



Editorial

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The golden era of videolaryngoscopy: costs we should consider

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Direct laryngoscopy has been considered the gold standard for endotracheal intubation for several decades. A more advanced intubation device has thus been sorely needed and has now become a reality. Since the first videolaryngoscopy (VL) device, known as the Glidescope, was introduced in 2001, many types of VL have grown considerably [1]. VL was initially recognized as a critical option for difficult airway management, but it has now permeated the clinical setting so thoroughly that it may be considered an alternative to direct laryngoscopy for intubation in both adults and children, and it has assumed a central role in both difficult and routine airway management.

Additionally, the COVID-19 pandemic has further justified VL applications, particularly given its associated efficacy and safety profile. VL has become the only option for minimizing direct contact between the operator and virus-transmitting aerosols. Because of the COVID-19 pandemic, many countries' airway management guidelines now recommend VL as the first-line device for all patients requiring endotracheal intubation [2]. VL has not only been embedded in most difficult airway algorithms but has also become a core skill in airway management, and the use of awake VL has also increased. Indeed, it is not an exaggeration to say that we have entered the golden era of VL.

As the VL market is continuously evolving, the costs associated with the use of this technology must be considered. As may be expected, the costs vary depending on the circumstances in which VL is used. According to the findings of an economic analysis conducted in 2021 on the use of VL versus direct laryngoscopy in the surgical setting, VL may be associated with a reduction in total cost, length of hospital stay, and the likelihood of postoperative ICU admission [3]. Given the unique benefits of VL, this result is not surprising. Some would posit that the costs of VL per se would not pose a substantial barrier to its application [4]. Indeed, the costs of VL have been decreasing in recent years, and with increased use, disposable blades may become more affordable. Therefore, it would not be unrealistic for every operating room to invest in VL. However, if we take a closer look at the current clinical reality, it appears that not all settings where airway management is practiced use VL on a routine basis; their use in many centers is limited to a few devices in the main theater area [5]. The use of VL also appears to be restricted in areas with a dearth of medical resources or where the cost of VL is relatively high.

In this issue of the *Korean Journal of Anesthesiology*, Elshazly et al. [6] compared the effectiveness of USB borescopes (which are intended for industrial use) aided direct laryngoscopy to provide low-cost with VLs for adult intubation. The intubation time was comparable between the two devices, though VL provided a better environment for visibility and fogging, whereas operators reported higher levels of satisfaction with the borescope. The study suggests that borescopes could be used in place of VL at a low cost. Although the issue of whether borescopes can be used as clinical instruments has remains to be clearly addressed, they may be a useful alternative in situations where VL is limited or unavailable, especially when a difficult airway is expected or aerosol-transmission is a

concern.

Borescopes can also be a cost-effective tool for educating novices, such as trainees and medical students. VL is an excellent educational tool for teaching laryngoscopy techniques since the anatomy can be better visualized through the magnified screen, and endotracheal intubation training can be conducted more effectively through sharing the screen with the instructor [7]. Another view considers the cost in the educational field that may result from increased use of VL [8]. These authors reported a 38.3% reduction in the number of asleep fiberoptic intubations (FOIs) performed after the implementation of VL at their hospital. FOIs are essential for education because they offer a path for endotracheal intubation when VL is not accessible. Thus, the increased use of VL should not come at the cost of decreased trainee experience in FOIs.

VL is not a tool that can be made available for simple convenience, but rather, an essential technology developed as a result of medical innovation from which both healthcare workers and patients can optimally benefit. As VL becomes more prevalent in medical environment, we should be able to consider the costs associated with VL from various balanced perspectives.

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Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

References

1. Rai MR, Dering A, Verghese C. The Glidescope system: a clinical assessment of performance. *Anaesthesia* 2005; 60: 60-4.
2. Cook TM, El-Boghdadly K, McGuire B, McNarry AF, Patel A, Higgs A. Consensus guidelines for managing the airway in patients with COVID-19: Guidelines from the Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists. *Anaesthesia* 2020; 75: 785-99.
3. Zhang J, Jiang W, Urdaneta F. Economic analysis of the use of video laryngoscopy versus direct laryngoscopy in the surgical setting. *J Comp Eff Res* 2021; 10: 831-44.
4. Zaouter C, Calderon J, Hemmerling TM. Videolaryngoscopy as a new standard of care. *Br J Anaesth* 2015; 114: 181-3.
5. Cook TM, Kelly FE. A national survey of videolaryngoscopy in the United Kingdom. *Br J Anaesth* 2017; 118: 593-600.
6. Elshazly M, Medhat M, Marzouk S, Samir EM. Video laryngoscope versus USB borescope aided endotracheal intubation in adults with anticipated difficult airway: a prospective randomized controlled study. *Korean J Anesthesiol* 2022; 75: 331-7.
7. Malito ML, Mathias LA, Kimura Junior A, Correa GH, Bardauil VR. The impact of introducing a videolaryngoscope in the initial training of laryngoscopy for undergraduate medical students: a simulation randomized trial. *Braz J Anesthesiol* 2021. Advance Access published on Apr 3, 2021. doi:10.1016/j.bjane.2021.02.048.
8. Dawson SR, Taylor L, Farling P. The true cost of videolaryngoscopy may be trainee experience in fibreoptic intubation. *Br J Anaesth* 2015; 115: 134-5.