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A DO-IT-YOURSELF VIDEOLARYNGOSCOPE FOR UNDER 25\$ - A SOLUTION FOR LOWER INCOME COUNTRIES?

Y. Cohen^{1,*}, R. M. Rubinstein², H. Berkenstadt¹

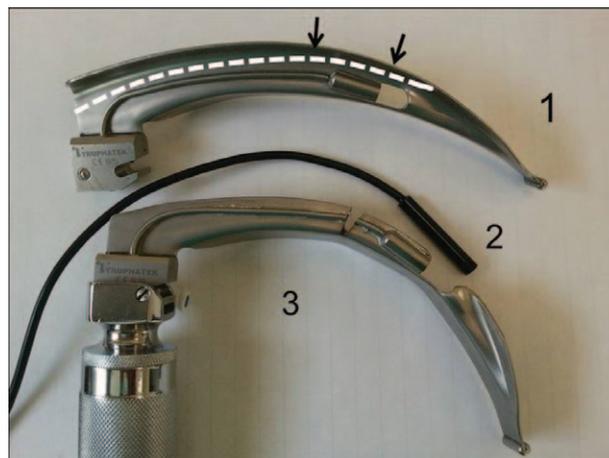
¹Department of Anesthesiology, ²MSR, Chaim Sheba Medical Center, Ramat Gan, Israel

Background & Objectives: Videolaryngoscopy has become a standard tool for management of the difficult airway. However, prices of commercially available devices range between hundreds and thousands of dollars, limiting the availability of this potentially lifesaving device in lower-income countries. We describe the production of an effective, low cost, Do-It-Yourself videolaryngoscope.

Materials & Methods: Videolaryngoscope preparation: A 5.5mm USB waterproof video-camera was purchased through eBay for the price of 9.53\$ (figure, 2). Using tools found at the hospital's maintenance department, we reduced the height of a broken McIntosh 4 blade (white line, figure, 1). Two vertical cuts reaching the blade's surface, 6 and 8.5 centimeters from the blade's tip (Arrows) allowed bending the blade, giving it the hyper-acute angle typical of videolaryngoscopes like GlideScope or Storz D-blade (figure, 3). The video-camera was attached 4cm proximal to the tip of the laryngoscope blade using rubber bands. A mobile phone connected via the USB was used as a screen.

Videolaryngoscope evaluation: 18 anesthesiologists (experience 1-30 years) participated in a difficult intubation scenario using a SimMan manikin. Intubation difficulty was induced using the manikin's 50% tongue inflation and trismus, and a tight fitting neck collar. Intubation was performed using a Macintosh #3 blade, GlideScope GVL 4 blade and the DIY blade, at a random order. We recorded time from blade insertion to successful intubation, Cormack & Lehane laryngoscopic grade and ease of intubation graded on a 0-4 scale, as judged by the intubating anesthesiologist.

Results: Intubation time, C&L laryngoscopy grade and ease of intubation were: 25.4±17 (Mean±SD) seconds, 2.8±0.8 and 1.6±0.8 for the McIntosh blade, 13.9±5.5 seconds, 1.1±0.3, 3.3±0.8 for the GlideScope blade, and 13.0±5.0 seconds, 1.1±0.2, 3.6±0.5 for the DIY blade. Results were significantly different between both the GlideScope and DIY Scope and the McIntosh 3 blade. Results were not statistically different between the DIY Scope and the GlideScope.



Conclusion: A Do-It-Yourself Videolaryngoscope that functions as well as a commercial videolaryngoscope can be produced for under 25\$. Such improvised devices may save lives in low-income countries where commercial videolaryngoscopes are unavailable due to their prohibitive price.

We call upon commercial companies to develop and produce low-cost videolaryngoscopes, making this lifesaving device available worldwide.

Disclosure of Interest: None declared

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