Reviewer's report

Title: Implementation science: a role for dual processing models of reasoning?

Version: 1 Date: 9 February 2006

Reviewer: Pat Croskerry

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General: this is a very interesting and well written article that places emphasis on the importance of considering individual factors in implementation change in physicians.

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Major Compulsory Revisions: None

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Minor Essential Revisions: It may be worth addressing the following issue: there are a variety of reasons why physicians do not change their behaviours. A prevailing assumption in the paper is that an EBP may not be adopted or incorporated into a clinician's practice because he/she is in an experiential mode which is in conflict with the preferred rational approach. This is entirely acceptable. However, it might be worth noting that the 'resistance' of clinicians in some cases to implement change is often based upon bitter experience with new therapies and approaches. There are many examples of innovations, regarded as best practices, that later turn out to be wrong, or the studies on which they were based found to be flawed, or biased. There is a clear evidence in the literature, for example, that the pharmaceutical industry has exerted publication bias, selective reporting, etc and has even influenced clinical practice guidelines. So there may be some healthy skepticism (= rationality?) in using the experiential mode to resist change.

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Discretionary Revisions: it is a little distracting to see a section labelled 'Discussion' appear on P3, as this is traditionally reserved for the end of a paper where the data or arguments are being reviewed. Unless this is journalistic style, I would recommend eliminating the heading, and un-bolding 'Background' on P2 so that it looks like a comparable sub-heading to 'Models of Reasoning' on P3.

In the second para of P3, it seems redundant to refer to a mode of information processing as 'experiential' and at the end of the same sentence say that it is acquired by experience.

In the 3rd para of P3, the second sentence says that experiential processing is chosen under circumstances of low motivation or when a judgment is considered relatively unimportant. In the clinical setting, however, there are several conditions under which this is not the case. The clinician may be highly motivated to make a particular diagnosis in the setting of a pathognomonic presentation i.e. lack of ambiguity, or the problem may be otherwise perceived as low complexity, or minimal diagnostic challenge. In neither case is motivation low or the judgement considered unimportant even though the experiential mode can be seen to suffice. In the sentence that follows, I would add that rational processing is chosen when the stakes are high and there is uncertainty. Sometimes the stakes may be very high but not warrant a rational approach. Typically, clinicians seem to fall back on the rational, analytic approach when their intuitions and experience fails them.

P4, 2nd para: Are all those characteristics of the rational mode described in reference 11? Again, one of the principle situational factors for the rational mode appears to be uncertainty or
ambiguity.

P6, 1st para: The last part of that sentence might be better as: ..., given that the process of diagnosis largely depends on a clinician's thinking [14].

2nd para: It might be worth making the point that as far as dispositional factors go, a double jeopardy exists insofar as it is not only the individual doctor's judgement that may be influenced by dispositional factors but also his/her dispositional interpretation of the patient's behaviour. This is a source of error in the physician's judgment that has its basis in the fundamental attribution error.

P7, 2nd para. I would probably add to the penultimate sentence in this para something acknowledging the individual's state of affect. Physician's affective state has a significant impact on decision making but is a significantly under-researched area. It has recently been acknowledged by Slovic et al (check the affective heuristic).

P8. I'm not sure where this should go but the last para on this page brings the 'status quo' bias to mind - that physicians often resist change because of the emotional discomfort of changing the status quo (Samuelson W, Zeckhauser R. Status quo bias in decision making. Journal of Risk and Uncertainty 1988; 1: 7-59.)

P11. The last sentence of the paragraph needs an 'and' after 'self-poisoning'.

I'm not sure where this should go either, but reference should probably be made to: Croskerry P. The theory and practice of clinical decision making. Can J Anesth.2005; 52: R1-8. Where a number of the issues raised in this paper are discussed in a more clinical context.

What next?: Accept after discretionary revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.