Reviewer's report

Title: A randomised, controlled crossover comparison of the C-MAC videolaryngoscope with direct laryngoscopy in 150 patients during routine induction of anaesthesia

Version: 3 Date: 24 August 2010

Reviewer: David Ray

Reviewer's report:

The authors have addressed most of my previous questions satisfactorily and the manuscript is now clearer. However I still have some concerns as detailed below:

Major compulsory revisions

1. I am very concerned about the inconsistent use of BURP and the effect this may have had on the results. The primary outcome measure was change of glottic visualisation - BURP may have improved the view obtained and since not all patients had BURP performed the authors have not compared solely the difference in view between laryngoscope blades but the potential combination of BURP (in some patients) and blade design. Thus the inconsistent use of BURP is a major confounder (and significant methodological flaw) and requires the findings and their interpretation to be considered with great caution. Unless the authors can satisfactorily address this point the manuscript will be limited and the findings open to considerable question.

2. It is mentioned that all patients underwent 3 separate laryngoscopies using each blade/technique but this is not explicit enough. I would suggest that the authors include a sentence in the methods section such as "All patients underwent three separate laryngoscopies using conventional direct laryngoscopy, videolaryngoscopy with a C-MAC size 3 blade, and a C-MAC size 4 blade, the order of which was determined by computer randomisation." This should also be made explicit in the abstract.

3. The authors responded to my suggestion that the data for each of the three groups should be shown separately by saying that this would give no additional information. I disagree. The secondary outcomes were time taken for intubation and success rate of tracheal intubation. Although all patients underwent laryngoscopy with each blade, only one third of patients underwent intubation with any blade and the composition of each of these three groups may have been different which may have influenced the findings - for example it is entirely possible that all 7 patients with morbid obesity may have undergone intubation using the same blade with no morbidly obese patients in either of the other 2 groups.

4. Although a secondary endpoint was success rate of intubation using each device it is not clear in the results that only 50/56 (89%) patients were
successfully intubated using conventional direct laryngoscopy, compared with 100% success for either C-MAC sizes 3 or 4. This should be made explicit.

5. I thank the authors for adding information about calculation of sample size. However they have not stated what sample size their calculations suggested - this should be added.

Discretionary revisions

1. The authors show in table 2 a comparison of laryngoscopic views obtained at direct laryngoscopy and C-MAC Miller SBT technique. What were the differences in laryngoscopic view if direct laryngoscopy was compared with size 3 C-MAC blade in these patients?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I have assisted Aircraft Medical (Edinburgh, UK) in the development of the McGrath videolaryngoscope. My employing authority has received payment from Aircraft Medical for my professional advice given on a consultative basis.