

Provision of Greater Intensity Therapy in Inpatient Rehabilitation:

Three Hours of Therapy per Day

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Background

Research shows that people with stroke hospitalized in inpatient rehabilitation units spend most of their day inactive (48%), alone (54%) and in their bedroom (57%).¹ This is contrary to the evidence demonstrating increased activity and environmental stimulation is important for neurological recovery.

Best Practice

Canadian Best Practice Recommendations for Stroke Care recommend a minimum of three hours of therapy per day.²

*Stroke patients should receive, through an individualized treatment plan, a **minimum of three hours of direct task-specific therapy** by the interprofessional stroke team for a minimum of five days per week. (Evidence Level A) CBPR (2010) 5.3.ii*

The Ontario Stroke Network Stroke Reference Group recommends inpatient rehabilitation facilities provide three hours of therapy per day, seven days a week.³

In the United States, a minimum of 3 hours of direct patient-therapist time per day is required to receive funding.⁴

Challenge of Intensity



In Canada, the average person receiving inpatient rehabilitation gets approximately 1.5 to 2 hours of direct patient-therapist time per day.⁵

Therapy is cheap compared to length of stay, and less than 20% of the total hospital budget in inpatient rehabilitation is spent on core therapies.⁶

To achieve 20 minutes of real walking time, it can take up to an hour of therapy time.⁷

Review of the Evidence

METHODS: A review of the literature was conducted using MEDLINE and CINAHL databases for studies contributing to the best practice recommendation related to therapy intensity in inpatient stroke rehabilitation. Studies published between 2000 and 2012 were included. Search terms used were stroke (or CVA or cerebrovascular accident) and rehabilitation or therapy (physical therapy, occupational therapy, speech language pathology, rehabilitation nursing) and duration, frequency and intensity. Reference lists of retrieved studies were also reviewed for further relevant studies.

RESULTS:

| Study –Primary author | Sample size | Conclusion |
|---------------------------------|------------------------|---|
| Bode 2004 ⁸ | 198 | The results suggested both content and amount of therapy are important to gains in self-care and mobility. |
| Dewitt 2005 ⁹ | n/a | Gross motor and functional recovery was better in the German and Swiss centres that received increased therapy. |
| Jette 2004 ¹⁰ | 6,897 | Higher nursing staff levels and therapy intensity are related to improved length-of-stay efficiency and increase the likelihood of patients' being discharged to the community. |
| Jette 2005 ¹¹ | 4,988 | Higher therapy intensity was associated with decreased length of stay and greater functional improvement. |
| Kirk-Sanchez 2003 ¹² | 104 | More hours of intervention per day is related to higher scores on mobility subscales of the FIM [®] at discharge. |
| Kwakkel 2004 ¹³ | meta-analysis 2,686 | Augmented exercise therapy has a small but favourable effect on ADL. Also suggested clinically relevant treatment effects may be achieved on IADL and gait speed. |
| Peiris 2011 ¹⁴ | meta-analysis 1699 | Extra physical therapy decreased length of stay (4 days in rehab) and significantly improved mobility, activity, and Quality of Life. |
| Teasell 2012 ¹⁵ | Review | There is strong (Level 1a) evidence greater intensity of physiotherapy and occupational therapy resulted in improved functional outcomes. |
| Verbeek 2011 ¹⁶ | meta-analysis 725 | Increased time spent on exercise and gait-related activities in the first 6 months post-stroke resulted in significant effects in terms of walking ability, walking speed, and extended ADLs. |
| Wang 2012 ¹⁷ | 360 | A significant relationship between therapeutic intensity and functional gain during inpatient rehabilitation stay was demonstrated. |

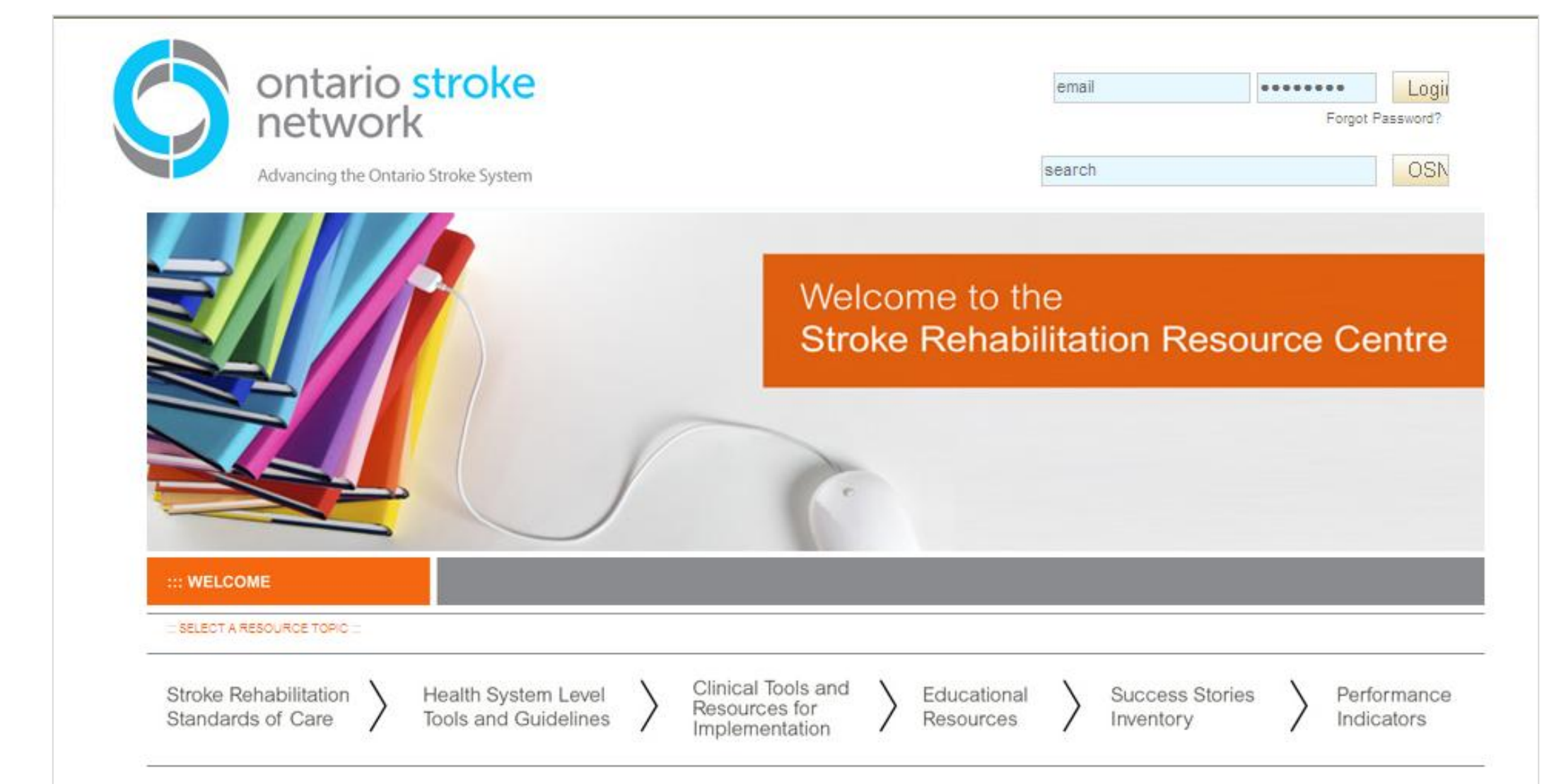
When treatments such as Constraint Induced Movement Therapy¹⁸, Body Weight Supported Treadmill Training¹⁹ and Robotic Therapy²⁰ were compared in randomized controlled trials against therapy of equal intensity and duration, no statistically significant differences were found.

Conclusion

- There is strong evidence of a dose-response relationship between therapy intensity, functional recovery and discharge to the community.
- Patients who received total therapy time less than 3 hours per day had significantly lower total functional gain than those treated for greater than 3 hours per day.²⁰
- Daily average and total amount of therapy time provided by Occupational Therapists, Physiotherapists, and Speech Language Pathologists are significantly correlated with gains in ADL, cognition and mobility as well as overall functional improvement on the Functional Independence Measure (FIM[®]).^{5,20}
- Core therapies of Physiotherapy, Occupational Therapy and Speech Language Pathology have been shown to be most sensitive to intensity.²⁰

Implementation Resources

<http://www.ontariostrokenetwork.ca/rehab.php>



<http://swostroke.ca/videos/>

Video: Time is Function

Three part video series shares the perspectives of stroke patients, family care givers, staff and managers, regarding ideas for increasing therapy intensity and creating an active stimulating rehabilitation environment.



Practical Ideas:

<http://swostroke.ca/welcome/wp-content/uploads/2011/11/Rehab-Forum-Report-final.pdf>

References

1. West T & Bernhardt J. (2012). *Stroke Research and Treatment Volume*. Article ID 813765.
2. Lindsay MP, et al. (2010). *Canadian Best Practice Recommendations for Stroke Care*. Ottawa, ON, Canadian Stroke Network. Retrieved from: www.strokebestpractices.ca.
3. Meyer M, et al. (2012). *The Impact of Moving to Stroke Rehabilitation Best Practices in Ontario. Final Report*. Retrieved from: http://www.ontariostrokenetwork.ca/pdf/The_impact_of_moving_to_stroke_rehabilitation_best_practices_in_Ontario_OS_N_Final_Report_Sept_14_2012.pdf
4. Centers for Medicare and Medicaid Services (2010). Medicare Benefit Policy Manual. Pub. 100-02, Chapter 1, Section 110.2.2. Retrieved from <http://www.cms.gov/Regulations-and-guidance/Guidance/Manuals/Downloads/bp102c01.pdf>
5. Foley N, et al. (2012). *Disability & Rehabilitation* 34(25): 2132–38
6. Teasell R. (2012). Intensity of Stroke Rehabilitation. Presented at the Southwestern Ontario Stroke Rehabilitation Forum "Time is Function: Making It Real"
7. Peurala SH, et al. (2007). *J Rehabil Res Dev* 44(5):637-48.
8. Bode RK, et al. (2004). *Stroke*. 35 (11): 2537-42
9. DeWit L, et al. (2005) *Stroke*. 2007;38:2101-2107
10. Jette DU, et al. (2004) *Am J Phys Med Rehabil* 83:704–712.
11. Jette (2005). *Archives of Phys Med and Rehab*. 86(3): 373-9.
12. Kirk-Sanchez N, et al. (2003) *J Geriatric Phys Ther* 26;3:03
13. Kwakkel (2004). *Stroke*. 35(11): 2529-39
14. Peiris CL, et al. (2011) *Arch Phys Med Rehabil*. 2011 Sep;92(9):1490-500
15. Teasell R, et al. (2012). The Elements of Stroke Rehabilitation, www.ebrsr.com
16. Verbeek JM, et al. (2011) *Stroke* 42(11):331-5
17. Wang H, et al. (2012) *Stroke* 43 (Suppl 1):A2303
18. Wang Q, et al. (2011) *Journal of Rehabilitation Medicine* 43(7): 619-25
19. Duncan PW, et al. (2011). *N Engl J Med*. May 26;364(21):2026-36
20. Burgar CG, et al. (2011). *Journal of Rehabilitation Research & Development* 48(4):445-58