



Neurologic Rehabilitation Institute at Brookhaven Hospital



About the Study

Since 1999, NRI has conducted an Outcome Validation Study to evaluate the performance and quality of its services and programming. The study looks at various groups that are serviced by NRI, as well as customer and staff satisfaction. Over the years, the study has evolved to better measure the relevancy of rehabilitation as related to the challenges faced by our clients as they return to independence, family, work and school. An important component of the outcome study is the durability of the outcomes attained by clients over time. The study presented online offers an overview of how NRI rates as a service provider.

NRI

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Outcome Validation Study Highlights for 2007 Patient Demographics and Characteristics

General Characteristics of the Persons Served

The NRI Outcome Validation Study for the period ending June 30, 2007 addressed the discharges of 7 individuals. There were 6 males and 1 female. The average age at injury was 30 with an age at injury range of birth-56. At the time of admission to the NRI program, the average age was 39, with a range of 26-58. In terms of “years post injury at the time of admission”, the average was 13 years with a range of birth-40 years. The average length of stay in the NRI program was 16 weeks with a range of 2 weeks to 1 year and 4 months. All of the individuals discharged in this period were categorized as severe injuries at the time of their admission into emergency medical care. One individual sustained profound injury resulting in significant physical, medical and cognitive deficits. (This individual also had the longest length of stay.)

Injury Type/Mechanism

Two of the individuals sustained their injuries while working (29%). One in a Motor Vehicle Accident (MVA), this individual sustained his injury as a pedestrian getting into his work vehicle. The second sustained his injury from a house falling off jacks while he was working on it. The other individuals sustained injuries in various ways they are as follow:, an assault, a fall, a closed head injury (CHI) resulting in Wolf-Parkinson White, Fetal Alcohol Syndrome (FAS) and an anoxic injury related to a CVA. Six of the seven individuals had medical complications related to their injury which prolonged their acute medical treatment and delayed their entry into neurological rehabilitation programs.

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Outcomes Attained

Pre-Injury Medical and Social History Characteristics

One had a pre-injury medical problem (14%); two individuals had pre-injury substance abuse problems (29%). Of the seven individuals, five were employed at the time of their injury (71%).

Post-Injury Neurobehavioral Consequences

All (seven) individuals had post injury histories of aggressive behaviors, consisting of verbal and physical aggression towards others; aggression towards self; elopement; non-compliance and disinhibition. All had severe cognitive problems involving attention, arousal, selection, filtering, memory, information retrieval, learning and executive functions.

Comparison to TBI Populations in the United States and Canada

The individuals served by the NRI program are substantially older at the time of injury than the average age at injury observed in the United States and Canada (30.0 vs 24.9). The age factor is furthered by the average age at the time of program admission of 39. The key issues related to the age at the time of admission are: the number of years post injury and the history of failed, prior rehabilitation attempts seen by the individuals discharged from the NRI program. Of the cohort discharged in this period, the individual who was 40 years post-injury was clearly an outlier in terms of her years post-acuity caused by his age at injury and age at the time of his admission. 29% of the individuals sustained their injuries in MVA's. This is consistent with the injury causation factors in the U.S. and Canada. Our level of severity, however exceeds the distribution of severity types in the U.S. and Canada. This is caused by the program's selection bias and specialization in neurobehavioral rehabilitation. The pre-injury behavioral health and substance abuse problems observed in the NRI program population is related to the post-injury neurobehavioral problems experienced by these individuals.

Discharge Placements

At the time of discharge from NRI all seven individuals returned to a lower level of care. Two returned to a placement closer to home or to home. One entered into Supported Employment.

The characteristics of the individuals served by the NRI program in this period are consistent with the factors observed in the NRI populations in prior periods of the study.

Return to Independence

The table below indicates the discharge destination of individuals who have completed the NRI program has shifted towards returning home with minimal to moderate supports in the period 2003 to 2006.

	2003	2004	2005	2006	2007
Return to independence with minimal to moderate support <6 hrs/day	7%	13%	60%	45%	14%
Return to congregate living or extended supports in the home >6hrs/day	35%	25%	10%	0%	14%
Return to group home with 24 hr/day support	29%	12%	10%	33%	57%
Return to nursing home or hospital setting 24hr/day care	29%	50%	20%	22%	15%

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 and supported employment increased in 2005 and 2006.

	2003	2004	2005	2006	2007
Return to competitive employment, school or vocational training program	0%	0%	0%	11%	0%
Supported employment or volunteer work	0%	0%	10%	11%	17%
Sheltered workshop or day activity program	14%	13%	20%	11%	33%
Unable to work	72%	75%	50%	45%	33%
Requires 24 hr/day supervision	14%	12%	20%	22%	17%

Conclusion

Our Outcome Validation Study demonstrates that patients in the NRI program achieve strong results upon their completion of the program. We're proud of our achievements and continue to look for areas of improvement so that we can better help future clients.

Social Role Return

The return to pre-injury social role is a determinant in an individual maintaining their independence over time. Returning to pre-injury social role and responsibilities has increased in 2006.

	2003	2004	2005	2006	2007
Return home with independence and minimal modifications to social role	0%	0%	0%	12%	0%
Return home to dependent care status	71%	25%	70%	33%	33%
Return home with <2 hrs/day paid behavioral support	0%	0%	10%	0%	33%
Return home with >2 hrs/day paid behavioral support	14%	13%	0%	0%	0%
Attend day program providing structured care 3-5 days/week	0%	12%	0%	33%	71%
24 hr/day Supervision	15%	50%	20%	22%	0%

Self Management of Behavior

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

	2003	2004	2005	2006	2007
No behavioral support services required	57%	25%	30%	45%	66%
Weekly contact with therapist, 0-5 outbursts per week	7%	0%	10%	0%	17%
2 or more contacts per week with therapist, 6+ outbursts per week	0%	0%	20%	0%	0%
Requires daily structured behavioral program	14%	25%	20%	33%	0%
24 hour placement	22%	50%	20%	22%	17%