Reviewer's report

Title: Assessment of knowledge retention and the value of proctored ultrasound exams after an introductory emergency ultrasound curriculum.

Version: 1 Date: 12 June 2007

Reviewer: Alan Jones

Reviewer's report:

General
This is a manuscript that reports the impact of an ultrasound training course on the written test performance of residents and attending physicians. In addition, they investigate the impact of a proctored ultrasound exam on the outcomes of these written test performances.

-----------------------------------
Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. Regarding the last paragraph of the Background. Please state in one sentence, your aims of the study. As it is now, these aims are presented in seven sentences and they are difficult to follow. In addition, following each aim the authors provide justification and that’s not necessary. An optimal sentence would read something like, “Aims of this study were to (1) test models of curricula that are typical of those used to train attending emergency physicians and EM residents throughout the country; (2) assess the retention of emergency ultrasound knowledge after the Introductory Course; and (3) assess the impact of a proctored ultrasound exam on knowledge retention.

2. The authors do not report how many of the emergency medicine residents had previous ultrasound experience. It is well known that ultrasound experience as medical students is increasing. This could have an impact on test results.

3. For the testing, the authors give an example of one of the test questions. Rather than do this in a figure, it might be nice to make the whole test available as an appendix, either in the manuscript or on the web. In addition, we need to know how many questions are present and who graded the tests.

4. Was the data that was analyzed with paired t-tests tested for normality? If so, what test was used and what were the results?

5. The authors report using paired t-tests but they report their data as percentages. If the data analyzes percentages, chi-square tests would be needed. If the authors would like to use paired T-tests to evaluate this data, then they should report means and standard deviations of test scores rather than percentages.

6. Authors need to report how many subjects were in the proctored ultrasound exam group.

7. Authors need to report the 95% confidence intervals for the difference in test scores between the proctored ultrasound group and the control group.

8. Additionally, it appears as though the authors used paired t-tests according to their data analysis section to analyze this difference and that is inappropriate. This would need Fisher’s exact test.

9. It would be nice for the authors to report what the focused didactic curriculum contained and if it contained information that was the area of most emphasis on the test. If there was more emphasis on the information contained in the test during the proctored ultrasound, this needs to be addressed.

10. The biggest problem with this manuscript is that the authors conclude that the use of a proctored ultrasound examination session adds significant value to the traditional didactic course. They state that there is not only image recognition improvement but also subjective improved comfort. The problem with this is that the authors did not attempt to control for any confounders that may have arisen in the timeframe from the initial training course to the test that was administered six months later. It is possible that the participants that were randomized to do the proctored ultrasound exam group had more interest in
ultrasound, took extra courses, or had extra didactic material on ultrasound, took a special interest in it and therefore read more about it. These could all be reasons for increased knowledge retention. Without the ability to control for such confounders, we can draw no conclusions about the value of proctored ultrasound examination in regards to material retention. If not possible to control for these confounders, then the conclusions that are drawn about the utility of the proctored ultrasound examination would have to be removed.

Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**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 declare that I have no competing interests'