

**Supplemental Material S1.** Frequencies of pre-consensus inter-rater agreement by absolute difference threshold for ASPEKT method videofluoroscopy ratings.

Parameter type	Event	Absolute difference threshold	Pre-consensus cumulative percent
Categorical	Number of Swallows per Bolus	0*	100%
	Penetration-Aspiration Scale Score (per swallow)	0*	92.50%
		1	97.90%
		>1	100%
	LVC Integrity (0 = complete; 1 = partial; 2 = incomplete)	0*	97%
	> 0	100%	
Frame Identification	Bolus Passing Mandible	0 frames	52.8%
		1-3 frames <sup>b</sup>	90.1%
		4-5 frames <sup>a</sup>	93.7%
		6-200 frames	100%
	Hyoid Burst Onset	0 frames	29.2%
		1-3 frames <sup>b</sup>	86.9%
		4-5 frames <sup>a</sup>	91.2%
		6-161 frames	100%
	UES Opening	0 frames	47.1%
		1-3 frames <sup>b</sup>	90.7%
		4-5 frames <sup>a</sup>	91.8%
		6-166 frames	100%
	LVC (first frame of most-complete closure)	0 frames	19.1%
		1-3 frames <sup>b</sup>	78%

	4-5 frames <sup>a</sup>	86.7%
	6-166 frames	100%
Maximum UES Opening	0 frames	31.8%
	1-3 frames <sup>b</sup>	88.7%
	4-5 frames <sup>a</sup>	91.6%
	6-164 frames	100%
Maximum Pharyngeal Constriction	0 frames	25.7%
	1-3 frames <sup>b</sup>	86.9%
	4-5 frames <sup>a</sup>	91.2%
	6-165 frames	100%
UES Closure	0 frames	24.1%
	1-3 frames <sup>b</sup>	84.1%
	4-5 frames <sup>a</sup>	90.1%
	6-165 frames	100%
LVC Offset	0 frames	68.8%
	1-3 frames <sup>b</sup>	91.5%
	4-5 frames <sup>a</sup>	92%
	6-165 frames	100%
Swallow Rest	0 frames	15.4%
	1-3 frames <sup>b</sup>	58.9%
	4-5 frames <sup>a</sup>	69.2%
	6-167 frames	100%

Pixel-Based Measures	Vallecular Residue [% $(C2-4)^2$ ]	0	58.5%
		2%*	95.6%
		2.1-9.2%	100%
	Pyriform Sinus Residue [% $(C2-4)^2$ ]	0	53.6%
		2.4%*	94.4%
		7.60%	100%
	Other Pharyngeal Residue [% $(C2-4)^2$ ]	0	78.7%
		2.4%*	98.7%
		2.5-5%	100%
	Maximum UES Diameter [% $(C2-4)$ ]	0%	0.1%
		7% <sup>b</sup>	66.6%
		8% <sup>a</sup>	72.5%
8.1-89%		100%	
Pharyngeal Area at Maximum Constriction [% $(C2-4)^2$ ]	0%	16.6%	
	3.5% <sup>b</sup>	81.6%	
	16% <sup>a</sup>	99.6%	
	16.1-45.6%	100%	
Pharyngeal Area at Rest [% $(C2-4)^2$ ]	0.04%	0.1%	
	20%*	65.7%	
	21-149%	100%	

<sup>a</sup> Initial threshold used for flagging consensus review

<sup>b</sup> Updated threshold used for flagging consensus review

\* Threshold used for flagging consensus review