## **Supplementary Appendix**

## Videolaryngoscopy versus fibreoptic bronchoscope for awake intubation

-A systematic review and Meta-analysis of randomised controlled trials

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## The PubMed search strategy

(awake[Title/Abstract]) AND OR "Storz DCI"[Title/Abstract]) OR "Venner APA") OR "TruView PCD"[Title/Abstract]) OR "Pentax AWS"[Title/Abstract]) OR "Airway Scope"[Title/Abstract]) OR Airtrag[Title/Abstract]) OR C-MAC[Title/Abstract]) OR Glidescope[Title/Abstract]) OR OR "King Vision"[Title/Abstract]) McGrath[Title/Abstract]) OR ((((videolaryngoscope[Title/Abstract]) OR "airway scope"[Title/Abstract]) OR video OR videolaryngoscopy[Title/Abstract]))) laryngoscopy[Title/Abstract]) AND ((((((((((groups[Title/Abstract])) OR (trial[Title/Abstract])) OR (randomly[Title/Abstract])) OR Subheading])) OR (drug therapy[MeSH] (placebo[Title/Abstract])) OR (randomized[Title/Abstract])) OR (controlled clinical trial[Publication Type])) OR ("Randomized Controlled Trial"[Publication Type]))) NOT (((animals[MeSH Terms])) NOT (((animals[MeSH Terms])) AND (humans[MeSH Terms])))))) NOT (((((("simulation study"[Title/Abstract]) OR "retrospective study"[Title/Abstract]) OR "observational study"[Title/Abstract]) OR cadaver[Title/Abstract]) OR mannequin[Title/Abstract]) OR manikin[Title/Abstract]))) NOT ((((neonate[Title/Abstract]) OR infant[Title/Abstract]) OR pediatric[Title/Abstract]) OR children[Title/Abstract]))

<b>Fable S1 Description</b>	n of the Risk	of Bias for t	he Six l	Included 8	Studies.
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Domains	Description
Random sequence	All six studies clearly described the methods for the generation of
generation	randomized sequences, one study had unclear methods for the
	generation of randomized sequences (Authors of one study was
	contacted for detailed method of randomization. <sup>21</sup> ).
Allocation	Four studies used nontransparent envelopes or other method to
concealment	conceal the allocation, <sup>17 21-23</sup> two did not conceal the allocation,
	and the other two did not mention whether allocation concealment
	was used. <sup>16 24</sup>
Blinding of	Although no study used blinded method, the authors judged that
participants,	the outcome would not be likely to be influenced as the patients
personnel, and	were under emergent setting and not aware of their grouping and
outcome assessment	it seemed impossible in most studies.
Incomplete outcome	One study excluded 9 patients with unbalanced number in two
data	groups which may bias or distort the conclusion of this study. <sup>23</sup>
	No missing data was reported in other studies.
Selective reporting	The published studies reported all expected outcomes.
Other bias	The study appeared to be free of other sources of bias.

## Table S2 GRADE for all outcomes

	Quality assessment							tients		Effect	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	VL AND FOB	Control	Relative (95% CI)	Absolute		
Overall suc	ccess rat	te										
6	RCTs	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	221/222 (99.5%)	223/224 (99.6%) 100%	RR 1 (0.98 to 1.02)	00 fewer per 1000 (from 20 fewer to 20 more) 0 fewer per 1000 (from 20 fewer to 20 more)	HIGH	CRITICAL
Overall suc	ccess rat	te-nasal						•				
2	RCTs	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	104/104 (100%)	104/104 (100%) 100%	RR 1 (0.97 to 1.03)	0 fewer per 1000 (from 30 fewer to 30 more) 0 fewer per 1000 (from 30 fewer to 30 more)	HIGH	CRITICAL
Overall suc	ccess rat	te-oral										
4	RCTs	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	117/118 (99.2%)	119/120 (99.2%) 100%	RR 1 (0.96 to 1.04)	0 fewer per 1000 (from 40 fewer to 40 more) 0 fewer per 1000 (from 40 fewer to 40 more)	HIGH	CRITICAL
First-atten	npt succ	ess rate						•				
4	RCTs	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	98/125 (78.4%)	97/127 (76.4%) 76.4%	RR 1.03 (0.9 to 1.17)	223 more per 1000 (from 76 fewer to 130 more) 23 more per 1000 (from 76 fewer to 130 more)	HIGH	IMPORTANT
Duration o	f intuba	tion (Better indi	cated by lower value	s)				1		,		
6	RCTs	no serious risk of bias	very serious <sup>1</sup>	no serious indirectness	no serious imprecision	none	192	196	-	MD 40.43 lower (60.98 to 19.88 lower)	LOW	IMPORTANT
Rate of low	v oxyger	n saturation (SpC	0 <sub>2</sub> <90%)		_		-					
5	RCTs	no serious risk of bias	no serious inconsistency	no serious indirectness	serious <sup>2</sup>	none	7/165 (4.2%)	16/168 (9.5%) 8%	RR 0.47 (0.21 to 1.06)	50 fewer per 1000 (from 75 fewer to 6 more) 42 fewer per 1000 (from 63 fewer to 5 more)	MODERATE	IMPORTANT
Rate of sor	e throat	t					•	- -				
3	RCTs	no serious risk of bias	no serious inconsistency	no serious indirectness	serious <sup>2</sup>	none	18/83 (21.7%)	18/84 (21.4%) 16%	RR 1.02 (0.59 to 1.77)	b4 more per 1000 (from 88 fewer to 165 more) 3 more per 1000 (from 66 fewer to 123 more)	MODERATE	NOT IMPORTANT

<sup>1</sup> very high heterogeneity; <sup>2</sup> very few studies included.

Abbreviations: RCTs; randomized controlled trials.

	VL		FOE	3		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% CI
nasal							
Kramer 2015	50	50	50	50	22.4%	1.00 [0.96, 1.04]	+
Mahran 2016	54	54	54	54	24.2%	1.00 [0.96, 1.04]	+
Subtotal (95% CI)		104		104	46.7%	1.00 [0.97, 1.03]	•
Total events	104		104				
Heterogeneity: Chi <sup>2</sup> =	0.00, df =	1 (P=	1.00); I <sup>2</sup> =	= 0%			
Test for overall effect	Z = 0.00 (	(P = 1.0	00)				
oral							
Abdellatif 2014	31	32	32	32	14.4%	0.97 [0.89, 1.06]	
Mendonca 2016	20	20	20	20	9.1%	1.00 [0.91, 1.10]	
Rosenstock 2012	41	41	42	43	18.4%	1.02 [0.96, 1.09]	
Wahba2012	25	25	25	25	11.3%	1.00 [0.93, 1.08]	
Subtotal (95% CI)		118		120	53.3%	1.00 [0.96, 1.04]	•
Total events	117		119				
Heterogeneity: Chi <sup>2</sup> =	0.99, df =	3 (P =	0.80); I <sup>2</sup> =	= 0%			
Test for overall effect	Z = 0.02 (	(P = 0.9	98)				
Total (95% CI)		222		224	100.0%	1.00 [0.98, 1.02]	+
Total events	221		223				
Heterogeneity: Chi <sup>2</sup> =	0.99, df =	5 (P =	0.96); I <sup>2</sup> =	= 0%			07 005 1 12 15
Test for overall effect	Z=0.02 (	(P = 0.9	99)				U.7 U.85 1 1.2 1.5
Test for subaroup dif	ferences:	Chi <sup>2</sup> = I	0.00. df=	1 (P=	0.99), l <sup>2</sup> =	:0%	Favours (FOB) Favours (VL)

**Figure S1** VL vs. FOB for overall success rate based on different way of intubation. Abbreviations: VL, videolaryngoscopy; FOB, fiberoptic bronchoscope.



Figure S2 VL vs. FOB for intubation time.

Abbreviations: VL, videolaryngoscopy; FOB, fiberoptic bronchoscope

	VL		FOE	3		<b>Risk Ratio</b>		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI		M-H, Fixed, 95% CI	
Abdellatif 2014	25	32	24	32	25.0%	1.04 [0.79, 1.37]		+	
Mahran 2016	22	27	21	27	21.8%	1.05 [0.80, 1.37]		+	
Rosenstock 2012	29	41	34	43	34.5%	0.89 [0.70, 1.15]		+	
Wahba2012	22	25	18	25	18.7%	1.22 [0.92, 1.62]		-	
Total (95% CI)		125		127	100.0%	1.03 [0.90, 1.17]		•	
Total events	98		97						
Heterogeneity: Chi <sup>2</sup> =	2.65, df=	3 (P =	0.45); I <sup>2</sup> =	= 0%					400
Test for overall effect	Z=0.37 (	(P = 0.7	'1)				0.01	Favours [FOB] Favours [VL]	100

Figure S3 VL vs. FOB for first-attempt success rate.

Abbreviations:VL, videolaryngoscopy; FOB, fiberoptic bronchoscope.

	VL		FOE	3		<b>Risk Ratio</b>	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	M-H, Fixed, 95% Cl
Abdellatif 2014	1	31	3	32	18.2%	0.34 [0.04, 3.13]	
Kramer 2015	1	48	2	48	12.3%	0.50 [0.05, 5.33]	· · · · · ·
Mendonca 2016	0	20	0	20		Not estimable	
Rosenstock 2012	5	41	9	43	54.1%	0.58 [0.21, 1.59]	
Wahba2012	0	25	2	25	15.4%	0.20 [0.01, 3.97]	
Total (95% CI)		165		168	100.0%	0.47 [0.21, 1.06]	•
Total events	7		16				The second se
Heterogeneity: Chi <sup>2</sup> =	0.57, df=	3 (P =	0.90); l <sup>2</sup> =	= 0%			
Test for overall effect	Z=1.81	(P = 0.0	)7)				Favours [VL] Favours [FOB]

Figure S4 VL vs. FOB for rate of low oxygen saturation (SpO<sub>2</sub><90%).

Abbreviations: VL, videolaryngoscopy; FOB, fiberoptic bronchoscope.

	VL		FOE	3		<b>Risk Ratio</b>			<b>Risk Ratio</b>		
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl		M-I	H, Fixed, 95%	CI	
Abdellatif 2014	13	31	11	32	60.7%	1.22 [0.65, 2.30]					
Mahran 2016	3	27	3	27	16.8%	1.00 [0.22, 4.52]				-	
Wahba2012	2	25	4	25	22.4%	0.50 [0.10, 2.49]			•		
Total (95% CI)		83		84	100.0%	1.02 [0.59, 1.77]			+		
Total events	18		18								
Heterogeneity: Chi <sup>2</sup> =	1.06, df=	2 (P =	0.59); I <sup>2</sup> =	= 0%						40	400
Test for overall effect	Z = 0.08	(P = 0.9	(4)				0.01	Favour	s [VL] Favou	ITS [FOB]	100

Figure S5 VL vs. FOB for rate of sore throat.

Abbreviations: VL, videolaryngoscopy; FOB, fiberoptic bronchoscope.



**Figure S6:** Sequential test sketch in TSA for rate of low oxygen saturation (SpO<sub>2</sub><90%). Abbreviations: VL, videolaryngoscopy; FOB, fiberoptic bronchoscope.