

## The Expanded Rancho Levels of Cognitive Function

A revision of the Rancho Levels of Cognitive Functioning has recently been developed by Dr. Chris Hagen, one of its original authors. This revision adds two new levels to the original eight, with the intent of better describing the later phases of recovery from brain injury. These levels have been presented through lectures in which the author, Dr. Chris Hagen, recommends a rehabilitation continuum to utilize treatment approaches and resources appropriate to the patient's phase of recovery. As the rehabilitation community strives to improve quality and cut costs, this model provides a helpful approach.

At the current time, Rancho Los Amigos continues to utilize the original eight level version, for two main reasons. First, the large majority of our patient population is in the early, inpatient phase of recovery and therefore appropriately covered by the eight levels. Also, because there has not yet been any published research on the tool, we do not have validity and reliability data available to insure accurate application of levels 9 and 10. However, in order to encourage research on this new tool, we are happy to make it available for use by the rehabilitation community and to encourage further research on it.

Acceptable standards for validity (the extent to which the tool measures what it purports to measure) and reliability (the extent to which the measurement is consistent and replicable) should be established through statistical analysis of application of the tool to an appropriate population of subjects. There is currently no data available to assess the validity and reliability of the Revision of the Rancho Levels of Cognitive Function. However, the characteristics of the tool itself suggest some reason for caution in this area. The Revised Rancho Levels of Cognitive Function are designed to provide an overall measure of cognitive recovery following traumatic brain injury. While a single scale which provides such summarizing information would be helpful, it is difficult to achieve this without oversimplification. The categorical grouping involved in this scale involves collapsing ratings across several dimensions of behavior (e.g. communication, memory, judgment). Soon after onset of injury, when functioning in each of these areas is likely to be significantly impaired, the use of a single number to describe overall functioning may reflect the functional level of many patients fairly accurately. However, as recovery progresses, the specific strengths and weaknesses of the individual become more differentiated and these differences in levels of functioning in different dimensions have a significant impact on the individual's ability to perform various activities within home and community environments.

For example, it is possible that an individual will fit some but not all of the descriptions for level 9 Purposeful and Appropriate - Stand-by Assistance on Request or level 10 Purposeful and Appropriate - Modified Independent, on the various behavioral dimensions described (attention, use of memory aids, initiation of routines, insight, etc.). When a person fits some but not all of the descriptions, it is not clear how the level should be assigned. That is, if the memory skills are as described at level 9 but the judgment skills are only at level 8, should the lower level automatically be assigned? This clearly affects both the validity and the reliability of the tool, since it becomes difficult to determine what is being measured and whether the same measurement would be assigned by two different judges. At the later stages of recovery from brain injury, neuropsychological testing is appropriate to further differentiate the treatment needs of brain injury survivors.