

## MEASURING OUTCOMES IN SEATING AND MOBILITY FOR THE FRAIL ELDERLY PERSON

DEBORAH WATERS, OCCUPATIONAL THERAPIST  
Hotel Dieu Shaver Health and Rehabilitation Centre

There is a growing number of wheelchair bound elderly persons living in long term care facilities. At the current rate by the year 2030 the number of nursing home residents in the United States is projected to reach 3 million, of which more than 70 % will use a wheelchair.

The present study was undertaken to respond to the questions: Can the frail elderly self assess and thereby offer outcomes of the seating and mobility intervention? If not, what outcome measure can the clinician use to measure results of the intervention? How can this work be done within the busy work day? Does cognitive status influence wheelchair mobility?

**Literature Review:** Documentation from long term care facilities in the United States reflects the frequent use of "fleet" chairs with no customization for the elderly client. The elderly person is thus seated in very inadequate wheelchairs. (Redford, 1993) "Specialized seating for people with disabilities has focused historically on the needs of children and on adults with SCI ...this focus may be due in part to funding being more readily available for these populations." (Gavin-Dreschnack, 2004) In a critical review of the literature of interventions for seating and mobility for adults Reid notes: "The results reported were for the most part from the point of view of the researcher and not from the perspective of the wheelchair users themselves." There is little literature documenting outcomes of the seating and mobility intervention for the elderly person, and especially from the perspective of the elderly person. Reid also notes that many researchers focus on the impairment level and not on the level of occupation.

The clinician observes that for the frail elderly client comfort and independent mobility in a wheelchair is vital to taking part in occupation in their setting. For the very frail and elderly person being out of bed and in a comfortable wheelchair is an occupation in itself. This activity corresponds to the pass time of sitting, watching and visiting of the well, non institutionalized elderly person.

The study took place over a period of two years and all clients who required a wheelchair were included. The clients are 40 frail elderly living in the Complex Continuing Care units of two hospitals. The average age of the subjects was 79 years. Diagnoses included TIA, CVA, dementia, MI, ASHD. All clients were eligible for funding by the Province of Ontario Ministry of Health and Long Term Care Assistive Devices Program to cover the cost of a custom wheelchair. All clients were awaiting discharge to a long term care facility. Consent to collect data was received either from the client or from the person with power of attorney.

**Baseline:** Clients self-assessed comfort and mobility in their hospital assigned wheelchairs using a Likert scale. Clients' speed in the hospital assigned wheelchair was assessed by measuring time to cover 10 metres distance in the hospital hallway.

**Intervention:** Assessment followed the usual seating protocol: mat assessment, trials of wheelchairs and seating, finalization of the prescription for a wheelchair and seating and funding application. Each client was screened with the Standardized Mini-Mental State Examination.

**Outcome:** Client self-assessed comfort and mobility in their custom wheelchair using the Likert Scale. The therapist measured each client's speed to cover 10 metres with their new custom wheelchair.

**Results:** 15 of 40 clients were able to self assess. Clients self assessment of comfort increased with the custom wheelchair compared to the hospital assigned wheelchair as did their self assessment of mobility. For those clients unable to self assess comfort or mobility the therapist's measure of client's

speed (time to cover 10 metres) showed that all clients were able to increase their speed in the custom wheelchair as compared to the hospital assigned wheelchair. There was a relationship noted between cognitive status and wheelchair speed. Clients with a higher score on the SMMSE had a speed almost twice as fast as those with a lower SMMSE.

**Discussion:** For those clients able to self-assess comfort and mobility the use of a Likert Scale pre and post intervention provides a means to measure outcomes. For those unable to self assess a comparison of speed pre and post intervention gives a measure of change. Both outcome measures support the value of the intervention. Neither method is time consuming or expensive. Both methods provide feedback during the assessment and trialing process of the intervention to further refine the seating and mobility and allow for the final customized chair to better meet the client's needs.

### **References**

Redford, John B. (1993) Seating and Wheeled Mobility in the Disabled Elderly Population. Archives of Physical Medicine and Rehabilitation, 74, 877-884.

Reid, Denise T. (2002) Critical Review of the Research Literature of Seating Interventions: A Focus on Adults with Mobility Impairments. Assistive Technology, 14, 118-129.

Gavin-Dreschnack, Deborah. (2004) Effects of Wheelchair Posture on Patient Safety. Rehabilitation Nursing, 29, 221-226.

Trefler, Elaine, Fitzgerald, Shirley, Hobson, Douglas, Bursick, Thomas, Joseph, Robert. (2004) Outcomes of Wheelchair Systems Intervention with Residents of Long-Term Care Facilities. Assistive Technology, 16, 18-27.

Fuchs, Robert H., Gromak, Patricia A. (2003) Wheelchair Use by Residents of Nursing Homes: Effectiveness in Meeting Positioning and Mobility Needs. Assistive Technology, 15, 151-163.

Steffen, Teresa M. Hacker, Timothy A. Mollinger, Louise. Age and Gender-Related Test Performance in Community Dwelling Elderly People: Six Minute Walk Test, Berg Balance Scale, Timed Up and Go Test, and Gait Speeds. (2002) Physical Therapy, 82, 128-143.