Reviewer’s report

Title: Survey of Practitioners’ Competency for Diagnosis of Acute Diseases Manifest on Chest X-ray

Version: 2 Date: 13 Apr 2017

Reviewer: Ernest Ekpo

Reviewer's report:

This is a revised paper that explored the performance of non-radiology medical personnel in the diagnosis of acute chest conditions manifest on chest X-ray. Although some of the comments have been addressed, the authors have not addressed the major issues in the paper. The key phrase in the title of the manuscript is "Competency for Diagnosis of Acute Diseases Manifest on Chest X-ray". Competency refers to "ability", "capability" to successfully perform a task. Results provided show association between variables and do not completely capture the competency of respondents. Competency assessment should consider respondents' ability to correctly identify and characterize the disease processes, thus assessment of sensitivity (correct classification of images with disease) and specificity (correct classification of images without disease) is required.

Statistical analysis: Nothing has been done with regards to the previous comments raised here, which were:

1. to "State clearly the parameters assessed and compared rather than identifying them as categorical or continuous variables, groups etc". Which are the groups being compared? GPs and Medical students?

2. There are many non-parametric statistics, please provide the exact test used for your analysis of the non-parametric data

3. The analysis for reader performance is flawed. Being an observer performance study, where the true diagnosis is known and there is only one vignette per case and normal cases in the test-set, the best analysis would be ROC to obtain AUC, sensitivity and specificity, which are measures of respondents' competency for each reader and for all readers. A further analysis accounting for their confidence rating could also be performed.

Results: Report the sensitivity and specificity of respondents rather than associations and descriptive values.
Predictors of Correct Answers: Predictors of correct answers: It is unclear how total certainty score would be a predictor of performance. I would think predictors should be related to reader characteristics that influence performance. E.g experience, years since graduation, period spent in Radiology department etc. This has not been addressed by the authors

Discussion

P11lines 44-48: There is no evidence to show that performance was related to experience. The statement "Certainty should stem from both knowledge and experience. While some of the participants in our survey were independently-practicing GPs with noticeable prior experience, their responses were similarly undesirable" contradicts the point raised. If knowledge and experience are determinants of performance, then why was their responses undesirable?

Figures: Please address the suggestions made

Figure 2: Include the description of features representing pulmonary edema in the image. e.g bats wing appearance etc

Figure 3: See comment in Figure 2. E.g loss of pulmonary makings on the left with contralateral mediastinal shift

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review
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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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