# ICON

**I**mproving **C**ognitive and J**O**int Health **N**etwork

Report for August 2014 – June 2016

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# Executive Summary

This report summarizes five pilot projects that have received seed funding form ICON (**I**mproving **C**ognitive & J**O**int Health **N**etwork) in 2014 – 15. Following the first network meeting in July 2014, members were invited to submit proposals for projects that aimed to improve physical activity in people across the health continuum, from healthy individuals to patients with cognitive impairment and arthritis. Projects were given priority if they involved 1) a new collaboration among network members, 2) partnership with patient/public organizations and/or technology companies, and 3) student training.

**Five** projects were approved for funding:

**Walk10Blocks** is a project led by Cheryl Koehn, President of Arthritis Consumer Experts, to encourage people to *move more and sit less* by walking at least 10 city blocks a day. The team has collaborated with Apple to design an app that uses the latest iPhone motion sensor technology to help people track their daily walking distance. The app has undergone beta testing and the team will continue to work with Apple to refine its user-appeal.

Drs. Mirjam Garvelink and Allyson Jones have begun developing **SupPortIng seNiors and Caregivers to stay mobile at Home (SPINACH)**, a web-based interactive decision-aid to help seniors make decisions about living independently. They interviewed healthcare providers to guide the development of video vignettes to be embedded in the decision aid. The project has since been integrated into a CIHR Late Life Team Grant, submitted in December 2015.

**On-demand Program to EmpoweR Active Self-management (OPERAS)**, led by Dr. Linda Li, is a multi-component program that integrates a self-monitoring arthritis journal and a Fitbit compatible app on an e-health platform provided by Kinduct Technologies. The ICON funding was used to develop a new Fitbit app visualization called **FitViz**. This app allows healthcare providers to work with their patients remotely and adjust their physical activity targets based on individuals' conditions.

**Supporting Physical Activity for Brain Health in Mild Cognitive Impairment (SuPA Brain)**, led by Dr. Teresa Liu-Ambrose, aimed to assess the effect of a physical activity counselling/Fitbit intervention on brain structure and function in older adults. The ICON funding has been used to conduct functional MRI (fMRI) in 30 participants in Dr. Li's MONITOR Osteoarthritis (OA) study, which evaluates the efficacy of a physical activity counselling intervention in people with knee OA. To date, 28 participants have received or have been scheduled for the fMRI component.

**Ultra-Customized Health Advertising** is a health awareness advertising software application that is customized to the user's daily experience. Led by Dr. Chris Shaw, the application integrates YouTube usage with Fitbit data to launch a brief message by a doctor to encourage users to decrease their sitting time. The team will continue to refine and test the program in 2016.

# 1.0    ICON's Mission

The ICON (**I**mproving **C**ognitive & J**O**int Health **N**etwork) is a 3-year CIHR-funded knowledge translation (KT) network (2014 – 17). Our vision is to optimize mobility of older Canadians by integrating digital media technology into KT. At inception, ICON had 16 members from 9 research programs/academic institutions and 4 organizations representing patients/caregivers, health professionals, digital media, and the general public. The network has since grown to include 31 members (including trainees) from British Columbia, Alberta, Ontario, Québec and Nova Scotia (Appendix A). ICON provides financial and in-kind support for members to develop and test digital media interventions for the prevention and management of cognitive impairment and chronic joint diseases. ICON also provides training opportunities for students in health or computer sciences through their involvement in projects led by network members.

# 2.0    Year 1 Priority

At the first ICON meeting on July 24 – 25, 2014 in Vancouver, BC, members gathered to identify gaps in applying knowledge to preventing and treating cognitive impairment and arthritis, and to develop a work plan for the next 3 years. **Increasing physical activity across the health continuum, from healthy individuals to patients with dementia and arthritis was identified as the main priority.** ICON has set aside $100,000 in Year 1 towards pilot projects that will develop and test digital-media enabled KT tools to improve physical activity and self-management across the health continuum. Five projects were subsequently approved for seed funding by the Executive Committee.

# 3.0    Project Update

## 3.1    Walk10Blocks

**Lead**: Cheryl Koehn
**eCommunity Collaborators**: Elise Kayfetz, Jennifer Stewart
**Scientific Collaborators**: Linda Li, Teresa Liu-Ambrose, Lynne Feehan
**Trainee**: Jonathan Lee
**Year 1 funding:** $25,000

**Walk10Blocks** was inspired by a presentation given by Dr. Teresa Liu-Ambrose at the 2014 ICON Annual Meeting on research that supports the benefits of walking a minimum of about 2,000 – 3,000 steps or 1 km a day, equivalent to about **10 city blocks**, towards reducing the risk of dementia, and potentially improving cardiovascular and bone health in the long term. In response to this work, "walk 10 blocks" was further conceptualized by Cheryl Koehn, President of Arthritis Consumer Experts (ACE), as a knowledge-to-action strategy to motivate people to meet this minimum recommended daily goal. The team, co-led by Elise Kayfetz (CARP) and Jennifer Stewart (Alzheimer Society of BC) proposed the **Walk10Blocks** initiative, which included building a simple user-friendly app to help people meet this goal, the first of its kind in Canada.  Furthermore, **Walk10Blocks** will target the "Sandwich Generation", or individuals aged 30 to 50 years to incorporate daily

exercise into their busy lifestyle by *moving more and sitting less*. The team also plans to leverage the app towards a public awareness campaign, using **Walk10Blocks** as the official slogan of this cause.

During February – March 2015, the Walk10Blocks team conducted a Canada-wide bilingual public opinion survey to learn what people consider to be barriers to walking 10 blocks, hear their thoughts about an app to support meeting this goal (via **Walk10Blocks**), and gather ideas on how Walk10Blocks can be leveraged for public awareness. Notably, CARP contacted over 80,000 members across Canada and ACE distributed an e-newsletter to over 7,600 subscribers. A total of 332 individuals completed the English questionnaire and 12 completed the French version. The survey found that only a third of participants said they walked at least one 10-minute period each day. The survey also found that half of the participants were interested in the Walk10Blocks idea for an app and one in three participants were interested in joining a #Walk10Blocks group on Twitter. Overall, **Walk10Blocks** was found to have potential to be an important public awareness and educational tool to support people in meeting the daily minimum physical activity requirements for optimal joint health.

The first **Walk10blocks** app prototype was designed in April 2015 by Centre of Digital Media graduate Andrés Fajardo and current Master of Digital Media student Jonathan Lee. Beta testing began in September using the [Apple ResearchKit](#) platform, an open source app-builder designed to enable efficient and secure health research. Designed for latest generation iPhones with built-in motion detectors, **Walk10Blocks** uses a GPS-guided system to help users meet a minimum recommended distance of 10 city blocks a day. **Walk10Blocks** can also administer questions about the user's physical activity behaviours using ResearchKit's built-in survey system (Figure 1).
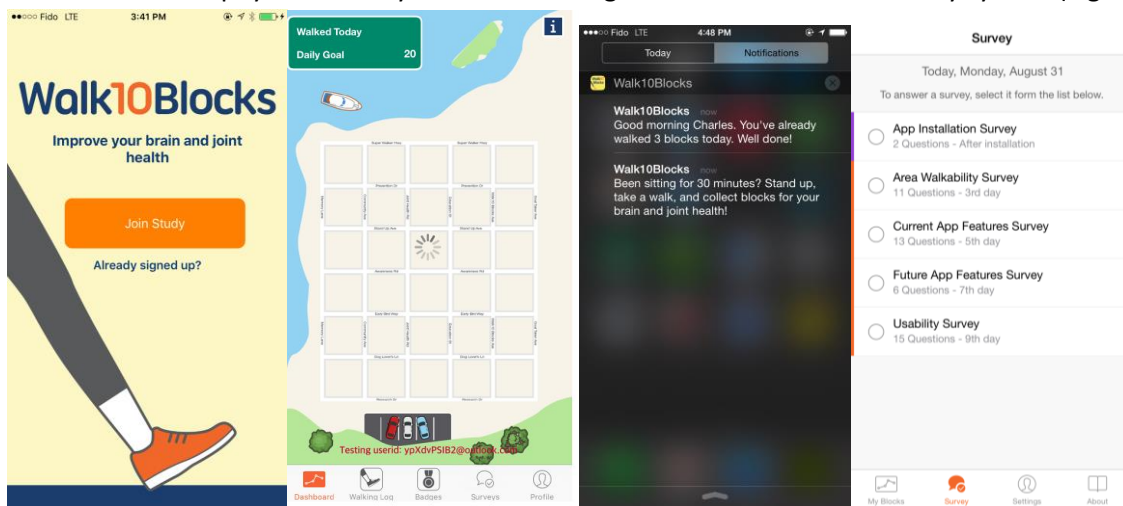


**Figure 1**: **Walk10Blocks** (Left to Right) Front page interface, 'My Blocks' dashboard simulating city blocks, embedded survey (customizable)

Usability testing was launched from October 9 to November 3, 2015, with 22 testers. Data analytics show that 73% found the app easy to install and the majority (96%) found the app 'useful or somewhat useful' in reaching their daily walking goal. The top reasons for installing the app included '**wanting to be encouraged to walk more**' and **'wanting to try it and recommending to others'**. Another iteration of the app will be launched in the App store in September 2016, and a feasibility study will be conducted for one year starting September 2016 to determine the engagement and usability of the app in helping users meet daily walking goals.  The feasibility study will also determine how well the app serves as a research tool in a community setting, and whether the research components change user engagement.  The team will also continue to advance strategies to improve public awareness about Walk10Blocks by engaging constituents of ACE, CARP and Alzheimer's Society of BC.

## 3.2    SPINACH (SupPortIng seNiors and Caregivers to stay mobile at Home)

**Investigators**: [Mirjam Garvelink](#) (Lead and Postdoctoral Fellow), [Allyson Jones](#), [Patrick Archambault](#), [France Légaré (Co-Lead)](#), Louisa Blair (CHU Québec)
**Year 1 Funding**: $20,000

Older adults with complex health problems and mobility issues may be faced with the difficult decision of living independently at home or moving into assistive care facilities. This decision is highly preference sensitive and requires a shared decision-making (SDM) approach involving the older adult, their caregivers and healthcare providers. SPINACH is a project led by Drs. Mirjam Garvelink (Postdoctoral Fellow), France Légaré and Patrick Archambault at the Centre Hospitalier de l'Université Laval (CHU Québec), and Dr. Jones at the University of Alberta to help older adults determine whether to stay in their current residence, with the support of their healthcare provider and/or caregiver. SPINACH has developed and tested video vignettes that will be embedded in a web-based interactive simulation environment (a decision aid) to facilitate shared decision-making. The team interviewed 20 individuals in total in Québec and Alberta, including seniors (n=8), and a caregiver (either a home care aide, or other healthcare professional), as well as an architect with an interest in designing healthcare facilities. They will conduct a content analysis on the interviews and the results will be used to further refine the videos. The videos will then be evaluated for acceptability, understandability and feasibility with 30 participants including seniors, care providers and health professionals.

The team has presented preliminary results of the interviews at three conferences in 2015, including *Joint International Shared Decision-Making and International Society for Evidence-Based Health Care Conference* in Australia, and the *KT Canada Scientific Meeting* and *Journale de la recherche des étudiants de l'axe SP-POS du CR CHU de Québec*. They will continue to refine and test the video vignettes that will be embedded in the web-based decision aid. SPINACH has also been integrated into a Late Life Team Grant called (LApLACE: LAte life LocAtion of CarE), led by Dr. France Légaré, submitted as a full application in December 2015.

## 3.3    OPERAS (an On-demand Program to EmpoweR Active Self-management)

**Investigators**: [Linda Li](#) (Lead), [Chris Shaw](#), [Lynne Feehan](#), [Alison Hoens (Knowledge User), Paul Adam (Knowledge User)](#)
**Trainees**: [Anik Gupta](#)
**Year 1 Funding**: $22,500

Data visualization applications are an emerging priority for information scientists and health researchers alike. Popular wearable fitness bands like Fitbit have established interfaces (i.e. dashboards) to help their users view daily physical activity and walking milestones. The dashboards are not designed, however, to allow users to customize milestones related to exercise intensity and frequency, as well as periods of rest, including sleep. Tailoring daily activity goals is an important step towards creating sustainable self-management strategies for patients living with rheumatoid arthritis (RA) or osteoarthritis (OA). Drs. Shaw, Feehan, Li and PhD student Ankit Gupta (supervised by Dr. Shaw), in collaboration with Alison Hoens and Paul Adam, have developed a prototype of the **FitViz** that uses an algorithm to display Fitbit data onto an interactive interface (Figure 2). The app displays activity information in a user-friendly way and has an interactive module that allows patients and their

healthcare providers to personalize targets of physical activity intensity, duration and frequency, track activities levels, and receive feedback on the progress.
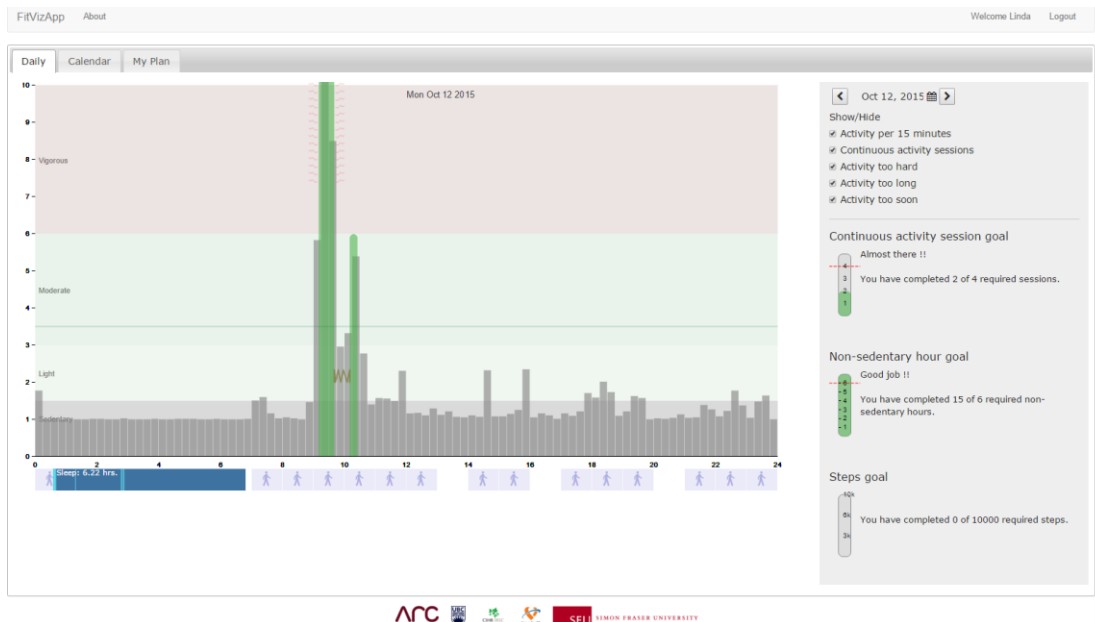


**Figure 2**: FitViz (Shaw, Li) showing exercise bout over a 24-hour period

The **FitViz** prototype was tested with 13 participants (RA = 7; OA = 6; median age = 60 years) in April 2015. The System Usability Scale was used to assess usability[1]. A mean score of 68.1 (SD=21.6) was obtained, suggesting adequate usability[1]. FitViz will be integrated into a self-management program (OPERAS) for patients with RA and OA. Uniquely, the project will aim to improve the communication between a healthcare provider and patient about physical activity and treatment goals in arthritis care by augmenting existing digital media tools. The team has submitted several grant applications to CIHR and The Arthritis Society to conduct an effectiveness-implementation trial of the OPERAS program.

## 3.4    SuPA Brain (Supporting Physical Activity for Brain Health in Mild Cognitive Impairment)

**Investigators**: Teresa Liu-Ambrose (Lead), John Best (Post-Doc Trainee and Co-Lead)
**Collaborator:** Linda Li
**Trainees**: Ryan Falck, Bryan Chiu
**Year 1 Funding**: $22,500

Research suggests that exercise has cognitive benefits for persons with mild cognitive impairment (MCI). Moderately intense resistance training (RT) and aerobic training (AT) shows promise in helping reduce the impact of MCI in older adults. Research is still needed to determine the extent to which activities of daily living,

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[1] Bangor, A., Kortum, P., & Miller, J. (2009). Determining what individual SUS scores mean: Adding an adjective rating scale. *Journal of usability studies*,*4*(3), 114-123.

performed at moderate intensity, provide similar effects for cognitive function in older adults with no cognitive impairment. Currently, many older adults in Canada do not meet the minimum recommendation of 150 minutes of moderate activity per week.

In collaboration with Dr. Linda Li, Dr. Teresa Liu-Ambrose is testing a physical activity counselling program, remotely delivered by physical therapists with the use of Fitbit to help track activity levels and sedentary time. Using functional Magnetic Resonance Imaging (fMRI) in a randomized control trial study conducted in patients above the age of 50 with chronic knee pain and/or knee osteoarthritis, the team will determine whether patients receiving the counselling intervention show improvements in cognitive function. Recruitment began in November 2015. To date, 28 of 31 participants have been enrolled.

## 3.5 Ultra-Customized Health Advertising

**Investigators**: Chris Shaw (Lead), Diane Gromala, Linda Li;
**Trainees**: Ankit Gupta, Tim Heng
**Year 1 Funding**: $10,000

Ultra-Customized Advertising is a health awareness advertising program that is customized to the user/patient's daily activity behaviours. This program is designed to integrate YouTube ads with Fitbit data to flag individuals who have been sedentary for extended periods of time, and display a pre-recorded message on their YouTube to encourage them to get up and walk. This message could be delivered by their own doctor.

The Ultra-Advertising team has built a Chrome browser plug-in that communicates with routinely collected Fitbit data that the patient-user has provided permission to collect, and prompts notifications on YouTube when they have not been active enough during the day. The team, which includes Dr. Shaw as well as SFU School of Interactive Arts and Technology PhD student Ankit Gupta and MSc student Tim Heng, is currently developing a suitable algorithm such that the alert is timely and accurate. Ideally, the alert will have a picture of the user's physician, with a message that gently reminds the user to engage in some physical activity. The team will continue to work on refining and testing this program in 2016.

# 4.0 Publications and Awards

## 4.1 Peer Reviewed Publications

1. **Garvelink MM**, Ngangue PA, Adekpedjou R, Diouf NT, Goh L, Blair L, **Légaré F**. A Synthesis Of Knowledge About Caregiver Decision Making Finds Gaps In Support For Those Who Care For Aging Loved Ones. Health Affairs. 2016 Apr 1;35(4):619-26.
2. Clayton C, **Feehan L**, **Goldsmith CH**, Miller WC, Grewal N, Ye J, Yoo JY, **Li LC**. Feasibility and preliminary efficacy of a physical activity counseling intervention using Fitbit in people with knee osteoarthritis: the TRACK-OA study protocol. Pilot and Feasibility Studies. 2015 Aug 22;1(1):1.

## 4.2    Abstracts

1. Macdonald G, Leese J, Backman C, Davis A, Townsend AF, Avina-Zubieta JA, **Gromala D**, **Li LC**. Integrating Wearable Physical Activity Monitoring Tools into Rehabilitation Practice for Patients with Arthritis: The Healthcare Professional Perspective. In Arthritis & Rheumatology 2015 Oct 1 (Vol. 67).

2. Leese J, Tran BC, Backman C, Townsend AF, Davis A, **Jones A**, **Gromala D**, Avina-Zubieta JA, **Li LC**. A Qualitative Study of Barriers and Facilitators to Arthritis Patients Use of Physical Activity Monitoring Tools. In Arthritis & Rheumatology 2015 Oct 1 (Vol. 67).

3. **Garvelink, M, Jones, A, Archambault, P,** Roy, N, Blair, L, **Légaré, F.**  Development of videos to support seniors and caregivers in deciding about how to remain mobile at home. Poster session presented at KT Canada Scientific Meeting; 2015 May 11-12, Halifax, NS.

4. **Garvelink, MM**. Development of videos to support seniors and caregivers in deciding about how to remain mobile at home (protocol). Oral session presented at Journale de la recherche des étudiants de l'axe SP-POS du CR CHU de Québec; 2015 May 4, Québec City, Québec.

5. **Garvelink M**, **Jones A**, **Archambault P**, Roy, N, Blair, L, **Légaré F**.  SPINACH: SupPortIng seNiors And Caregivers to stay mobile at Home. Poster session presented at Joint International Shared Decision-Making and International Society for Evidence-Based Health Care Conference; 2015 July 19-22, Sydney, Australia.


## 4.3    Awards and Accolades

**Mirjam Garvelink** (supervisor: France Légaré)

- Canadian Institute for Health Research (CIHR), Post-Doctoral Scholarship, 2015-2018, $135,000.
- Fonds de recherche du Québec-Santé (FRQS), Post-Doctoral Scholarship, 2015, $60,000 (declined).
- Canadian Institute for Health Research (CIHR) Travel Grant, $1,500.
- Centre de recherche du CHU de Québec Travel Grant, Dissemination of results at the "Axe Santé des populations et pratiques optimales en santé", 2015, $500.

**Jenny Leese** (supervisor: Linda Li)

- CIHR Doctoral Research Award, 2015 – 2018, $105,000.

**Ankit Gupta**  (supervisor: Chris Shaw)

- Andrew Wade Memorial Scholarship in Visual Analytics, 2014, $5500.
- Graduate Student Fellowship, 2016, $6500.

# APPENDIX A:     ICON Members & Trainees

## Members

### Linda Li

Dr. Linda Li is Associate Professor, Harold Robinson / Arthritis Society Chair in Arthritic Diseases, and Canada Research Chair in Patient-Oriented KT at the Department of Physical Therapy, University of British Columbia. She is also a Senior Scientist at the Arthritis Research Centre (ARC) of Canada. She is also a Michael Smith Foundation for Health Research Scholar. Dr. Li leads the Arthritis, Joint Health & KT Research Program at ARC. As a health services researcher, her research focuses in three areas: 1) Understanding the help-seeking experience in people with early inflammatory arthritis, 2) Evaluating models of arthritis care, and 3) Studying the role of digital media tools for improving the uptake of effective treatment. Her work involves collaborating with scientists and skilled workers in sociology, health psychology, computer science and visual arts to create online tools, such as decision aids for promoting shared-decision making and interactive programs for coaching people to be physically active. Dr. Li is currently leading the OPERAS project, as well as MONITOR-OA.

### Teresa Liu-Ambrose

Dr Liu-Ambrose is Associate Professor and Canada Research Chair in Physical Activity, Mobility, and Cognitive Neuroscience in the Department of Physical Therapy at the University of British Columbia. She is also a Michael Smith Foundation for Health Research Scholar. Her research laboratory, The Aging, Mobility and Cognitive Neuroscience Lab, focuses on defining the role of exercise to promote healthy aging and prevent cognitive and functional decline among seniors. Dr. Liu-Ambrose has a track record successfully executing randomized controlled trials in seniors. Her most recent 12-month RCT was published in the Archives of Internal Medicine. Dr. Liu-Ambrose is also the Research Director of the Vancouver General Hospital Falls Prevention Clinic. She is an associate member of the UBC Brain Research Centre and the Centre for Hip Health and Mobility. Dr. Liu-Ambrose works collaboratively with faculty in Psychology, Family Practice, Geriatric Medicine, and Health Care and Epidemiology. Dr. Liu-Ambrose is leading the SuPA brain pilot project.

### Diane Gromala

Dr. Diane Gromala is a Canada Research Chair in Computational Technologies for Transforming Pain and Professor at the School of Interactive Arts and Technology at Simon Fraser University (SFU) in Vancouver. She earned a Bachelor of Fine Arts at the University of Michigan, a Master of Fine Arts at Yale University, and a PhD in Computing Science at the University of Plymouth, England. As the founding director of the Transforming Pain Research Group, one of Dr. Gromala's primary research interests includes the development of new technologies (ranging from virtual reality and robotics to social media) to improve the lives of people living with long-term chronic pain. She is now working to develop computerized aids that will help patients through biofeedback meditation and visualization therapy. Dr. Gromala has supervised or has been a member of over 70 MAs, MFAs, MSCs and PhD committees in departments ranging from Design, Interactive Art, English, Film and Communications to Computer Science and Engineering. Her work is widely published in the fields of Computer Science, Interactive Art and Design and Pain Studies. Dr. Gromala is working with Dr. Shaw in designing the user interface of FitVizApp.

## John Esdaile

Dr. Esdaile is Professor of Medicine, Division of Rheumatology Department of Medicine, University of British Columbia.  He established the Arthritis Research Canada in 2000, of which he was named Scientific Director. The Centre now has a faculty of 12 and includes rheumatologists, orthopaedic surgeons, doctoral level occupational therapists, physical therapists, biostatisticians, as well as an epidemiologist, a pharmacoepidemiologist and a specialist in knowledge translation. In 2010, the Centre expanded to include the University of Calgary. Dr. Esdaile's areas of research interest include rheumatoid arthritis, systemic lupus erythematosus, and osteoarthritis. He has authored more than 200 publications in refereed journals.

## Sharon Straus

Dr.  Straus is a geriatrician/general internist/clinical epidemiologist and Director of the Knowledge Translation (KT) Program at the Li Ka Shing Knowledge Institute of St. Michael's and the Division Director for Geriatric Medicine at the University of Toronto.  She holds a Canada Research Chair in Knowledge Translation and Quality of Care. Moreover, Dr Straus serves as the Principal Investigator for KT Canada- Strategic Training Initiative in Health Research (STIHR). Her contributions include development and evaluation of strategies to bring evidence to the point of care, and the evaluation of other interventions to facilitate knowledge translation and promote quality of care. She has created a transdisciplinary research team that includes colleagues from human factors engineering, computer science, health informatics, and clinical epidemiology amongst others. More than 25 graduate students have been involved with research in this program, which focuses on developing and evaluating strategies for effective knowledge translation. She is the co-author of a best-selling book on Evidence-Based Medicine (EBM), "Evidence-Based Medicine: How to Teach and Practice EBM".

## France Légaré

Dr. Légaré practises family medicine in Québec and is a full-time professor in the Department of Family Medicine and Emergency Medicine at Université Laval, Québec.  In 2005, she obtained her PhD in Population Health from the University of Ottawa. The same year, she was awarded a grant as a clinical investigator by the Fonds de la recherché en santé du Québec (FRSQ) for her research program entitled "Health professionals in primary care: From knowledge brokers to decision brokers." Since June 2006, Dr. Légaré has held the title of Tier II Canada Research Chair in the Implementation of Shared Decision Making in Primary Care. She has also been the Canadian Cochrane Network Site representative at Université Laval (the CHUQ Research Centre) since 1999.  Dr. Légaré is supervising the post-doctoral training of Dr. Mirjam Garvelink and co-leading the SPINACH project.

## Richard Smith

Dr. Smith is Professor and Director of the Masters of Digital Media Program at the Centre for Digital Media (CDM). He has over two decades of academic and directorial experience at Simon Fraser University. As professor at the School of Communication at SFU for over fifteen years, he has also served as Director of SFU's Centre for Policy Research on Science and Technology (CPROST) for the past ten years. Dr. Smith has actively been engaged with local, national and international media on issues related to his research into the contemporary world of technology, social media and public surveillance. In addition to research focused on social inclusion brought on by the introduction of digital media, he keeps an ongoing interest in education technology, privacy and public surveillance, online communities, and the wireless information society. His diverse projects and creative works have explored such subjects as privacy issues in the use of mobile technology, electronic scholarly publishing, and the development of technologies for mobile media-rich, urban shared experiences.

## Chris Shaw

Dr. Shaw is an Associate Professor and Undergraduate Chair for the School of Interactive Arts and Technology at Simon Fraser University (SFU). He is the principal investigator of the Bio-V group which investigates new methods for the visualization and understanding of biological data. He is the co-author of the first virtual reality application and has created numerous virtual environments for medical applications. Other areas of expertise include bioinformatics, visual analytics and two-handed interfaces for 3D applications. Dr. Shaw teaches human-computer interaction, interactive visualization and video game design, and is currently leading the development of the FitViz app and Ultra-Customized Health Advertising.

## Allyson Jones

Dr. Jones is an Associate Professor at the Department of Physical Therapy, with a cross appointment in the Department of Public Health Sciences at the University of Alberta. She has clinical experience as a physical therapist in neurology and home care along with graduate training in epidemiology. She is also an AIHS Population Health Investigator. Her research interests include patient health outcomes and health-related quality of life in chronic musculoskeletal conditions common in elderly patient populations. Her more recent work has looked at physical activity and exercise in arthritis, total knee replacements, hip fracture and Parkinson's disease.  Other projects include knowledge strategies for mobility in older adults in long-term care facilities and assisted living.  Dr. Jones is working with Drs. Légaré and Garvelink on the SPINACH project with Alberta participants.

## Lynne Feehan

Dr. Lynne Feehan is a physiotherapist and currently works as the Lead in Clinical Research for the Rehabilitation Program for Fraser Health in British Columbia.  Dr Feehan is also a Clinical Associate Professor at the Department of Physical Therapy at the University of British Columbia and is an affiliate researcher with Arthritis Research Canada.  As a Co-Investigator for ICON, Dr. Feehan brings her research expertise in evaluation of micro-structural bone health and physical activity in people living with rheumatoid arthritis.  Dr Feehan has previously collaborated with Dr. Li in a study understanding the usability of physical activity monitors for RA, funded by Graphics, Animation and New Media (GRAND) and has ongoing collaboration with Dr Li in a number of studies exploring physical activity and sedentary behaviour in people living with arthritis. Dr. Feehan has provided her scientific experitise on a number of projects, including OPERAS and Walk10Blocks.

## Cheryl Koehn

Cheryl Koehn is the founder and president of Arthritis Consumer Experts (ACE) and JointHealth™. She is a national arthritis advocate, a community leader and a published author. In November 2000, Cheryl founded Arthritis Consumer Experts (ACE) and its JointHealth™ family of programs. As a 20-year survivor of rheumatoid arthritis, Cheryl brings the arthritis consumer's perspective to ACE, and to decision-making processes at government, research institutions, not-for-profit and for-profit organizations across Canada and internationally. Cheryl has served on provincial and national committees and has been a standard bearer for the inclusion of people with arthritis in all decision-making processes related to the field of arthritis. Her remarks from the floor during the final Arthritis 2000 plenary session have been widely recognized as the catalyst for the creation of the Canadian Arthritis Network (CAN). She is an invited speaker at National and International arthritis and health-related conferences as a leading arthritis advocate in Canada. In May 1999, Cheryl became the consumer representative on CAN's management and research and development committee, and was elected chair of its

Consumer Advisory Council (CAC). She was re-elected co-chair of this volunteer council in September 2002. She served as a consumer community representative on the CAN Partnerships and Sustainability Committee and along with her Aboriginal colleague, Joyce Greene, spearheaded the development of CAN's Aboriginal Research Initiative, the first of its kind in Canada. Cheryl Koehn is leading the Walk10Blocks initiative.

## Paul Adam

Paul Adam has his Master's Degree in Social Work and is currently employed as the Rheumatology Liaison & Outreach Services Coordinator at the Mary Pack Arthritis Program in Vancouver.  In this position he is involved in improving allied health programs and services for people with arthritis in British Columbia, and in supporting allied health professionals in the province in their provision of care to this patient population.  Mr. Adam also has an interest in research as a qualitative researcher.  Areas of focus include models of care, health behaviour change, help seeking, and self-employment.  Mr. Adam was a member of the Canadian Arthritis Network since its inception.  In addition to his work as an administrator and researcher, Mr. Adam is also involved on the board of the Canadian-based Arthritis Health Professions Association and the e-learning committee of the U.S.-based Association of Rheumatology Health Professionals. Paul Adam is providing project management and subject matter expertise in the OPERAS project.

## Alison Hoens

Ms. Alison Hoens is the Physical Therapy Knowledge Broker (PT KB). This position is jointly funded by several partner organizations (The UBC Department of Physical Therapy, The Physiotherapy Association of British Columbia, Vancouver Coastal Health Research Institute and Providence Health Care Research Institute). The focus of the role is to support both evidence-informed practice as well as practice-informed evidence. In addition, Alison is the Research, Education and Practice Coordinator for Physiotherapy at Providence Health Care (PHC). PHC provides services to patient and residents across the spectrum of health from acute, rehabilitation and residential settings.  Alison has played critical roles in the development of the FitVizApp and Walk10Blocks apps.

## Daniel Schwartz

Dr. Schwartz is Medical Director of the Fraser Health Renal Program, Internist in the Royal Columbian Clinical Teaching Unit, Clinical Assistant Professor of Medicine at the University of British Columbia, and Co-Founder of QxMD. In addition to QxMD.com, he is the creator of many online and mobile medical education offerings, including NephrologyNow.com and MedicalPearl.com. Dr. Schwartz aims to use digital media to make research and clinical practice knowledge accessible to all health professionals.  QxMD will serve as a knowledge dissemination partner for the OPERAS project.

## Jennifer Stewart

Ms. Stewart is Manager of Program Development, Coordination & Evaluation at Alzheimer's Society of BC. The Society (established in 1981) is dedicated to helping anyone concerned with or facing dementia have the confidence and skills to maintain quality of life, to ensuring that public policy and perceptions reflect the issues and reality, and to securing funding for support and research. Jennifer is representing Alzheimer's Society of BC as a knowledge partner and co-lead for Walk10Blocks.

## Leslie Soever

Ms. Soever is President of the Arthritis Health Professions Association. Leslie graduated with a Bachelor of Science in Physical Therapy in 1984 and a Master of Science in 2002 from the Institute of Medical Science in The Collaborative Program in Bioethics, all at the University of Toronto.  More recently, in 2008, she graduated from the Advanced Clinician Practitioner in Arthritis Care (ACPAC) Program, based out of St. Michael's Hospital and The Hospital for Sick Children in Toronto. Leslie has several years of clinical experience in physiotherapy as well as management experience, in research, program evaluation and the hospital sector.  She is currently employed at Mount Sinai Hospital in Toronto as an advanced practice physiotherapist working in the departments of orthopaedic surgery and rheumatology, and is a clinical lecturer in the Department of Physical Therapy at the University of Toronto.

## Jeannette Kopak

Jeannette Kopak holds the position of Director of Business Development and Operations at the Centre for Digital Media in Vancouver. In that capacity, she managed the renovation of a 40-year-old tractor factory, transforming it into a digital media graduate facility, and the home of the Masters of Digital Media program. Jeannette is responsible for ensuring the Centre continues to adapt to the needs of the students and the digital community.

Jeannette is a digital media veteran with 16 years of experience at the Canadian Broadcast Corporation, in roles that ranged from designing and implementing the CBC Vancouver TV newsroom editorial system to facilitating the re-use of broadcast content for the early websites such as the Atlanta Olympics and the 1997 Federal Election. The highlight of her CBC career was leading a multi-million dollar, multi-year project to catalogue, restore, digitize and preserve the CBC radio and television archives across Canada.

## Monika Kastner

Monika Kastner is a Scientist with the Knowledge Translation Program at the Li Ka Shing Knowledge Institute of St. Michael's Hospital in Toronto, Ontario. Monika's research interests and goals are to make a positive impact on the health of Canadians through the development of innovative Knowledge Translation (KT) tools for providers and patients, and to advance the fields of health research methodology, informatics and KT. She pursued a PhD in health informatics at the University of Toronto, which involved the development and evaluation of a CIHR-funded e-clinical decision support tool. She is currently working on: 1) developing a seniors' web-based portal (S-PORT) to improve chronic disease self-management delivered through iPads housed in standalone kiosks across hospital and community settings; and 2) an initiative funded by the Ontario Ministry of Health aimed at developing a "pathway to tools for seniors (PATH-S)", a systematic infrastructure for rigorously and efficiently developing chronic disease tools. The ultimate goal will be to apply PATH-S in the creation of an innovative KT tool that can integrate logical clusters of ≥ 2 high-burden chronic diseases to address the needs of seniors with multiple chronic conditions.

## Patrick Archambault

Dr. Archambault obtained his medical degree from the Université Laval in 2000 and completed his post-graduate training to become a member of the Royal College of Physicians and Surgeons of Canada as an emergency medicine specialist at Université Laval in 2005. He was awarded a McLaughlin Fellowship bursary by the Dean of the Faculty of Medicine at Université Laval and, in 2007, completed a Royal College subspecialisation in Critical Care Medicine at the University of Ottawa. Dr. Archambault graduated with honours from the master's program

in clinical research at Université Laval in 2007 and the Royal College awarded him a certificate of completion of the clinician investigator program. During his master's studies, Dr. Archambault studied the negative impact of etomidate on the production of cortisol in traumatic brain injuries. In October 2008, Dr. Archambault was awarded a Canadian Health Services Research Foundation (CHSRF) CADRE postdoctoral fellowship scholarship within André Lavoie's REISS program, "Performance of a Continuum of Services in Trauma". He completed training in Knowledge Translation under the direction of France Légaré, André Lavoie and Jean Lapointe. Dr. Archambault's projects have studied the implementation of a wiki reminder system to help physicians caring for critically ill trauma patients share evidence-based therapeutic protocols.  Dr. Archambault is a co-investigator on the SPINACH project.

## Anita Chan

Anita is responsible for research as part of the development and implementation of communications and public affair strategies. She plays a large role in media and social media outreach. She also coordinates special event plans and programs and is responsible for creative input into program design and implementation.

## Kinduct Technologies

Kinduct Technologies is an information technology company that provides data collection and centralization solutions to improve health and human performance. Kinduct has been working with the OPERAS team to create a module repository to facilitate physical activity counselling.  The team will also use their data analytics tools built into their platform towards creating a user-friendly data display interface using the FitViz app.

## April Lewis

After a career in health care spanning over 30 years, which included Manager of Primary Health Care then Manager of Addictions for Richmond Health Services, April suddenly found herself prematurely retired! Not liking the "R" word, she has kept herself busy as a self-employed speaker and presentation coach as well as the B.C. Representative for CARP – A New Vision of Aging for Canada and Communications Director for the White Rock/Surrey Chapter. She has taught at Douglas College in the leadership program as well as Kwantlen TALK. She is currently a monthly Zoomer columnist for the Peace Arch News as well as a weekly blogger for Zoomer Singles.com. She has reinvented herself as a writer and is loving it.

## Elizabeth Dunbar

A generalist, Elizabeth Dunbar's background is diverse and includes: Health Care, Education, Not For Profit, Legal Outreach, Financial Management, Real Estate and Radio. As Chair and Director of Communications for CARP North Shore Chapter 4, advocacy is part of her mandate as it pertains to a "New Vision of Aging For Canada". While at Simon Fraser University, Dunbar became passionate about "discourse" including filters, nuance, cultural exposures and underpinnings – and the ensuing challenges - in terms of the communications' approaches pertaining to healthcare services delivery to the elderly and frail. Her final capstone project explored alternative models of day and residential care.

## Hubert Robitaille

Hubert is a research associate and coordinator at the Tier 2 Canada Research Chair in Implementation of Shared Decision Making in Primary Care. He is the site coordinator (Québec) for KT-Canada, a Canadian research network on Knowledge Translation. His research interests are: shared decision making, continuing professional

development, knowledge transfer, knowledge synthesis and dyadic research. Hubert holds a PhD degree in Cellular and Molecular Biology from the Laval University. Following his PhD, he has pursued a post-doctoral fellowship at the Faculty of Veterinary Medicine from the University of Montreal. His interest for the applied sciences led him to join the France Légaré's research team in June 2009 and perform knowledge translation projects. So far, he has led many research projects aiming to implement shared decision making in primary care practice.

## Kimberley Miller

Dr. Miller is an Assistant Professor, Knowledge Translation and Implementation Sciences, Health Sciences, Simon Fraser University. Dr. Miller's position is partnered with Centre for Improved Cardiovascular Health and the Cardiology program at Fraser Health Authority. She has expertise in the generation of evidence to inform clinical reasoning in the selection of therapeutic interventions and evaluations of outcomes. Her focuses on the application of technologies for therapeutic purposes and physical activity in people with chronic disease and neurological conditions, and barriers and enablers to technology adoption.

# Trainees

## Mirjam Garvelink

Mirjam is a Post-Doctoral Fellow with Dr. Légaré, in the Department of Social and Preventive Medicine, Faculty of Medicine, Université Laval. Earlier this year, she earned a PhD in the fields of Shared Decision Making and Gynecology, Leiden University, the Netherlands. Her research interests include shared decision making, patient's decision aids, knowledge transfer and interprofessional care. Mirjam and Dr.Légaré are currently involved in a project that aims to improve the decision process about location of care with the frail elderly and their caregivers. With ICON's support, Mirjam will lead the developing a web based tool to support decision making about location of care and mobility for frail elderly (SPINACH project). .

## Ankit Gupta

Ankit Gupta is currently a PhD student at SFU School of Interactive Art & Technology (SIAT). He has a M.Sc. (Computing Science) from Simon Fraser University, and a B.E. (Computer Science & Engineering) from Devi Ahilya University, India. His research interests include data visualization and visual analytics particularly for large collection of text documents. Visual Analytics is an iterative process and Ankit is interested in building visual analytics tools that support re-usability, exploration of alternatives and real-time integration of new knowledge during the analysis process. Working in a team led by ICON Investigator, Dr. Chris Shaw, Ankit's work involves developing a new visualization on a Fitbit application (FitViz) for health professionals to offer personalized physical activity strategies, and for patients to obtain meaningful feedback.

## Tim Bodyka Heng

Tim Bodyka Heng is a Master of Science student in School of Interactive Arts and Technology at SFU, under the supervision of Dr. Chris Shaw. Tim completed his BSc in Interactive Arts and Technology with concentrations in Interactive System and Design. He previously worked as a UX/UI designer and Front-End developer at Radiant Communications in downtown Vancouver. Tim's field of interests include Web Technologies, Visual Analytics and Human Computer Interaction. Tim is involved in the Ultra-Customized Health Advertising Project.

## John Best

John Best is a postdoctoral research fellow working under the supervision of Teresa Liu-Ambrose. John's research uses scientific approaches from lifespan developmental psychology, behavioural economics, health psychology, and kinesiology to study two interrelated questions: (1) What types of experiences bolster cognitive function across the lifespan? (2) What are the cognitive and environmental factors that lead individuals to make choices in the world that promote positive health? In examining these questions, Dr. Best focuses most closely on executive functions, which refer to the cognitive functions essential to goal-oriented and controlled behavior. Originally from the USA, John received a PhD in developmental psychology from the University of Georgia and post-doctoral training in obesity research from Washington University School of Medicine in St. Louis. He is currently supported by fellowships from CIHR and MSFHR. John will be taking the lead in analyzing the fMRI data for the [SuPA Brain pilot project](#).

## Ryan Falck

Ryan Falck is a PhD Student of Rehabilitative Sciences under the supervision of Teresa Liu-Ambrose. He previously earned his MSc in exercise science from the University of South Carolina working under Dr. Sara Wilcox. His thesis work focused on the effects of a community-based walking program on cognitive function in older adults. He has also spent time working for the Energy Balance Study under principle investigators Dr. Steven Blair and Dr. Gregory Hand. A former collegiate strength and conditioning coach, he is interested in the effects of different intensities, frequencies and modalities on the cognitive function of older adults. Ryan will be involved with analyzing the fMRI data for the [SuPA Brain pilot project](#).