Reviewer's report

Title: Case-based exercises fail to improve medical students' information management skills: a controlled trial

Version: 1 Date: 4 January 2006

Reviewer: George Bergus

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General

This well written and interesting manuscript suggests the authors were unable to demonstrate improvement in information management skills as a result of an educational intervention. The use of a standardized patient encounter for testing these skills is particularly creative and should enhance the validity of the findings. The data from the trial are very interesting but there is need for addition description of methods and discussion so that I can make better sense of the findings. Most of my comments below revolve around this need.

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

There is a basic question which goes unanswered in this manuscript. Although the authors demonstrate that the intervention did not seem to impact student performance why this is the case receives limited attention. Three possibilities come to mind. In order to sort out the possibilities we need more information.

1. Was the intervention a failure because the students did not acquire the information management skills? Any light the authors can shed on this question will be helpful.
2. If the students acquired these new skills then the problem could be one of transfer- students were not able to apply what they had learned in a classroom to a setting outside of the classroom. If this is the case then it is important to know if this failure was related to a) near transfer (applying a skill to a situation very similar to one students were able to handle in the classroom) or b) far transfer. The type of transfer failure would depend on whether a travel medicine case was included in the classroom information management exercises. More detail (going beyond Table 1) would be helpful.
3. Perhaps the students acquire the information management skills, were able to use these skills in the clinical setting, but the means of assessment was not valid. Two potential problems that come quickly to mind are: a) forcing students use computer/PD equipment they were familiar with during the SP encounter or b) not provide the students with adequate time during the encounter to use the equipment. The intervention students very well could still be at the novice stage making them very time sensitive. Although the encounters were 20 minutes in length how did the authors assess whether the seemingly failure of the education intervention was actually due to testing failure? For example, did the students made use of all 20 minutes or did a majority end the case early (as is often the case in our simulated encounters)?

It is eye opening that so few of the students correctly identified the drug interaction between doxycycline and antacids. (I have to admit that I didn’t realize there was one although this is well documented in the PDA drug program I use). The authors raise the possibility that students did not know how to use the drug database program on the PDAs. Could they provide us more information about the training the students got on the program? This would help answer this question. In
addition, it would be useful to know what drug program the students had access to. Some programs are much more user friendly than others. Lastly, as the authors point out, the problem could also be one of metacognition- students did not correctly assess that that they did not know. (Previous research suggests medical providers may not self-assess their knowledge deficient particularly well.) As a part of the educational intervention, were students taught when to use their new information mastery skills?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Table 2 is informative but more difficult to understand than need be. It is not immediately obvious that the first 4 columns under “student performance” are actually pairs resulting from the dichotomization of the last column. If the sample size of each of the student categories were provided this would be more obvious.

Discretionary Revisions (which the author can choose to ignore)

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

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests