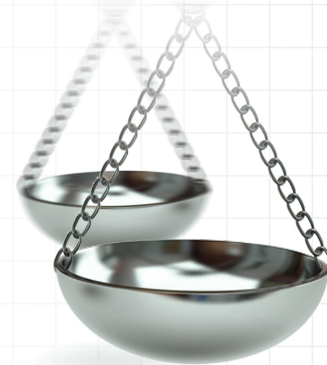




Letter to the Editor: video laryngoscopy – the new *de facto* standard in intubation

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Journal of **Comparative Effectiveness Research**

First draft submitted: 24 May 2021; Accepted for publication: 14 July 2021; Published online: 30 July 2021

Keywords: direct laryngoscopy • intubation • video laryngoscopy

We read with great interest the correspondence of Zhang and colleagues, which reported the economic impact of the use of video laryngoscopy (VL) compared with direct laryngoscopy (DL) in the surgical setting for both routine and difficult adult airways [1]. The authors suggest that the video laryngoscope group had lower hospital costs, shorter length of hospital stay, reduced rate of intensive care unit admissions and fewer complications. We commend the authors for their timely contribution to the evolving literature on airway management, and its impact on healthcare economics and quality. We wish further to propose several pathways that may help explain the historical pathway that got us to where we are today.

DL originated in the 1940s, both in straight blade [2] and curved blade [3] models, based upon the improvements in design, allowing portability and the widespread use of cyclopropane, which depressed both cardiovascular function and ventilatory drive. Although there were, and are, aficionados of both models and the numerous variants created, the direct laryngoscope remains one of the salient developments in the storied history on anesthesiology. Success or failure of intubation technique depends on the metrics that we use. Early analysis [4] was binary, success or failure, irrespective of the number of attempts, duration of the effort, amount of force utilized and the laryngeal view obtained. Degree of difficulty was not included. Improved pre-intubation metrics [4] for anatomic airway assessment improved recognition of subjects likely to be problematic. Later analysis [5] focused on ergonomics and the force, both axial and perpendicular, applied by the laryngoscopist, which reached 70% of peak values. Later analysis [4] extending to progressively larger retrospective and prospective sample sizes, was outcome oriented, examining the entire spectrum of resultant major and minor complications, such as: sore throat, dental trauma, trauma to integument, intensive care unit admissions, brain injury, need for a surgical airway or death. DL fails to optimize laryngeal view in up to 6% of patients without apparent anatomic abnormalities, results in mild (38%) and moderate (8%) intubation difficulties and requires more than three intubation attempts in 3% of patients [4]. Subsequent technical advances included the development of the laryngeal mask airway, variants, laryngeal mask airway knock-off devices, supraglottic airways and more recently, the development of the VL. Technological advances are numerous [6]; some milestones include development of the light-emitting diode, liquid crystal display screen, complementary metal-oxide-semiconductor video chip technology, rendering these devices, commercially affordable, more dependable, easier to use and in some cases autoclavable. Some types of the VL are the flexible fiberoptic bronchoscope, flexible, malleable and rigid optical stylets, disposable optical laryngoscopes, channeled, unchanneled and Macintosh-like and hyper-angulated devices. These modern devices offer brighter and predictable optics, minimum and optimal light requirements (700 lux at a distance of 20 mm) improved performance characteristics [7], 'California standard' compliance [8] and often portability. While the long-touted obsolescence of DL has not yet occurred, there has been a steady erosion in market share versus VL. The authors have demonstrated this in a large, tertiary care academic facility [9]; it also occurs in the community hospital. VL and use of the bougie are recommended as the initial back-up when intubation proves problematic in recent landmark publications [10,11]. We are approaching an inflection point in which VL is supplanting DL for most indications; this includes routine intubations. If VL is better for our most difficult patients, why are we not using it on all patients?

We have now reached a mature market in the VL arena, in which VL has been shown to be superior to DL in terms of performance characteristics for most purposes. Affordable, versatile and ubiquitous, they are the default tool for the next generation of anesthesia providers. Zhang and colleagues have shown that VL is a good risk management strategy and makes economic sense.

Financial & competing interests disclosure

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.

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