Reviewer’s report

Title: Effectiveness of an Ultrasound Training Module for Internal Medicine Residents

Version: 2 Date: 7 June 2011

Reviewer: Paul Lombardo

Reviewer’s report:

Major compulsory revisions
• nil.

Minor essential revisions

Abstract:
• Paragraph 2 & Paragraph 3; insert hyphen in ‘postsurveys’.
• Paragraph 4; ‘ultrasound-guided’ requires space removed after hyphen.

Introduction:
• The abstract section should end after paragraph 4. ‘Introduction’ or similar title should be inserted to head up the next section. I have referred to this section as introduction.
• Paragraph 3; need to define what is meant by ‘appropriate use’ of ultrasonography.
• Paragraph 3; keep terms consistent, use either ‘ultrasound’ or ‘ultrasonography’.
• Paragraph 5; remove comma after ‘effective’ in first sentence. Cite references to support statements made in the first sentence.
• Paragraph 5; final sentence needs to define what is meant by ‘effectively using ultrasound’.
• A clear statement of a hypothesis (which is actually not stated but referred to later in the methods) would be useful in this section, for example, “…ultrasound training will increase the confidence of residents in using ultrasound to guide invasive procedures”. In addition, the possible benefits of increasing residents’ confidence in using ultrasound such as increasing accuracy, decreasing procedure time, decreasing complications, improving patient/resident interaction etc could be mentioned.

Methods:
• Paragraph 1; Insert hyphen in ‘nonembalmed’
• The ultrasound equipment used in the training and procedures needs to be specified.
Results:
• Paragraph 1; ratings cited in the results section relating to survey questions 2, 4 and 5 are not included in Table 1.
• Table 1 could include findings from questions 2, 4 and 5, or another table created to display the extra information.
• An apparently errant ‘Figure 1’ text appears at the bottom of the Table and should be removed.

Discussion:
• Paragraph 1; insert a hyphen in ‘postassessments’.

Conclusion:
• Second sentence: Replace the word ‘effectively’ with ‘more confidently’...use ultrasound for invasive procedures. The study measured confidence, not effectiveness (accuracy etc).

References:
• References 6 and 12 have typos in the title.

Discretionary revisions

Abstract:
• Paragraph 1; replace the word ‘perform’ with ‘guide’ ...invasive procedures.

Methods:
• Paragraph 1; Fellows would certainly be appropriate to teach the medical side of paracentesis and thoracentesis. It is unclear what ultrasound instrumentation training these people would have, but I wonder whether a sonographer (technologist) would be better qualified to teach ultrasound equipment optimisation?
• The amount of teaching time to learn image optimisation and ‘knobology’ appears very limited. This may be related to the functionality of the ultrasound system used in the study. It is doubtful that anything more than a rudimentary introduction to ultrasound physical principles and instrumentation can be achieved in this time. An objective measure of the residents’ understanding is not tested and it may be that any increase in confidence is misplaced.

Discussion:
• Paragraph 1; It could be argued the major reason the largest improvement in confidence rating was in indentifying the internal jugular vein and thyroid gland is because these are very simple structures to identify on ultrasound. Conversely, peritoneal structures are very difficult to indentify on ultrasound. It would therefore be expected that a very basic training course would produce these outcomes.
• Paragraph 2; Self-reported confidence ratings do not provide an objective
measure of residents understanding or skill as the authors point out. Self reported confidence can clearly be misplaced. The value of this study should be emphasised more, that is, list the advantages of having residents that are confident in adopting technology (in this case ultrasound) to assist them in their current and potentially future work.

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

**Quality of written English:** Needs some language corrections before being published

**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.