

Table S1 The presence of Murphy’s eye

Brand	Uncuffed ETT							Cuffed ETT											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Shiley	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Curity	Y	Y	Y	Y	Y	Y				Y		Y	Y	Y	Y	Y	Y	Y	Y
Portex	–	–	–	–	–	–	–					Y	Y	Y	Y	Y	Y	Y	Y
Unomedical								Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fornia								Y	Y	Y	Y	Y	Y			Y	Y	Y	
Microcuff								–	–	–	–	–	–	–		Y	Y		

Blank cells refer to ETT not available in the market. Y refers to yes. “–” means no. ETT, endotracheal tube.

Table S2 Mark-Tip distances of ETTs

Brand	Marking	Uncuffed ETT (mm)							Cuffed ETT (mm)											
		3.0	3.5	4.0	4.5	5.0	5.5	6.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	–	N	N	N	N	N	N	N	39.8 (0.4)	43.4 (0.8)	48.5 (0.7)	49.0 (0.8)	68.1 (0.4)	70.6 (1.1)	76.3 (1.6)	79.6 (1.3)	85.5 (0.3)	89.4 (0.5)	90.6 (1.1)	94.9 (0.9)
Shiley	Upper mark	36.8 (0.4)	50.0 (0.2)	51.0 (0.2)	51.9 (0.2)	54.2 (0.3)	56.2 (0.2)	56.6 (0.1)	N	N	N	N	N	N	83.6 (0.3)	103.4 (0.5)	102.7 (0.7)	105.8 (0.6)	111.1 (0.4)	114.0 (1.1)
	Lower mark	26.1 (0.5)	27.6 (0.1)	29.5 (0.2)	30.5 (0.1)	32.9 (0.5)	34.6 (0.3)	36.1 (0.3)	N	N	N	N	N	N	62.3 (0.1)	82.6 (0.6)	82.1 (1.2)	85.0 (0.4)	89.7 (0.3)	92.7 (1.3)
Curity	Upper mark	45.8 (0.4)	47.3 (0.5)	49.0 (0.5)	50.9 (0.2)	53.8 (0.1)	55.9 (0.2)				65.6 (0.5)		81.2 (0.8)	81.5 (0.5)	83.0 (0.3)	86.8 (0.6)	95.6 (1.1)	98.7 (0.7)	101.8 (0.9)	104.6 (0.7)
	Lower mark	24.2 (0.2)	25.6 (0.1)	27.5 (0.5)	29.3 (0.3)	31.8 (0.2)	33.8 (0.2)				56.0 (0.6)		71.2 (0.6)	71.5 (0.5)	73.3 (0.5)	77.0 (0.6)	85.8 (0.9)	88.7 (0.7)	92.0 (0.9)	94.9 (0.9)
Portex	–	26.1 (0.3)	31.2 (0.7)	35.3 (0.5)	40.6 (0.4)	45.4 (0.3)	50.1 (0.5)	54.5 (0.4)					76.9 (0.5)	76.7 (0.6)	83.2 (0.2)	84.7 (0.4)	90.6 (0.7)	89.9 (1.2)	97.4 (0.8)	98.1 (0.4)
Unomedical	Upper mark								N	N	N	N	N	N	65.0 (0.2)	69.8 (0.3)	73.6 (0.4)	82.0 (0.4)	84.6 (0.4)	83.7 (0.4)
	Lower mark								32.4 (1.6)	35.2 (1.1)	41.9 (0.3)	43.1 (0.2)	51.6 (0.2)	54.1 (0.1)	60.1 (0.4)	64.9 (0.3)	68.7 (0.3)	72.1 (0.4)	74.8 (0.4)	73.7 (0.5)
Fornia	Upper mark								N	N	N	N	N	N			88.8 (0.4)	91.1 (0.7)	93.8 (1.0)	
	Lower mark								N	N	N	N	N	N			78.8 (0.5)	81.2 (0.8)	83.9 (1.1)	
Microcuff	–								27.7 (0.2)	31.4 (0.2)	35.1 (0.3)	39.0 (0.2)	44.8 (0.3)	51.3 (0.4)	57.0 (0.2)		82.6 (0.4)	84.2 (0.1)		
Min	–	24.2	25.6	27.5	29.3	31.8	33.8	36.1	27.7	31.4	35.1	39.0	44.8	51.3	57.0	64.9	68.7	72.1	74.8	73.7
Max	–	45.8	50.0	51.0	51.9	54.2	56.2	56.6	39.8	43.4	65.6	49.0	81.2	81.5	83.6	103.4	102.7	105.8	111.1	114
Max – min	–	21.6	24.4	23.5	22.6	22.4	22.4	20.5	12.1	12.0	30.5	10.0	36.4	30.2	26.6	38.5	34.0	33.7	36.3	40.3

Data are presented as mean (SD). Blank cells refer to ETT not available in the market. N refers to no VCmarking. ETT, endotracheal tube; max, maximum; min, minimum; VCmarking, vocal cord marking.

Table S3 Mark-Cuff distances of cuffed ETTs

Brand	Marking	Cuffed ETT (mm)											
		3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	–	9.7 (0.9)	12.9 (1.3)	13.3 (0.8)	13.6 (1.0)	22.2 (0.1)	21.5 (1.2)	23.2 (0.9)	24.6 (1.1)	24.8 (0.5)	23.1 (1.2)	23.7 (0.7)	25.8 (3.8)
Shiley	Upper mark	N	N	N	N	N	N	42.9 (1.3)	42.0 (1.0)	40.7 (1.0)	40.0 (0.7)	42.1 (1.1)	41.6 (0.9)
	Lower mark	N	N	N	N	N	N	21.2 (0.9)	21.3 (0.7)	19.6 (0.5)	19.4 (1.0)	21.2 (0.7)	21.1 (0.9)
Curity	Upper mark			31.8 (0.8)		37.5 (0.2)	36.8 (0.5)	28.6 (0.7)	29.1 (1)	32.3 (1.2)	32.4 (1.5)	33.8 (0.9)	36.1 (1.7)
	Lower mark			21.8 (0.3)		27.1 (0.4)	26.7 (0.9)	18.5 (0.6)	19.2 (0.9)	22.7 (1.1)	22.5 (1.5)	23.9 (0.7)	26.4 (1.9)
Portex	–					33.1 (0.9)	33.1 (0.5)	30.8 (0.3)	32.2 (0.7)	32.6 (1.9)	31.6 (2.5)	37.7 (3.6)	36.8 (1.7)
Unomedical	Upper mark	N	N	N	N	N	N	17.5 (0.9)	22.8 (0.3)	21.2 (0.6)	30.8 (0.7)	31.5 (1.5)	30.7 (0.5)
	Lower mark	8.7 (2.1)	10.2 (1.2)	7.0 (0.3)	7.9 (0.6)	12.7 (0.3)	14.8 (0.4)	12.5 (0.8)	18.0 (0.2)	16.4 (0.4)	21.2 (0.7)	21.8 (1.5)	21.3 (0.3)
Fornia	Upper mark	N	N	N	N	N	N			30.0 (0.7)	30.3 (0.4)	30.3 (0.8)	
	Lower mark	N	N	N	N	N	N			20.3 (0.3)	20.7 (0.2)	20.6 (0.4)	
Microcuff	–	9.9 (1.5)	11.4 (1.4)	15.1 (1.2)	15.3 (1.0)	19.4 (0.9)	19.7 (0.7)	23.3 (0.8)		22.2 (0.8)	22.5 (0.8)		
Min	–	8.7	10.2	7.0	7.9	12.7	14.8	12.5	18.0	16.4	19.4	20.6	21.1
Max	–	9.9	12.9	31.8	15.3	37.5	36.8	42.9	42.0	40.7	40.0	42.1	41.6
Max – min	–	1.2	2.7	24.8	7.4	24.8	22.0	30.4	24.0	24.3	20.6	21.5	20.5

Data are presented as mean (SD). Blank cells refer to ETT not available in the market. N refers to no VCmarking. ETT, endotracheal tube; max, maximum; min, minimum; VCmarking, vocal cord marking.

Table S4 Mark-Tip and Mark-Cuff distance provided from the manufacturers

Study number	Brand	Type	ID (mm)	Mark-Tip distance (mm)	Mark-Cuff distance (mm)
1U	Ruschelit	Uncuff	3.0	20.0*	–
			3.5	20.0*	–
			4.0, 4.5	–	–
			5.0	40.0*	–
			5.5	40.0*	–
			6.0	40.0*	–
1C	Ruschelit	Cuff	3.0	46.0	–
			3.5	50.0	–
			4.0	56.0	–
			4.5	60.0	–
			5.0	78.5	–
			5.5	84.5	–
			6.0	86.5	–
			6.5	88.5	–
			7.0	94.5	–
			7.5	97.5	–
			8.0	100.5	–
			8.5	103.5	–
2U	Shiley	Uncuff	3.0	25, 37	–
			3.5	27, 39, 51	–
			4.0	29, 41, 53	–
			4.5	31, 43, 55	–
			5.0	33, 45, 57	–
			5.5	35, 47, 59	–
			6.0	37, 49, 61	–
7C	Microcuff Avanos	Cuff	6.0	56	34
			7.0	82	61.2
			7.5	84	61.8

*, VCmarking not provided, the distances were referred to black tip section of the ETT. Study number: 1, Ruschelit; 2, Shiley, 7, Microcuff. U refers to uncuffed ETT. C refers to cuffed ETT. ETT, endotracheal tube; ID, inner diameter; VCmarking, vocal cord marking.

Table S5 Cuff-Tip distances of cuffed ETTs

Brand	Cuffed ETT (mm)											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	30.1 (0.9)	30.5 (0.6)	35.1 (0.3)	35.4 (0.3)	46.0 (0.4)	49.1 (0.2)	53.1 (0.7)	55.0 (0.4)	60.7 (0.7)	66.4 (1.3)	66.9 (1.5)	71.0 (1.4)
Shiley	24.4 (0.3)	28.0 (0.9)	31.1 (1.3)	34.2 (0.4)	39.2 (0.3)	41.1 (0.9)	41.2 (1.0)	61.3 (0.6)	62.5 (1.6)	65.5 (1.1)	68.4 (1.0)	71.6 (1.9)
Curity			34.2 (0.4)		44.1 (0.5)	44.8 (0.5)	54.8 (0.8)	57.8 (1.1)	63.1 (0.9)	66.3 (1.1)	68.1 (0.2)	68.8 (1.1)
Portex					43.8 (0.6)	43.6 (1.0)	52.4 (0.4)	52.6 (1.0)	57.9 (1.5)	58.3 (1.6)	60.9 (1.6)	61.3 (1.9)
Unomedical	23.7 (0.6)	25.0 (0.7)	34.9 (0.1)	35.2 (0.4)	38.9 (0.2)	39.4 (0.4)	47.6 (1.2)	47.0 (0.4)	52.4 (0.2)	50.9 (0.9)	53.0 (1.2)	52.5 (0.6)
Fornia	37.5 (0.1)	38.8 (1.0)	40.5 (0.4)	41.0 (0.2)	43.4 (0.3)	49.9 (0.3)			58.5 (0.7)	60.5 (1.0)	63.3 (1.4)	
Microcuff	17.8 (1.7)	20.0 (1.5)	20.1 (1.5)	23.6 (1.2)	25.4 (1.0)	31.6 (1.0)	33.6 (0.7)		60.4 (0.4)	61.7 (0.6)		
Min	17.8	20.0	20.1	23.6	25.4	31.6	33.6	47.0	52.4	50.9	53.0	52.5
Max	37.5	38.8	40.5	41.0	46.0	49.9	54.8	61.3	63.1	66.4	66.9	71.6
Max – min	19.7	18.8	20.4	17.4	20.6	18.3	21.2	14.3	10.7	15.5	13.9	19.1

Data are presented as mean (SD). Blank cells refer to ETT not available in the market. ETT, endotracheal tube; max, maximum; min, minimum.

Table S6 OD of uncuffed and cuffed ETTs provided from the manufacturers

Brand	Uncuffed ETT (mm)							Cuffed ETT (mm)											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	4.0	4.7	5.3	6.0	6.7	7.3	8.0	5.0	5.3	6.0	6.3	6.7	7.3	8.0	8.7	9.3	10.0	10.7	11.3
Shiley	4.2	4.9	5.5	6.2	6.8	7.5	8.2	4.3	4.9	5.6	6.2	6.9	7.5	8.2	8.9	9.5	10.2	10.8	11.4
Curity	4.2	4.9	5.5	6.2	6.8	7.5				5.5		6.8	7.5	8.2	8.8	9.6	10.2	10.9	11.5
Portex	4.2	4.8	5.5	6.2	6.9	7.6	8.2					6.9	7.6	8.2	8.9	9.6	10.3	10.9	11.6
Unomedical								4.2	4.9	5.5	6.2	6.9	7.5	8.2	8.8	9.6	10.2	10.9	11.5
Fornia								4.0	4.7	5.3	6.0	6.7	7.3			9.3	10.0	10.7	
Microcuff								4.3	5.0	5.6	6.3	6.7	7.3	8.0		9.5	10.2		
Min	4.0	4.7	5.3	6.0	6.7	7.3	8.0	4.0	4.7	5.3	6.0	6.7	7.3	8.0	8.7	9.3	10.0	10.7	11.3
Max	4.2	4.9	5.5	6.2	6.9	7.6	8.2	5.0	5.3	6.0	6.3	6.9	7.6	8.2	8.9	9.6	10.3	10.9	11.6
Max – min	0.2	0.2	0.2	0.2	0.2	0.3	0.2	1.0	0.6	0.7	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.3

Blank cells refer to ETT not available in the market. ETT, endotracheal tube; max, maximum; min, minimum; OD, outer diameter.

Table S7 OD at the level of deflated cuff area

Brand	Cuffed ETT (mm)											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	5.5 (0.1)	5.9 (0.4)	6.6 (0.2)	7.0 (0.5)	7.1 (0.3)	7.8 (0.3)	9.1 (0.5)	9.9 (0.8)	11.9 (0.9)	11.5 (0.8)	11.8 (0.4)	12.3 (0.6)
Shiley	4.7 (0.2)	5.4 (0.2)	5.9 (0.1)	6.7 (0.2)	7.9 (0.4)	8.2 (0.3)	8.8 (0.5)	9.7 (0.2)	10.2 (0.5)	10.8 (0.2)	11.2 (0.4)	12.1 (0.5)
Curity			5.9 (0.1)		7.7 (0.3)	8.2 (0.2)	8.9 (0.3)	9.3 (0.1)	10.5 (0.4)	11.3 (0.2)	11.4 (0.1)	12.1 (0.1)
Portex					7.9 (0.3)	8.2 (0.3)	8.9 (0.3)	10.0 (0.5)	11.0 (0.0)	11.7 (0.3)	12.4 (0.5)	12.6 (0.5)
Unomedical	5.1 (0.5)	6.0 (0.5)	6.1 (0.6)	6.9 (0.6)	7.7 (0.6)	8.3 (0.6)	9.0 (0.7)	10.1 (1.0)	10.9 (0.8)	11.7 (0.8)	12.2 (0.8)	12.8 (0.5)
Fornia	5.2 (0.5)	5.5 (0.4)	6.1 (0.5)	7.1 (0.5)	7.6 (0.8)	8.4 (0.4)			10.4 (0.5)	11.3 (0.6)	12.2 (0.9)	
Microcuff	4.4 (0.1)	5.2 (0.1)	5.7 (0.1)	6.6 (0.2)	6.8 (0.1)	7.4 (0.1)	8.1 (0.1)		9.7 (0.2)	10.4 (0.0)		
Min	4.4	5.2	5.7	6.6	6.8	7.4	8.1	9.3	9.7	10.4	11.2	12.1
Max	5.5	6.0	6.6	7.1	7.9	8.4	9.1	10.1	11.9	11.7	12.4	12.8
Max – min	1.1	0.8	0.9	0.5	1.1	1.0	1.0	0.8	2.2	1.3	1.2	0.7

Data are presented as mean (SD). Blank cells refer to ETT not available in the market. ETT, endotracheal tube; max, maximum; min, minimum; OD, outer diameter.

Table S8 Difference of OD between the OD at the deflated cuff level and the OD provided from the manufacturers

Brand	Cuffed ETT (mm)											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	0.5	0.6	0.6	0.7	0.4	0.5	1.1	1.2	2.6	1.5	1.1	1.0
Shiley	0.4	0.5	0.3	0.5	1.0	0.7	0.6	0.8	0.7	0.6	0.4	0.7
Curity			0.4		0.9	0.7	0.7	0.5	0.9	1.1	0.5	0.6
Portex					1.0	0.6	0.7	1.1	1.4	1.4	1.5	1.0
Unomedical	0.9	1.1	0.6	0.7	0.8	0.8	0.8	1.3	1.3	1.5	1.3	1.3
Fornia	1.2	0.8	0.8	1.1	0.9	1.1			1.1	1.3	1.5	
Microcuff	0.1	0.2	0.1	0.3	0.1	0.1	0.1		0.2	0.2		
Min	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.5	0.2	0.2	0.4	0.6
Max	1.2	1.1	0.8	1.1	1.0	1.1	1.1	1.3	2.6	1.5	1.5	1.3

Blank cells refer to ETT not available in the market. ETT, endotracheal tube; max, maximum; min, minimum; OD, outer diameter.

Table S9 CSA of ETTs at the deflated cuff level

Brand	Cuffed ETT (mm ²)											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	34.8	35.1	41.7	48.9	50.9	61.9	80.5	82.0	108.9	115.5	131.2	129.9
Shiley	18.9	25.5	32.8	41.4	62.8	67.9	79.5	80.0	90.4	99.2	108.4	126.1
Curity			32.2		52.2	62.4	75.5	77.0	99.2	103.7	116.1	126.1
Portex					55.0	64.2	79.5	87.2	107.2	115.5	129.2	141.0
Unomedical	31.5	39.6	38.9	46.2	58.4	65.1	80.5	90.9	106.6	130.5	140.4	146.5
Fornia	28.4	31.5	38.2	52.2	64.6	66.5			98.0	113.7	135.7	
Microcuff	21.4	24.1	29.0	36.4	39.2	49.7	56.3		77.0	90.4		
Min	18.9	24.1	29.0	36.4	39.2	49.7	56.3	77.0	77.0	90.4	108.4	126.1
Max	34.8	39.6	41.7	52.2	64.6	67.9	80.5	90.9	108.9	130.5	140.4	146.5
Max – min	15.9	15.5	12.7	15.7	25.4	18.1	24.2	13.9	32.0	40.2	32.0	20.4

Blank cells refer to ETT not available in the market. CSA, cross-sectional area; ETT, endotracheal tube; max, maximum; min, minimum.

Table S10 OD of the inflated cuff provided from the manufacturers

Brand	Cuffed ETT (mm)											
	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Ruschelit	8.0	8.0	11.0	11.0	13.0	17.0	19.0	21.0	24.0	26.0	26.0	28.0
Shiley	6.0	7.0	8.0	11.0	18.0	21.0	22.0	20.6	25.4	25.4	25.4	28.6
Curity			11.0		16.0	17.0	22.0	22.0	25.0	25.0	27.0	27.0
Portex					17.0	17.0	23.0	23.0	30.0	30.0	30.0	30.0
Unomedical	12.0	12.0	14.0	14.0	17.0	17.0	20.0	20.0	25.0	25.0	26.0	26.0
Fornia	12.0	12.0	14.0	14.0	NP	NP			NP	NP	NP	
Microcuff	10.0	12.0	12.0	14.0	14.0	16.0	16.0		24.0	24.0		
Min	6.0	7.0	8.0	11.0	13.0	16.0	16.0	20.0	24.0	24.0	25.4	26.0
Max	12.0	12.0	14.0	14.0	18.0	21.0	23.0	23.0	30.0	30.0	30.0	30.0
Max – min	6.0	5.0	6.0	3.0	5.0	5.0	7.0	3.0	6.0	6.0	4.6	4.0

Blank cells refer to ETT not available in the market. ETT, endotracheal tube; max, maximum; min, minimum; NP, not provided; OD, outer diameter.