Reviewer's report

Title: Assessment of variation in the Alberta Context Tool: The contribution of unit level contextual factors and practice specialty in Canadian pediatric acute care settings

Version: 2 Date: 12 September 2011

Reviewer: Dolf Boer

Reviewer's report:

General comments

The authors have done an excellent job in addressing my previous comments. The rationale for the approach of the study and various analyses is now clear and the paper contains a better balance between statistical and conceptual explanations or justifications. Further, various steps, decisions and results are better grounded in previous literature. As such, I recommend that this work is published. Nevertheless, I still had some minor issues with the paper, as listed below.

Minor discretionary revisions

The added explanation as to why between-unit variability is essential (see bottom of page 8) still appears somewhat vague to me. The authors state that:

‘assessment of between-unit discrimination...’ ‘...is essential to understanding the construct validity of instruments like the ACT that collect data at the individual (respondent) level with the purpose of aggregating those responses to obtain higher (e.g., unit) level estimates’.

Obviously, the data should display between-unit differences in order to justify aggregation of individual level data to unit-level estimates on statistical grounds. However, there may still be a problem with validity if the between-unit differences in the ACT data are the result of an artefact, rather than a reflection of reality. This may occur, for example, if differences in casemix of the response groups per unit are not sufficiently controlled for. As such, I would have expected a statement along the lines that between-unit variance is assessed to determine whether aggregation is justified statistically and that the validity of those differences is determined by validating the results of the ACT against other measures. Perhaps this is what the authors intend to say using an explanation that is not very clear to me for some reason.

The authors added an informative paragraph addressing the fact that the validation of the ACT was limited to nurses as the sample sizes for other health care professionals were limited. It would be elegant if the authors could elaborate on the implications of the limited sample sizes for future use of the ACT. Is it expected that the sample sizes for other health care professionals remain small
in future measurements? This may be the case if there are only a few of those professionals employed per unit. And what does this mean for application of the ACT for those other health care professionals?

At page 25, reference 42 is described as a study in the Netherlands. The title of the publication seems to indicate that this concerns a study in Finland; the authors may wish to check whether this is indeed the correct reference.

**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