

Teleneurology and Rehabilitation for Mobility Disorders

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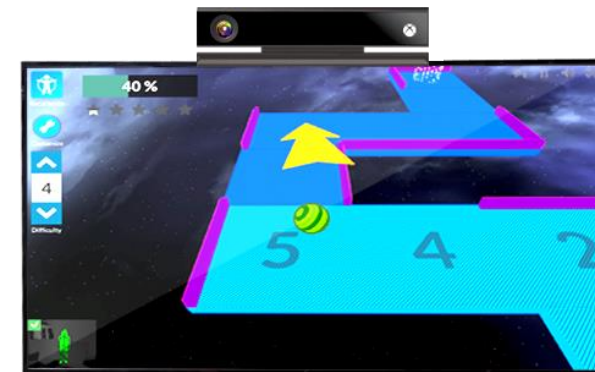


Objectives

- **Determine the utility of a web based tele-rehabilitation program for physical therapy guided treatment of mobility deficits in subjects with multiple sclerosis**
- **Identify the effects of a home tele-rehabilitation program on patient access and clinician work flow**
- **Identify potential challenges to initiating a telehealth rehabilitation program in a hospital based outpatient facility**

Intervention

- **Subjects are participating in web based home rehabilitation training using the Jintronix software platform and Kinect tracking system.**
- **Televideo visits are made weekly by physical therapists to review progress and recommended exercises**
- **Subjects are assigned between 6-10 exercises to perform as part of web based home program with modifications as needed throughout sessions**



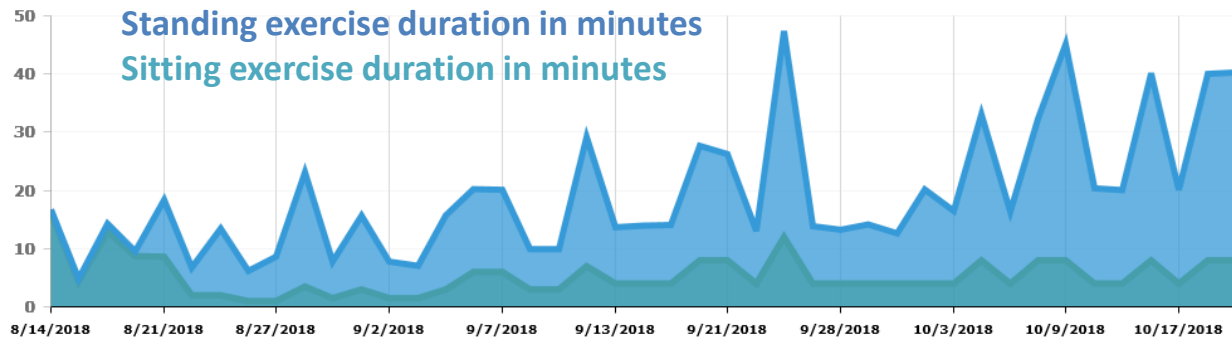
Potential effects on workflow

- Improved access to specialized neuro-rehabilitation guided exercise programs
- Reduction in travel cost and travel time for the patient
- Increased personnel dedication for scheduling, technology troubleshooting, and initial set up/training of web-based program
- Existing barriers to reimbursement for tele-rehabilitation programs in Florida

Improved access to specialized neuro-rehabilitation guided exercise programs

- **Traditional outpatient PT model:** 2x/week x 8 weeks= 16 guided sessions
- **Telerehab model:** Recommend at least 2x/week- available to patient throughout the week, all times of the day including weekends

Sample duration chart- subject 4



Started
average of 10
minutes of
exercise/day

Ended
average of 40
minutes of
exercise/day

Reduction in travel cost and travel time for the patient

- 01: Lake City: 62.7 miles, 65 minutes
- 02: Panama City Beach: 280 miles, 4 hours & 20 minutes
- 03: New Port Richey: 195 miles, 3 hours & 26 minutes
- 04: Savannah: 138 miles, 2 hours & 10 minutes
- 05: Tallahassee: 171 miles, 2 hours & 36 minutes



One round trip visit mileage cost (53.5 cents/mile)				
\$67.09	\$299.60	\$208.65	\$147.66	\$182.97
Mileage cost for 8 visits				
\$536.72	\$1498.00	\$1669.20	\$1181.28	\$914.85



Increased personnel dedication for scheduling, technology troubleshooting, and initial set up/training of web-based program

- **Scheduling:** separate system from our hospital based scheduling
- **Initial set up/training of web-based program:**
 - Equipment has to be delivered and installed in to home with initial training of equipment
 - Must then also be picked up and sanitized for next home
- **Technology troubleshooting:** Need an “on call” technology troubleshooting expert to assist patient as needed
 - Opened up questions regarding need for an assessment of technology literacy

Existing barriers to reimbursement for tele-rehabilitation programs in Florida

Coverage for telehealth rehab currently only exists for:

- Florida Medicaid
- Statewide Medicaid Managed Care (SMMC) Managed Medical Assistance (MMA) programs

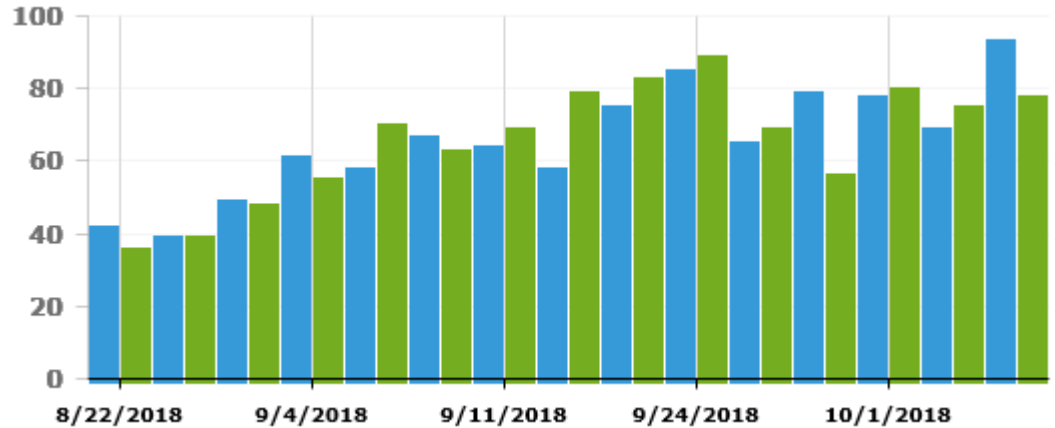
Results so far

Max Trunk Flex. Achieved (Avg): Sitting

Left Avg : Improvement of 51°

Right Avg: Improvement of 42°

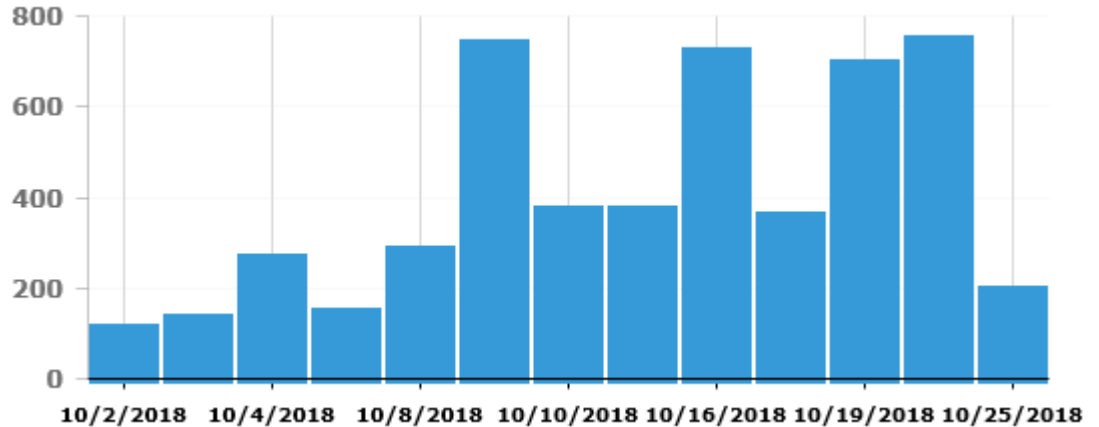
***Sample range of motion chart- subject 1



Distance (feet) ambulated:

Average improvement of 84 feet/day

***Sample distance chart- subject 4



Results so far

10 meter walk pre	10 meter walk post
0.45 m/s with RW	0.48 m/s with RW
0.58 m/s with OAD	0.74 m/s with OAD
0.21 m/s with RW	0.12 m/s with RW
0.89 m/s with OAD	0.87 m/s with OAD
5x sit to stand pre	5x sit to stand post
22 sec, 2HH	16.1 sec, 1HH
17.86, 0HH	10.7, 0HH
32 sec, 2HH	27 sec, 2HH
18 sec, 0HH	12.6, 0HH

BERG pre	BERG post
28/56	39/56
40/56	49/56
22/56	27/56
33/56	49/56
Fatigue scale pre	Fatigue scale post
43	30
37	22
45	31
52	42



All subjects thus far have either improved or remained stable in their mobility and fatigue parameters

Outcomes

- **Early feedback suggests a feasible and effective treatment for individuals with multiple sclerosis and mobility impairments.**
- **A larger in-depth study of the effectiveness of tele-rehabilitation on individuals with multiple sclerosis is warranted to further investigate the long term efficacy of this intervention.**
- **Use of technology may increase patient involvement and enhance patient access to guided tele-rehabilitation programs.**

Jintronic Video

- <https://youtu.be/PAJe4A2XhTE>

Questions??