

Outcomes of Home-based Stroke Rehabilitation – A Retrospective Study

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About COTA:

- not-for-profit community health and social service organization
- providing comprehensive rehabilitation, mental health and support services for over 30 years to over 21,000 people of all ages each year
- one of the largest community-based health & social service organizations in Ontario

This presentation will:

- Describe the functional changes after home-based rehabilitation services
- Identify factors that contribute to the outcomes after home-based stroke rehabilitation services

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Stroke Statistics

- In Ontario, 90,000 adults are living with the consequences of stroke, such as motor, sensory, cognitive or communication disabilities.
- The economic cost of stroke in Ontario is estimated to be approximately \$860 million per year. (Joint Stroke Strategy Working Group, 2000)

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How the study got started

- At COTA, we provide home-based rehabilitation services to stroke survivors and their family caregivers
- We collect and summarize data of functional changes in clients following intervention in a Service Outcome System
- The outcome system was initiated in 1997

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Cont'd

- Outcome measures are administered by Service Providers who visit the clients
- In the 2003-04 annual plan, The Outcome Steering Committee identified a need to utilize the stroke outcome data for quality improvement opportunities.
- A budget was set aside with support and approval from Senior Management.

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Stroke Outcome Working Group

- A working group was formed consisting of:
 - Occupational Therapists
 - Physiotherapists
 - Clinical Training & Development Specialist
 - Management
 - OT research students from the University of Toronto

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The Literature Review

- Not conclusive concerning what specific interventions are most effective
- There is no single model of rehabilitation at home
- Outcome measures used in the studies were derived from the inpatient arena

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A Retrospective Study

Study data were retrieved from

- COTA's Outcome Database
- administrative database
- health records

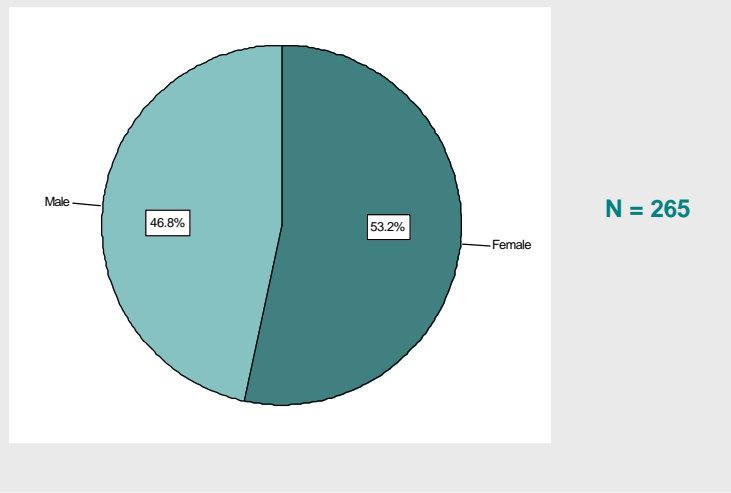
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Inclusion criteria

- OT and/or PT services
- SMAF and/or the SAFER-HOME outcome measure
- Diagnosis :
 - CVA
 - Stroke
 - Hemiplegia
 - Cerebral hemorrhage
 - Aneurysm

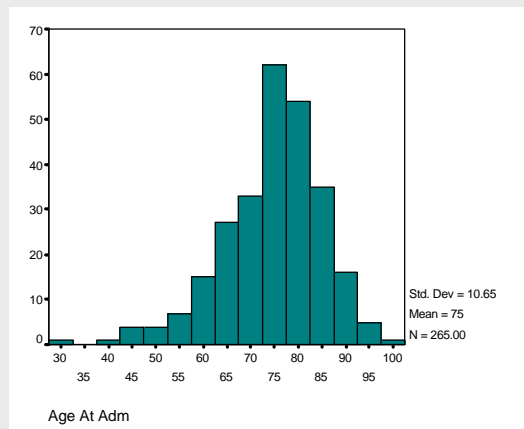
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Gender



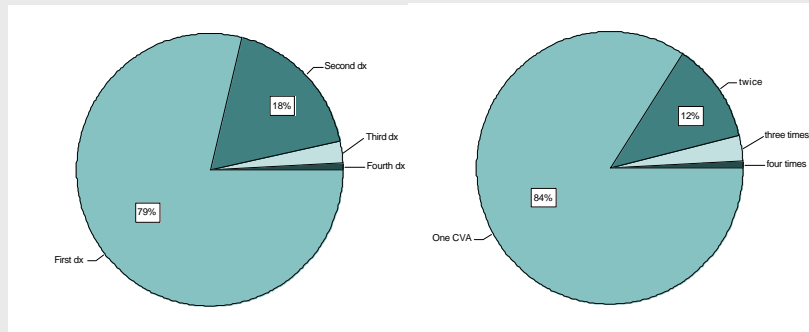
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Age



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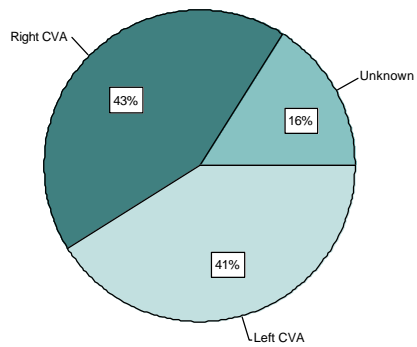
CVA Diagnosis and Number



N = 265

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Lesion Side



N = 265

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Outcome Measurement Tools

Outcome data were collected from 2 Outcome Measurement Tools:

- The SMAF (Functional Autonomy Measuring System) (Hebert, Carrier & Bilodeau, 1988)
- The SAFER HOME (Safety Assessment of Function and the Environment for Rehabilitation-Health Outcome Measurement and Evaluation) (Chiu, Oliver, Marshall & Letts, 2001)

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The SMAF

- Based on the World Health Organization's Classification of Impairments, Disabilities and Handicaps
- 58 items that assess a client's level of disability and handicap in 5 domains
- Well established psychometric properties

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Disability and Handicap

- Items are grouped into 5 domains:
 - Activities of Daily Living
 - Mobility
 - Communication
 - Mental Functions
 - Instrumental Activities of Daily Living

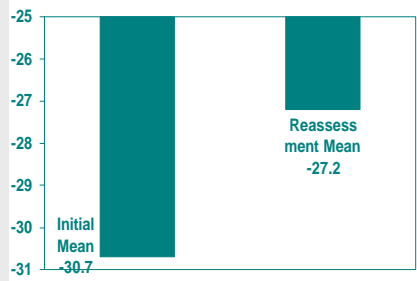
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At COTA the SMAF....

- Is used with any adult phys med client receiving OT and/or PT
- Is administered by an occupational therapist or a physiotherapist
- Is administered at least twice; once at admission and once at discharge
- Measures changes over time using pre and posttest scores

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SMAF Disability Change Score



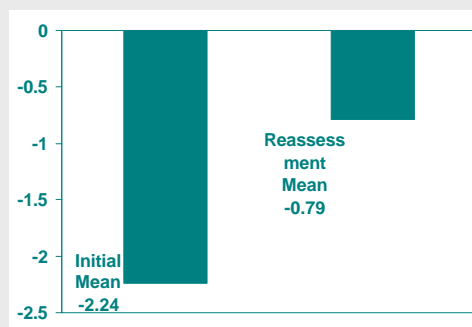
Mean change score: 3.6
(SD= 5.7;
P=.000;
n=265)

SMAF – DISABILITY SCORE

Note: a more negative SMAF score indicates a lower functioning level

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SMAF Handicap Change Score



Mean change score: 1.45
(SD= 2.96;
P=.000;
n=161)

Note: a more negative SMAF score indicates a worse handicap level

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SMAF Change Scores

	Disability	Handicap
Gender	similar	similar
Age	younger - more changes	similar
Initial SMAF score	similar	lower score - more changes
No. of CVA	similar	similar
CVA as primary or secondary dx	similar	similar
Left or Right CVA	similar	similar

SMAF Change Scores

	Disability	Handicap
Co-morbidity or not	similar	similar
Acute, post-acute or chronic	Acute stage - a greater change	similar
Goal achievement or not	Achieved – a greater change than partially or not achieved	similar
PT or OT	PT – greater change	similar

SMAF Change Score

	Disability	Handicap
Total number of visits	More visits - greater change	More visits - greater change
Length of service	similar	Longer visits - greater change
Total number of visits between assessments	More visits - greater change	More visits - greater change
Time period between assessments	More visits - greater change	Longer time - greater change

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SMAF Disability Change Score Multiple Regression

- Nine variables tested for disability score:
 - Initial SMAF score
 - Age at admission
 - Discipline
 - Goal Achievement
 - Acute, post-acute or chronic
 - Total number of visits
 - Number of visits between assessments
 - Length of service
 - Time period between assessments

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SMAF Disability Change Score Multiple Regression (Cont.)

Total Number of visits	Excluded
Time period between Ax	Excluded
Length of Service	Excluded
Initial SMAF score	Excluded
Acute, post-acute, or chronic	Chronic < acute or post-acute
Discipline	PT > OT
Total Number of visits between assessments	More visits: more change
Goal achievement	Achieved > partially or not achieved
Age at admission	Younger age: more change

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SMAF Handicap Change Score Multiple Regression

- 5 variables tested for handicap score:
 - Initial SMAF Handicap score
 - Total number of visits
 - Total visits between assessments
 - Length of service
 - Time period between assessments

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SMAF Handicap Change Score Multiple Regression (Cont.)

Total number of visits	Excluded
Time period between Ax	Excluded
Length of Service	Excluded
Total Number of visits between assessments	More visits – more changes
Initial SMAF score	Lower score – more changes

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The SAFER HOME

- Developed by OTs at COTA
- 97 items
- grouped into 14 areas such as:
 - Living situations
 - Mobility
 - Kitchen
 - Fire hazards
 - Bathroom
 - Wandering etc.

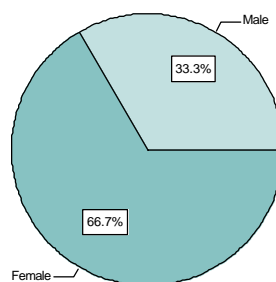
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SAFER HOME (cont'd)

- Designed to assess the effectiveness of an OT home safety assessment and intervention
- Administered at least twice; once at admission and once at discharge
- Measures changes over time using pre and posttest scores

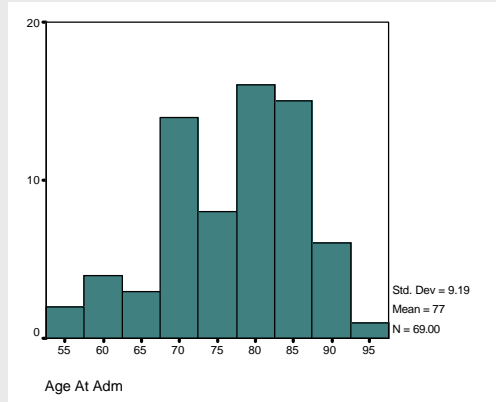
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Gender



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Age



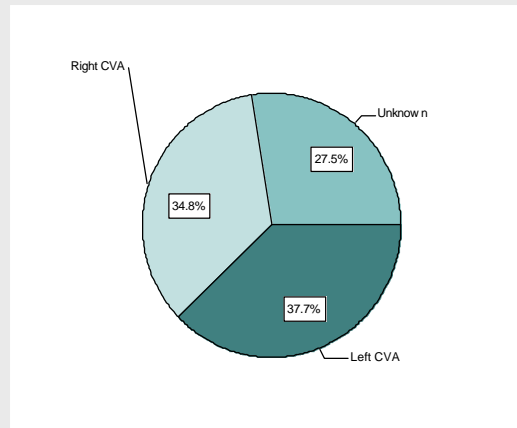
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CVA Diagnosis and Number



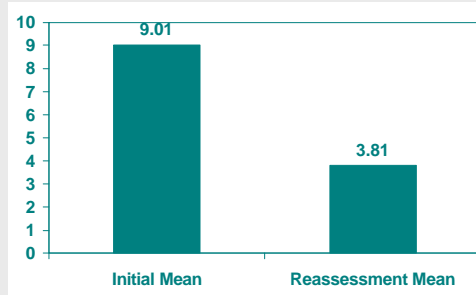
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Lesion Side



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SAFER-HOME Change Score



Mean change score: -5.2
(SD= 6.0;
P=.000; n=69)

Note: a larger SAFER-HOME score represents more safety concerns

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SAFER-HOME Change Score

Male or female	Similar changes
Age	Younger age: greater change
Home safety concerns at initial assessment	More concerns: greater change
Number of CVAs	Similar changes
CVA as primary, secondary diagnosis or more	Similar changes

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SAFER-HOME Change Score

Left or right CVA	Similar changes
Co-morbidity or not	Similar changes
Acute, post-acute or chronic	Similar changes
Goal achieve or not	Similar changes

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SAFER-HOME Change Score

Number of visits	More visits: greater change
Length of services	Longer services: greater change
Visits between assessments	More visits: greater change
Time period between assessments	Longer time: greater change

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SAFER-HOME Change Score Multiple Regression

- Seven variables tested:
 - Initial SAFER-HOME score
 - Age at admission
 - Primary vs Secondary CVA diagnosis
 - Total number of visits
 - Number of visits between assessments
 - Length of service
 - Time period between assessments

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SAFER-HOME Change Score Multiple Regression

Primary or Secondary CVA Dx	Excluded
Time period between Ax	Excluded
Length of Service	Excluded
Total Number of visits	Excluded
Age at Admission	Excluded
Total Number of visits betn Ax	More visits: greater change
Initial SAFER-HOME score	Larger initial score: greater change

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Next

Results will be shared with diverse stakeholder groups in order to:

- Identify factors that are perceived to contribute to the change or lack of change after stroke services
- Identify suggestions for improvements

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Design

- Focus groups, in-person interviews, mailed surveys
- 70 participants, 8 stakeholder groups
- OT, PT, CCAC Case Managers, stroke survivors and family caregivers, Practice Leads, Community Programs

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Upon completion

- At the end of the study we will:
- Have evidence of what contributes to change or lack of change in home-based stroke rehab services
 - Have improvement suggestions to both practice and process
 - Use the study results to incorporate best practices into our daily practice

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