Technology Evaluation in the Elderly Abstracts from the meeting held in Toronto, September 21-23, 2014

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Technology Evaluation in the Elderly Network

Technology Evaluation in the Elderly Network (TVN) was funded in July 2012 under the Canadian Networks of Centres of Excellence (NCE) program, to develop, rigorously evaluate, and ethically disseminate information about the use of technologies for the care of seriously ill elderly patients and their families. TVN's vision is to position Canada as a global leader in providing the highest quality of care for its aging population. The focus is on the frail elderly with multiple chronic conditions, across all settings of care. As part of the NCE's mandate and TVN's strategic priorities and mission, we have developed a unique Interdisciplinary Training Program designed to promote and facilitate interdisciplinary learning by providing experiential and entrepreneurial opportunities. The goal is to develop Highly Qualified Personnel (HQP) with disciplinary, interdisciplinary, and transdisciplinary skills, experiences, and attitudes necessary to provide creative solutions to the complex and multi-faceted issues confronting the seriously ill, frail elderly. The TVN Interdisciplinary Training Program is based on an experiential learning approach that crosses health sciences, law, social sciences, and ethical aspects of working with the frail elderly. The program provides trainees with unique educational experiences that deepen appreciation for holistic care, increase exposure to interdisciplinary research through knowledge creation and translation projects, and advance intellectual and professional development.

The goals for the TVN Interdisciplinary Training Program align with the NCE training mandate, which is to: 1) create a collaborative, multidisciplinary training program to develop HQP, 2) improve trainee's viability for future employment, and 3) provide support to trainees to facilitate their success. The training program was launched in Summer 2013. We currently have over 120 HQP in approximately 23 different disciplines—including law, ethics, public policy, social work, engineering, and other disciplines—with an interest in improving care for the frail elderly participating in our training program. These individuals may be undergraduates, graduates, postdoctoral fellows, or working professionals. The program emphasizes the acquisition and application of knowledge and skills across all of its components. HQPs work in teams of four to identify and develop an online collaborative project. Online collaborative projects facilitate interprofessional collaboration through multi-sectoral and multi-disciplinary learning by enabling interactions. They also participate in at least one, and up to two, external placements in a sector and/or discipline in which they have not been previously engaged, with reports or projects required at completion. Under the direction of their supervisors and mentors, students complete at least two academic products involving knowledge mobilization efforts. Mentorship is another component of the training program whereby HQPs meet with interdisciplinary mentors, patients and their families and support system (PFSS), and peers. After each meeting, they write a reflection on what they discovered through dialogue with their mentors, and how this discussion will influence their future studies and practice. HQPs collaborate online through a learning management system that provides opportunities to interact with colleagues, access disciplinary and interdisciplinary data, and diagnostic tools.

There are three main ways an HQP can enter into the program:

- the Interdisciplinary Fellowship Program;
- as HQP within TVN-funded research programs; or
- in the Summer Student Award Program.

One of the components of the TVN Interdisciplinary Training Program is to strongly encourage HQPs to disseminate their work through publication and meetings. The main dissemination event of TVN is the annual conference; the 2nd TVN Annual Conference on Improving Care for the Frail Elderly was held in Toronto, September 21-23, 2014. The goal was to bring together key researchers, practitioners, educators, policymakers, advocates, and organizations devoted to improving health care for the seriously ill, frail elderly, and to highlight HQP research. All HQPs in the Summer Student Award Program, the Interdisciplinary Fellowship Project, and 1 HQP in each TVN-funded project submitted an abstract for this conference. The abstracts were reviewed for quality and the authors presented them as posters during the conference. Herein we present the compilation of research abstracts that were presented by TVN HQP at our annual conference. The annual conference will continue to expand in coming years, and next year we will accept abstracts from all researchers who are engaged with the seriously ill, frail elderly.

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Engaging older adults in health-care decision-making: Key findings and recommendations from the CHOICE knowledge synthesis project

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Introduction: Engagement in shared health-care decision-making has been recognized as an important, and often lacking, aspect of person-centred care. We aimed to draw on available theory, evidence, and experience to develop guidelines for engaging older adults and their families in decisions around their own health care.

Aims: To share results from the CHOICE (Choosing Health-care Options by Involving Canada's Elderly) knowledge synthesis project. Guidelines for engaging older adults and their families in health-care decision-making will be presented.

Methods: We conducted a realist synthesis (Greenhalgh *et al*., 2011; Pawson *et al*., 2005) of available knowledge on strategies for engagement of older patients and their caregivers in health care decision-making. The search methodology was informed by a framework for realist syntheses (Wong *et al*., 2013), as well as Arksey and O'Malley's (2005) design considerations for scoping reviews. Our synthesis encompassed theoretical frameworks and both peer-reviewed and grey literature. Search terms included: health care, decision making, public, health care decision making, engagement, and public engagement. Expert consultation included interviews with academics (n=5), two focus group interviews with seniors and families, and two half-day workshops organized with our partner Patients Canada.

Results: The initial search generated over 15,000 articles; of these, 2921 were pertinent to health-care decision-making and were retained for further review. Theoretical and empirical work identifies a range of strategies and levels of engagement of older patients, but offers most support for approaches in which older patients and families are informed and active partners in decision-making and equal members of health-care teams.

Conclusions: We have developed guidelines and recommendations for creating productive partnerships between older adults, their families, and health-care providers. These partnerships can result in more informed clinical decisions, and more effective health care.

Systematic reviews: Getting started with designing effective search strategies and study screening forms

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Context: Effective literature searches are imperative to systematic review (SR) conduct. Failure to design comprehensive searches compromises the validity of results and conclusions. Unfortunately, the quality, comprehensiveness, and transparency of published search strategies are variable. Novice researchers may lack guidance to tackle such issues. We recently conducted a SR of trials comparing antipsychotics for delirium treatment to alternatives (pharmacological or non-pharmacological strategies) for adults in acute care settings.

Purposes: To describe the methodology used to design the search strategy and study screening forms using the aforementioned SR for illustration purposes.

Methods: With the assistance of a professional librarian, we queried the following databases for primary sources: MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Cumulative Index to Nursing and Allied Health, and the Latin American and Caribbean Health Sciences Literature. Concepts encompassed in our search strategy included: 1) the population (i.e., patients in acute care settings experiencing delirium), and 2) the intervention (antipsychotics) and comparison interventions (non-antipsychotic). For each concept, we identified controlled vocabulary provided by the selected databases (e.g., MeSH for MEDLINE, EMTREE for EMBASE), by navigating index trees and examining definitions provided in scope notes. We scanned relevant publications for additional controlled vocabulary, text words, and their synonyms. Appropriate truncations and wildcards were used to control for spelling variations; all possible drug names were included. Bolean operators were used to combine controlled vocabulary and text words using "OR" within each concept and "AND" between concepts. We applied the Cochrane filter for randomized controlled trials and a filter to limit to humans. No language restriction was imposed. Test searches were performed at various steps (before and after combination of terms) to ascertain the number of hits and to verify studies known to meet the inclusion criteria were present. The final search strategy was written for MEDLINE and thereafter customized to the other databases by a professional librarian. We searched for secondary sources in the Database of

Abstracts of Reviews of Effects and the Health Technology Assessment Database. To identify other potentially relevant studies, we searched the Web of Science Citation Index, Conference Proceedings Citation Index and trial registration websites for ongoing trials, reference citations of selected publications, and contacted principal investigators of eligible trials and content experts. Pre-specified study inclusion and exclusion criteria developed in consultation with content experts informed the design of the study selection form. This form was piloted on 5 papers by 2 study team members and then applied after removal of duplicates and obviously irrelevant studies.

Results: The search strategy yielded 16,925 publications following duplicate removal. After abstract and title review, 127 full text references were assessed; seven met inclusion criteria.

Conclusion: Designing an effective search strategy that identifies all eligible indexed studies without high numbers of irrelevant studies requires careful planning and involvement of professional librarians. Despite a rigorous search strategy, we identified a large number of irrelevant studies with significant resources required to identify eligible studies.

Assessing Quality of Life Measures for Elderly Traumatic Brain Injury Survivors: a Systematic Review

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Traumatic Brain Injury (TBI) can be a devastating injury for an older adult. The elderly are more likely than younger adults to suffer emotional, physical and behavioural consequences and may require a longer period of time for recovery following a TBI. Much of what is currently known about recovery for older adults is based on information provided by family or clinician ratings. More recently, researchers and clinicians working in the field of rehabilitation acknowledge that a patient’s subjective perspective of their problems and the degree to which they are bothered by them is a critical indicator of outcome following TBI. Gathering information on the breadth and scope of the patient’s Quality of Life (QoL) is crucial information for clinicians caring for the elder, as well as researchers seeking to quantify the true burden of TBI, and may help to determine/predict outcome after a TBI. There is no current synthesis of the evidence on QoL measures used with TBI patients. As such, clinicians and researchers may be unclear as to which QoL tools are best suited for this vulnerable population. Implementing standardized QoL measurements will help facilitate comparison within a clinical practice and care for a single TBI survivor, as well as facilitate comparison across multiple survivors in research studies.

Objective: This review assesses the scope, characteristics, methods of administration, dimensions of measurement and use in different types of TBI severity of QoL instruments used with older adults surviving TBI.

Participants: Studies reviewed must have evidence of including patients at least 65 years or older with a TBI.

Methods: We systematically reviewed six databases and extracted QoL instruments that were used to assess elderly survivors of TBI.

Results: The initial search yielded 3145 abstracts. After removal of duplicates, title and abstract review, and full text screening, 73 articles were included for review. We uncovered a total of 27 multi-dimensional Qol tools that have been used with elder TBI survivors.

Conclusions: We found five promising measures (based on frequency and currency of use) to consider for a measurement tool to evaluate of an elder’s perspective on QoL after TBI. The tools include the generic measure of SF-36, (also the short version SF-12), the EQ-5D, the WHO-QoL (also the short version WHO-QoL BREF), the Sickness Impact Profile, as well as the TBI-specific measure of QOLIBRI. There is limited literature that assesses QoL specifically for elderly survivors of TBI. As elderly individuals may have unique needs as compared to younger populations with regards to QoL following TBI, future research should be conducted to evaluate current measures and/or develop future measures that may be specifically targeted to the aged.

Engaging older adults in health-care research and policy: guidelines from the CHOICE project

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Introduction: Engaging the community in health-care research and planning has been recognized as an important component of system improvement. The input and involvement of older persons is particularly critical, given that older adults are high users of the health-care system, but are often excluded from health research studies. Unfortunately, guidelines for how to engage older adults in these initiatives are not readily available in the literature.

Aim: Guidelines for engaging older adults and their families in health-care research and policy will be presented, based on the CHOICE (Choosing Healthcare Options by Involving Canada’s Elderly) knowledge synthesis project.

Methods: In the CHOICE project, we conducted a realist synthesis of available knowledge on strategies for engagement of older adults and their families (including other informal caregivers) in health care. The search methodology was informed by a framework for realist syntheses, as well as Arksey and O'Malley's (2005) design considerations for scoping reviews. Our synthesis encompassed theoretical frameworks and peer-reviewed and grey literature. Expert consultation included interviews with academics (n=5), two focus group interviews with seniors and families, and two half-day workshops organized with our partner Patients Canada.

Results: The initial search generated over15,000 articles; of these, 1,624 identified as relevant to health-care research and planning were retained for further review. Theoretical and empirical work identifies a range of strategies and levels of engagement of older adults and their families in health-care research and policy. This project reveals that level of involvement should be authentic; appropriate for both the desired level of engagement of older adults and matched by the ability of the system to realize this involvement.

Conclusions: Guidelines and recommendations for the engagement of older adults, their families and caregivers in health-care research and policy have been developed. Limitations: Due to the limited available information specifically focused on engagement of older adults (65+), our search strategy included papers focusing on engagement of all adults over 18 years of age, which may have limited the applicability of some of the findings. To overcome this, we held focus group interviews with older adults to review and interpret the study findings and develop recommendations specific to this population. Suggestions for future research: We plan to test the guidelines and recommendations from the CHOICE project, in collaboration with members of our SHARP (Seniors Helping as Research Partners) network.

OPTIMAL Selection for and Timing to Start Renal Replacement in Critically Ill Older Patients with Acute Kidney Injury (OPTIMAL-AKI)

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Background/Rationale: Older critically ill patients represent approximately half of all patients who receive life support with acute dialysis therapy while in ICU. However, we currently have very limited information on the optimal circumstances for starting renal replacement therapy (RRT) in older patients with acute kidney injury (AKI) and no specific data on older critically ill Canadians. This contributes to large variations in practice between providers and hospitals, and across jurisdictions, and undermines the optimal selection and delivery of high-quality care to older critically ill patients with AKI.

Objective: The primary objective of this project is to evaluate whether in older critically ill patients with AKI there are clinically important differences in survival, receipt of life-sustaining therapies, commitment to ongoing support, and changes in goals of care amongst those who do receive or those who do not receive RRT while in ICU.

Methods: This is a multi-centre prospective observational cohort study with a target accrual of 500 patients from 15 to 20 centers across Canada. Eligible patients will be 65 years of age or older, admitted to an intensive care unit (ICU), and exhibit evidence of AKI as defined by protocol. Both the presence of a drug overdose/toxicity that necessitates RRT initiation and/or the receipt of any form of RRT in the past 4 weeks will be cause for study exclusion. Upon fulfilling eligibility and obtaining informed consent (or deferred consent where permitted), participants will have baseline data captured and will be followed daily during their stay in ICU. In addition, participants and/or surrogates will be approached and interviewed to provide additional pre-morbid and baseline data specifically captured for OPTIMAL-AKI. Each participant will be contacted at 6 months and 12 months from time of enrollment to ascertain long-term outcomes.

Progress: As of August 2014, recruitment is under way at 8 centers and greater than 10% of the target accrual has been achieved. We anticipate that seven more centers will become active before the end of the year and that recruitment will continue until autumn 2015.

Literature review of the essential data elements for the development of a standardized communication form to improve transitions for nursing home residents

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Objective: The objective of this preliminary review to scope the research literature was to identify the essential data elements to be included in a standardized transition form.

Background: This project builds on the OPTIC Program (Older Person's Transitions in Care) examining transitions experienced by NH residents, when they require urgent or emergent care and are transferred from their nursing home (NH) via emergency medical services (EMS) to an emergency department (ED). The OPTIC study conducted by our team found a substantial lack of information communicated consistently between providers and settings during transitions of care. Results identified significant gaps in medical information, documentation of care needs and inclusion of pertinent resident information and personal assistive devices (hearing aids, dentures and glasses). The latter were recorded as accompanying the resident less than 5% of the time. This is astonishing, considering the significant complexity and vulnerability of these older adults. As a result, the OPTIC team developed a communication form to pilot-test in a sample of transitions from 15 NHs to one ED and back. The data elements included in this form were informed by the OPTIC study results and a literature review that revealed the essential medical information and documents required for residents during transitions of care.

Methods: This preliminary review focused on the transitions of care that older adults experience. Searches for scientific articles were conducted using Medline, Psycinfo and EMBASE, and Google Scholar for grey literature. To be considered for inclusion in the review, articles had to meet the following criteria: 1) published in English, 2) between the years of 1995 and 2013, 3) address transitions of care between NH and ED, and 4) address questions relevant to the nature of communication, documentation, and information shared between providers. Studies were excluded if they addressed the handoff process in one care setting. Following title, abstract and manuscript review, 16 articles were included and essential data elements used for documentation were extracted and tallied once for each article in which they were listed.

Results: Over 75 data elements were found and grouped into the following categories: transfer information, resident history, medication, basic vital information, mental status information, physical status information, precautions, resident focused information, information from sending facility, information from receiving facility, and information from more than one setting. The top scoring data elements from each category, respectively, included reason for transfer, past medical history, current medications, recent vital signs, baseline mental function, baseline physical function, allergies, DNR/code status, provider facility contact information, treatment provided, and recent lab work results.

Implications: Based on pilot-testing of these essential data elements, we hope to confirm that a standardized evidence-based communication form used by all health-care providers across settings during transitions of care improves communication, provides evidence for best practice, and ultimately results in better care for NH residents. Furthermore, this preliminary scoping of the literature informs the protocol required for a full systematic review of the literature on essential communication data elements during transitions of care.

Socially Assistive Robots: a Focus Group Study

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Long-term care homes provide aging adults with assistance with activities of daily living, scheduled leisure activities, and medical services. Our work focuses on designing a socially assistive robot named Tangy, which will help residents in long-term care facilities with maintaining social connections and cognitive ability. Tangy is designed to autonomously schedule, facilitate, and promote engagement using the group recreational activity Bingo and telepresence sessions for residents. Focus group sessions were conducted with elderly residents, family members, and health-care professionals from a long-term care facility to obtain feedback about the design considerations, attitudes, expectations, and acceptance of Tangy. Participants were shown demonstrations of Tangy's capabilities and then guided through an open discussion. The focus group sessions were transcribed and organized to identify recurring themes throughout the participants' responses. The results show that the participants indicated that Tangy could be beneficial for long-term care residents and health-care staff. They believed that Tangy could help alleviate the recreational staff's work load by facilitating Bingo, and they were enthusiastic about the ability of the telepresence activity to help residents connect with their families. Moreover, health-care staff and family members suggested a wide variety of additional assistive capabilities to promote engagement and acceptance of the robot, such as multiple-language support, reminders and prompts, and modifications to the robot's appearance. Furthermore, they were generally positive about the introduction of socially assistive robots in the residential care homes, although some concerns about various barriers to the adoption of the technology were brought up.

Patient and Family Experiences when Moving from the Intensive Care Unit (ICU) to a Hospital Ward

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Intensive Care Unit (ICU) patients are the sickest patients in a hospital and receive constant, one-on-one, specialized care in an environment utilizing life support technologies and significant resources (Field, Prinja, & Rowan, 2008). When their condition improves, they are usually transferred to a regular hospital ward, an environment with fewer resources and staff. Patients and their families often find the transition from ICU to a hospital ward very challenging. Here they become 'one patient amongst many' (Field *et al*., 2008), and the nurse to patient ratio switches from one-to-one to one-to-many. Moving these vulnerable patients to an environment with limited resources is a risky medical transition and, due to the demand for ICU beds, patients may be given little advance notice of their move (Forsberg, Lindgren, & Engström, 2011). In Canada, over 250,000 patients will be transferred from ICUs this year; however, many patients will suffer adverse consequences during the transition (Forsberg *et al*., 2011), and 18,000 patients will be re-admitted to the ICU (Leeb, Jokovic, Sandhu, & Zinck, 2006). These data indicate both the risk associated with ICU to hospital transfers and the inadequacies of the transition process. (Field *et al*., 2008).

Relocation stress and transfer anxiety are terms frequently used in the medical community to describe the transition experience (Chaboyer, 2010; Suen, Lee, & Wong, 2010). Previous research describes patients who are transferred from ICU to hospital ward as exhibiting both physiological stress (altered heart rate, blood pressure, respiration, and sleep patterns) and psychological stress (insecurity, fear, anger, and tension) (Suen *et al*, 2010). Data suggests that family members exhibit similar emotions such as fear, mistrust, and vulnerability (McKinney & Deeny, 2002; Odell, 2000).

We are conducting a study to better understand patient and family experiences during patient transfer from ICU to hospital ward. The goal of the study is to improve ICU to ward transition experiences by listening to the lived experiences of patients and families. The research question guiding the study is: What are the experiences of patients and family members when a patient is moved from the ICU to a regular hospital ward? Data will be collected using the PACER (Pacer and Community Engagement Research) method of peer-to-peer research to engage patients and families. (Marlett & Emes, 2010). PACER is a collaborative inquiry and research framework consisting of three phases: SET (initial phase, which involves a focus group of representative participants who share relevant experiences and become advisors to help set the study's direction and goals), COLLECT (data collection and analysis phase, which involves up to 12 semi-structured interviews with patients and family members), and REFLECT (final phase, which involves a focus group with the original SET participants to review the findings, analyse data and identify recommendations). By listening to and analyzing the lived experiences of patients and families, we will gain a deeper understanding of the transfer experience. By engaging patients and families throughout the entire process, our research will be distinguished from more traditional investigations.

Integration of Quality of Life Assessments into Acute Care for Older Adults with Chronic Life-Limiting Illness: Clinician Perspectives

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Background and Objectives: Older adults with chronic life-limiting illnesses present unique challenges within acute care hospital settings. The use of quality of life (QOL) assessments may enable clinicians to more efficiently attend to fluctuations in patient and family caregiver's QOL. The aim of this integrated knowledge translation (KT) research project is to adapt and integrate an electronic tablet/mobile practice support system for clinicians in a tertiary palliative care setting. This system will facilitate routine assessment of concerns and needs relevant to the QOL of older people with chronic life-limiting illnesses and their family caregivers. We refer to this as a Quality of Life Assessment and Practice Support System (QPSS). This project involves three phases: 1) Preliminary development—using focus groups with clinical team members to inform the selection of appropriate tools and to tailor the system; 2) Usability testing—a small subset of clinicians, patients, and family caregivers will be invited to try the system and provide feedback; and 3) Implementation—making the system available for routine use by any clinician on the unit. The purpose of this abstract is to present the results of Phase I of the project.

Methods: Phase 1 included a diverse sample of eleven clinicians who participated in 3 audio-taped facilitated focus groups (FG). The initial FG asked participants to consider: 1) ideal characteristics of QOL assessment instruments; 2) feedback system features to report assessment information to clinicians; and 3) linkage with site-specific practice recommendations. Findings from the first FG were presented to participants in the 2nd FG, including four potential QOL instruments comprising both patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs). Participants were encouraged to express concerns and identify potential barriers related to these instruments. FG3 included an initial demonstration of the QPSS and discussion about the incorporation of existing practices/protocols.

Results: Clinicians revealed that they wanted instruments that assessed various social, physical, psychological, and existential aspects of QOL, satisfaction with the care team, and communication with family regarding advance care planning. Desired features of the feedback system included: the capability of amalgamating and presenting data visually (e.g., graphs); visualizing changes over time; ranking areas of greatest concern/needs; accessing assessment results in "real time" at the point of care; printing reports that can be used in rounds and filed in paper charts; preventing duplication in documentation; and simplifying documentation where possible. Desired features of the device itself included: be lightweight; be easy to use; and have the ability to be cleaned/sanitized between uses. Additionally, recommendations were that automated prompts address areas of concern/need, interventions could be tracked and existing available practice recommendations be easily accessed.

Conclusion: Clinicians' perspectives helped determine which QOL assessments may be most applicable to their practice setting, how these might best be integrated into their practice, and what reporting and feedback features are desired. Next steps include using clinician, patient, and caregiver feedback to evaluate and further adapt the QPSS.

Tangy the Socially Assistive Robot: Stimulating Recreational Activities at Long-term Care Facilities

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This work focuses on designing the functions and behaviours of the robot Tangy in order for the robot to provide assistive activities to residents of long-term care facilities. The assistive activities include facilitating both a Bingo game with a group of users and a one-on-one telepresence session with a user and his/her family members/friends, as well as also providing reminders. The Tangy robot is designed to: 1) navigate through the environment using a combination of different sensors, 2) detect users of interest within the environment, and 3) interact with these users using speech, gestures, and a touch screen tablet. Each activity requires certain assistive behaviours to be executed. The Reminder activity performs two distinct behaviours, which consist of navigating to where the user is located and providing a reminder to the specific user regarding an upcoming activity. The main behaviours for Tangy when facilitating the Bingo activity are separated into three categories during the game: 1) calling out Bingo numbers, 2) providing assistance, and 3) providing social utterances and gestures. The behaviours for the Telepresence activity are to navigate to where the user is located, prompt the user for the video call, and track and follow the user during the video session. We describe some initial performance results of Tangy (e.g., sensing & behaviour selection accuracy) from a preliminary study.

Collaborative Knowledge Synthesis: How Multiple Perspectives Shaped a Project Along the Way

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The purpose of this poster is to describe how collaboration with knowledge users shaped the direction of a knowledge synthesis research study. The aim of the knowledge synthesis project was to produce evidence-based recommendations for the selection and utilization of patient- and family-reported outcomes (PROMs) and patient- and family-reported experiences (PREMs) for seriously ill elderly patients and their families in acute care settings. The knowledge synthesis was informed by the initial stages of the Knowledge-to-Action framework and included close collaboration with an intentionally selected and diverse team. Team members were invited from local and national communities of researchers, content experts, well-connected knowledge users, decision makers, and trainees. These team members represent a variety of areas including government, local health authority, medicine, nursing, psychometrics, and library sciences. Knowledge users partnered in developing the aims and objectives of the project, and collaborated in shaping the knowledge synthesis processes along the way. The team members were engaged on an ongoing basis to identify gaps, refine synthesis questions, discuss emerging results, and prepare for knowledge translation. The strength of having a diverse team approach is that research is shaped so that research outcomes become relevant to multiple populations, including various user communities. One example of multiple perspectives within the research team is that clinician team members valued the clinical usability, while researcher team members emphasized the importance of ensuring reliability and validity of the instruments. A flow chart illustrates the collective team's contributions throughout the research study. Overall, the poster demonstrates how knowledge synthesis processes may need to be adapted on an ongoing basis to ensure that the results are meaningful to researchers and knowledge users who have different disciplinary and professional backgrounds.

Exploring the Role of Occupational Therapy in Critical Care: Developing a Scoping Review

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Background: Patients surviving critical care experience residual disabilities, with long-term consequences, challenging their return to pre-injury/illness roles. Occupational therapists (OTs) are experts in facilitating recovery from disabling conditions. However, the OT role is inconsistent and infrequent in many critical care settings and not clearly defined. To establish an OT niche on the critical care team and support best outcomes for patients, these shortfalls require in-depth, interdisciplinary exploration. To begin addressing this need, we designed this scoping review to systematically identify and explore reports describing the current and potential OT role in critical care.

Methods: We searched MEDLINE, CINAHL, Web of Science, Scopus, Cochrane Library, ERIC, Social Science Citation Index, and SSRN from inception to November 2013 for all documents discussing the role of OT in critical care. We sought documents (original research (quantitative and qualitative), review articles, practice guidelines, editorials, commentaries) mentioning current or potential OT role(s) of activities involving the care of patients, their families and support of critical care staff, with no language restrictions. An interdisciplinary review team (three OTs, one physiotherapist (PT), one critical care methodologist) examined the citations to select relevant reports. Independently, in duplicate, pairs of review team members screened study titles, abstracts, and full text for eligibility. Similarly, an interdisciplinary team (three OTs and one PT) abstracted data independently in duplicate from included studies. Discrepancies at all review stages were resolved by consensus.

Results: The initial search identified 32,711 citations; thus, practical considerations for managing our yield necessitated modification of our inclusion/exclusion criteria. To focus on the most pressing critical care needs, the review team collaborated to narrow our selection criteria to include citations that suggested a possible OT role only in direct patient care within the critical care setting focusing on interventions. Title screening by four reviewers (90 hrs) identified 3,628 abstracts for further review. Abstract review (37 hrs) identified 1,217 reports for full-text review. To date, 709 full-text documents have been retrieved, and 216 met the revised inclusion criteria. Four reviewers have abstracted data from 173 reports (57 hrs). Preliminary results suggest that reports on OT in critical care are limited in number; varied in document publication type, study design, and methodological quality; and, widely span traditional and emerging OT roles.

Conclusions: The interdisciplinarity of the review and data abstraction teams have been instrumental in distilling the large volume of citations, defining key concepts, and collegially resolving conflicts to capture the current state and potential contributions of OT in critical care. Preliminary analysis suggests a need for further research into the effectiveness of existing OT roles in critical care (e.g., mobilization) and role expansion to support recovery from disability for patients during and following critical care, emphasizing cognitive and psychosocial services. This dynamic, iterative interdisciplinary process may serve as an exemplar of how other disciplines can describe their role in emerging aspects of health care.

Fostering End-of-Life Conversations, Community, and Care Among LGBT Older Adults

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Rational: Lesbian, gay, bisexual, and transgender (LGBT) older adults are often described as a doubly invisible population – invisible as LGBT older persons in the heteronormative environment of social services and health, and invisible as elders within the LGBT community (Brotman, Ryan, & Cormier, 2003; de Vries & Blando, 2004). More likely to be without partners and without children, the primary caregivers of older adults, LGBT older adults look to friends and chosen family for care and support in later life — those same persons who are less likely to be socially groomed for such care and less likely to have participated in such care discussions (Adelman *et al*., 2006; MetLife, 2010; Wallace *et al*., 2011).

When this network is unavailable, unrecognized, or unaccepted, higher rates of loneliness and isolation result leading to further exacerbation of serious and life-limiting conditions (Kuyper & Fokkema, 2010).

Objectives**:** This project has three primary goals: (1) to understand and describe the issues involved in and the preparedness for aging and end-of-life planning among LGBT adults aged 60 and over; (2) to share knowledge and resources that will foster and encourage individual action and develop a greater sense of community; and (3) to provide a safe and supportive environment in which information about planning for aging and end-of-life can be accessed and lead to action.

Method**:** The first component, currently in progress, entails four focus groups in five major cities across Canada. Three groups comprise LGBT older adults: (1) gay and bisexual men; (2) lesbians and bisexual women; and (3) transgender persons. The fourth group consists of local service providers and agencies that provide services to LGBT older adults. Following the focus groups, a town hall meeting will be held in each city at which themes from the focus groups, state-of-the-field research findings, and information about services for LGBT older adults will be presented. The final component of the project is the development of a pilot Web-based resource that will allow further knowledge transfer to the community.

Discussion**:** By initiating and facilitating discussions about aging and end-of-life planning within the LGBT community, and by making knowledge available and easily accessible through a Web-based platform, LGBT older adults will be empowered and motivated to use the resource as a community building tool, enabling individual and communal planning and support in later life.

Variations in Health-Care Utilization at the End of Life

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Background: With the aging of the population and concomitant increases in the number of individuals with acute and chronic illnesses, understanding the patterns of health services use among the elderly at the end-of-life is increasingly important to Canada's health-care system. Accordingly, our objective was to examine health services utilization at the end-of-life, with a focus on sex-based differences in health-care use.

Methods: This population-based retrospective cohort study included elderly ($\geq$ 65 years) residents of Ontario who died between April 1, 2004 and March 31, 2013. Vital status data was obtained from the Ontario Registered Person Database and this information was linked to several population-based administrative datasets to describe health-care use. Indicators of use included hospital and intensive care unit (ICU) admissions, emergency department visits, and physician visits. Descriptive statistics are reported to describe the study population.

Results: The cohort included 764,081 decedents, 50.6% of whom were women and 46.1% died in hospital, with 22.5% of in-hospital deaths occurring in the ICU. Compared to men, women were older (mean 78.6 (14.6) vs. 73.2 (15.3) years), had fewer deaths occurring in hospital (43.8% vs. 48.5%), and fewer ICU admissions in the terminal hospital episode (29% vs. 34.2%). In the 6 months prior to death, 51.8% of decedents saw 10 or more physicians, with a lower proportion of women (48.7%) than men (55%) seeing 10 or more physicians. Women also had fewer emergency department visits (mean 1.7 (1.9) vs. 1.9 (2.2)), admissions to ICU (mean 0.2 (0.6) vs. 0.3 (0.7)), hospitalizations (1.1 (1.2) vs. 1.3 (1.3)), and fewer hospital days 13.8 (20.9) vs. 14.7 (21.5) days).

Conclusion: This study highlights differences in health-care utilization between men and women at the end-of-life. Understanding the determinants of these differences will be informative to efforts aimed at improving the quality of end-of-life care for elderly Canadians.

Developing Quality Tools to Support a Nutrition Care Algorithm for Use in Canadian Hospitals

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This study is part of a larger research project whose aim is to develop a Canadian nutrition care algorithm for hospitalized older adults; currently nutrition care is ad hoc, resulting in malnourished patients being undetected and untreated. The need for monitoring and communication tools that support algorithm implementation were identified in an environmental scan. This poster will present the process of developing and testing three tools including: a self-assessment of patient food intake; an audit of mealtime practices; and a standardized discharge communication for follow-up nutrition care. Development included review of literature for extant tools and key issues, modification of extant tools where possible or development of new tools with key user input. Tools will be tested in five diverse Canadian hospitals with 150 patients. Feasibility assessment will focus on ease of use and completion rate of tools. Interdisciplinary focus group at each hospital will be conducted for input on content validity and feasibility of implementation of tools. Criterion validity will be tested where possible. A detailed example of the development of one tool will be described.

Location of Care Impact on Frail Elderly and Caregiver Health Outcomes: an Umbrella Review of Systematic Reviews

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Background: Determining location of care is a difficult decision faced by many frail elderly persons. Moreover, it is challenging to establish the impact of location of care on frail elderly and caregivers' health.

Objective: To systematically review and critically appraise the evidence concerning health outcomes of location of care for elderly people and their caregivers.

Methods: We conducted an umbrella review of systematic reviews guided by the Cochrane Handbook. We searched the Cochrane Effective Practice and Organisation of Care Group (EPOC), the Cochrane Rehabilitation and Related Therapies Field Database, EMBASE, CINAHL, PsycINFO, and MEDLINE. We determined eligible systematic reviews using the following PICO question: P: elderly people (65 and over) and/or their caregivers; I: location of their care; C: any comparison; and O: any health outcomes in clients and/or caregivers. Reviews in French, English, Spanish or Portuguese were eligible. Independent reviewers used the PICO question to screen citation eligibility in 5 stages: titles, abstracts, full texts, study quality (minimum score 5/11 on the AMSTAR quality measurement tool), and relevance to the review objectives. A third reviewer resolved discrepancies. We used descriptive analysis to synthesize the results.

Results: Of 988 titles screened, 21 full texts were reviewed and four reviews were included. Systematic reviews were English publications from 2002 to 2010 conducted in Canada (n=1), United Kingdom (n=1), Belgium (n=1) and Sweden (n=1). One review was a Cochrane systematic review which did not comprise a meta-analysis. Two reviews comprised a meta-analysis. Sixty-seven studies were included across the four systematic reviews (range = 1–30). The locations of care included: home, community care program, and nursing home/institutional setting. Three studies examined the frail elderly and found no differences in health outcomes based on the elder's dwelling location. One study showed that caregivers of elderly with dementia were more likely to be depressed compared to caregivers of elderly with other chronic diseases. The risk of depression increased with burden of care. Study quality was moderate, with two studies scoring 5/11 and two scoring 7/11 on the AMSTAR quality measurement tool.

Conclusions: There is insufficient evidence to predict frail elderly health outcomes based on location of care. Therefore, the decision to stay at home or move to another location requires weighing personal importance of reasons for and against each option.

Preliminary Data Informing the PREHAB Study—Pre-operative Rehabilitation for Reduction of Hospitalization After Coronary Bypass and Valvular Surgery

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Introduction: The emerging concept of frailty has been shown to predict postoperative risk in patients undergoing cardiac surgery. Therefore, it is critically important for the health-care team to identify strategies that will "de-frail" patients prior to surgery and optimize preoperative risk factors.

Study 1: The purpose of this study was to prospectively examine the prevalence of frailty in patients undergoing cardiac surgery. In a cohort of 133 patients, 54% were classified as frail, according to the Modified Fried Criteria. Frailty was correlated with increased postoperative hospital length of stay (LOS), where frail patients had a median hospital LOS of 8 days compared to 6 days in non-frail patients (p 7 days compared to just 37% in non-frail, cardiac surgery patients ($p<.02$). These results demonstrate the high prevalence of frailty in patients undergoing cardiac surgery and an association between frailty and prolonged hospital LOS.

Study 2: In Canada, when elective patients require cardiac surgery, they are placed on a waiting list ranging from 3 to 4 months. Although cardiovascular rehabilitation has been shown to improve patient health outcomes, patients are not referred to an intervention until after surgery. Thus, we conducted a study to determine the feasibility of implementing an exercise therapy plus health education intervention prior to elective coronary artery bypass graft (CABG) surgery. Seventeen elective CABG patients were randomized to standard care (StanC; n=9) or "prehabiliation" (Prehab; n=8). Data was collected at baseline, 1–2 weeks preoperatively (Preop), and three months postoperatively. Walking distance was assessed by a 6-minute walk test. Walking distance was chosen as the primary outcome as it is correlated with physical fitness, a parameter known to influence postoperative outcomes after CABG surgery. Fifteen patients completed the study (StanC, n=7; Prehab, n=8). Walking distance remained unchanged in the StanC; whereas Prehab patients walked +132 and +145 meters more at Preop and three months postoperatively, as compared to baseline (p 7 days).

Development of a Longitudinal Outcome Measurement Questionnaire for Family Caregiver Quality of Life as Addressed by Their Support Needs

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One component of our study consists of a clustered randomized control trial (RCT) to determine whether the use of the Carer Support Needs Assessment Tool (CSNAT) by home care nurses with the family caregivers of their patients improves the quality of life of said family caregivers. We will be testing the following 2 hypotheses in our RCT: The use of the CSNAT as a practice support tool intervention will 1) lead to improved family caregiver quality of life during the time prior to patients' death and in bereavement, and 2) contribute to the following secondary outcomes in family caregivers during the time prior to patients' death—enhanced perceived social support, improved preparedness to provide care, and reduced caregiver burden. We have adapted a model of caregiver burden to hypothesize the various concepts by which addressing support needs may contribute to family caregivers' quality of life. Due to the complex nature of quantifying quality of life and the factors that contribute to quality of life for family caregivers, we needed to create a questionnaire that would address each concept in our hypothesized model—for example, burden, preparedness, overall quality of life, patient functionality. and symptoms.

Developing an appropriate questionnaire for our outcomes measurement took considerable foresight and required that we address the following concerns:

1. Constructs: We had to define the constructs within our model as they relate to family caregiver support needs and the quality of life of family caregivers.
2. Measurement Tools: We had to investigate and select a number of appropriate, validated measures to use in order to measure our constructs (e.g., to address general quality of life we selected the Quality of Life in Life Threatening Illness—Family Carer Version (QOLLTI-F)). Appropriate authorization was obtained to utilize each of the measurement scales we had deemed most appropriate.
3. Order of Tools: Considering the length of the final questionnaire, we needed to determine the most appropriate order for the measurement tools so as to ensure that we would obtain our primary outcome measures near the beginning, while still maintaining a natural flow between topics.
4. Mode of Administration: As is the case with longitudinal outcome measures, we needed to assess what would be the best course of action to ensure that our data collection was as complete as possible over the entire data collection period.

Our final measurement tool consists of various established family caregiver tools incorporated into one questionnaire. As this questionnaire will be longitudinal, we will be using an in-person interviewer administration mode with response cards to help with retention and data integrity. In some cases, we have adapted the family caregiver tools slightly to accommodate a change from the original self-administration mode to an interview administration.

Benchmarking End-of-Life Care Practices for the Elderly in Primary Care

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The overall objective of this research is to determine whether the learning resources promoted by the General Practice Services Committee (GPSC) Practice Support Program (PSP) End-of-Life (EOL) learning module can be incorporated into the electronic medical record (EMR) of primary care providers to improve the quality of palliative/EOL care delivered. This research intends to explore whether the palliative approach that is integrated into the EMR of primary care physicians as a set of electronic tools based on the GPSC EOL PSP module can enhance EOL care in ways that can be measurable, scalable, and sustainable. The GPSC EOL PSP learning module is considered the best practice approach to managing EOL patients: those enrolled in the BC Palliative Care Benefits Program or are currently at risk of dying due to a serious, life threatening illness within the next 12 months; and family members who have a relative who passed away within the last 12 months. This research has 4 stages over a 2-year period. Stage 1 is complete, where a small group of general practitioners (GPs) and medical office assistants (MOAs) were recruited to determine current EOL care practices. Stage 2 is complete, where EMR-supported tools based on the EOL PSP learning module were developed, based on feedback from GPs and MOAs. Stage 3 is in progress, to disseminate the EMR EOL Care Module widely to physicians across BC through live learning sessions and the project website. Stage 4 is in progress concurrently with Stage 3, with the evaluation and impact of the EMR EOL Care Module provided by means of time-series evaluation. By focusing on identification, assessment, and pro-active care planning of technology supports for EOL processes in primary care practices, more efficient use of health-care resources and improvements to EOL care are being addressed.

Developing the Applied Simulated and Integrated Learning Approach (ASILA) Program

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The MOH&LTC's report *Living Longer, Living Well* highlights a rapidly increasing need to care for seniors requiring complex care in nursing home (NH) settings. As the number of seniors rises, pressure increases on the care capacity in these organizations. The majority of these workers will be registered nursing and unregulated health-care staff. However, insufficient geriatric content in Canadian health-care education persists, leading to serious concerns that staff do not have adequate knowledge to assess, plan, provide, and document care. This deficit is especially acute in NH settings, with negative consequences for seniors.

The Applied Simulated and Integrated Learning Approach (ASILA) Program is aimed to improve targeted clinical outcomes for seniors through the use of evidence-informed case simulations in the areas of frail seniors with cognitive and physical challenges. The ASILA Program is based on the use of Minimum Data Set (MDS) as a comprehensive assessment and quality improvement framework.

This presentation will highlight the efforts made by the multi-disciplinary research team to develop, implement, and evaluate the ASILA Program on clinical care outcomes for frail seniors. Three evidence-informed simulated case scenarios addressing current deficits in the care of frail seniors will be discussed. These scenarios include the use of assessment scales to conduct a CGA and Clinical Action Protocols (CAPs) to facilitate care planning. In addition, a "train the trainer program" and a training and evaluation plan to integrate these scenarios for impactful learning will also be discussed. The implementation and research plan will be presented, focusing on select measures which will be used to collect health-care staff, resident, and organizational data.

This work builds on leading practices in simulation education to develop inter-disciplinary and evidence informed training scenarios for health-care students and staff. This research will inform subsequent expansion of the ASILA Program for health-care education and training in NH settings across Canada. The ASILA Program has the potential to enhance care for frail seniors in NH settings, emphasizing quality of life and promoting best practices, all while working within a financial framework of accountability.

Advance Care Planning for Mechanical Ventilation: Health-Care Providers' Perspectives on Cross-Cultural Care

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Background: Advances in medical technologies are allowing patients with complex and terminal diseases to live longer, but this does not necessarily mean that treatment will restore health or improve quality of life. Advance care planning (ACP) is a method used for patients to express in advance their preferences, beliefs, and values for life-sustaining treatments at the end-of-life. With growing ethnocultural diversity in Canada, health-care providers are managing an increasing number of diverse beliefs/values that have significant impacts on the patient and family's reaction to the dying process and the medical decisions they make. Medical decisions that are informed by cultural or religious beliefs are commonly associated with preferences for aggressive treatments, such as mechanical ventilation (MV) and hospitalization, at the end-of-life. How we manage ethnocultural beliefs/values in ACP is a significant indicator for the quality of care and quality of death that patients and families experience.

Methods: The objectives for this study are: 1) understand methods used in ACP to manage ethnocultural beliefs/values for MV; 2) highlight challenges in ACP (organizational, material, systematic) that may hinder physicians' or nurses' ability to provide cross-cultural care; and 3) explore methods used to overcome perceived challenges. This qualitative study uses a semi-structured interview to explore methods used by physicians and nurses to set care plans for MV with patients and families from different ethnocultural backgrounds. Eight (8) participants (four physicians and four nurses) who engage in ACP were recruited from the following acute-care hospitals within the Ottawa region: l'Hôpital Montfort, Ottawa General Hospital, Saint-Vincent's Hospital, Civic Hospital, Riverside Hospital. Interviews were audio-recorded and transcribed for content data analysis.

Results: Three major themes emerged from the coded dataset of transcribed interviews: 1) goals of care across illness trajectories, 2) respecting beliefs, values, and wishes for care, and 3) cross-cultural support in ACP. Using a value-based approach in ACP is seen as an effective method for managing and interpreting diverse beliefs/values that impact decisions for MV. Physicians and nurses should be supported with more cross-cultural education and culturally competent skills for communicating and adjusting to different ethnocultural contexts. Knowledge from this study can be translated into evidence-based practice guidelines that facilitate meaningful ACP discussions, regardless of race or ethnicity. An ACP framework that is effective across cultures may have positive social, economic, and ethical implications that may serve as a promising tool for reducing burden at the end-of-life.

Conceptualization of a Palliative Approach to Care for Culturally Diverse Populations

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Background: A palliative approach centres on improving the quality of life of persons with serious life-limiting illnesses and their families. Such an approach to care encompasses multidimensional aspects of health, with an upstream orientation on the needs of ill persons and their families.

Objectives: This presentation addresses the complexities and highlights several key considerations in conducting research about a palliative approach to care for culturally diverse elderly persons with serious illness and their families. We report on lessons learnt during the early phase of our study regarding the challenge of conceptualizing a palliative approach in a way that is congruent with the cultural understandings of life-limiting illness of Chinese-speaking people who live in Canada.

Methods: Multiple research methods, including literature synthesis, interviews, and focus groups, were employed to explore understandings of a palliative approach to care and quality of life outcomes for Chinese-speaking elderly people with life-limiting illness and their families. The literature synthesis is based on the search database of a comprehensive knowledge synthesis on a palliative approach by the iPANEL team (Initiative for a Palliative Approach in Nursing: Evidence and Leadership; www.ipanel.ca). Screening of this database revealed 14 documents that specifically focused on the care experience of the culturally diverse populations in the context of a palliative approach. An additional 22 articles were identified through subsequent backward and forward citation searches and are currently being screened for relevance. Participants for the interviews include seriously ill Chinese-speaking elderly persons and family support persons in British Columbia. The study is in the early phase of literature screening and interview participant recruitment. To date, 5 participants have been enrolled: 1 ill person and 4 family support persons have completed the interviews. The goal is to recruit a minimum of 5 ill persons and 5 family support persons for the interviews.

Results and Discussion: Key issues that have emerged thus far include the conceptual clarification of a palliative approach and the contextualization of language in the culturally diverse populations. The preliminary review of the literature on the cultural dimension of a palliative approach reveals a challenge in defining a palliative approach in the cultural context of the diverse populations. The difficulty in recruiting Chinese-speaking dyads may be reflective of the cultural attitude towards death and dying, and the role of the family in coping with life-limiting illness. In recruiting Chinese-speaking participants for the study, the preference for hope instilling language may further distant participants from providing their views on a palliative approach to care for the dying. Notably, the culturally appropriate framing of a palliative approach will need to consider the tension between hope of living and acceptance of dying.

Conclusions: This study seeks to contribute to the improvement of quality of care for the frail elderly persons and their families of culturally diverse backgrounds. With an increasing diverse population in Canada, the challenges in research on a palliative approach to care must be addressed in order to achieve the goals of culturally competent care for the frail elderly and their families.

Evaluation of a Reminiscence Intervention via Telehealth Video Conferencing for Caregivers of Persons with Dementia

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Objective: Informal caregivers of persons with dementia experience significant difficulties or “caregiver burden”, which has been associated with the quality of the caregiver and care-recipient relationship. Reminiscence Therapy (RT) is an intervention that may help improve the quality of this relationship and mitigate caregiver difficulties. In rural and remote communities, the high proportion of older adults with limited access to health services makes dementia care a challenge. This project will evaluate the effectiveness of an RT intervention for informal caregivers and assess the use of video conferencing as an accessible method of service delivery. The first objective of the project is to investigate the benefits of an RT intervention for caregivers of persons with dementia. A second objective is to contribute to the delivery of health services to older adults living in rural and remote areas by assessing RT delivered via video conferencing.

Methods: Sixty-four informal caregivers of persons with dementia will be recruited to participate from the University of Saskatchewan Rural and Remote Memory Clinic. Participants will be randomly assigned to one of four groups: in-person RT, in-person active control, RT over Telehealth video conferencing, or active control over Telehealth. The RT intervention will be based on an empirically supported autobiographical memory activity involving the facilitated recall of positive memories involving the care-recipient. Measures of relationship quality, caregiver burden, and other outcome measures will be administered at pre, post, and follow-up.

Hypothesis: It is expected that caregivers in the RT groups will demonstrate an increase in perceived quality of their relationship with the care-recipient, and a decrease in their perceived burden of caring. It is further anticipated that there will not be a significant difference in group outcomes between the in-person and Telehealth video conferencing delivery mediums.

Relevance: This project will provide evidence of RT efficacy for improving caregiver/care-recipient relationships and reducing perceived burden of caring for persons with dementia. Further, it will add support for the use of video conferencing technology in the development of accessible services for those with limited access, especially in rural and remote areas.

Interdisciplinary End-of-Life Care Education Using High Fidelity Simulation in Long-Term Care

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Almost 75% of residents die in their long-term care (LTC) home (Palliative Care Alliance, 2010). The *Ontario Long-Term Care Homes Act* (2010) states that all staff providing direct care to residents must receive training and re-training in the area of palliative care; however, little training is available and evaluation of education strategies is lacking. The need for high-quality, standardized, on-the-job training will increase over the next decade as LTC increasingly assumes a hospice-like function for frail seniors (Palliative Care Alliance, 2010). Effective and innovative educational strategies tailored for LTC staff that improve provision of palliative care and enhance team work are urgently needed.

The objective of this educational research is to implement and evaluate simulation as an immersive experiential approach to teach palliative care to teams of LTC staff.

Research questions:

- Can use of simulation improve the palliative care knowledge and skills of interdisciplinary LTC providers?
- Can use of simulation improve the self-perceived palliative care competence of interdisciplinary LTC providers?
- Can use of simulation promote interdisciplinary teamwork in LTC homes?
- How does the using simulation positively and negatively impact the palliative care education experiences of interdisciplinary LTC providers?

This research will evaluate the process and outcomes of a simulation palliative care training program with interdisciplinary LTC providers. Staff from 2 different LTC homes will participate in education using HFS as a pedagogical approach to gain skills in providing palliative care, caring communication, and teamwork. Four simulation training modules with accompanying resources will be developed and implemented: advanced care planning, teamwork, holistic care planning, and caring end-of-life communication. The process of learning and the qualitative experience of the participants will be evaluated through debriefing focus groups held at the end of each of the four simulation sessions. Outcomes will be evaluated by having participants complete pre and post surveys.

Enhancing knowledge mobilization, the reach of this research will be expanded by inviting educators from Baycrest Long term Care Home and Elisabeth-Bruyere Residence to Thunder Bay to learn to replicate the simulation educational intervention in their LTC settings in Toronto and Ottawa. Through these collaborations, the findings of this research will benefit LTC homes throughout Ontario.

This research is aligned with TVN's mission to improve the care of the seriously ill elderly, while evaluating simulation as an educational strategy to address the palliative care training gap for health-care providers working in LTC. It will generate knowledge that can be used to: 1) advance the use of HFS in continuing interdisciplinary health-care education for LTC staff, 2) promote interdisciplinary teamwork in LTC, 3) advance educational research in LTC, and 4) improve the knowledge, skills, self-perceived competence, and teamwork of LTC home staff so they are better prepared to care for people who are dying and their families. This pilot project will generate evidence that will begin to determine the effectiveness of HFS to teach palliative and end-of-life care to interdisciplinary health-care providers and promote palliative care teamwork.

Delphi Study Protocol: Development of Guidelines for Selecting Patient-Reported Outcomes for Elderly Patients

E. Chan and R. Sawatzky. Trinity Western University, School of Nursing, Langley, BC, Canada.

Patient-reported outcome (PRO) measures are designed to provide important information to ensure that the needs and concerns relevant to the quality of life of patients are systematically assessed. Assessment of health and quality of life is critical to the provision of high-quality care that addresses the full range of and often complicated needs relevant to seriously ill elderly patients. This project is a review of research and other sources of information to establish consensus-based best practice guidelines using the Delphi Method for the selection and utilization of PRO instruments to assess the quality of life and inform the care of the seriously ill elderly patients. The purpose of this poster is to present the study protocol that describes the plan for this study. The present study consists of two stages. Stage I is a review of research and other sources of information to develop a large set of initial guidelines germane to the selection and use of PRO instruments for elderly patients. The standard approach to knowledge synthesis will be used. Evidence from various forms of knowledge from different sources will be synthesized. The recommendations of the Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre) for knowledge synthesis will be followed. The EPPI-Reviewer software will be used to combine all documents into a common database, apply selection criteria corresponding to each of the review questions, conduct critical appraisals of relevant documents, establish and apply a code book to extract relevant information from each document, and facilitate the synthesis of findings. Stage II involves using the Delphi Method to generate consensus-based best practice guidelines. (The Delphi method is widely used for gathering data from participants within their area of expertise. The method is designed as a group communication process with an eye towards building consensus by conducting multiple rounds of surveys to collect information from a panel of experts.) Stakeholders, experts, and various health-care consumers, and advocacy and patient network group members will be invited to participate in the Delphi survey. A set of guidelines developed based on the knowledge synthesis from Stage I will be sent to the participants. Participants will be asked to rate the importance of each guideline for inclusion in the final set, provide feedback or a rationale for giving a guideline a high rating, and suggest possible additions to the list of guidelines. The list will be narrowed to include only the most highly rated guidelines, new ones will be added based on participant recommendations, and written comments about the guidelines will be summarized. The process will be repeated until consensus is reached. Having consensus-based best practice guidelines available will help ensure that the best PRO instruments are selected and utilized to assess and improve the quality of life of seriously ill elderly patients.

A Mindfulness Intervention in Long-Term Care for Frail Elderly, Families, and Formal Caregivers

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The main objective of this study is to implement a mindfulness-based intervention (MI) to improve mood and quality of life for frail elderly and caregivers in long-term care (LTC). Depression is the most prevalent mood disorder among elderly in LTC and is also common in family caregivers. In addition, LTC staff working with elderly clients experience stress and burnout more than other personnel. We plan to implement a modification of Mindfulness-Based Cognitive Therapy (MBCT)—a group intervention that combines techniques from Mindfulness-Based Stress Reduction (MBSR) with Cognitive Behavioral Therapy (CBT). MBSR is a group program in which participants learn mindfulness mediation to decrease stress, anxiety, and suffering associated with various problems. CBT is a one-on-one approach for depression, in which patients learn to restructure irrational thought processes. MBCT has shown to be effective at preventing relapse in recurrently depressed individuals, as well as reducing symptoms of depression and anxiety. We hypothesize that our MI will: 1) improve depression and quality of life for frail elders and may also have a positive effect of daily functioning and physical health; 2) improve mood, stress, burden, and quality of life for caregivers and may also have a positive effect on physical health; and 3) improve mindfulness, self-compassion, and satisfaction with life in both groups.

We plan to use a Randomized Controlled Trial consisting of two interventions: one MBCT intervention for frail elderly and one MBCT intervention for caregivers. The intervention will be 1.5 hours once per week for eight weeks. Questionnaires will be administered both before and after the MBCT interventions and waitlist period for all participants. The following scales will be completed by frail elders: Geriatric Depression Scale, Geriatric Quality of Life Questionnaire, and Frail Elderly Functional Assessment Questionnaire. The following scales will only be completed by caregiver participants: Beck Depression Inventory-II, Caregiver Strain Index, Zarit Burden Interview, and Quality of Life scale. All participants will complete the Depression, Anxiety and Stress Scale; Health Survey (SF-36) for physical and emotional health symptoms (a visual analogue to assess intensity and frequency of pain), Five Facet Scale for mindfulness; Self-Compassion Scale; and Satisfaction with Life Scale.

Analyses will be conducted using Analysis of Covariance (ANCOVA) models with group (intervention or control) as the independent variable, the post-intervention score as the dependent variable and the pre-intervention score as the covariate. We predict greater change in the intervention group compared to the control group for all analyses in both frail elders and carers.

By supporting frail elders and their caregivers through MBCT, we anticipate improvements in mental and physical health, stress, and quality of life. Importantly, reducing work-related stressors in caregivers may improve their quality of care for frail elderly, as lower stress levels in caregivers are related to increase quality of care. Because MBCT is a time-limited structured group program, it may be a cost-effective method by which to sustain the TVN's strategic priority of improving outcomes and quality of care for frail elderly and supporting caregivers and families.

Evaluation of Advance Care Planning Information Materials with Older Adults and Health-care Providers: a Qualitative Observational Study

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Background: Advance care planning (ACP) is a process that can assist people to think about, talk about, and document their preferences for health care. Alberta Health Services (AHS) has developed ACP information materials to facilitate discussions among patients/families and health-care professionals (HCP). Currently, Alberta's ACP information materials have not been empirically evaluated within medical contexts that provide services to seriously ill older patients.

Study Aims: (1) establish a baseline understanding of how seriously ill older patients, families, and HCP interact with existing ACP information materials in four medical contexts (kidney clinics, palliative care, cancer clinics, and institution/facility living for older adults); (2) tailor refinements and intervention strategies to improve ACP information materials, HCP education, and discussion strategies to better reflect the needs of older patients; and (3) further tailor materials and discussion strategies to meet the needs of older patients in different medical contexts.

Method: Conversation analysis (CA) is used to examine and evaluate discussions among HCP (e.g., physicians/

nurse practitioners/nurses/social workers) and seriously ill older patients involving AHS' ACP information materials. CA is the fine-grained qualitative analysis of interactions between people as a means of understanding how their talk results in actions and activities without directly asking (e.g., informing, criticizing). CA assists researchers in detecting and interpreting functional/dysfunctional communication practices. Data collection/analysis is being done in three phases. Phase 1: ACP discussions among HCP and seriously ill older patients/families are audio/video recorded in the participating medical contexts (a total of 30–35 ACP discussions). I examine how the design and content of the HCP's talk using ACP information materials influences the patients'/families' level of interaction and displays of understanding. Phase 2: Evidenced-based interaction principles derived from CA are used to illustrate and support possible revisions to the ACP tools and develop recommendations to enhance ACP discussions. HCP from each medical site are trained on how to use the new materials and discussion strategies to increase the effectiveness of their communication (30–35 intervention discussions will be recorded). The effectiveness of the new materials is evaluated. Phase 3: Feedback on using the new ACP information materials and HCP training tools is obtained from participating HCP. The intervention materials are revised based on findings from Phase 2 & 3. Preliminary Findings from Phase 1: Based on 22 recorded consultations, it has been determined that (1) very few of the patients/family members are familiar with the term 'Advance Care Planning'; (2) there is little use of the existing ACP information materials by HCP; (3) patients receiving the existing ACP information materials display little interest in them; and (4) most of the HCP have developed their own discussion style that generally show good effectiveness. To assist with familiarity of the terminology associated with ACP, I have developed new ACP, Goals of Care Designations, and Green Sleeve icons and slogans. The new icons/slogans will be pilot tested with patients and family members attending kidney clinics in Edmonton. The pilot study will inform the development of the intervention materials used in Phase 2. This project is in progress. Final results available September 2015.

Wait times for Home-Based Rehabilitation: the Impact on Rehospitalization

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Home-based rehabilitation services are part of Ontario's home care strategy for safe hospital discharge and to reduce (re)hospitalization through prevention and maintenance. An estimated 78% of home care clients do not receive any rehab, wait times can be as long as 3 months, and the longest waiting is experienced by elderly with chronic disorders. Data on hospital utilization among elderly receiving home-based rehab and the impact of waiting for such services are sparse. These data are extremely important in Ontario where close to 60% of home care clients are elderly, over half are admitted post-hospital discharge, and the number awaiting long-term care placement at home is growing. Our study seeks to determine: How do wait times for home-based rehabilitation affect (a) emergency room use and (b) hospital (re)admission?

Methods: The proposed project uses a retrospective cohort study design. The cohort includes individuals over the age of 65 who have been newly admitted to Ontario's 14 Community Care Access Centres (CCAC) home care programs from 2009 to 2013. Data will be abstracted from province-wide datasets held at the Institute for Clinical Evaluative Sciences (ICES). The primary outcome is hospital utilization. Demographic information, medical historym and rates of hospitalization and emergency department visits will be analyzed. Survival analysis will be used to take account of the duration of the wait time to a hospital encounter (event). The analysis looks at the total time a client is at risk for a hospital encounter and allows us to determine: 1) if returning to hospital occurs later for clients who received rehab versus did not receive rehab; and 2) the impact that wait time for rehab has on time-to-event. The analysis also permits us to control for multiple potential confounders known to impact rehospitalization.

Results: This provincial study builds upon a pilot study conducted in 2012–13. Results from the pilot were based on 1029 patients, ≥65 years of age, admitted to home care following a discharge from two hospitals in southeastern Ontario. The pilot found that home-based rehab was offered to 43.8% of these home care clients. Average wait times from home care admission to first rehab visit was 28 days for clients that were re-hospitalized compared to 13 days for those who were not. Survival analysis showed that physiotherapy was effective in delaying re-hospitalization, despite wait times of slightly over 3 weeks. Wait time for occupational therapy was over 4 weeks, and was associated with a high proportion re-hospitalized (37.4%). The majority of clients returning to hospital presented with pain, fever, dehydration, dyspnoea, pneumonia, nausea, polypharmacy, delirium, angina, COPD, and renal failure.

Relevance: The study is an extensive examination of wait times for Ontario home-based rehabilitation and its impact on elderly clients. The survival analysis will include all clients over the age of 65, regardless of their assessed clinical and home care needs or length of stay on home care. This analytical strategy, study design, and inclusion criteria will provide results that are meaningful to decision makers at local, regional, and provincial levels when discussing resources, clinical pathways, and processes. Results delineated by diagnosis and case mix groupings will also inform physicians and rehabilitation therapists' triage process and practice.

Informing the Use and Selection of Technology in the Care of Frail Older Adults

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Background: Health policy in Canada supports healthy aging at home and in the community. Specialized geriatric assessment services are generally centralized and frequently require frail seniors to travel for assessment and follow-up visits. Technology enabled interprofessional assessments and follow-up in the home or local community will enable more frail seniors to receive timely assessment, intervention, and follow-up by overcoming barriers. Timely comprehensive geriatric assessment has been demonstrated to support the development of holistic care plans that provide the best opportunity for seniors to maintain their independence and function. At the same time, older people are becoming the subjects of applied technology solutions, but may not have had the opportunity to influence the development of these technology solutions. An understanding of the ways in which older people currently view and use technology is required to ensure the needs and values of older people inform technology development and adoption. This understanding can also support the development and selection of technology solutions that optimize the potential for self-care among frail older people.

Objectives: To explore the use and limits of technology to facilitate in-home geriatric assessment and follow-up/monitoring of community-dwelling frail seniors, including:

- Identification of available and emerging health technology options for both self and provider-led care for frail older people
- Develop strategies to inform the selection and use of technology in the care of frail older people
- Learn from the experience of seniors, families and health-care professionals who use technology in health-care relationships to inform the design and modification of technological solutions

Methods: In 2006, Ontario's government implemented regionalized health-care services and created 14 Local Health Integration Networks (LHINs). Each LHIN is responsible for the planning, integration, and funding of specified health services in their region, including hospitals, community care, and home care. Similar to other regions in Canada, the number of seniors experiencing frailty (e.g., multiple co-morbidities, high health service utilization) is increasing in Ontario's Central East LHIN. Data collection in phase one includes focus groups and interviews with seniors, technology designers, and decision makers, and a survey of health-care and social services workers in the Central East LHIN, to identify and evaluate technology options and approaches for home-based care of frail seniors.

Results and Implications: We will report on the first stage of the study. Working collaboratively with field experts and others we have identified technology options for health assessment and monitoring. We have then gathered input about the process of design and the inclusion of the input of seniors in the design, decision-making, and selection of technology options. Ideas to enhance the inclusion of seniors are explored, as is the tension between the opportunities and limits of technology in the care of frail seniors. The evaluation of the technology and current decision-making approaches is considered and can inform health service design for community dwelling frail seniors.

Postdoctoral research proposal: Development and initial testing of a facilitation intervention to enhance evidence uptake in the management of depression in long-term care

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Depression is the most common mental illness among older adults and is more prevalent among those living in long-term care (LTC). Depression is undertreated, underdiagnosed and misdiagnosed in this population. The Resident Assessment Instrument-Minimum Data Set (RAI-MDS) 2.0 contains a depression rating scale (DRS) originally validated nearly 15 years ago. Guidelines exist for assessing and treating depression but the extent of their uptake is unknown. However, we do know that a consistent finding in clinical and health services research is a failure to translate research into practice. Facilitation is gaining recognition as a knowledge translation intervention but little empirical research exists on its effectiveness and none in this sector. The purpose of this project is to revalidate the DRS and evaluate feasibility and effectiveness of facilitation as an intervention to enhance depression guideline uptake by healthcare aides caring for elderly residents with depression in LTC in Alberta. The research involves 3 phases:

1. I will conduct an environmental scan to understand depression screening and management practices and assess baseline state of guideline use with respect to engaging healthcare aides in managing depression. I will then revalidate the DRS in the RAI using the same approach as in the original validation.

2. I will use Normalization Process Theory (NPT) and intervention mapping (IM) to develop a tailored, theory-informed facilitation intervention. NPT addresses processes by which new practices are operationalized in healthcare. It taps into the actual work routines and tacit knowledge base of workers, an important consideration for the healthcare aide group. IM involves conducting a needs assessment, creating objectives for change, planning for adoption and implementation of an organized programme, evaluating change and supporting sustainability. I will also work with care aides in focus groups to tailor the intervention to their work practices and identify potential barriers to implementation.
3. I will evaluate the acceptability and feasibility of doing the facilitation intervention with healthcare aides using process evaluation. I will select a LTC facility with at least three resident care units and 6-8 care aides from each unit and perform the intervention with these groups. In this feasibility study I will also evaluate use of flowcharts to capture guideline uptake. The process evaluation will involve examining to what extent the programme is implemented as planned, evaluating reach, participant satisfaction, implementation of activities, intervention performance, and quality assurance. Data collected will include flowchart documentation, interviews, focus groups, and surveys. The appropriate approach to quantitative analysis of flowchart data and surveys will be determined. The qualitative data will be analyzed using the inductive approach of constant comparison.

This research will add to our understanding about facilitation as an intervention to enhance the use of research. This will help us know if this strategy can be used with care aides as one tool to improve depression management, an important contribution to quality of life for this vulnerable population of older adults.

Nursing Personal Attitudes in Residential Care Settings: a Review of the Literature

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Rational: Nursing staff provide the majority of direct care for institutionalized older adults with dementia and thus have the biggest impact on their quality of life. Understanding how nursing staff's attitudes and perceptions of their residents is crucial because it directly affects quality of care delivered and the culture of care in residential care homes.

Objective: This paper presents a systemic review of nursing staff perception and attitudes towards residents in residential care settings. The aim of this poster is to describe where the gaps in our knowledge and what future research needs to be conducted to further our understanding of attitudes of nursing staff in residential care settings.

Method: Data Sources included Ageline, Medline, Cumulative Index to Nursing and Allied Health Literature, Web of Science, PsychINFO, PubMed, and active researchers in this area from 1990 to present. Empirical studies will be included that explored perspectives or attitudes held by nursing staff of residents in long-term residential care settings.

Conclusion: Preliminary findings suggest that social and cultural aspects of teamwork and staff morale have strong influences on perception of residents. Attempts to improve staff attitudes should focus on creating organizational cultures that promote high morale and collaboration of all members of the nursing staff.

Advance Care Planning: a Qualitative Study with Families of Deceased Cognitively Impaired Older Adults: Study Design

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There is an increasing awareness and discussion of issues at the end of life, including the concept of advance care planning (ACP). ACP is a process through which older adults with capacity can plan in advance for their preference for care if they become incapable of making decisions for themselves. While ACP is important to all older adults, irrespective of age or health status, it is of particular salience for those with diagnosed cognitive impairment. The current study aims to provide the first step in understanding reasons cognitively impaired older adults choose to engage in aspects of ACP by exploring ACP as a multi-component complex process. The purpose is then to explore not only which aspects of ACP occur in families of cognitively impaired older adults, but also the reasons why these decisions are made. The specific research questions are: 1) When and how do cognitively impaired older adults and their families receive information about ACP and its relation to cognitive impairment? 2) In which aspects of the ACP process do they engage, and why? and 3)What is the role of ACP in family members' perceptions of the deceased's quality of death? Interpretive description (ID) will be used as the method of analysis in the current study as it addresses the limitations in traditional schools of qualitative analysis (Thorne, 2008). A key tenant of this approach involves grounding the research in both the literature as well as the practical knowledge gained from experience. The ID method focuses on practical applications, particularly the clinical utility of research to guide best practice. Family members of deceased older adults who were cognitively impaired prior to death will be recruited for one of four stages of data collection. In stage 1, 10 participants will engage in individual interviews with open-ended questions to address the research questions. Data collection and analysis will occur concurrently with the principle investigator immersing herself fully in the data and looking for broad themes as a first step in the analysis. These initial themes will be presented to two focus groups, each with 4–6 participants, who will provide feedback on these themes based on their experiences in order to illuminate aspects of this complex topic that may not have been explored through the initial individual interviews. Feedback from these focus groups will be used to create additional probes used in stage 3, which will consist of individual interviews with 10 new participants. Throughout this process, data analysis is inherently flexible, allowing for shifting of data construction and an openness to changing themes as new understandings of relationships are elicited. The final stage of data collection will involve 2 more focus groups (4–6 participants) where participants will be asked to discuss their reactions to the themes brought forward by the principle investigator to further refine these relationships. Finally, constant comparative analysis will be used to compare each identified theme with all the other themes to identify commonalities and patterns (Glaser & Strauss, 1967).

Slip-Resistant Winter Footwear Design and Testing for Older Adults

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We all know an elderly friend or relative who has broken a hip or an arm after a fall on ice or snow. This winter was particularly treacherous in North America. Even the elderly who avoided a fall likely felt confined in their own homes for long stretches. Falls and the inactivity resulting from the fear of falling both lead to dramatic declines in the health of older adults each winter. At Toronto Rehab we are developing better footwear in WinterLab by testing on real ice and snow. We can tilt this lab to measure the maximum angle that someone can walk up, across, and down a wintery slope. The results show remarkable repeatability and can distinguish between the performance of footwear with much greater certainty than existing methods. Our results can be surprising. While most good winter footwear manages slopes up to about 7°, one undistinguished smooth boot enabled us to walk up and down 18° slopes on wet ice!

The winter footwear slip resistance testing program at Toronto Rehabilitation Institute aims to reduce instances of slips and falls in older adults. Our objectives are to:

1. improve winter footwear slip resistance standards;
2. test, classify and develop an easy to understand labeling system for consumers so they can select the best performing footwear;
3. develop new materials and designs for high performance winter footwear.

Current winter footwear slip resistance standards rely on measuring the force required (coefficient of friction) to drag a fixture-mounted shoe across an ice surface. Our testing has shown that user-worn shoe testing based on real users walking up ice slopes is a more ecologically valid approach as it involves a subject's natural gait cycle and biomechanics. This is particularly a concern when selecting winter footwear for older adults as their balance abilities and reaction times are severely impaired.

We are also exploring new materials and design strategies to improve the slip resistance of winter footwear with the aim of developing universal footwear for indoor use on hard tile surfaces and outdoors on snow and ice. We have developed a new rubber compound that is a hybrid of a soft rubber and a hard fibrous phase, and which according to preliminary testing possesses a three times greater coefficient of friction on ice than other similar compounds. This material grips ice similar to metal cleats, but remains soft and flexible for use on hard tile indoor surfaces. Our work considers the design of optimal tread patterns on winter footwear, and we use 3D printing technology for fast and iterative slip resistance testing of evolving tread patterns.

The knowledge generated from these activities will increase awareness regarding winter issues facing older adults and provide solutions to these issues through winter footwear testing and design. Addressing these issues is essential now more than ever due to our nation's shifting demographics and the pressing need for older adults to remain physically active in all seasons as they age.

Evaluating the Palliative Performance Scale for the Long-Term Care Home Setting

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Background: Health-care providers at Canadian long-term care (LTC) homes provide care to older adults with significant illnesses, and functional and cognitive decline. They need to be able to identify changes in residents' health and functional statuses in order to promote comfort and provide appropriate interventions. The Palliative Performance Scale (PPS) (version 2) is a tool widely used by palliative care and other clinicians to assess and communicate the functional status of their patients, according to five key criteria. However, this tool has not been tested or evaluated in the LTC home setting.

Objectives: To help determine the PPS's suitability in the LTC home setting, the objectives of this project are to: 1) test the interrater reliability of the PPS between licensed nurses and personal support workers; 2) collect stakeholder feedback on the use of the PPS; and 3) develop and refine approaches to integrate the PPS assessment and educational components into an electronic documentation program.

Methods: To learn more about the use of the PPS, a review of the academic literature was performed using five databases (PubMed, Web of Science, Cumulative Index to Nursing and Allied Health, Ageline and MEDLINE) with the key words, Palliative Performance Scale. To test the interrater reliability of the PPS, it was determined that (n = 5) personal support workers and (n = 5) licensed nurse raters will need to assess 52 residents' PPS scores to obtain an intraclass correlation of .8. To obtain stakeholder feedback, using a qualitative descriptive approach, semi-structured interviews will be conducted with clinicians, family members, and residents. The interview questions will focus on learning about the PPS's potential use in LTC home practice, and any facilitators and barriers to using the tool in this setting. To integrate the PPS into practice, key individuals from the LTC home setting who are responsible for overseeing the electronic charting and documentation will be invited to participate in a working group to develop and refine PPS policy and procedures.

Preliminary Findings and Next Steps: A search of the literature returned 1020 articles published in English, between 1996 and August 2014. After accounting for duplicates, 633 articles were identified. Titles and abstracts were screened for an inclusion of the tool. Of the articles that included the PPS, the main themes in the literature included: using the PPS for survival or mortality prediction, evaluating psychometric properties, describing characteristics or personal factors of a study sample, and triggering palliative care interventions. Following clearance from McMaster University's review board, the project will commence.

Conclusions: The results will be important, if supported by the study, in encouraging the widespread, consistent use of the PPS in LTC homes. The use of the PPS will ultimately create opportunities to dialogue about palliative and end-of-life care interventions with dying residents and family members.

Re•Visioning Aging: Using Digital Storytelling To Understand the Experience of Aging With Serious Illness

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WHAT: This project focuses on the creation of digital stories by older adults with mental illness and dementia and the impact of these stories on health-care providers.

WHY: Ageism and stigma of growing old with mental illness continue to permeate society and the healthcare experience. Dominant (mis)conceptions about the abilities of older adults, in particular those living with mental illness and dementia, shape the experience of aging with mental illness. Digital storytelling is a person-centred process that builds on the values of maintaining personhood and preserving dignity—key tenets in the culture of person-centred care for older adults. Use of social-contact-based interventions has been identified as key ingredient in reducing stigma. Empowering older adults with serious mental illness, particularly older adults with dementia, to engage with technology and develop digital stories also challenges dominant concepts of ageism and stigma as it relates to aging with mental illness.

HOW: Project Re•Vision is a mobile multi-media lab and expressive arts institute led by Dr. Carla Rice at the University of Guelph, dedicated to exploring ways that arts-informed research can work with communities to advance social inclusion and justice by challenging stereotypes. Project Re•Vision has successfully developed methodologies for accommodating people with diverse disabilities and difference including physical, mental, and intellectual difference, enabling them to tell their stories and impact others through digital media. Re•Visioning Aging builds on the success of Project Re•Vision by bringing arts-based research to seriously ill older adults and their families.

This research will explore the value of digital stories developed by older adults with mental illness/dementia and understanding how they influence healthcare providers and trainees. Specifically we seek to answer the following questions:

1. Does engagement with the digital storytelling process change older adults and provider perspectives on growing older with mental illness?
2. Do changed perceptions influence clinical practice by enhancing the capacity of providers to communicate and share decision making with older adults?
3. What is the potential of health providers' engagement with digital stories to inform and enhance their attitudes, responses, and clinical competencies in interactions with those aging with mental illness?
    a. Is there a relationship between ageism and stigma?
    b. Can original arts-based digital stories be used to complement the education and training of providers and trainees working with older adults with mental illness?
    c. Can original arts-based digital change providers' feelings towards the elderly or beliefs/attitudes about mental illness?

Evaluating the Impact of Laws and Policies for the Caregiving of the Seriously Ill Elderly

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This research Fellowship will examine and evaluate Canada's systems of laws governing caregiving leaves as relates to a very seriously ill elderly population. This research is important in determining the effectiveness of these laws in order to ensure that the seriously ill elderly population is provided with the option of informal family caregiving assistance where possible and appropriate. Laws associated with caregiving leaves have historically been available to family members or close relations on only a short-term and episodic basis, and are a mix of provincial and federal jurisdiction. They are often seen as confusing, and may not meet the needs of either the caregiver or care recipient.

Canadian caregiving leave laws were not been developed with a Lifecourse perspective, nor an aging population in mind. Rather, what they reflect is a stop-gap support for short episodic leaves from paid work often to provide for acute care supports or to assist children, or to support a person within their last 26 weeks of life.

This research will evaluate how effective, usable, and appropriate Canadian caregiving leave laws are for the modern reality of providing care to our increasingly oldest old, frailest frail, and seriously ill aging populations. It can no longer be assumed that, because an adult is very old and seriously ill, they will be at "end of life" within 26 weeks. Rather, it is the new reality that older people with significant health concerns are living longer and the current care leave laws may not fit the needs of Canadians.

This interdisciplinary work will integrate research on law and policy, ethics, aging, geriatric care, home, and institutional care, as well as palliative care issues. The research will also consider issues of ethno-cultural and sociological issues associated with aging, care provision, and gender roles. Outcomes of this project will include knowledge mobilization tools and strategies for older adults, caregivers, and allied health professionals. A further key outcome will recommendations for law reform, as appropriate, to inform government and Canadian law reform commissions on possible changes to legislation and policy related to caregiving leaves.

Barriers to the Use of Femoral Nerve Blocks to Manage Hip Fracture Pain Among Frail Elders

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Background: Hip fractures are a common source of pain and related morbidity among the frail elderly. One technique that has been shown to adequately manage pain in this population is the femoral nerve block. However, it is not currently employed routinely in Alberta emergency departments.

Objective: The first objective was to systematically review the recent literature around the use of femoral nerve blocks to manage acute pain among older adults with a hip fracture. The second objective was to survey physicians about the potential barriers to routinely performing femoral nerve blocks in the emergency department.

Materials and Methods: Searches of MEDLINE, EMBASE, and the Cochrane Trials database were conducted between 2010 and 2014 to identify randomized control trials examining the use of femoral nerve blocks in the ED to manage acute hip fracture pain among older adults (65 years of age and older). The reference list of a previous systematic review published in 2011 was also searched. The results of the systematic review were used to inform the development of the barrier survey. The questions were structured using Michie's twelve theoretical behaviour domains and the Behaviour Change Wheel. The survey was distributed to physician members of the Alberta Emergency and Bone & Joint Strategic Clinical Networks.

Results: Seven randomized control trials were included in the review. Four studies employed a single femoral block, while three employed continuous (catheter placed) femoral blocks. All of the studies reported statistically significant reductions in pain. All but one study reported that patients treated with femoral nerve blocks consumed significantly less rescue analgesia. Finally, there were no significant adverse effects reported with the femoral block procedure, and multiple studies found a decreased risk of respiratory and cardiac events. Surveys are still being collected and evaluated. The results of the barrier survey will be mapped against the Behaviour Change Wheel to help determine the most effective knowledge translation strategies to employ to increase the use of femoral nerve blocks in Alberta emergency departments.

Conclusions: Femoral nerve blocks appear to have benefits both in terms of decreasing pain and limiting the amount of systemic opiods administered to frail older adults experiencing a hip fracture. The results of this review and the barriers survey will help inform the development of knowledge translation strategies to increase the routine use of femoral nerve blocks.

Impact of Hospitalist-Geriatric Co-Management on Orthopaedic Patients with Hip Fractures

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Background: Hip fractures in the elderly are a common problem associated with morbidity, mortality, and increased health-care costs. The hip fracture patients on the orthopedic service at Mount Sinai Hospital are complex and pose challenges to the surgical team to coordinate and manage their acute medical issues. The literature suggests that a co-management model with hospitalists or geriatricians may improve staff satisfaction and reduce costs. Therefore, a co-management clinical service was established to address gaps in care for the hip fracture patients. The objective of this study is to examine the effects of the hip fracture co-management service on patient outcomes, quality indicators, and appropriate resource utilization.

Setting: Mount Sinai Hospital, an academic medical centre with orthopaedic inpatient units.

Population: Geriatric patients admitted to MSH with hip fractures after 2011 with appropriate historical controls.

Study Design: Retrospective, before-and-after cohort study.

Data Collection: Covariate and outcome measures collected through electronic and paper chart reviews.

Results: Preliminary data analysis demonstrates a positive impact on outcome measures of the co-management service. The average length of hospital stay for hip fracture patients decreased by 20% following the implementation of the co-management model of care. There was also a reduction in the in-hospital mortality rate and hospital acquired infection rate. The post-operative delirium rate was the same for both conditions. Preliminary analysis demonstrates a reduction in the time required for patients to get to the operating room and higher rates of osteoporosis treatment initiation post hip fracture. Important predictors of negative outcomes among elderly patients with hip fractures include advanced age, male gender, and co-morbid diseases. In this study, male patients had a longer hospital stay than female patients. Patients with increased co-morbidities and advanced age have a decreased chance of 10 year survival and a longer length of stay. A functional status score of 4 or below, which is indicative of moderate to severe functional impairment, correlates with increased length of stay.

Conclusions: The preliminary results of the study are encouraging and suggest the intervention may improve patient outcomes and reduce post-operative complications. This novel model of care can has significant impact on improving health-care efficiency and the quality of care of hip fracture patients. Implementation of this model has potential to improve coordination of care among health-care professionals and may be generalizable to other patient populations undergoing urgent procedures or surgeries.

Feasibility of a Smartphone Delivered Aerobic and Cognitive Exercise Program for Community-Dwelling Older Adults

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Background: Current literature provides evidence for the beneficial effects of physical and mental activities on cognitive functioning of older adults at risk of cognitive decline. In fact, according to existing epidemiologic studies, there is little dispute that type-2-diabetes (T2D) is linked to cognitive impairment. 2011 World Alzheimer report outlines the importance of providing routinely individualized cognitive stimulation programs as a part of care for older Canadians. Emerging health technologies, including mobile health (mHealth) via smartphones, have shown promise in extending the reach of preventive and management solutions for patients with cognitive impairment. Currently, however, there is a lack of consistency in the application and availability of cognitive training in geriatrics. This research group has developed the HealtheBrain smartphone application which is currently available on the Apple App store for iPod touch 4+, iPhone 3GS+, and iPad 2+. The HealtheBrain smartphone application aims to provide an easily accessible mind-motor exercise program known as Square-Stepping Exercise (SSE) developed by Shigematsu and Okura (2005). The SSE task uniquely challenges participants to utilize their memory and balancing skills as they watch, recognize, memorize, and executefollow step patterns demonstrated on a 4 by 10 square-patterned floor mat (in-person program) or diagram (smartphone application). Preliminary evidence indicates that the mind-motor exercise program leads to improvements in verbal learning and memory, as well as verbal fluency and overall global cognitive functioning, in community-dwelling older adults without dementia, diastolic blood pressure, and fitness (Gill *et al*., 2014).

Objectives: The aim of this study is to develop, implement, and evaluate the HealtheBrain smartphone application.

Methods: Two samples (7–8 participants in each) of community-dwelling T2D older adults who previously consisting of those who have completed a an previous aerobic and cognitive exercise study with our group (including both participants who are and and those who are not experienced with mind-motor exercise programs) will be recruited. Both samples of participants will be asked to use the HealtheBrain smartphone application for two weeks. Following this two-week period, participants will complete a 25-item questionnaire, intended to evaluate the feasibility, utility, value, and design of the HealtheBrain smartphone application. Bivariate zero-order Pearson correlations and independent sample *t*-tests will be performed on the pooled data to determine general linear relationships. Cronbach's reliability alphas will be used to assess internal consistency of the questionnaire. Thematic analysis will be used to interpret participants' responses to short answer questions.

Anticipated Results: It is anticipated that the cognitive exercise smartphone application will receive positive feedback from the T2D patients. Additionally, the questionnaire will provide the investigators with valuable feedback about design features of the smartphone application.

Significance: Findings from the questionnaire will establish grounds for a HealtheBrain smartphone application pilot study, which will determine the efficacy of mobile health technology in T2D as assessed by global cognitive functioning, specific cognitive domains (memory, reasoning, concentration and planning), mobility (balance, falls self-efficacy), and vascular outcomes. The smartphone application will extend the reach of the mind-motor exercise program to underserved populations in rural communities with limited transportation options and limited access to exercise programs. Overall, these studies will take us a step closer in building and implementing evidence-based mHealth mind-motor exercise mHealth programs to prevent life-limiting illnesses.

An Audit of Early Detection of Delirium and Management Strategies Used in Hospitalized Older Adults

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Objectives: To determine: 1) compliance with use of validated delirium screening tools in hospitalized older patients; 2) use of non-pharmacological and pharmacological interventions for delirium management.

Design: Retrospective chart review.

Setting: Single tertiary care hospital.

Participants: We included patients aged ≥ 65 years admitted to four medical units—Acute Care for the Elderly (ACE) unit, ICU, one general medicine unit, one orthopedic surgery unit for hip fractures— for ≥ 48 hours during seven time blocks between September 1, 2010 to October 31, 2013. Patients admitted or discharged from the unit outside of these time blocks and patients with documented palliative status were excluded.

Measurements: Compliance with delirium screening was determined 1) within 24 hours of admission, or 2) at any point after the first 24 hours before discharge. This was used to calculate incidence of both delirium on admission, and hospital-acquired delirium. Further, use of non-pharmacological and pharmacological delirium practices were evaluated. Non-pharmacological practices included use of physical restraints, mobilization, and removal of devices, such as catheters. Pharmacological practices included changes in subject's medication regimens, such as reduction of polypharmacy, initiation of medications used to manage delirium, and discontinuation of medications that are thought to contribute to delirium.

Results: At the time of abstract writing, the study population (n = 315) consisted of a mean age ± standard deviation of 78 ± 8.6, 52.1% female. Delirium screening was completed for 60.6% of patients within the first 24 hours of hospital admission; 73.7% had delirium screening at any point after the first 24 hours before discharge; 82.5% of patients were screened at least once within 24 hours or after the first 24 hours. The average total screening compliance was calculated using number of days subjects were screened with a validated delirium screening tool, physician progress notes or consult notes, divided by total days admitted to the unit of interest, yielding a rate of 56.9%. Of the 315 subjects, 27.9% had a positive delirium screening at some point during their hospital stay. Of these, 69.3% developed delirium while in hospital; 30.7% were already delirious upon admission.

The most common non-pharmacological practices used in patients who were screened positive for delirium were mobilization (64.8%), use of physical restraints (27.2%), and removal of urinary catheters (10.2%). Pharmacological practices most commonly initiated include use of antipsychotics (28.4%) and benzodiazepines (12.5%).

Conclusions: An increase in delirium screening rates and a decrease in delirium incidence could be monitored as a quality of care indicator for hospitalized older patients. The results of this chart review indicate that there is room for improvement in terms of better optimization of screening to ensure early delirium detection and appropriate management throughout hospital stay in the older adult population.

End-of-Life Experiences of Indigenous Peoples Around the World

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Background: Providing appropriate end of life care for all population groups requires health-care professionals to be culturally aware and have the ability to understand, appreciate, and interact with persons from cultures and/or belief systems other than their own. Unfortunately, this level of cultural safety does not occur for many indigenous peoples as they must leave their communities to receive end of life care in unfamiliar care systems.

Purpose: For the purpose of this study, the results of previously completed qualitative studies were synthesized to enhance the overall depth and breadth of understanding of the diverse experiences of indigenous peoples at the end of life.

Methods: This studied utilized the metasynthesis procedures outlined by Sandelowski and Barroso (2007) to synthesize the qualitative research studies on the end of life experiences of indigenous peoples. A total of 2255 articles were obtained; of those 18 articles fit the inclusion criteria. These 18 articles were appraised for quality using the Critical Appraisal Skills Program (CASP) scoring system and the classification of findings outlined by Sandelowski and Barroso (2007). SPSS was utilized to descriptively analyze the results of the CASP scores and study demographics. The reported findings from the chosen articles were entered into NVIVO 8 software for qualitative analysis. Synthesis of the findings was achieved using taxonomic analysis, constant target comparison, and reciprocal translation in conjunction with team meetings.

Findings: A total of 447 individuals from Australia, Canada, Japan, New Zealand, and the United States participated in the included studies. Although diverse spiritual perspectives exist amongst indigenous peoples the relationship between the "inner being" and the body was viewed as the vital to health. As the pains of life were encountered, the "inner being" was set out of balance or fragmented. Although restoration of balance was attended to throughout life, at the end of life this became a priority. To prepare the "inner being", three strategies were identified: healing, connecting, and protecting. It was through these preparations that individuals obtained what they viewed as important at the end of life which included: to be at peace, to be healed/renewed, to feel safe and comforted, and to feel strong for the journey ahead. Such preparations often occurred whilst receiving end of life care. This care was described to have the potential to both enable and retract from preparations at the end of life. The degree to which this care respected the indigenous person's view of health and enabled their unique preparation for death, determined overall satisfaction and quality of life.

Implications: The findings are clear for health-care providers and policy makers that end of life care must be restructured to better support indigenous peoples in their preparing of the "inner being" through healing, connecting, and protecting. These findings also contribute to closing literature gap on the end of life experiences of indigenous peoples. Future research may build on these findings by exploring the experiences other indigenous groups not represented here, such as those from the continent of Africa.

Does Muscle Mass Predict Mortality in the Elderly Critical Care Patient?

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Introduction: We sought to study whether muscle mass at admission to the intensive care unit (ICU) is predictive of overtaking among elderly critical care patients.

Methods: 78 patients over the age of 65 admitted to the ICU at an academic hospital between April 2013 and May 2014 were included in the study. Inclusion criteria were if the patients were over the age of 65 at admission and had a computed tomography (CT) scan of the abdomen two days prior or seven days after admission. Exclusion criteria included presence neuromuscular disease or a CT scan of poor quality. Muscle area at the third lumbar vertebrae was determined by using a specialized computer program (Slice-O-Matic). This area is a validated measurement that corresponds with overall body muscle mass.

Results: Muscle area is a predictor of mortality in the elderly ICU patient. The association between muscle area and mortality was significant before ($p = .036$) and after controlling for severity of illness (APACHE II score), age and sex ($p = .033$).

Discussion: Low skeletal muscle mass during the early stages of critical illness is predictive of mortality in elderly critical care patients. This holds true after controlling for severity of illness, age, and sex.

Survey of Canadian Intensive Care Unit Pharmacists' Attitudes, Knowledge, and Use of Probiotics for Patients (Pro-Surve)

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Introduction: Ventilator-associated pneumonia (VAP) is a lung infection that affects 10%–25% of patients in the Intensive Care Unit (ICU). PROSPECT (Probiotics: Prevention of Severe Pneumonia and Endotracheal Culture Trial: a Pilot Trial) is currently underway to assess the feasibility of a larger trial of probiotics to prevent VAP and other infections. In conjunction with the PROSPECT Pilot Trial, we conducted a survey of ICU pharmacists.

Objectives: To assess Canadian ICU pharmacists' attitudes toward the use of probiotics in critically ill patients; secondary objectives were to evaluate their knowledge and self-reported use of probiotics for critically ill patients.

Methods: We surveyed pharmacists providing care to ICU patients in Canada. The survey instrument was rigorously designed according to previous guidelines. Following a literature review, a preliminary version of the survey was generated. This version was pre-tested by experts in the areas of survey development, natural health products, and/or critical care. Pilot and reliability tests of English and French versions of the survey were conducted by 5 ICU pharmacists (3 English and 2 French). Possible respondents were identified by telephoning inpatient pharmacies of all Canadian hospitals known to have ICUs. Of 356 total pharmacists identified, 9 were excluded due to participation in survey development, 12 could not be reached to obtain their email address, and 10 declined to provide one. Following an electronic announcement by the Canadian Society of Hospital Pharmacists, the final survey was distributed via email to 325 Canadian ICU pharmacists. The French version was sent to pharmacists in Quebec, and the English version to all others. Three waves of follow-up will occur via email at one, two, and three weeks after the first distribution. The survey will close after 5 weeks.

Results: At the time of abstract writing (after the first follow-up email), 137 pharmacists had responded to the survey (42% response rate). Of these, 70% said probiotics were available in their institution, and another 6% indicated availability only under certain circumstances. 80% of respondents stated that they would “never” recommend probiotics for VAP prevention in critically ill patients, while 61% said they would “never” recommend them for prevention of *C. difficile* infection. 6% believed that probiotics are “definitely safe” for VAP prevention, while 34% were “unsure”. 56% of respondents accurately estimated the cost of a daily dose of probiotics as less than $5, and 65% indicated that they had used probiotics for at least one patient in the last year (in any formulation, for any purpose). However, 73% identified the “absence of written guidelines or protocol” as a barrier to usage of probiotics in their ICU practice.

Conclusion: Preliminary survey results indicate that probiotics are available in most institutions and that the majority of Canadian ICU pharmacists have used probiotics for patients in the last year. However, most pharmacists do not recommend them routinely for prevention of VAP in critically ill patients.

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Consent Rates by Age for an Early In-Bed Cycling Trial for Critically Ill Patients: Preliminary Results

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Background: Well-conducted clinical trials are essential for improving current standards of care and introducing new methods of therapy for critically ill patients. Previous research documented that older patients were less likely to be enrolled in critical care clinical trials (Cooke *et al*., 2010). The primary objective of this substudy was to determine if the consent rate for older adults (> 60 years) was different than younger adults in the TryCYCLE study (a prospective pilot study of the safety and feasibility of early cycle ergometry in mechanically ventilated (MV) adult patients). Our secondary objective was to determine if the consent rate was different for consent given by a patient versus a substitute decision maker (SDM).

Methods: We analyzed data for the first 35 consent encounters in TryCYCLE at St. Joseph’s Healthcare, Hamilton. Patients were eligible for TryCYCLE if they were invasively MV for ≤ 4 days, within their first week of ICU admission and able to ambulate independently pre-hospital. Research personnel approached eligible critically ill patients or their SDM for informed consent. We collected demographic data on all eligible patients approached for consent and reasons for declining consent, and hypothesized there would be no difference in consent rates between older and younger adults. Additionally, we hypothesized that there would no difference in consent rates between consent given by patients and SDMs. We used Fisher’s exact test to determine if there was a significant difference in consent rates.

Results: Between October 28, 2013 and July 25, 2014, we approached 35 eligible patients or their SDMs for informed consent. The mean (standard deviation) age of eligible patients was 66.9 (11.9) years, and 17 (48.6%) were female. Our overall consent rate was 31 (88.6%). The consent rate for older versus younger patients was 20 (83.3%) and 11 (100%), respectively (p = .285 for the difference). The consent rate for patients versus SDMs was 7 (100%) and 24 (85.7%), respectively (p = .562 for the difference). Reasons for declining consent included: concern for Achilles tendon rupture (n = 1), lack of interest by SDM (n = 1), impression that the patient would not enjoy cycling (n = 1), and unknown (n = 1).

Conclusions: Based on preliminary data, we found no difference in the consent rates between older and younger critically ill adults for this early rehabilitation trial. Twenty percent of patients provided first person informed consent. We also found no difference in consent rates between patients and SDMs approached for this study. Our results demonstrate that older adults are equally as likely as younger adults to consent to an early in-bed cycling study for critically ill, mechanically ventilated adults. As this research program expands to a multi-centre randomized pilot study, our preliminary results underscore the feasibility of recruiting both older and younger critically ill patients to an early rehabilitation study.

Assessing Patient and Family Perceptions of Palliative and End-of-Life Home Care Interventions

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Background: Quality care at the end of life is about achieving the goals of the patient, as well as supporting caregivers. In Southeastern Ontario, two interventions—an advanced care planning tool and symptom response kits—were implemented to enhance and maintain quality care of terminally ill patients at home. These interventions are being evaluated to determine their impact on place of care and place of death. Additional evaluation is needed to determine family caregivers' perceptions of these interventions in the context of publicly-funded home care services.

Aim: To determine the most appropriate method of assessing the quality of palliative home care from the perspective of family caregivers.

Methods: A scoping literature review was conducted using the York framework. 47 peer-reviewed articles were identified from the MEDLINE, CINAHL, EMBASE, and Health and Psychosocial Instruments databases. A numeric analysis of common approaches used to ascertain perceptions of palliative home care was performed by the first author. Themes emerging from the numeric analysis were then mapped onto the "Seven key benefits for individuals and families" identified in the Ontario Ministry of Health and Long-Term Care's 2011 policy document, "Advancing High Quality, High Value Palliative Care in Ontario". Gaps in the literature were identified.

Results: 41 articles were published since 2000 and reflect a diversity of palliative care interventions delivered at home. Six studies were conducted in Canada; 4 in Ontario. 83% of the studies used qualitative approaches, relying primarily on face-to-face interviews with a small number of caregivers. More than two-thirds of studies took place before the patients died, of which only three included follow-up after death. Studies were typically broad in scope, asking questions about satisfaction, expectations, and positive and negative aspects of palliative home care. Of the seven benefits, "individual and/or family member engagement in care" and "keeping patients and families fully informed" were most commonly raised by patients and family caregivers. In contrast, the benefits of "inter-professional teams" and "consistency of staff/services" were rarely mentioned. Additional themes that did not map onto the seven benefits included staff competency, symptom control, and caregiver support (emotional and practical) pre- and post-death.

Discussion: The methods used in assessing patients'/family caregivers' perceptions of palliative home care varied, depending on the intervention under study and the level of detail sought. The nature of the intervention tended to guide the selection of particular benefits on which the evaluation was focused. The seven benefits identified by Ontario's policy document do not fully encompass all that patients/caregivers value; other issues need to be included when evaluating palliative home care interventions. These preliminary results will be confirmed by having co-authors independently review selected papers.

Conclusion: Evaluation of palliative home care interventions should include all seven benefits in addition to other important themes identified. The methods used should be adapted to the context, and should take into consideration relevant methodological challenges. When evaluating the two Southeastern Ontario interventions, we recommend developing a standardized, self-administered questionnaire for increased representativeness, followed by an in-depth, face-to-face interview guide for increased understanding.

Technology Supports for Community-Dwelling Frail Older Adults

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Population aging is placing extensive pressure on home care programs to provide the necessary services for complex care clients to remain in their homes and avoid institutionalization or hospitalization. Finding innovative and cost-effective ways of meeting the health-care needs of older adults and the health-care workers who support them is becoming a pressingly urgent issue. Assistive in-home technologies, such as tools for fall prevention and medication management, have been demonstrated to positively affect health outcomes and the quality of life of autonomous older adults living in the community. This literature review identifies technologies that may improve home care of frail older adults, while reducing caregiver stress through comprehensive examination of current literature in the field of "gerontechnology." Past research has demonstrated assistive technologies are beneficial in retaining elder independence while reducing risk of falls, medication errors, and caregiver burnout. The findings of this review highlight how technologies are currently integrated into home care and how the health-care system can better include these assistive tools in the care of community-dwelling older adults.