Reviewer’s report

Title: Assessment of clinical reasoning in clinical practice. Observable phenomena that reveal clinical reasoning during history taking of medical students: a qualitative study

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Reviewer: Stephen Loftus

Reviewer's report:

Thank you for asking me to review the manuscript, "Assessment of clinical reasoning in medical practice. Observable phenomena that reveal clinical reasoning during history taking of medical students: a qualitative study". The paper describes a grounded theory approach that made use of senior clinicians' observations of what they saw as relevant to clinical reasoning when observing recordings of medical students conducting patient assessments. They conclude with a model that attempts to bring the findings together. The model is intriguing and could be useful in developing insights into clinical reasoning. I think the model could also help educators both to teach and assess the clinical reasoning of students and junior practitioners. I also think the readership of the journal would find this paper to be of interest. There are one or two points that need to be clarified before final acceptance.

The authors observed that content, or context, specificity profoundly affected the clinical reasoning that was observed. They seem to think that this is a barrier to developing an objective means of assessing clinical reasoning. It probably is, especially if you are looking for a truly objective model that can be applied simplistically at all times and in all places in a technical rational manner. I think one of their most important findings is that they confirm the effect that content and context specificity has on clinical reasoning. If an educator wants to apply the model, the authors have developed, then that educator will need to be aware that context really matters, and adjust their assessment according to context. It seems that one of the most important insights of the project is to confirm that clinical reasoning is contingent and dependent on context and, therefore, there is a need for interpretation in clinical reasoning. We can provide our students with general protocols to follow, but the ways those protocols are used must be adapted
according to context. I think the authors could argue that the ability to interpret the context and adapt appropriately is a sign of developing expertise? This seems to be true too of the observations of the expert observers. The experts used their own experience and expertise as a frame of reference to judge the overall performance of the students. The authors seem to think this was a problem. Again, it could be one of the most important insights from the project that experts must interpret what they see according to what they know from their experience, in addition to any formal propositional knowledge they have? The importance of interpretation, both by students engaged in clinical reasoning, and by their observers, could arguably be the most important finding of the project?

The authors bring in social perception theory in the discussion section. I really think this should be introduced earlier before the Methods. The discussion section can then show how the project contributes to this theory.

The authors often talk of 'stimulating' the observers. In keeping with a qualitative approach it would be more appropriate to talk of 'prompting' people.

At one point the authors state that "inferences are assumptions". I disagree. Inferences are conclusions that come at the end of a chain of reasoning. However, it is reasonable to say that assumptions can have a profound effect on inferences.

In summary, I think the authors have come up with a useful model that could help educators draw attention to important aspects of clinical reasoning. I suspect that the data the authors have show that interpretation is an inescapable part of clinical reasoning and how we assess it.

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

Yes

**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.
Yes

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.
Not relevant to this manuscript

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