

Community Rehab Care Quality Management Report Analysis Neuro Rehabilitation Program 2022

MISSION STATEMENT

CRC's mission is to improve function by providing high quality, outpatient rehabilitation services to individuals with traumatic brain injury, stroke, neurological illnesses, musculoskeletal disorders and other diagnostic populations who would benefit from outpatient rehabilitation services.

QUALITY IMPROVEMENT

Our goal is to improve our client outcomes. We measure efficiencies, effectiveness, access to services and experience in our outpatient neuro rehab program. See Quality Improvement Plan for additional details.

PROCESS

We extracted data from our internal electronic documentation system MW Therapy. This information is then shared with our staff, students, clients/families, insurance companies and referral sources through education and trainings, website, and conference presentations. This report includes:

- Neuro Rehab Program demographics:
 - Demographics
 - Plan of Care Overview, acute
 - Plan of Care Overview, chronic
- Neuro Rehab Program outcomes:
 - Outcomes
 - Client Satisfaction Surveys
 - Follow-up data

Report Summary:

The Neuro Rehab Program (NRP) continues to serve persons with acquired brain injury, most with a diagnosis of CVA or TBI with mild-moderate or moderate-severe impairments as a result. The client population includes persons of all ages with a mix of acute and chronic injuries. The average length of stay in 2022 was 4.4 months and the majority of clients completed the program as recommended with positive outcomes in community reintegration, participation, walking ability, balance, and satisfaction with life. Client satisfaction with the program was high and 100% of clients reported that they were able to use the skills they learned at CRC at home and in their daily life. Follow-ups demonstrate that on average clients continue to demonstrate gains in participation following discharge.

Respectfully Submitted,



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Education and Outcomes Specialist

NEURO REHAB PROGRAM (NRP)

Individuals are considered part of the Neuro Rehab Program (NRP) if they have a diagnosis of an acquired brain injury and participate in at least 2 out of the 3 therapy services available (OT, PT, SLP). Unique benefits of this multidisciplinary program include:

- Weekly clinician meetings to enhance collaborative care
- Monthly family team meetings including family, friends and other relevant parties to share updates and provide education
- Home and community visits as appropriate to maximize carryover in the home and community settings

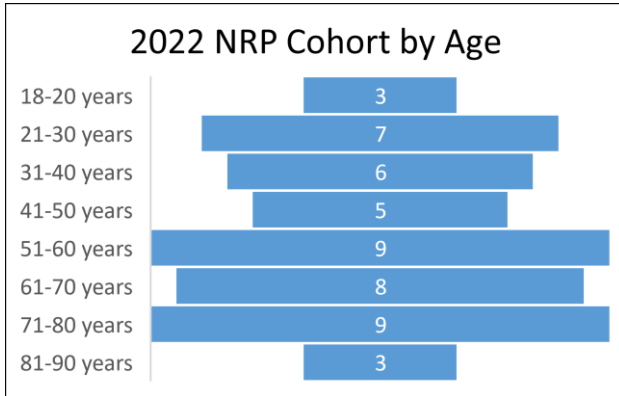
In 2022, 44 adult clients and 4 pediatric clients were discharged from the NRP. Information included in this report is on adult clients only. *Please see separate Pediatric Outcomes Report for additional details on demographics and outcomes for this population.*

Demographics

Diagnoses	
• CVA (n=18)	41%
• TBI (n=13)	30%
• Tumor (n=6)	14%
• Neuro, other [encephalitis, seizure disorder, hydrocephalus, etc] (n=4)	9%
• Concussion (n=2)	4%
• Developmental (n=1)	2%
Chronicity	
• Acute* (27)	61%
Length of time from injury to admission:	
○ Mean: 91 days	
○ Median: 80 days	
○ Range: 13-277 days	
• Chronic** (17)	39%
Length of time from injury to admission:	
○ Mean: 12.9 years	
○ Median: 2.5 years	
○ Range: 1.2-47.3 years	
*Acute: Date of injury occurred <12 months prior to admission date	
**Chronic: Date of injury occurred >= 12 months prior to admission date	
Mayo-Portland Adaptability Inventory (MPAI-4) t score category at initial evaluation	
• Mild	7%
• Mild-moderate	44%
• Moderate-severe	42%
• Severe	7%

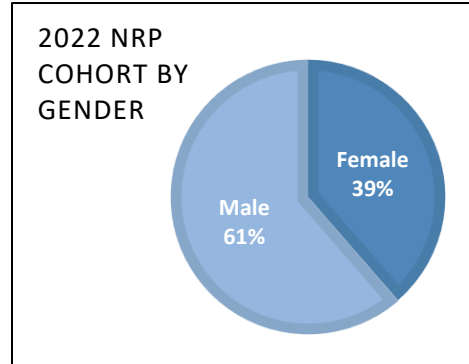
Age

The average age for a NRP client in 2022 was 57 years old.

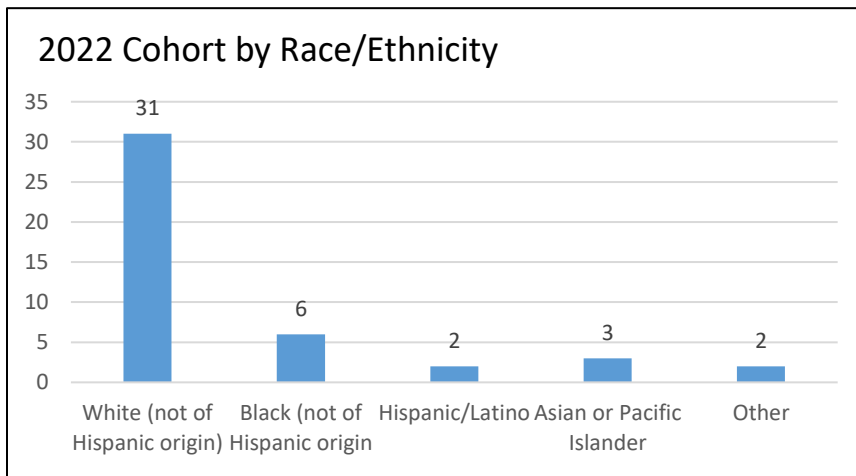


Gender

Females and males were represented in a 2:3 ratio.



Race/Ethnicity



Level of Education

- Middle School (3) 7%
- High School (11) 26%
- Some college (4) 10%
- Associate’s degree (1) 2%
- Bachelor’s degree (3) 17%
- Masters degree (12) 28%
- Phd/Doctorate (40) 10%

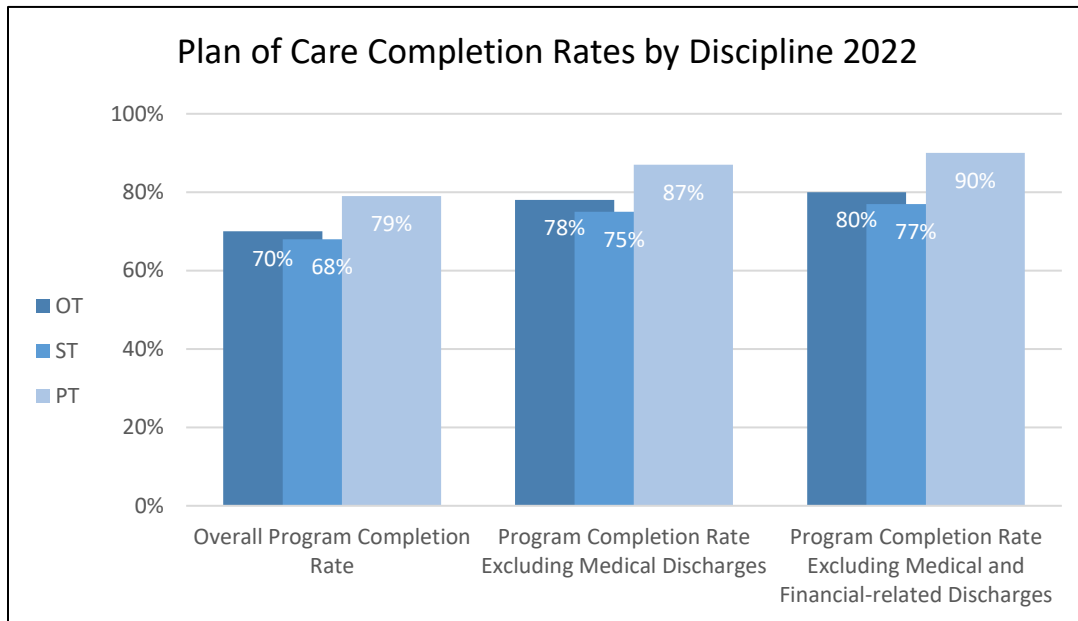
Plan of Care Overview

Acute (n=27)

Acute (n=27)				
Total length of stay across disciplines		Mean: 4.2 months (128 days) Median: 3.8 months (115 days) Range: 16-263 days		
Number of disciplines involved		Three disciplines: 74% (n=20) Two disciplines: 26% (n=7)		
OT (n=24)	Number of visits	Length of stay	Goal achievement	Reason for discharge
	Mean: 38 Median: 28 Range: 1-142	Mean: 3.6 months (111 days) Median: 91 days Range: 8-263 days	Met all goals: 71% (n=17) Met >70% of goals: 8% (n=2) Partially met goals: 17% (n=4) Did not achieve goals: 4% (n=1)	Program completed: 67% (n=16) Premature self-discharge: 17% (n=4) Hospitalization/medical: 13% (n=3) Insurance/financial: 4% (n=1)
ST (n=25)	Number of visits	Length of stay	Goal achievement	Reason for discharge
	Mean: 38 Median: 30 Range: 1-150	Mean: 3.5 months (107 days) Median: 92 days Range: 8-263 days	Met all goals: 64% (n=16) Met > 70% of goals: 8% (n=2) Partially met goals: 16% (n=4) Did not achieve goals: 12% (n=3)	Program completed: 64% (n=16) Premature self-discharge: 20% (n=5) Hospitalization/medical: 12% (n=3) Insurance/financial: 4% (n=1)
PT (n=25)	Number of visits	Length of stay	Goal achievement	Reason for discharge
	Mean: 27 Median: 20 Range: 1-96	Mean: 3.6 months (109 days) Median: 91 days Range: 16-233 days	Met all goals: 64% (n=16) Met > 70% of goals: 8% (n=2) Partially met goals: 24% (n=6) Did not achieve goals: 4% (n=1)	Program completed: 80% (n=20) Premature self-discharge: 12% (n=3) Hospitalization/medical: 8% (n=2)

Chronic (n=17)

Chronic (n=17)				
Total length of stay across disciplines		Mean: 4.7 months (144 days) Median: 4.5 months (136 days) Range: 44-324 days		
Number of disciplines involved		Three disciplines: 24% (n=6) Two disciplines: 65% (n=11)		
OT (n=16)	Number of visits	Length of stay	Goal achievement	Reason for discharge
	Mean: 26 Median: 20 Range: 1-61	Mean: 3.5 months (106 days) Median: 106 days Range: 11-297 days	Met all goals: 69% (n=11) Met > 70% of goals: 0% (n=0) Partially met goals: 19% (n=3) Did not achieve goals: 12% (n=2)	Program completed: 75% (n=12) Premature self-discharge: 19% (n=3) Hospitalization/medical: 6% (n=1)
ST (n=16)	Number of visits	Length of stay	Goal achievement	Reason for discharge
	Mean: 28 Median: 23 Range: 1-79	Mean: 4.6 months (139 days) Median: 3.8 months (115 days) Range: 0-403 days	Met all goals: 75% (n=12) Met > 70% of goals: 0% (n=0) Partially met goals: 19% (n=3) Did not achieve goals: 6% (n=1)	Program completed: 75% (n=12) Premature self-discharge: 19% (n=3) Hospitalization/medical: 6% (n=1)
PT (n=9)	Number of visits	Length of stay	Goal achievement	Reason for discharge
	Mean: 28 Median: 24 Range: 3-65	Mean: 4.4 months (134 days) Median: 4.4 months (133 days) Range: 36-273 days	Met all goals: 33% (n=3) Met > 70% of goals: 45% (n=4) Partially met goals: 22% (n=2) Did not achieve goals: 0% (n=0)	Program completed: 78% (n=7) Hospitalization/medical: 11% (n=1) Insurance/financial: 11% (n=1)



Impact of program completion on goal achievement

	Percentage of clients who completed recommended plan of care and met all their goals	Percentage of clients who did not complete recommended plan of care (for various reasons) and met all their goals
OT	96%	17%
SLP	100%	0%
PT	70%	0%

Analysis

Premature discharges occur at low rates accounting for approximately 10-20% of discharges, but knowledge of risk factors may help retention and maximize plan of care. Using data from NRP clients discharged in 2021 and 2022, 7 clients were identified as having prematurely discharged from all therapies they had been participating in. This group was compared against the rest of the participants. Length of stay was approximately half, 2.2 months versus 4.8 months. There were no notable differences between groups in regards to age, race, level of education, chronicity of injury, initial MPAI-4 t score, initial DRS score, initial SRS score. Large differences were observed in the 2 following variables:

Diagnosis: 71% of those who had prematurely discharged had a diagnosis of TBI versus 21% of the comparison group.

Gender: 100% of those who had prematurely discharged were male versus 52% of the comparison group.

Outcome Measures

Acute (calculations made where data was available at both initial evaluation and discharge)

	Acute population overall			Acute population where clients completed at least 1 discipline's plan of care		
	Initial	Discharge	Average change in score	Initial	Discharge	Average change in score
MPAI-4 t score	(n=25) Mean: 52 Median: 52 Range: 40-63	Mean: 44 Median: 44 Range: 29-58	8*	(n=21) Mean: 52	Mean: 43	9*
MPAI-4 Ability score	(n=25) Mean: 49 Median: 49 Range: 35-62	Mean: 44 Median: 44 Range: 3-58	5	(n=21) Mean: 49	Mean: 42	7
MPAI-4 Adjustment score	(n=25) Mean: 53 Median: 54 Range: 41-63	Mean: 48 Median: 46 Range: 33-59	5	(n=21) Mean: 53	Mean: 47	6
MPAI-4 Participation score	(n=25) Mean: 55 Median: 53 Range: 41-74	Mean: 46 Median: 46 Range: 25-59	9	(n=21) Mean: 56	Mean: 45	11
Community Integration Questionnaire	(n=24) Mean: 8 Median: 6 Range: 0-26	Mean: 13 Median: 12 Range: 1-22	5*	(n=20) Mean: 7	Mean: 14	7*
Disability Rating Scale	(n=26) Mean: 6.2 Median: 6 Range: 2-11	Mean: 4.6 Median: 4 Range: 1-10	1.6*	(n=22) Mean: 6.4	Mean: 4.5	1.9*
Satisfaction With Life	(n=18) Mean: 22 Median: 24 Range: 8-34	Mean: 26 Median: 27 Range: 15-34	4	(n=16) Mean: 22	Mean: 25	3
Supervision Rating Scale	(n=27) Mean: 6.4 Median: 7 Range: 1-10	Mean: 4.3 Median: 4 Range: 1-9	2.1	(n=23) Mean: 6.3	Mean: 4.0	2.3
5 Times Sit to Stand Test, seconds	(n=19) Mean: 14.8 Median: 14.4 Range: 0-30.0	Mean: 13.0 Median: 11.9 Range: 5.7-52	1.8	(n=18) Mean: 14.7	Mean: 13.1	1.6
10m Walk Test, m/s	(n=21) Mean: 0.89 Median: 0.87 Range: 0.13-2.40	Mean: 1.22 Median: 1.20 Range: 0.20-2.50	0.33*	(n=20) Mean: 0.88	Mean: 1.21	0.33*
6 Minute Walk Test, feet	(n=18) Mean: 898 Median: 754 Range: 0-1851	Mean: 1269 Median: 1320 Range: 151-2331	371*	(n=19) Mean: 898	Mean: 1219	321*
Berg Balance Scale	(n=19) Mean: 45 Median: 48 Range: 18-56	Mean: 50 Median: 55 Range: 28-56	5*	(n=18) Mean: 45	Mean: 50	5*
Functional Gait Assessment	(n=19) Mean: 15 Median: 16 Range: 0-29	Mean: 22 Median: 27 Range: 7-30	7*	(n=17) Mean: 18	Mean: 23	5*
Activities-specific Balance Confidence Scale, percent	(n=14) Mean: 62 Median: 76 Range: 0-100	Mean: 81 Median: 82 Range: 53-100	19*	(n=13) Mean: 62	Mean: 82	20*

*Significant change

Chronic (calculations made where data was available at both initial evaluation and discharge)

	Chronic population overall			Chronic population where clients completed at least 1 discipline's plan of care		
	Initial	Discharge	Average change in score	Initial	Discharge	Average change in score
MPAI-4 t score	(n=16) Mean: 51 Median: 50 Range: 34-65	Mean: 47 Median: 49 Range: 32-59	4	(n=12) Mean: 52	Mean: 47	5*
MPAI-4 Ability score	(n=16) Mean: 49 Median: 49 Range: 40-59	Mean: 46 Median: 47 Range: 37-56	3	(n=12) Mean: 50	Mean: 46	4
MPAI-4 Adjustment score	(n=16) Mean: 53 Median: 54 Range: 30-65	Mean: 51 Median: 51 Range: 33-59	2	(n=12) Mean: 53	Mean: 50	3
MPAI-4 Participation score	(n=16) Mean: 51 Median: 52 Range: 34-65	Mean: 49 Median: 49 Range: 34-62	2	(n=12) Mean: 52	Mean: 49	1
Community Integration Questionnaire	(n=15) Mean: 10 Median: 12 Range: 2-19	Mean: 12 Median: 13 Range: 2-21	2*	(n=12) Mean: 11	Mean: 12	1
Disability Rating Scale	(n=15) Mean: 5.5 Median: 5 Range: 2-10	Mean: 5.2 Median: 5 Range: 2-10	0.3	(n=12) Mean: 5.7	Mean: 5.2	0.5
Satisfaction With Life	(n=13) Mean: 18 Median: 16 Range: 9-28	Mean: 22 Median: 21 Range: 16-34	4	(n=11) Mean: 17	Mean: 22	5
Supervision Rating Scale	(n=17) Mean: 5.5 Median: 6 Range: 1-11	Mean: 5.0 Median: 6 Range: 1-11	0.5	(n=13) Mean: 5.8	Mean: 5.2	0.6
5 Times Sit to Stand Test, seconds	(n=6) Mean: 13.0 Median: 9.0 Range: 0-35.0	Mean: 7.7 Median: 9.1 Range: 0-14.8	5.3*	(n=5) Mean: 8.6	Mean: 6.2	2.4*
10m Walk Test, m/s	(n=6) Mean: 0.60 Median: 0.66 Range: 0-1.39	Mean: 0.73 Median: 0.84 Range: 0-1.30	0.13	(n=6) Mean: 0.60	Mean: 0.73	0.13
6 Minute Walk Test, feet	(n=6) Mean: 783 Median: 605 Range: 0-1440	Mean: 852 Median: 672 Range: 0-1638	69	(n=6) Mean: 783	Mean: 852	69
Berg Balance Scale	(n=6) Mean: 31 Median: 32 Range: 0-51	Mean: 37 Median: 52 Range: 0-56	6*	(n=5) Mean: 26	Mean: 33	7*
Functional Gait Assessment	(n=7) Mean: 11 Median: 12 Range: 0-28	Mean: 16 Median: 20 Range: 0-30	5*	(n=7) Mean: 11	Mean: 16	5*
Activities-specific Balance Confidence Scale, percent	(n=4) Mean: 82 Median: 82 Range: 69-91	Mean: 89 Median: 91 Range: 72-98	7	(n=4) Mean: 81	Mean: 89	8

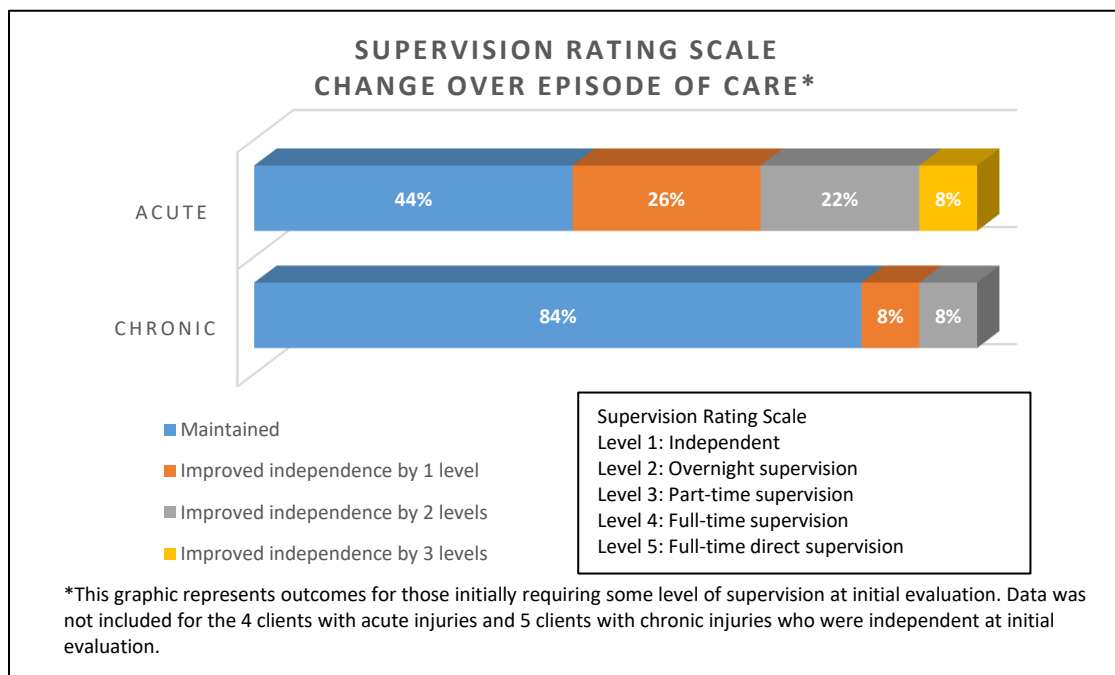
*Significant change

Level of supervision

56% of clients with acute injuries who initially required some level of supervision from others had less supervision or were independent by discharge indicating greater independence and reduced caregiver burden.

Number of clients scoring at each level at initial evaluation and discharge				
	Acute		Chronic	
	Initial	Discharge	Initial	Discharge
Level 1: Independent (scores 1-2)	5	10	5	6
Level 2: Overnight supervision (scores 3)	0	2	0	0
Level 3: Part-time supervision (scores 4-7)	11	10	8	7
Level 4: Full-time supervision (scores 8-9)	7	5	2	3
Level 5: Full-time direct supervision (scores 10-13)	4	0	2	1

Changes of supervision level over episode of care excluding 9 clients who were fully independent at initial evaluation		
	Acute	Chronic
Maintained level	44% (n=10)	84% (n=10)
Improved level by 1 level	26% (n=6)	8% (n=1)
Improved level by 2 levels	22% (n=5)	8% (n=1)
Improved level by 3 levels	8% (n=2)	0



Satisfaction With Life

Most clients improved on the Satisfaction With Life Scale following intervention. The few that declined had initial scores in the “high satisfaction” or “very satisfied” categories on scoring. This pattern may reflect reduced self-awareness initially that improves over time.

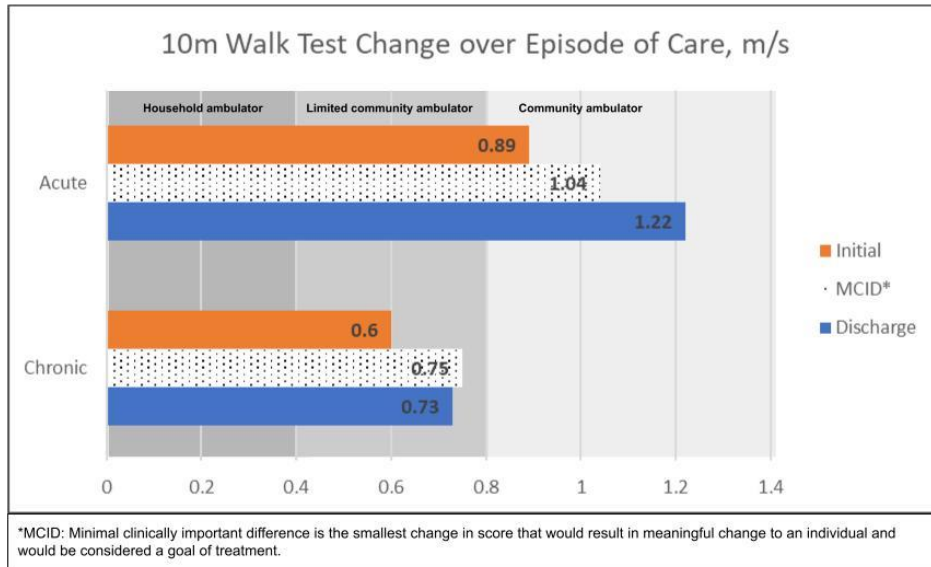
Initial score at evaluation	Average change in score over episode of care	Percentage of clients who show increased satisfaction from initial evaluation to discharge
25 or greater	-2 points	20%
Less than 25	6 points	100%



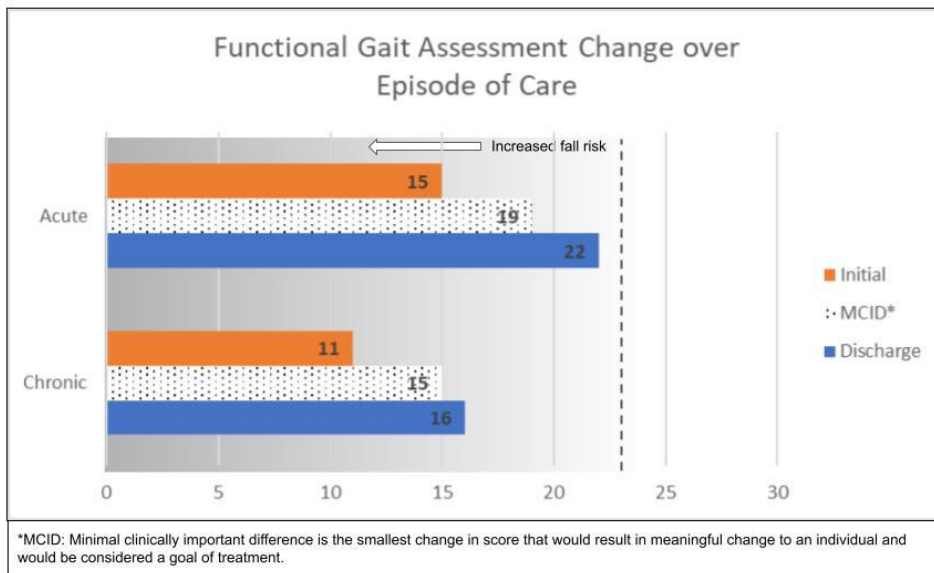
Walking ability and balance

Clients on average demonstrated a significant improvement in walking ability and balance over an episode of care indicating greater access to the community and improved safety following participation in the NRP.

10m Walk Test: Walking Ability



Functional Gait Assessment: Balance



NRP client Satisfaction Survey results

26 responses were recorded for a 59% response rate

	Yes	Somewhat	No	No response
Did you participate in the development of your goals?	88% (n=23)	8% (n=2)	4% (n=1)	-
Were your goals and treatment plans clear to you?	96% (n=25)	4% (n=1)	0	-
Were you able to achieve your goals?	73% (n= 19)	27% (=7)	0	-
Did you attend therapy enough to achieve your goals?	85% (n= 22)	15% (n=4)	0	-
Were you able to schedule appointments at convenient times?	88% (n=23)	12% (n=3)	0	-
Were family team meetings helpful to clarify your goals?	69% (n=18)	15% (n=4)	12% (n=3)	4% (n=1)
Is the appearance of the clinic, comfort and noise level acceptable?	92% (n=24)	8% (n=2)	0	-
Have you been able to use your skills learned at CRC in your home and daily life?	100% (n=26)	0	0	-
Overall, did the program meet your expectations?	100% (n=26)	0	0	-
Check the following skills and activities that have improved since you started therapy at CRC.				
- Completing home tasks	85% (n=22)			
- Home exercise program	81% (n=21)			
- Self-care	77% (n=20)			
- Increased safety/independence	73% (n=19)			
- Following a schedule	69% (n=18)			
- Use of phone for alerts, schedules, notes	65% (n=17)			
- Time planner	62% (n=16)			
- Accessing community	58% (n=15)			
- Attending appointments	54% (n=14)			
- Management of frustration/coping	54% (n=14)			
- Meal prep	54% (n=14)			
- Medication management	50% (n=13)			
- Other: Advocating for myself	4%(n=1)			
- Other: Improving relationships	4% (n=1)			

Things you liked most about CRC:

- Expertise and professionalism of staff
- Goal-oriented nature of the program
- Inclusion of relevant, individualized treatment activities

- Helpful resources and recommendations
- Caring and friendly atmosphere
- Support from other clients and group activities
- Flexible scheduling
- Clean environment

Areas for improvement:

- More space
- Greater flexibility with scheduling
- Better match of 1:1 vs group sessions based on individual client

Additional Comments:

“Program met expectations better than he thought it would. He has been at other rehabs [and] ‘here is the best.’ Clinicians are respectable and caring... turns into family.”

“I really loved working with my therapy team. You guys really helped me a lot with all my challenges.”

“The staff are very knowledgeable and sensitive to the needs of their participants.”

“I can’t thank the staff at CRC enough for helping me get my life back and in the right direction!”

A separate satisfaction survey is available for clients who prematurely discharge prior to completing the recommended plan of care although no data was available from 2022.

Follow-up Data

NRP participants (or family members if appropriate) are contacted 6-9 months post discharge to ensure maintenance of learned systems and strategies.

Number of clients contacted in 2022: 43

Response rate: 26/43 or 60%

Re-referrals: 9 clients requested a re-referral upon follow-up and 4 returned for 1 or more skilled therapy services

Participation Index of the MPAI-4

Average score at initial evaluation in clinic: 52
Average score at discharge from clinic: 46
Average follow-up score: 40

Client responses to the statement "Compared to when I left Community Rehab Care..."

I am at a similar or greater level of independence at home and do the same or more to help around the house now:		
Strongly agree	38% (n=10)	
Agree	42% (n=11)	
Neutral	12% (n=3)	
Disagree	4% (n=1)	(client declining with dementia)
Strongly disagree	4% (n=1)	(client's daughter viewed as decline within assistive living facility, returned to CRC for skilled services)
I can walk the same or further now:		
Strongly agree	38% (n=10)	
Agree	42% (n=11)	
Neutral	12% (n=3)	
Disagree	4% (n=1)	(client declining with dementia)
Strongly disagree	4% (n=1)	(client's daughter viewed as decline within assistive living facility, returned to CRC for skilled services)
I spend my leisure time productively in pursuit of things that interest me at the same level or more now:		
Strongly agree	31% (n=8)	
Agree	50% (n=13)	
Neutral	15% (n=4)	
Disagree	4% (n=1)	(client declining with dementia)
Strongly disagree	0	
I have the same or more responsibility/hours at work OR I need the same or less help with school work now:		
Strongly agree	15% (n=4)	
Agree	54% (n=14)	
Neutral	19% (n=5)	
Disagree	8% (n=2)	(1 client declining with dementia, 1 client "streamlined" his work schedule to reduce stress and be more effective)
Strongly disagree	0	

Falls

23% of program graduates had experienced a fall since discharge with half of those requiring medical attention due to concerns regarding injury; no one required hospitalization secondary to a fall.

Hospitalization

3 program graduates had been in the hospital since discharge but all due to elective surgery.

ADDENDUM**Outcome Measures Description and Interpretation**

Outcome Measure	Overview	Interpretation
Mayo-Portland Adaptability Index (MPAI-4) <ul style="list-style-type: none"> Ability Adjustment Participation 	Measures the amount of physical, cognitive, behavioral, emotional and social problems people may encounter after ABI as well as possible obstacles during the community reintegration process	> 60 severe 50-60 moderate-severe 40-50 mild- moderate 30-40 mild < 30 relatively good outcome MCID 5 RCID 9 ¹
Community Integration Questionnaire (CIQ)	Measures levels of integration into the community after ABI	A higher score indicating greater independence and community integration 4 point change in total score for acute and 2 point change for chronic is considered significant ^{2,3}
Disability Rating Scale (DRS)	Used to document progress of clients with ABI from coma to community reintegration	0 No disability 1 Mild disability 2-3 Partial disability 4-6 Moderate disability 7-11 Moderately severe disability 12-16 Severe disability 17-21 Extremely severe disability 22-24 Vegetative state 25-29 Extreme vegetative state MCID 1 point in chronic TBI population ⁴
Satisfaction With Life (SWL)	Measures amount of an individual's life satisfaction reported after ABI	30-35 Very satisfied 25-29 High satisfaction 20-24 Average 15-19 Below average 10-14 Dissatisfied 5-9 Extremely dissatisfied
Supervision Rating Scale (SRS)	Measures the level of supervision a client receives	Level 1 (1-2): Independent Level 2 (3): Overnight supervision Level 3 (4-7): Part-time supervision Level 4 (8-9) Full-time indirect supervision Level 5 (10-13): Full-time direct supervision
5 Times Sit to Stand Test (5x STS)	Test of lower extremity strength.	Score of > 12 seconds indicates increased fall risk (older adults) A significant change is considered 2.5 seconds (older adults)
10m Walk Test (10mWT)	Measure of self-selected walking speed	Speeds of <1.0 m/s indicates increased fall risk Ambulation categories as follows: - <0.4 m/s are more likely to be household ambulator - 0.4 m/s- 0.8 m/s limited community ambulator - >0.8 m/s community ambulator MDC (chronic stroke): 0.18m/s ⁵
6 Minute Walk Test (6MWT)	A measure of aerobic capacity and activity tolerance	Completing > 1043 feet indicate increased likelihood of being a community ambulator Minimal clinically important difference is 165 feet
Berg Balance Scale (BBS)	Measure of postural control and balance.	The maximum score is 56 Minimal detectable change on this test ranges from 4-7 in the literature Score of <45/56 indicates increased fall risk
Functional Gait Assessment (FGA)	Measure of dynamic balance and postural stability during ambulatory tasks.	The maximum score is 30 An improvement of 4-6 points is needed to demonstrate significant change Scores of <22/30 indicate increased fall risk
Activities-specific Balance Scale (ABC)	Subjective questionnaire that tests balance self-efficacy	The maximum score is 100% and indicates high balance confidence Scores <67% indicate increased fall risk A significant change is considered 15 points (older adults)

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