

# The Swiss Video-Intubation Trial (SWIVIT). Evaluation of six video-laryngoscopes in 720 patients with a created difficult airway: first results

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## Conclusions

- Except for the A.P. Advance™, all devices appear suitable for tracheal intubation in this difficult airway scenario and reach the desirable overall intubation success rate of >90%.
- The integrated tracheal tube guidance does not seem to offer any advantages over unguided laryngoscopes in the hands of experienced anesthesiologists.

Table: Demographics and outcome data for the six VLS. Data presented as mean ±SD or n (%)

Demographics	Devices without a guiding channel for tracheal intubation			Devices with a guiding channel for tracheal intubation			p-value
	C-MAC™ n=59	GlideScope™ n=59	McGrath™ n=56	Airtraq™ n=53	A.P. Advance™ n=66	King Vision™ n=59	
Age	50 ± 18	56 ± 14	49 ± 17	53 ± 19	49 ± 15	45 ± 16	0.02
Mouth opening with cervical collar, mm	24 ± 4	24 ± 4	24 ± 3	24 ± 4	24 ± 3	24 ± 4	0.99
Outcome							
Success rate at 1 <sup>st</sup> attempt	54 (92)	52 (88)	54 (96)	44 (83)	20 (30)**	46 (78)	< 0.001
Overall success rate	57 (97)	58 (98)	55 (98)	51 (96)	55 (83)**	57 (97)	< 0.001
Time necessary successful attempt, sec.	69 ± 37	82 ± 40	66 ± 32	58 ± 34	85 ± 47*	76 ± 39	0.002
Time necessary overall, sec.	79 ± 53	100 ± 71	69 ± 44	82 ± 72	200 ± 80**	111 ± 83	< 0.001
Percentage of glottic opening visible (POGO)	89 ± 15	86 ± 24	83 ± 18	87 ± 16	46 ± 39**	80 ± 26	< 0.001

\* result statistically different to all devices except to GlideScope™ and KingVision™, p<0.05

\*\* result statistically different from all other five devices, p<0.05.

No correction factor for multiple comparisons was applied in these a priori comparisons.

## Introduction

- Video-laryngoscopes (VLS): increasingly used and aggressively marketed.
- Independent evaluation of efficacy and success in managing difficult airways is scarce.

## Methods

- With IRB approval (NCT01692535) and written informed consent, we plan to enroll 720 elective surgical patients without predictors for a difficult airway.
- Multicenter, prospective randomized controlled trial at three Swiss University Hospitals.
- After standardized induction of anesthesia, an extrication collar (Stifneck™ Select Collar; Laerdal, Wappingers Falls, NY) was adjusted to the patient's neck. Operators were attending anesthesiologists who had experience with all VLS studied.
- Six VLS evaluated: Three VLS with an integrated guiding channel for intubation, three VLS without channel. Primary outcome was intubation success rate at first attempt within 180 seconds

## Results

- 352 devices were analyzed so far.
- Except for age, demographic data (including ASA classification and BMI) did not differ between the devices.
- Only the C-MAC™ and the McGrath™ reached a first intubation success rate of >90%.
- Except for the A.P.Advance™, all devices reached a first intubation success rate of >75%.
- First attempt success rates were generally higher in devices without a guiding channel for the tracheal tube.
- There were no serious adverse events and no periods of hypoxia during intubation

### Video-Laryngoscopes without a guiding channel for tracheal intubation

1. C-MAC™  
(Karl Storz, Tuttlingen, Germany)



2. GlideScope™  
(Verathon Inc., Bothell, WA, USA)



3. McGrath™  
(Aircraft Medical Lt., Edinburgh, UK)



### Video-Laryngoscopes with a guiding channel for tracheal intubation

4. Airtraq™  
(Prodol Meditec SA, Vizcaya, Spain)



5. A. P. Advance™  
(Venner Medical SA, Singapore)



6. King Vision™  
(Kingsystems, Noblesville, IN, USA)

