

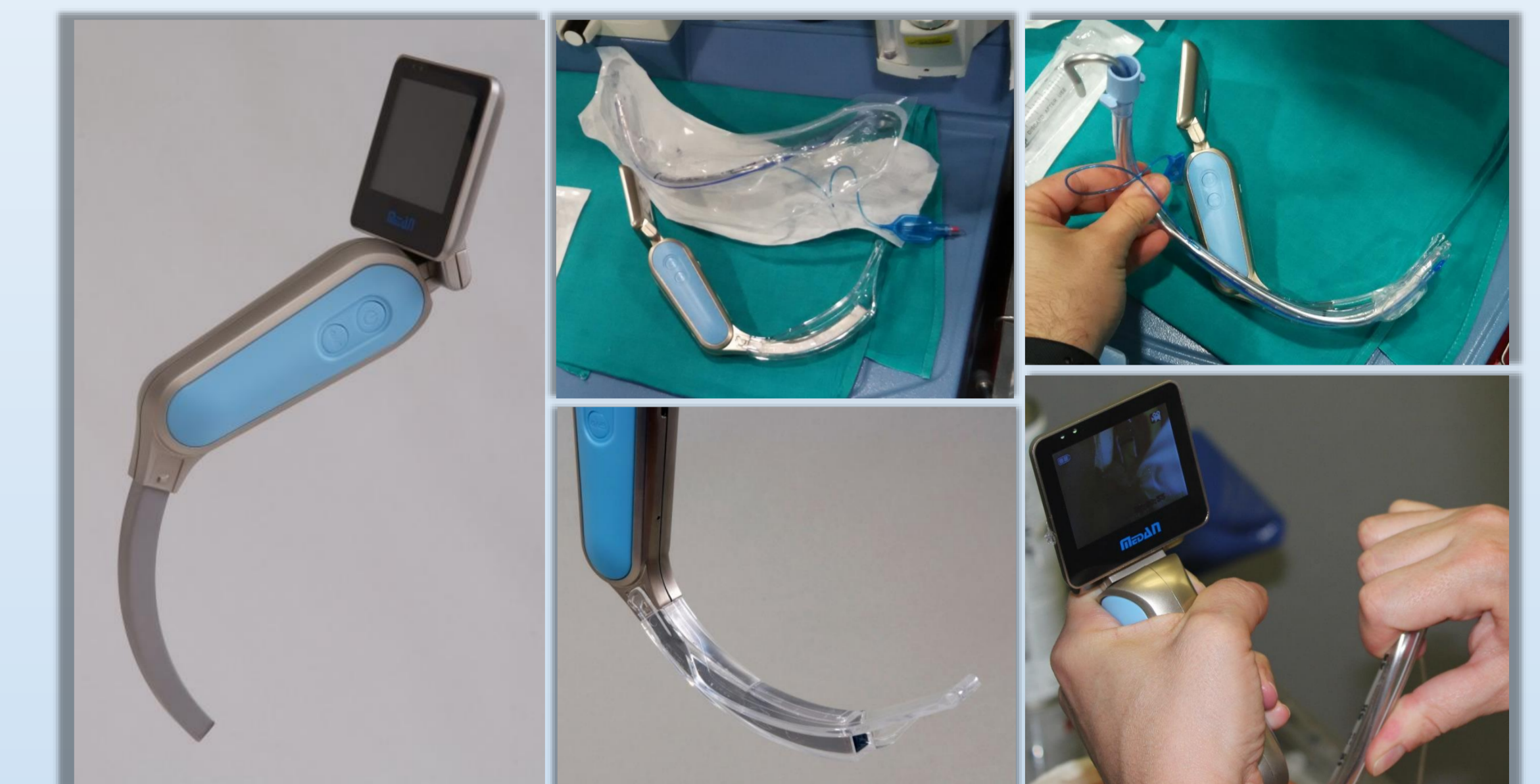
Tracheal Intubation By Inexperienced Medical Residents Using Medan And Macintosh Laryngoscopes: A Manikin Study

Martinez Hurtado, Eugenio¹; Sanchez Merchante, Miriam²; Brunete Jimenez, Tamara²; Fernandez Sanchez, Clara Isabel²; Martínez Lopez, Adrian²; Morandeira Rivas, Clara²; Fernandez Tellez, Laura²; Navarro Echevarria, Patricia²; Rodriguez Esteve, Andrea Alejandra²
 1.Hospital Universitario Infanta Leonor;2.Hospital Universitario Fundacion Alcorcon



Background: the aim of the present study was to evaluate whether Medan videolaryngoscope (VDL), a novel Macintosh blade shaped optical device, facilitate endotracheal intubation (EI) faster or more secure than conventional laryngoscopy (MAC) in a SimMan Essential manikin in non experienced personnel.

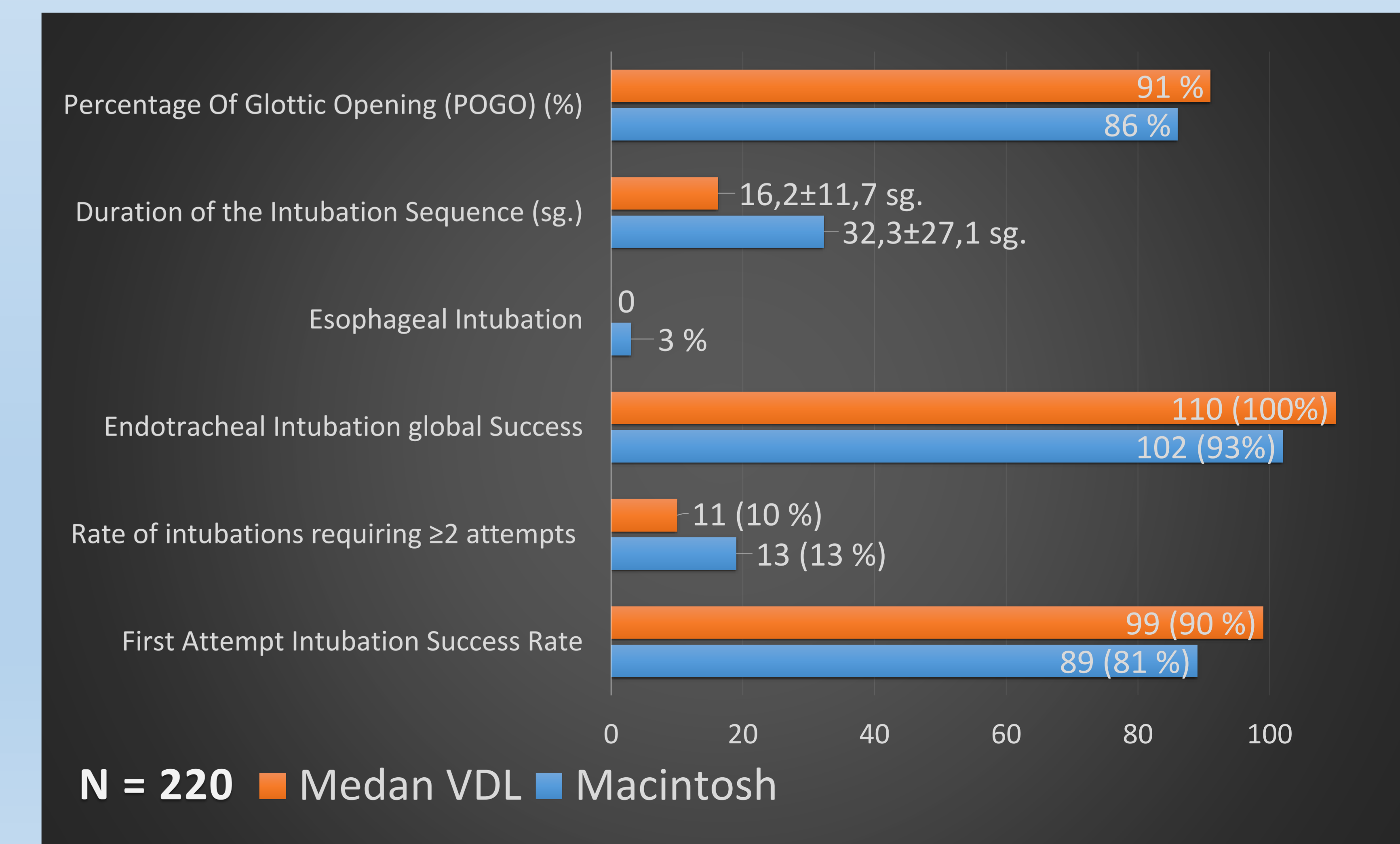
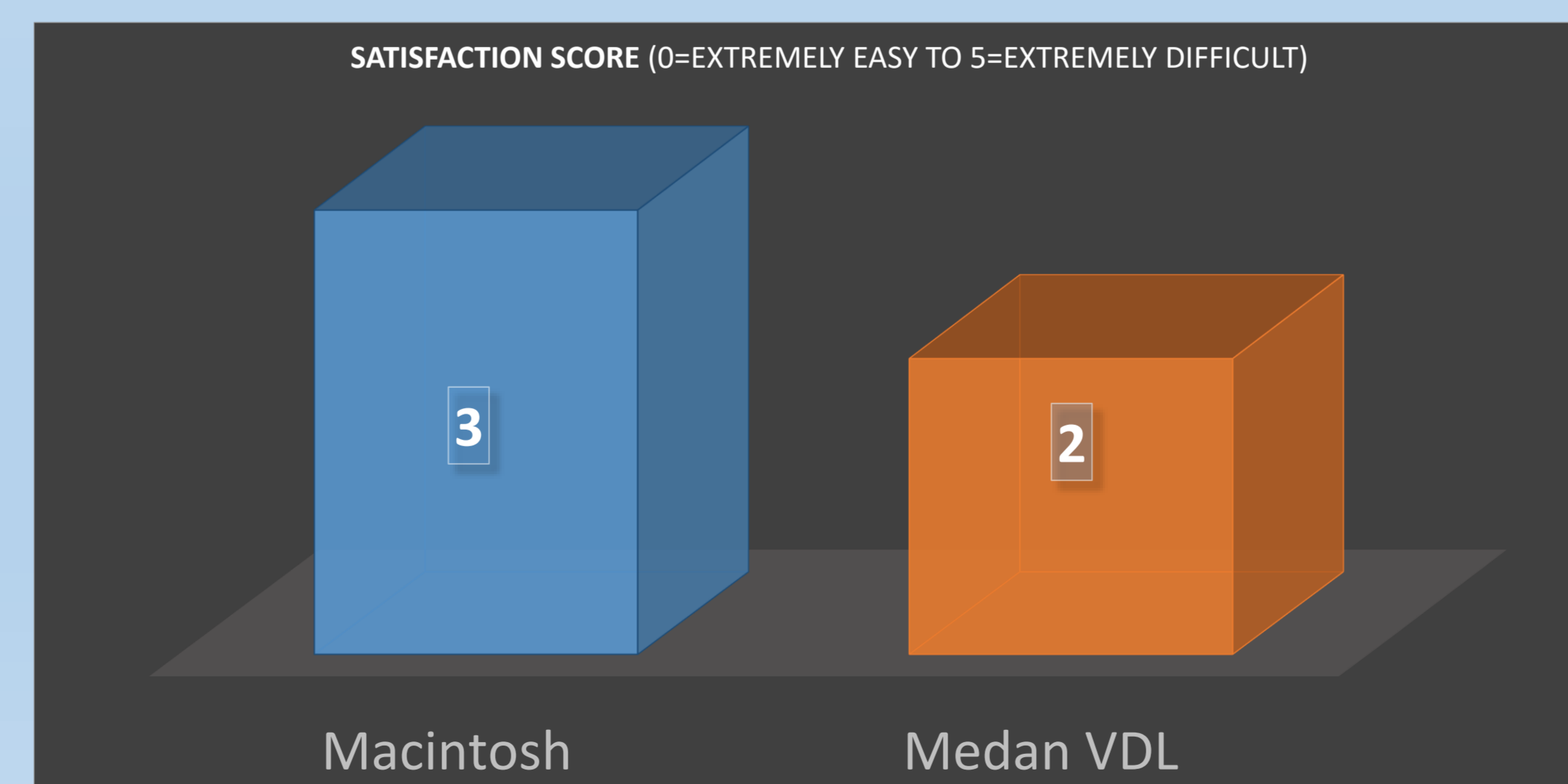
Methods: we conducted a randomized crossover trial with 11 medical residents with 0 EI performed with Medan and less than 20 EI with MAC at the time of recruitment into the study. Oral instructions regarding the correct use of each device and optimization maneuvers, such as external laryngeal pressure, was explained in a didactic brief, but not prior training with devices was performed. Each participant took turns performing a total of 20 randomized EI using MAC or Medan in a normal airway in the supine position scenario (N=220).



Primary measured outcome was first attempt intubation success rate. Secondary outcomes included total number of attempts, rate of esophageal intubation, duration of the intubation sequence, percentage of glottic opening (POGO) score (1), and a satisfaction score of use of each device on a visual analog scale (0=extremely easy to 5=extremely difficult). Wilcoxon signed-rank test and McNemar's test were used for statistical analysis, p<0.05 was considered as significant.

Results: rate of first attempt success was superior with Medan as compared with MAC, and all residents successfully intubated the trachea with Medan VDL (100% vs. 93%, P<0.05). Rate of intubations requiring ≥2 attempts (10% vs. 13%, P<0.05), unintended esophageal intubations (0% vs. 3%, P<0.05), time to EI (16,2±11,7 vs. 32,3±27,1, P<0.05), POGO (91% vs. 86%, P<0.05), and satisfaction (2 vs.3, P<0.05), all improved significantly with Medan VDL.

Conclusions: videolaryngoscopes improve laryngoscopic views and first attempt success rates in elective OR and simulated tracheal intubations compared with the direct laryngoscope (2,3). Our study showed higher success of EI when Medan VDL was used by inexperienced residents.



References

1. Levitan RM et al. Assessment of airway visualization: validation of the POGO scale. Acad Emerg Med. 1998 Sep;5(9):919-23.
2. Malik MA et al. Randomized controlled trial of the Pentax AWS, Glidescope, and Macintosh laryngoscopes in predicted difficult intubation. Br J Anaesth 2009;103:761-8.
3. Narang AT et al. Comparison of intubation success of videolaryngoscopy versus direct laryngoscopy in the difficult airway using highfidelity simulation. Simul Healthc 2009;4:160-5.

Conclusions

1. Our study showed higher success of EI when Medan VDL was used by inexperienced residents.
2. This finding highlights the ease of use and the rapid learning curve associated with this device.
3. Medan VDL was easier to use than MAC.
4. Medan VDL seems helpful as anyone assisting with intubation is able to visualise the procedure.
5. Medan VDL improves rates of first attempt success, difficult intubations (≥ 2 attempts), esophageal intubations, times, and the total number of attempts required for successful EI.