Reviewer's report

**Title:** Diagnostic accuracy of the vegetative and minimally conscious state: Clinical consensus versus standardized neurobehavioral assessment

**Version:** 1  **Date:** 8 March 2009

**Reviewer:** Robert Holloway

**Reviewer's report:**

Major Compulsory Revisions

1. Better describe participant recruitment and sampling. Was it based on presenting symptoms? Was this a consecutive sampling defined by the inclusion/exclusion criteria? Was it different between the acute and chronic stage participants – if so, how? Would also report when the study was done, including beginning and ending dates of recruitment.

2. The authors need to better describe the consensus diagnosis and its rationale. Was their a formal vote elicited? Did it occur within structured team meetings? Was a structured process of eliciting opinions used (e.g., Delphi). Who on the clinical team recorded the clinical consensus diagnosis? Did authors collect information on who disagreed and how frequently.

3. In the methods, the authors should state explicitly that those performing the CRS-R were not masked to the clinical consensus diagnoses. The clinical information available to those performing the CRS-R should also be stated. The authors should also explicitly mention if those performing the CRS-R were involved or not in the clinical consensus diagnoses. If they were involved, they should mention in detail the nature and extent of their involvement.

4. Would provide a measure of statistical uncertainty around their estimates (95% CI)

Minor Essential Revisions

1. The authors deal with the “sensitivity” side of the assessment but do not deal with the “specificity” side. For example, how often is the CRS-R prone to false positive diagnoses? This is important since an elusive gold standard bedevils the field and will differ depending on the stage of diagnosis (e.g., ?acute = time ± other assessment, chronic = other assessments ± functional imaging). The study designed therefore, is positioned in a way to increase the chances of showing the scale is better than the consensus diagnosis.

2. The authors state that there are no conflicts. If one of the authors however, was involved in the development of the CRS-R, I would consider that a conflict and would err on the side of reporting it as such. Scale developers often have an interest in seeing their scale perform well and widely used.
Discretionary Revisions

1. Authors need to be careful about stating that the validity and diagnostic utility of the CRS-R has been well-established. I completely agree that the reliability has been established. It might be better to state that the CRS-R has shown superior performance compared to other scales (FOUR score, GCS) in detecting VS and MCS - this may be a more accurate way of describing the characteristics of the scale.

2. Authors need to mention the very important differences of VS and MCS in the acute and chronic stages; specifically the diagnoses in the acute stages may be more transitional states to further neurological recovery. This will impact the future utility of these scales and their assessment.

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.

Declaration of competing interests:

I declare that I have no competing interests