Reviewer’s report

Title: Comparison of the Glidescope, flexible fibreoptic intubating bronchoscope, iPhone modified bronchoscope, and the Macintosh laryngoscope in normal and difficult airways: A manikin study.

Version: 1 Date: 24 November 2013

Reviewer: Erik Lichnovsky

Reviewer’s report:

Overall this is interesting and well conducted study within its limitations that are clearly stated. Methods used are appropriate and well described. Concept of using iphone connected to bronchoscope is new and original. Unfortunately study showed that exiting design of iphone connected directly to bronchoscope wasn’t really ergonomic. This is correctly highlighted in very thorough discussion. Authors suggest that using iphone for wifi streaming to ipad would be better. Also comparison of this configuration to bronchoscope with viewfinder and bronchoscope connected to video stack would be more clinically relevant.

Minor Essential Revisions:

1. In conclusion paragraph page 3: “Results obtained in manikin studies can often not be directly extrapolated into clinical practice.” It should be stated clearly without hesitation that these results cannot be extrapolated into clinical practice to avoid misinterpretation. As it was mentioned already in many studies and very well discussed by Minai R. et al in their paper (1):” We are not aware of any substantial evidence that manikin studies correlate with clinical performance in this area. The use of rigid plastics, the lack of collapsible soft tissues, absence of secretions and the fact many manikins do not have anatomically correct epiglottic and laryngeal structures makes them very unlikely to be useful surrogates for evaluation of either easy or difficult intubation. We recently evaluated four modern manikin in several domains of airway management. Based on this, we would conclude that intubation is not reliably simulated by manikins.”

2. In results page 9: “Time to view the cords (TVC) and Time to successful intubation (TSI) verses device”. Is verses misprint? It occurs again in: “Time to view the cords and Time to successful intubation verses operator experience…”

3. In discussion page 13: “The results may have been different if a smaller size or (?) brand of ETT was used…”

4. Figure 3 page 18: There is incorrect description in table and figures: “Boxplots demonstrating the effect experience of the operator and intubation difficulty on time to view the vocal cords (A and B) – should be (A and C) and time to successful intubation (C and D) – should be (B and D)”

Discretionary Revisions:
1. In defining secondary outcomes the “user rated degree of device difficulty” sounds quite cumbersome.

2. Ad conclusion: I would suggest to consider rewording: “the combination of smart phone technology and fiberoptics may provide a novel and relatively inexpensive method of teaching this essential skill” - I don’t think it provides different method, you’ll get the same with AMBU’s aScope3 or intubating bronchoscope connected to video stack but you are definitely getting alternative device (configuration) that can facilitate this method of teaching.

3. It would be useful to add picture of vocal cords done by iphone through bronchoscope to illustrate picture quality and also picture of operator using iPMFB on manikin to demonstrate how (non-) ergonomic this configuration was.

4. Ad Tab 1: For estimated number of FO intubations there is median of 0 and range (0-12) for registrars. How many of them had any previous experience with FO intubation?

Ad Fig 4: Does this mean that there were 6 times more failed bronchoscope intubations and failed iPMFB by consultants than failed FO intubation by registrars? If this is the case it is very interesting and worrying that registrars with no exposure and experience performed much better in FO intubation than consultants, it would probably warrant some more comments in discussion.

5. When comparing Macintosh blade used dor DL intubation failure rate it would be also interesting to report Cormack and Lehane grade if it is available. According to methods there wasn’t gum elastic bougie or stylet used to facilitate DL intubation. Stylet was apparently used to facilitate intubation with Glidescope. What was reason for exclusion this common equipment used for patients with difficult laryngoscopy? Why authors opted for size 4 Macintosh blade? Is it blade recommended by manikin manufacturer? According manikin’s manual there is recommendation for LMA size 4 and ETT 7.5, I would expect that manikin is size of medium adult. In that case size 3 Macintosh would be more appropriate to use to improve tracheal intubation success. Could you please comment on this?


**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests