

Community-Based Outpatient Stroke Rehabilitation Program Achieves Excellent Outcomes Including Return to Work, Driving, Stroke Knowledge, And Other Rehabilitation Outcomes

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BACKGROUND AND PURPOSE

- Return to driving and employment are goals for many stroke survivors
- There are few reports of patient centered outcomes including return to employment, driving, self-efficacy, functional outcomes, stroke knowledge or characteristics of patients who achieve these goals

Whittier Rehabilitation Hospital: Community Rehabilitation Hospital

- Inpatient, Outpatient and SNF
- North of Boston
- Population: broad mix of socio-economic and cultural backgrounds from inner-city, suburban, and rural locations

Unique Outpatient Stroke Rehab Program Developed (2011)

- Intensive medically based program combines MD/NP cardiovascular/stroke care alongside outpatient rehabilitation
- Designated Multidisciplinary Team (PT/OT/ST/NP/MD)
- Peer support and socialization provided with small treatment and support groups
- "Back to life" patient centered care addressing medical, physical, functional, cognitive, communicative, driving, psychosocial, and vocational issues integrated with patient/family education, care coordination, and support
- Patients receive NP led education based on AHA Life's Simple 7 and CV education with a focus on increasing independence with medications and health maintenance
- Non-research based, operates within limitations of insurance benefits
- Joint Commission stroke specific certification with Gold Seal of Approval; 2015, 2017, 2019

METHODS

- Prospective observational study of stroke patients treated in an interdisciplinary outpatient rehabilitation program addressing physical, cognitive, communicative, risk factors/stroke knowledge, self-efficacy, psychosocial, driving and vocational issues

RESULTS

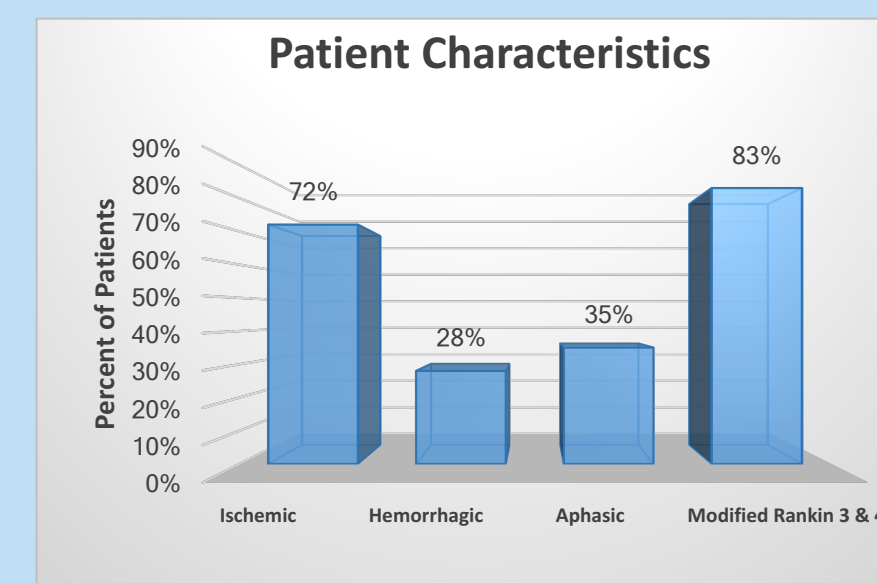
- 190 consecutive patients(117 men, 73 women); average age 62(18-90);66 aphasic
- Treated between 12/2011-7/2019
- 136 ischemic strokes (65 Left, 69 Right, 26 Bilateral hemisphere, 30 Brainstem
- 54 hemorrhages
- 41% with MCA territory strokes
- Baseline admit modified Rankin Scores: 5 (1%); 4 (25%); 3 (56%); 2 (15%); 1 (3%)
- Average admission NIHSS score: 6 (range: 0-18)
- Average length of stay: 5 months (range: .5-24 months)
- Of 103 patients working pre stroke, (50%) returned to work and an additional 6% were work capable upon completion of program
- 79% of patients driving pre-stroke could not drive at time of admission. After training, 45% returned to driving

RESULTS CONTINUED...

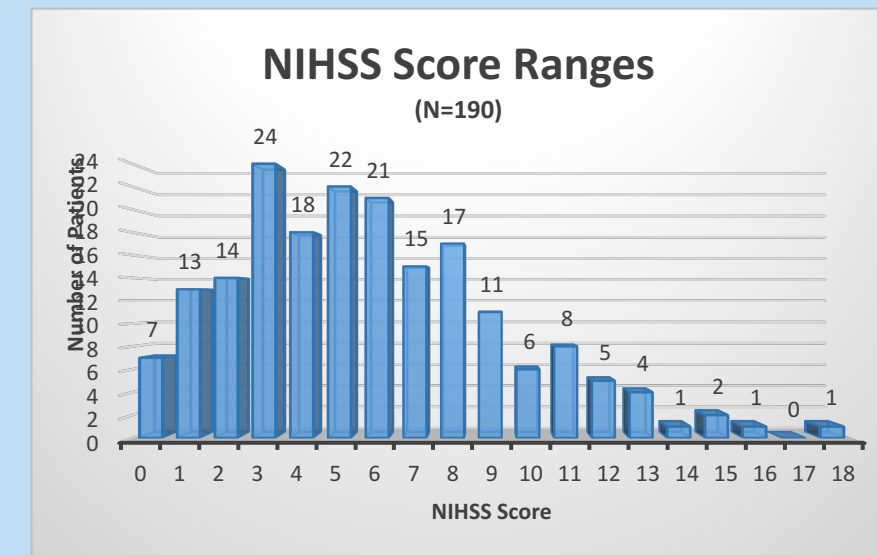
- Patients improved in all 9 domains of Stroke Impact Scale with SIS total score improving an average of 23%
- Patients received an average of 32 physical therapy visits with average percent improvement of 72% on 6" walk and 41% on Berg Balance test
- Stroke Self Efficacy Scores improved an average of 29%
- After individualized cardiovascular/stroke, and medication education sessions with the Nurse Practitioner based on AHA guidelines and Life's Simple 7's curriculum, Stroke Knowledge Quiz and risk factor knowledge scores improved 62% and 83%
- Multiple other demographic and outcome measures are collected

PATIENT CHARACTERISTICS

Patient Characteristics (Average)					
Age	NIHSS (Admit)	Modified Rankin (Admit)	MOCA (Admit)	Length of Stay (weeks)	# PT Visits
62	6	3.1	22	22	32



On admit to program, 83% of patients had moderate to severe disability, requiring assistance with Activities of Daily Living, and 35% were aphasic

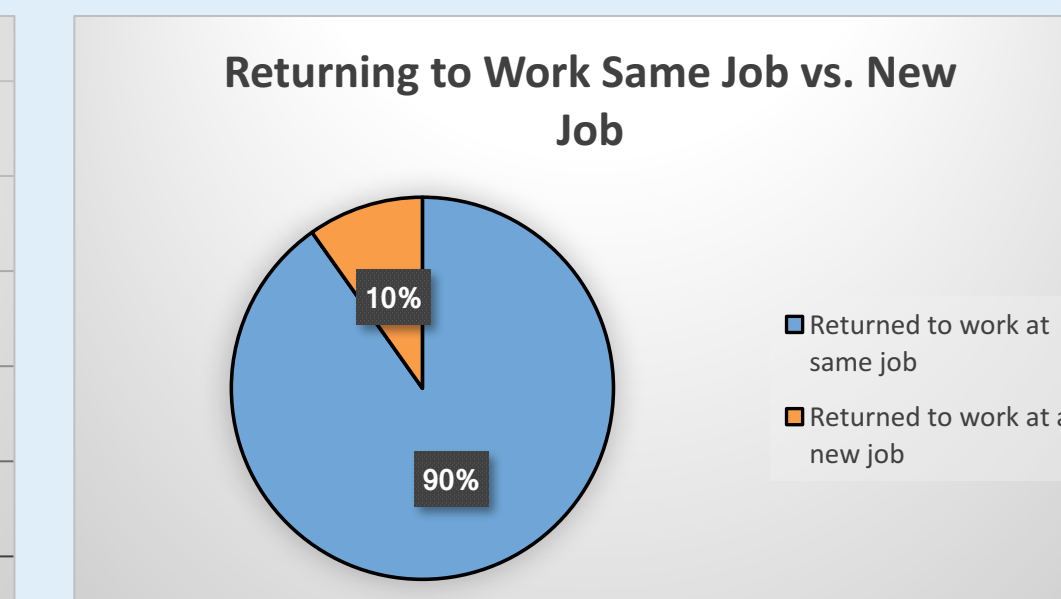
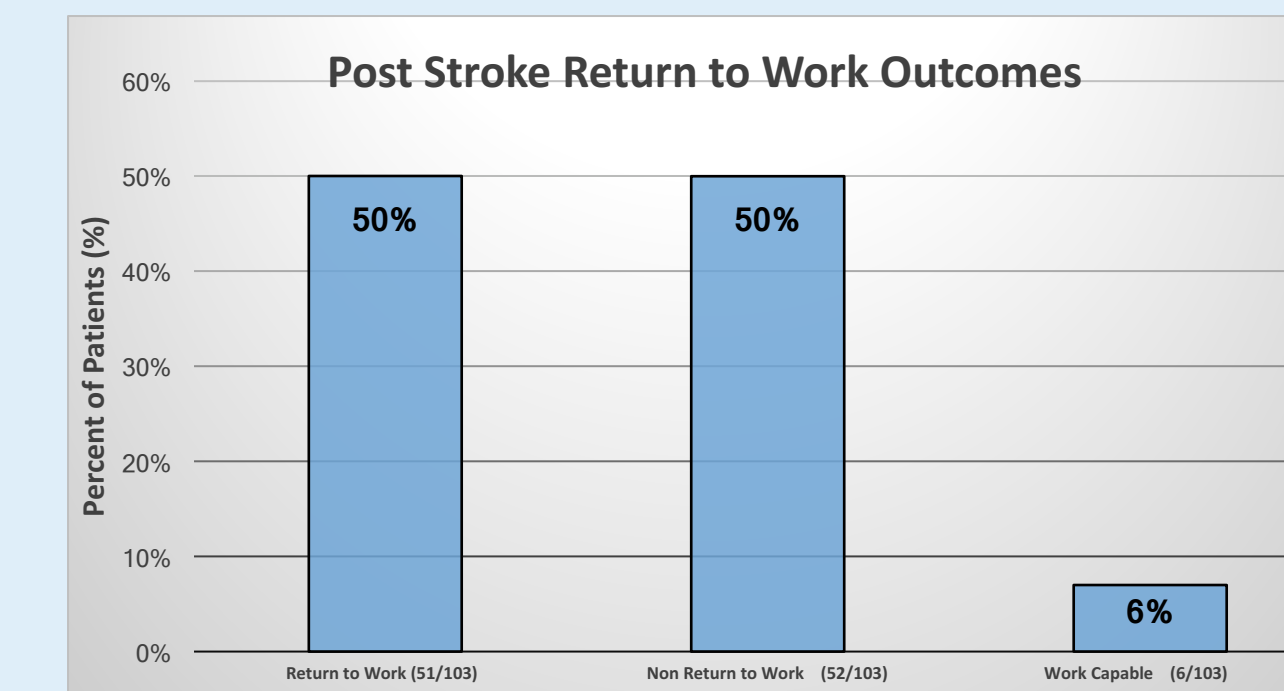


Stroke Location	
Left Hemisphere	65
Right Hemisphere	69
Bilateral	26
Brain Stem	30
Hemorrhage	54

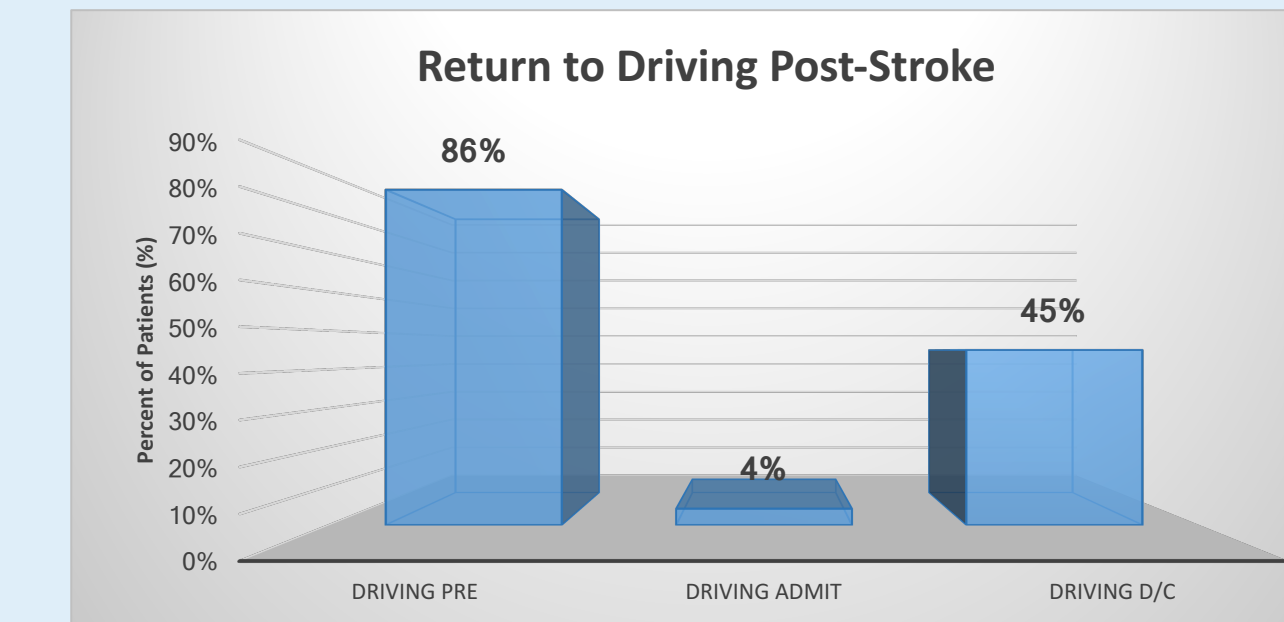
Standardized tests of impairment; Higher scores represent greater impairment

Rankin	Rankin	Rankin	Rankin	Rankin
1	2	3	4	5
5 (3%)	29 (15%)	107 (56%)	48 (25%)	1 (1%)

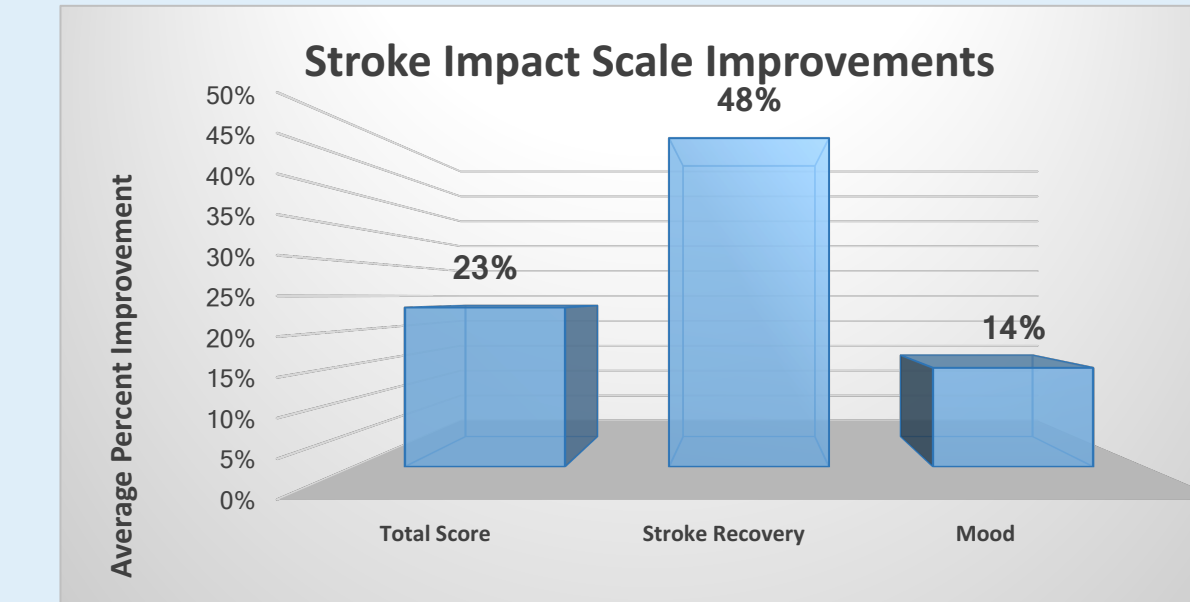
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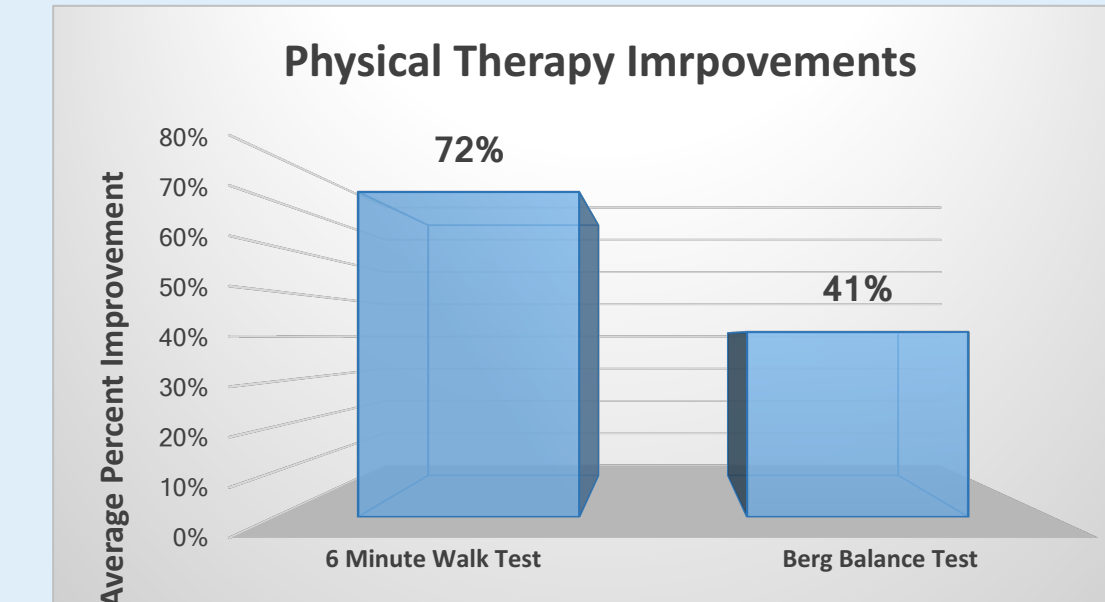
54% (103/190) were working pre-stroke, 50% returned to work 50% did not return to work, 6% were work capable.



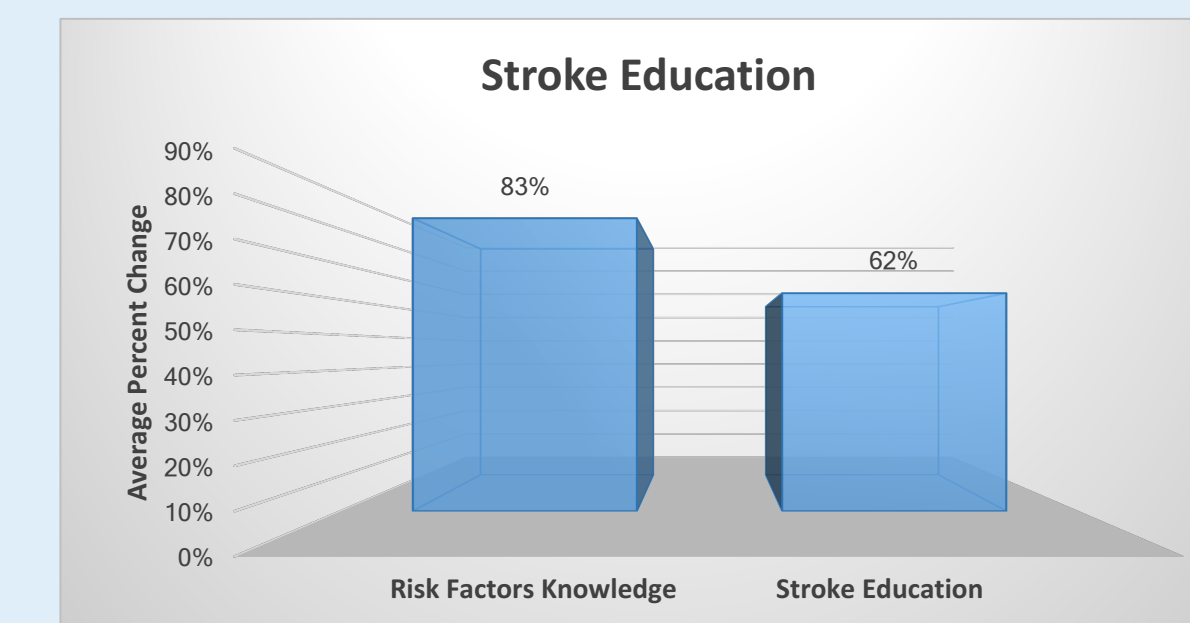
86% of patients were driving pre-stroke, 4% were driving on admit. 45% returned to driving by the time of discharge



Patients had improvements in all 9 SIS domains with total scores improving an average of 23%, Mood scores 14%, and self reported Overall Stroke Recovery by 48%



Patients made significant gains in endurance and balance



Stroke knowledge quiz scores improved an average of 62%, and risk factor knowledge scores improved an average of 83%

CONCLUSIONS

- Outcome data show a community-based team rehabilitation program can successfully combine cardiovascular education and rehabilitation services to maximize patient centered outcomes including:
 - Return to work
 - Driving
 - Overall stroke recovery
 - Physical functioning
 - Stroke knowledge
 - Self efficacy
- Beneficial for Stroke Survivors of varying ages and stroke types with moderate to severe disability
- Care services and advanced rehab techniques typically used in research or inpatient settings can be incorporated into a community-based outpatient rehab program
- Interdisciplinary Team utilizes staff resources productively to maximize care delivery
- Program works within insurance limitations leading to premature discharge with potential impact on outcomes of some patients

Additional outcomes research is needed to understand mechanisms supporting stroke patients' return to work and other patient-centered goals

KEYS TO SUCCESS

- Multidisciplinary Team, MD/NP involvement in daily medical and rehab issues
- Patient-centered goals including return to work and driving are highly motivating
- Small treatment and support groups promote peer interactions, encouragement, and participation
- Care coordination to address financial, behavioral, caregiver/family issues
- Developing strong care transitions with healthcare providers, community and state vocational services
- Multidisciplinary services coordinated by team at rehabilitation site facilitates timely patient access to optimal care for associated health conditions



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