Early Cognitive Rehabilitation in Acute Care

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Cognitive Rehab

"Cognitive rehabilitation is defined as a service of providing therapeutic cognitive activities to improve cognitive functioning and ADL performance and to teach compensation patterns for coping with impaired neurological systems."[1]

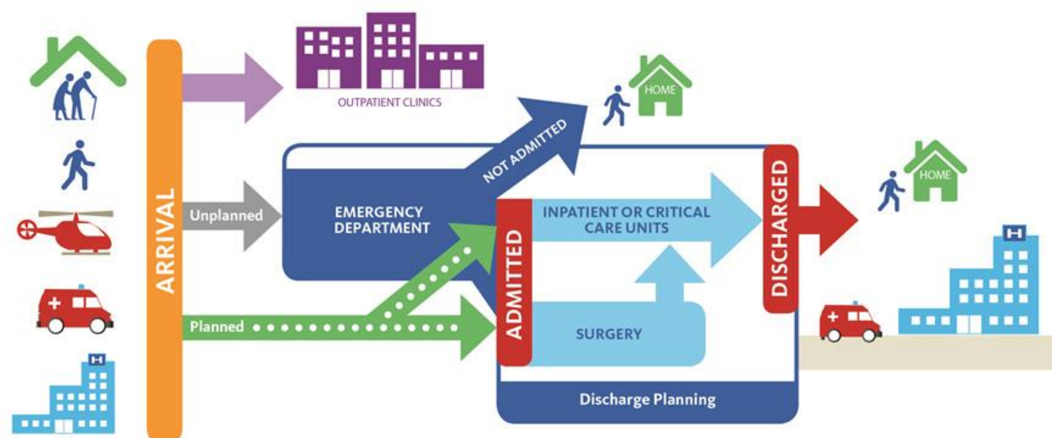
St. Michael's Hospital

- A teaching and research hospital in downtown Toronto.
- Fully affiliated with the University of Toronto.
- Level 1 trauma centre and 1 of 11 Ontario neurosurgical centres.
- Combined trauma and neurosurgical unit.
- In 2015, 438 of 1172 trauma patients admitted to our unit had at least one injury to the head.

Development of a Cognitive Group

Assist in patient flow by:

- Increasing activity tolerance.
- Building routine.
- Treating cognitive deficits early in recovery.
- Demonstrating rehab potential for external partners.



Best Practice in Cognitive Rehab

- Evidence supports early group intervention in cognitive rehabilitation[2,3].
- Attention training, visual-spatial training, language based intervention[4], memory aids and problem solving strategies[5] are most effective.
- Metacognitive training[5]:
  - Generalizes to real world tasks.
  - Facilitates learning across alternate domains.
  - Useful in the remediation of executive function.

Inclusion Criteria

- Rancho Los Amigos scale of 5 or greater.
- Demonstration of new learning and insight.
- Activity tolerance of 30-45 minutes.
- The anticipated need for ABI rehabilitation.

Exclusion Criteria

- Delirium or acute psychiatric conditions.
- Responsive behaviours (e.g. wandering, verbal/physical aggression).
- Other neurosurgical conditions causing cognitive impairment (e.g. brain tumour).

Group Structure

- Small group format of 2-3 participants.
- Facilitated by the occupational therapist assistant.
- Held in a quiet space.
- 4 activity categories:
    - Memory, attention, visuospatial, executive function.
- 2 levels of difficulty.
- Individualized activities addressing participants interests and strengths.

Content

Financial Management

In front of you there is:

- Your current bank statement
- Two blank cheques
- Your utility bill (hydro)
- Your phone bill

Please do the following:

1. Write a cheque to pay your **phone bill** from your **chequing account.**
2. Write a cheque to pay your **utility bill** from your **chequing account.**
3. Calculate the total amount you **now** have left in your **chequing account.**
4. Decide whether you have enough money in your chequing account to pay for a train ticket that costs **$110.00.**

Account Number ____________ Date: ____________

Name of the Bank and Branch

Pay of the order of ______________________ $ ________

The sum of ______________________ Dollars

________ Check No. ______________________

TRUST BANK

Statement of Accounts

PERSONAL BANKING	BALANCE
TRUST EVERYDAY CHEQUING ACCOUNT – 12345678900	$1433.16
TRUST RAINY DAY SAVINGS ACCOUNT -12349876500	$ 741.52
INVESTMENTS	
G.I.C. INVESTMENT ACCOUNT – 98765432100	$2897.93
MUTUAL FUND RSP ACCOUNT -98765123400	$5489.04
CREDIT CARDS, LOANS & MORTGAGES	
TRUST REWARDS VISA CARD – 76543210000	-$1274.60
TRUST LINE OF CREDIT ACCOUNT – 765412345000	-$5420.34

KOODO MOBILE

BILL SUMMARY

CURRENT CHARGES		
Canada-wide 25 (CD/VM)		$25.00
Features and Add-ons (Unlimited CDN LD)		Free
(Unlimited Text Messaging)		5.00
Taxes		
GST/HST	$3.90	
Total Taxes		3.90
Total Current Charges		$33.90
YOUR LAST BILL		
Amount of last Bill 29-Nov-2015		$45.22
Payments		-$45.22
Payment Reversals		$0.00
Total Previous Charges Brought Forward		$0.00
Payments received after 22-Nov-15 may not be reflected in this bill		
TOTAL AMOUNT DUE:		$33.90
PAYABLE BY:		22-DEC-15

Customer Number	Bill Date	Total Amount Due
987 654 3210	22-Nov-2015	$33.90

LOCAL HYDRO DISTRIBUTION INC.

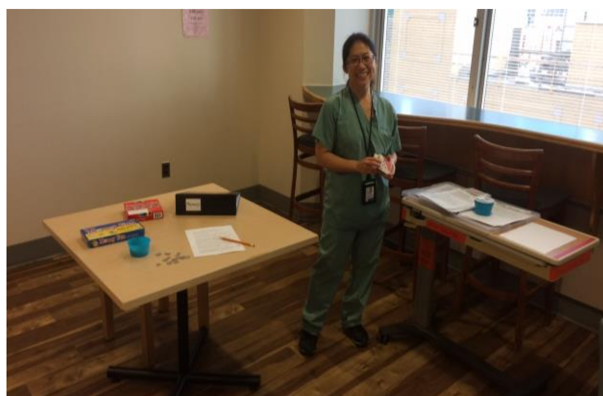
4321 Anywhere Street, Main City, ON L0L L0L

Account Number	121000-01	Amount Due	$281.03
Name	John Doe	Due Date	October 28, 2015
Service Address	123 Nowhere Street	Payment Type	PAY BY DUE DATE
Electric Account	INTERVAL RESIDENTIAL	Bill Date	October 13, 2015
Water Account	RESIDENTIAL	Bill Type	REGULAR BILL

	RATE	USAGE	CHARGES
PREVIOUS BALANCE			$141.08
PAYMENT 10/21/2015			$141.08
BALANCE FORWARD			$0.00
Electric Charges			
Electricity On-Peak Summer	0.161000	155.90	$25.10
Electricity Mid-Peak Summer	0.122000	119.96	$14.64
Electricity Off-Peak Summer	0.080000	573.38	$45.87
Delivery			$45.12
Regulatory Charges			$5.27
Debt Retirement Charge			$5.94
TOTAL ELECTRIC CHARGES			$141.94
H.S.T. #895730216RT			$18.45
TOTAL OTHER CHARGES			$18.45
Ontario Clean Energy Benefit			-$16.03
Regional Water Charges			
Service Charge mtrsize 20mm			$51.68
Consumption Charge			$84.99
TOTAL REGIONAL WATER CHARGES			$136.67
Current Charges Due by 2015-10-28			$281.03
TOTAL AMOUNT DUE			$281.03

Benefits

- Integration of routine/structure.
- Opportunity to engage in meaningful and therapeutic activities[6].
- Increased interpersonal interactions.
- Development of insight into deficits and early compensatory strategies.



Study Design

- Exploratory design using a qualitative approach.
- Questionnaire administered to participants by non-referring OT.

Cognitive Group Questionnaire

We want to know if you are satisfied with the cognitive group at St. Michael's Hospital. Please answer the following questions to the best of your ability.

1. The purpose of the group was clearly explained to me.

☐ Yes
☐ No

2. The therapeutic activities were clearly explained to me.

☐ Yes
☐ No

Please rate the extent to which you agree or disagree with the following statements. Use a scale of 1 to 5, where 1 indicates *Strongly Disagree* and 5 indicates *Strongly Agree*.

3. I enjoyed participating in the cognitive group.

(1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

4. The activities I did in the cognitive group were challenging enough for me.

(1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

5. The cognitive group was useful in my recovery.

(1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

6. Overall, I am satisfied with my experience with the cognitive group.

(1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

Comments:

Results

- Since the inception of the group in the winter of 2015, 148 patients have attended.
- Preliminary participant survey data indicate 89 percent of patients were overall satisfied.
- Comments:
    - “The activities started off very easy at first but then they got harder”.
    - “I liked how they had it set-up, the one-on-one, it’s terrific”.
    - “More up to date games, chess or computer games”.
    - “More people in the room”/”1-2 more participants”.
    - “Good amount of time for each session”.

Next Steps

- Collect feedback from the interdisciplinary team.
- Liaise with other stakeholders to determine the effectiveness of early cognitive rehab in acute care.

References

1. Cited in Park,H. Y., Maitra, K., & Martinez, K. M. (2015). The effect of occupation-based cognitive rehabilitation for traumatic brain injury: A meta-analysis of randomized control trials. *Occupational Therapy International, 22,* 104-116.
2. Hammond, F., Barrett, R., Dijkers, M., Zanca, J., Horn, S., Smout, R., Guerrier, T., Hauser, A., and Dunning, A. (2015). Group therapy use and its impact on the outcomes of inpatient rehabilitation after traumatic brain injury: Data from traumatic brain injury–practice based evidence project. *Archives of Physical Medicine and Rehabilitation, 96,* 82-92.
3. Huckans, M., Pavawalla, S., Demadura, T., Kolessar, M., Seelye, A., Roost, N., Twamley, E., Storzback, D. (2010). A pilot study examining effects of group-based cognitive strategy training treatment on self-reported cognitive problems, psychiatric symptoms, functioning, and compensatory strategy use in OIF/OEF combat veterans with persistent mild cognitive disorder and history of traumatic brain injury. *Journal of Rehabilitation Research and Development, 47,* 43-60.
4. Elliott, M. & Parente, F. (2014). Efficacy of memory rehabilitation therapy: A meta-analysis of TBI and stroke cognitive rehabilitation literature. *Brain Injury, 28*(12), 1610-1616.
5. Cicerone, K.D., Langenbahn, D.M., Braden, C., Malec, J., Kalmar, K., Fraas, M., …Ashman, T. (2011). Evidence-based cognitive rehabilitation: Updated review of the literature from 2003-2008. *Archives of Physical Medicine and Rehabilitation, 92,* 519-530.
6. Park,H. Y., Maitra, K., & Martinez, K. M. (2015). The effect of occupation-based cognitive rehabilitation for traumatic brain injury: A meta-analysis of randomized control trials. *Occupational Therapy International, 22,* 104-116.