Reviewer's report

Title: Subgrouping patients on the basis of their individual course of low back pain over a six month period

Version: 3 Date: 30 March 2011

Reviewer: Julie Fritz

Reviewer's report:

The authors of this manuscript have been generally responsive to the previous review and the manuscript has been substantially improved in its clarity. I appreciate the clarifications provided regarding the analysis strategy that was used and aspects of the methods and measurements.

Major Compulsory Revisions

My primary concern with the manuscript is the confusion that is evident in various places between the clustering analysis conducted in this study (which identifies prognostic clusters of patients), and the concept of subgrouping for the purpose of determining treatment strategies (which requires two-group designs and tests for interaction effects). This manuscript does not concern itself with subgrouping because it is an observational studies with one treatment approach (chiropractic) used for all patients.

In response to the previous reviews, the authors correctly acknowledge that the design and purpose of their study is not to identify baseline characteristics that might be used to identify subgroups of patients for some sort of directed treatments. Particularly in the introduction however, the authors mix ideas that relate to determining treatments, with the concept of prognosis, which is what this study actually deals with. The Discussion Section discusses the results more appropriately as related to prognosis and possibly useful for patient education, not treatment decision-making.

My specific recommendations to clarify this important issue are the following:

1. Remove the term “subgrouping” from the paper, including the title and abstract, and substitute the term “clusters” or perhaps “prognostic clusters”. The term “subgroup” in the back pain literature is generally used to describe procedures used by clinicians to identify more homogeneous groups of patients based on the likelihood of responding to a particular treatment approach; not based on their likely prognosis across time. Using the term “subgroup” confuses these issues.

2. In the Introduction section, remove the description of treatment effectiveness issues and instead describe the potential importance of identifying prognostic categories of patients. The identification of prognostic groups could eventually lead to improved treatment effectiveness through targeted treatment, but this will
require a good deal of additional research that identifies baseline factors that can be used to place patients into one of these clusters, proposes treatments specific to each cluster, then examines the effectiveness of the treatment-cluster matches in randomized trials.

Minor Essential Revisions

Page 11 – The description of the rationale for only including compliant subjects in the analysis should be moved from the Results section to the Methods or Analysis section of the manuscript.

Page 11 – the numbers of subjects included in the analysis is difficult to follow in the first two paragraphs of the Results section. Please clarify in the same paragraph – how many subjects were recruited and how many are not included in the analysis due to drop-outs, non-compliance, etc.

Results Section – please comment on the differences observed between included and excluded subjects in Table 1. This could involve statistical testing between the groups or a more qualitative assessment, but either way there appear to be important differences between these groups.

Page 15 – The authors describe the error rate in predicting cluster membership as “almost as low as” 20%. First, please provide the actual error rate. Second, although this is certainly lower than a random process, it still seems a rather high rate of error. This should be commented on in the discussion section.

Level of interest: An article of limited interest

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests