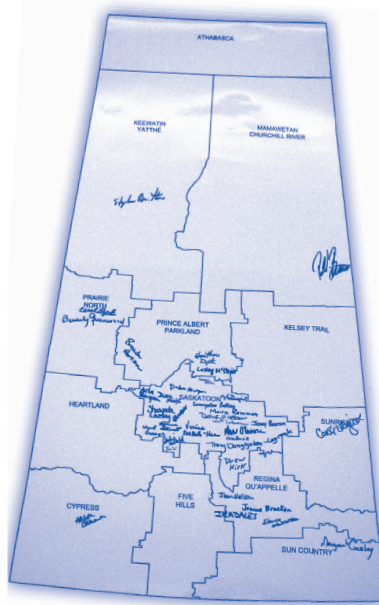


Knowledge Network in Rural and Remote Dementia Care

Summit
9
2016



Scientific Poster Session
9th Annual Summit

October 25th & 26th, 2016

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



UNIVERSITY OF
SASKATCHEWAN

Tuesday October 25th, 2016
Scientific Poster Program
7:00 PM – 9:30 pm at the Western Development Museum (Butler Byers Hall)

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Our Support Group mission is to provide people with dementia, their family members and friends with a safe and supportive environment where they are able to develop meaningful connections, experience a sense of belonging, gain understanding and knowledge, and be empowered to live proactively throughout their journey with dementia.



Supports must be available in a variety of formats to meet the diverse needs of the people that the Society serves.

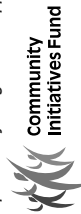
Groups offer people with dementia and caregivers tools that can improve quality of life and enhance their ability to cope with the challenges of the disease. These groups provide a safe environment where individuals can learn, laugh and encourage each other through mutual understanding.

Providing help for today
and hope for tomorrow
for people affected
by dementia

Alzheimer Society
SASKATCHEWAN

Poster contributors Alzheimer Society Programs and Services staff

Our Support Groups are made possible by the generous support of



Community Initiatives Fund



Telehealth Saskatchewan
... Linking Communities for Health ...

Lady of the Prairies



RaDAR
RURAL DEMENTIA ACTION RESEARCH

The Alzheimer Society of Saskatchewan's Support Groups Empowering people to live well with dementia

"I thought that if I facilitated this group, the families would also help me. I am so thankful for the wonderful advice I gained from many family members over the years. It helped tremendously in learning how to care for people with dementia. They make my day every day!"
Trudy attended the first formal Support Group Facilitator training and is still a Volunteer Facilitator today.

New and Unique Opportunities

Caregiver Telephone Support Group
There are many parts of Saskatchewan that do not have Alzheimer Society Caregiver Support Group. The Caregiver Telephone Support Group can assist to fill that void for caregivers living in these underserved areas of the province.

All of our volunteer facilitators receive training and ongoing professional development

Young Onset Telehealth Group
This group serves individuals diagnosed under the age of 65. These clients have diverse needs that differ from those diagnosed in later life including career loss, raising young families and financial insecurity. Due to the relatively small number of people, this is a provincial group.

Sandwich Club
For those who are caring for someone with Alzheimer's disease or a related dementia and balancing the demands of a family and a career.

Volunteer Opportunities

Support Mentor Value
ASOS continues to recruit individuals to act as facilitators in communities across the province. There are many communities that could benefit from your knowledge and experience. The ASOS is committed to supporting you as the group is established and will continue to mentor you as the group grows and develops. There are different groups to meet the needs of the communities. Ask one of our Programs and Services staff how you could become involved.

Opportunities for Clients

Caregiver Support Group
For those caring for someone with the disease – spouses, family or friends.

Coffee Club
Maintaining a fulfilling social life is important for people living with dementia and their care partners. The Alzheimer Society of Saskatchewan coordinates a number of Coffee Clubs that provide an opportunity to socialize, share experiences, laugh and enjoy the company of others who understand and are living the dementia experience.

Early Stage Support Group
This group is only attended by the person with dementia (PWD). This ensures that the PWD has a place to speak openly about their struggles with the disease, empower them to learn from each other and have fun in a safe place.

Telehealth Spousal Support Groups
There are 2 Telehealth Support Group serving the province. The Atypical group is intended for spouses of people who have been diagnosed with a form of dementia that is uncommon, diagnosed at a younger age, and does not present like Alzheimer's disease. The Frontotemporal group is specifically for spouses of those who have been diagnosed with Frontotemporal dementia and its variants.



C. Branger B.Sc. (Hons) PhD Student Clinical Psychology , Supervisor: Dr. Megan O'Connell
Department of Psychology, University of Saskatchewan

Study 1 INTRODUCTION

Purpose

The purpose of the proposed research is to gain a better understanding of current conceptualizations and measurement of positive aspects of caring for persons with dementia.

Rationale

- Canadian informal caregivers provide care with a yearly estimated value of \$26 billion¹
- Caregiver research provides better understanding of the caregiver experience and informs on interventions aimed to support and sustain caregivers in their role.
- Extant literature reveals an emphasis on negative aspects of caregiving (i.e., caregiver burden and strain), with a smaller number of studies investigating positive aspects (i.e., caregiver satisfaction and personal gain).

- By synthesizing extant literature on positive aspects of caregiving, this research aims to (1) understand how positive aspects of caregiving are commonly conceptualized, (2) how these are measured, (3) if/how positive aspects relate to other commonly measured aspects of caregiving (e.g., burden, well-being, severity of dementia), and (4) identify what is known and what is missing.

Methods: Mixed Meta Synthesis

This unique method synthesizes findings from a meta analysis based on quantitative research and findings from a meta synthesis of qualitative work.

Meta- Analysis

Based on Quantitative research this meta analysis will provide information on:

- Current conceptualizations of positive aspects
- Tools of measurement
- Effect sizes indicating how positive aspects relate to other variables

Meta-Synthesis

Based on Qualitative research, this meta-synthesis will provide information on:

- Commonalities in caregiver experience
- Summarizing and combining qualitative evidence surrounding positive aspects of caregiving.

Synthesis

Findings from the meta-synthesis inform on effect sizes revealed by meta-analysis.

- The findings from this study are expected to expand the current understanding of the positive aspects of caregiving by synthesizing extant literature from both quantitative and qualitative directions.
- This research is expected to give a clear account of how the positive aspects of caregiving are currently conceptualized, how we are measuring these aspects
- What may be missing from current conceptualization and measures.
- These findings will indicate important areas for future research.

Study 2 INTRODUCTION

Purpose

Provide insight into experience of important, growing, and understudied population of caregivers in Canada.

Rationale

Preliminary literature review reveals research on Aboriginal caregivers of persons with dementia is remarkably scant.

- The prevalence of age-related dementia continues to rise in the fast growing demographic of Aboriginal seniors².

- Availability of caregivers for Aboriginal seniors with dementia is decreasing as demographics change (youth migrating to urban centres) and community views and values change³.

Methods

Through connections with the Rural and Remote Memory Clinic of Saskatoon, we will invite Aboriginal caregivers to share with us about their experience providing care.

- Data will be obtained through open ended individual interview

Case Study

By means of open ended interview with two Aboriginal caregivers, this study aims to:

- Provide insight into this understudied population of caregivers.
- Prompt future research into this important and growing population.



Alzheimer Society
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C. Branger is a proud recipient of the Alzheimer's Society Doctoral Award.

¹Hollander, M. J., Liu, G., & Chappell, N. L. (2009). Who cares and how much? The imputed economic contribution to the Canadian healthcare system of middle-aged and older unpaid caregivers providing care to the elderly. *Healthcare Quarterly*, 12(2), 42-49.
²Statistics Canada. (2011). *Portrait of Families and Living Arrangements in Canada: Families, Households and Marital Status, 2011 Census of Population*. Statistics Canada Catalogue no. 98-312-X2011001. Ottawa, Version updated September 2012. Ottawa.
³Habjan, S., Prince, H., & Kelly, M. (2012). Caregiving for elders in first nations communities: Social system perspective on barriers and challenges. *Canadian Journal on Aging*, 31(2), 209-222. doi:10.1017/S074898012001013X

Intersections of Formal and Informal Care in Rural Alberta's Long-Term Care Facilities

Dr. Julia Brassolotto.

Faculty of Health Sciences, University of Lethbridge. Alberta Innovates – Health Solutions (AIHS) Research Chair in Healthy Futures and Well-being in Rural Settings

ABSTRACT

The proposed research will explore the intersections of formal and informal care for older adults with a focus on those who provide care. Little attention has been paid to the health and wellness of those who perform care work for older adults living in residential care facilities in rural Alberta. In light of Canada's aging population, challenges with recruiting and retaining rural nurses, and the restructuring of the continuing care system, the challenges experienced by rural care providers are constantly changing.

In an extension of the Principal Investigator's postdoctoral work, the team will conduct case studies using critical ethnography and document analysis methods in order to better understand working conditions for care workers in rural Alberta. The research team will conduct in-depth interviews with paid and unpaid care workers, perform participant observations in the facilities, and analyze related documents. Special attention will be paid to matters of gender, race, socioeconomic status, and other social locations and the ways in which they enable and/or constrain care worker experiences in this rural context. The team will also explore the organization of care work in these facilities and the role of the long-term care (LTC) home in rural communities.

This research will identify LTC priority issues at the macro (policy), meso (health care system), and micro (family and community) levels of care.

BACKGROUND

- In the 1990s, the Alberta's continuing care system was dramatically restructured. With significant shifts towards home care, assisted living, and aging-in-place, the public LTC sector faced sizeable spending cuts.
- Much of the research on elder care in Canada focuses on urban settings. There are fewer LTC facilities in rural regions and a host of rural-specific LTC related issues. Little is known about the current state of rural LTC facilities and the role(s) of these homes in their communities.
- The organization of LTC work is changing across Canada, with RNs doing more administrative work and unregulated workers performing the majority of direct resident care (Armstrong & Baines, 2016).
- LTC facilities are largely viewed and funded as sites of health care service provision and as last resorts for family members who can no longer care for relatives at home. This pilot project, and the larger research program of which it is a part, is designed to explore the notion of "home" in rural LTC facilities. According to Ramp (1999) rural institutions such as hospitals or schools are "more than just 'facilities' in a functional sense. They are also cultural signs and symbols" (p. 6). Within the political and economic contexts of seniors' housing in rural Alberta, we will explore what it is like to live and work in LTC.

OBJECTIVES

- 1) Build a strong and collaborative research team, including community partners and knowledge users. Establish a feedback loop to meet our collective communication needs.
- 2) Improve understanding of the current state of LTC homes in rural Alberta.
- 3) Understand the organization of care work and identify the needs of those providing paid and unpaid care within these facilities.
- 4) Gain insight into the roles LTC homes play within rural communities
- 5) Identify challenges in care provision and generate policy and practice recommendations
- 6) Identify success stories and develop a knowledge bank of promising practices in rural LTC.
- 7) Explore opportunities for inter-sectoral collaboration and innovative ways to address LTC residents' social and non-medical needs.



METHODS

- Case study (Yin, 2009), week-long site visits
- Critical ethnography (Thomas, 1993), "ethnography with a political purpose"
- In-depth, semi structured interviews with paid and unpaid care providers in LTC homes (RNs, LPNs, care aides, directors of care, management, family members, volunteers, students, paid companions).
- Field site observations in visitor-friendly spaces
- Document analysis (Atkinson & Coffey, 1997) of logic models, policies, facility regulations and practices, etc.

PROGRESS & DEVELOPMENTS

- Scoping review
- Ethics application
- Grant application
- Knowledge-sharing workshop
- Pilot case study
- Developing partnerships and collaborations





Care Aide Perceptions of Best Nutritional Care Practices for Residents with Dementia in Urban and Rural Long-Term Care

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Background

Dementia is recognized as a public health priority; worldwide prevalence of dementia is projected to double to 65.7 million by 2030 (WHO, 2012).

Dementia is the top chronic condition prompting relocation to long-term care (LTC) (ADI, 2013) and 60% of Canadian LTC residents have a diagnosis of dementia (CIHI, 2013).

Persons with dementia are at higher risk for malnutrition due to both physiological and behaviour changes. Malnutrition can accelerate cognitive decline, increase risk of negative health outcomes (unwanted weight loss or gain, muscle wasting, infection, poor wound healing, pressure ulcer formation), and negatively impact quality of life.

LTC staff are responsible for developing and executing resident nutritional care plans, monitoring residents' food and fluid intake, encouraging independence and promoting social well-being as it pertains to eating and nourishment. The majority of direct resident care in LTC is performed by care aides who have limited formal training in dementia and nutrition care (Pelletier, 2005).

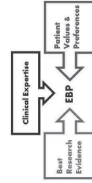
Research Question and Objectives

Using an evidence-based practice (EBP) framework, what are best nutrition care practices for LTC residents with dementia from the perspective of care aides?

- Gain experiential knowledge of strategies used to accomplish good nutrition care
- Better understand the challenges experienced by care aides in providing nutrition care for residents with dementia
- Examine differences between urban and rural LTC

Methods

- Qualitative Approach – focus group discussions
- Four LTC homes; 2 rural and 2 urban
- Agreement to participate at Regional level and Administrative level of each LTC home
- RQHR Mealtime Management video shown followed by focus groups
- Set of guiding questions with prompts
- Framework Analysis (Rabiee, 2004)



- Poster advertising research project at each LTC home
- Voluntary participation during scheduled work
- Informed consent process
- Audio recordings of each focus group discussion
- Descriptive field notes written after each focus group discussion

Participants

Urban LTC	Rural LTC
8 focus group discussions	43 care aides in total
2 LTC homes; 4 focus group discussions	2 LTC homes; 4 focus group discussions
24 care aide participants (5/5/7/7)	19 care aide participants (8/4/4/3)
Sex: 23 female 1 male	Sex: 19 female 0 male
Work Status: 13 full-time 8 part-time 3 casual	Work Status: 12 full-time 5 part-time 2 casual
Continuing Care Assistance Course: 14 completed 9 not completed 1 in-progress	Continuing Care Assistance Course: 16 completed 3 not completed 0 in-progress
Mean length of employment as a care aide: 11.9 years (0.5 – 40.0)	Mean length of employment as a care aide: 10.8 (range: 0.5 – 24.0)

Research Findings: Thematic Analysis

Balancing Residents' Care Needs

- Workload often dictates care available
- Priority care need of a given moment a moving target
- Routine or schedule conflict with care plan

Coping Strategies

- Alternate strategies developed to compensate for lacking human resources, knowledge resources, or tools to facilitate nutrition care

Experiential Learning

- Training or studying versus 'real world'
- Unable to teach every behavior/scenario
- Shadowing and mentoring to achieve proficiency and confidence

Competing Demands

- Between departments
- Amongst staff
- Many residents
- Numerous interactions

Operationalizing Person-Centered Care

- Complex theoretical orientation to care
- Can be challenging to determine which practices respect PCC at a given time
- Multiple interpretations

Perception of Nutrition Care

- Focused on physical and mechanistic aspects of nutrition care
- Less attention given to psychosocial components of nutrition care

Impact of Rural Location	
Amount of Choice Available	-
Access to Specialist Care Support	-
Employment Challenges	-
Personal Knowledge of Individual Residents/Families	+
Independent Troubleshooting	+/-

Implications for Practice

- Dementia presents diverse and complex nutrition care needs within the LTC context, well recognized by care aides.
- Many opportunities for intervention can be identified from these findings. Enhanced training, greater coordination of nutrition care, supportive supervision, and adaptive mentoring may help to support care aides in performing nutrition care practices.

Acknowledgements

Alzheimer Society
P.H.A.R.E. (Pain, Hope, and Respite in Aging Research and Education)
WRTC (Western Rural Training Centre)
UNIVERSITY OF SASKATCHEWAN

Facilitating Decision-Making about Driving Cessation for People with Dementia: Stakeholder Perspectives

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Background

Healthcare professionals (HCPs) and representatives from organizations that support persons with dementia and their family caregivers are often responsible for providing support for driving-related issues, such as adapting to changes in mobility, maintaining social participation and coping with emotional responses.

Objectives and Research Questions

We conducted a qualitative study to inform the design of an intervention for drivers and ex-drivers with dementia and their caregivers.

Key questions that guided the research were:

- What strategies help to facilitate the decision-making process around driving cessation for persons with dementia and their caregivers?
- What strategies promote coping and adaptation following the decision to stop driving?

Methods

- The study engaged purposive sampling of key informant participants from two sub-groups across Ontario:
 - 1) Healthcare professionals (HCPs) that have experience with driving cessation and dementia in their practice;
 - 2) Stakeholder from organizations that represent or provide services to people with dementia and/or their caregivers.
- Semi-structured interviews were conducted in person and over the telephone with 10 HCPs and 6 stakeholders.
- Interviews were transcribed verbatim and entered into NVivo for analysis. Each transcript was coded by 2 members of the research team.
- Practices for ensuring quality and transferability of the data included prolonged engagement with the data and the development of an audit trail.
- The analytic themes were generated through an iterative, inductive process.

Results: Strategies to Facilitate Driving Cessation in Older Adults with Dementia

- ### Support for access to programs, resources and services
- ▶ Affordable transportation options and programs that support emotional coping.
 - ▶ Facilitate access to alternative transportation services by accounting for factors such as socioeconomic status, convenience and restrictive geographical boundaries.

“What of those things, be it a bus, be it a taxi, be it a specialty mobility van service, whatever the case may be that’s available in their community: Can they afford it? It’s a big problem. For someone on a fixed income that can be very challenging.” (HCP, Occupational Therapist)

Address driving-related needs in the context of broader experiences of dementia

- ▶ Supportive approaches should address driving in combination with other dementia-related needs; revoked driving privileges is one of multiple losses linked to dementia diagnosis.
- ▶ Approaches should also account for the specific needs of the individual in relation to the progression of the disease (e.g., declining levels of insight).

“It’s like a double, a quadruple whammy. In addition to having to deal with this illness, they’re suddenly confronted with their license being taken away.” (HCP, Social Worker)

Provision of emotional and psychological support

- ▶ Practical approaches to dealing with driving cessation are often implemented at the expense of emotion-oriented interventions.
- ▶ Participants identified a gap in services to support emotional-psychological needs relating to driving.

“We focus so much on thinking of alternatives. Learning about what public transportation is available. That doesn’t get, at all, at the underlying issues. Because driving, usually, is not just about getting from point A to point B, right? And that’s what we’re not tuning in to. We need to tune into the meaning of driving for people. And how are we going to deal with that loss?” (Representative of Organization)

Balance standardized approaches with individualized interventions

- ▶ Approaches should balance access to standardized materials with the flexibility to adapt to meet individual needs based on factors such as the relationship between individual identity and driving, progression of dementia, and social support.

“I’m not aware of any curricula that have really been developed. And I don’t mean anything super fancy or academic, but making it very accessible. So here’s an array of tools that you might find helpful. Let’s face it, people are busy and, they want stuff that’s accessible to help them to make good decisions.” (Representative of Organization)

“We just have to allow for the variability [in interventions]; in occupational careers, in acceptance, in where they are on the dementia continuum.” (HCP, Registered Nurse)

Discussion

Results from this qualitative research will be used to design a complex multi-component program that addresses issues related to driving cessation. Key content areas for the intervention derived from this research are:

- Driving and dementia education and awareness-raising
- Coping with loss and grief
- Mobility support, community access and social participation
- Identity and meaning-preservation
- Adjustment to change

Future Research

- ▶ Qualitative interviews with ex-drivers with dementia and caregivers of drivers and ex-drivers.
- ▶ These findings will be part of a broader meta-synthesis to develop and evaluate a driving cessation intervention for persons with dementia and their caregivers.

Co-investigators: M. Bédard, S. Marshall, B. Mazer, F. Molnar, P. Moorhouse, A. Myers, J. Polgar, M. Porter, B. Vrljijan, S. Yamin for the CCNA Driving and Dementia Team

Acknowledgements: This project was funded by the Canadian Consortium on Neurodegeneration in Aging (CCNA), a dynamic research enterprise of the Canadian Institutes of Health Research (CIHR) and other Funding Partners.

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The Impact of Leadership on Sustainability of a Dementia Specific Training Program in Long-Term Care

Tracy Danylyshen-Laycock, PhD, Candidate, Health Sciences College of Medicine, University of Saskatchewan, Debra Morgan, RN, PhD., College of Medicine, University of Saskatchewan, and Norma Stewart, RN, PhD., College of Nursing, University of Saskatchewan



<h3>Introduction</h3> <p>Dementia can cause memory loss, personality changes, and responsive behaviours (Torpy, Lynn, & Glass, 2008). Examples of responsive behaviours include: wandering, yelling, or hitting. Responsive behaviours are believed to be an expression of a need; an individual with dementia is responding to something in their environment that is out of their control (Talerico & Evans, 2000).</p> <p>Care staff are the most frequent recipients of the responsive behaviours (Gates, Fitzwater, & Succop, 2003). Staff need the opportunity to develop specialized skills when caring for individuals with responsive behaviours. A sustainable training program is one of the ways to assist staff in managing responsive behaviours (Eaton, 2003).</p>	<h3>Methods</h3> <p>Two studies were conducted simultaneously to examine the relationship between leadership and sustainability.</p> <p>Study 1 (Retrospective): Design: cross-sectional, retrospective qualitative research design. Site selection: 5 homes were purposively sampled from rural LTC homes with similar number of residents and where GPA had been implemented in 2009. Participants: administrators, Directors of Care, Managers, nurses (RNs, RPNs, LPNs, Clinical Nurse Leaders) and NAs. Data collection:</p> <ul style="list-style-type: none"> • Semi-structured interviews (n=14); • Focus groups (n=4). <p>Study 2 (Prospective): Design: prospective longitudinal, multi-site, comparative case study design. Site Selection: 2 homes were purposively sampled based on “comparison of difference” design logic (Fitzgerald & Dopson, 2009) that maximized variation on organizational factors that may influence implementation and sustainability of the GPA program:</p> <ul style="list-style-type: none"> • Affiliate vs owned/operated by health region; • Management and reporting structure; • Position of GPA Coach (e.g. RN vs NA); • Presence/absence of Clinical Nurse Leader; • Similar number of residents. <p>Data collection:</p> <ul style="list-style-type: none"> • Direct observations (14 months); • Shadowing and informal interviews (6 months); • Semi-structured interviews with staff in all departments (n=15); • Document reviews (i.e., nursing progress notes, communication logs, incident reports) beginning three months prior to GPA implementation. 	<h3>Data Analysis</h3> <p>Study 1 (Retrospective): Data were analyzed using a qualitative, inductive approach, using the constant comparative method (Glaser & Strauss, 1967, Charmaz, 2006).</p> <p>Study 2 (Prospective):</p> <ol style="list-style-type: none"> Within case analysis: inductive, grounded approach, using the constant comparative method to analyze the four types of data from each home Cross case analysis: examined overall patterns for similarities and differences across the 2 homes <p>Overall conclusions: an interpretive pattern-matching approach was used to compare the patterns of findings between the two studies.</p>	
<h3>The Gentle Persuasive Approaches (GPA) Program</h3> <p>The GPA program is a dementia specific 7.5 hour evidence-based education session designed for staff who care for older adults who display responsive behaviours. The overall goal of the GPA curriculum is to educate staff on how to use a person-centred, compassionate, and gentle persuasive approach and to respond respectfully, with confidence and skill, to responsive behaviours associated with dementia.</p>	<h3>Findings</h3> <p>A continuum of low, medium, and high sustainability homes emerged in the retrospective study. Data confirmed a low sustainability home and a high sustainability home in the prospective study and supported the relationship between leadership and sustainability.</p> <p>Leaders in the high sustainability homes displayed a greater range of leadership skills, with more frequency and intensity than leaders in the low and medium sustainability homes.</p> <p>Leaders in the high sustainability homes created a culture where person-centred care was the philosophy of care within the home.</p> <p>Skills of the leaders in the high sustainability homes included:</p> <ul style="list-style-type: none"> • Communicating to staff that GPA is an expectation; • Keeping staff accountable when they did not practice GPA; • Working with staff who were “negative” towards the program; • Addressing barriers that impacted the sustainability of the GPA program. 	<h3>Conclusions</h3> <p>Prior to the implementation of the GPA program, leaders should assess their organizational culture and their staff members’ readiness for change.</p> <p>It is important for leaders to 1) address any outstanding barriers to implementation and work with individuals who do not support person-centred care or the GPA program, and 2) create a culture where staff have the flexibility and resources to practice person-centred care.</p> <p>It is beneficial for leaders to be approachable, visible, and provide feedback on performance as well as mentoring staff who exhibit poor/abusive performance.</p>	
<h3>Research Question</h3> <p>What is the role of formal leadership (i.e., Manager, Director of Care, and Administrator) in the sustainability of the GPA program within rural long-term care homes (LTC)?</p>			

INTRODUCTION

Purpose

- Examining reliable change and minimal clinically important differences (MCID) in RBANS scores for persons with dementia at a one year interval using Duff's² predetermined regression formulas and Phillip's⁶ anchor-based cut-off scores.

Background

- Past literature suggests RCI incorporates reliability in calculation of small but meaningful change in health status over time^{1,2,3,5}
- RCI offers more insightful clinical interpretations than group-level statistics^{3,5}
- RBANS has level of difficulty appropriate for normal older adults through individuals with moderately severe dementia^{1,4}
- Development of "normal" regression-based change algorithms allow for broader application²⁻⁵
- Initial performance on test found to be best predictor of retest performance²
- Anchor-based methods considered preferred approach⁶

PARTICIPANTS

- **53** participants (57% female) at the Rural and Remote Memory Clinic who were diagnosed with dementia based on interview with patient and families in addition to:
 - Recent blood work
 - CT head scan
 - Neurological assessment
 - Neuropsychological assessment
 - Physical therapy assessment

The sample only included patients who completed all neuropsychological variables at clinic day and 1 year later

	Min	Max	M	SD
Patient age at clinic day	44	92	70.79	10.91
Formal Education	4	16	11.45	2.67

METHOD

- Each of the 53 persons received an interdisciplinary diagnosis of dementia

Diagnosis	f
Alzheimer's disease	28
Vascular dementia	4
Frontotemporal dementia (FTD)	7
FTD, frontal variant	1
FTD, semantic variant	1
FTD, progressive non-fluent	1
Dementia multiple aetiologies	6
Dementia medical condition	3
Dementia with Lewy bodies	3
Total	53

- Predetermined regression formulas to **determine predicted re-test scores** for persons with dementia
- **Predicted re-test** index compared to **actual scores**²
- **Regression-based change scores** compared to anchor-based cut-offs⁶
- Correlation between RBANS Index scores and Clinical Dementia Rating for utility as an anchor-based measure

RESULTS

RBANS Index	RCI & MCID Exceeded (%)	RCI Exceeded & MCID Missed (%)	RCI Missed & MCID Exceeded (%)	RCI & MCID Missed (%)	% Agreed
Immediate Memory	16 (30.2)	31 (58.4)	3 (5.7)	3 (5.7)	36%
Visuospatial	32 (60.3)	11 (20.8)	10 (18.9)	0 (0)	60%
Language	14 (26.4)	0 (0)	7 (13.2)	32 (60.3)	87%
Attention	20 (37.7)	0 (0)	17 (32.1)	16 (30.2)	68%
Delayed Memory	14 (26.4)	10 (18.9)	10 (18.9)	19 (35.8)	62%
Total Scale	15 (28.3)	31 (58.5)	4 (7.5)	3 (5.7)	34%

RBANS Index	Range of Difference Scores	Predicted-Actual Mean Scores	# of Re-scores higher than Predicted
Imm Memory	2.01 – 79.57	35.11	0
Visuospatial	-1.77 – 75.74	33.39	1
Language	-18.98 – 37.65	8.78	12
Attention	-23.72 – 50.76	12.35	7
Del Memory	-17.64 – 47.21	15.87	6

RESULTS

RBANS Index	Correlation with CDR r (p)
RBANS- Immediate Memory	.129 (p > 0.05)
RBANS- Visuospatial/Construct	.013 (p > 0.05)
RBANS- Language Index	.056 (p > 0.05)
RBANS- Attention Index	.206 (p > 0.05)
RBANS- Delayed Memory	.094 (p > 0.05)
RBANS- Total Scale	.147 (p > 0.05)

DISCUSSION

Persons from this sample demonstrated an overall decline beyond expected based on a cognitively healthy older adult sample on all RBANS indices (Mean), but individual variability regarding decline vs stability vs improvement was seen most often on the Language Index. No person with dementia improved on Immediate Memory.

General consistency was identified between Duff² and Phillip's⁶ meaningful change approach, but immediate memory and total scale score displayed discrepancies.

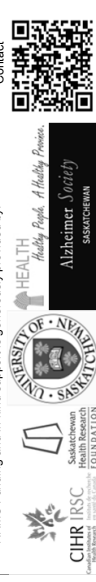
RBANS Index – CDR correlational data challenges the utility of the CDR as an appropriate anchor.

Future Directions

- Future research will aim to explore the disagreement present between the RCI and MCID approaches, and the discrepancies in participant performance (i.e., improved scores).

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



Contact



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INTRODUCTION

Purpose

- To explore the mental wellness needs of two Canadian Aboriginal communities residing in Prince Edward Island (PEI) - *Study 1*.
- To further understand the importance and implications of researcher-community relations from an insider-outsider perspective - *Study 2*.
- Surveying the cultural responsiveness of the innovative technologies designed by AGE-WELL to improve quality of life in older adults - *Study 3*.

Rationale

- Research in Indigenous mental health remains highly understudied, leading to concerns in understanding appropriate services to Indigenous communities¹.
- Research has suggested that racial-ethnic health disparities (e.g., Indigenous health) are partly present due to a lack of trust between patient and healthcare provider, supporting the importance of building trust and strengthening relationships².
- The development of culturally safe, useful technology can only be developed by a cooperative participation with Indigenous end-users and community³.



Partners

- The focus of this project works with Abegweit and Lennox Island First Nations' communities from PEI:
 - Lennox Island Reservation
 - Scotchfort Reservation
 - Rocky Point Reservation
 - Morell Reservation
- Other partners include:
 - Mi'kmaq Confederacy of PEI
 - Mental Health & Addictions, PEI Dept. of Health
 - Dept. of Health & Wellness, PEI Dept. of Health
 - University of PEI
 - First Nation Inuit Health Branch

Method

- This research is in collaboration with the communities' mental wellness initiative:** "Completing the Circle of Mental Wellness Care in Prince Edward Island First Nation Communities, Phase 1: Gathering Strength and Knowledge".
- Theoretical Framework:**
 - All work in this project has and will be approached through an *Indigenous paradigm* that places emphasis on *relational networks*⁴.
- Study 1: Understanding Communal Needs**
 - We aim to explore the community perceived mental wellness needs through *Photovoice*.
 - Photovoice* allows the community to communicate their stories and describe their thoughts through a culturally appropriate modality⁵.
- Study 2: Self-reflective Ethnography on Relations**
 - An *ethnographic writing* approach allows us to be sensitive to the influences of indigenous viewpoints, beliefs and practices, behaviours and processes⁶.

Method

- Study 3: Technology & Cultural Responsiveness**
 - Sharing Circles* will be utilized, bringing the communities together to share and explore their impressions towards AGE-WELL technologies.
 - Though similar to focus groups, *Sharing Circles* provide sacred meaning in many Indigenous cultures and promote growth and transformation for those involved⁷.



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²Wallerstein, N. L., & Carrozzini, E. M. & Carrozzini, E. M. (2013). Cultural identity and patient trust among older American Indians. *Journal of General Internal Medicine*, 28(3), 500-506. DOI: 10.1007/s11666-013-2578-y

³Maan, M. A., Seymour, A., Sanderson, B. & Borsch, L. (2010). Reaching agreement for an Aboriginal e-health research agenda: The Aboriginal Telehealth knowledge circle consensus method. *Rural and Remote Health*, 10, 1293-1312.

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



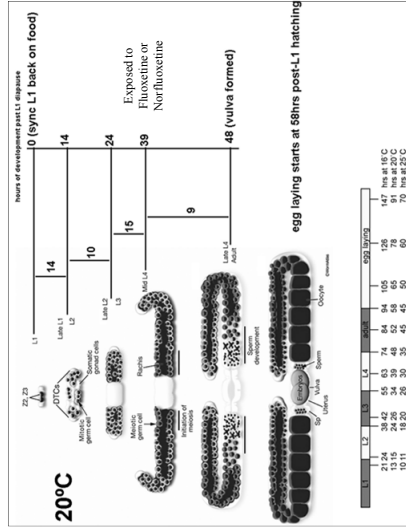
Non-canonical amyloid transport by the serotonin transporter mod-5 in *C. elegans*

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Introduction

There are a number of studies that have shown a link between depression and Alzheimer's disease (AD), where people suffering from depression have a much greater chance at developing AD compared to mentally healthy individuals (Ownby et al., 2006; Meltzer et al., 1998; and Taragone et al., 1997). Several studies have shown that the risk of developing AD/dementia varied between depressed patients and actually aligned more with the type of antidepressant drug used to treat the depression (Kessing et al., 2009). The highest risk was associated with the class of antidepressant drugs called selective serotonin reuptake inhibitors (SSRIs), which block the channels that remove serotonin from the synapse. There is a possibility that by inhibiting these channels, β -amyloid (A β), a protein that is thought to contribute to the pathology associated to AD may be prevented from leaving the cell. Aggregation may be occurring by some of the protein attaching to the closed channel, allowing accumulation to occur more easily.

Development chart of the *C. elegans* XX germline



Acknowledgments

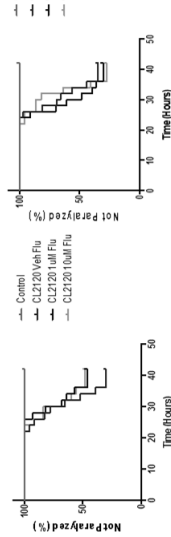
DDM is the Saskatchewan Research Chair in Alzheimer disease and related dementia funded jointly by the Alzheimer Society of Saskatchewan and the Saskatchewan Health Research Foundation

Method

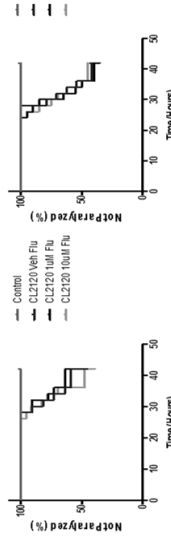
To test for the effects of SSRIs on the accumulation of A β , we used the *C. elegans* worm. These worms are routinely used to study a variety of pathologies associated with aging and/or neurodegeneration. The *C. elegans* worm does not produce A β , so it is a good organism to test how the expression of human A β can affect viability, aging, cell death etc. We chose to use two different strains; GMC101 produces the A β_{3-42} protein (most often associated with AD) and CL2120 produces an N-truncated variant (A β_{3-42}) protein, whose role in toxicity is not so clear. Phenotypically, once the worms have A β aggregation they appear paralyzed and unresponsive. We tested whether two SSRIs, i.e. fluoxetine or its metabolite norfluoxetine, could alter the rate of paralysis in these two worm strains.

Results

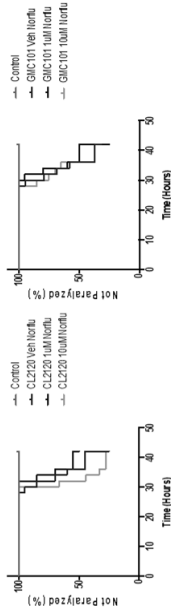
Treated with Fluoxetine using Live *E. coli*



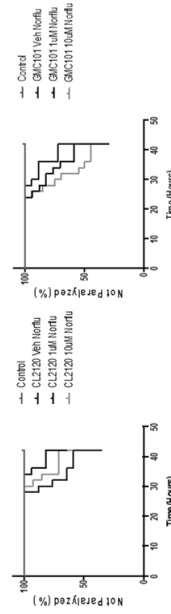
Treated with Fluoxetine using Dead *E. coli*



Treated with Norfluoxetine using Live *E. coli*



Treated with Norfluoxetine using Dead *E. coli*



Conclusions

- Different effects are also seen between the CL2120 and GMC101 worms.
- There are differences between the treatments, but increased sample sizes will be required to determine statistical significance.
- We will test a *C. elegans* strain that lacks the *mod-5* transporter (the worm analogue of the serotonin transporter). These worms will be crossed with the GMC101 worms. The lack of *mod-5* will be the molecular counterpart to pharmacological inhibition of serotonin transport, and will remove any concern about off-target effects of the antidepressant drugs being tested.

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Background

Attention in previous studies of health service use during the periods before and after dementia (aged 65+) has focused on the frequency of use of long-term care, psychiatric, long-term care, or family physician services, particularly, the use of these services, and whether dementia contributes to increased use when holding other factors constant³. However, the brief periods typically examined in these studies (1-3 years) do not adequately account for the long trajectory of the help-seeking career of some individuals with dementia and their families.

This study examined patterns in health service use among individuals with incident dementia compared to a matched general older adult (GOA) cohort in the 5-year pre-index period leading to identification and the 5-year post-index period after identification.

Discussion: This study is based in part on deidentified data provided by the Saskatchewan Ministry of Health. The interpretations and conclusions herein do not necessarily represent those of the Government of Saskatchewan or the Ministry of Health.

Methods

Cohort creation

- Data were extracted from 7 provincial administrative health databases linked by a unique anonymized ID number.
- The dementia cohort included individuals 45 years and older at their first-ever recorded identification of dementia (index date) between April 1, 2008 and March 31, 2009. Incident cases satisfied case definition criteria that included ≥ 1 physician visit OR ≥ 1 hospitalization OR ≥ 1 prescription for a cholinesterase inhibitor OR long-term care (LTC) admission. Cognitive Performance Score of 2 or higher was used as a proxy measure of AD or related dementias.
- Kosteniuk et al.⁴ for the criteria and further details in the original study).
- Each individual in the dementia cohort was matched one-to-one with a general older adult (GOA) by propensity score matching on sex, age, comorbidity index, health region, rural/urban residence, and prior health service use.

Data analysis

- Descriptive statistics were used to examine yearly unadjusted health service use among the dementia and matched GOA cohorts over a 5-year pre-index and 5-year post-index period relative to first dementia identification (index period April 1, 2008 to March 31, 2009).
- Since the dementia and GOA cohorts were matched on attributes at index date, negative binomial and linear regression were used to compare post-index cohort differences between the dementia and GOA cohort while controlling for a number of factors. Specifically, models were adjusted for age at index date, sex, 1-yr prior Charlson Comorbidity Index, health region, rural/urban residence, and 1-yr prior health service use.

Results

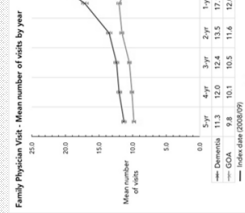


Fig. 1 The proportion of the dementia cohort with ≥ 1 FP visit (mean relative to pre-index) increased the study period, peaking at 1-yr pre-index.

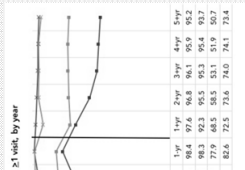


Fig. 2 The unadjusted mean number of visits increased steadily over the pre-index period before spiking at 1-yr post-index, remaining at a higher level (relative to pre-index) for the duration of the post-index period.

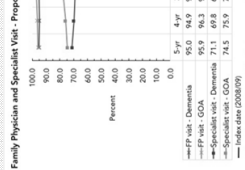


Fig. 3 The adjusted mean number of visits among the dementia cohort was significantly higher among the dementia than GOA cohort over the entire study period ($p < 0.05$).

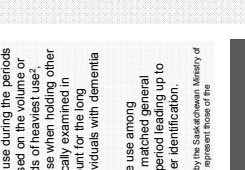


Fig. 4 A significantly greater proportion of the dementia than GOA cohort had ≥ 1 FP visit at 1-yr post-index ($p < 0.05$).

Family Physician (FP) Visit

- The proportion of the dementia cohort with ≥ 1 FP visit (mean relative to pre-index) increased the study period, peaking at 1-yr pre-index.
- A significantly greater proportion of the dementia than GOA cohort had ≥ 1 FP visit at 1-yr post-index ($p < 0.05$).

Mean number of visits

- Among the dementia cohort, the unadjusted mean number of visits increased steadily over the pre-index period before spiking at 1-yr post-index, remaining at a higher level (relative to pre-index) for the duration of the post-index period.
- The unadjusted mean number of visits was significantly higher among the dementia than GOA cohort over the entire study period ($p < 0.05$).

Adjusted for age, sex, comorbidity, and residence

- The adjusted mean number of visits among the dementia cohort was significantly higher among the dementia than GOA cohort over the entire study period ($p < 0.05$).

Adjusted for age, sex, comorbidity, residence, and region

- The adjusted mean number of visits among the dementia than GOA cohort was significantly higher among the dementia than GOA cohort over the entire study period ($p < 0.05$).

Hospital

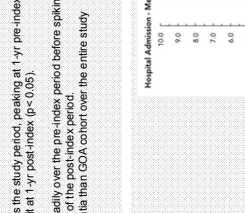


Fig. 5 The proportion of the dementia cohort with ≥ 1 hospital admission was greatest at 1-yr pre-index and 1-yr post-index.

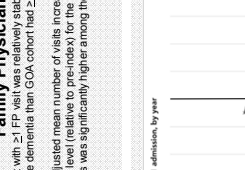


Fig. 6 The unadjusted mean number of hospital admissions among the dementia cohort was relatively stable over the study period, there were no significant cohort differences at any point.

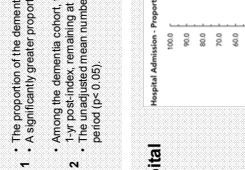


Fig. 7 The unadjusted mean number of hospital admissions among the dementia than GOA cohort was greatest at 1-yr pre-index and 1-yr post-index ($p < 0.05$).

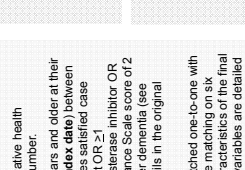


Fig. 8 The adjusted cohort difference in mean number of hospitalizations was greatest at any point.

Hospital Admission

- The proportion of the dementia cohort with ≥ 1 hospital admission was greatest at 1-yr pre-index and 1-yr post-index.
- A significantly greater proportion of the dementia than GOA cohort was hospitalized ≥ 1 time at 1-yr pre-index and 1-yr post-index ($p < 0.05$).

Mean number of admissions

- The unadjusted mean number of hospital admissions among the dementia cohort was relatively stable over the study period, there were no significant cohort differences at any point.
- The adjusted cohort difference in mean number of hospitalizations was greatest at any point.
- The adjusted cohort difference in mean number of hospitalizations was greatest at 1-yr pre-index and 1-yr post-index ($p < 0.05$).
- The adjusted cohort difference in mean number of hospitalizations was greatest at any point ($p < 0.01$; data not shown).

Drug Dispensation

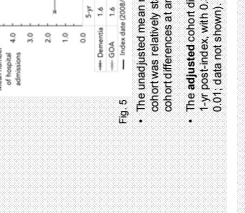


Fig. 9 The proportion of the dementia cohort with ≥ 1 drug dispensation was relatively stable across the study period, peaking at 5-yr post-index.

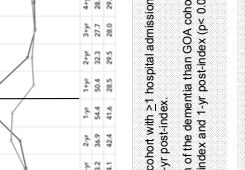


Fig. 10 The unadjusted mean number of drug dispensations among the dementia cohort increased over the 5-year study period.

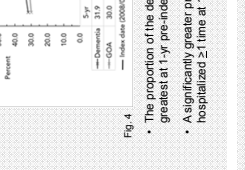


Fig. 11 The unadjusted mean number of drug dispensations among the dementia than GOA cohort was relatively higher during the post-index than pre-index period, peaking at 1-yr pre-index.

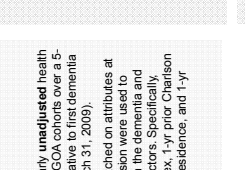


Fig. 12 The adjusted mean number of long-term care admissions among the dementia cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).

Drug Dispensation

- The proportion of the dementia cohort with ≥ 1 drug dispensation was relatively stable across the study period, peaking at 5-yr post-index.
- A significantly lower proportion of the dementia than GOA cohort had ≥ 1 drug dispensation during the 1-yr to 4-yr pre-index period ($p < 0.05$).

Mean number of dispensations

- The unadjusted mean number of drug dispensations among the dementia cohort increased over the 5-year study period.
- The unadjusted mean number of drug dispensations among the dementia than GOA cohort was relatively higher during the post-index than pre-index period, peaking at 1-yr pre-index.
- The adjusted mean number of drug dispensations was greatest at 1-yr pre-index and 1-yr post-index ($p < 0.05$).
- The adjusted mean number of drug dispensations among the dementia than GOA cohort was significantly higher in the post-index than pre-index period ($p < 0.01$; data not shown).

Long-term Care

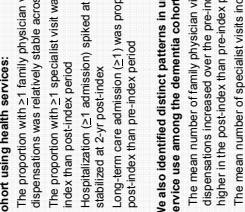


Fig. 13 The proportion of the dementia cohort with ≥ 1 long-term care admission among the dementia cohort was relatively higher during the post-index than pre-index period, peaking at 1-yr pre-index.

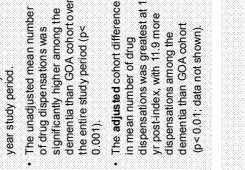


Fig. 14 The unadjusted mean number of long-term care admissions among the dementia cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).

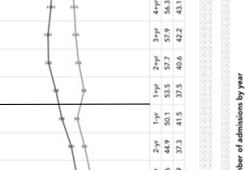


Fig. 15 The unadjusted mean number of long-term care admissions among the dementia than GOA cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).

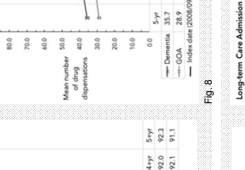


Fig. 16 The unadjusted mean number of long-term care admissions among the dementia cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).

Long-term Care Admission

- The proportion of the dementia cohort with ≥ 1 long-term care admission among the dementia cohort was relatively higher during the post-index than pre-index period, peaking at 1-yr pre-index.
- The proportion of the dementia cohort with ≥ 1 long-term care admission among the dementia than GOA cohort was significantly higher among the dementia than GOA cohort each year from the point of 2-yr pre-index forward ($p < 0.05$).

Mean number of admissions

- The unadjusted mean number of long-term care admissions among the dementia cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).
- The unadjusted mean number of long-term care admissions among the dementia than GOA cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).
- The unadjusted mean number of long-term care admissions among the dementia than GOA cohort was significantly higher among the dementia than GOA cohort, as well as 1-yr and 2-yr post-index ($p < 0.05$).
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Conclusions

We observed distinct patterns in the proportion of the dementia cohort using health services:

- The proportion with ≥ 1 family physician visits or ≥ 1 drug dispensations was relatively stable across the study period.
- The proportion with ≥ 1 specialist visit was higher during the pre-index than post-index period.
- Hospitalization (≥ 1 admission) was proportionally higher in the long-term care admission (≥ 1) was proportionally higher in the post-index than pre-index period.

We also identified distinct patterns in unadjusted average health service use among the dementia cohort:

- The mean number of family physician visits and drug dispensations increased over the pre-index period, and were higher in the post-index than pre-index period.
- The mean number of specialist visits increased over the pre-index period, stabilizing post-index to a level similar to pre-index.
- The mean number of hospital and long-term care admissions were relatively stable over the entire study period.

The greatest differences between the dementia and GOA cohorts in adjusted average service use were observed 1-yr post-index (all $p < 0.01$, data not shown). Compared to the GOA cohort, the dementia cohort experienced:

- 12.5 (95.1% more physician visits (includes all FPs and specialists)
- 0.33 (74.1% more drug dispensations)
- 11.9 (44% more hospital admissions)

By examining patterns in the use of discrete health care services by individuals with dementia in the time leading up to identification, and shortly after, and how these patterns deviate from the norm, services can be better calibrated to the unique needs of this group.

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A Baseline Study of the Dementia Care Landscape in Sun Country Health Region

A Report by the Rural Dementia Action Research Team

Julie Kostenuk, Debra Morgan, Megan O'Connell, Andrew Kirk, and Norma Stewart

Phase 1 of a 5-year RaDAR study involved a baseline assessment of gaps and strengths in dementia care best practices across Sun Country Health Region.

The baseline assessment sought the perspectives of regional decision-makers, patients/caregivers, and members of primary health care teams.

METHODS

Data collection took place February to September, 2015. Thirty-two (N = 32) one-on-one telephone interviews were conducted.

- Participants
- 19 (61% response rate)
 - 9 of 11 eligible Steering Group members and PHC Facilitators
 - 4 (62% response rate) were recruited by purposive sampling and clinic poster (response rate not available)

Three separate questionnaires were developed for the present study, informed by the current literature and a previous environmental scan of dementia-related services across Saskatchewan.

Ethics approval was received from the Behavioural Research Ethics Board of the University of Saskatchewan (BEH # 14-035; pilot study BEH # 14-474).



Rural PHC Dementia Model - Elements

Team-based Care	Decision support tools	Specialist-to-provider support
Multidisciplinary team	Standard tools, guidelines	Access to dementia specialists
Care management	Access to IT Resources	Education sessions
Education/support for pilot		

Note: Model is informed by Armstrong's 7 elements of effective and comprehensive dementia care in primary care (2017)

Primary health care (PHC) team members were asked whether elements of the Rural PHC Dementia Model (above) could be found in their PHC team with respect to patients with dementia (5-point response scale from 1 'agree' to 5 'disagree')

See graphs for results

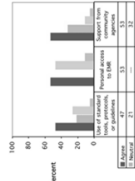
RESULTS

PHC Team Members

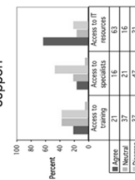
Team-based Care



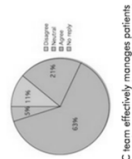
Decision Support Tools



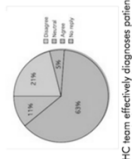
Specialist to Provider Support



The majority of PHC team members agreed that team-based care elements of the Rural PHC Dementia Model were present in their team (68-89%) and were less likely to agree that they had access to dementia specialists (27%) and specialist to provider support (6-21%)



My PHC team effectively manages patients following a diagnosis of dementia (N = 19)



My PHC team effectively diagnoses patients with dementia (N = 19)

Strengths

- Good team communication
- Changes in patients' behaviour are noticed quickly in small communities
- Team-based approach to patient care
- Small size of team allows for regular communication between team members
- Availability of local post-diagnosis resources
- Good family involvement

Challenges

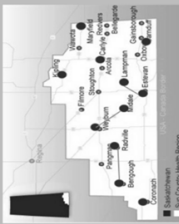
- Patient/family resistance to seeking help, assessment, further testing, and diagnosis
- Low access to specialists
- Long wait times for MR or CT scan
- Family members living at a distance
- Ineligibility for patients (e.g., losing driver's license)
- Inadequate local caregiver support
- Diagnostic uncertainty (e.g., difficulty of differential diagnosis)
- Lack of proper assessment/diagnosis tools

"I think we're great team players. We have a good working relationship between all entities. And we don't have a lot of things 'cause we have some challenges being rural."

"Other people in town will sometimes come in and say 'I don't know what's going on in my mind, not sure they know where they were the other day when they were out walking.'"

"Sometimes to get early recognition can be challenging because nobody wants to admit that's the person themselves or from a spouse or partner's situation..."

"I think that we as providers aren't always comfortable saying, 'okay, this is Alzheimer's' without the help of other people or criteria that helps us come to this diagnosis."



To access the full report
<http://bit.do/2016baseline>



Funding for this project was provided by the Saskatchewan Health Research Foundation (SHRF) and the Canadian Institutes of Health Research (CIHR) through the Canadian Institutes of Health Research with funding from several partners.



Minds in Motion®

Minds in Motion® is a community-based fitness and social activity program that incorporates physical activity and mental stimulation for people with early symptoms of Alzheimer's disease and other dementias to enjoy with a friend or family member. Pilot took place in Saskatoon from July 2015 – May 2016.

How the program works

- A two hour, weekly program that runs for eight consecutive weeks. The program combines:
 - 45-60 minutes of physical activity led by a certified physical activity program leader
 - 45-60 minutes of socially stimulating mental activities facilitated by an Alzheimer Society of Saskatchewan program staff and volunteers
- Light, healthy refreshments are provided
- Class sizes are limited in order to accommodate the needs of all participants

Benefits to the individual with dementia:

- Increased confidence and comfort with their diagnosis
- Inclusion in community
- Improved balance, mobility, flexibility and alertness

Benefits to the care partner/family/friend:

- Self-care: an opportunity to focus on their own health, rather than focusing exclusively on the needs of the person with dementia
- Pleasure from seeing the person that they care for enjoying themselves
- Mutual support and learning from other care partners

Benefits to both:

- Sharpened mental functioning, sometimes lasting two to three days
- Reduced sense of isolation
- Improved balance, mobility, flexibility, strength and endurance
- Supportive environments which encourage new friendships with others who are living a similar journey

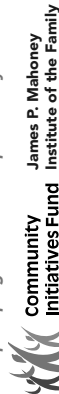
Benefits to volunteers, delivery staff and broader community:

- Increased capacity through exposure, training and learning from one another

Contributors to poster – Wendy Lucyshyn, Minds in Motion Coordinator, Alzheimer Society of Saskatchewan, Dr. Megan O'Connell, Dr. Vanina DalBello-Haas

Thanks to the Alzheimer Society of British Columbia and Alzheimer Society of Manitoba for their support.

This pilot program was made possible by



Research

Other goals of Minds in Motion include the research conducted by Megan O'Connell, Ph.D and Vanina Dal Bello-Haas, PT, PhD through the University of Saskatchewan. Perceived exertion was collected during each MIM Session's week 1, week 3, week 5, and week 8 and these data are presented in Table 1.

As can be seen, there is considerable between person variability, but, on average, the MIM participants reported engaging in a moderate (i.e., above 3 on the modified Borg scale of perceived exertion scale) intensity of perceived exertion (moderate intensity physical activity and exercise for 150 minutes a week is the recommended dose and frequency).

Data from Table 1 regarding BORG Perceived Exertion

Table 1	N	Minimum	Maximum	M	SD
BORG Week 1	24	1.00	7.00	4.46	1.65
BORG Week 3	26	3.00	8.00	5.02	1.52
BORG Week 5	18	1.00	7.00	4.98	1.55
BORG Week 8	25	2.00	8.00	5.08	1.26

Observational measures of engagement demonstrated high levels of engagement across all observed sessions (see Table 2). These data are notable for their consistency across weeks of the MIM sessions, with consistently high levels of engagement observed in most domains. The expression of pleasure, however, demonstrated more individual variability with most expressing pleasure during the activity.

Table 2. Descriptive statistics (frequency in percentage) of Menorah-Park Engagement Scale based on observations of each participant during exercise across both MIM sessions

Table 2	Week 1	Week 3	Week 5	Week 8
Did the targeted activity	100%	100%	100%	100%
Tried to leave the activity	0%	0%	0%	0%
Left the activity on own or with staff	0%	0%	0%	4% (n=1)
More than ½ activity complete	82%	100%	90%	100%
Listened watched more than ½ activity	100%	100%	100%	100%
Attended to tasks other than the activity	4%	4%	4%	0%
Stopt or stand into space	0%	0%	0%	0%
Expressed pleasure more than ½ activity	33%	39%	32%	42%
Expressed pleasure for up to ½ activity	46%	50%	47%	38%
Displayed moodiness – not at all	33%	11%	21%	21%
Helped others – not at all	100%	100%	100%	100%
Helped others – up to ¼ of activity	8%	88%	79%	71%
Helped others – more than ¼ activity	0%	4%	16%	25%
Acted inappropriately –not at all	100%	100%	100%	100%



"The empathy and understanding without patronizing by the organizer and the volunteers has been exceptional...we surely hope that this great program will continue!"

All participants were interviewed after they completed week 8 of their first MIM session and data were analyzed thematically. Research data responses via interview include:

Overwhelmingly positive all would enroll again, but most interviewees mentioned the exercise portion and the opportunity for socialization as reasons for their positive appraisal. The exercise was mentioned most often in response to the general query of what they liked most about the Minds in Motion program.

Many positive comments revolved around the theme of inclusiveness and the 'non-threatening' environment

"This is a program that I would love to see continued as it was a huge benefit to all who participated."

Second most often reported and a recurrent theme throughout other questions about the MIM program was the opportunity for socialization: "really like the individuals that are there too."

Many mentioned the MIM as meeting a social gap in their lives: "and social support from the program that he would not otherwise receive."

A notable minority mentioned the accommodating nature of the MIM program as a positive (due to participants with vast differences in abilities – both in physical ability and cognitive/functional ability).

Many positive comments revolved around the theme of inclusiveness and the 'non-threatening' environment, including explicit mention of being in a group with others who also have dementia and with other care partners of persons diagnosed with dementia.

Leslie Malloy-Weir¹, PhD, Debra Morgan¹, PhD, Julie Kosteniuk¹, PhD, Joanne Bracken², Jim McDavid³, PhD
¹University of Saskatchewan, Saskatoon, SK, ²Alzheimer Society of Saskatchewan, Regina, SK, ³University of Victoria, Victoria, BC

Background

First Link™ is an innovative program of the Alzheimer Society that seeks to connect persons with dementia and their caregivers to support services early in the disease process (McAiney, Hillier, Stolee, Harvey, & Michael, 2012). Persons with dementia and their caregivers can access this program via anyone of the following:

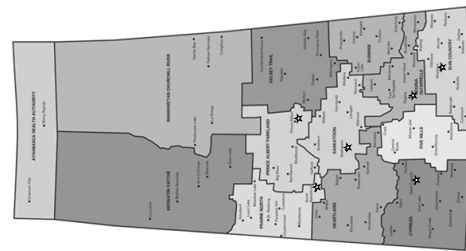
- **self-referral** – contact is initiated by the person with dementia and/or their caregiver
- **direct referral** – a health professional obtains the patient's or caregiver's permission to share their information with the Alzheimer Society
- **instructed referral** – a health professional makes a verbal recommendation to the patient or client to contact the Alzheimer Society on their own.

In 2011, a formal evaluation of the First Link™ program in the province of Saskatchewan found that **direct referrals** connected persons with dementia and their caregivers to support services 11 months, on average, sooner than **self-referrals** (McAiney et al., 2012). The number of **direct referrals** were also found to be lower than expected. This phenomenon has continued despite significant outreach efforts by the Alzheimer Society of Saskatchewan to promote the benefits of referrals to health professionals who diagnose and treat dementia.

Definition of Outreach

Outreach is defined as building partnerships with physicians, health professionals and community service providers to encourage them to proactively refer persons with dementia and their families to the local AS (Alzheimer Society). (Alzheimer Society of Saskatchewan, 2013, p. 16, original italics)

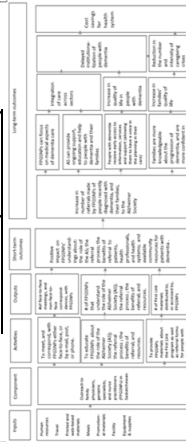
Figure 1: Saskatchewan Health Regions



Saskatchewan Health Regions (n.d.)

- Outreach is conducted by First Link™ Co-ordinators that are located in six of Saskatchewan's 13 health regions:
- Cypress
 - Prairie North
 - Regina Qu'Appelle
 - Saskatoon
 - Sun Country

Figure 2: Logic Model for Outreach to Family Physicians, Geriatric Specialists, and Nurse Practitioners (or FPGSNPs)



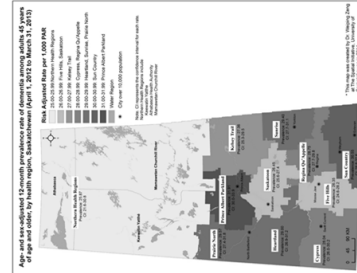
Objectives of Evaluation

1. To describe the development and implementation of outreach by the Alzheimer Society of Saskatchewan to health professionals who diagnose and treat dementia (i.e., family physicians, geriatric specialists, nurse practitioners).
2. To determine the extent to which outreach to health professionals that diagnose and treat dementia achieves its intended objective.
3. To determine why direct referrals to the Alzheimer Society have been low from health professionals who have received outreach from the Society.

Methods

Using a case study approach (Yin, 2009), we collected and triangulated data from multiple sources: semi-structured interviews with First Link™ Program Staff (n=8); First Link™-related documents (n=35); survey of family physicians, geriatric specialists, and nurse practitioners who received outreach from the Society between 2011 and 2015 (n=112); and the number of outreach activities provided by the Society to, and number of referrals made by, family physicians, geriatric specialists, and nurse practitioners between 2011 and 2015. Qualitative data underwent content analysis. Quantitative data were analyzed using descriptive and inferential statistics. Quantitative data were also analyzed using geographic information systems mapping and examined relative to existing epidemiological data (see Figure 3) and regional proportions of residents aged 65 years and older.

Figure 3: Prevalence of Dementia in Saskatchewan



Kosteniuk et al. (2015, p. 31)

Prevalent cases were identified in one of four administrative health databases (Hospital Discharge Abstracts, Physician Service Claims, Prescription Drug, and RAI-MDS, i.e., Long-Term Care).

Preliminary Results

Document review and interviews with First Link™ Program staff:

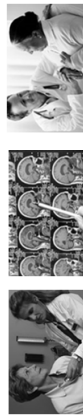
- Outreach to health professionals who diagnose and treat dementia primarily involves First Link™ Co-ordinators:
- making contact with office and nurse managers in primary care clinics through visits, phone calls, faxes, e-mails
- distributing referral forms and written information about the benefits of referral
- giving presentations to groups of health professionals
- connecting with health professionals at conferences and public events

Barriers that First Link™ Co-ordinators encounter when doing outreach to health professionals who diagnose and treat dementia include, but are not limited to:

- difficulty in getting face-to-face time with family physicians, geriatric specialists, and nurse practitioners
- the movement or migration of family physicians and nurse practitioners
- limited time and resources to do outreach
- difficulty in getting out to rural areas of the province

Facilitators of outreach to health professionals who diagnose and treat dementia include, but are not limited to:

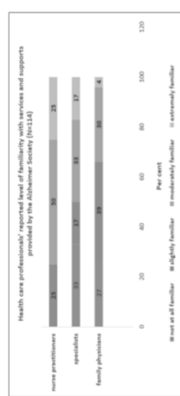
- use of statistics from various sources (e.g., previous First Link™ evaluation, Rising Tide)
- having good relationships with office managers



Survey of family physicians, geriatric specialists, nurse practitioners who received outreach:

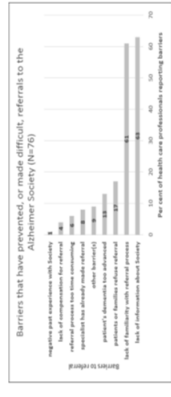
We achieved a completed survey response rate of 79%. The response rate was the highest from specialists (100%, n=12/12) and nurse practitioners (100%, n=8/8) and lowest from family physicians (72%, n=9/130). Four of the 118 survey respondents (3%) did not report their profession. Nurse practitioners reported a greater familiarity with the services and supports provided by the Alzheimer Society than specialists and physicians (see Figure 4).

Figure 4: Survey respondents (N=114) reported level of familiarity with the services and supports provided by the Alzheimer Society



Barriers to patient referrals: Thirty-two per cent of health care professionals surveyed had not encountered any barriers to referring patients to the Alzheimer Society. Among those reporting barriers, the most common reasons were lack of information, or knowledge, about the Alzheimer Society (65%, n=46/67) and lack of familiarity with the referral process (61%, n=47/76).

Preliminary Results



Suggestions on how to lessen or eliminate barriers to referrals: Sixty-one of the 118 survey respondents (52%) offered suggestions on how to lessen or eliminate barriers to patient referrals. Seven key themes emerged from these suggestions:

- increase public's awareness and knowledge of programs and services
- provide information about the referral process and resources to health care professionals
- make the referral process easier
- embed the referral form in the electronic medical record
- provide education about dementia and the Alzheimer Society to health care professionals
- improve accessibility and support to patients – especially in rural communities and small towns
- establish regular, brief contact with an Alzheimer Society representative

Findings from a focused discussion with physicians, correlational analyses, and Geographic Information Systems mapping will yield additional insights.

Conclusions

The preliminary findings suggest that the current outreach strategy could be improved to address the barriers:

- encountered by First Link™ Program staff when doing outreach to family physicians, geriatric specialists, and nurse practitioners
- identified by family physicians, geriatric specialists, and nurse practitioners

Implications of the Research

The findings will help the Society to improve its outreach strategy.



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Acknowledgements

This study received financial support from the Saskatchewan Health Research Foundation, through the Canadian Consortium on Neurodegeneration in Aging and the Centre for Alzheimer's at the University of Saskatchewan.



CCNA Team 20 Rural Developing rural dementia care best practices in primary health care teams: A community-based approach

Debra Morgan, Julie Kosteniuk, Dallas Seitz, Megan O'Connell, Andrew Kirk, Norma Stewart, Jayna Holroyd-Leduc

Background & Objective

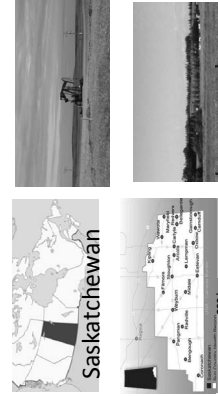
- CHALLENGES IN RURAL/REMOTE DEMENTIA CARE:**
- Fewer highly trained staff & dementia-specific services
 - Greater travel distance to specialists in urban centres
 - Lack of access to continuing education for health providers

STUDY OBJECTIVE: To develop/adapt, implement, and evaluate a Rural Primary Health Care Dementia Model based on 7 elements of comprehensive primary health care for dementia (Aminzadeh et al., 2012) & Canadian consensus guidelines (CCCDTD4)

Methods

- Community-based **participatory research** and **5-step adaptation model** (McKleroy 2006, Lee 2008, Jansen 2013, Cabassa 2014)
- **Process evaluation** of implementation barriers & facilitators (Consolidated Framework for Implementation Research, Damschroder 2009)

Sun Country Health Region - Saskatchewan



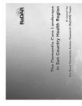

- 58% rural (≤10,000)
- 1.8 persons/km²
- 15% ≥ age 65 years
- 7 primary health care teams
- Starting with one team (Kipling) then scale up

KIPLING PRIMARY HEALTH CARE TEAM

- 5 hour drive from Saskatoon (410 km one way)
- 3 family physicians, 1 Nurse Practitioner, 1 Occupational Therapist, 2 Home Care nurses



Progress on primary health care best practice elements (Aminzadeh 2012)

Team-based Care	Decision support tools	Specialist-to-provider support
Multidisciplinary team <ul style="list-style-type: none"> • PHC Team #1 has 3 FPs, 1 NP, 1 OT, 2 HC Nurses 	Standard tools, guidelines <ul style="list-style-type: none"> • PC-DATA visit flow sheets adapted and added to regional EMR system • Work Standards for use of flow sheets developed and implemented by Team #1 	Access to dementia specialists <ul style="list-style-type: none"> • Referral – to Rural & Remote Memory Clinic • Consultation – RADAR specialists, PC-DATA developer • Team NP and Home care nurse visited Rural & Remote Memory Clinic
Care management <ul style="list-style-type: none"> • Coordination has been built into new Work Standards • Dementia Case Conferences implemented (between pt/cg and team) 	Access to IT Resources <ul style="list-style-type: none"> • PC-DATA and Work Standards available to nearly every PHC Team member (*regional HC workers granted EMR access for this study) 	Education sessions <ul style="list-style-type: none"> • PC-DATA info session (3 to date) • Differential diagnosis • Capacity and competency • Driving and dementia
Education/support for pt/cg <ul style="list-style-type: none"> • Alzheimer Society First Link included in case conferences, flow sheets 		

- **Regional Steering Group** established: 17 meetings to date
- **Regional Needs Assessment:** report released Sept 2016
- Implementing & adapting **decision support tools** (Primary Care – Dementia Assessment and Treatment Algorithm [PC-DATA] (Seitz, PI) and embedding **PC-DATA** visit flow sheets in EMR)
- Implementing **team-based collaborative care** strategies (eg, team case conferences)

Implementation enablers & barriers

Consolidated Framework for Implementation Research (Damschroder 2009)

- **INNER SETTING ENABLERS:** team desire to improve care (eg, earlier diagnosis), familiarity with other chronic disease decision tools, availability of multiple disciplines, culture of quality improvement, expertise of EMR technical support to create EMR version of flow sheets that can be scaled up region-wide.
 - **INNER SETTING BARRIERS:** limited time to meet, challenges in introducing new work processes and tools in busy practice, balancing need for evidence-based tools and quick user-friendly tools
 - **OUTER SETTING ENABLERS:** regional leadership support, telehealth system
 - **PROCESS ENABLERS:** strong engagement of champions on team and formal leaders, incremental implementation/adaptation of EMR decision support tools
 - **PROCESS BARRIERS:** long distance of researchers from team (820 km/round trip)
- Conclusions:** A participatory approach allows ongoing adaptation in collaboration with community partners. We have identified implementation enablers and barriers that will inform scaling up to other teams in Sun Country Health Region



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¹: Cell Signalling Laboratory, Department of Psychiatry, University of Saskatchewan;
²: Neurochemical Research Unit, Department of Psychiatry, University of Alberta.

Introduction

Background: Neurons communicate using chemical messengers such as serotonin. These chemical messengers, referred to as neurotransmitters, exert their effects in gaps (synapses) between the cells. Once serotonin has exerted its effect, it can be removed from the synapse by a protein called the serotonin transporter (SERT).

Literature: The gene for SERT has a promoter region that tells the cell how much of the transporter to make. There are two forms (alleles) of the promoter and people have two copies of the *SERT* gene; one from each parent. A process called genotyping can determine whether an individual has two copies of the short allele (homozygous for s/s), two copies of the long allele (homozygous for l/l) or have one copy each (heterozygous: l/s). The short allele is thought to increase the risk of cognitive decline and Alzheimer's Disease (AD). The long- or short- allele is thought to increase- or decrease- SERT protein expression. Having a copy of both alleles is thought to lead to intermediate levels of SERT expression.

Research Plan: We analyzed autopsied human brain tissue (from control donors as well as from AD patients) to determine whether a specific *SERT* genotype aligned with a diagnosis of AD.

Fig. 1: *SERT* alleles and the Serotonin Synapse

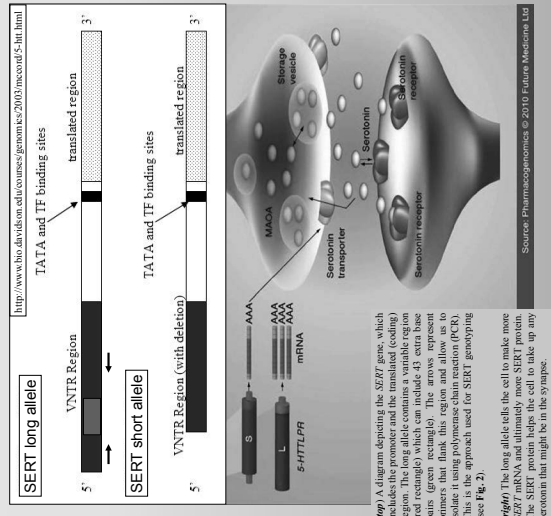
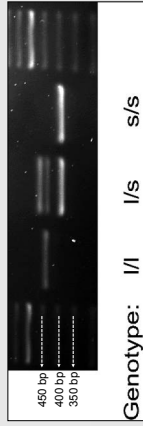
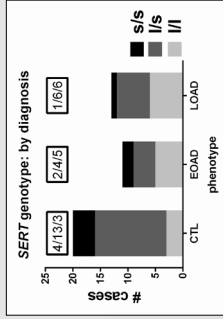


Fig. 2: *SERT* Genotyping of Human Autopsied Tissue

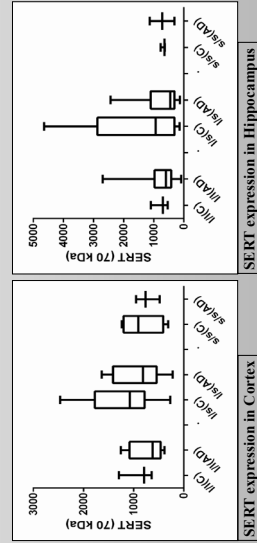


Genomic DNA was extracted from autopsied cerebellar samples. Standard PCR was used to amplify the region of the *SERT* promoter that contains the 40 bp sequence (highlighted in red in Fig. 1). The PCR reactions were then visualized under UV light to determine whether the sample contains only the long allele (l/l: 419 bp), the short allele (s/s: 375 bp) or both (l/s).



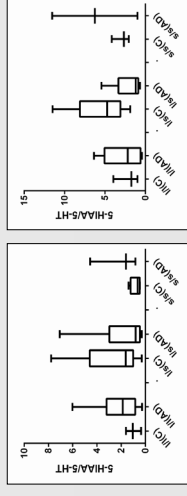
The distribution of the allelic variants (i.e. s/s, l/s and l/l) was as expected in the control (CTL) autopsied brain samples; however, we did not find a greater proportion of the s/s genotype in the Early-Onset AD (EOAD) or Late-Onset AD (LOAD) samples.

Fig. 3: SERT protein levels do not align with *SERT* genotyping



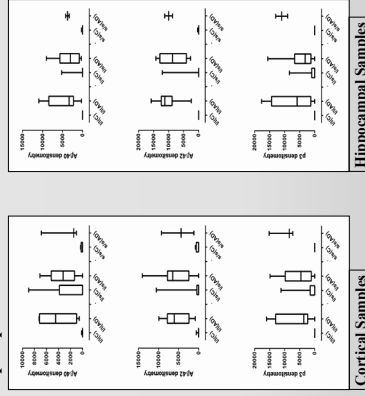
The expression of the SERT protein was determined by Western blotting of cell lysates and densitometric analysis. SERT protein expression did not differ between Control (C) or AD samples, regardless of genotype (i.e. l/l, l/s or s/s).

Fig. 4: *SERT* genotyping does not align with serotonin turnover



Cortical (left) and hippocampal (right) samples were analyzed by HPLC for levels of serotonin (5-HT) and its primary metabolite, 5-HIAA. The ratio of 5-HIAA to 5-HT is used as an index of 5-HT turnover (usage and inactivation). There was no correlation between 5-HT turnover and *SERT* genotyping in either region.

Fig. 5: *SERT* genotyping does not align with AD-related A β or p3 species.



The levels of the insoluble (plaque-associated) AD-related A β or p3 peptide fragments are higher in the AD samples regardless of *SERT* genotype. Unexpectedly, the levels of the peptides were far more varied in control individuals with a heterozygous *SERT* genotype, than in either of the homozygous control samples.

Conclusions:

- *SERT* genotyping does not correspond to either SERT protein expression or 5-HT turnover.
- Differences in the levels of AD-related A β and p3 fragments between homozygous (l/l or s/s) and heterozygous (i.e. l/s) individuals could be indicating an unanticipated function for the SERT protein in A β peptide transport or plaque formation.

Acknowledgments: DDM is the Saskatchewan Research Chair in Alzheimer's disease and related dementia that is co-funded by the Alzheimer Society of Saskatchewan and the Saskatchewan Health Research Foundation.

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INTRODUCTION

Tele-rehabilitation is a developing field with the promise of increasing the accessibility of specialized interventions such as cognitive rehabilitation. The proposed research will build on previous research examining cognitive rehabilitation delivered in-person to individuals with dementia, remotely delivered interventions for individuals with dementia, as well as remotely delivered cognitive rehabilitation delivered to individuals with TBIs. To date, remotely delivered cognitive rehabilitation for persons with dementia has not been systematically studied.

Study 1

Purpose

- To explore interest in videoconferencing delivered cognitive rehabilitation
 - To explore the types of goals that are set by individuals with cognitive impairments
 - To compare the clinical characteristics of individuals who responded to a questionnaire asking about cognitive rehabilitation to those who did not
- ### Method
- Participants recruited from University of Saskatchewan's Rural and Remote Memory Clinic (RRMC)
 - 61 clinic patients with diagnoses of aMCI or dementia due to AD and family caregivers invited to participate
 - Questionnaires completed by 10 patients and 15 family caregivers
 - Everyday Memory Questionnaire (EMQ)

Results

- The responders (N= 25) were similar to non-responders in severity, depression, and caregiver burden
- Of the responders, 80% were interested in videoconferencing developed treatment
- A thematic analysis coded 95% of responses as amenable to cognitive rehabilitation. Participants' goals were focused on memory, household activities, other cognitive domains, recreation, and higher order tasks



Study 2

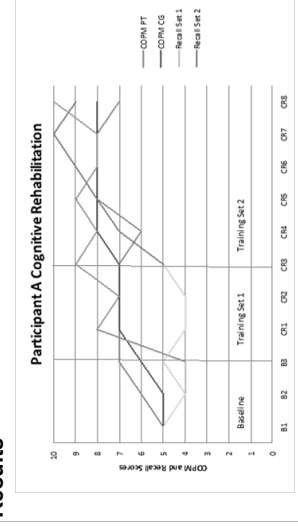
Purpose

- Case study

Method

- 'Alice' and 'Andrew' reported a diagnosis of dementia due to AD.
- Scores < 1st percentile on tests of memory.
- Goal to increase Alice's knowledge and recollection of major milestones, accomplishments and relationships in her life.
- Alice and Andrew compiled an album with photographs and mementos that represented her highlights.
- Family photos
- Childhood awards
- Diplomas
- Retirement party photos
- Vacation photos
- Ten were chosen, and trained with spaced-retrieval and cuing.

Results



Study 3

Purpose

- To extend previous research that has examined the relationship between IADL, demographic/ clinical variables, and cognitive variables including executive function

Method

- 403 consecutive referrals RRMC
- No cognitive impairment ($n = 75$), MCI ($n = 75$), dementia due to Alzheimer's disease ($n = 139$), or non-AD dementia ($n = 114$)

Results

- Oral fluency: In step 1, age, education and MMSE - $R^2 = 0.26$, $F(3, 247) = 28.62$, $p < 0.001$. In step 2, delayed memory, controlled oral fluency (FAS), depression and apathy - $R^2 = 0.41$, $F(7, 237) = 23.38$, $p < 0.001$ (an additional 14.6% of variance accounted for in FAQ)
- Trail Making Test (TMT-B): The addition of TMT-B, delayed memory, depression and apathy lead to a significant increment in R^2 , and an additional 16.6% of variance accounted for in FAQ
- Stroop: The addition of Stroop, delayed memory, depression and apathy lead to a significant increase in R^2 , and an additional 20.1% of the variance in FAQ was accounted for

KEY MESSAGE

Cognitive rehabilitation focused on memory is of most interest to persons and caregivers, and most rural families were interested in videoconferencing. Videoconferenced rehabilitation was similar to in-person rehabilitation. Despite a focus on memory for rehabilitation, executive function appears to have most relation with daily function.

Joe Enright¹ & Megan E. O'Connell¹
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INTRODUCTION

Informal caregivers' perception of identity change/loss in their care-partner with dementia is anecdotally linked to loss of intimacy, while decreased intimacy and quality of the caregiver/partner relationship is associated with greater caregiver burden (Blieszner & Shifflett, 1990; Morris et al., 1988). A connection between perceived identity and burden is further implied by the potential benefit of reminiscence therapy for caregivers, and literature on reminiscence (Alea & Bluck, 2007). Despite demonstrated benefit for persons with dementia, support for reminiscence with caregivers has been equivocal, though it is unclear as to why.

Study 1

Purpose

- To empirically examine the relationship between informal caregivers' perception of identity change in their care-partner with dementia, their relationship, and the perception of burden in providing care
- To establish support for the proposed model of identity and caregiver burden
- To determine the degree to which the caregiver currently perceives the person with dementia's identity as changed relative to their premorbid self

Method

- Cross-sectional correlational design
- Recruited 58 participants from the University of Saskatchewan's Rural and Remote Memory Clinic (RRMC)
- Questionnaires:
 - Zarit Burden Interview (ZBI)
 - Change in identity rating scale
 - Burns Relationship Satisfaction Scale (BRSS)
 - Clinical Dementia Rating – Sum of Boxed (CDR-SOB)

Results

- Caregivers' perceived identity change in their care-partner with dementia significantly predicted caregiver burden using SEM

References:

- Alea, N. & Bluck, S. (2007). I'll keep you in mind: the intimacy function of autobiographical memory. *Applied Cognitive Psychology*, 27, 8, 1091-1111.
- Blieszner, R. & Shifflett, P.A. (1990). The effects of Alzheimer's disease on close relationships between patients and caregivers. *Family Relations*, 39, 57-62.
- Morris, L. W., Morris, R. G., & Britton, P. G. (1988). The relationship between marital intimacy, perceived strain and depression in spouse care givers of dementia sufferers. *British Journal of Medical Psychology*, 61, 231-236.

Study 2

Purpose

- To establish whether equivalency in delivery mode across groups, specifically in-person versus Telehealth delivery via videoconferencing, existed for both the single session reminiscence activity and control conditions, respectively.
- To evaluate efficacy of the reminiscence activity versus the control
- To gain insight into participant caregivers' natural reminiscing behaviors and experience, and also their experience of participating in the facilitated reminiscence activity

Method

- 40 informal caregivers recruited from RRMC
- Randomly assigned caregivers to respective in-person or Telehealth, control, or Reminiscence groups (2x2 design)
- 6 DVs measure for 4 groups:
 - Perceived identity change measures (SIDQ and identity change rating scale)
 - Scores on intimacy measures of closeness and warmth (PAIR and SMD scales)
 - Current relationship quality measure (BRSS scores)
 - Caregiver burden (ZBI score)

Results

- No effect of the Reminiscence activity on identity change, intimacy, quality of relationship, or burden was observed
- Qualitatively, most caregivers reporting a positive experience, but clear subgroups were evident where reminiscence was bittersweet for some

Study 3

Purpose

- To examine the feasibility and acceptability of specific Telehealth programming
- To evaluate feasibility from the service provider or researcher side

Method

- Participants from Study 2 who participated in the reminiscence activity ($n = 20$)
- Questionnaire
 - Open ended and rating scaled questions regarding their experience and satisfaction with the intervention process and mode of delivery
- 15 caregivers who participated in the research project over Telehealth videoconferencing completed the Telehealth Satisfaction Scale during a follow-up telephone interview

Results

- Good feasibility for Telehealth delivery, including considerable travel savings and satisfaction with the medium

KEY MESSAGE

Identifying and understanding factors affecting caregiver burden is crucial towards development of effective intervention. Perceived identity change appears to be one possible factor in multifactorial prediction of caregiver burden, but reminiscence demonstrated no effect on burden. Telehealth proved to be a practical and acceptable format for rural service delivery and data collection.



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



Worries about Maintaining Independence of Rural/Remote Older Adults: Opportunities for Technology Development

O'Connell, M. E.^{1*}, Gould, B.1, Scerbe, A.1, Morgan, D.1, Carter, J.1, Bourassa, C.2,3, Jacklin, K.4, Warry, W.5

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Presented at the 45th Annual Scientific & Educational Meeting of the Canadian Association on Gerontology

RRITE: Rural/Remote Indigenous Technology Needs Exploration

OBJECTIVES

One goal of AGE-WELL's RRITE: Rural/Remote Indigenous Technology Needs Exploration is to assist in the development of AGE-WELL technologies that are relevant to the rural/remote user, information critical to help overcome barriers to the adoption of technologies (Melenhorst, Rogers & Bouwhuis, 2006; Conci, Pianesi & Zancanaro, 2009).

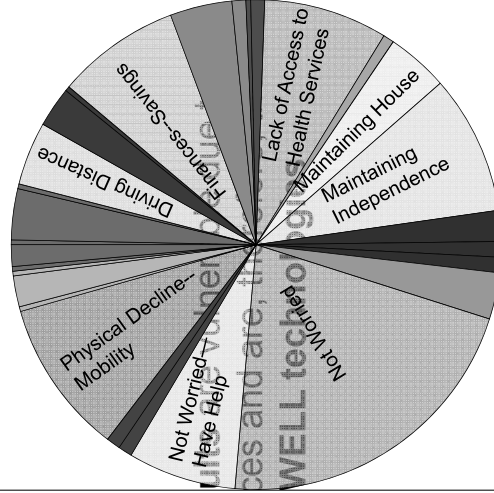
The current study explored the user needs of rural/remote dwelling older adults through brief interview.

METHOD

- Participants were recruited from randomly selected telephone numbers (land lines and cell phones) listed for persons residing outside metropolitan areas of SK, and were predominantly rural/remote (most from smaller centers).
- 621 rural/remote seniors were recruited (M age = 71.5; SD = 8.4; range 60-102 years old).
- 463 responded to an open-ended question regarding their 'worries' about maintaining independence as they advanced in age, and themes were analyzed.

RESULTS

- 31% denied any worries associated with aging.
- 23% reported worries relating to aging in the context of geographic isolation and lack of accessible services.
- 18% reported general anxiety about independence, taking care of their home, and moving into assisted or residential living.
- Remaining categories include:
 - Physical declines in advanced aging (11%)
 - Finances (8%)
 - Neurological or mental health conditions (5%)
 - Physical mobility restrictions (3%)
 - 'Other' (2%)



CITATIONS

Conci, M., Pianesi, F. & Zancanaro, M. (2009.) Useful, social and enjoyable: Mobile phone adoption by older people. *Human-Computer Interaction – INTERACT 2009. Lecture Notes in Computer Science*, 5726, 63-76.

Melenhorst, A. S., Rogers, W.A., & Bouwhuis, D.G. (2006). Older adults' motivated choice for technological innovation: Evidence for benefit-driven selectivity. *Psychology and Aging*, 21(1), 190-195.

Funding provided by:



These data suggest developing technology that mitigates geographic isolation and increases accessibility of services will be critical for rural/remote seniors

Unmet Needs of Rural/Remote Older Adults: Opportunities for Technology Development

O'Connell, M. E.¹, Gould, B.¹, Scerbe, A.¹, Morgan, D.¹, Carter, J.¹, Bourassa, C.^{2,3}, Owl, N.², Jacklin, K.⁴, Warry, W.⁵
[AGE-WELL HQP](#)



WP1.1 : RRITE

OBJECTIVES

Understanding user needs is fundamental to the development of useful technology.

The user needs of two unique populations are explored in AGE-WELL's RRITE: Rural/Remote Indigenous Technology needs Exploration.

These older adults are vulnerable due to restricted access to local supports and services (Steel & Lo, 2013; Maar, Seymour, Sanderson & Boesch, 2010).

For the current study, general unmet needs reported by rural/remote dwelling older adults were explored by brief interview.

METHOD

Participants were recruited from randomly selected telephone numbers (land lines and cell phones) listed for persons residing outside metropolitan areas of Saskatchewan, and was predominantly rural/remote (although 10 in the sample were from a small city of 10,500, most were from smaller centers, largest, 5,500). 621 rural/remote seniors were recruited (M age = 71.5; SD = 8.4; range 60-102 years)

Of this sample, 502 seniors responded to an open-ended question regarding a time when they needed assistance, and data were thematically analyzed (with NVIVO for support).

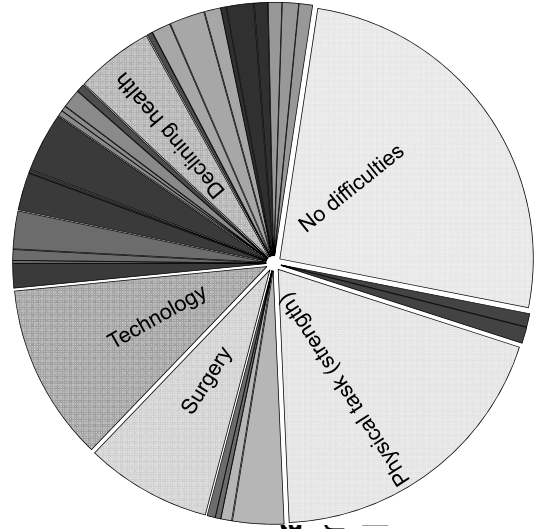
RESULTS

Most (307) described needed physical assistance due to strength limitations or various medical conditions

66 described needing help using technology (such as turning on a computer, or burning a CD)

fewer mentioned other difficulties, e.g.,

- 12 mentioned limitations due to inability to drive,
- 7 mentioned limitations related to mental health conditions



CONCLUSION

These data suggest technology developed to augment physical tasks will be critical for rural/remote seniors, but also highlights the need for intuitive and useable technologies.

CITATIONS

Maar, M. A., Seymour, A., Sanderson, B., & Boesch, L. (2010). Reaching agreement for an Aboriginal e-health research agenda: The Aboriginal Telehealth knowledge circle consensus method. *Rural and Remote Health*, 10, 1299-1312.

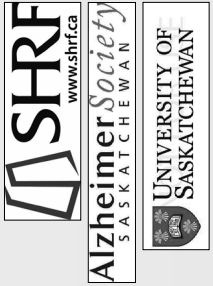
Steele, R. & Lo, A. (2013). Telehealth and ubiquitous computing for bandwidth-constrained rural and remote areas. *Personal and Ubiquitous Computing*, 17(3), 533-43.




RRITE's work will inform development and adaptation of technology to increase accessibility for older Canadians who are of Indigenous ancestry and/or who reside in rural or remote locations.

Are all β -amyloid peptides bad? *A preliminary investigation*

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Jason Maley², Glen B. Baker³; Darrell D. Mousseau¹
1: Cell Signalling Laboratory, Department of Psychiatry, University of Saskatchewan; 2: Saskatchewan Structural Sciences Center,
University of Saskatchewan; 3: Neurochemical Research Unit, Department of Psychiatry, University of Alberta



Introduction/Objective: Studies of Alzheimer disease (AD) brain isolates have revealed that the physiological A β (1-40) fragment and the more hydrophobic -and AD-relevant- A β (1-42) species accounts for most of the detectable A β . There is extensive C-terminal and N-terminal heterogeneity of extractable A β peptides, although their roles in AD-related pathology remain unclear, likely because of screens for population trends rather than for individual patterns. We chose to examine how the pattern of A β species compared in soluble and insoluble fractions from the same source.

Design and Methods: Hippocampal samples obtained from control and AD donors as well as from the 'J20' mouse strain that harbors a human double-substituted Swedish/Indiana APP transgene were used to determine A β fragmentation patterns in soluble and insoluble fractions. This was done using sequential immunoprecipitation strategies and visualized using Western blotting techniques. We used a cell-free Thioflavin-T (ThT) fluorescence assay, circular dichroism, and surface plasmon resonance to determine the influence of the A β (1-38) peptides on the fibrillar behaviour of longer, AD-relevant A β species.

Results: In the J20 mice, we observed that higher levels of a smaller A β species, which aligns with synthetic A β (1-38) in the soluble fraction invariably aligned with little or no A β (1-40/42) in the corresponding insoluble fraction. In the autopsied samples, a similar pattern was revealed; i.e. in AD samples with less A β (1-42) in the insoluble fraction, there was more of the smaller, soluble A β species (367 377 387). This pattern was more evident in the cortical samples of female AD donors.

Synthetic A β (1-38), A β (1-42) and A β (1-43) peptides underwent a conversion to β -sheet structure, as expected, but the rate of β -sheet conversion/ThT binding of the 42- and 43-mers was significantly reduced when these were co-incubated for longer incubation times with 100x lower molar concentrations of A β (1-38). Cell mortality associated with the longer, neurotoxic fragments was reversed by A β (1-38).

Conclusions: Our data suggest that A β (1-38) might be a natural inhibitor of A β (1-40+) fibrillogenesis and could have significant relevance to regulating the onset of neurotoxicity associated with these longer, more hydrophobic A β species in mouse models of AD as well as in the clinical context.

Fig. 1: Cleavage of APP by secretases yields A β fragments of varying lengths.

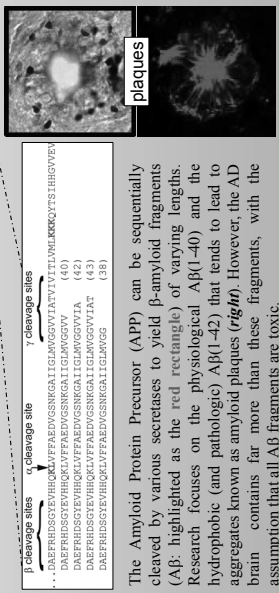
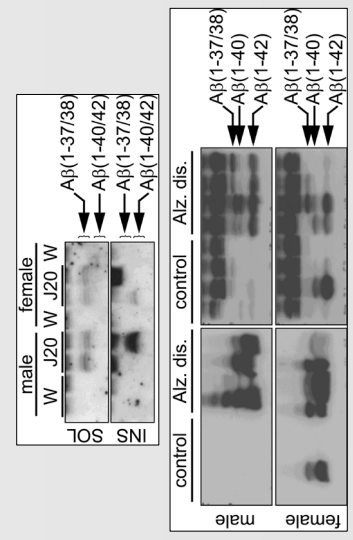
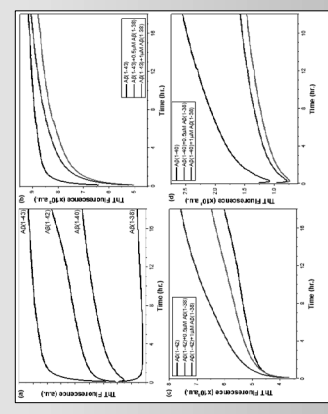


Fig. 2: The detection of the A β (1-38) in the soluble fraction aligns with less 40/42-mers in the insoluble fraction.



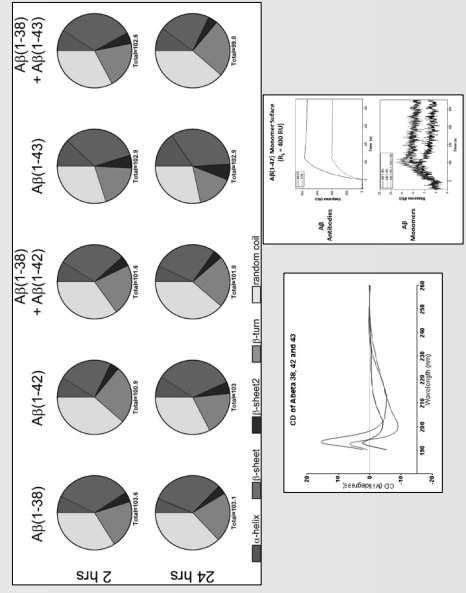
Soluble (RIPA) and insoluble (guanidium) fractions of mouse cortical (top panel) and human hippocampal (bottom panel) samples were immunoprecipitated for 6E10 (anti-A β (1-17) antibody) and resolved on 8M Urea gels. The resolved A β fragments were compared to synthetic peptides (not shown).

Fig. 3: A β (1-38) alters the ThT binding of the 42-/43-mer.



Acknowledgments: DDM is the Saskatchewan Research Chair in Alzheimer disease and related dementia that is jointly funded by the Alzheimer Society of Saskatchewan and the Saskatchewan Health Research Foundation.

Fig. 4: Secondary structures of A β (1-42) and A β (1-43) are altered by long-term co-incubation with A β (1-38).



(top panel) Circular dichroism (CD) was used to estimate protein secondary structure, i.e. α -helix, β -sheet, β -turn and random coil in preparations of A β (1-38), A β (1-42) and A β (1-43), either alone or in combination. (bottom, left panel) a representative spectrum of the individual A β fragments. (bottom, right panel) Surface plasmon resonance (SPR) demonstrates that, at two hours of co-incubation, A β (1-38) does not significantly alter the binding of A β (1-42) to itself. This reflects the lack of effect of A β (1-38) on the CD profile of A β (1-42) at the same time-point. We are currently examining longer incubation time-points.

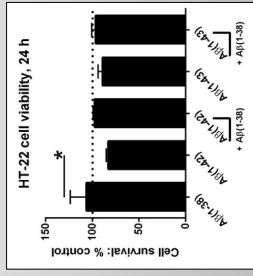


Fig. 5: A β (1-38) reverses the toxicity of the 42-/43-mers. Mouse hippocampal HT-22 cells were treated (24 h) with 5 μ M of peptides individually or in combination, as indicated, and then monitored for viability. *: $p < 0.05$ vs A β (1-38).

General considerations:

- ThT and CD and SPR suggests that in the short-term, A β peptides act similarly, but when co-incubated for longer periods of time, the A β (1-38) peptide tends to mitigate the effects of the longer, more hydrophobic and neurotoxic A β peptides.
- Could this explain the inverse relation between A β (1-38) in soluble fractions and A β (1-40) or A β (1-42) in insoluble fractions of APP-mouse, and human AD samples?

Introduction

There is a growing need of services for the aging population. Saskatchewan Health is currently addressing the trend of frail elderly frequently visiting Emergency Departments (ED), and increased hospital admissions and stays. There are currently no specific comprehensive geriatric services in the Prince Albert area that address this need in the community before they become an acute ED visit.

Program Goals

- Identify the population of elderly in need of comprehensive/preventative service
- Optimize existing resources in the community to address needs
- Focus on Geriatric Giants in guiding health management
- Maximize patient function and independence as long as possible
- Provide support/education to caregivers
- Reduce risk of hospitalization

Geriatric Assessment Service

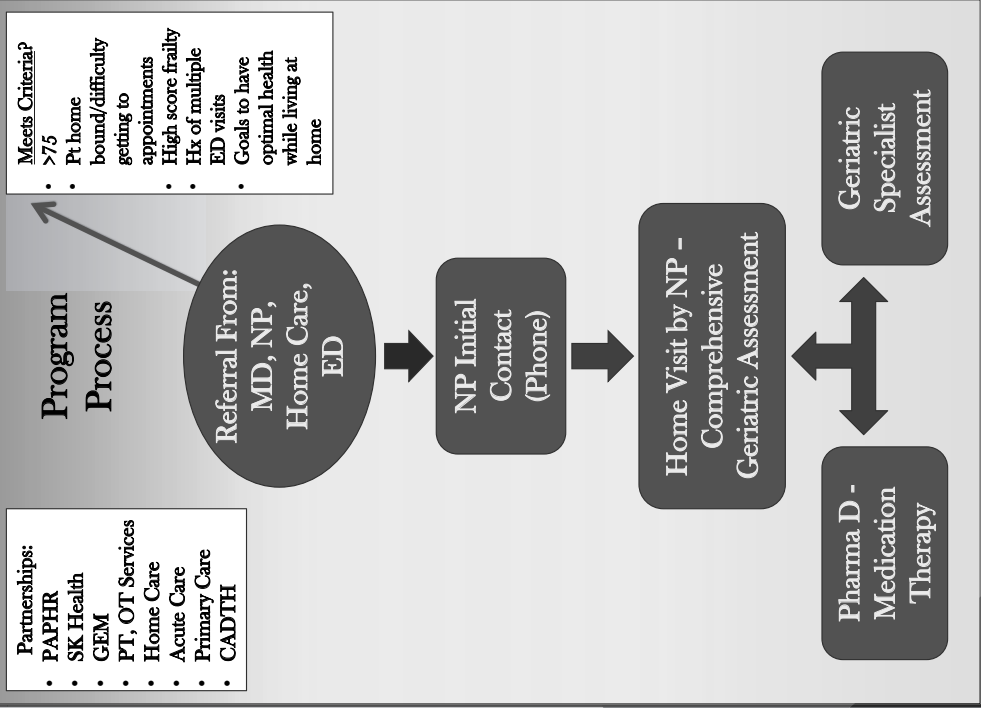
(Proposal)

Wendy Quinn RN (NP), MS., NP-C

Yogendree Hammond PharmD; MBA; BPharm; CDE

Dr. Earle DeCoteau MD FRCP (c); Emeritus

Professor, U of S College of Medicine



Comprehensive Geriatric Assessment

- Focus on Geriatric Giants
- Comprehensive Medication reviews
- Functional, cognitive and physical assessments
- Inventory of support networks and social involvement

Assessment Tools:

- MMSE
- FAB
- Fall Risk Assessment
- Fulmer SPICES
- KATZ - ADL's
- Lawton - IADL's
- FAQ
- Clinical Frailty Scale
- Adapted FAST (Functional Assessment Staging Tool)
- Behaviour AD
- Caregiver Burden Scale



Dr. Yogendree Hammond



Dr. Earle DeCoteau,
Wendy Quinn RN(NP)

DRIVING WITH DEMENTIA

A COLLABORATIVE INTERNATIONAL KNOWLEDGE SYNTHESIS TO UPDATE CLINICAL GUIDELINES FOR PHYSICIANS

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INTRODUCTION

In Canada, the Province of Ontario has projected that over 100,000 drivers with dementia will be on the road by 2028¹. Drivers associated with dementia pose strong risks to themselves and others, including memory impairment, poor sequencing skills, reduced light touch, slowed processing time, visuospatial deficits, etc.² In spite of this, clinicians may be wary of advising driving cessation because of psychosocial consequences (e.g. autonomy, depression, social isolation, loss of self-esteem, impact on patient/clinician relationship, etc.), leading to under-reporting to transportation authorities.

PURPOSE

Our goal is to synthesize the literature on driving impairment risks posed by dementia.

METHODS

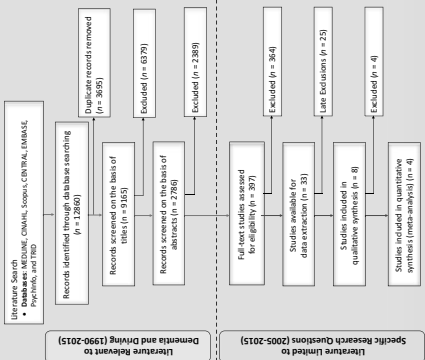
International Team: Experts from Canada, Australia, Belgium, Ireland, the United Kingdom and the United States

1. What is the risk of dementia?

2. What is the risk of clinically relevant driving impairment, as measured by on-road testing, in persons with dementia?

- Selection Criteria:
 - Dates: 2005-2015
 - Language: English
 - Types: Peer-reviewed
 - Areas: No restriction
- Diagnosis: Dementia of any severity and any type (Alzheimer's Disease, common non-AD neurodegenerative dementias, including Frontotemporal dementia, Vascular dementia, Lewy body disease, etc.)
- Outcomes: Any related to number of motor vehicle accidents and any formal on-road or naturalistic driving assessment
- Studies included: Performed in three stages of systematic searching by two reviewers (title abstract and full-text screens) followed by data extraction and assessment for risk of bias

PRISMA Flow Chart for Primary Literature



Study Characteristics

Author (Year)	Class of Evidence	Driving Protocol	Driving Evaluations
Dow et al (2015)	Class 1b	Road Test (RT) and Naturalistic Assessment	Road Test (RT) (N=10)
O'Neill et al (2016)	Class 1b	Road Test (RT) and Naturalistic Assessment	Road Test (RT) (N=10)
Alam et al (2015)	Class 1b	Naturalistic Assessment	Naturalistic Assessment (N=10)
Barco et al (2015)	Class 1b	Road Test (RT) and Naturalistic Assessment	Road Test (RT) (N=10)
Barnes et al (2015)	Class 1b	Naturalistic Assessment	Naturalistic Assessment (N=10)
Ely et al (2012)	Class 1b	Naturalistic Assessment	Naturalistic Assessment (N=10)
Whitham et al (2005)	Class 1b	Road Test (RT) and Naturalistic Assessment	Road Test (RT) (N=10)

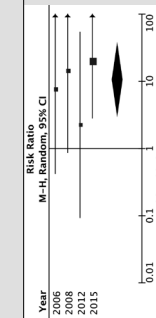
Road Test Failure

Study or Subgroup	Events	Total	Weight	M-H, Random, 95% CI	Risk Ratio
Lincoln 2006 (1)	4	27	0	19.6%	1.38 [0.42, 4.51]
Davis 2012 (3)	11	86	0	12.6%	2.25 [0.99, 5.39]
Barco 2015 (4)	37	60	1	43.4%	19.73 [2.84, 137.23]
Total (95% CI)	55	240	1	100.0%	10.77 [3.00, 38.62]

Heterogeneity: Tau² = 0.00; Chi² = 1.50, df = 3 (P = 0.48); I² = 0%
 Test for overall effect: Z = 3.65 (P = 0.0003)

Crash Risk Outcomes

Author (Year)	Crash Risk Variable	Subgroup	Events	Total	Weight	M-H, Random, 95% CI	Risk Ratio
Dow et al (2015)	Average miles per 1000 miles driven (over 1000 miles)	1.5 Near Following	13	86	0	12.6%	1.38 [0.42, 4.51]
Barco et al (2015)	Crash Risk Variable	1.5 Near Following	13	86	0	12.6%	1.38 [0.42, 4.51]
Ely et al (2012)	Crash Risk Variable	1.5 Near Following	13	86	0	12.6%	1.38 [0.42, 4.51]
Whitham et al (2005)	Crash Risk Variable	1.5 Near Following	13	86	0	12.6%	1.38 [0.42, 4.51]



Favours Healthy Elderly Favours Dementia

Driving Errors

Author (Year)	Outcome	Events	Total	Weight	M-H, Random, 95% CI	Risk Ratio
Alam et al (2015)	Total Baseline Safety Errors (e.g. Lane Deviation, Speed Control, etc.)	203	171	2.21	2.11 [1.64, 2.71]	
Barco et al (2015)	Errors when Driving Straight	116	151	2.96	2.96 [2.49, 3.53]	
Ely et al (2012)	Errors when Driving Straight	116	151	2.96	2.96 [2.49, 3.53]	
Whitham et al (2005)	Errors when Driving Straight	116	151	2.96	2.96 [2.49, 3.53]	

DISCUSSION & CONCLUSIONS

- We included eight studies between 2005-2015 in this systematic review.³⁰
- Drivers with dementia have a ten-time increased risk of failing a road test compared to healthy controls (RR of 10.77, 95% CI 3.00-38.62)
- There were two studies that reported on crash risk outcomes, one of which found crash risk to be retrospectively increased and prospectively decreased in drivers with dementia. The other study reported that reported on on-road driving errors and in five of these drivers with dementia performed significantly worse than healthy controls. The effect sizes (Cohen's d) ranged from 0.18 to 1.60. Commonly observed errors were found in lane observation, speed control, and turns. The sixth study showed no group differences.
- We also found two previous systematic reviews in this area (between 1990 to 2005), which found that drivers with dementia had an increased crash risk, an increased risk of failing a road test compared to healthy controls, and reported data produced higher crash risk values than those based on state driving records.¹³⁻¹²
- Next steps include updating the recommendations in the Canadian Medical Association's Driver's Guide and informing the revision of other international guidelines

ACKNOWLEDGEMENTS & REFERENCES

ACKNOWLEDGEMENTS
 The authors would like to acknowledge the support of the Canadian Institutes of Health Research (CIHR Knowledge Synthesis Grant #339665, June 2015-May 2016).

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A DRIVING IN DEMENTIA DECISION TOOL: PRELIMINARY ANALYSIS

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INTRODUCTION

- Estimates of 1.1 million older adults with dementia in Canada by 2038
- Crash rates in dementia are increased 2.9 times relative to age-matched controls, but between 22% and 64% of patients with dementia continue to drive
- Physician compliance with mandatory reporting legislation is low
- Our recent Driving and Dementia in Ontario (DADIO) study used a modified Delphi process to obtain reporting criteria on which physicians with mild dementia or mild cognitive impairment (MCI) should be required to report
- Dementia experts reviewed 26 hypothetical case scenarios over 5 iterations and came to consensus (defined as >85% agreement) on 69% of the cases
- The results of the DADIO study were adapted into an algorithm to help physicians decide which patients with MCI or mild dementia should be reported

PROJECT GOAL

The goal of the present study is to use a multi-faceted knowledge translation intervention to aid physicians in deciding when to report older drivers with mild dementia or MCI to transportation authorities.

METHODS - PART I

Development of the Decision Tool

- A variety of approaches were used to develop the Driving in Dementia Decision Tool:
 - a systematic literature and guideline review
 - Delphi expert opinion from the DADIO study
 - Interviews and focus groups with physicians, family caregivers of persons with dementia and transportation administrators
- A computerized decision support tool was developed
 - The tool produces a recommendation for reporting patients with mild dementia or MCI to transportation authorities.
 - Recommendations are:
 - "Report"
 - "Do Not Report"
 - "No Consensus"
- The tool includes an educational resource package for the person with dementia or MCI and his/her caregiver, as well as customized reporting forms for the physician to use



METHODS - PART II

Cluster Randomized Controlled Trial of the Decision Tool

- Participants were stratified by gender and randomized
 - Intervention group:
 - DADIO
 - General Practice Physicians, Geriatric Psychiatrists, Geriatricians, Geriatric Psychologists, Geriatricians, Geriatricians
 - Control:
 - General Practice Physicians, Geriatric Psychiatrists, Geriatricians, Geriatric Psychologists, Geriatricians, Geriatricians
- A parallel-group randomized controlled trial was conducted to assess the impact of the online decision tool
 - In the experimental section of the tool, participants received an algorithm-based recommendation on whether or not to report their patient to licensing authorities, an educational package for families and specialized reporting forms
 - In the control version of the tool, participants received only a generic reminder about reporting legislation

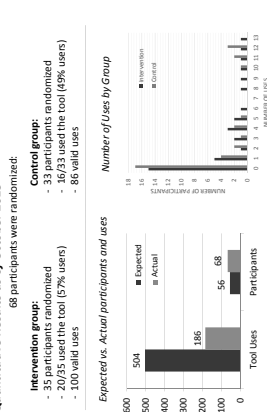
Homepage for the Driving in Dementia Decision Tool



- Quantitative analysis examined participants' reporting decisions relative to "per-protocol" decision (as determined by the DADIO study algorithm), as well as whether or not they recommended a specialized on-road driving test for their patient
- Qualitative analysis of post-RCT interviews examined participants' experiences using the decision tool, the impact of the tool on workflow and the doctor-patient relationship
- Sample size calculation was based on an expected base reporting rate of 13% in family physicians, and an estimated 10% difference between control and intervention groups (i.e. the tool would increase per-protocol reports from 13% to 23%)

PRELIMINARY RESULTS

Quantitative Results as of October 2015



- The proportion of patients reported to licensing authorities per-protocol did not differ significantly between the intervention and control groups (9% vs. 6%, $Z = -1.02$, $p = 0.31$)
- The actual base reporting rate was much higher than anticipated (43% instead of 13%) and the difference between groups was smaller than expected (6% instead of 10%)
- In multivariate analysis, caregiver concern (OR 6.2, 95% CI 2.7-14.3, $p < 0.0001$) and clock drawing (OR 30.6, 95% CI 2.9-321.5, $p < 0.0001$) predicted per-protocol reporting
- Female physicians were more likely than males to recommend a formal road test for their patients with mild dementia or MCI (OR 3.4, 95% CI 1.1-10.1, $p = 0.03$), but no gender differences were found in reporting

Qualitative Results

- Some frustration with the "No Consensus" recommendations for intervention group users
- Most participants said the tool was easy to use
- Some participants found the tool difficult to integrate into their day-to-day workflow
- Some participants felt the tool would be more valuable for family physicians than for specialists
- Participants found variable ways of using the tool, e.g. some used it only in "gray area" cases

DISCUSSION

Main Findings

- The Driving in Dementia Decision Tool is easy to learn and easy to use
- However, almost 50% of participants did not use the tool at all
- Results are based on a limited number of uses of the tool
- Some participants found it challenging to remember to use the tool and integrate it into daily workflow
- The tool did not increase physician reporting of patients with mild dementia or MCI to transportation authorities, beyond the effects of caregiver concern and clock drawing abnormalities
- The tool may be more useful for generalists than specialists
- The tool may have unexpected value as a teaching tool

Future Directions

- Address the challenge of encouraging tool use and integrating the tool into day-to-day workflow
- Consider ways to engage family physicians, who may benefit most from the Decision Tool
- Extend the tool to other clinicians
- Continue investigating the important role of caregiver concern in decisions relating to driving safety in individuals with mild dementia and MCI

ACKNOWLEDGEMENTS
This work was supported by the Canadian Institutes of Health Research (CIHR Knowledge Synthesis Grant #KAL23886, June 1, 2013 to May 30, 2015).



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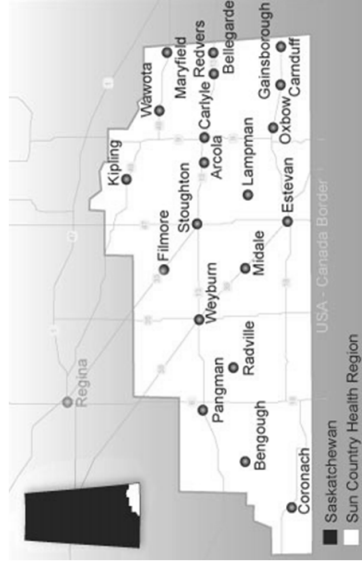
INTRODUCTION

- Timely dementia diagnosis → crucial for treatment and care management¹.
 - Symptoms → difficult to detect².
 - Primary care providers → in regular contact with individuals with dementia³.
- Barriers to diagnosis⁴:**
- Negative attitudes toward specialist referrals.
 - Perceived limited treatment options.
 - Negative anticipated outcomes from disclosure.
 - Perception of dementia as accepted part of growing older.
- Unique challenges in rural areas^{5,6}:**
- Work isolation.
 - Less access to specialists.
 - Inadequately staffed programs.
 - Long wait times for services.
 - Longer distances to specialized programs.
 - Fewer educational resources.
- Varied levels of dementia education by profession, and role.

- Varied preferred modes of delivery of remote education.

STUDY RATIONALE

- Saskatchewan = large senior population that is rising.
- Rural area health professionals struggle with added pressures associated with practice in rural areas.
- Need for a process that would ease diagnostic uncertainty and enhance timely diagnosis.
- Need to research existing modes of continued education to determine the best mode of delivery on training, diagnosis, and management.
- Present research entails work with rural Primary Health Care Teams (PHC teams) located in Sun Country Health Region. We plan to utilize participatory action research to enhance team participation.



OBJECTIVES

- (1) Examine existing educational programs to understand what has been done up to date.
- (2) Evaluate educational needs of PHC members and their preferences for education delivery as well as barriers to best practice.
- (4) Delivery of program associated materials via smart phone application.

PROJECTS

Project 1

- Scoping review of existing modes of delivery for remote continued education.
- Will serve to inform future work.
- Qualitative data analysis.

Project 2

- Exploration of preferred modes of educational delivery, perceived barriers, and search for the most effective method of implementation.
- Interviews with PHC members.
- Qualitative analysis.

Project 3

- Delivery of program materials via mobile application (IPEI).
- Implementation of Spaced Education delivery to enhance knowledge retention.
- Implementation will be determined by the PHC teams.

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



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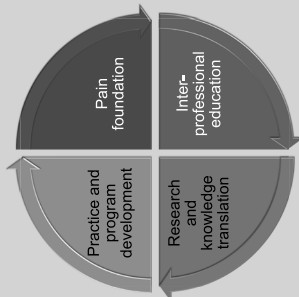
Mapping a Pain Strategy for Saskatchewan: findings from stakeholder consultations

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1. Saskatoon Health Region, 2. University of Saskatchewan, 3. Sunrise Health Region, 4. Regina Qu'Appelle Health Region

Overview

Saskatchewan stakeholders were consulted to identify opportunities and barriers for development and implementation of a provincial pain strategy. Actionable future work has been structured around the following four foci of change.



Work in Progress

- Consultation on strategy report and action item plan
- Core planning group regular meetings

Future Work

- Identify leads for 4 working groups
- Organize working group meetings for upcoming pain conference in Regina, November 2016.

Saskatchewan Context

Provincial Population

- Population of 1.14 million.
- 40% resides in two larger urban centers
- 28% resides in rural and remote locations.

Current Specialty Pain Services

- Limited, primarily uni-disciplinary, clustered in urban centers.



Healthcare in Saskatchewan

- Ministry of Health provides oversight and strategic direction to 13 provincial health regions.
- Ministry priorities for 2015-16
 - Mental health and addictions
 - Seniors care
 - Appropriateness of care
 - Emergency department waits.

Consultation Methods and Findings

Online Survey

Methods
Primary care physicians and nurse practitioners (n=83; 24% response rate) in the Saskatchewan Health Region.

- Opinions of existing services for chronic pain
- Priorities for new programming
- Perceived barriers to care for clients with chronic pain.

Participants

Characteristics	
Years of practice	Median 11-15 years
Population served:	14%
Inner city	57%
Urban	12%
Small to mid-sized towns	12%
Rural and remote	72%
Group practice	51%
Practice setting:	36%
Private office	
Primary health center	

Findings

- High proportions unaware of or did not refer clients to available pain services.
 - Interventional Pain Clinic 49%
 - LiveWell with Chronic Pain 57%
 - Medication Assessment Center 79%

Priorities

- Diagnostic consultation service
- Multidisciplinary treatment program
- Support for transition from acute care
- Mentored learning opportunities

Perceived Barriers to Care

Interviews and Focus Groups

Methods
Pain-related needs and assets assessment of Saskatchewan Health Region.

- Interviews and focus groups with patients and families, multidisciplinary healthcare providers, managers, and service line directors.

Findings
Priority gaps:

1. Inconsistent provider approach to pain assessment and management in acute care, long-term care, and primary care.
2. Lack of specialty pain services and coordination of care, particularly for those with complex pain conditions.
3. Lack of healthcare provider and client/family awareness of existing services.

Five action categories for future improvement work:

Prevention and Early Intervention

Report

White-paper report on large-group meeting results:

http://saskpain.ca/images/Provincial_Pain_Strategyholder_Report_March192015_final.pdf

Facilitated Large-Group Meetings

Methods
Two large-group facilitated meetings were held during a pain conference in Saskatoon in November 2014.

Participants (n=147) represented 7 health regions:

- Client/family advocates
- Multidisciplinary healthcare providers
- Healthcare administrators
- Non-governmental organizations
- Health professional associations
- Provincial Ministry of Health
- Academic institutions

Findings

1. Research and data needs
 - Comprehensive needs and assets assessment including unique needs of First Nations, Inuit and Métis peoples.
 - Economic research and business plan to guide new program planning.

Structures and Resource Needs:

- Provincial pain foundation
- Pain education reform
- Coordinated research and knowledge translation that serves clinical improvement work
- Regional champions to lead local work
- Diverse specialty pain services
- Outcome monitoring.

Processes:

- Clinical pathway
- Centralized triage and referral coordination
- Limit rural disparities
- Collaboration between health regions.

Strategy Goal

Guide development of sustainable programs, training, and resources to support accessible, coordinated pain management services across the continuum of care.

Contact: susan.tupper@usask.ca

Acknowledgements: This work has been primarily led by The Saskatchewan Registered Nurses' Association (SRNA) Pain Management Professional Practice Group members. Facilitated large-group meetings were supported by the SRNA, College of Physicians and Surgeons of Saskatchewan, and the Canadian Pain Coalition. Special thanks to Maria Hudspeth, executive director of PainBC and Lynn Cooper, president of the Canadian Pain Coalition, for presenting at and participating in the facilitated group meetings.

Development of a brief education series for healthcare providers: Understanding, Assessing and Managing Pain in Older Adults

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INTRODUCTION

Pain in older adults is often under-recognized, incorrectly assessed, and under-managed [1]. The majority of older adults live with pain on a regular basis, with reported rates of chronic pain of 60-80% among those living in residential care [2]. Pain interferes with physical and cognitive function, and contributes to loss of independence [2]. In part pain under-management stems from misconceptions about pain and challenges with assessment and management of pain, particularly for those with dementia or other cognitive or communication impairments [3]. On average, clinicians have low knowledge and confidence to assess and provide pain management in this population [4]. There was a need for pain education opportunities that could be readily implemented at the point-of-care that could be used to remind staff about best practice for pain assessment and management.

PURPOSE

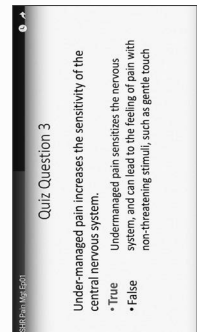
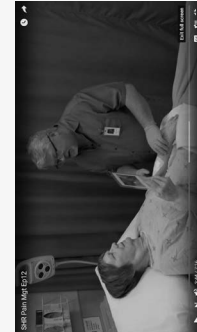
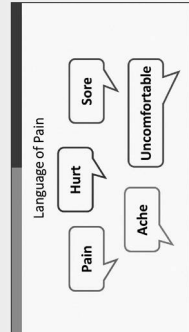
We developed a series of 13 brief education videos for staff on different aspects of pain. We will evaluate the impact of the videos on staff knowledge and confidence to provide care for the older adult population.

VIDEO FORMAT

Videos range in length from 5 to 10 minutes, and consist of narration or video demonstrations of skills. Videos will be publicly available on YouTube. There are 3 quiz questions at the end of each video to test viewers' knowledge. Links to references and additional resources are provided.

- VIDEO SESSION TITLES**
1. Misconceptions about pain in older adults
 2. Types of pain
 3. The language of pain
 4. Pain assessment overview
 5. Self-report of pain
 6. Behavioral pain assessment
 7. 4 P's of pain management
 8. Principles of pharmaceutical treatment
 9. Medications for nociceptive pain
 10. Medications for neuropathic pain
 11. Physical treatment strategies
 12. Psychological treatment strategies
 13. Prevention strategies

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VIDEO DEVELOPMENT PROCESS

A core development team consisting of a physical therapist and pain consultant (ST), behavioral consultant and social worker (TDL), nurse and manager of Seniors' Health and Continuing Care (AB), and pharmacist and academic detailer (JB) held regular meetings between April 2014 and October 2015 to develop content for the videos based on best practice literature. Once a draft script was developed, reviewers were asked to provide feedback and recommend content changes. Reviewers included nurse educators, a geriatric psychologist, client/family advisors, inter-professional practice leads, a professor of psychology, and the director of Interprofessional Practice, Education and Research.

SCRIPT

A grant was provided by the RUH Foundation to professionally develop the videos with the Media Production department at the University of Saskatchewan. Preliminary video editing was conducted from June to August 2016. Videos are currently being re-edited and finalized. Completion is expected for January 2017.



EVALUATION PLAN

A randomized controlled trial will be used to compare viewers' knowledge and confidence to provide care between an attention control and two intervention arms who watch 4 of the video series (Group 1: sessions 1, 2, 3, 4; Group 2: sessions 5, 7, 8, 11). We will recruit nursing students and nurses (registered and licensed practical nurses) from acute care facilities and long-term care homes and compare change in knowledge using two validated pain knowledge tools. The control group will be provided links to the videos following the study.

ACKNOWLEDGEMENTS

We gratefully acknowledge the generous support from donors to the RUH Foundation for the grant that supported professional video development. Thank you to Mark Behrend from the Media Production department at the University of Saskatchewan, volunteer actors Joan Claassen, George Epp, Barb Froese, and Cameron Nicole, and many reviewers for their valuable contributions.



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Introduction

Purpose

Improve timely diagnosis of patients with dementia in rural/remote areas by developing, implementing, and evaluating a technology-based platform that connects urban dementia specialists with rural primary healthcare (PHC) providers.

Rationale

- 564,000 Canadians live with dementia, placing a significant burden on informal caregivers, and costing Canadians \$10.4 billion annually.¹
- Timely diagnosis improves patient quality of life², while late diagnosis is associated with hospitalization and premature long-term care placement.^{3,4}
- Lack of availability of specialists and resources in rural areas leaves burden of diagnosis on primary healthcare (PHC) providers, who often lack dementia-specific training.⁵
- Geographic, financial, and time issues may prohibit rural patients from seeking care in urban centers.⁶
- Preliminary research suggests telehealth neuropsychological assessments are valid and well-tolerated, and may have diagnostic utility.⁵
- Canadian Longitudinal Study on Aging (CLSA) developed and gathered normative data on a telephone-administered neuropsychological instrument.
- Computer Assisted Mild Cognitive Impairment (CAMCI) is a reliable and valid automated cognitive assessment instrument⁶ which may influence PHC provider's care decisions.⁷

Proposed Research

Study 1: Validation of CAMCI with RRMC patients

Determine the validity and feasibility of CAMCI battery with rural/remote patient population.

- Recruit RRMC patients to complete CAMCI battery.
- Document how well tolerated the CAMCI is in this population.
- Document the convergent and discriminant validity of the CAMCI battery in this population.

Study 2: Implementation of remote specialist-to-PHC provider support program.

Establish a platform to remotely administer CLSA telephone battery and CAMCI digital battery to patients with suspected cognitive impairment in rural/remote areas.

- Rural PHC providers will invite patients to complete CAMCI battery
- Patients will be contacted by telephone and administered CLSA battery
- Test results will be interpreted for PHC providers.



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



Proposed Research

Study 3: Evaluation of CAMCI and CLSA feedback on PHC providers' treatment decisions

Determine extent to which remote specialist-to-PHC provider platform influenced delivery of healthcare.

- Review electronic medical records (EMR) of patients in Study 2.
- Code treatment decisions influenced by CAMCI or CLSA results.
- Interview PHC providers; qualitative analysis of responses.

Implications

- Remote specialist-to-PHC provider support will improve diagnosis of dementia in rural areas.
- Early diagnosis reduces number of rural care prematurely, saving associated costs.
- Improve quality of life of informal caregivers, who use diagnostic information to tap appropriate resources and prognostic information to plan accordingly.

These research programs work best when we work together. We would love to hear your thoughts!

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Predicting cognitive decline after TIA with diffusion tensor imaging and texture analysis of normal appearing white matter



Introduction

- Patients with transient ischemic attack (TIA) have an elevated risk of recurrent strokes, cognitive decline, and neurodegenerative disorders, including a 4-fold risk of developing dementia later in life.¹
- This provides a population for identifying biomarkers of incipient disease processes.
- Fractional anisotropy (FA), a diffusion tensor imaging (DTI) derived parameter, detects changes in white matter (WM) integrity evident in patients with Alzheimer's disease (AD) and vascular dementia².
- Grey level co-occurrence matrix (GLCM) based texture analysis (TA) of WM in T1 weighted MR images distinguishes patients with AD from healthy controls³.
- Medial temporal lobes (MDTL) are implicated in cognitive processes such as episodic memory.

Hypothesis: longitudinal changes in GLCM and FA parameters in MDLT will be associated with a decline in episodic memory in TIA patients.

Methods

- 86 TIA/minor stroke patients were recruited acutely from Extended CATCH study.
- DTI acquired using 14 non-collinear diffusion encoded scanning directions with a slice thickness of 3.5mm.
- FLAIR images were acquired with a slice thickness of 3.5mm.
- Serial MR imaging at 48H, 18M, 3Y; serial cognitive assessment at 90D, 1Y, 2Y, 3Y.
- WAIS-IV Digit Symbol Coding: psychomotor processing speed
- Trail Making Test Part B: Executive function
- Controlled Oral Word Association Task: Speeded lexical fluency and language function
- California Verbal Learning Test: Verbal learning and episodic memory.
- Rey-Osterrieth Complex Figure Task: Episodic memory and visuospatial function.
- DTI and T2-weighted FLAIR images preprocessed with FreeSurfer & FMRIB software library (FSL).

- Regions of interest were drawn bilaterally in normal appearing WM in MDLT (Figure 1A).
- GLCM parameter angular second moment (ASM) used to quantify texture homogeneity in T2 FLAIR image; computed via GLCM texture analysis utility in ImageJ (Figure 1B).
- Random intercept linear mixed effects regression (LMER) models were used to model change in FA and ASM; age included as covariate to control for natural age-related decline documented in FA⁴, and suspected in ASM.

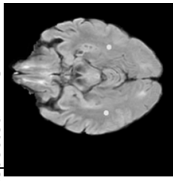


Figure 1A: ROIs drawn bilaterally in normal appearing WM in the MDLT

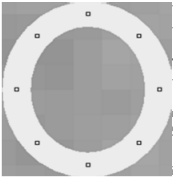


Figure 1B: Example of gray level variation in T2 FLAIR image quantified by ASM parameter.

Results

- Significant decline in MDLT Left FA after controlling for age (Figure 2):
 - Baseline to 2Y, $t(155.9) = -3.44, p < .001$
 - Baseline to 3Y, $t(157.3) = -3.68, p < .001$
- Marginally significant decline in MDLT right FA at 3Y:
 - Baseline to 3Y, $t(156.2) = -1.76, p < .080$
- Decline in FA due to greater water diffusion perpendicular to white matter tracts, considered to be due to demyelination⁵.
- Marginally significant increase in bilateral MDLT ASM (Figure 3):
 - Left: Baseline to 3Y, $t(162.6) = 1.73, p = .086$
 - Right: Baseline to 3Y, $t(163.8) = 1.72, p = .087$
- Elevated ASM values in WM in T1 weighted images distinguish Alzheimer's patients from healthy controls⁶.
- Further LMER models were used to model the relationship between FA and ASM with cognitive function; all models were fit with a random intercept and bilateral FA and ASM parameters as well as time and age as covariates (Table).

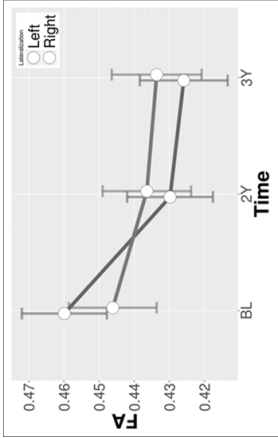


Figure 2: Change in MDLT normal appearing WM FA over 3 years; MDLT left significantly declined from BL to 2Y, and BL to 3Y. MDLT right marginally declined from BL to 3Y.*

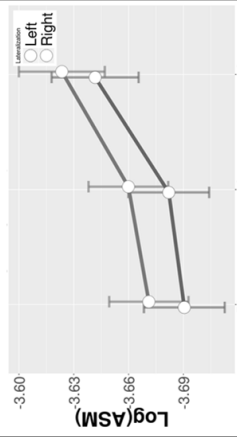


Figure 3: Change in MDLT normal appearing WM ASM over 3 years; marginally significant bilateral increases from BL to 3Y. Points represent estimated marginal means when controlling for age; error bars represent standard error of the estimate.

	MDTL FA Left	MDTL FA Right	MDTL ASM Left	MDTL ASM Right
Digit Symbol Coding	$t(289.9) = 1.80, p = .074$	$t(239.4) = 0.06, p = .510$	$t(239.4) = 0.18, p = .859$	$t(239.4) = 0.02, p = .534$
Trail Making Test Part B	$t(282.4) = 2.46, p = .014$	$t(262.3) = 0.63, p = .528$	$t(237.7) = 0.82, p = .536$	$t(263.95) = -2.15, p = 0.03$
Controlled Oral Word Association Test	$t(289.9) = 0.92, p = .357$	$t(261.4) = 0.59, p = .555$	$t(238.1) = 1.11, p = .268$	$t(263.95) = 0.39, p = 0.704$
California Verbal Learning Test	$t(285.0) = 2.09, p = .039$	$t(271.9) = -0.36, p = .722$	$t(262.2) = 0.08, p = .930$	$t(274.3) = 0.73, p = .464$
Rey-Osterrieth Complex Figure Test	$t(188.5) = 3.09, p = .002$	$t(299.2) = 0.22, p = .827$	$t(139.8) = 0.35, p = 0.728$	$t(301.2) = 0.13, p = .899$

Table: Results of linear mixed effects regression models predicting cognitive scores with bilateral FA and ASM parameters while controlling for time and age. Lower FA values in the MDLT left correspond to poorer performance on tasks of executive function, visuospatial function, verbal learning, and episodic memory.

Discussion

- Decline in FA indicates loss of WM integrity in the left MDLT in the three years following TIA².
- May be marker of incipient disease process.
- Interpretation supported by evidence that declining FA values are associated with poorer cognitive performance in tasks of executive function, verbal learning, visuospatial function, and episodic memory.
- Rising ASM values indicative of increasing texture homogeneity; marginally significant increase could be evidence of vascular recovery after TIA⁷.
- Study limited by use of the same cognitive battery at each assessment, leading many participants to demonstrate practice effects (improvement over time). Such effects may mask change in cognitive ability.
- No control group limits understanding of natural variation in MRI and cognitive measures.

Conclusions

- FA of the left MDLT normal appearing white matter may be a robust biomarker of cognitive decline after TIA, however future research needed to delineate etiology of change (ie. vascular vs. neurodegenerative disease processes)
- ASM was not a robust predictor of cognitive function in this study, however future research to determine optimal image resolution and GLCM step size may improve prediction.

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Acknowledgements

The authors would like to thank the Heart and Stroke Foundation for the funding.
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The “Worried Well”: Characteristics of the Cognitively Normal Patient Presenting to a Rural and Remote Memory Clinic

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Introduction

As the prevalence of dementia continues to increase so does the number of patients presenting to their primary care physicians with memory complaints (1). With people increasingly aware of dementia, a new trend has been developing in memory clinics: the “worried well” (2). This refers to patients who are worried they have dementia, but are in fact neurologically normal (2).

Memory concerns from patients are subjective, and may be influenced by the psychologic and environmental factors, like exposure to dementia (3). The MEM Self-Rating Memory Score is used to evaluate patient’s perceived memory concerns, and therefore provide insight into subjective cognitive impairment. Repeat MMSE scores can be an important part of evaluating trends in cognitive ability over time (7). Aside from SCI, other risk factors for dementia may include lower education levels, sleep concerns, and psychiatric illness (8-11). Depression has also been implicated as a risk factor for memory concerns, as patients with mild cognitive impairment who also have dementia are twice as likely to develop Alzheimer’s disease (11). The CES-D is a screening tool used to evaluate depression, an important piece of information to have in memory patients (12).

The objective of the present study is to identify features of “worried well” patients to better identify those more likely to be cognitively normal. It may be that by better identifying those at lower risk of having dementia or neurologic disease we can better prioritize specialist referrals and patient resources (2,14). This is a particular challenge in rural areas (14).

Methods

375 consecutive patients seen at a rural and remote memory clinic between March 2004 and October 2015 were included in this analysis. The data collected includes: age, sex, years of formal education, MMSE score from the initial RRMC visits, CES-D depression scores, MEM memory self-rating memory scale, alcohol consumption, marital status, hours per week of work, past medical history, sleep concerns, possession of a driver’s licence, and information on a family history of memory concerns. We then categorized patients into one of two groups based on their neurologic diagnosis, “normal” (N=81) or “other” (includes all neurologic diagnosis, N=294). Comparison between the two groups was then done using a Chi-squared test.

The second analysis used the same set of “normal” patients (N=81) and the subgroup of patients with a diagnosis of Alzheimer’s disease (N=146) from the “other” group. The same patient information was isolated, and then re-analyzed comparing these two groups. Statistical analysis again used the Chi-squared test. Ethics approval was obtained from our local biomedical research committee.

Results

375 patients who underwent an initial clinical assessment and received a neurologic diagnosis were included in this analysis. When comparing the “normal” group (N=81) and the “other” group (N=294), age was significantly lower in the “normal” group (Table 1). Other significant differences included more formal education in the “normal” group, more self-reported alcohol consumption in the “normal” group, and higher MMSE scores in the “normal” group (Table 1). Self-reported memory concerns (MEM score) showed no difference between the “normal” group and the “other” group. There was no statistically significant relationship in self-reported family history or memory concerns or dementia between these two groups. There was a significant difference between self-reported previous history of psychiatric or psychologic problems, with the “normal” group more frequently having a previous diagnosis or problem. In association with that, the “normal” group also had a significantly higher CES-D depression screening score. The full comparison between the “normal” and “other” groups is presented in Table 1.

227 patients of the previous 375 were included in the second analysis which compared the same “normal” group (N=81) to the patients who received a diagnosis of Alzheimer’s disease (N=146). This comparison had similar differences as in the first analysis. The full comparison between the “normal” and “Alzheimer’s Disease” groups is detailed in Table 2.

This data is mostly self-reported, as it is acquired through a questionnaire at the patient’s initial clinic assessment. As a result, all variables other than age have missing values. The number of values for each variable is included in the previously mentioned Table 1 and Table 2. Breakdown of the “other” diagnosis can be found in Table 3.

Table 1. Characteristics of normal and other patient groups.

Characteristic	Normal (N=81)	Other (N=294)	P-value
Age at clinic visit	75.1 (5.8)	78.4 (6.4)	<0.0001
Sex	45 M, 36 F	142 M, 152 F	<0.0001
Years of formal education	12.8 (2.8)	12.1 (2.8)	<0.0001
MMSE score	29.1 (1.2)	27.6 (1.2)	<0.0001
MEM score	2.1 (1.2)	2.1 (1.2)	<0.0001
Alcohol consumption (drinks per week)	3.1 (2.1)	2.7 (2.1)	<0.0001
Family history of dementia	1.1 (1.1)	1.1 (1.1)	<0.0001
Family history of memory concerns	1.1 (1.1)	1.1 (1.1)	<0.0001
Family history of psychiatric or psychologic problems	1.1 (1.1)	1.1 (1.1)	<0.0001
CES-D score	1.1 (1.1)	1.1 (1.1)	<0.0001
Diagnosis			
Alzheimer's Disease		146	
Other		148	

Table 2. Characteristics of normal and Alzheimer's disease patient groups.

Characteristic	Normal (N=81)	Alzheimer's Disease (N=146)	P-value
Age at clinic visit	75.1 (5.8)	78.4 (6.4)	<0.0001
Sex	45 M, 36 F	75 M, 71 F	<0.0001
Years of formal education	12.8 (2.8)	12.1 (2.8)	<0.0001
MMSE score	29.1 (1.2)	27.6 (1.2)	<0.0001
MEM score	2.1 (1.2)	2.1 (1.2)	<0.0001
Alcohol consumption (drinks per week)	3.1 (2.1)	2.7 (2.1)	<0.0001
Family history of dementia	1.1 (1.1)	1.1 (1.1)	<0.0001
Family history of memory concerns	1.1 (1.1)	1.1 (1.1)	<0.0001
Family history of psychiatric or psychologic problems	1.1 (1.1)	1.1 (1.1)	<0.0001
CES-D score	1.1 (1.1)	1.1 (1.1)	<0.0001
Diagnosis			
Alzheimer's Disease		146	
Other		148	

Table 3. Other Diagnosis

Diagnosis	Number of Patients (%)
Mild Cognitive Impairment	146
Alzheimer's Disease	146
Vascular Dementia	30
Frontotemporal Dementia	33
Lewy Body Dementia	34

Other group includes: Huntington's Degeneration, Hydrocephalus, Parkinson's Dementia, Medication Side Effects, Huntington's Disease, Fragile X Associated Dementia, Herpes Encephalitis, Hypoxic Ischemic Encephalopathy, Multiple Systems Atrophy, Posterior Cortical Atrophy, Progressive Supranuclear Palsy

Conclusion

With over 20% of patients at the RRMC being diagnosed as cognitively normal, we have a fair sample size to assess differences. Of the many significant differences between the cognitively normal and other groups, age and MMSE stand out as highly valuable clinical indicators. Alzheimer’s disease classically presents later in life, and statistically most of the “worried well” patients were in their early sixties. There was a significant difference in age between the “normal” or “worried well” group and both the “other” group and the “Alzheimer’s Disease” group.

We found that the cognitively normal patients tended to have more years of formal education. The cognitively-normal patients were also more likely to be working part-time or more. Alcohol intake was also significantly different between the two groups. The “Alzheimer’s Disease” group had significantly less concerns with sleep than the “normal” group. Subjective memory concerns has been shown to be a risk factor for dementia, however our MEM Self Memory Assessment showed no difference between the “normal” and “other” group (12).

It is interesting to note the significant difference between CES-D depression screening scores in the “normal” and both the “other” and “Alzheimer’s Disease” groups. It is essential to evaluate mood and mental health when discussing memory concerns with patients.

Overall, we begin to see a pattern of differences unfold between the “worried well” patients and those with cognitive disease. By better identifying the “worried well” we can make better use of resources, like specialist referrals, and improve patient care by providing appropriate management aimed at the underlying cause of the concern.

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