



# Advance Airway Videolaryngoscopy vs Direct Laryngoscopy

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Warning:

This is NOT a discussion on  
devices but on  
deployment and training.

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Is *video laryngoscopy* superior  
to *direct laryngoscopy* for EMS  
providers

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The Literature

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# “ Videolaryngoscopy versus direct laryngoscopy for adult patients requiring tracheal intubation: a Cochrane Systematic Review ”

BJA: BRITISH JOURNAL OF ANAESTHESIA, VOLUME 119, ISSUE 3, 1 SEPTEMBER 2017, PAGES 369–383, [HTTPS://DOI.ORG/10.1093/BJA/AEX228](https://doi.org/10.1093/bja/aex228)



Currently, no evidence indicates that use of a videolaryngoscope reduces the number of intubation attempts or the incidence of hypoxia or respiratory complications, and no evidence indicates that use of a videolaryngoscope affects time required for intubation.



ORIGINAL ARTICLE



# Video versus Direct Laryngoscopy for Tracheal Intubation of Critically Ill Adults

**Authors:** Matthew E. Prekker, M.D., M.P.H., Brian E. Driver, M.D., Stacy A. Trent, M.D., M.P.H., Daniel Resnick-Ault, M.D., Kevin P. Seitz, M.D., Derek W. Russell, M.D. , John P. Gaillard, M.D.,  +37, for the DEVICE Investigators and the Pragmatic Critical Care Research Group\* [Author Info & Affiliations](#)

Published June 16, 2023 | N Engl J Med 2023;389:418-429 | DOI: 10.1056/NEJMoa2301601 | [VOL. 389 NO. 5](#)

# Conclusions

- ▶ Among critically ill adults undergoing tracheal intubation in an emergency department or ICU, the use of a **video laryngoscope** resulted in a **higher incidence of successful intubation on the first attempt** than the use of a **direct laryngoscope**.




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ORIGINAL ARTICLE



# Video versus Direct Laryngoscopy for Urgent Intubation of Newborn Infants

**Authors:** Lucy E. Geraghty, M.B. , Emma A. Dunne, M.B., Ph.D., Caitríona M. Ní Chathasaigh, M.B., Akke Vellinga, Ph.D., Niamh C. Adams, M.B., Eoin M. O'Curraín, M.B., Ph.D., Lisa K. McCarthy, M.B., Ph.D., and Colm P.F. O'Donnell, M.B., Ph.D. [Author Info & Affiliations](#)

Published May 5, 2024 | N Engl J Med 2024;390:1885-1894 | DOI: 10.1056/NEJMoa2402785 | [VOL. 390 NO. 20](#)



# Conclusions

- ▶ Among neonates undergoing urgent endotracheal intubation, **video laryngoscopy** resulted in a **greater number of successful intubations on the first attempt** than **direct laryngoscopy**.

Experience of County wide  
deployment of Video laryngoscopy:

Lessons Learned

”

# Background Multnomah County EMS (Portland, Oregon)

- ▶ **Approximately 500 paramedics**
- ▶ **Drug facilitated intubation since 2000**
- ▶ **Approximately 700 intubations per year**
- ▶ **Intubated cardiac arrest (with or without Lucas) with ET or i-gel**
- ▶ **VL Systemwide deployment 2020 after 4 years of development**
- ▶ **Mandatory 2 annual training venues per year system wide**
- ▶ **Mandatory Difficult Airway class for lead EMS and fire paramedics**

# Medical Operational Guidelines

- ▶ **Bougies assisted intubation** strongly recommended
- ▶ 2 pass rule
- ▶ **i-gel** rescue airway
- ▶ Primary advanced airway in cardiac arrest
  - ▶ ET Intubation (recommended)
  - ▶ i-gel (acceptable)
- ▶ Trauma Airway
  - ▶ Strongly encouraged to perform advanced airway **ENROUTE**

## Baseline **Direct Laryngoscopy** Metrics

- ▶ Overall Success : 85% -88%
- ▶ First pass success : 75% -80%

# Direct Laryngoscope (DL) vs Video Laryngoscope (VL)

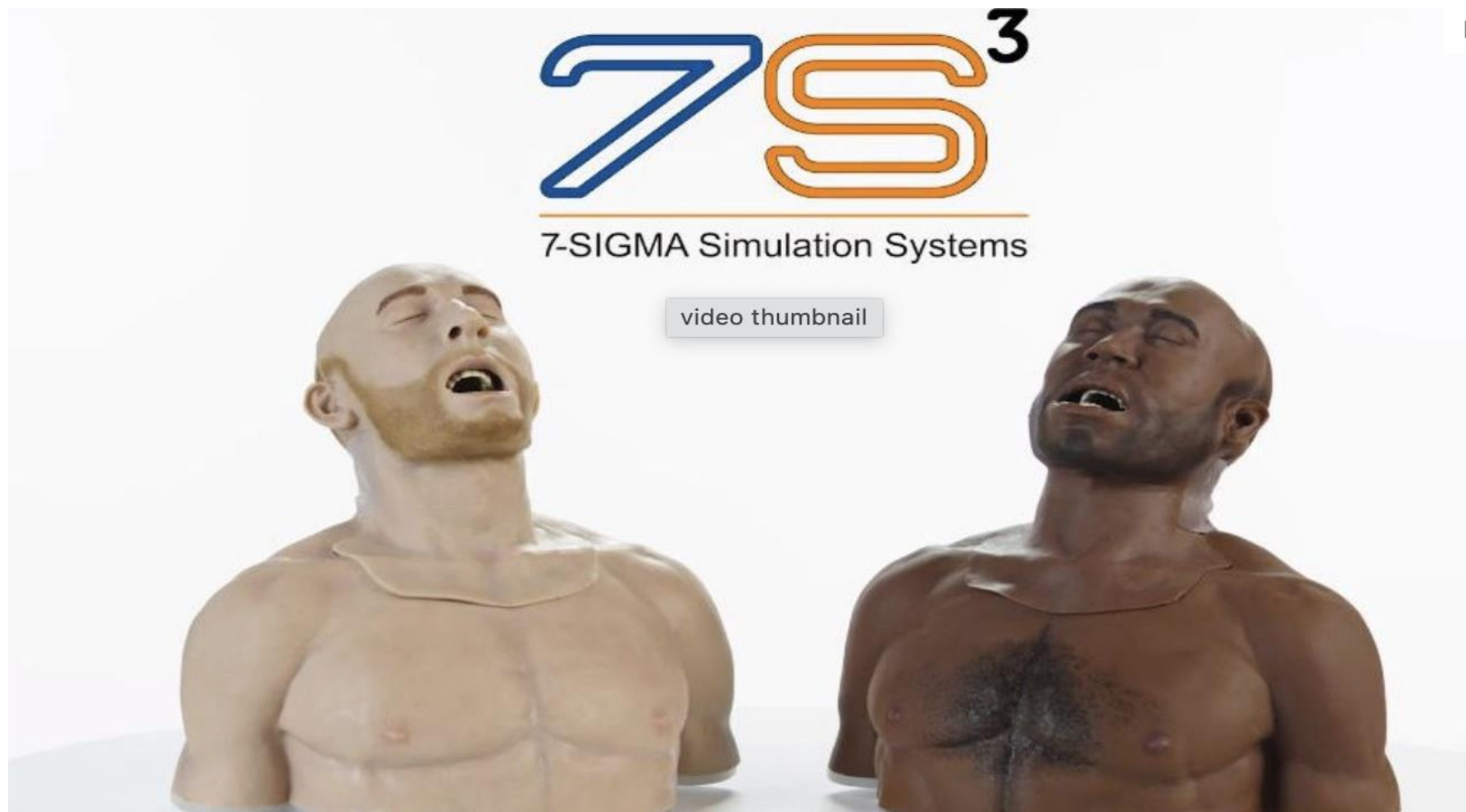
**Direct : DL**



**Video : VL**

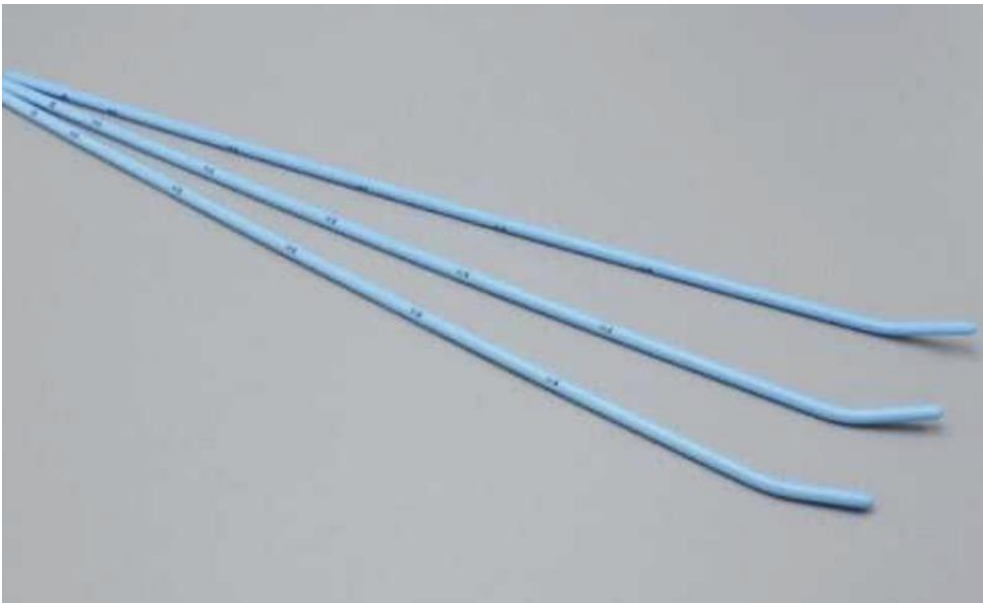


# 7-Sigma

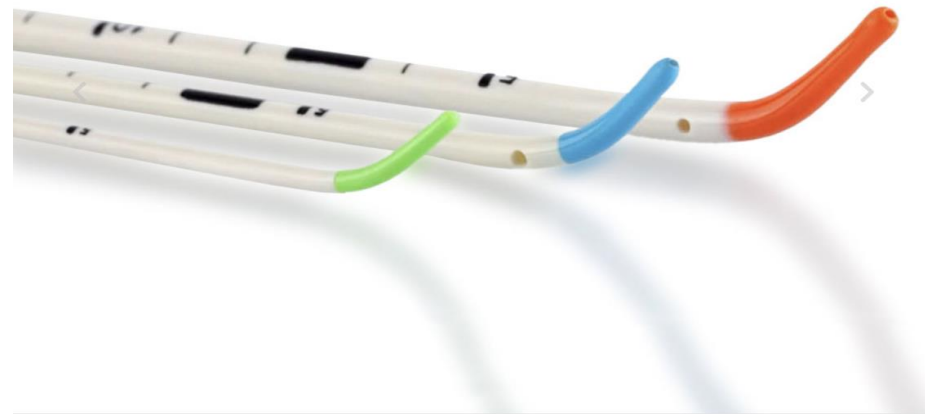


# Bougie Assisted Intubation

**Regular Bougie**



**S Guide Bougie**





# Video Laryngoscopy 2023

	VL	VL %
<b>Success (Overall)</b>	<b>435</b>	<b>93</b>
<b>1<sup>st</sup> pass</b>	<b>399</b>	<b>85</b>
<b>2<sup>nd</sup> pass</b>	<b>31</b>	<b>7</b>
<b>3<sup>rd</sup> pass</b>	<b>4</b>	<b>1</b>
<b>4<sup>th</sup> pass</b>	<b>1</b>	<b>1</b>
<b>Unsuccessful</b>	<b>33</b>	<b>7</b>
<b>1</b>	<b>23</b>	<b>4</b>
<b>2</b>	<b>10</b>	<b>1</b>
<b>Grand Total</b>	<b>468</b>	

# i-gel 2023

Success (Overall)	i-Gel	i-Gel %
1 <sup>st</sup> pass	178	97
2 <sup>nd</sup> pass	4	7
3 <sup>rd</sup> pass	2	3
Unsuccessful		
1	2	1
2	0	100
<b>Grand Total</b>	<b>186</b>	

# DL 2023

Success (Overall)	DL	DL %
1 <sup>st</sup> pass	29	48
2 <sup>nd</sup> pass	25	42
3 <sup>rd</sup> pass	4	4
4 <sup>th</sup> pass		
Unsuccessful		
1	1	5
2	1	
Grand Total	60	

# Conclusion

- ▶ EMS providers **must be able to use both DL and VL**
- ▶ **Training is the key** to successful implementation of a new device
- ▶ VL is a major paradigm change

# Direct Laryngoscopy Advantages

- ▶ **Direct Laryngoscopy**
  - ▶ **tried and tested method**
  - ▶ **portable**
  - ▶ **inexpensive**
  - ▶ **fogging and fluids have less impact on equipment function**
  - ▶ **performance in expert hands approaches or is similar to video laryngoscopy**

# Video Laryngoscopy Advantages

- ▶ **Generally higher success rate, especially in difficult situations**
- ▶ **Better view when mouth opening or neck mobility is limited (e.g. c-spine precautions)**
- ▶ **less risk of esophageal intubation**

# Video laryngoscopy Disadvantages

- ▶ Direct laryngoscopy skills are not directly transferable to use of hyper angulated laryngoscopes
- ▶ Passage of tube may be difficult despite great view; stylet often necessary
- ▶ Fogging and secretions may obscure view
- ▶ Potential for equipment failure
- ▶ More expensive
- ▶ may lead to deskilling at direct laryngoscopy over time
- ▶ Video screen may be difficult to visualize in the brightly lit outdoor setting

The END