin liquid bolus which enters the pharynx without white out noted. There is no discernable movement of the structures of the larynx and pharynx.
  - Rating: Do not rate as a swallow given the lack of any movement.

## RATING RESIDUE AND EFFICIENCY GRADE WITH DIGEST™ - FEES

DIGEST-FEES was developed in alignment with DIGEST™ v2. The flowsheet logic for estimating Efficiency is conceptually very similar, but not identical between videofluoroscopy and FEES. Two primary differences for DIGEST-FEES Efficiency grading on FEES (relative to videofluoroscopy) are:

- Operational definitions for how to grade residue
- Cut-points for residue

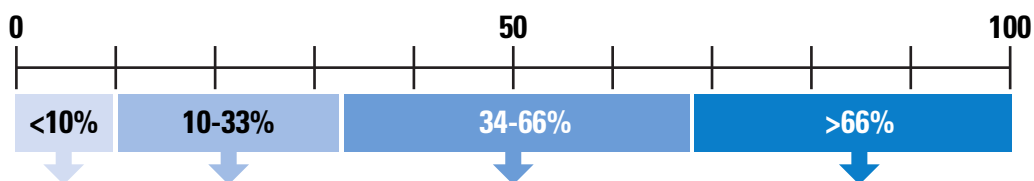
Operational definitions for estimating residue from FEES (as the base measure for DIGEST Efficiency) are by necessity different, as you cannot visualize what portion of the bolus has entered the esophagus during a FEES exam. For DIGEST-FEES, the rater instead asks, “overall how much residue do you see?” This rating should take into consideration the size of the bolus as well as the size of the pharyngeal recesses.

Imagine marking a line on a visual analog scale from 0 to 100 to answer the question:

**“overall, how much residue do you see?”**,

then select the degree of residue after the initial swallow of each bolus:

- <10%
- 10-33%
- 34-66%
- 66%

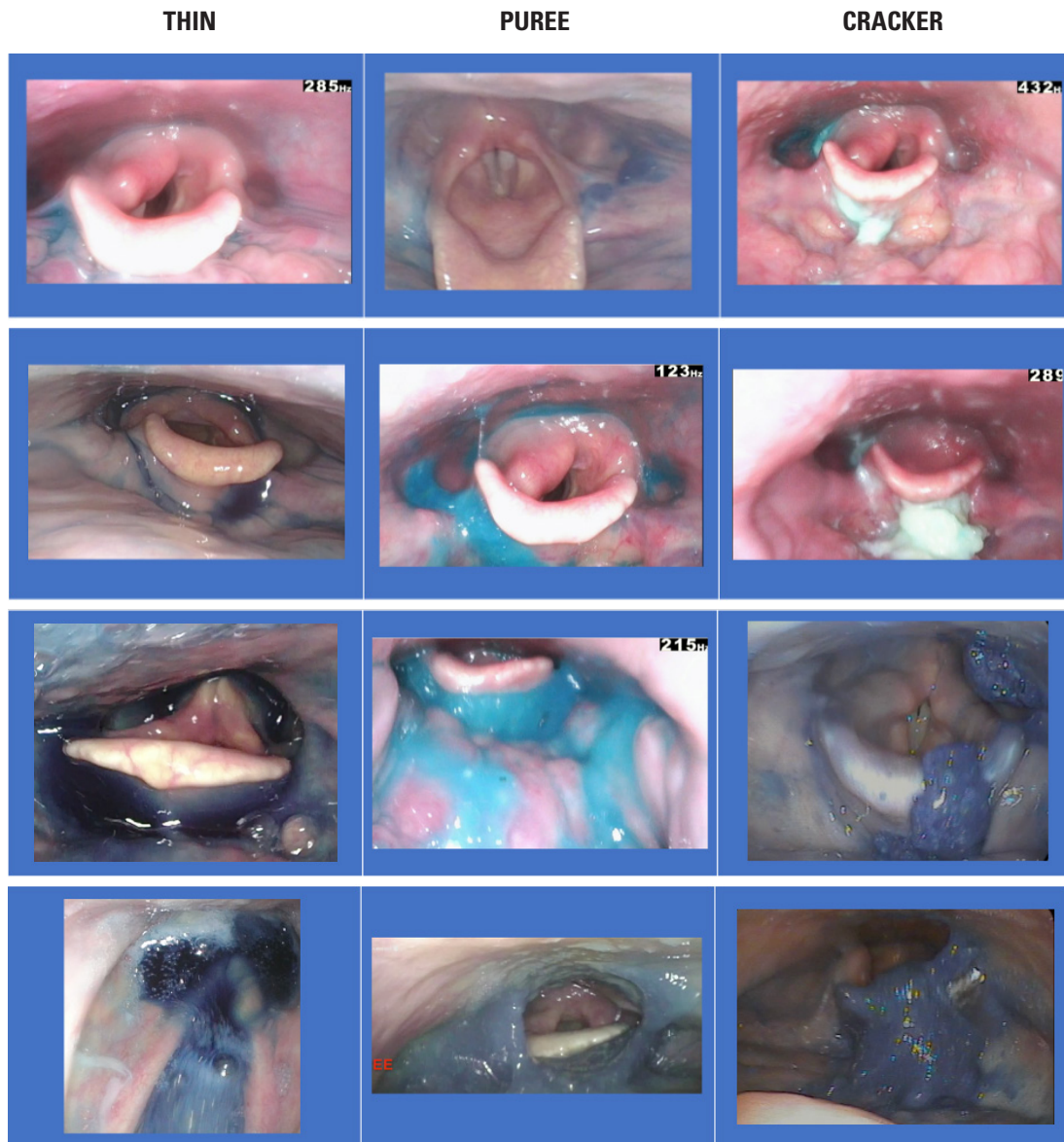




## DEVELOPMENT OF DIGEST™ – FEES RESIDUE CONVERSION

From the conception of DIGEST-FEES, it was clear that we would need to adapt residue rating rules since we are unable to estimate what proportion of the bolus has entered the esophagus on FEES (as is the operating standard for residue estimation for DIGEST). Methods to adapt DIGEST to DIGEST-FEES have been described<sup>2</sup>, and here briefly we summarize the consensus process for residue rules. Different FEES residue scales had been previously described in the literature<sup>3</sup>, however none were an optimal match for use with DIGEST-FEES. For instance, both the Boston Residue and Clearance Scale and the Yale Pharyngeal Residue Rating Scale involve estimating residue based on the filling of anatomical recesses such as the vallecula and pyriform sinuses<sup>4</sup>. These approaches resulted in two distinct issues; first that they were specific to these spaces rather than providing an overall severity rating and second, that in patients with head and neck cancers, these spaces may be obliterated by edema or otherwise changed due to tumor or surgical resections. Thus, these approaches, while beneficial for other indications did not meet the needs of DIGEST-FEES for providing residue severity ratings in a head and neck cancer population. Dr Jessica Pisegna’s work<sup>5</sup> on optimizing residue ratings for FEES demonstrated that a visual analogue scale with a prompt of “how much residue do you see” yielded the most overall reliable residue ratings. As this method scales to differences in bolus type and size regardless of the size of pharyngeal spaces available, it was judged to provide the most appropriate method for DIGEST-FEES. This decision was endorsed by a panel of expert clinician-researchers. The cut points were chosen to represent normal, mild, moderate, and severe levels of residue.

► **FIGURE 3. EXAMPLES OF RESIDUE RATINGS**



Aside from Efficiency rating (residue estimation), other rules for DIGEST rating are consistent, regardless as to whether the swallow is assessed with a modified barium swallow study or endoscopy.

## RATING PARAMETERS FOR EFFICIENCY

### How is the initial swallow defined?

To maintain the consistency and reliability of the DIGEST-FEES scale, it is critical to ensure a standard definition of when to rate and what the anatomic boundaries are for rating. Unlike the modified barium swallow study, at times when performing FEES it can be challenging to visualize pharyngeal residue immediately after the primary swallow due to coating on the endoscope or other visualization challenges. If this occurs, the rater should estimate residue at the first point where the pharynx is able to be visualized. Another important consideration for rating residue is when a patient swallows using a piecemeal pattern, where they parse a bolus into multiple swallows. When this occurs, the rater must try to determine which was the primary swallow when the majority of the bolus is propelled into the pharynx and rate after that swallow only.

- Scenario: A patient is given a puree bolus trial, and it is clear after the initial swallow that there is no residue in the pharynx.
  - Rating: Rate residue as <10%.
- Scenario: A patient is given a puree bolus trial and piecemeals it into two boluses, the first of which appears to be the primary bolus. After that the 1st swallow there is a mild degree of residue noted in the vallecula (~25%); more bolus is then transferred to the pharynx before a 2nd swallow – after the 2nd swallow, minimal residue is visible (<10%)
  - Rating: Rate residue after the initial swallow as 10-33%.

## “ON-THE-CUSP” RESIDUE RATING

### Requiring multiple swallows to reestablish adequate visualization.

It is not uncommon to have periods of difficulty obtaining clear visualization after the first swallow on FEES, particularly in cases where there is significant pharyngeal residue. In circumstances where you cannot see the pharynx clearly after the initial swallow, assign your residue score as soon as you are able to adequately judge the amount of residue in the pharynx.

- Scenario: After the initial swallow of a bolus, the endoscope is coated with bolus material and the pharynx is not visible. The patient swallows a second time, and the endoscope clears - when visualization is reestablished, there is a mild degree of residue in the vallecula (~25%).
  - Rating: Rate residue as 10-33% because residue is estimated at 25% when visualization was reestablished.

## RESIDUE: WHEN IT'S MESSY

### After the primary bolus is swallowed additional material enters the pharynx.

When the pharynx is clear (including the base of tongue region) and a small amount of additional bolus material enters the pharynx after the primary swallow that appears to be from oral cavity residue, it is not included in the residue rating for that bolus.

- Scenario: A patient is given a puree bolus and swallows it with no discernable residue present. Several seconds later a small amount of debris slides down from the oral cavity along the tongue base.
  - Rating: Rate residue as <10% as the bolus was cleared with the primary swallow. The material entering later is not considered in your rating.

**When residue from one bolus is not cleared prior to the next bolus.**

Similar to the above discussion regarding penetration/aspiration, it can be difficult at times to judge what is old residue and what is new residue. The rater must estimate to the best of their ability what proportion of the residue is new versus old based on amount and location of residue. At times this may be easier to do due to changing types of the bolus, however within a bolus type (e.g., multiple trials of thin liquid), this can be a challenging judgement to make.

- Scenario: A patient is given two puree boluses. After the first bolus trial residue in the vallecula is judged to be 10-33% and does not clear prior to the second bolus. After the second bolus trial the amount in the vallecula has substantially increased to 33-66% and there is now additional bolus material in the pyriform sinuses.
  - Rating: Rate the first bolus as 10-33% and the second bolus as 33-66% due to the increase in amount of residue.
- Scenario: A patient is given two puree boluses. After the first bolus trial residue in the vallecula is judged to be 10-33% and does not clear prior to the second bolus. After the second bolus trial the amount in the vallecula appears to be the same as it was after the first bolus trial.
  - Rating: Rate the first bolus as 10-33% and the second bolus as <10% as there is no evidence of additional residue accumulation.

**Judging residue when there is substantial internal edema obliterating pharyngeal recesses.**

When the pharyngeal recesses are obliterated by edema or other structural anomalies, it is easy for residue to appear as more severe. Raters need to take into consideration the size of the bolus presented in relation to the estimated amount of material remaining in the pharynx, keeping in mind that residue may appear more severe when there is limited space in which that residue may dwell.

- Scenario: A patient is given a 5cc thin liquid bolus. The pyriform sinuses are normal in appearance and there is a trace amount of residue in this region.
  - Rating: Rate residue as <10%
- Scenario: A patient is given a 5cc thin liquid bolus. The pyriform sinuses are obliterated by edema of the posterior larynx and pharynx. There is a trace amount of material which is noted to spill through the interarytenoid space.
  - Rating: While the consequences from a safety perspective are higher in this scenario, if the amount of residue remains a trace amount, score residue as <10%. The airway infiltration will be reflected in the safety grading for that bolus.

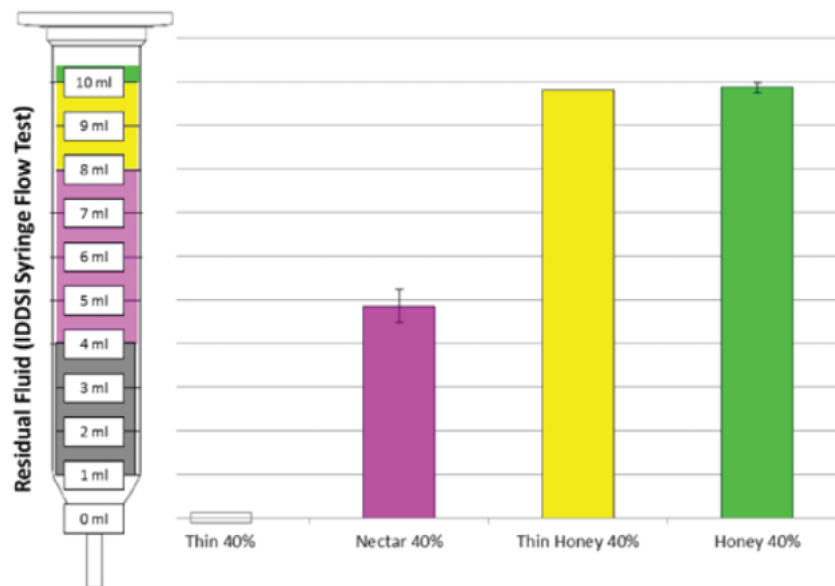


## FEES BOLUS PROTOCOL

The recommended bolus protocol for DIGEST-FEES is identical to DIGEST for the modified barium swallow study. It is recognized that many clinicians use FEES as a more “pragmatic” tool meant to more closely mirror normal eating. For the DIGEST-FEES rating to be valid, the user must adopt a standard bolus protocol that aligns to the minimum bolus set suggested for DIGEST. Additional trials administered outside the standard protocol or with compensation are not considered as part of DIGEST-FEES ratings. All boluses should have color-contrast added for visualization, however, the DIGEST-FEES method does not mandate whether this be blue, green, or white dye.

The FEES bolus protocol used in the validation study included liquids aligned to the International Dysphagia Diet Standardisation Initiative (IDDSI, <https://iddsi.org/framework/>) as follows:

- 2 trials 5mL thin liquid (IDDSI level 0 equivalent)
- 2 trials 10mL thin liquid (IDDSI level 0 equivalent)
- 2 trials self-administered cup sips thin liquid (IDDSI level 0 equivalent)
- 2 tsp. trials puree (IDDSI level 4 equivalent)
- 2 bites cracker or cookie (IDDSI level 7 equivalent)
- Nectar (IDDSI level 2 equivalent) or honey (IDDSI level 3 equivalent) thick liquids administered as clinically indicated and included in DIGEST-FEES score when given



© The International Dysphagia Diet Standardisation Initiative 2016 @<https://iddsi.org/framework/>.

## FAQ'S FOR DIGEST™ - FEES

### ***Q: How do I rate when a patient chugs from a cup despite cue to take a single swallow?***

When a patient takes multiple sequential swallows, the final swallow should be rated. This is consistent with DIGEST and MBS-ImP rating rules.

### ***Q: How do I rate when the first swallow is not the primary bolus?***

In cases when it is clear that the first swallow did not represent the primary bolus, you would rate only that swallow which is the primary bolus.

### ***Q: How do I score when a patient piecemeals the bolus?***

When piecemeal swallowing is noted, the rater must judge which swallow was the primary bolus. Only that primary swallow should be rated.

## REFERENCES

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3. Kaneoka, A. S., Langmore, S. E., Krisciunas, G. P., Field, K., Scheel, R., McNally, E., Walsh, M' J., O'Dea, M. B., & Cabral, H. (2013). The Boston Residue and Clearance Scale: preliminary reliability and validity testing. *Folia phoniatria et logopaedica : official organ of the International Association of Logopedics and Phoniatics (IALP)*, 65(6), 312–317.
4. Pisegna, J. M., Kaneoka, A., Coster, W. J., Leonard, R., & Langmore, S. E. (2020). Residue Ratings on FEES: Trends for Clinical Application of Residue Measurement. *Dysphagia*, 35(5), 834–842.

Pt ID:  
 FEES date:  
 Clinician/Rater:

**Instructions:**

1. Score Penetration-Aspiration Scale (PAS) and percent residue for each bolus trial in Table 1 (Page 1).
2. Assign Safety and Efficiency Grades (circle your response on Page 2).
3. Assign DIGEST score (circle your response on Page 2).

**Penetration-Aspiration Scale (PAS)**

**I. When to rate PAS:** Assign a PAS rating for each bolus trial based on all swallow attempts for that bolus

**II. PAS Scores** (Rosenbek, 1996):

- 1 Material does not enter the airway
- 2 Material enters the airway, remains above the vocal folds, and is ejected (no residue)
- 3 Material enters the airway, remains above the vocal folds and is NOT ejected from the airway (visible residue remains)
- 4 Material enters the airway, contacts the vocal folds, and is ejected from the airway (no residue)
- 5 Material enters the airway, contacts the vocal folds and is NOT ejected from the airway, (visible residue remains)
- 6 Material enters the airway, passes below the vocal folds and is ejected into the larynx or out of the airway (no subglottic residue visible)
- 7 Material enters the airway, passes below the vocal folds, and is NOT ejected from the trachea despite effort (visible subglottic residue)
- 8 Material enters the airway, passes below the vocal folds, and NO effort is made to eject the material (visible subglottic residue)

Do not score penetration/aspiration for a bolus trial after strategies are cued (e.g., cued throat clear, chin tuck, etc).

Source: Rosenbek, J. C., Robbins, J. A., Roecker, E. B., Coyle, J. L., & Wood, J. L. (1996). A penetration-aspiration scale. *Dysphagia*, 11(2), 93-98.

**Pharyngeal Residue**

**When to rate residue:** Judge pharyngeal residue after the completion of the 1st swallow. The amount of residue after the initial/primary swallow is the basis for the score, regardless of how much residue is left after any additional clearing swallows or strategies. The first swallow is the initial or primary swallow of a bolus after oral transfer (not spill) to the pharynx. Do not include residue from prior bolus trials in the estimation of residue.

Start Time/ Frame MM: SS		Penetration/Aspiration	PAS Amount t=trace n=neither g=gross	Pharyngeal Residue	Not evaluable	Not given
	Thin	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
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	Thin	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
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	Thin	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Nectar	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Nectar	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Nectar	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Honey	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Honey	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Honey	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Pudding	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Pudding	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Cracker	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	Cracker	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		
	MAX	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8	<input type="checkbox"/> t <input type="checkbox"/> n <input type="checkbox"/> g	<input type="checkbox"/> <10% <input type="checkbox"/> 10-33% <input type="checkbox"/> 34-66% <input type="checkbox"/> >66%		

Project:

Rater:

Video Identifier: \_\_\_\_\_

**DIGEST-FEES™<sub>v2</sub>**

**Safety Grade**

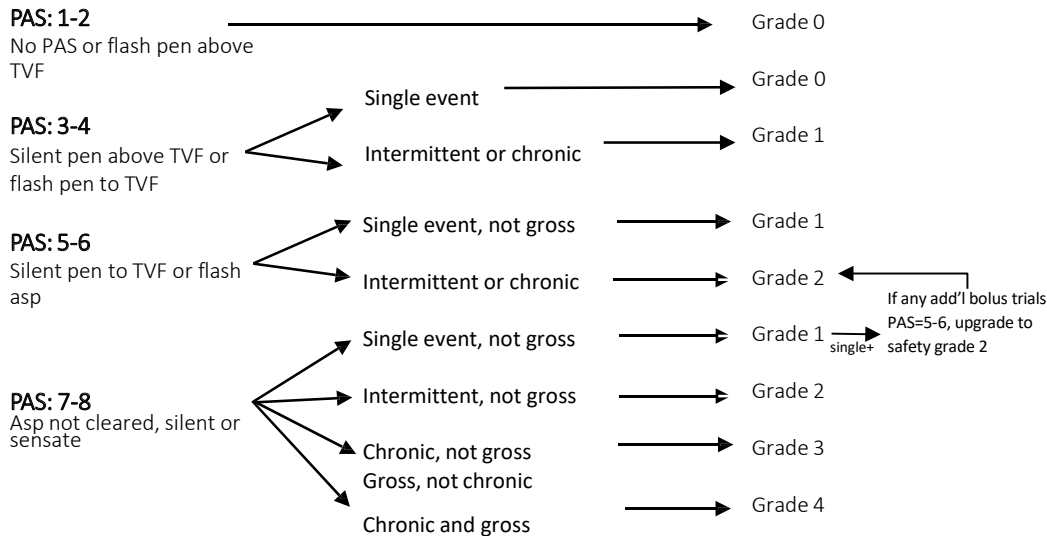
**Maximum Penetration-Aspiration Scale Score**  
 - Maximum PAS score over all bolus trials

-Rate based on liquid, pudding, and solid (cracker/cookie) bolus presentations

-Do NOT rate a bolus trial after strategies were applied

**PAS Modifiers**  
 (Frequency/amount of PAS)

**Safety Grade**



Frequency/pattern of PAS If <b>max PAS ≥3</b> , select how frequently the maximum PAS range 3-4, 5-6 <u>or</u> PAS 7-8 occurred:	Amount of PAS If <b>max PAS ≥5</b> , amount of barium on or below TVF based on worst performance on any single bolus:
<input type="checkbox"/> Single event <input type="checkbox"/> Single+ (max PAS 7-8 only) <input type="checkbox"/> Intermittent (on multiple but <50% of trials on a single consistency) <input type="checkbox"/> Chronic (majority [≥50%] of thin liquid trials and/or on >1 consistency)	<input type="checkbox"/> Trace (resembles faint coating, droplets or trickle of barium on/below TVF) <input type="checkbox"/> Neither trace nor gross <input type="checkbox"/> Gross (> 25% of bolus volume)

**Efficiency Grade**

**Maximum Percent of Pharyngeal Residue (% PR)**  
 - Maximum estimated percentage (proportion) of bolus residue in pharynx over all bolus trials

- Rate based on liquid, pudding, and solid (cracker/cookie) bolus presentations

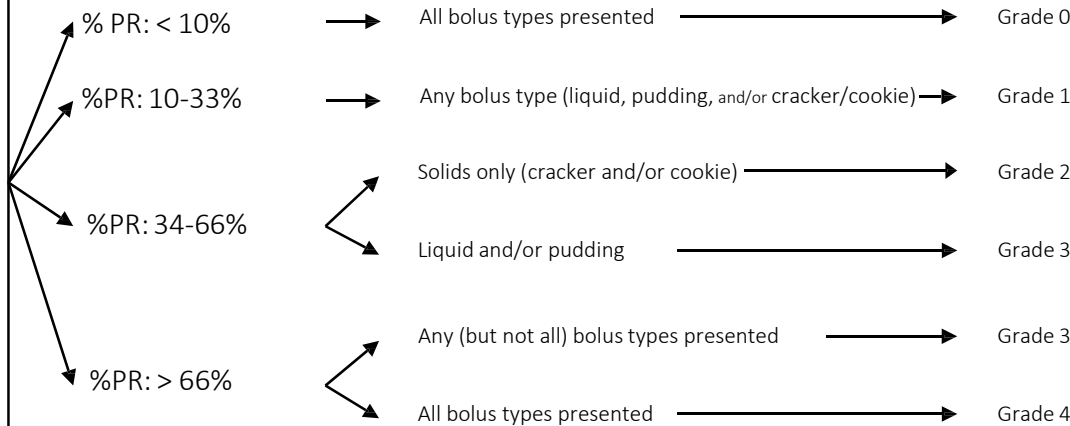
- Rate based on estimated percent of pharyngeal residue after initial swallow attempt of each bolus

- Do NOT rate based on oral residue

- Do NOT rate a bolus trial after strategies were applied

**Pattern of Residue**  
 (Across liquid, pudding, or cracker/cookie bolus types)

**Efficiency Grade**



DIGEST Score (Interaction of Assigned Safety and Efficiency Grades)					
	S0	S1	S2	S3	S4
E0	0	1	2	3	3
E1	1	1	2	3	3
E2	1	2	2	3	3
E3	2	2	3	3	4
E4	3	3	3	4	4

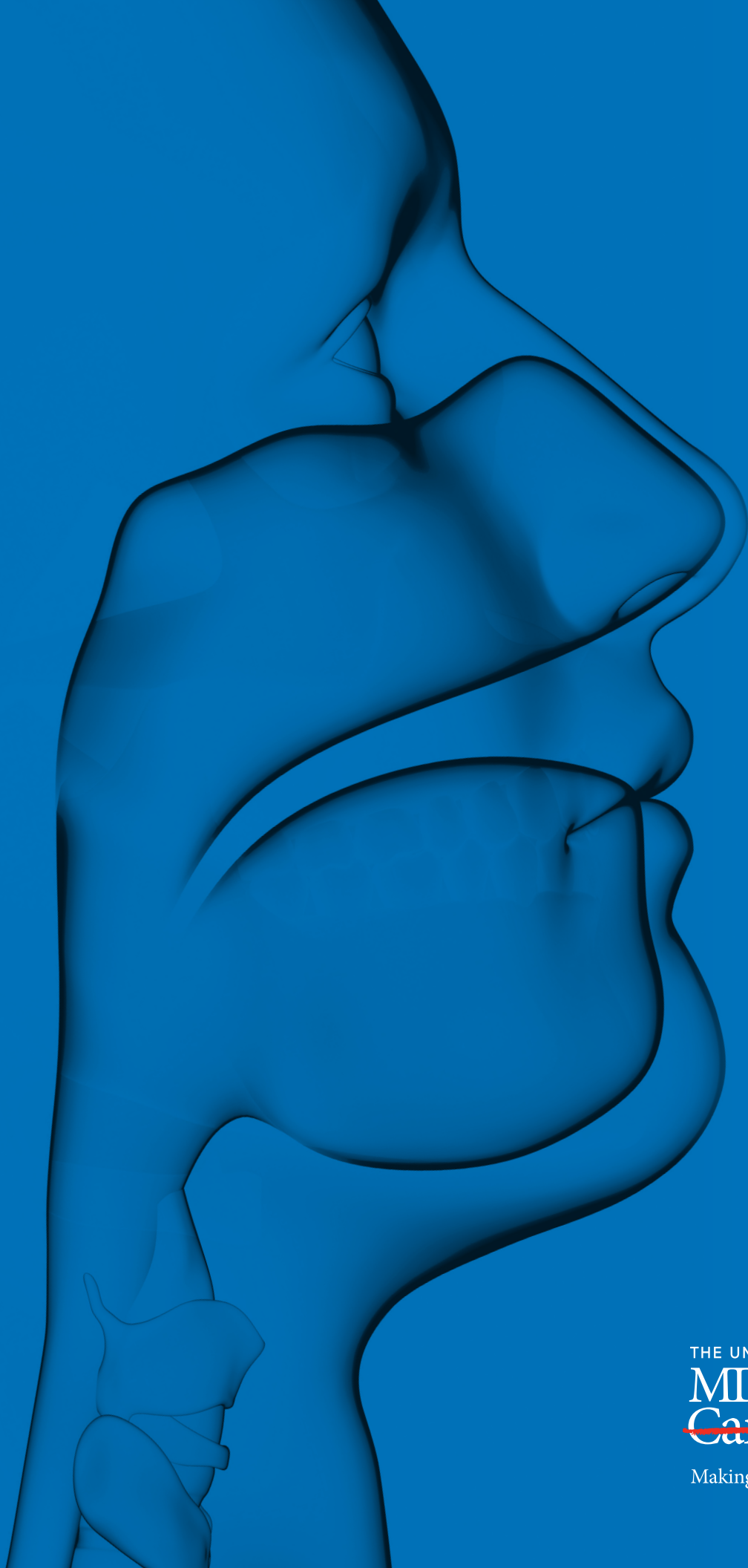
1 = Mild

2 = Moderate

3 = Severe

4 = Life threatening





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