# Knowledge Network in Rural and Remote Dementia Care

## *Scientific Poster Session*

# Healthcare Delivery Across the Continuum for Rural and Remote Seniors with Dementia

### 2nd Annual Summit

### October 29 & 30, 2009

CIHR IRSC

Saskatchewan
Health Research
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CCHSA / CCSSMA

Rural
Dementia
Care

University of Saskatchewan

University of Saskatchewan

# Thursday October 29, 2009
# Wine and Cheese Scientific Poster Program
# 7:00 PM – 10:00 PM at Sheraton Hotel (South Room)

| Poster Number | Poster Presenter | Authors & Poster Titles |
|---|---|---|
| 1 | **Leslie Holfeld** | Holfeld, L., Morgan, D., Crossley, M., Kirk, A., Stewart, N., D'Arcy, C., Forbes, D., Dal Bello-Haas, V., Basran, J., McBain, L., Cammer, A. & O'Connell, M.<br>Development and Evaluation of a Telehealth-Supported Rural and Remote Memory Clinic |
| 2 | **Rob Beever** | Beever, R., Kosteniuk, J., Karunanayake, C., Morgan, D. & Elash, F.<br>Standardized Scales Used at the Rural and Remote Memory Clinic |
| 3 | **Julie Kosteniuk** | Morgan, D., Karunanayake, C., Beever, R., Elash, F. & Kosteniuk, J.<br>Knowledge Transfer and Capacity Building Activities of the Rural and Remote Memory Clinic |
| 4 | **Julie Kosteniuk** | Kosteniuk, J., Morgan, D., Innes, A., Keady, J., Goins, T., D'Arcy, C. & Stewart, N.<br>Dementia Diagnosis and Management Among Rural and Remote Primary Care Providers: A Research Proposal |
| 5 | **Debra Morgan** | Morgan, D., Crossley, M., Kirk, A., Stewart, N., D'Arcy, C., Basran, J., Dal Bello-Haas, V., McBain, L., Holfeld, L.<br>Evaluation of Telehealth in a Rural and Remote Memory Clinic |
| 6 | **Megan O'Connell** | O'Connell, M., Crossley, M. & Morgan, D.<br>Development and Evaluation of a Telehealth Facilitated Support Group for Caregivers of Individuals Diagnosed with Atypical Dementias |
| 7 | **Norma Stewart & Joseph Wickenhauser** | Stewart, N., Morgan, D., Forbes, D., Karuanayake, C. & Wickenhauser, J.<br>Gender and Generational Differences in Distress and Health of Caregivers Prior to a Family Member's Dementia Diagnosis |
| 8 | **Evangeline Patkau** | Alzheimer Society of Saskatchewan First Link Coordinators<br>First Link: Linking Individuals and Families Affected by Alzheimer's Disease or a Related Dementia to a Community of Learning, Services and Support |
| 9 | **Duane Minish** | Minish, D. & Morgan, D.<br>Strategic Response to Dementia Rates in the United Kingdom - A Country by Country Overview |
| 10 | **Allison Cammer** | Cammer, A., Dal Bello-Haas, V., Morgan, D., Crossley, M., D'Arcy, C., Kirk, A., McBain, L., O'Connell, M. & Stewart, N.<br>How Can We Help You? Analysis of Referrals to a Rural and Remote Memory Clinic from Rural Family Physicians and Patients/Caregivers. |

| | | |
|---|---|---|
| **11** | **Dorothy Forbes** | Forbes, D., Clark, K., Coatsworth-Puspoky, R., Jarvie, A., McDonald, C. & Lischka, A.<br>Resources Needed to Provide Effective Responses to Behavioral Challenges in Long-Term Care Facilities |
| **12** | **Vanina Dal Bello-Haas** | Dal Bello-Haas, V., O'Connell, M. & Morgan, D.<br>Maintaining Health and Wellness in the Face of Dementia: An Analysis of Individuals Living in Rural and Remote Areas |
| **13** | **Nicole Haugrud** | Haugrud, N., Crossley, M., Vrbanbcic, M. & Jodouin, S.<br>Comparing Qualitative Verbal Fluency Scoring Procedures in Healthy Aging and Early Stage Alzheimer's Disease |
| **14** | **Cailey Strauss** | Strass, C., Haugrud, N., Crossley, M. & Morgan, D.<br>Delayed Memory, but not Executive Skills, Predicts Functional Impairment in Newly Diagnosed Alzheimer's Disease |
| **15** | **Joceyln Poock** | Poock, J., Dal Bello-Haas, V. & Crossley, M.<br>The Effects of a "Walking While Talking" Dual-Task on Ambulation in Early-Stage Alzheimer Disease and Normal Aging |
| **16** | **Margaret Crossley & Shawnda Lanting** | Crossley, M., Lanting, S., O'Connell, M., Morgan, D. * The Keewatin Yatthé Home Care Team<br>Developing Dementia Screening Tools for Northern Aboriginal Seniors: Partnering with Keewatin Yatthé RHA Home Care Services |
| **17** | **Lesley McBain** | McBain, L. & Morgan, D.<br>First Nation Long-Term Care Facilities: Initial Observations |
| **18** | **Drew Kirk** | Kirk, A., Crossley, M., Harder, S., Basran, J., Dal Bello-Haas, V., Morgan, D., Stewart, N., D'Arcy, C., Biem, J., Forbes, D. & Holfeld, L.<br>Design and Operation of a Multidisciplinary Memory Clinic Using Telehealth Technology to Serve a Rural and Remote Population |
| **19** | **Heidi Schmaltz** | Heidi's poster is not included in this booklet due to printing time constraints. For a copy of her poster please contact Debra Morgan at debra.morgan@usask.ca |

# Development and Evaluation of a Telehealth-Supported Rural and Remote Memory Clinic

L. Holfeld[1], D. Morgan[1], M. Crossley[2], A. Kirk[3], N. Stewart[4], C. D'Arcy[5], D. Forbes[6], V. Dal Bello-Haas[7], J. Basran[3], L. McBain[8], A. Cammer[1], M. O'Connell[2]

[1]Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan; [2]Department of Psychology, University of Saskatchewan; [3]College of Medicine, University of Saskatchewan; [4]College of Nursing, University of Saskatchewan; [5]Department of Applied Research, University of Saskatchewan; [6]School of Nursing, University of Western Ontario; [7]School of Physical Therapy, University of Saskatchewan; [8]First Nations University of Canada

## Background

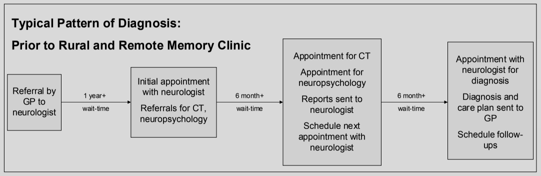
***Introduction:***

- Rural and Northern Saskatchewan have a low population density resulting in large travel burden for medical visits
- Rural SK is older, on average, than urban and is home to many older adults
- Risk for dementia increases with age

***New Emerging Team (NET) Grant:***

- NET grant, *"Strategies to improve the care of persons with dementia in rural and remote areas"*, was developed to:

1) Improve the ***availability*** of specialized personnel and services providing assessment and management of dementia
2) Improve the ***accessibility*** of programs supporting formal and informal caregivers of persons with dementia
3) Improve the ***acceptability*** of services for persons with dementia and their caregivers



**Typical Pattern of Diagnosis:**

**Prior to Rural and Remote Memory Clinic**

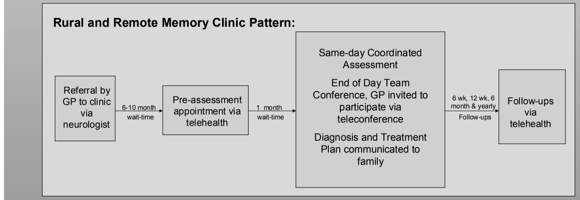
*It was like climbing a mountain to get a diagnosis.*

*"Strategy for AD and Related Dementias in Saskatchewan" (2004), focus group comment.*

## Rural and Remote Memory Clinic

***Clinic Goal:***

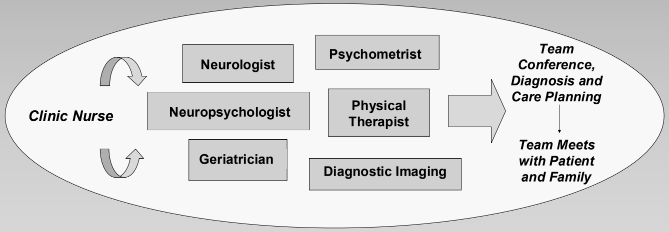
- *To develop and evaluate a **streamlined integrated** clinic for patients from rural and remote Saskatchewan for diagnosis and management of dementia and to evaluate telehealth as a means of delivering follow-up care*

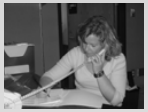


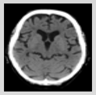
**Rural and Remote Memory Clinic Pattern:**

- **Pre-assessment** of patient and caregivers is conducted via telehealth to prepare them for the one-day assessment, familiarize them with the clinic nurse who will be their care liaison, order blood work or other tests, and gather information to assist with planning the one-day assessment
- **Coordinated assessment** takes place in Saskatoon, is approximately 8 hours, and involves the patient and their informal caregivers and/or family members

## Full-Day Coordinated Assessment







## Evaluation

The clinic is evaluated in a number of ways including:

- Regularly scheduled Clinic Team meetings to plan and discuss clinic process, examine issues, and make decisions
- Annual NET retreat workshops
- Systematic monitoring of Clinic attendance and 'drop-outs'
- Comparison of travel time and estimate of costs saved:

*Mean distance to Telehealth = 78*
*Mean distance to Saskatoon = 518*
***Distance saved by Telehealth = 440***

- At each Telehealth Appointment:
  - *Family/Client Telehealth Satisfaction Questionnaire*
  - *Telehealth Coordinator Evaluation Form*
- After full-day clinic visit in Saskatoon:
  - *Structured scale and semi-structured telephone interview with informal caregiver*
- At Telehealth and In-Person Follow-up Appointments:
  - *Follow-up Evaluation Form (Patient and Family)*
- In-depth interview with informal caregiver 1 year after initial clinic contact

## Interview Analysis

- Interview comments proved to be the best source of feedback for full-day clinic evaluation
- Relatively few concerns and complaints but, when reported, concerns and suggestions discussed and addressed at regular clinic meetings
- Examples of concerns: lack of support bar in washroom, poor wheelchair accessibility, length of day and need for rest breaks, too many questionnaires (all addressed)
- Overall, the positive feedback showed acceptability and satisfaction with clinic
- Thematic analysis of interview comments produced 3 main areas of satisfaction:

### Reduced Travel Burden

- *For us it's quite a trip so it was a relief to have it all done in one day – I can't imagine having to see all those people in their own offices on different days – would have been too stressful*
- *It was a long day but not as exhausting as we'd anticipated. More trips has its own element of fatigue and is more costly – and it's difficult to arrange, especially given the weather and distance*
- *It was easier than going many times because after the travel she's already worked up*

### Timely Diagnosis

- *Such a relief to have a diagnosis and start planning, taking the next steps and not wondering*
- *A big thing is just knowing, just knowing what the problem is so we can start dealing*
- *[My husband] was relieved to have everything finished that day and know the results- not have it hanging over his head*
- *It was really great to go in and have the tests and get the results and diagnosis right away without waiting or worrying*

### Team Approach to Care

- *Everyone went out of their way to make us comfortable, were very friendly and knowledgeable*
- *All the doctors can talk to each other right there rather than having us as the go-between saying, 'well this Dr. told us this last month…'; I just can't imagine doing this any other way – it's how healthcare should be*
- *I've never been to a place where everyone worked so well together*
- *We were respected and didn't get that 'you're old; what do you expect?' attitude we often do*

## Discussion

The Rural and Remote Memory clinic has seen approximately 225 patients/caregivers to date

The success of this clinical service is due to:

- *Clinical need*
- *Research productivity*
- *Teaching value, capacity building*
- *Focus on rural residents*
- *Focus on needs of elderly patients*
- *Focus on aboriginal residents*
- *Focus on technology, telehealth, saving $*
- *Increasing service access*
- *High satisfaction of patients and caregivers*

New Emerging Team, December 2004

## Acknowledgements

Funding and in-kind support is generously provided by:

# Standardized Scales used at the Rural & Remote Memory Clinic

Rob Beever[1], M.Ed, Julie Kosteniuk[1], Ph.D, Chandima Karunanayake[2], Ph.D.,
Debra Morgan[2], Ph.D & Freda Elash[1]
Applied Research/Psychiatry[1]
Canadian Centre for Health and Safety in Agriculture[2]

## Client Interview Questionnaire

The Client Interview Questionnaire is conducted during the patient's Clinic Day visit as well as at annual follow-ups. The following is a list of the embedded scales within the Client Interview Questionnaire.

**1. Life Concerns Scale** - is a 14-item measure intended to measure life concerns and stress (D'Arcy, 1987). All items are summed and have a range from 0 - 56 with higher scores indicating greater impairment.

**2. Instruments of Daily Living Scale** - is a 9-item scale designed to measure the ability to perform daily tasks (Lawton & Brody, 1969). Scores range from 9 - 27 with higher scores indicating a higher level of functioning.

**3. Self-ratings of Memory Scale** - is a 15-item scale that patients use to rate their memory abilities currently as compared to four years ago (Squire & Zouzounis, 1988). A higher positive score indicates greater memory abilities.

**4. Perceived Stress Scale** - is a 4-item scale that measures patient thoughts and feelings during the last month (Cohen & Kamarack, 1983). All items are summed and range from 0 - 16 with higher scores indicating higher stress.

**5. Quality of Life Alzheimer's Disease Scale** - is a 13-item measure of quality of life (Logsdon et al., 1999). Total scores range from 13 to 52, with higher scores indicating greater QOL. This measure includes an appraisal of the patient's physical condition, mood, interpersonal relationships, ability to participate in meaningful activities, financial situation, and an overall assessment of self and quality of life. This measure obtains a rating of the patient's quality of life from both the patient and the caregiver perspective.

**6. Centre for Epidemiologic Studies: Depressed Mood Scale** - is a patient self-reported 20-item scale developed to measure depressive symptoms such as sad mood, feelings of guilt and worthlessness, loss of appetite, and sleep disturbance (Radloff, 1977). Total scores range from 0 to 60 with a higher score indicating more symptoms.

**7. Pleasant Events Scale: Alzheimer's Disease** - is a 20-item scale designed to measure past enjoyment of various activities (Logsdon & Teri, 1997). Higher scores indicates a higher level of enjoyment.

## Family Caregiver Questionnaire

The Family Caregiver Questionnaire is conducted during the patient's Clinic Day appointment and is completed at annual follow-ups. The following is a list of the scales within the Family Caregiver Questionnaire.

**1. Functional Assessment Questionnaire** - is a 10-item screening tool for assessing independence in daily activities and universal skills among older adults (Pfeffer et al., 1982). Total scores from the FAQ range from 0 - 30 with higher scores indicating greater dependence of the patient.

**2. Bristol Activities of Daily Living Scale** - is a caregiver-rated instrument containing 20 daily living abilities in four areas: mobility, instrumental activities of daily living, self-care, and orientation (Bucks et al., 1996). Total scores range from 0 to 60 with higher scores reflecting greater dependence of the patient.

**3. Quality of Life Alzheimer's Disease Scale** - Please see the description in the Client Interview Questionnaire section on the left.

**4. Neuropsychiatric Inventory: Severity** - is a proxy-rated scale that measures 12 psychiatric symptoms (Cummings et al., 1994). The Neuropsychiatric Inventory-Severity scale (NPI-S) is a 12-item scale. Total scores range from 12 to 36 with higher scores indicating more severe patient symptoms.

**5. Zarit Burden Scale** - is a 12-item scale used to assess caregiver burden (Zarit et al., 1985). Total scores range from 0 to 48 with higher scores indicating greater burden.

**6. Brief Symptom Inventory** - is a 53-item scale that requires the caregiver to rate the degree to which potential problem areas have distressed them over the past 7 days (Derogatis & Melisaratos, 1983). Higher scores indicate higher levels of caregiver distress.

**7. Short Form Health Survey** - is a 12-item scale designed to measure caregiver mental and physical health (Ware et al., 1996). Mental and physical health scores are calculated through a computer software program and range from 0-100 with higher scores indicating better mental or physical health.

## Family Caregiver Satisfaction Questionnaire

The Family Caregiver Satisfaction Questionnaire is conducted during the patient's initial Clinic Day. The questionnaire includes three different scales:

**1.Communication -** is a 8-item scale designed to measure caregiver satisfaction with their communication with the Memory Clinic Team (McKinley et al., 1979). Scores for each item are summed with ranging from 1 to 32 with higher scores indicating a higher level of communication between the caregiver and Memory Clinic Team.

**2. Attitude -** is a 4-item scale designed to measure caregiver satisfaction with the attitude of the Memory Clinic Team (McKinley et al., 1979). Scores for each item are summed with ranging from 4 to 20 with higher scores indicating a higher positive attitude by the caregiver towards the Memory Clinic Team.

**3. Client Satisfaction Questionnaire -** is administered as either a 17-item, 8-item or 3-item scale to measure caregiver satisfaction with their Memory Clinic experience (Larsen et al., 1979). A higher score demonstrates a higher level of satisfaction.

## Additional Measures

The Rural and Remote Memory Clinic collects evaluation data and clinical data. The evaluation data is composed of four forms based on information collected at Telehealth including a Record of Contact form, Family/Client Telehealth Satisfacation form, the Telehealth Coordinator Evaluation Form and the Follow-up Evaluation form for Patient and Family.

Other evaluation measures used in the Rural and Remote Memory Clinic are the Family/Client Satisfaction Interview Guide: Telehealth Experience, and Satisfaction with the One-Stop Clinic.

The clinical measures in the Rural and Remote Memory Clinic come from different professions including data points from Physical Therapy, Neurology, Neuropsychology, and Neuroradiology .

## Acknowledgments

CIHR IRSC
Saskatchewan Health Research Foundation
Alzheimer Society SASKATCHEWAN
Telehealth Saskatchewan ...Linking Communities for Health...

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# Knowledge Transfer and Capacity Building Activities of the Rural and Remote Memory Clinic

Rural and Remote Memory Clinic Data Team: Debra Morgan, Chandima Karunanayake, Rob Beever, Freda Elash, and Julie Kosteniuk

## Knowledge Transfer – Journal publications and conference presentations

## Data Collection 2003-2005

### 2005 Journal Publications

[1] Morgan, D. et al. **Dementia care in rural and remote areas: The first year of a CIHR New Emerging Team**. *Canadian Journal of Nursing Research*, 37(1), 177-182

### 2003-2005 Conference Presentations

***The 58th Annual Scientific Meeting of the Gerontological Society of America*, Orlando, Nov. 18-22, 2005.**

[1] Morgan, D. et al. **Development and evaluation of a multidisciplinary rural and remote memory clinic with pre- and post-assessment via telehealth**.

[2] Morgan, D. et al. **Dementia care practices and information needs of rural physician and non-physician community-based care providers**.

[3] Forbes, D. et al. **Non-pharmacological strategies for managing agitated behaviors associated with dementia: A systematic review**.

***Canadian Association on Gerontology 34th Annual Scientific & Education Meeting*, Halifax, NS, Oct 20-23, 2005.**

[4] McBain, L. et al. **Accessing telehealth services: Recognizing the challenges facing older adults in northern and remote communities**. Cammer, A., & Morgan, D. Formative and process evaluation interviews for a multidisciplinary rural and remote memory clinic.

[5] Lanting, S. et al. **Partnering with an Aboriginal Grandmother's group to develop culturally relevant assessment protocols for a Rural and Remote Memory Clinic**.

***Bridging the Distance: 6th Conference of the Canadian Rural Health Research Society*, Quebec City, October 27-29, 2005.**

[6] Cammer, A. et al. **Methodological challenges and decisions in examining dementia care access issues for seniors in Northern Saskatchewan**.

[7] Lanting, S. et al. **Partnering with Aboriginal Grandmothers to inform the development of a culturally relevant dementia clinic protocol**.

[8] Andrews, M. et al. **Examining stress leave in rural and remote Canadian RNs**.
Andrews, M., D'Arcy, C., Penz, K., Morgan, D., & Stewart, N. Male nurses in rural and remote Canada.

***Canadian Association on Gerontology Annual Scientific Meeting: Special Joint CAG/CIHR Symposium*, Halifax, October 20-23, 2005.**

[9] Morgan, D. et al. From conception to birth: Development of the team and NET research projects

[10] Biem, J. et al. **Evaluation of a telehealth-supported multidisciplinary memory clinic: Trading off validity, generalizebility and feasibility in health services research**

[11] Morgan, D. et al. **Design of a rural and remote memory clinic.**

[12] Crossley, M. et al. **NET reflections: What have we learned and where will it take us?**

[13] Harder, S. et al. **NET effects: An explosion of successful collaboration**

***Alzheimer Society of Canada 27th National Conference*, Regina, SK (April 7-9, 2005).**

[14] Morgan, D. et al. **Care of rural seniors with dementia: Continuing education needs of physician and non-physician community-based health care providers**.

[15] Morgan, D. et al. **"Strategies to Improve the Care of Persons with Dementia in Rural and Remote Areas": CIHR New Emerging Team Research Program**.

[16] Forbes, D. et al. **Older Canadians with Dementia: Use of Health Services.**

[17] Lanting, S. et al. **Partnering with aboriginal seniors to develop a culturally appropriate assessment protocol for cognitive impairment and dementia in a rural and remote memory clinic.**

[18] Poock, J. et al. **Assessing gait and dual-task performance in patients referred to a memory clinic.**

[19] Lejbak, L. et al. **Review of the most recent clinical guidelines for diagnosing the major dementias.**

***Gerontological Society of America*, Washington, DC. (November 21-25, 2004).**

[20] Morgan, D. et al. **Physically aggressive behaviour toward nursing aides in rural nursing homes with and without Special Care Units**.

[21] Morgan, D. et al. **Canadians with Alzheimer Disease: Prevalence and utilization of health care services.**

***Canadian Association on Gerontology,* Victoria, BC. (Oct 21-23, 2004).**

[22] Morgan, D. et al. **Development and evaluation of a multidisciplinary one-stop memory clinic for rural and remote seniors utilizing telehealth for pre- and post-clinic assessment.**

[23] Crossley, M. et al. **Partnering with aboriginal seniors and rural and remote caregivers to develop a culturally sensitive assessment protocol for cognitive impairment and dementia**.

***Fifth Canadian Rural Health Research Society Conference*, Sudbury, ON. (October 21-25, 2004).**

[24] Lanting, S. et al. **Developing and evaluating a culturally sensitive protocol for the detection of cognitive impairment and dementia through a partnership with aboriginal seniors.**

[25] Cammer, A. et al. **Impact of community involvement on study design: Development and evaluation of a rural and remote memory clinic.**

***National Nursing Research Conference* "Transforming Health Care through Nursing Research: Making it Happen," London, ON. (May, 2004).**

[26] Stewart, N. et al. **Workplace safety in rural dementia care settings.**

[27] Andrews, M.E. et al. **The sole RN: Working alone in rural and remote Canada**.

***Fifth International Symposium: Future of Rural Peoples*, Saskatoon. (October, 2003).**

[28] Cammer, A. et al. **Creating and sustaining dementia special care units in rural nursing homes: Characteristics of successful units.**

[29] D'Arcy, C. et al. **Job satisfaction among nurses in rural and remote areas of Canada**.

[30] Biem, J. et al. **Breaks in continuity of care: The rural senior transferred for medical care under regionalization.**

[31] Kirk, D. et al. **Mini-Mental State Examination scores are significantly lower when administered via telehealth (videoconferencing) than when administered in person to patients with early dementia**. World Congress of Neurology, Sydney, Australia, Nov 5 – 11, 2005. *Journal of the Neurological Sciences, 238,* S291-S292, 2005.

[32] Cammer, A. al. **Issues surrounding utilization of dementia care services in Northern Saskatchewan.** *The Voices Continue to Speak: CIHR-IAPH Conference*, Regina, Aug 2005.

[33] Forbes, D. et al. **Non-pharmacological strategies for managing agitated behaviours associated with dementia: A systematic review**. *18th Annual Research Conference, Unit in Nursing, Diversity in Research*, University of Western Ontario, London, ON. May 6, 2005.

[34] Morgan, D. et al. **Rural nursing homes with and without Special Care Units: Families' Perceptions of Quality of Care**. *Geronotological Soc. of America*, San Diego.

[35] Forbes, D. et al. **Two distinct subgroups of home care: The interface of medical and social policy**. *Global Nursing Scholarship Conference*, Rome (June, 2003).

[36] Biem, H. J. et al**. Charting the seven C's of continuity of care: The rural senior transferred for medical care under regionalization**. *International Conference on New Research and Developments in Integrated Care*. Barcelona, Spain, February 21-22, 2003.

## Data Collection 2006

### 2006 Journal Publications

[1] Forbes, et al. **Rural and urban Canadians with dementia: Use of health care services.** *Canadian Journal on Aging*, 25(3), 321-330.

[2] McBain, L.et al. **Telehealth, geography, and jurisdiction: Issues of health care delivery in northern Saskatchewan**. *Canadian Woman Studies*, 24(4), 123-129.

### 2006 Conference Presentations

***Alzheimer Society of Canada 28th National Conference.* Toronto, ON. Nov 6-7, 2006:**

[1] Morgan, D. et al. **Telehealth videoconferencing in a Rural and Remote Memory Clinic: Family and Site Coordinator evaluation**

[2] Morgan, Det al. **Barriers to nursing aide participation in a study of resident aggression in long-term care**.

[3] Bergen, A. et al. **Organizational change in rural long-term care facilities: An implementation evaluation of a program designed to address the needs of residents with dementia**.

***Canadian Society of Telehealth,* Edmonton, AB. October 15-17, 2006**

[4] Morgan, D. et al. **Satisfaction and convenience of telehealth versus in-person follow-up appointments in patients and caregivers referred to a rural and remote memory clinic.** *Received Concurrent Session Podium Award

[5] McBain, L. et al. **Overcoming the challenges of distance: The role of telehealth coordinators in a rural and remote memory clinic.**

***59th Annual Scientific Meeting: Education and the Gerontological Imagination. The Gerontological Society of America*, Dallas, Texas. Nov 16-20, 2006.**

[6] Morgan, D., et al. **Physical aggression toward nursing aides: Focussing on caregiver "error" masks systemic and organizational factors**.

[7] Forbes, D.A. et al. **Canadians with dementia: Use of health care services**

[8] Forbes, D. et al. **Availability and quality of health care received by persons with dementia**. *Alzheimer Society of Canada 28th National Conference: Alzheimer Research and Innovation, Yesterday, Today, and Tomorrow,* Toronto, ON. November 6-7, 2006.

[9] Cammer, A. et al. **Personal stigma versus cultural and historical context: Barriers to dementia care in Northern versus rural Saskatchewan communities**. *Seventh National Conference of the Canadian Rural Health Research Society,* Prince George, BC. October 19-21, 2006.

[10] Kirk, A. et al. **Mini-Mental State Examination scores differ when administered via telehealth compared with administration in person to patients with early dementia**. *XLIst Canadian Congress of Neurological Sciences, June 16, 2006, Montreal, Quebec. The Canadian Journal of Neurological Sciences.*

## Data Release 1 2007

### 2007 Journal Publications

[1] Morgan, D. et al**. The potential of gait analysis to contribute to differential diagnosis of early stage dementia: Current research and future directions**. *Canadian Journal on Aging,* 26(1), 19-32.

### 2007 Conference Presentations

***Gerontological Society of America 60th Annual Scientific Meeting*, San Francisco, CA, Nov 16-20, 2007:**

[1] Cammer, A., **et al**. **Negotiating culturally incongruent systems: The process of accessing dementia care for aboriginal older adults living in northern Saskatchewan**.

[2] Mueller C. **Nursing leadership and nursing home culture change**

[3] Morgan, D. et al. **The role of nursing managers in managing change in rural nursing homes: Creating and sustaining special care units**

[4] McKenzie-Green, B. **The relationship between work complexity and nurse turnover in long-term care**

[5] McGilton, K. **Against all odds: How do nurse supervisors in long-term care environments manage to get through their day?**

[6] Forbes, D., et al. **Availability, accessibility, and acceptability of home and community-based services: Perspectives of unpaid caregivers of persons with dementia.**

***Canadian Association on Gerontology 36th Annual Scientific and Educational Meeting*, Calgary, AB, Nov 1-3, 2007:**

[7] Forbes, D., et al. **How are we doing in meeting the needs of persons with dementia and their unpaid caregivers?**

[8] Bergen, A., Morgan, D., Green, K., Stewart, N., Normand, S. Dementia care for residents in rural nursing homes: An evaluation of the enhancing care program.

[9] Morgan, D. et al. **How can we help you?: An analysis of referring problems to a rural memory clinic from the perspectives of the physician and the patient/caregiver**.

[10] Markle-Reid, M. et al. **Testing a theoretical model to explain community service use by unpaid caregivers of persons with dementia**. *McMaster School of Nursing Annual Research Day,* McMaster University, Hamilton, ON. October 4, 2007

[11] Cammer, A. et al. **Improving Access to Early Assessment and Treatment of Dementia: Evaluation of a Telehealth Supported Multidisciplinary Memory Clinic for Rural and Remote Seniors.** *Canadian Coalition for Seniors' Mental Health*, Mississauga, Sept 24-25th, 2007.

[12] Cammer, A., et al. **Swimming the river of care: The use of a participant-directed group activity as a data collection tool for a grounded theory project**. *8th Advances in Qualitative Methods Conference,* International Institute for Qualitative Methodology, Banff, AB, September 21-24, 2007.

[13] Forbes, Det al. Symposium: **Supporting Caregivers in Dementia Care (4 papers).** ***Festival of International Conferences on Caregiving, Disability, Aging, and Technology***. Toronto, ON, June 16-19, 2007.

[14] Thornhill, T. et al. **The Use and Utility of the Timed Up-and-Go (TUG) in Community-dwelling Older Adults with Cognitive Impairments**. *World Congress of Physical Therapy*, Vancouver, B.C., June 2-6, 2007

[15] Forbes, D. et al. **Canadians with Dementia: Use of Health Care Services**. *Celebrating Research and Innovation in Achieving Nursing Excellence (20th Annual Research Conference),* University of Western Ontario, London, ON, April 13, 2007.

[16] Lanting, S., et al. **The Grasshoppers and Geese Test: A modified neuropsychological measure for assessing semantic memory in a Rural and Remote Memory Clinic**. *International Neuropsychological Society 35th Annual Meeting,* Portland, Oregon, Feb 7 – 10, 2007.

## Capacity Building (Trainee research projects)

### Trainee Research Projects

Lesley McBain (Human Geography, Postdoctorate) **Use of Geographic Information Systems (GIS) to map health data and to examine implications of telehealth on rural and remote healthcare service**

Mary Ellen Andrews (Nursing, PhD) **Dementia care in northern nursing practice**

Shawnda Lanting (Psychology, PhD) **Development of a culturally appropriate assessment protocol to detect cognitive impairment and dementia in older Aboriginal adults**

Patrick Corney (Psychology, PhD) **Attentional mechanisms in normal aging and early-stage dementia**

Jocelyn Poock (Psychology, PhD) **The effects of 'walking while talking' dual-task on ambulation in patients with Alzheimer's disease and healthy older adults**

Nicole Haugrud (Psychology, PhD) **Strategy use during speeded verbal fluency tasks in normal aging and dementia**

Allison Cammer (Community Health and Epidemiology, MSc) **Negotiating culturally incongruent healthcare systems: The process of accessing dementia care in northern Saskatchewan**

Anita Bergen (Community Health and Epidemiology, MSc) **Dementia care for residents in rural nursing homes: A process evaluation of the *Enhancing Care* program**

Marcie Heggie (Medicine, Undergrad) **Quality of life in early-stage dementia: Longitudinal analysis of patient and family caregiver ratings**

Patrick Wong (Medicine, Undergrad) **Predictors of patient and caregiver-rated quality of life in early dementia: Cognitive function vs. self-rated memory**

Andrew Wassef (Medicine, Undergrad) **Comparison of rural vs urban referrals to a tertiary care centre for neurological assessment of possible dementia: a five year retrospective review**

Melanie Funk (Physical Therapy, Undergrad) **Development of a protocol for longitudinal assessment of physical fitness and gait in seniors referred to a rural and remote memory clinic**

Wendaline VanBuren (Medicine, Undergrad**) Utility of telehealth in following cognition in memory clinic patients from rural and remote areas**

Trevor Steeves (Medicine, Undergrad) **Medication use in patients presenting to a rural and remote memory clinic**

## Data Release 2 2008

### 2008 Journal Publications

[1] Crossley, M. et al**. Interdisciplinary research and interprofessional collaborative care in a memory clinic for rural and northern residents of Western Canada: A unique training ground for clinical psychology graduate students**. Australian Journal of Psychology, 43(4), 231-238.

[2] Steve, T. et al. **Medication use in patients presenting to a rural and remote memory clinic (peer-reviewed letter to the editor)**. Canadian Journal of Neurological Sciences, 35, 669-671.

[3] McEachern, W. et al. **Utility of telehealth in following cognition in memory clinic patients from rural and remote areas. Canadian Journal of Neurological Sciences**, 35, 643-646.

[4] Forbes, D. et al. **Availability and acceptability of Canadian home and community-based servcies: Perspectives of family caregivers of persons with dementia. Home Health Care Services Quarterly**, 27(2), 75-99.

[5] Forbes, D. et al.**Gender differences in use and availability of home and community-based health services for people with dementia**. Canadian Journal of Nursing Research, 40(1), 38-59.

### 2008 Conference Presentations

***6th International Symposium: Public Health & the Agricultural Rural Ecosystem.* Oct 19-23, 2008, Saskatoon, SK.**

[1] Morgan, D. et al. **The Rural and Remote Memory Clinic: An overview**.

[2] Dal Bello-Haas, V. et al. **Rural and remote dementia care challenges and needs: Formal and informal care provider perspectives**.

[3] Crossley,M. et al. **Pre-clinic teleconferencing prepares families and health professionals for a subsequent Rural and Remote Memory Clinic assessment**.

[4] Cammer, A. et al. **Evaluation interviews of a Rural and Remote Memory Clinic**.

[5] McBain, L. et al. **Evaluating patient, caregiver, and telehealth coordinator responses to a telehealth-assisted Rural and Remote Memory Clinic**.

[6] Holfeld, L. et al. **Is a nurse necessary? The role of an RN in an integrated interprofessional Rural and Remote Memory Clinic**.

[7] Kirk, A. et al. **Utility of telehealth in following cognition in memory clinic patients from rural and remote areas**.

[8] Andrews, M.E. et al. **An exploration of dementia care in Northern Saskatchewan: The perspectives of Northern registered nurses**.

[9] Andrews, M.E. et al**. North-south differences in rural nursing services for dementia caregiving in Canada**.

***Canadian Association on Gerontology 37th Annual Scientific & Educational Meeting,* Oct 23-26, 2008, London, ON.**

[10] Forbes, D. et al. **Symposium: Role of Home Care in Dementia Care Study**.

[11] Markle-Reid, M. et al. **Testing a Theoretical Model to Explain Community Service Use by Unpaid Caregiver of Persons with Dementia**.

[12] Hawranik, P. et al. **The Perspectives of Rural Formal and Informal Caregivers on Community Dementia Services**.

[13] Jansen, L. et al. **Enhancing In-home Care of Persons with Dementia: Perspectives of Formal Community Service Providers**.

[14] Forbes, D. et al. **Role of home care in dementia care study: Lessons learned.**

[15] Cammer, A., & Morgan, D. **Negotiating culturally incongruent systems: The process of accessing dementia care for Aboriginal older adults living in Northern Saskatchewan**. *Canadian Association on Gerontology 37th Annual Scientific & Educational Meeting.*

[16] Kirk A. et al**. Design of a multidisciplinary memory clinic using telehealth technology to serve a rural and remote population**. XIIth Congress of the European Federation of Neurological Societies, August 25, 2008, Madrid, Spain. European Journal of Neurology 15: Supplement 3:223, 2008.

[17] Forbes, D. et al. **How gender influences use of community-based services in persons with dementia**. *Alzheimer's Association International Conference on Alzheimer's Disease*, Chicago, Illinois, July 26-31, 2008.

[18] Forbes, S. et al. **Effects of physical activity programs on persons with dementia: A Cochrane review**. *Alzheimer's Association International Conference*, Chicago, July 26-31.

[19] Forbes, D. et al. **What is needed to prevent dementia from causing a health and economic crisis: Perceptions of family caregivers.** *International Nursing Research Conference*, Jerusalem, Israel, June 30 – July 3, 2008.

[20] Kirk A. et al. **Design of a multidisciplinary rural and remote memory clinic using telehealth technology**. Presented at the XLIIIrd Congress of the Canadian Neurological Sciences Federation, Victoria, British Columbia, June 19, 2008. The Canadian Journal of Neurological Sciences, 35:2(S1): S38, 2008.

[21] Cammer, A., & Morgan, D. **Swimming the river of care: A participant-led group activity as a data collection strategy in a grounded theory study**. *Innovations in Qualitative Research Conference,* June 3-4, 2008, University of Saskatchewan, Saskatoon, SK.

[22] Cammer, A., et al. **The process of accessing dementia care for Aboriginal older adults living in Northern Saskatchewan**. *Saskatchewan Association of Health Organizations (SAHO) Conference*, April 13-15, 2008, Regina, SK.

[23] Morgan, D. et al**. Taking the Hit: Experiences of physical assault by special care aides in long-term care**. *Saskatchewan Association of Health Organizations (SAHO) Conference*, April 13-15, 2008, Regina, SK.

[24] Morgan, D. et al. **The development and evaluation of a telehealth-supported Rural and Remote Memory Clinic**. *Saskatchewan Association of Health Organizations (SAHO) Conference*, April 13-15, 2008, Regina, SK.

[30==25] Forbes, D. et al. Availability and acceptability of Canadian home- and community-based services: Perspectives of family caregivers of persons with dementia. *Bridging Partnerships in Aging & Rehabilitation Research*, London, ON, Februrary 8, 2008.

***International Neuropsycholgical Society Annual Meeting*, Feb 6-9, 2008, Waikoloa, Hawaii:**

[26] D'Arcy, C. et al. **Establishing and evaluating an interprofessional Rural and Remote Memory Clinic: Making transdisciplinary collaboration work**.

[27] Crossley, M. et al. **Interprofessional diagnosis in a memory clinic for rural and remote residents: The contributions of clinical neuropsychology are enhanced within the context of a diverse and innovative health-care team**.

[28] Poock, J. et al. **Interprofessional research in a rural and remote memory clinic: The role of neuropsychology in collaborative research on differential diagnosis in early stage dementia**.

[29] Lanting, S. et al. **Modifying neuropsychological assessment protocols for individuals referred to a rural and remote memory clinic: Incorporating insights and research methods from human geography and cultural anthropology**

[30] Lanting, S. et al. **The clinical utility of two modified screening measures in the detection of cognitive impairment and dementia in Canadian Aboriginal seniors referred to a rural and remote memory clinic: A case study approach.**

## Data Release 3 2009 (Planned)

### 2009 Journal Publications

[1] Morgan, D. et al. **Improving Access to Dementia Care: Development and Evaluation of a Rural and Remote Memory Clinic**. Aging & Mental Health, 13(1), 17-30.

### 2009 Conference Presentations

[1] Morgan, D. et al. **Evaluation of telehealth in a rural and remote memory clinic**. The Gerontological Society of America 52th Annual Scientific Meeting, Atlanta, GA, Nov 18-22, 2009.

[2] Kirk A, et al. **Design and evaluation of a multidisciplinary memory clinic using telehealth technology to serve a rural and remote population**. Helsinki Finland, July 31, 2009. Journal of the International Neuropsychological Society, in press, 2009.

[3] McBain, L. et al**. First Nation long-term care facilities in rural and remote Saskatche**wan. 8th Conference of the Canadian Rural Health Research Society: Rural Life, Health, Environment. Kingston, ON, Oct 15-17, 2009.

[4] Forbes, D. et al. **Light therapy for managing symptoms of dementia: A Cochrane review.** Alzheimer's Association 2009 International Conference on Alzheimer's Disease, Vienna, Austria, July 11-16, 2009.

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[6] Forbes, D et al. **Looming dementia crisis: Is rural home care ready?** 22th Annual Research Conference. Arthur Labatt Family School of Nursing, University of Western Ontario and the Iota Omicron Chapter of Sigma Theta Tau International Honor Society of Nursing, May 1, 2009, London, ON.

Information about publications and conference presentations is available in the Summit binders.

# Dementia diagnosis and management among rural and remote primary care providers: A research proposal

Julie Kosteniuk, Debra Morgan, Anthea Innes, John Keady, Turner Goins, Carl D'Arcy, and Norma Stewart

UNIVERSITY OF SASKATCHEWAN

## Background

**The problem of dementia care in Canada**

- Each year, 60,150 new cases of dementia develop (Canadian Study of Health and Aging Working Group, 2000).
- An estimated 64% of seniors living outside of long-term care facilities have undetected dementia (Sternberg et al. 2000).
- One Canadian study found that fewer than 50% of family physicians were aware of the 1999 Canadian Consensus Conference on Dementia (CCCD) guidelines, and physicians indicated that the guidelines did not reflect the realities of dementia care in their practice ( Pimlott et al. 2009).
- Many family physicians are not entirely confident with providing dementia care, and specialist referral rates among dementia patients are high (Pimlott et al. 2006 & 2009).
- According to the Third Canadian Consensus Conference on the Diagnosis and Treatment of Dementia (CCCDTD3), most patients with dementia can be assessed and managed adequately by family physicians.

**Rural primary care**

- Who are primary care providers? Family physicians, nurse practitioners, and primary health care team members.
- Only 16% of family physicians and 2% of specialists provide services in rural Canada, which comprises 21% of the nation's population (The Society of Rural Physicians of Canada, 2005).
- The Society of Rural Family Physicians of Canada (2003) noted that rural primary care providers "have higher workloads, work longer hours, provide a greater range of services, in a greater variety of settings, refer less, and admit to hospital and care for inpatients more" than urban providers.

**The problem of rural and remote dementia care**

- Familiarity with patients and stigma of dementia may hinder detection and diagnosis (Cahill et al. 2008).
- Limited availability of specialist services locally and difficult for patients to travel to urban centres (Teel 2004).
- Limited access to support programs and services such as home patient care, nursing, day-care, and respite care (Bradford Dementia Group and Commission for Rural Communities 2008, Alexander & Fraser 2008).

**Preliminary Findings**
**2004 baseline survey of 31 Saskatchewan family physicians**

- Physicians saw a median of 6 patients per month with Alzheimer's Disease or dementia, diagnosed dementia in a median of 3 patients (range 0-40) per year, and referred a median of 3 patients (range 0-20) per year to specialists.
- 83% of physicians affirmed that they required more continuing medical education on dementia, particularly concerning diagnosis and initiating treatment.
- 50% of physicians identified a need for increased patient and caregiver support services in their community, with long-term care beds, respite beds, and support groups topping their list of support needs.
- 62% were comfortable with diagnosing and managing dementia patients, 51% were comfortable with driver's license issues, and 43% were comfortable with competency assessment.

## Objectives and Research Questions

### Objectives

- To Identify the needs of primary care providers to provide assessment and management of dementia within their practice settings, with a focus on the particular needs of rural and remote primary care providers.
- To develop feasible strategies that address gaps in primary care providers' dementia care.

### Research Questions

1. Do primary care providers report practicing dementia care (detection, diagnosis, treatment, specialist referral, and follow-up) based on guidelines from the Third Canadian Consensus conference on the Diagnosis and Treatment of Dementia?
2. Do primary care providers' *dementia care practices*, *knowledge*, *attitudes*, *confidence*, and *support needs* vary by:

- geographic setting (rural, remote, urban)?
- care provision model (non primary-health-care-team family physician, non primary-health-care-team nurse practitioner, primary health-care-team member)?

## Co-Investigators

**University of Saskatchewan**

- Debra Morgan (Canadian Centre for Health and Safety in Agriculture)
- Julie Kosteniuk (Canadian Centre for Health and Safety in Agriculture)
- Carl D'Arcy (Applied Research, Department of Psychiatry)
- Norma Stewart (College of Nursing)

**University of Stirling (Scotland)**

- Anthea Innes (Dementia Services Development Centre)

**University of Manchester (England)**

- John Keady (School of Nursing, Midwifery and Social Work)

**University of West Virginia (United States)**

- R. Turner Goins (Department of Community Medicine and Centre on Aging

## Methods

- This project consists of two phases: focus groups in Phase 1, followed by a mail survey in Phase 2.
- The findings from this project will be used to develop a larger survey of primary care providers' dementia care in Canada's prairie provinces (i.e. Alberta, Saskatchewan, and Manitoba).

| | Phase 1 | Phase 2 |
|---|---|---|
| **Data collection** | Focus groups (9 groups) | Mail survey |
| **Sample** | Saskatchewan primary care providers (N=54):<br>• Family physicians (6 rural, 6 remote, 6 urban – 18 total)<br>• Nurse practitioners (same as above)<br>• Primary health care team members (same as above) | Saskatchewan primary care providers (N=100) |
| **Purpose** | • Explore primary care providers' dementia care practices, knowledge, attitudes, and support needs.<br>• Construct themes to develop content for pilot survey | Compare across geographic settings and across care models.<br>Test survey procedures |
| **Limitations** | • Few family physicians practice rural and remote: 27% of province's physicians practice rural vs. 73% practice urban (Canadian Medical Association, 2006).<br>• Few primary health care teams practice remote: 14% practice remote, vs. 63% rural, and 23% urban (Achilles, 2008).<br>• Challenges to recruiting participants | |

## Potential for Health Improvements

- We will have a better understanding of the support needs of primary care providers to diagnose and manage rural and remote patients with dementia within their communities.

## Acknowledgements

This research is supported by:

- Applied Chair in Health Services and Policy Research (2009-2014), funded by CIHR and the Saskatchewan Health Research Foundation for the research program *Healthcare Delivery Across the Continuum for Rural and Remote Seniors with Dementia.*
- A CIHR Strategic Training Postdoctoral Fellowship in Public Health and the Agricultural Rural Ecosystem (PHARE).

# Evaluation of Telehealth in a Rural and Remote Memory Clinic

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## Background & Rationale

***"It was like climbing a mountain to get a diagnosis"***
*Strategy for AD and Related Dementias in Saskatchewan (2004), focus group*

The province of Saskatchewan, Canada has a population of 1 million dispersed over 652,000 km$^2$ (252,000 mi$^2$.) Rural communities have more seniors (22%) compared to cities (15%) thus more people at risk for dementia, yet delivery of specialized services is difficult. Studies evaluating the use of telehealth with rural dementia patients suffer from small samples, experimental settings, descriptive designs, non-standardized instruments.

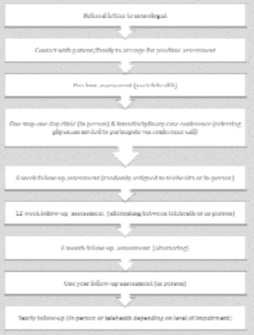
## Rural and Remote Memory Clinic

***Goal:** To develop and evaluate a **streamlined integrated clinic** for diagnosis and management of dementia and to **evaluate telehealth** as a means of delivering follow-up care to patients and their families in rural and remote areas.*

### Clinic Model:

- **1-stop interprofessional clinic** in a tertiary care centre: neurologist, neuropsychology team, physical therapist, nurse, geriatrician, CT
- **telehealth videoconferencing** for pre-clinic assessment and follow-up. Telehealth refers to use of electronic telecommunication technology to provide health care services over distances

Flow of Patients through the Clinic:



Referral letter to neurologist

Contact with patient/family to arrange for preclinic assessment

Pre-clinic assessment (via telehealth)

One-stop-one day clinic (in person) & Interdisciplinary case conference (referring physician invited to participate via conference call)

6 week follow-up assessment (randomly assigned to telehealth or in-person)

12 week follow-up assessment (alternating between telehealth or in-person)

6 month follow-up assessment (alternating)

One year follow-up assessment (in person)

Yearly follow-up (in person or telehealth depending on level of impairment)

## Telehealth Evaluation Methods

1. **Telehealth Coordinator Evaluation Form**: Rural telehealth staff rate patient & caregiver comfort on 5-point Likert Scales
2. **Patient/Caregiver Telehealth Satisfaction Questionnaire** (Linassi & Shan, 2005; Miller & Levesque, 2002): 12 aspects of the appointment are rated on 4-point Likert Scale; summed to create satisfaction score. Internal consistency reliability from pre-clinic assessments & follow-ups: .88, .91, .92, .89
3. **Patient/Caregiver Follow-Up Evaluation Questionnaire**: Rate overall *satisfaction* and *convenience* of the appointment on 5-point Likert Scales. Completed at telehealth & in-person follow-up
4. **Telephone Interviews at 1 year** (currently being conducted)
5. **Open-ended "comments" questions on all questionnaires**

## Evaluation Results

**Participants**: Of the **first 169 patients** referred, 40% were male, the mean age was 73 years (SD = 11), 70% were of European ancestry. Alzheimer Disease (35%) and Mild Cognitive Impairment (16%) were the most common diagnoses.

### Distance saved by telehealth appointments (1-way):

Mean distance from patient's home to Telehealth: 37.4 kms (23 miles)
Mean distance from patient's home to Saskatoon: 251 kms (156 miles)
Mean distance saved by using Telehealth: 213 kms (133 miles)

**Telehealth Coordinator Evaluation:** The rural telehealth staff present at the sessions reported that most patients were comfortable (56%) or very comfortable (30%); attending family members were rated as comfortable (50%) or very comfortable (42%).

### Patient/Caregiver Telehealth Evaluation Questionnaire

| Scale Items (1 = poor, 4 = excellent) | Individual Scale Items | | Frequencies[a] | | | |
|---|---|---|---|---|---|---|
| | | | Good | | Excellent | |
| | Item Mean | (SD) | Freq. | (%) | Freq. | (%) |
| Voice quality | 3.45 | (0.64) | 62 | (42.5) | 76 | (52.1) |
| Visual quality | 3.57 | (0.51) | 61 | (41.8) | 84 | (57.5) |
| Personal comfort | 3.41 | (0.61) | 70 | (48.3) | 68 | (46.9) |
| Wait time for appointment | 3.05 | (0.91) | 62 | (44.0) | 49 | (34.8) |
| Ease of getting to telehealth | 3.44 | (0.62) | 57 | (46.0) | 61 | (49.2) |
| Length of time with Memory Clinic team | 3.41 | (0.53) | 80 | (55.2) | 62 | (42.8) |
| Explanation of your treatment by the team | 3.48 | (0.53) | 72 | (49.7) | 71 | (49.0) |
| Thoroughness, skillfulness | 3.59 | (0.51) | 58 | (40.0) | 86 | (59.3) |
| Courtesy, respect, sensitivity | 3.73 | (0.46) | 37 | (25.2) | 109 | (74.1) |
| How well privacy respected | 3.67 | (0.47) | 47 | (33.1) | 95 | (66.9) |
| How well staff answered questions re: equipment | 3.65 | (0.49) | 48 | (33.3) | 95 | (66.0) |
| Overall treatment experience with telehealth | 3.59 | (0.49) | 59 | (40.7) | 86 | (59.3) |

[a] Poor & Fair not reported due to low frequencies

**Telehealth Satisfaction Summary Scores**: The mean summary score at Pre-Clinic Assessment was **42.1** (possible range 12 – 48). For patients with data at pre-clinic and 6-month follow-up, mean telehealth satisfaction scores did not change (42.3 vs. 43.6), $p = 0.15$.

Because this analysis included only those who were continuing with follow-up, we then compared satisfaction scores at pre-clinic assessment for those who continued vs. discontinued by 6-month follow-up. Telehealth satisfaction scores were significantly higher for patients who continued, compared to those who did not (median scores 43 vs. 37, $p = 0.013$).

- Univariate logistic regression analysis was used to further explore predictors of discontinuing, including telehealth satisfaction scores and other presumed influential variables.

### Univariate Logistic Regression Results for Patients who Discontinued Follow-up by 6 months

| Variable | Number of observations | *P* value | Odds ratio (95% Conf Interval) |
|---|---|---|---|
| Gender (patient)[a] | 64 | | |
| (Male) | | 0.410 | 1.54 (0.55, 4.30) |
| Distance to telehealth[b] | 64 | | |
| 50-59 KM | | 0.084 | 3.65 (0.84, 15.84) |
| **≥ 100 KM** | | **0.014** | **8.75 (1.55, 49.33)** |
| **Telehealth Satisfaction Score** | 64 | **0.024** | **0.88 (0.78, 0.98)** |
| Clinic day SF-12 Physical Component score | 60 | 0.213 | 0.97 (0.92, 1.02) |
| Clinic day SF-12 Mental Component score | 60 | 0.140 | 1.05 (0.98, 1.13) |
| Stage of Dementia[c] | 56 | | |
| Mild dementia | | 0.062 | 3.49 (0.94, 12.99) |
| Moderate/ severe dementia | | 0.911 | 1.09 (0.25, 4.62) |
| Patient age group[d] | 64 | | |
| 70-79 years | | 0.459 | 1.78 (0.38, 8.27) |
| **≥ 80 years** | | **0.032** | **5.12 (1.15, 22.73** |
| Caregiver age group[e] | 60 | | |
| 50-59 years | | 0.359 | 0.46 (0.09, 2.41) |
| ≥ 60 years | | 0.346 | 1.87 (0.51, 6.83) |
| **Clinic Day caregiver burden[f]** | 61 | **0.003** | **0.87 (0.80, 0.95)** |
| Clinic day caregiver Psychological distress[g] | 61 | 0.143 | 0.96 (0.92, 1.01) |

### Telehealth vs In-Person Appointments:

- **Satisfaction**: No significant difference between appointments conducted via telehealth (M = 4.7, SD = 0.11) and in-person (M = 4.48, SD = 0.09), $F(1,56) = 2.05$, $p = 0.158$.
- **Convenience**: ratings were significantly higher (better) for telehealth (M = 4.78, SD = 0.08) compared to in-person appointments (M = 3.76, SD = 0.15), $F(1,56) = 37.78$, $p < 0.0001$.

**Themes in Open-Ended Comments Section**: Reduced travel and stress, convenience, quality of care. Patients with hearing problems reported some challenges.

- *Great service– we would have had to drive 300 kms one way*
- *Excellent idea. Brings ease of medical attention to persons in rural areas*

## Conclusions

- Telehealth appointments **save considerable travel (time, cost, stress) for patients and family.**
- Telehealth **satisfaction ratings were high for technical and team aspects** of the appointment.
- Low satisfaction with telehealth was a predictor of discontinuing follow-up, but the risk of discontinuing was over **8 times higher for patients who had to travel >100 kms (60 mi) to telehealth and 5 times higher for patients ≥age 80.** Lower caregiver burden was also a predictor.
- These findings suggest the diminishing benefit of telehealth when it is not easily accessible. Older patients may have more physical limitations that make travel difficult. There is a trend toward higher risk of discontinuing for patients with moderate/severe dementia. Multivariate analysis will be conducted when we have a larger sample size.
- Telehealth is a feasible and acceptable delivery strategy in a memory clinic service.

Funding and in-kind support is generously provided by:

CIHR IRSC Canadian Institutes of Health Research Instituts de recherche en santé du Canada
Saskatchewan Health Research Foundation
University of Saskatchewan
Alzheimer Society Saskatchewan
Telehealth Saskatchewan ... Linking Communities for Health ...

# Development and Evaluation of a Telehealth Facilitated Support Group for Caregivers of Individuals Diagnosed with Atypical Dementias

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## Abstract

We are developing a telehealth facilitated support group with seven of our Rural and Remote Memory Clinic caregiver collaborators. This group intervention focuses on needs specific to caregivers of individuals diagnosed with **atypical dementias**. Atypical dementias, such as the frontotemporal variants and Huntington's disease, are usually diagnosed in midlife. The early age of onset combined with specific behavioural changes that characterize these atypical dementias are factors underlying high levels of caregiver burden.

Much of the caregiver literature and available community-based supports are tailored for caregivers of individuals diagnosed with Alzheimer disease. Little has been developed specifically for caregivers of patients diagnosed with atypical dementias and, consequently, these caregivers report feeling underserviced. Moreover, our caregiver collaborators live across rural Saskatchewan and monthly travel to the Rural and Remote Memory Clinic would be an additional burden.

To reduce travel burden for our rural caregivers we are using **telehealth technology**. Telehealth combines real-time audio and video, and this technology has allowed us to form one cohesive group comprised of seven members and two facilitators connecting from six different geographic regions of Saskatchewan.

To evaluate this group's effectiveness, we will administer standardized measures of caregiver burden, psychological distress, and the utility and quality of the telehealth technology (administered in the early stages of the support group, at six months, and after the first year). In addition, qualitative data related to the group members' experiences will be summarized in a one-day focus group scheduled at the end of the first year. These quantitative and qualitative data will be analyzed to determine the effectiveness of this novel treatment and will be used in collaboration with our caregivers to develop a template for future telehealth facilitated family support group interventions.

## Objectives

- **Collaborate with caregiver partners to develop novel group based intervention facilitated by telehealth**
- **Qualitatively and quantitatively evaluate effectiveness**
- **Disseminate intervention template**

## Rationale

- **Focus on atypical dementias with a predominance of behavioral changes that become evident in mid-life**
  - socially inappropriate; disinhibited; impulsive; apathetic; occasionally aggressive behaviours that cause significant difficulties for family caregivers, work related colleagues and friends (e.g.,Kumamoto et al., 2004; Mourik et al., 2004)
  - high need caregiver group who is underserviced
- **Few interventions in rural SK**
- **Use of telehealth for the group intervention**

## Participants

- **7 spousal caregivers**
  - Female
  - Middle-aged, most in their 40's to 50's
  - Some simultaneously caring for young children
  - Living in 5 regions of the province - rural or smaller urban settings
- **Caregivers for spouses diagnosed with frontotemporal variant dementias, Huntington's disease, or vascular dementias with behavioral features**

## Method: Service Delivery

- Collaborative Intervention Development
  - **Group intervention format**
  - **Emotion processing focus**
  - **Co-therapists as facilitators**
- Telehealth-based group meetings
  - **6 sites across Saskatchewan connecting**
    - **3 members at one site**
    - **6 screens continuously visible**
  - **Meet once monthly for 1 ½ hours**

## Method: Evaluation

- **Questionnaire data: caregiver burden and distress**
  - Neuropsychiatric Inventory (Cummings et al., 1994);
  - Zarit Burden (12-item; e.g., O'Rourke & Tuokko, 2003);
  - Brief Symptom Inventory (Derogatis, 1975)
  - Have these questionnaire data pre-intervention
- **Modification of Frontal Behavioural Inventory** (Kertesz et al., 1997) **to include frequency & distress**
- **Coping questionnaire** (Jaloweic et al., 1984)
- **Telehealth evaluation form**

**Questionnaires Administered**

Early in Intervention → At 6 months → At 12 months → At 18 months

**Near the 12 month mark of the intervention**

- One-day focus group in Saskatoon will provide a description of experiences for thematic analysis

### Preliminary Findings

Telehealth facilitated support groups appear to offer benefits that are similar to traditional groups, with the added benefit of increased accessibility, convenience, and reduced travel costs for rural residents

## Acknowledgments

We thank our caregiver collaborators & Telehealth Saskatchewan

RRMC Funding and in-kind support is generously provided by:

# Gender and Generational Differences in Distress and Health of Caregivers prior to a Family Member's Dementia Diagnosis

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## Objective

In this analysis, we compared family caregivers according to their gender (male vs. female) and relationship (spouse vs. child) on measures of burden, severity of distress and health (mental and physical) at the initial in-person visit to a rural and remote memory clinic (RRMC) for diagnosis of early dementia.

## Methods

A family member, who accompanied the person referred to the RRMC interprofessional team for assessment, completed three questionnaires about their caregiving experiences and their general health.

Ethics approval was obtained and family members signed an informed consent form.

Of 141 caregiver participants, there were 58 wives, 34 daughters, 32 husbands, and 17 sons.

The caregiver self-report data were collected prior to the end-of-day meeting in which team members provide feedback to the patient and family about the assessment and diagnosis.

Analysis of Variance was used in a factorial design to compare these four caregiver groups as two factors (gender x relationship) on each of four indicators of distress and health.

## Results

We found that women (wives + daughters) reported significantly more caregiver burden ($p < .0001$), greater severity of distress ($p < .0001$), and lower mental health ($p < .05$) than men (husbands + sons).

In the relationship analysis, spouses (wives + husbands) reported greater severity of distress ($p < .05$) and lower physical health ($p < .05$) than children (daughters + sons).

There was no interaction between the gender and relationship factors.

**Table 1:** Clinic Day Means and Standard Deviations.

| Relationship | Caregiver Burden (n = 138) | Severity of Distress (n=137) | Health-Mental (n=137) | Health-Physical (n=137) |
|---|---|---|---|---|
| **Husband** | 8.8 (9.1) | 46.8 (8.4) | 55.3 (9.3) | 42.5 (11.0) |
| **Wife** | 15.3 (9.6) | 57.7 (11.1) | 49.8 (10.1) | 44.8 (11.8) |
| **Son** | 10.8 (6.9) | 43.5 (9.7) | 54.2 (7.4) | 49.5 (11.7) |
| **Daughter** | 16.8 (7.7) | 51.5 (9.0) | 50.7 (9.6) | 46.8 (13.6) |

**Table 2:** Clinic Day Analysis of Variance Results.

| | Caregiver Burden (n=138) | Severity of Distress (n=137) | Health-Mental (n=137) | Health-Physical (n=137) |
|---|---|---|---|---|
| **Gender (G)** | **<0.0001** | **<0.0001** | **0.018** | 0.897 |
| **Relationship (R)** | 0.244 | **0.012** | 0.963 | **0.048** |
| **G x R** | 0.816 | 0.504 | 0.670 | 0.286 |
| **Skewness*** | Normal | Normal | Skewed to left | Skewed to left |

Note: Results (p values) in **bold** are statistically significant

*Kolmogorov-Smirnov test for normality

## Conclusion

These results are consistent with earlier research that has found differences in caregiver burden and distress in relation to gender of caregiver and type of relationship with the person diagnosed with dementia.

Differences in physical health between spouses and children may reflect age-related deterioration for spouses and suggests that differing needs for support exist based on type of caregiver.

The next stage of the present analysis will be to examine changes over time as caregivers continue to support their family member with dementia at home.

## Acknowledgements

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  - → *Next Steps*

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  - → *Care Essentials*
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  - → *Care in the Later Stages*

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- Caregivers are more knowledgeable about the progression of the disease and more confident in their caregiving role
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- Reduces incidence and intensity of caregiving crisis situations

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# Strategic response to dementia rates in the United Kingdom – a county by country overview

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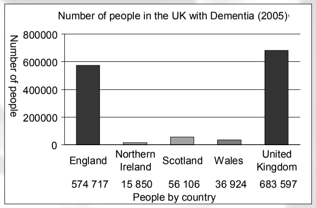
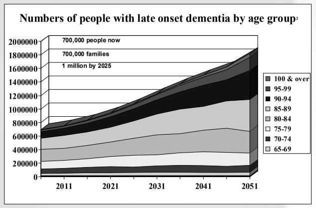
## Background

- Reports and research in the United Kingdom highlight the shortcomings of the current provision of dementia services.
- The level of diagnosis and treatment for those affected by dementia in the UK is generally low compared to other European countries.
- Only one third of people with dementia receive formal diagnosis or have contact with specialist services at any time in their illness.
- With the foreknowledge that the number of people affected by dementia will continue to grow, the countries of the UK are acting now to respond to the impact of dementia on their citizens.



| England | Northern Ireland | Scotland | Wales | United Kingdom |
|---|---|---|---|---|
| 574 717 | 15 850 | 56 106 | 36 924 | 683 597 |

*The 2005 population estimate of the UK was 60.2 million.*



## Response By Country

**England**

- The government of England has made dementia a national priority.
- Published in February 2009, England's National Dementia Strategy is the result of consultations and planning begun in August of 2007.
- This strategy aims to ensure that significant improvements are made across three areas: **improved awareness, earlier diagnosis and intervention, and a higher quality of care.**
- With a focus on local-level changes to healthcare delivery, 17 key objectives are identified which – when implemented – should improve the level of care received by those affected by dementia.
- Integral to the strategy is an implementation plan with £150 million over the next two years of new investment in health and social care to implement all of the objectives.

**Wales**

- The government of Wales has a draft plan for a national dementia strategy for Wales.
- It echoes many of the recommendations made in the National Dementia Strategy for England, and focuses on solutions based on the Welsh health system.
- Currently in a consultation process, the Welsh government has accepted feedback on the document until September 11, 2009.
- The vision is to transform Wales into a dementia supportive community on a local and national level. The plan focuses on four major areas for concentrating changes: (1)strengthening individuals, (2)stengthening communities, (3) improving infrastructure and access to services for all, (4)making structural changes to economic, cultural and environmental conditions.

- There are **20 objectives** in the strategy that aim to address these four areas.

**Scotland**

- Alzheimer Society of Scotland figures place the cost of dementia in Scotland between £1.5 billion and £1.7 billion – £25 472 per person per year.
- The Society's dementia manifesto *Let's make dementia a priority* urges the Scottish parliament to make dementia a national priority allocating a total of £15 million to seven activities to address the impact of dementia.
- The Mental Welfare Commission and the Care Commission co-produce ***Remember, I'm still me.*** The report is an in-depth look at 30 care homes in Scotland and the individuals with dementia in those homes.
- The two agencies found that some care homes in Scotland have fallen seriously short of best practices. Of the 30 care homes visited:

- Only 24% of people living in a care home had an adequate record of their life history[3]
- About half of the people living in care homes never went outside of the home
- Only a third of care home managers had undergone a recognized training course about caring for people with dementia

The report has **ten key messages** for care homes and dementia care.

- The Scottish government is addressing the shortcomings outlined in the report, and will build upon these measures to develop a national dementia strategy for Scotland.
- Over the summer of 2009 a wide ranging consultation is gathering recommendations for the strategy including from a specialist dementia forum including the Mental Health Commission, Alzheimer Scotland, the Care Commission, Age Concern & Help the Aged. The strategy is expected to be published by the end of the year.

**Northern Ireland**

- The Northern Ireland Assembly Executive has committed to the development of a Dementia Strategy for Northern Ireland.
- The Alzheimer's Society in Northern Ireland calls for the strategy to be similar to the strategy developed in England.
- In Northern Ireland the Alzheimer Society is concerned that within 10 years, more than 20 000 people in the country will be living with dementia.

## In Focus – England

The strategy has **three keys areas** in which to improve the quality of life for people with dementia and their carers:

**Raising** awareness and understanding of dementia and lessen the stigma of the disease.

**Ensuring** early diagnosis and support for people with dementia, their family and carers.

**Providing** a higher quality of care to ensure that people live well with dementia.

There are **17 objectives** to be implemented:

**1.** Improving public and professional awareness of dementia.
- address stigma, reduce discrimination, and encourage help seeking behaviours

**2.** Good quality early diagnosis and intervention for all.
-all people with dementia have access to a "pathway of care" that delivers rapid specialist assessment and sensitively communicated support

**3.** Good quality information for those diagnosed with dementia and their carers.
- both at diagnosis and throughout course of care, quality information will be provided

**4.** Easy access to care, support and advice after diagnosis.
-an assigned "dementia adviser" will facilitate easy access to care, support & advice for people with dementia and their carers.

**5.** Development of structured peer support and learning networks.
-provide direct local support, and enable people with dementia to take an active role in development of local services.

**6.** Improved Community personal support services.
-appropriate range of services to support the needs of those living at home with dementia and their carers.

**7.** Implementing the Carers Strategy.
- Carers have an assessment of their needs, get better support, and can have good-quality short breaks from caring.

**8.** Improved quality of care for people with dementia in general hospitals.
-leadership and pathways for dementia care in general hospitals with specialist older persons mental health teams

**9.** Improved immediate care for people with dementia.
-more care for people with dementia who need help to stay at home.

**10.** Considering housing support, housing related services, and telecare to support people
-needs should be considered in the development of housing options, assistive technology, and telecare.

**11.** Improve the quality of care for people with dementia in care homes.
-development of explicit leadership for dementia care within care homes.

**12.** Improved end of life care for people with dementia.
-involving people with dementia in end of life care planning.

**13.** An informed and effective workforce for people with dementia.
-health and social care staff have the right skills to provide best care, and get the right training specific to their work.

**14.** A joint commissioning strategy for dementia.
-health and social care services will work together to identify and best meet the needs of people with dementia and their carers

**15.** Improve assessment and regulation of health and care services and of how systems are working.
-there will be better inspection regimes for care homes.

**16.** A clear picture of research evidence and needs.
-evidence from the existing research base on dementia in the UK will be provided, and more focus will be on gaps in the current research.

**17.** Effective national and regional support for implementation of the strategy.
-appropriate support will be given to local services to help them carry out the strategy.

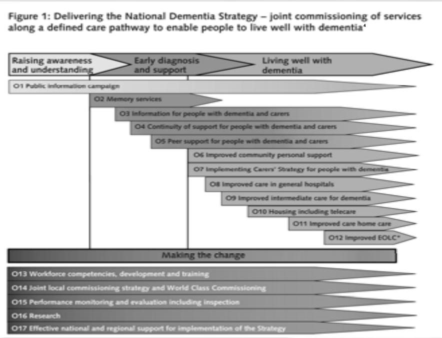


Figure 1: Delivering the National Dementia Strategy – joint commissioning of services along a defined care pathway to enable people to live well with dementia[4]

### Canadian Comparison

Out of a population of 33.5 million, an estimated 500 000 Canadians live with dementia. Canada is without a national dementia strategy. Funds to support more and better research are being directed through CIHR, but no direct support to those affected by dementia.

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# How Can We Help You?

## Analysis of Referrals to a Rural and Remote Memory Clinic from Rural Family Physicians and Patients/Caregivers

A. Cammer[1], V. Dal Bello-Haas[2], D. Morgan[1], M. Crossley[3], C. D'Arcy[4], A. Kirk[5], L. McBain[6], M. O'Connell[3], N. Stewart[7]

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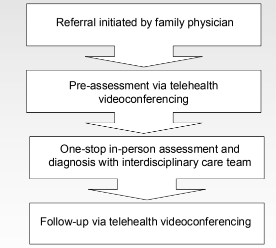
## Background

**Rural and Remote Memory Clinic Process:**



Referral initiated by family physician

Pre-assessment via telehealth videoconferencing

One-stop in-person assessment and diagnosis with interdisciplinary care team

Follow-up via telehealth videoconferencing

An interdisciplinary, streamlined Rural and Remote Memory Clinic was established in Saskatchewan in 2004 to increase the availability of and access to specialized care service for rural and remote persons with memory problems (dementia).

There are many challenges and barriers to early diagnosis of dementia experienced by primary care physicians:

- Availability of assessment services
- Variability or subtlety of symptoms
- Lack of diagnostic confidence
- Stigma and social consequences of dementia diagnosis

## Why Referral Information?

- Readily available source of information
- Can indicate why specialized service is sought (from physician and patient/family perspectives)
- Useful for examining rural GP need (actual service use rather than expressed or perceived)

## Methods

### Thematic Analysis:

Letters of referral from rural family physician to the Rural and Remote Memory Clinic (via neurologist, Dr. Kirk) from March 2004 to August 2009:

- Particular attention paid to factors that triggered the referral

Family caregiver responses to open-ended questions:

- What is the nature of the problem that caused the most concern? & Have you been satisfied up to now with the care you received for this problem? (and if not, specify why)

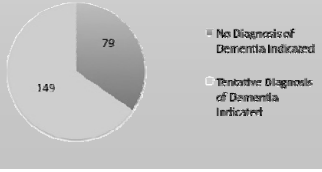
### Descriptive Analysis:

Classification of a tentative diagnosis of dementia as indicated in the referral letter according to criteria:

- Stated diagnosis
- Patient prescribed medication for treatment of dementia (Aricept, Exelon, Memantine, Reminyl)
- Mini-Mental Status Exam score < 24
- Functional Assessment Questionnaire score <10

## Descriptives

- 228 referral letters analyzed from a total of 133 physicians
- Of these, 79 letters (34.6%) had no indication of a dementia diagnosis and 149 letters (65.4%) indicated tentative dementia diagnosis



Mean patient age (at clinic visit) was 72 (SD 10, range 42 – 91)
Mean caregiver age (at clinic visit) was 60 (SD 15, range 18 – 90)

*Diagnosis varied:*

39% Alzheimer's Disease
13% Normal
12% Mild Cognitive Impairment
11% patient not seen
7% Frontotemporal Dementia
5% Dementia Lewy Body
3% Vascular Cognitive Impairment
3% Vascular Dementia
3% Dementia multiple etiology
4% Other Dementia

## Thematic Analysis Findings

Thematic analysis of physician referral letters yielded 4 main categories of service need:

### Confirmation of Diagnosis

- *I wonder if she has either Alzheimer's or frontal temporal dementia?*
- *I am not sure of the diagnosis and would be grateful for your involvement.*

### Further Treatment or Management Suggestions

- *She was tried on Aricept and Exelon with poor response . . . MMSE has been declining over the last few months. I would appreciate your evaluation of this patient in this regard.*
- *Is there anything further that can be done for him?*
- *Is there anything else she should be taking? Any recommendation would be appreciated.*

### Consultation Regarding Challenging Cases

- *She presented with primary progressive aphasia and now has developed cognitive problems.*
- *I was unable to do a proper MMSE due to the language barrier. I was able to ascertain that there seemed to be global memory impairment. I do believe X would benefit from an assessment by your team.*

### Patient or Family Request

- *MMSE is 14/30. I started Reminyl 4mg BID and increased to 8mg already. Daughter wants assessment.*
- *…the family is still adamant that there is significant change in his cognitive function.*

Thematic analysis of family caregiver open-ended responses yielded categories:

| *What is the nature of the problem that caused the most concern?* | *Have you been satisfied up to now with care you received for this problem (why)?* |
|---|---|
| ***•Memory Problems/Forgetting*** | ***•Wait-time to assessment and diagnosis*** |
| ***•Confusion/Lack of comprehension*** | ***•Difficulty convincing Drs of severity of issue*** |
| ***•Behaviour changes/Lack of motivation*** | ***•Unaware of service availability or options*** |

## Conclusions

- Analysis of physician referral letters and patient/family caregiver stated reason for referral is useful for understanding rural and remote dementia care need
- Specialized service, knowledge translation activities, and resource allocation can be better predicted and planned when referral pattern is better understood

## Acknowledgements

CIHR IRSC
Alzheimer Society SASKATCHEWAN
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Saskatchewan Health Research Foundation

# Resources Needed to Provide Effective Responses to Behavioral Challenges in Long-Term Care Facilities

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## Background:

In Ontario, Canada, the most common concern reported by long-term care (LTC) healthcare providers in dealing with residents' challenging behaviours was the accessibility & availability of resources, especially during crisis situations (MOHLTC, 2007). Moreover, lack of knowledge of appropriate responses, existing resources, & poor linkages between health care sectors were also noted as barriers to optimal care for LTC residents.

## Purpose & Method:

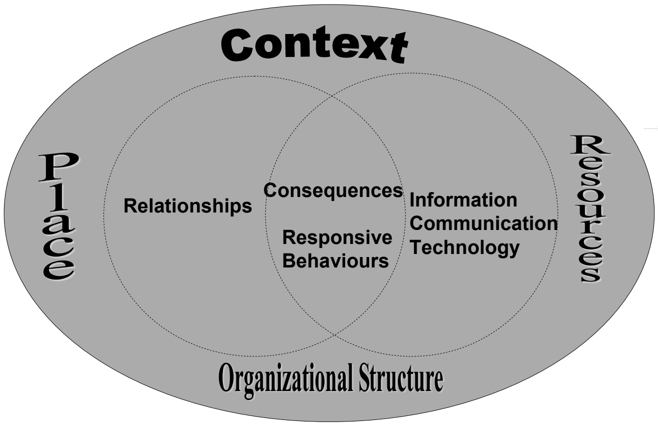
The purpose of this study was to gain a deeper understanding of healthcare providers' needs for appropriately responding to residents' challenging behaviours in LTC facilities in South West Ontario, Canada.

The research design used a Qualitative Interpretive Descriptive approach (Thorne et al., 2004). Data were collected during 18 audio-taped focus groups with LTC front-line health care providers (personal support workers (n=64), registered practical nurses (n=11), nurses (n=12), recreational therapists (n=6), physiotherapists (n=3), & others (n=10). Most participants were female (95%) over the age of 40 (58%). Field notes were also recorded following each focus group. Analysis focused on coding key phrases & themes that emerged from the data. Patterns within & between the transcripts were located, using a constant comparison approach.

## Findings:

The overarching Context included themes identified as *Place, Organizational Structure* & *Resources*. These themes described the context within which the front-line practitioners conducted their daily dementia care. *Place* included rural/urban & the structural lay-out of the ward. *Organizational Structure* included concepts such as hierarchy, consistency of care, boundaries, rules, & knowing how to work the system. *Resources* included time, experiential knowledge, other team members, & support system. At the centre of *Context*, two overlapping themes were identified: *Relationships* (e.g., power, roles, boundaries, recognition) & *Information Communication Technology* (e.g., standardized assessment tools, access to the internet). Lastly, *Consequences* (e.g., helplessness, fear, desensitization, the need to be heard, empathy, & thirst for knowledge) were revealed by the participants.

## Conceptual Schema & Excerpts:



Context

Place

Resources

Relationships

Consequences

Responsive Behaviours

Information Communication Technology

Organizational Structure

**Place:** *If one resident gets agitated & they're wandering up & down the hall screaming then they get 10 more people wandering around screaming because there is no room to take that one resident to get them to calm down.*

**Organizational Structure:** *We're being treated like the rest of the facility, we're expected to do the same care, in the same amount of time with residents who don't follow the same time frame.*

**Resources:** *Acquired Brain Injury persons have been given more funding, more projects & now they are moving into LTC facilities where there is a lack of funding, a lack of resources.*

**Relationships:** *Sometimes I think we need a little more distance between the residents & staff. I see people kissing residents. Now come on girls, we have to be nice to them but we don't have to overdo it. They start expecting it from everyone but I'm not kissing.*

**Information Communication Technology:** *We can't use the computers as Personal Support Workers. Maybe that should change too, there should be computer access to all staff.*

**Consequences:** *There is a lot of hitting & punching, knock around, & we just have to take it. Nothing is done for us, we just have to take it…I can't do it anymore.*

## Conclusions:

Feeling vulnerable, not valued, & unsure of how to respond to behavioral challenges became apparent through the stories of the front-line participants. The knowledge gained from this study is being shared with the participants & senior LTC administrators with the aim to change the *Context* within which care is provided. That is, to facilitate evidence-based person-centered care that includes effective responses to behavioral challenges & the inclusion of front-line staff in the planning of care & responsive decision-making.

**Acknowledgements: We would like to thank the members of the Behaviour & Resource Research Group: Dr. Lisa VanBussel, Leslie Post, Donna Scott, Kelly Simpson, Ila Weston-Davies, Dr. Iris Gutmanis, & most importantly, the study participants.**

# Maintaining Health and Wellness in the Face of Dementia: An Analysis of Individuals Living in Rural and Remote Areas

UNIVERSITY OF SASKATCHEWAN

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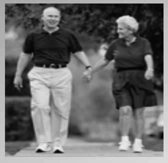
[1]School of Physical Therapy; [2]Department of Psychology; [3]Canadian Centre for Health and Safety in Agriculture; University of Saskatchewan, Saskatoon, SK

## Purpose

To explore: (1) the types of health and wellness behaviours individuals diagnosed with dementia report engaging in; and, (2) the relationship between health behaviours and function, depression, quality of life, and caregiver burden and distress.



## Background and Relevance

❖ Maintaining health with physical and mental activities, good nutrition, stress management, and social support are important for individuals with early dementia (Burgener et al., 2007)

  ❖ these types of interventions play a critical role because they can impact overall function and community life (Zarit et al., 2004)

❖ Earlier interventions are considered essential for individuals with dementia (Mittelman et al., 1996)

❖ Health and wellness information provided soon after dementia diagnosis, along with enhanced coping skills, may lead to health behavior changes that prevent excess disability or premature loss of function and institutionalization

## Methods and Analysis

❖ Patients and family caregivers referred to the Rural and Remote Memory Clinic completed questionnaires assessing memory and other symptoms, health and wellness practices, function, depression, quality of life, and caregiver burden and distress

❖Data from 119 individuals who received a diagnosis of dementia were analyzed using:
  ❖ descriptive statistics
  ❖ correlations
  ❖ thematic analysis

## Results

❖ Participants ranged in age between 44 and 87 years

❖ About half (50.6%) indicated they exercised for 20 minutes two, one or no times per week

  ❖ the vast majority of those who exercised two or fewer times per week did not exercise at all (82.2%)

❖ About three-quarters (76%) of individuals reported they met most or all of the Canada Food Guide diet requirements

❖ More than two-thirds (68.1%) indicated they were engaged in one of the following activities to maintain their psychological health:

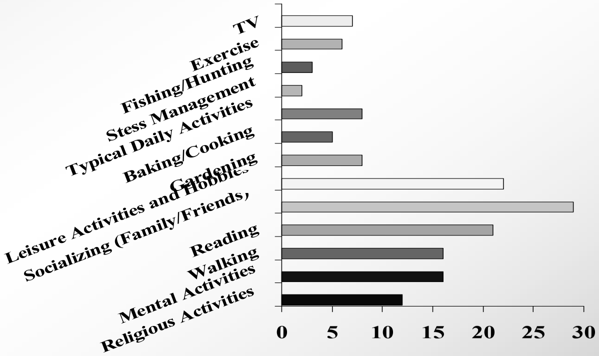


Figure: Activities People with Dementia are Engaged (Frequency of responses)

❖ Because Alzheimer's disease (AD) was most frequently diagnosed (47.9%), we further analyzed this group

❖ Twenty-four people with AD reported exercising three or more times per week

❖ Increased frequency of exercise was associated with many positive factors:

  ❖ decreased alcohol use ($r$ = -0.505, $p$ = 0.01)

  ❖ decreased symptoms of depression ($r$ = -0.405, $p$ = 0.05)

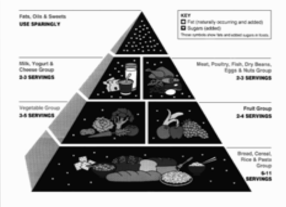
  ❖ decreased caregiver burden and distress ($r$ = -0.479, $p$ = 0.02)

## Conclusions

❖ Rural and remote dwelling individuals with dementia participate in a variety of pleasurable activities and report good nutrition habits

❖ Many individuals did not exercise at the recommended levels

❖ Positive benefits of exercise were found in those with AD



## Implications

❖ Health promoting behaviours may help people with dementia remain active and may positively influence function and quality of life

❖ Health promoting behaviours should be encouraged as part of an overall management plan for people with dementia

❖ Some people with dementia and their caregivers may require additional education and information regarding types of beneficial health promoting behaviours

## Acknowledgements

Funding and in-kind support is generously provided by:

CIHR IRSC

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# Comparing Qualitative Verbal Fluency Scoring Procedures in Healthy Aging and Early Stage Alzheimer's Disease.

N. Haugrud, M. Crossley, M. Vrbancic, & S. Jodouin

## Introduction

- **Two component model** of **verbal fluency**[4]:
  1. **Clustering**: production of words in a phonemic or semantic subcategory, presumed to rely on temporal lobe processes
  2. **Switching**: a shift between clusters, presumed to rely on frontal lobe processes
- **Summary of Previous Research**:
  1. **Older adults** produce fewer total words, switches and novel and repeated clusters than **younger adults**[2,3]
  2. Individuals with **Alzheimer's disease** (AD) produce fewer switches and smaller cluster sizes than normals[3]
- **Limitations** of **previous research**: Traditional scoring procedures use of single words, errors, and perseverations in calculations of cluster size and switching rates.
- The **present studies** examined multiple methods[1,2,4] of calculating clustering and switching during semantic and phonemic verbal fluency in young, middle aged, and older adults with equivalent estimated verbal ability, and in individuals with early-stage Alzheimer Disease (AD).

## Methods

### Participants

Study 1
- 30 young (mean age 27.9 yrs)
- 30 middle (mean age 51.1 yrs)
- 30 old (mean age 71.3 yrs)

Study 2
- 26 AD group (mean age 70.6 yrs)
- 26 healthy older adults (mean age 70.5 yrs)

### Measures

- Phonemic fluency – FAS (three 60-sec trials)
- Semantic Fluency – Animal Naming (one 60-sec trial)
- Estimates of Verbal Ability
  - Study One: Peabody Picture Vocabulary Test-Revised
  - Study Two: Wide Range Achievement Test (WRAT-III)

### Computer Scoring Program

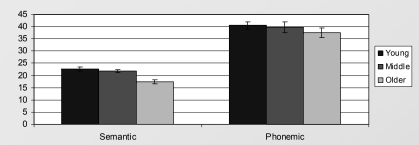
- Calculated clusters of words based on Troyer et al. (1997) clustering rules. Modifications to scoring:
  - Phonemic fluency: clusters were calculated based on the same first two letters
  - Semantic fluency: superordinate category was used if a word could be included in multiple clusters

### Procedures

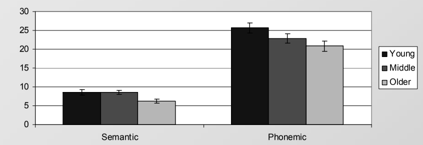
- **Phonemic clusters**: successively generated words that begin with the same two letters
- **Semantic clusters**: successively generated words that belong to the same semantic subcategory (e.g. African animals)
- **Mean cluster size**: summation of size of each cluster divided by number of clusters
- **Number** of **switches**: number of transitions between clusters
- **Number of hard switches**: number of transitions between two single words or a single word and clustered word
- **Number of cluster switches**: number of transitions between clustered words
- **Number of novel clusters**: number of new subcategories accessed
- **Number of repeated clusters**: number of subcategories returned to during a trial

## Results: Study One

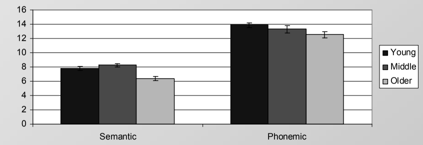
Age Group Differences in Total Words Produced



Age Group Differences in Number of Hard Switches



Age Group Differences in Number of Novel Clusters

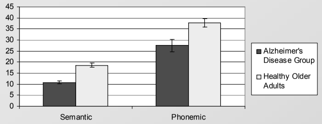


## Discussion: Study One

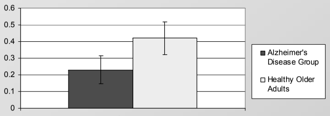
- **Age Group**: Strongest age group effects observed on total words produced, number of switches (specifically hard switches) and number of novel clusters, with older age group producing lower scores than young and middle groups
- Supports executive function (i.e. search and retrieval) and processing speed decline with healthy aging.

## Results: Study Two

Group Differences in Total Words Produced



Group Differences in Overlapping Clusters



## Discussion: Study Two

- **AD participants:** AD group produced fewer total words, switches (larger effect for cluster switches), semantic cluster size, novel clusters, and fewer overlapping clusters (i.e. word at end of cluster that prompts a new cluster)
- Supports decline in effective strategy use (i.e. effective search and retrieval of words and the use of prior words to cue new responses) and semantic memory in AD

## General Discussion

- Total word production declines both with healthy aging and AD, but due to different underlying processes
- Supports use of multiple methods of examining verbal fluency production

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# Delayed Memory, but not Executive Skills, Predicts Functional Impairment in Newly Diagnosed Alzheimer's Disease

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## Introduction

Our study investigated possible cognitive predictors of daily functioning in individuals who had been newly diagnosed with probable Alzheimer's Disease (AD). Specifically, executive functioning and delayed memory were proposed predictors.

According to the existing literature, executive and certain memory skills are two areas of functioning that are affected by Alzheimer's Disease in its early stages (Baudic et al., 2005).

Mortimer et al. (1992) found that predictors of functional decline included paranoia, hallucinations, disturbances in activity, and lower scores on nonverbal neuropsychological tests. However, it is also important to consider executive functioning and delayed memory as predictors of functional decline. These two areas are easily and routinely tested in dementia assessment. One study found that executive dysfunction was associated with functional impairment in patients with AD (Chen et al., 1998).

More information is needed to determine whether delayed memory is a better predictor of functional impairment than are executive skills, and this was the focus of our research.

## Method

**Participants**: 55 individuals (19 male, 36 female) who have been diagnosed with probable AD at the Rural and Remote Memory Clinic in Saskatoon, Canada. Their mean age was 75.7 years (SD = 7.8 years).

**Measures:**

Executive Skills Composite (ESC) – Trail Making Test (Part B), Phonemic Verbal Fluency, and Coding from the RBANS. Reported as Z score.

Delayed Memory Composite (DMC) – List and Story Recall from the RBANS. Reported as scaled score.

Functional Ability Composite (FAC) – self-reported activities of daily living, and two caregiver reports (Functional Assessment Questionnaire, and Bristol Activities of Daily Living). Reported as Z score.

Modified Mini Mental State Exam (3MS) – Reported as raw score.

**Procedure**: The data was analyzed using two hierarchical multiple regressions. Step 1 = 3MS, Step 2 = either ESC or DSM, dependent variable = FAC.

## Results

Modified Mini Mental State (3MS) scores were entered in Step 1 of both multiple regressions to control for dementia severity.

**Means, Standard Deviations, and Intercorrelations for Functional Ability, 3MS, Executive Skills, and Delayed Memory**

| Variable | M | SD | 1 | 2 | 3 |
|---|---|---|---|---|---|
| FAC | -.99 | .95 | .34* | .05 | -.28 |
| 1. 3MS | 67.3 | 13.53 | -- | .59** | .51** |
| 2. ESC | -1.50 | .95 |  | -- | .28* |
| 3. DMC | 5.32 | 1.09 |  |  | -- |

* Correlation is significant at the 0.05 level (2.tailed)

** Correlation is significant at the 0.01 level (2-tailed)

**Multiple Regression Analysis Summary for Executive Skills Predicting Functional Ability (N = 47)**

| Variable | B | SEB | β | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|
| Step 1<br>3MS | .019 | .01 | .266* | .071* | .071* |
| Step 2<br>ESC | -.144 | .178 | -.148 | .084 | .014 |

* p < .07

**Multiple Regression Analysis Summary for Delayed Memory Predicting Functional Ability (N = 49)**

| Variable | B | SEB | β | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|
| Step 1<br>3MS | .021 | .01 | .279* | .078* | .078* |
| Step 2<br>DMC | -.273 | .114 | -.322* | .18* | .102* |

* p < .05

- There was a significant relationship between the delayed memory composite (DMC) and functional ability.
- When controlling for level of impairment by entering 3MS at Step 1, the executive skills composite failed to account for a significant proportion of the variance in Functional Ability (less than 2% of unique variance) when entered in Step 2. In contrast to executive skills, the delayed memory composite accounted for over 10% of unique variance in the Functional Ability score, even after accounting for the variance associated with level of cognitive impairment (i.e., almost 8%).

## Conclusions

- When compared to executive skills, **delayed memory** was found to be a better predictor of daily functioning in individuals with early-stage AD, accounting for approximately 10% of the unique variance in the FAC.
- This finding is consistent with research which states that early AD impacts the medial temporal lobes (e.g., Scheltens et al., 1992).
- **Executive skills** might be a better predictor of daily functioning in the subset of AD patients with early changes in the prefrontal cortex. Future research should be aimed at comparing the predictors of functional ability in subsets of patients in the early and later stages of AD.

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# The Effects of a “Walking While Talking” Dual-Task on Ambulation in Early-Stage Alzheimer Disease and Normal Aging

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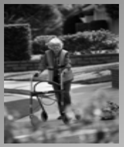


## Abstract

Previous studies with Alzheimer Disease (AD) patients have suggested that speed and accuracy in walking can be differentially affected by a concurrent cognitive task, such as a verbal fluency task. (i.e., Camicoli et al., 1997; Cocchini et al., 2004; Sheridan et al., 2003). The present study examined the effects of a cognitive task on gait speed in healthy older adults and probable early AD patients. Fourteen healthy older adults (6 men, 8 women; mean age= 72.9) and 15 early AD participants ( 7 men, 8 women; mean age = 76.7) performed a timed walking task and simple and complex verbal counting tasks (i.e., counting forward by 1’s or backward by 2’s) in single and dual-task combinations. Percent decrement scores were compared using a repeated measures design with between group comparison between the healthy older adults and the probable early AD participants (3MS ranging from 21-28). Contrary to previous findings, the present study found that even though single task walking rates for the healthy older adults (mean = 54.03, SD=9.57)) and early AD patients (mean = 40.58, SD = 7.58) were significantly different (p=.001); percent decrement scores show that early AD patients are not differentially impaired by a gait dual-task, regardless of the level of task complexity. Analyses did however, reveal a predictable main effect for task difficulty. Overall, the present study did not find any differential impairment for participants with early AD using a talking while walking dual-task.

## Introduction

•Recent research suggests the ability to divide attention during walking (i.e., dual-task performance) appears to be particularly vulnerable to the effects of Alzheimer’s Disease.[1,] However, the stage at which individuals with Alzheimer’s Disease show impairment in dual-task performance is somewhat controversial.

•Some studies have shown that attentional impairments (i.e., inability to divide attention) are among the first non-memory domains to be affected in early stage Alzheimer’s Disease, while others have found that individuals in the early stages of dementia perform normally on dual-task measures. [2]

•The present study compared dual-task performance in individuals with AD and in an age appropriate, healthy control group to examine whether deficits in divided attention are present in the early stage of AD.

## Participants

- **Clinical Participants:**
  - Fifteen ( 7 men, 8 women) individuals diagnosed with probable early stage AD (i.e., MMSE ranging from 21-28) who were referred to the Rural and Remote Memory Clinic for a comprehensive assessment of current cognitive functioning.
  - Mean age = 76.7 years
- **Control Participants:**

•Fourteen healthy older adults (6 men, 8 women) who accompanied the clinical participants to the Rural and Remote Memory Clinic.

•Mean age = 72.9

•Due to a risk of falls, each patient’s ability to participate in the following procedure was determined prior to testing by the clinic physiotherapist using the Timed-Up and Go (TUG), a clinical balance screening tool.

## Methods: Dual-Task

### Procedure: Verbal Counting and Walking Tasks

- Participants first performed each of the component tasks during 15 s single task trials.

### Task 1: Walking

•Participants were instructed to walk down a hallway 15 feet, to a line indicated by white tape on the floor, turn and walk back (30 feet total).

### Task 2: Counting

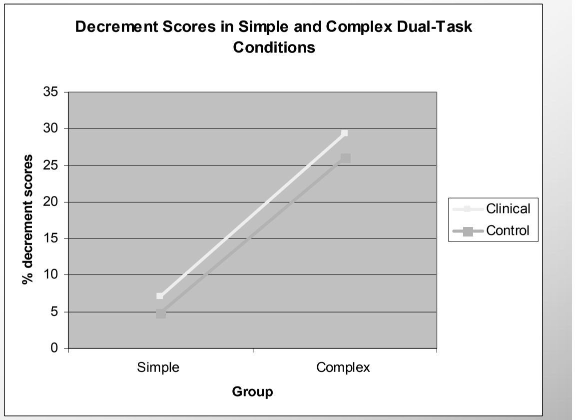
•Participants were instructed to start at a given number (e.g., 1 or 70) and count out loud in both simple (i.e., counting forward by 1’s) and complex (i.e., counting backwards by 2’s) conditions.

### Dual-Task Trials

•Participants were then asked to perform the walking and verbal counting tasks concurrently, in the simple (i.e., walking and counting forward by 1’s) and the difficult (i.e., walking and counting backwards by 2’s) conditions.

•Percent decrement scores, which allow for an assessment of the proportional change in an individual’s performance during dual-task conditions relative to his/her performance during the single-task conditions4 were used to measure performance.

## Results



## Discussion

•Although analyses did reveal a predictable main effect for task difficulty (p=.002); contrary to previous findings, the present study found that individuals with early stage AD are not differentially impaired by a gait dual-task regardless of task complexity.

- While individuals with AD walked significantly slower than normal older adults (p=.001), percent decrement scores show that when compared with an appropriate control group the effect for task complexity disappears.

•These results suggest that impairments in divided attention may not be among one of the first non-memory domains to be affected by AD and that one of the major effects of early AD appears to be an overall slowing of gait.

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CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

# Developing Dementia Screening Tools for Northern Aboriginal Seniors: Partnering with Keewatin Yatthé RHA Home Care Services

**M. Crossley, S. Lanting, M. O'Connell, D. Morgan, & The Keewatin Yatthé Home Care Team**

## Introduction

▪Performance on mental status screening tests (e.g., MMSE) is influenced by culture, language, and education.

▪Developing assessment and consultation services for older Aboriginal adults with cognitive impairment or dementia who reside in remote Northern communities must address the cultural bias of existing assessment protocols.

▪Cognitive screening tools for Northern Aboriginal seniors should be developed collaboratively with front-line health care workers and home care managers who reside and work in the North.

▪Little is known about cognitive change in normal aging and the prevalence of dementia among Aboriginal seniors, despite the rapid growth of this demographic group. Culturally appropriate mental status protocols are needed to advance knowledge in these areas.

## Foundational Work

1) Key informant interviews with Aboriginal seniors (Saskatoon Community Clinic Grandmothers' Group) and fieldwork in Northern communities guided test development and modification (Lanting et al., 2007).

2) Case study analyses of modified screening tools (Community Screening Interview for Dementia, Hall et al., 1993; Cognitive Abilities Screening Instrument, Teng et al., 1994) used with Aboriginal seniors in the Rural and Remote Memory Clinic identified strengths and limitations (Lanting et al., 2008).

## Current Methods

A series of working groups were conducted with NET faculty, graduate students, and Keewatin Yatthé Home Care Services staff to further modify the screening tools in collaboration with front-line health workers.

**Figures**: Screening instruments need to reflect the culture and environment of Aboriginal seniors who live in remote communities

## Results

Working groups with our Keewatin Yatthé partners, and our experiences in the Rural and Remote Memory Clinic support our foundational work and highlight the importance of:

▪Developing a screening tool that does not assume or require formal education

▪Modifying assessments to enable home-based interviews by front-line health workers

▪Incorporating colour, humour, and familiar images and materials into assessment protocols to better engage Aboriginal seniors

▪Including family caregivers in the assessment of activities of daily living and changes in functional status.

## Summary and Discussion

- Based on our work with Aboriginal seniors, several years of experience in the Rural and Remote Memory Clinic, and a series of workshops with Keewatin Yatthé Home Care staff, we have modified existing dementia screening tools that were developed for cross-cultural assessment (i.e., CSI`D', CASI), to better meet the needs of Aboriginal seniors living in remote Northern communities.
- The resulting dementia screening protocol has been designed for home-based administration by front-line health care workers. We assume the participation of a family caregiver or close friend who knows the senior well. The assessment is conducted in the language of the senior, and does not require formal education or exposure to urban culture.
- The protocol generates measures of ***functional status***, based on the caregiver interview, and ***cognitive scores*** that are comparable to the MMSE and other commonly used screens.

**Next Steps:**

In collaboration with our Northern partners, we will

1) fine-tune our assessment protocols

2) conduct pilot work with the modified screening tools

3) ensure that the measures are acceptable and relevant to the community

4) establish sensitivity to cognitive impairment and early-stage dementia, and ease of performance by healthy Aboriginal seniors without formal education or exposure to urban culture

# FIRST NATION LONG-TERM CARE FACILITIES: INITIAL OBSERVATIONS

L. McBain[1] D. Morgan[2]

[1] First Nations University of Canada; [2]Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan

## Introduction and Rationale

As the senior Aboriginal population increases in Canada there is a growing need for elder care. First Nation leaders have established facilities to provide better access to culturally sensitive long-term care needs of Aboriginal people while they remain in, or closer to, their communities. Visits to three of the facilities and interviews with the administrator are highlighted in this presentation.

## The Facilities

### Jimmy Erasmus Senior Citizens Home Behchoko, NWT

Treaty 11 Territory. The Tlicho Self-Government Agreement was signed in 2005. The Tlicho Community Services Agency provides a range of health and social service facilities including the Jimmy Erasmus Senior Citizen's Home. The Home serves the four Tlicho communities of Behchoko (pop. 1894), Gameti (pop. 301), Wekweeti (pop.140), and Whati (pop. 513).

The Administrator of the Jimmy Erasmus Senior Citizen's home stated that the community looks after those needing care and that people are very reluctant to put family members in the home. The Jimmy Erasmus Senior Citizens Home is an 8-bed long-term care facility. A 16 unit independent living unit closed due to problems with mould. Home care is in its infancy in the region but a day care program is offered by the Jimmy Erasmus Centre. Daily attendance varies between 5 to 10 people.

### Muskeg Lake Elders Care Home, Muskeg Lake First Nation, Sask.

Treaty 6 Territory. Muskeg Lake is located approximately 100 km. Northwest of Saskatoon. The Elders Care home is a 30 bed facility administered by the Muskeg Lake Cree Nation Director of Health and Social Development who reports to the Board of directors consisting of the Muskeg Lake Chief and council.

Funding arrangements involve the Muskeg Lake First Nation, the Government of Saskatchewan and Prince Albert Parkland District. Through a pilot project the provincial government provides $1.5 million over two years to fund 15 of the 30 bed on reserve Muskeg Lake facility. It is the first time the provincial government has committed money to a care home on-reserve which is normally an area of federal jurisdiction.

*The pilot project will give First Nations seniors the chance to remain in their communities near their families. It is an opportunity to partner with a First Nation to ensure care is accessible in its home community* (J. Draude 2009)

### Lakeview Lodge Standing Buffalo Personal Care Home, Standing Buffalo First Nation, Sask.

> *Our traditions and cultural values teach us to respect our elders. We are proud to provide a healthy caring environment creating an atmosphere of dignity and respect for our residents* (Lakeview Lodge Mission Statement)

40-bed unit owned and operated by Standing Buffalo Dakota Nation which opened in June 1999. It is the first and largest on-reserve Aboriginal-owned and operated personal care home in Canada. It is provincially licensed and open to both Aboriginal and non-Aboriginal adults. Indian and Northern Affairs Canada (INAC) will not fund band members who reside off reserve but want to move into the facility.

## Preliminary Observations

*All parties – the reserve, the province, the federal government and the health region need to be on the same page on how to support building elder care services on reserves* (Cecile Hunt, CEO Prince Albert Parkland Health Region)

- The significance of self government/band control of health care services
- Jurisdictional challenges but also solutions
- Diversity of residents at facilities

## Next Steps

- Meet with Chief and Council for input and approval for a study
- Visit other First Nation on-reserve facilities
- Investigate funding arrangements

**Acknowledgements: Ruth** Budgell, Jimmy Erasmus Senior Citizens Home; Pat Kraus, Muskeg Lake Elders Care Home Bobbie Bird, Lakeview Lodge Standing Buffalo Personal Care Home.

# Design and Operation of a multidisciplinary memory clinic using telehealth technology to serve a rural and remote population

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**Background/Aims**: The Canadian province of Saskatchewan has a population of only one million but is larger than most of the world's countires. We developed a Memory Clinic to serve rural patients with early dementia.

**Methods:** Upon referral, a telehealth visit using videoconferencing allows patients and families in their own communities to meet the clinic nurse and neuropsychologist for orientation and preliminary data collection. Blood tests are taken during that visit. Patient and family then travel to Saskatoon for an in-person appointment. The neurologist sees patients in follow-up at 6 and 12 weeks, 6 and 12 months, and then annually or as needed. Patients are randomly allocated to 6 week appointment either in-person in Saskatoon or via telehealth with subsequent appointments alternating between in-person and telehealth. Patients and family complete questionnaires to rate satisfaction and convenience of visits.

**ORGANIZATION OF DAY FOR PATIENT 1 & FAMILY**

0830: Arrive at clinic:
- Coffee.
- Oriented to day, consent obtained.
- Patient and family begin completing questionnaires.

**Patient Interview**:
- Life Concerns Scale
- IADL
- Memory Scale
- Perceived Stress Scale
- Quality of Life
- CES-D
- Pleasant Events Scale –AD

**Family/Caregiver**:
- Functional Activities Questionnaire
- Bristol ADL
- Quality of Life
- Neuropsychiatric Inventory
- Zarit Burden
- Brief Symptom Inventory
- Short Form Health Survey (SF-12)

0940: Neurological examination of patient
Family continue discussion with neuropsychology.

1200: Lunch for patient and family

1300: Further assessment by geriatrician.

1400: CT scan

1500: Physiotherapy gait assessment.

1630: Patient and family meet with neurologist, neuropsychologist, geriatrician

1700: Patient and family head home.

**Neuropsychological assessment:**

Cognitive Screens:

Modified Mini-Mental State (3MS)
Clock Test

Estimates of Premorbid Intelligence:
WRAT-III
WAIS-III (4 subtests)

Repeatable Battery for the Assessment of Neuropsychological Status (RBANS):

Immediate Memory
Visuospatial/Constructional
Language
Attention
Delayed Memory

Orientation & Freedom from Distraction:
- Mental Control
- Digit Span (Forward & Backward)

Attention/Executive Functions:
- Stroop Test

Memory & Learning:
- Prairie Buschke
  - Modification of Buschke Cued Recall Test

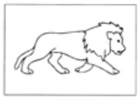
Language:
- Token Test
- Letter Word Naming
- Animal Naming
- Grasshoppers & Geese (Modification of Pyramids & Palm Trees Test)

Manual Strength & Dexterity:
- Grooved Pegboard
- Grip Strength
- Finger Tapping

Additional:
- Behavioral Rating Scale
- Saskatchewan Mood Inventory
- Community Screening Interview for Dementia (CSI"D): Where necessary due to language/cultural differences.

**Original Buschke Cued Recall Test**

**Pictorial Prairie Buschke**



P3

**DIAGNOSES (First 200 patients)**

- 35% Alzheimer's disease
- 14% Mild Cognitive Impairment
- 11% Frontotemporal Dementia
- 11% Mixed Vascular/Alzheimer's
- 10% Normal
- 7% Vascular
- 6% Dementia with Lewy Bodies
- 3% Vascular Cognitive Impairment
- 1% Normal Pressure Hydrocephalus
- 1% Huntington's Disease

**Travel saved by Telehealth (kms round trip)**

Mean distance to Telehealth = 78
Mean distance to Saskatoon = 518
**Distance saved by Telehealth = 440**

**Satisfaction with follow-up appointment**

Telehealth 4.65 (0.12)

In-person 4.44 (0.10)

P = 0.125

(1 – very dissatisfied,
5 – very satisfied)

**Convenience of appointment**

Telehealth 4.77 (0.08)

In-person 3.69 (0.16)

P <0.0001

(1 – very inconvenient,
5 – very convenient)

**Conclusion:** A multi-disciplinary telehealth-based memory clinic is an effective way to assess and care for dementia patients in remote areas.

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**NOTES:**