

Supplemental Material S2. Descriptive statistics for quantitative videofluoroscopic measures by barium stimulus.

<u>Parameter</u>	<u>Stimulus</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Minimum</u>	<u>1st Quartile</u>	<u>Median</u>	<u>3rd Quartile</u>	<u>Maximum</u>
Swallow Reaction Time (ms)	20%w/v E-Z-HD™	59	85	-33	8	33	108	300
	20%w/v Polibar Plus®	146	301	-33	17	50	117	1234
	20%w/v E-Z-Paque®	111	194	-50	-4	42	142	634
	40%w/v Polibar Plus®	94	177	-50	0	33	125	751
	40%w/v E-Z-Paque®	109	152	-17	21	50	146	534
Hyoid-Burst-to-UES- Opening Interval (ms)	20%w/v E-Z-HD™	103	28	67	83	100	117	183
	20%w/v Polibar Plus®	86	54	-117	67	100	117	150
	20%w/v E-Z-Paque®	93	45	-50	83	100	117	183
	40%w/v Polibar Plus®	99	26	50	83	100	117	150
	40%w/v E-Z-Paque®	99	28	67	67	100	129	150

UES Opening Duration (ms)	20%w/v E-Z-HD™	482	71	334	434	484	534	601
	20%w/v Polibar Plus®	547	84	334	484	567	617	667
	20%w/v E-Z-Paque®	564	59	484	517	567	596	667
	40%w/v Polibar Plus®	580	63	450	521	584	617	717
	40%w/v E-Z-Paque®	585	74	400	550	584	630	701
Time-to-LVC (ms)	20%w/v E-Z-HD™	132	59	33	92	125	171	267
	20%w/v Polibar Plus®	131	54	50	100	117	167	267
	20%w/v E-Z-Paque®	134	68	50	79	133	154	350
	40%w/v Polibar Plus®	145	72	50	88	117	200	317
	40%w/v E-Z-Paque®	142	79	33	88	125	204	367
LVC Duration (ms)	20%w/v E-Z-HD™	550	135	367	467	517	605	967
	20%w/v Polibar Plus®	515	111	350	400	517	584	767
	20%w/v E-Z-Paque®	533	129	350	450	517	617	901
	40%w/v Polibar Plus®	531	122	384	438	525	592	834
	40%w/v E-Z-Paque®	528	120	334	409	542	613	801

UES Diameter [% (C2-4)]	20%w/v E-Z-HD™	18.5	6.5	8.8	12.8	18.1	24.2	29.9
	20%w/v Polibar Plus®	20.4	4.1	10.2	18.6	20.4	23.2	26.0
	20%w/v E-Z-Paque®	21.4	5.4	10.8	16.5	23.5	25.3	30.6
	40%w/v Polibar Plus®	21.2	4.4	10.2	17.7	21.9	24.6	27.3
	40%w/v E-Z-Paque®	23.7	4.9	13.4	20.5	24.4	27.1	33.8
Pharyngeal Area at Maximum Constriction [% (C2-4)²]	20%w/v E-Z-HD™	0.3	0.5	0.0	0.0	0.0	0.4	2.1
	20%w/v Polibar Plus®	1.7	1.6	0.1	0.6	1.4	2.3	6.7
	20%w/v E-Z-Paque®	1.7	1.3	0.0	0.6	1.3	2.5	4.8
	40%w/v Polibar Plus®	2.0	1.8	0.2	0.5	1.2	3.1	6.8
	40%w/v E-Z-Paque®	2.5	1.8	0.2	1.4	2.1	3.1	8.0
Vallecular Residue [% (C2-4)²]	20%w/v E-Z-HD™	0.1	0.2	0.0	0.0	0.0	0.0	0.7
	20%w/v Polibar Plus®	0.2	0.2	0.0	0.0	0.3	0.4	0.5
	20%w/v E-Z-Paque®	0.3	0.4	0.0	0.1	0.2	0.4	1.6
	40%w/v Polibar Plus®	0.5	0.4	0.0	0.1	0.3	0.8	1.4
	40%w/v E-Z-Paque®	0.4	0.4	0.0	0.1	0.3	0.7	1.4

Pyriform Sinus Residue [% (C2-4) ²]	20%w/v E-Z-HD™	0.0	0.1	0.0	0.0	0.0	0.1	0.2
	20%w/v Polibar Plus®	0.1	0.2	0.0	0.0	0.0	0.2	0.7
	20%w/v E-Z-Paque®	0.2	0.3	0.0	0.0	0.0	0.3	1.2
	40%w/v Polibar Plus®	0.3	0.4	0.0	0.0	0.1	0.3	1.5
	40%w/v E-Z-Paque®	0.4	0.4	0.0	0.0	0.2	0.6	1.4
Residue Elsewhere in the Pharynx [% (C2-4) ²]	20%w/v E-Z-HD™	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	20%w/v Polibar Plus®	0.1	0.2	0.0	0.0	0.0	0.3	0.5
	20%w/v E-Z-Paque®	0.3	0.5	0.0	0.0	0.1	0.4	1.9
	40%w/v Polibar Plus®	0.2	0.3	0.0	0.0	0.1	0.4	0.9
	40%w/v E-Z-Paque®	0.4	0.5	0.0	0.0	0.1	0.8	1.5
Total Pharyngeal Residue [% (C2-4) ²]	20%w/v E-Z-HD™	0.1	0.2	0.0	0.0	0.0	0.1	0.7
	20%w/v Polibar Plus®	0.4	0.4	0.0	0.0	0.3	0.8	1.5
	20%w/v E-Z-Paque®	0.9	1.0	0.0	0.1	0.5	1.2	3.5
	40%w/v Polibar Plus®	0.9	0.8	0.0	0.2	0.7	1.6	2.7
	40%w/v E-Z-Paque®	1.2	1.0	0.1	0.3	0.9	2.4	3.0

Hyoid Peak Position, X Coordinate [% (C2-4)]	20%w/v E-Z-HD™	145.8	15.5	106.5	135.6	150.2	155.0	173.1
	20%w/v Polibar Plus®	144.1	14.8	112.8	132.8	147.0	156.0	167.8
	20%w/v E-Z-Paque®	143.1	16.4	108.4	130.1	149.4	154.7	175.6
	40%w/v Polibar Plus®	144.4	14.2	117.3	131.4	145.8	152.4	170.5
	40%w/v E-Z-Paque®	144.4	16.0	111.5	131.9	147.1	155.6	169.1
Hyoid Peak Position, Y Coordinate [% (C2-4)]	20%w/v E-Z-HD™	72.7	19.4	25.8	67.9	76.9	87.3	95.5
	20%w/v Polibar Plus®	75.4	24.1	18.2	65.5	83.2	91.7	106.5
	20%w/v E-Z-Paque®	74.7	22.7	21.0	61.7	82.1	91.2	105.3
	40%w/v Polibar Plus®	73.8	22.1	27.4	62.6	79.7	89.7	101.9
	40%w/v E-Z-Paque®	76.0	22.3	29.4	62.3	80.5	93.2	110.4
Hyoid Peak Position, XY Coordinate [% (C2-4)]	20%w/v E-Z-HD™	164.1	14.5	131.8	156.0	165.2	175.8	185.7
	20%w/v Polibar Plus®	164.3	15.1	132.8	155.4	167.1	177.0	189.3
	20%w/v E-Z-Paque®	163.1	14.5	135.6	151.4	163.0	176.9	186.1
	40%w/v Polibar Plus®	163.7	13.2	139.9	153.2	166.6	174.3	182.3
	40%w/v E-Z-Paque®	164.8	14.1	139.7	152.8	166.7	174.2	190.8

Hyoid XY Speed [%(C2-4)/s]	20%w/v E-Z-HD™	110.5	30.3	51.5	88.8	114.0	133.6	164.8
	20%w/v Polibar Plus®	124.7	35.1	62.8	99.3	122.3	147.8	203.4
	20%w/v E-Z-Paque®	108.3	29.5	49.4	82.2	106.0	133.9	168.4
	40%w/v Polibar Plus®	118.7	34.2	71.1	92.5	110.0	145.7	185.5
	40%w/v E-Z-Paque®	117.0	26.2	75.1	95.0	121.3	137.2	161.7

UES = Upper Esophageal Sphincter

LVC = Laryngeal Vestibule Closure