



A Prospective Observational Comparison of the C-MAC Video Laryngoscope to the Macintosh Direct Laryngoscope in the Emergency Department

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Background and Objectives

- Rapid sequence induction of anaesthesia and endotracheal intubation (RSI) in the Emergency Department (ED) is a high-risk procedure
- Increased risk of complications when performed in ED
- Video Laryngoscopy may improve the intubation first pass success rate and by consequence of this, reduce complications¹.
- Aim to describe our experience of using the Karl Storz C-MAC video laryngoscope as compared to standard (Macintosh) laryngoscopy in two Australian EDs.



¹Sakles JC, Chiu S, Mosier J, Walker C, Stolz U.

The Importance of First Pass Success When Performing Orotracheal Intubation in the Emergency Department. Acad Emerg Med. 2013 Jan 13;20(1):71–78.



Methods

- Retrospective analysis of prospectively collected data
- All intubations in the EDs of Royal North Shore and St George Hospitals over 3 years and 1 year respectively
- Standardized data collection sheet – see www.airwayregistry.org.au
- Completed in the immediate post intubation period by the intubating physician or team member
- Data checked by investigators for accuracy
- Data analysed using SPSS v20.0



Results: Demographics

- 619 Patients: 522 RNSH, 97 SGH
- No significant differences in demographics

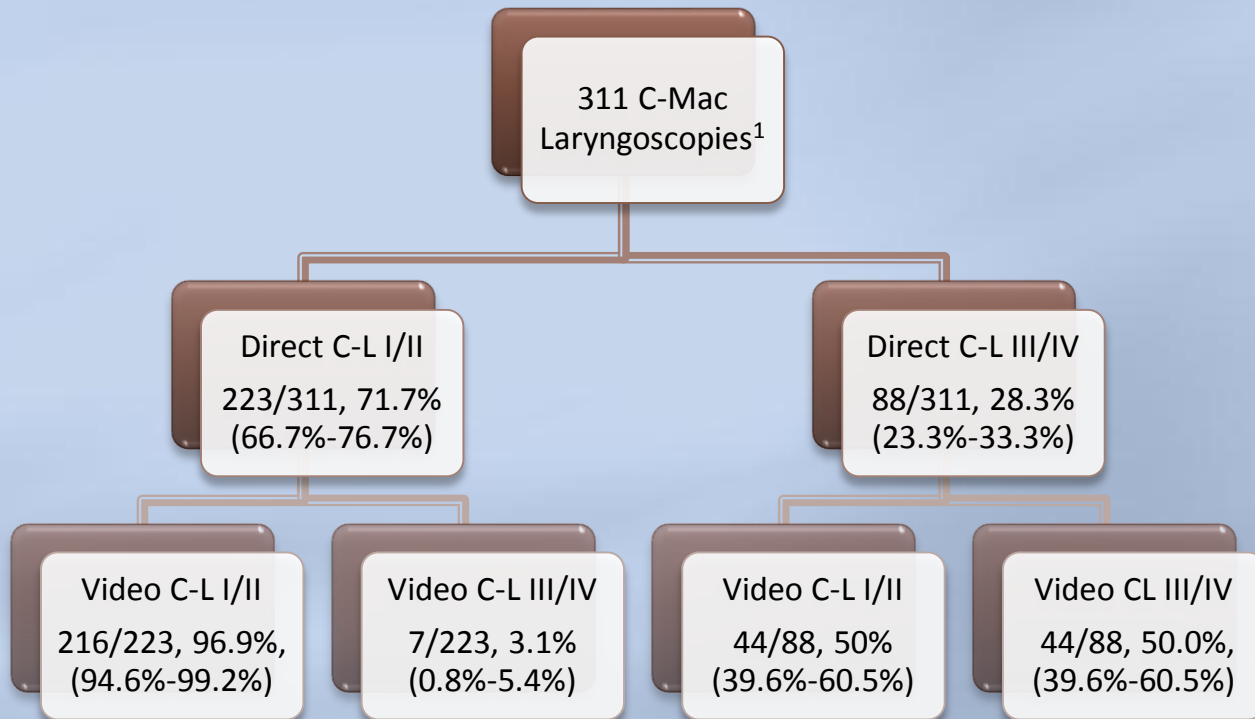
	C-MAC	Macintosh
Number of Patients	353	266
Mean Age	55.7 ± 1.2	53.0 ± 1.5
Male: Female	1.6 : 1	1.9 : 1
Trauma Patients	28.9%	30.8%
≥1 difficult airway predictor ¹	57.8%	54.1%



¹ LEON Criteria



Results: Comparison of DL to VL C-L Grade for C-Mac Intubations

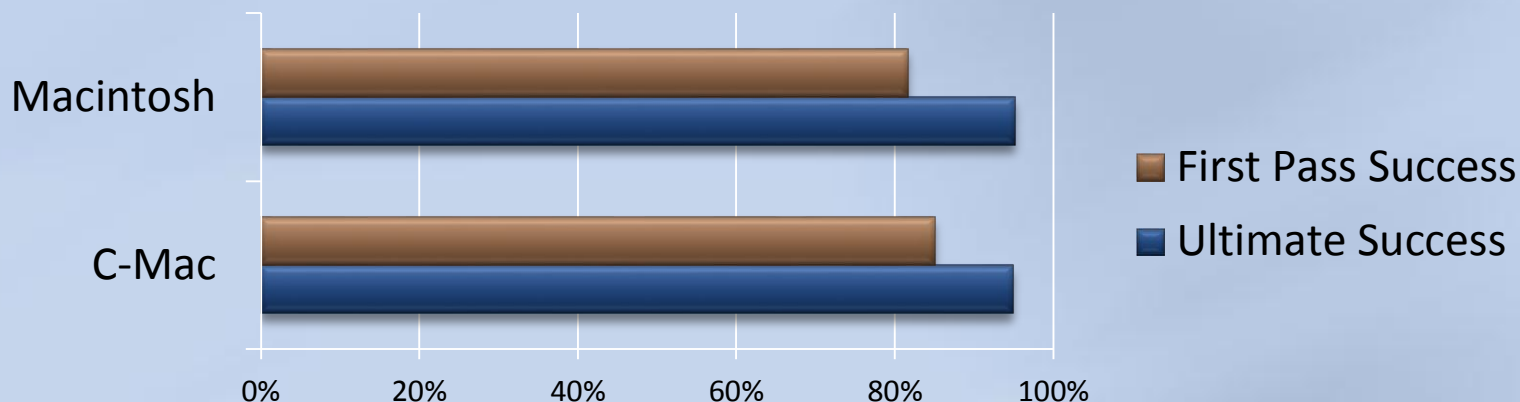


Video view improved on direct view in 50% Gr III/IV views
Video view was worse than direct view in 3.1% of Gr I/II views

¹353 C-Mac attempts in total, 311 had both direct and video grades recorded



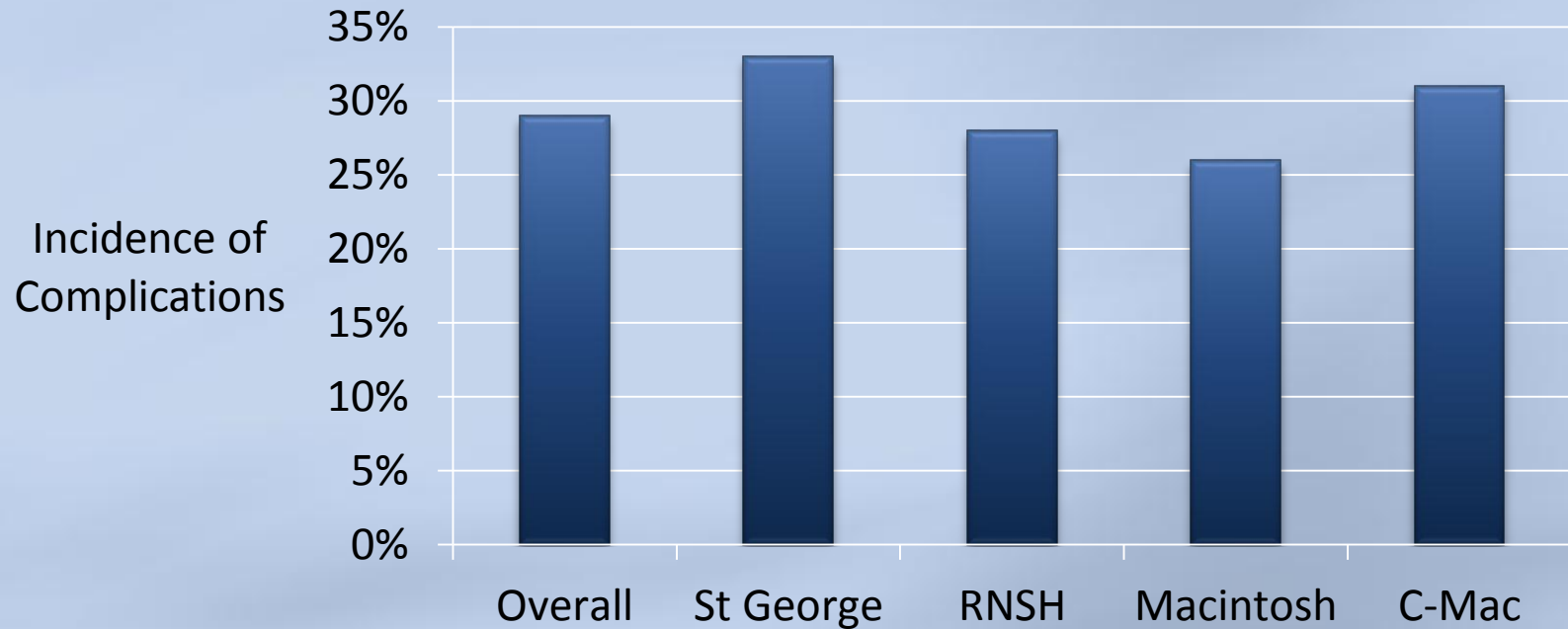
Results: Success Rates



- Chance of success increased x3.1 by using a C-Mac in the setting of CL Grade III/IV on DL (OR=3.06; 95% CI: 1.52-6.17; P=0.002)
- Mean number of attempts: C-Mac 1.2 ± 0.0 , Macintosh 1.3 ± 0.04
- No significant difference in ultimate success in patients with one or more difficult airway characteristics between the use of CMAC vs Macintosh (93.1% vs 97.2%), P=0.090



Results: Complications



- No significant difference between rates of complications, $P > 0.05$



Discussion

● Limitations

- Observational study
- Data entry not always contemporaneous
- Reporter bias may artificially improve glottic views and under-report complications

● Conclusion

- In the setting of difficult direct laryngoscopy, the chance of success significantly increased by more than threefold if the C-Mac was used
- No advantage of C-MAC over the standard laryngoscope in the majority of cases
- No improvement in first pass success rate
- No change in frequency of complications

