Reviewer's report

Title: A Systematic Review and Meta-Analysis of the effects of Clinical Pathways on length of stay, hospital costs and patient outcomes

Version: 1 Date: 16 July 2008

Reviewer: Suzanne Richards

Reviewer's report:

Rotter et al: A systematic review and meta-analysis of the effects of clinical pathways on length of stay, hospital costs and patient outcomes.

This paper presented an interesting and topical systematic review of the effect of clinical pathways management. The research is conducted to a high methodological quality and the question is generally well defined. The methods are mostly appropriate and well described (although I have a few suggestions below) and the data are sound. The discussion does require some further work as some of the statements are quite strong (and one possibly going beyond their data) although overall my impression is that it generally provides a fair account of their findings.

Major revisions (n=4)

Methods Table 3 and associated text: Closer examination of Table 3 left me somewhat confused as to how these quality assessment criteria were applied. These criteria apply only to RCTs - how did any CCTs make it through given that you only selected papers of moderate quality?

pg 12 para 2 Discussion: Authors state that the results may not be applied for acute rehabilitation for stroke as the reverse effects were reported elsewhere. Why not? The authors did not describe excluding such studies from their sampling and there is no specific analysis in the review to support this statement. Do you really want to keep this statement in the paper? If so, I would consider rewording as it currently goes beyond your data.

pg 13 para 1 discussion: The authors make a very strong statement regarding the 'only' appropriate evidence base upon which decision makers should base their decision making on. I think this is too strong - especially as the precise reasons for excluding many of the studies are not presented in this paper to allow the reader to make their own mind up.

pg 13 discussion: Whilst this paper adds to our understanding of the implementation of care pathways, the data are almost exclusively limited to 'hard' outcomes, such as length of stay and costs. There is a paucity of data presented in the table and no description/discussion of the results describing patient-centered outcomes (e.g. functional ability, satisfaction, quality of life). Whilst I think this might go beyond the scope of this present review - perhaps a
future direction to be considered is a more comprehensive, patient-centered approach to the examination of patient-centered outcomes? Getting people out of hospital more quickly and at a reduced cost is only a good thing if it is also good for their health and well-being!

Minor revisions

pg 2 1 line results sub-heading: change '4.070' to '4,070'

pg 3 line 3: LOS reduction (difference -2.5 days, 95% vs -0.8 days). The bracket contains a fragment. Did the authors originally intend inserting a 95% CI around the difference? Should this be a weighted mean difference rather than just difference? Please clarify.

pg 3 line 4: change 'difference' to 'differences'

pg 4 para 2: change quotation mark after "expert opinions" to a closed quotation rather than an opening mark.

pg 4 para 3: change quotation mark after "(LOS)" to a closed quotation rather than an opening mark.

pg 4 last para: insert comma after 'age and indication,'. Also remove comma after 'Given the problem'.

pg 5 third para: Would change 'footnote chasing' to 'citation tracking' as the latter term tends to be used more widely.

pg 5 last para: remove 'namely' from sentence.

pg 6 first para: Insert a period mark after '[13].' 

pg 6: I would suggest deleting the equations presented for generating the weighted effect size, as this is a relatively standard procedure within Revman. (I would be inclined to keep in the text that 'the effect sizes were generated using a model fitting inverse variances weights[17]').

pg 7 line 1: 'We considered etc' This sentence was a little unclear. Suggest it is reworded to 'We considered, a priori, a value greater than 60% to be evidence of substantial heterogeneity of a magnitude were statistical pooling is not appropriate.'

pg 7 para 2: You refer to using a fixed effects model as part of the sensitivity analysis. Need to explain a little more (1-2 sentences maximum) as to how this model differs (e.g. is it more conservative?) from random effects model, and thus how it can be used in a sensitivity analysis.

pg 7 para 2: Should 'marked forces' be 'market forces'?

Throughout text: change 'vs.' to 'versus'

pg 7 para 3: Possibly need a reference to support the statement regarding health
economic theories and the notion that invasive procedures can be standardized more easily resulting in lower treatment variance. This change is optional.

pg 7 para 5: change 'pose' to 'poses'

pg 7 para 6: In this paragraph you talk about fail-safe N test but do not explicitly assign the abbreviation (Nfs) to this statistics. Latter on in the paper (pg 11) you refer to 'file-draw studies', but do not explicitly mention this within the methods. Is Nfs a file-draw study abbreviation? If so, please amend methods text. The sense of the whole sentence ('The fail-safe etc') is slightly stilted. I would suggest that you edit it to improve the clarity.

pg 8 para 1: Insert brackets to explain the abbreviation 'd crit' after 'Using a critical d level (d crit)'.

Remove capitals from meta-analysis here and throughout subsequent text in mid sentences.

I would keep the Nfs formula in the text, as this is relatively new in the literature and I found it helpful. You might consider presenting the equation on a new line for consistency with the subsequent equations.

pg 8 para 2: Replace 'because of the value 0' with 'because of the minimum value is always 0).

Replaced 'data were analyzed' with 'data were used'.

Insert colon after 'following formulas:'

pg 8 para 4: The formatting of the flow diagram could be improved as the side banners are somewhat ambiguous (e.g. do the figures in the boxes refer to exclusions or inclusions?). Whilst clearly this paper cannot reproduce reasons for exclusion of all excluded/not downloaded studies, it is however, important to include data on the number of papers excluded and why (e.g. XX did not meet quality criteria etc).

pg 9 first sentence: replace '4 & 1' with '1 and 4'

Throughout paper: The presentation of data on 95% confidence intervals varies throughout the text. In the abstract it is presented as 'X.X (95% CI X.X to X.X)', whilst in the result section it is presented as 'X.X (95% CI X.XX/ X.XX)'. Occasionally you include spaces between 95 and the % sign rather than as all one word. Pick one format, and edit/replace all inconsistencies. I tend to prefer the former i.e. using (95% CI X.X to X.X) as it is clearer - but this is up to you.

pg 9 para 3: remove comma after 'in-hospital complications'.

pg 10 para 2: Used the definition WMD without defining in the text.

pg 10 para 3 onwards: Consistency. You present WMDs in from this point onwards without or without associated 95% CIs. Insert confidence intervals where appropriate.
pg 11 para 2: 'with respect to indications' - what does this mean? Clarify text.

pg 11 para 4: what does '(7 * -0.25)' mean? Clarify text.

pg 12 para 1: what does 'double leverage effect' mean? Please provide more explanatory text.

pg 12 para 2: edit quotation marks around 'caesarian'.

pg 13 para 2: The final sentence might benefit from being reworded a little. Suggest 'While the overall quality of the included studies was moderate, most demonstrated methodological weaknesses such as a small sample size available for analysis.'

Table 1: 'Nn' in column headers unclear. Please carefully edit table as some of the quality measure descriptions (e.g. 'admission after diagnostic') are unclear. In places it you present mean scores and no associated SDs - if there were no such data presented in the paper, please state in a footnote that it was missing. Check record for Sulch 2000 as a negative proportion is presented (-13%).

Table 3: see earlier comments. Some of the formatting within columns (e.g. split sentences) should be corrected.

Table 4: Remove '(PTCA)' and '(TURP)' as the abbreviations are not used elsewhere.

Table 5: Remove period marks in the costing data (e.g. $1.243) as this could be misinterpreted as a decimal place.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests