

NRI Outcome Validation Study Highlights for 2013 Patient Demographics and Characteristics

Demographics and Characteristics

The NRI Outcome Study for the period ending December 31, 2013, addressed the discharges of 31 individuals. There were 25 males and 6 females.

Mechanism of Injury

The etiology of the brain injuries for the discharge population in this study includes motor vehicle crashes, anoxia, cerebrovascular accidents and physical assault. Patients sustained moderate to severe injuries resulting in significant physical, medical, cognitive and behavioral deficits. Most showed post-injury history of aggressive behavior including aggression toward self and others, elopement issues, non-compliance issues and impulsivity. Patients had a range of cognitive problems involving attention, planning, organization, problem solving, and auditory verbal and visual memory.

Introduction

During 2013, the NRI program experienced continued growth in programming and use of professional staff with a licensed clinical social worker who continued to add specialized services for patients with personality disorders. Further, NRI provided additional training to counseling, SLP and occupational therapist assistant externs and interns in 2013. A number of programming developments from 2013 have continued to increase opportunities for all patients to go into the community to practice community reintegration skills acquired during their rehabilitation. The peer council that was established in 2013 continues to function as a key mechanism for engaging patients in treatment and improving their insight into disability. Individuals selected by the council are provided various self-chosen positive reinforcers/rewards. The NRI outcome study continues to include objective outcome measures including the Brief Neuropsychological Cognitive Examination (Tonkonogy, 1997) and the Mayo-Portland Adaptability Inventory (MPAI-4) developed by Malec and Lezak (2003). The objective measures are combined with previous categorical measures that address the areas of Return to Independence, Social Role Return, Vocational Re-entry, and Self Management.

In using objective measures, the MPAI-4 has an Adjustment subscale that speaks to behavior management and that subscale took the place of the Self-Management of Behavior category in 2009. During 2010, the Self-Management of Behavior category was re-implemented. Following is the NRI Outcome Validation Study for 2013.

Categorical Data Outcomes 2005-2013

TABLE 1. Return to Independence								
The table below indicates that the discharge destination of clients who completed the NRI program primarily returned home with minimal to moderate supports for 2012.								
	2006	2007	2008	2009	2010	2011	2012	2013
Return to independence with minimal to moderate support <6 hrs/day	45%	14%	14%	0%	13%	6%	24%	35%
Return to congregate living or extended supports in the home >6hrs/day	0%	14%	29%	50%	17%	65%	38%	19%
Return to group home with 24 hr/day support	33%	57%	14%	11%	37%	29%	19%	19%
Return to nursing home or hospital setting 24 hr/day care	22%	15%	43%	39%	33%	0%	19%	24%

TABLE 2. Vocational Re-Entry								
The return to meaningful life activities such as work, school, and volunteering is an important measure of completing rehabilitation. The return to competitive employment, school or vocational training program increased from 2011 to 2012.								
	2006	2007	2008	2009	2010	2011	2012	2013
Return to competitive employment, school or vocational training program	11%	0%	14%	0%	0%	6%	19%	11%
Supported employment or volunteer work	11%	17%	14%	0%	13%	22%	9%	0%
Sheltered workshop or day activity program	11%	33%	29%	11%	29%	17%	19%	0%
Unable to work	45%	33%	0%	50%	42%	44%	29%	89%
Requires 24 hr/day supervision	22%	17%	43%	39%	16%	11%	24%	10%

TABLE 3. Social Role Return								
The return to pre-injury social role is a determinant in an individual maintaining his or her independence over time. Returning to pre-injury social role and responsibilities increased from 2011 to 2012 with a decrease over the past two years in those requiring 24 hr/day supervision.								
	2006	2007	2008	2009	2010	2011	2012	2013
Return home with independence and minimal modifications to social role	12%	0%	14%	28%	4%	11%	14%	35%
Return home to dependent care status	33%	33%	14%	11%	21%	17%	19%	10%
Return home with <2 hrs/day paid behavioral support	0%	33%	10%	0%	0%	0%	0%	0%
Return home with >2 hrs/day paid behavioral support	0%	0%	24%	11%	4%	17%	24%	0%

Attend day program providing structured care 3-5 days/week	33%	71%	14%	11%	8%	0%	10%	19%
24 hr/day Supervision	22%	0%	24%	39%	63%	55%	33%	24%

TABLE 4. Self Management of Behavior

The self-management of behavior is a key factor in long-term success. Individuals completing the NRI program demonstrate an increase in their capacity to self-regulate behavior.

	2006	2007	2008	2009	2010	2011	2012	2013
No behavioral support services required	45%	66%	28%	See MPAI results	0%	11%	23%	0%
Weekly contact with therapist, 0-5 outbursts per week	0%	17%	28%	See MPAI results	33%	44%	57%	24%
2 or more contacts per week with therapist, 6+ outbursts per week	0%	0%	0%	See MPAI results	16%	6%	10%	24%
Requires daily structured behavioral program	33%	0%	0%	See MPAI results	13%	6%	0%	24%
24 hour placement	22%	17%	44%	See MPAI results	38%	33%	10%	24%

Data Outcomes 2013

TABLE 5. BNCE and MPAI-4

BNCE	Average Score	MPAI - 4	Average Score
Admit	8.26	Admit	61.27
D/C	19.90	D/C	48.46
Diff	11.64	Diff	15.29
Admit n =26	D/C n = 21	Admit n = 40	D/C n = 32

Table Notes

- BNCE: total score <22 indicates the individual will likely not be able to live alone.
- BNCE: higher scores indicate a better level of functioning.
- MPAI-4: Scores reported as t-scores (Mean=50; Standard Deviation=10). Lower scores indicate a better level of functioning.

Interpretation

From the table, the BNCE data and cut-off scores reflect that the NRI patients at admission had from mild to severe deficits related to their injury. With an average admission score of 8.26, results indicated that individuals in the study will struggle to live without significant support systems. From the average discharge score, the data indicates that the patients, on average,

experienced positive improvement. Of note, however, the above data is likely not the best representation of study participants as a group. For example, admission BNCE scores ranged from no problems to severe and discharge scores varied widely, as well, with scores ranging from mild to severe deficits. In general, participants saw modest changes in functioning upon comparison of pre and post-treatment.

The Mayo-Portland data total score indicates an overall improvement. Recall the lower scores are reflective of a higher level of functioning and a negative value indicates an improvement in functioning on the MPAI-4. Admission average at 61.27 compared to discharge average falling at 48.46. The overall average score reflected an improvement of an average of 12.81 points or actual reduction in score indicating significant improvement (recall that the lower the score on the MPAI the higher the implied functioning of the individual).

Conclusion

The NRI program has used objective measures for program evaluation for the past eight years. Categorical outcomes related to independence, social role return, and vocational re-entry is provided. In conclusion, results continue to represent positive outcomes for the individuals we serve. Efforts will continue to be placed toward improving the outcomes through empirically validated measures as a part of the research base for individuals living with the effects of brain injury.

Respectfully submitted,

Linda M. King, MA, CCC/SLP
Coordinator and Acting Director of NRI Program
Brookhaven Hospital
Tulsa, OK