Canadian Centre *for*
Aging & Brain Health Innovation

THE FUTURE OF HEALTHY AGING

2015/2016 ANNUAL REPORT

ADVANCING INNOVATIONS IN AGING AND BRAIN HEALTH

CONTENTS

A UNIQUE COLLABORATION DRIVING HEALTH INNOVATIONS FOR THE AGING POPULATION

Message from Baycrest President & CEO, William Reichman, MD

It is with immense pride that I introduce the first Annual Report of the Canadian Centre for Aging and Brain Health Innovation (CC-ABHI), and provide a snapshot of what has been an extraordinary inaugural year.

CC-ABHI is a unique collaboration of healthcare, science, industry, not-for-profit, and government partners striving to help older adults age safely in the setting of their choice. We are collaborating with clinicians and industry partners to develop, test and disseminate innovative solutions that meet the needs of the aging population, in Ontario, Canada and around the globe.

Spearheaded by Baycrest, an international leader in cognitive neuroscience and complex geriatric care, the Centre brings together a network of partners with established expertise, resources, and infrastructure. This unique model facilitates the testing and validation of innovations in real-world settings – innovations that include emerging medical devices, novel therapeutic approaches, new technologies, wellness and digital health solutions, next generation healthcare delivery practices, and practitioner and caregiver training and support.

TOGETHER WE ARE ADDRESSING SOME OF THE MOST PRESSING AND UNMET AGING AND BRAIN-HEALTH NEEDS BY:

Identifying challenges and opportunities
CC-ABHI works with international clinical and scientific experts to identify health system needs and service delivery challenges to guide the prioritization of solutions to improve care outcomes.

Connecting and engaging stakeholders
CC-ABHI facilitates relationships among innovators, care providers, older adults, and industry to improve the design, adoption, and funding of solutions.

Driving adoption
CC-ABHI works with clinicians, older adults and other end-users to ensure unique solutions are adapted and available to the aging and brain health environment.

The Canadian Centre for Aging and Brain Health Innovation represents an exceptional opportunity to develop and lead health innovation to enhance and extend brain health and cognitive function. Through innovation and collaboration, we are helping people age in their setting of choice while maintaining cognitive, emotional, and physical well-being and independence.

I'd like to thank our staff, board members, collaborators, government funders, and supporters. Your dedication and passion has helped make our first year one to remember.

WILLIAM E. REICHMAN, MD

President and Chief Executive Officer
Baycrest

Report from our Managing Director, Ron Riesenbach

The focus of our first year has been to integrate our network of collaborators and build a foundation for future growth and success.

It has been an exciting first year with many accomplishments to speak of and share with you. Among many important milestones achieved this year, we completed a comprehensive 5-year Business Plan, developed our year 1, and year 2 Operating Plans, negotiated and signed key funding agreements, and launched the processes to develop foundational agreements with network partners. We also developed key performance indicators and benchmarks against which we are measuring our success.

Now into our second year, and with a highly-skilled management team in place, CC-ABHI is poised to accelerate its activities and realize its global leadership mission.

Fostering and maintaining multi-sectoral, multi-jurisdictional partnerships is critical for CC-ABHI in establishing itself as a national hub and global leader in the development, validation, commercialization, and adoption of brain health and seniors' care solutions. Collaboration enables CC-ABHI to leverage the unique skills and expertise of a diverse group of organizations to advance promising innovative solutions from prototype, to bedside, to market, and this past year we have engaged with our network partners to plan how to lever our combined strategies. As we enter into year 2 of operation, we are excited to form and facilitate new collaborations with local, national, and international partners.

It has been immensely rewarding to serve as Managing Director throughout what has been a very exciting first year for CC-ABHI. On behalf of the CC-ABHI team, I want to recognize and thank our key funders, the Ministry of Research and Innovation, Public Health Agency of Canada, and Baycrest Foundation for their funding support. I also want to recognize and thank the innovators involved in our year 1 launch projects whose passion and creativity have provided us with a tremendous kick-start towards making a significant impact in aging and brain health.

I look forward to continuing our work together and to building on our success.

RON RIESENBACH

Managing Director
Canadian Centre for Aging and Brain Health Innovation

Vice-President,
Innovation & Chief Technology Officer
Baycrest

MISSION

To accelerate the development, validation, commercialization, dissemination and adoption of innovative products, services and best practices to support brain health and aging.

VISION

A world in which people can age in the setting of their choice, maintaining their cognitive, emotional, and physical well-being, and independence as long as possible.

THE CENTRE'S ACTIVITIES ARE GROUPED AS:

Develop

Test

Disseminate

We do this by:

- Researching and developing solutions to maintain and enhance aging;
- Supporting companies and innovators in demonstrating, testing, and improving products and processes designed for aging adults and the mental or cognitive health of seniors;
- Disseminating solutions by providing venues to promote adoption and expansion on demand.

WE ARE REIMAGINING AGING

The Aging Simulation Suit

PAVING A NEW PATH

The Canadian Centre for Aging and Brain Health Innovation (CC-ABHI) is the result of the largest investment in brain health and aging in Canadian history – and in concert with our partners and supporters, we're reinventing the way people grow older.

CC-ABHI is a solution accelerator for the aging and brain health sector. Our first-of-its-kind partnership of healthcare, science, industry, and government experts is a hub for the design, development, and testing of innovations helping adults age safely in the setting of their choice, while maintaining cognitive, emotional, and physical well-being longer.

These innovations represent the most promising solutions to address outstanding brain health and seniors' care needs, including medical devices, therapeutic approaches, emerging technologies, wellness and digital health solutions, healthcare delivery practices, and practitioner and caregiver training and support.

Operating by way of a combination of government investment, charitable and in-kind contributions, and fee-for-service revenue generation, the Centre brings together a network of multi-sector, multi-jurisdictional partners with resources, infrastructure, and expertise in aging and brain health.

NETWORK PARTNER COLLABORATIONS DESIGNED TO MAKE A DIFFERENCE

Our network partners have dedicated resources, infrastructure, and expertise to enable CC-ABHI to develop solutions, test them in real-world settings, and disseminate knowledge and best practices.

Network partners are critical enablers of CC-ABHI's mission through helping to identify challenges and opportunities in the aging and brain health space, connecting and engaging stakeholders, and driving adoption of novel interventions. CC-ABHI has engaged with leading academic, public sector, not-for-profit, and industry partners to support its mission and objectives.

As leaders in the sector, the Seniors Quality Leap Initiative (SQLI) has chosen to partner with CC-ABHI to foster a culture of innovation in the long-term care sector. The SQLI seeks to positively change the care experience and quality of life of older adults in long-term care settings through an operational model that advances evidence-based best practices and facilitates learning among organizations.

A consortium of 14 of the highest performing elder care organizations and their associated universities in North America, the SQLI provides a testing ground for innovative products and services. Members provide their unique expertise to enable evaluation, dissemination, and adoption of new care practices, while designing and beta-testing emerging technologies that support seniors' well-being in real-world care settings. Some of the inaugural innovations CC-ABHI is pursuing include an online cognitive assessment, consumer-directed cognitive neuro-rehabilitative strategies, facial recognition software, remote wellness monitoring, health-coaching software, mobile medication monitoring and tele-dementia care.

CC-ABHI has established a working group and has undertaken a capacity census to assess the players, resources and opportunities for effective innovation and knowledge dissemination. In the coming year, together with SQLI partners, we look forward to pursuing several initiatives that will serve as catalysts for innovation.

SQLI MEMBER ORGANIZATIONS

- Baycrest, Toronto, ON
- Bruyère Continuing Care, Ottawa, ON
- CapitalCare Group Inc., Edmonton, AB
- Donald Berman Maimonides Geriatric Centre, Montreal, QC
- Emory Healthcare – Budd Terrace at Wesley Woods Center, Atlanta, GA
- Hebrew Home at Riverdale, Riverdale, NY
- Hebrew SeniorLife, Boston, MA
- Jewish Home of San Francisco, San Francisco, CA
- Presbyterian Senior Living, Dillsburg, PA
- Providence Health Care, Vancouver, BC
- Schlegel Villages, Kitchener, ON
- The Perley and Rideau Veterans' Health Centre, Ottawa, ON
- Westminster Communities of Florida, Orlando, FL
- York Care Centre, Fredericton, NB

SQLI STRATEGIC AND ACADEMIC PARTNERS

- Accreditation Canada
- Canadian Institute for Health Information
- Canadian Patient Safety Institute
- Florida State University
- interRAI Canada
- interRAI USA

FOSTERING A CULTURE OF INNOVATION

Dr. Jed Meltzer

HIGHLIGHTS FROM OUR FIRST YEAR

In Canada, people are getting older and living longer. In 2010 4.8M Canadians (14%) were seniors, by 2036 that number is expected to grow to 10.4M (25%).

With the number of seniors in Canada expected to double to more than 10 million in the next two decades, and to increase more dramatically still in the two decades thereafter, comes an urgent need to uncover new ways to help adults navigate their older years. Together with our partners, we are developing, testing, and disseminating innovations designed to optimize care and improve quality of life for older adults and their families.

In addition to launching multiple projects representing initial steps towards promising innovations in aging and the brain health sector for older adults, CC-ABHI's first-year milestones include:

Art-on-the-Brain

NEW PRODUCTS AND SERVICES

Several e-learning products related to aging, screening and managing of dementia and depression, and recognizing changes in client conditions, have been developed and deployed through the Michener Institute for the Applied Health Sciences, St. Michaels Hospital and through the Medical Directors of Long -Term Care facilities.

NEW PRACTICES

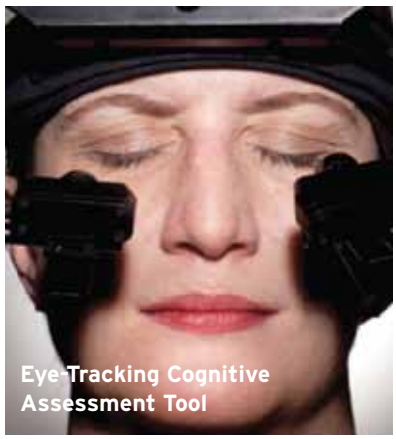
Designed for Personal Support Workers, Nurses, Allied Health Professionals, and Unit Clerks, the development of the Centre for Learning, Research & Innovation (CLRI) Team Essentials for Engaging Families in Care module was created to educate long-term-care healthcare providers on how to develop tailored Situation, Background, Assessment and Recommendation (SBAR) reports as a leading practice.

SHARING KNOWLEDGE

Dr. Nicole Anderson published an abstract that investigated the feasibility and efficacy of having volunteers at long-term care homes administer a cognitive stimulation program to residents. This research discovered that the volunteer-administered cognitive stimulation program demonstrated both feasibility and efficiency.

PRODUCTS OR SERVICES EVALUATED

As part of project development initiatives, Dr. Jennifer Ryan and her team conducted a thorough evaluation of the eye-tracking cognitive assessment tool. The product evaluation was done in an effort to further develop the project into a useful tool for clinicians to use to detect memory impairment common to Alzheimer's disease and other dementias.



Eye-Tracking Cognitive Assessment Tool

PRACTICES EVALUATED

Using CC-ABHI resources, Dr. Deirdre Dawson participated in the development of a music therapy intervention for the Brain Health Promotion project, an initiative that promotes non-pharmacological interventions and processes to promote and optimize brain health across the lifespan.

Brain Health Promotion

KNOWLEDGE EXCHANGE

Highlights from multiple events throughout the year include the CC-ABHI Innovation Expo (April 2015); Goal Management Training "Train the Trainer" workshop at Baycrest (June, 2015); The Canadian Partnership for Stroke Recovery Workshop on Neuropsych Assessment for Rehabilitation (November 2015) in support of Eye-Tracking Cognitive Assessment Tool.

EXHIBITS

CC-ABHI participated in the Ontario Trade Mission to China to build relationships and discover leading aging and brain health technology to be brought into the CC-ABHI project pipeline. Further, participation in the World Professional Organization Event (WPO) afforded CC-ABHI the opportunity to present to leading Presidents and CEOs and inform them about the CC-ABHI mission, corresponding projects, and future partnership opportunities.

PUBLICATIONS

A total of 57 peer-reviewed publications were published from a number of CC-ABHI projects. These publications disseminated information to inform and educate the healthcare community on topics specifically aligned to CC-ABHI's focus on aging, brain health and innovation.

BY THE NUMBERS YEAR ONE

PEER-REVIEWED PUBLICATIONS:

57 MANUSCRIPTS, PAPERS, BOOKS

12 EXHIBITS Conferences or tradeshow displays.

7 NEW PRODUCTS OR SERVICES
Developed, refined or introduced in-house or by partners.

2 NEW PRACTICES
Developed, refined or introduced.

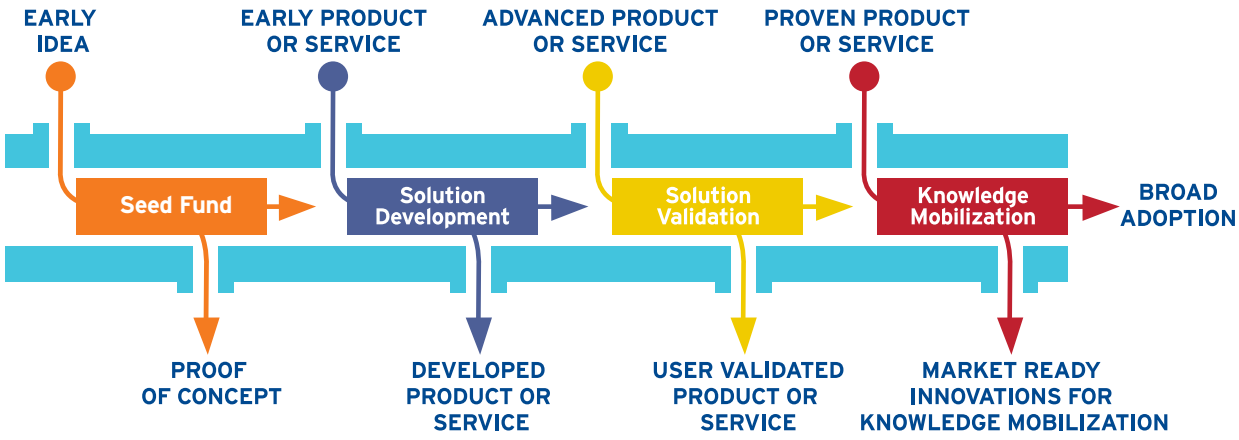
3 PRACTICES EVALUATED

12 UNIQUE PRODUCTS OR SERVICES EVALUATED

143 SHARING KNOWLEDGE EVENTS
Public/community lectures or oral/poster presentations shared at academic or clinical conferences or to societies and interest groups.

41 KNOWLEDGE EXCHANGE EVENTS
Formal workshops, course lectures, train-the-trainer events, or tele-education events.

INNOVATION PIPELINE



OUR PARTNERS

Fostering and maintaining multi-sectoral, multi-jurisdictional partnerships is critical to CC-ABHI's success. Working with multiple partners enables CC-ABHI and Baycrest to leverage the unique skills and expertise of multiple organizations.

Our founding partners include leading industry, academic, public sector, and not-for-profit organizations. Each has committed the essential resources for our activities and initial success. Collectively, our partners, including federal and provincial governments, will contribute $123.5 million throughout our first five years for use in developing, testing, and disseminating innovations designed to support and ultimately enhance quality of life for the world's aging population.

Our partners include:

Network Partners:
Partners bringing dedicated resources, infrastructure, and expertise to enable CC-ABHI to develop and test solutions in real-world settings and disseminate knowledge/best practices.

With the support of CC-ABHI, the SQLI partners work with interRAI to develop a comprehensive comparative report card outlining each members' performance on a number of quality of care metrics, trending their performance over time and in comparison with each other. This continually updated report card has enabled focused quality improvement work in numerous areas including falls with injury, unnecessary transfers to emergency rooms, and pain management in long-term care. Over the years significant improvements have been reported by the majority of organizations. Working with the SQLI group of seniors' care organizations, we have a comprehensive plan to support an acceleration of the learning and adoption of best practices to further drive the quality, accessibility and the cost effectiveness of care.

Project Partners
Clients (e.g., industry, healthcare organizations, technology developers) with existing intellectual property or solutions that enter into agreements with CC-ABHI and leverage the Centre's resources (such as Baycrest or other Network Partner resources) to develop and/or test novel solutions.

Funding Partners
Government, philanthropic, and other partners that pledge financial support to establish and sustain CC-ABHI's core operations and activities, and may contribute to the identification of novel collaborations or ideas as well as partners and networks.

NETWORK PARTNERS

- AGE-WELL
- George Brown College
- OCAD University
- Ontario Brain Institute
- MaRS Discovery District & MaRS Innovation
- Saint Elizabeth Health Care
- SQLI*
- University of Toronto

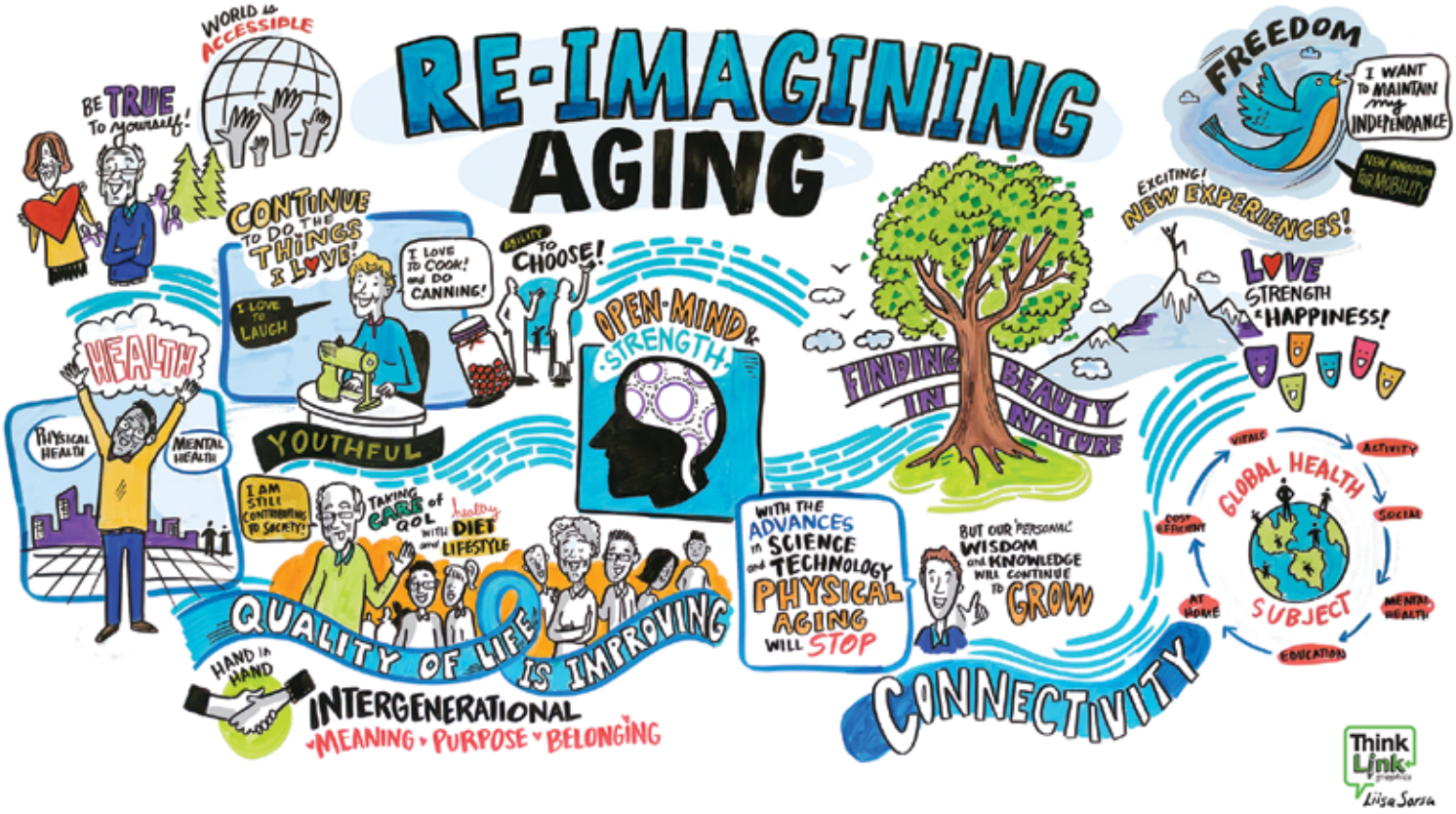
PROJECT PARTNERS

- Cogniciti
- Invivo Communications
- Johnson & Johnson
- Meditext
- Muse
- Ontario Telemedicine Network
- QoC Health
- Quanta Computer
- Telus Health
- The Art Gallery of Ontario

FUNDING PARTNERS

- Baycrest Foundation
- Ministry of Research and Innovation
- Public Health Agency of Canada

* See page 11 for full list of SQLI member organizations and SQLI strategic and academic partners



PROJECTS DESIGNED TO MAKE A DIFFERENCE

We aspire to become the world's premier network dedicated to accelerating the development, testing, and dissemination of solutions in aging and brain health. It is our objective to improve the well-being of seniors and their families, enhance the quality and effectiveness of care, and spur innovation in Canada and globally.

"Access to the older adult population and setting at Baycrest provides us with real-life insight on the utility, applicability, and scalability of our platform. The collaboration enables us to refine the platform with proper content, applications, and design improvements towards a suitable solution that would generate genuine value for older adults in Canada and around the world. Our partnership with CC-ABHI makes this important work possible."

Terence Huang,
Associate Director at Quanta Computer Inc.

QOCA HOME SOLUTION TRIAL

Overcoming Isolation and Preventing Mental Health Decline in Older Adults

The QOCA home solution is a cloud-based platform designed to improve social connectedness to lessen the effects of isolation and loneliness. The commercial partner for this project is Taiwan-based Quanta Computer Inc., one of the largest computer manufacturers in the world. The project involves customizing, deploying, and evaluating the QOCA home platform, and more specifically the Home Hub tablet device, with seniors and their circle of care in the Baycrest community. 2015/16 saw the development and refinement of the QOCA home platform and device, advancements that will improve usability, interface, and content for seniors and their families.

ONLINE MEMORY AND AGING PROGRAM (MAP)

Scalable Tools to Better Manage Memory

The Memory and Aging Program (MAP) is an evidence-based education and intervention program for older adults experiencing normal age-related memory changes. Through interactive lectures, discussion, and practical exercises, participants learn about memory changes that occur with age – what is normal and what is not – and what can be done to improve memory. Over 1,000 older adults have participated in the face-to-face program at Baycrest. Through CC-ABHI's support, an online version of MAP will enable significant scalability – MAP will be extended to bring benefits to hundreds of thousands of older adults.

TRIGGER

Using Wearable Technology to Overcome Social Isolation and Memory Loss

Memory retrieval of events, location and names gets more difficult with advancing age and can be exacerbated following a stroke, brain tumor or the result of a neurodegenerative disease. Trigger is a prosthetic memory application that enables individuals with memory impairment to re-live the past in context, the way memories should be experienced. Using the app, memories can be triggered within context by location, time, and facial recognition on a mobile device. The solution allows users of this application to browse memories in a variety of ways including by person, place and time, and search by text entries and keywords. 2015/16 accomplishments included the refinement of the mobile application in order to improve the facial recognition aspect of the solution.

The Virtual Brain:
Dr. Randy McIntosh and Tanya Brown

THE VIRTUAL BRAIN

Forging New Solutions in Personal Brain Healthcare

Delivering effective therapies for brain injury or cognitive decline requires a structural and functional understanding of the patient's brain, and today that understanding is coming into focus through a ground-breaking initiative called The Virtual Brain (TVB). TVB is the first computerized model to capture the intricate details of the structure and function of the brain under normal circumstances; as a result of trauma or disease, and as it ages. Currently, TVB is used as a research tool to build models that predict the development and progress of disease. With the goal of expanding its clinical use, CC-ABHI is partnering with InteraXon using its MUSE headband as a type of mobile electroencephalogram (EEG) that could enable new clinical uses.

muse™
the brain sensing headband

"Our partnership with CC-ABHI has enabled us to accelerate our pace of innovation and is enabling us to use leading technology in new ways to positively benefit our aging population."

Derek Luke,
Director of Engineering at MUSE

"It's tremendously exciting to know that in developing an online version of our program, we'll be making it accessible to a significantly higher number of older adults."

Angie Troyer, PhD, CPsych,
Director of Neuropsychology and Cognitive Health at Baycrest

EYE-TRACKING COGNITIVE ASSESSMENT

Detecting Cognitive Decline by Making Eye Contact

The way our eyes move can reveal the information that we have in our memories, and we can exploit eye movements to investigate changes in memory related to aging. With CC-ABHI support, Baycrest researchers are developing an innovative eye-tracking based assessment tool for early detection of cognitive decline.

This project involves adapting lab-based eye-tracking tasks of cognition for use with a mobile platform and obtaining eye-tracking data from both healthy adults, and those with cognitive decline. In 2015/16 the project team developed and tested a cognitive assessment exam that is to be used with eye-tracker technology to screen for memory impairments common to Alzheimer's disease and other dementias.

VIRTUAL CARE

Extending Care Beyond the Hospital

Virtual Care is an innovative project that intends to bring health services to the client, rather than bringing the client to the clinician. The project has three sub-projects: Responsive Behaviours Video Capture, Bedside Telemedicine, and Prevention of Falls with Injury. The Virtual Care project is aimed at providing the following benefits: behavioural support for patients and caregivers living with dementia during transitions between care settings, sectors, and teams; enhanced access to integrated and specialized care teams for residents of long-term care homes and community dwelling clients through telemedicine, and reduced incidence of injurious falls and avoidable emergency department transfers for residents and patients with dementia living in long-term care and in-patient rehab units.

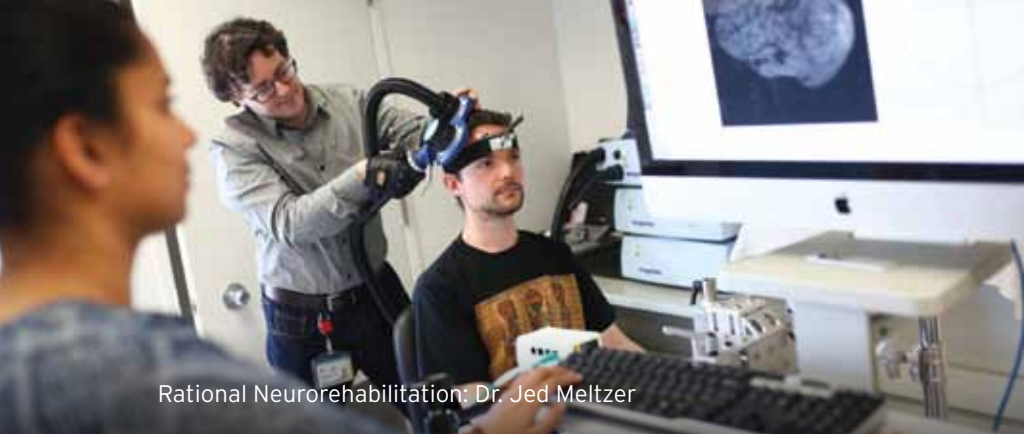
2015/16 was a year for planning and laying the foundations for work that will begin in the Spring of 2016. In 2015/16 the team established project charters, began the data infrastructure upgrades required to support the roll-out of the projects, executed key environmental scans, and began the development of the evaluation frameworks needed to properly test and evaluate the efficacy of these projects.


Neurovascular Reactivity

NEUROVASCULAR REACTIVITY

Using MRI Imaging to Improve Early Detection of Dementia

Vascular disease in the brain has been implicated in the development of vascular dementia and Alzheimer's disease, the two leading forms of dementia. The ability to map cerebrovascular reactivity, a key indicator of vascular health in the brain, could lead to improved ways to detect the disease in its early stages as well as to new treatment targets to alleviate disease symptoms. The Cerebrovascular Reactivity project involves developing novel, non-invasive methods using MRI technology to measure vascular function in the brain as the key supporting mechanism for brain activity. In 2015/16 the development and refinement of a new cerebrovascular reactivity method for MRI to measure blood flow in the brain marked the ongoing progress for this exciting CC-ABHI funded project. The developed sequence could result in a significant reduction in scanning times, which in turn may impact overall healthcare costs across the sector.



Rational Neurorehabilitation: Dr. Jed Meltzer

Communications Neuroscience: Dr. Claude Alain

MRI NEURO-INFORMATICS

Finding New Ways to Use Big Data

In their efforts to understand dementia and other brain disorders, scientists have recognized the promise of big data – very large sets of information that may be analyzed to reveal patterns, trends, and associations related to brain structure, brain function, and human behaviour. However, the standards for gathering and analyzing data may vary across institutions, limiting the gathering and optimal extraction of information for research and clinical trials.

The aim of the MRI Neuroinformatics project is to develop standardized architecture to share neuroimaging data, essential health information, and analysis tools nationally. This will create robust, reproducible MRI data processing and analysis pipelines that can be used in partner centres.

Dr. Stephen Strother led the effort in 2015/16 to develop a pre-processing software pipeline to analyze brain imaging data. Further, Dr. Brad Buchsbaum helped create 2 machine-learning algorithms and software tools for the classification and prediction of brain conditions from brain imaging data. By combining large data sets in a standardized way, this project can lead to wider spread data analyses and offer more statistically informed outcomes.

RATIONAL NEURO-REHABILITATION

Accelerating the Timeframe from Questions to Answers in Brain Health

The discovery of new treatments for brain disorders such as stroke, traumatic brain injury, dementia, and late-life depression often takes a trial-and-error approach. New treatments are often tested with little consideration of the specific underlying brain changes in a disease and of the impact of a potential new treatment on the relevant brain structure and function mechanisms.

Supported by CC-ABHI, researchers at Baycrest are using state-of-the art technology including magnetic resonance imaging (MRI) and magnetoencephalography (MEG) to understand disease-related and acute treatment-related changes in brain structure and function in individuals with various brain disorders. Additionally, information is being gathered about physical and physiological health in order to construct a holistic picture of what promotes healthy brain aging. The continued advancement of this project will allow researchers to gather information in smaller numbers of individuals, accelerating the timeframe from question to answer; researchers will also be able use an approach that involves a comprehensive set of brain-imaging and physical-health assessments to evaluate existing brain interventions and understand why certain interventions work for some patients but not others. The work accomplished in 2015/16 is helping to pave the way to stronger clinical trials that save time by focusing on treatments that appropriately impact the relevant structures, processes, and functions of the brain.

COMMUNICATIONS NEUROSCIENCE

Understanding how the Brain Hears

Research is increasingly showing that communication difficulties are related not only to the ear but also to the brain, giving rise to the frequent complaint, "I can hear you, but I can't understand you." Supported by CC-ABHI, Baycrest researchers are working to increase their understanding of hearing, speech perception, and speech production, so they can apply this knowledge to new and better treatments and improve communication. By increasing our understanding of the brain regions responsible for processing language and sounds, this research contributes to new knowledge that can be applied to developing new and improved brain interventions to help people with communication impairments enjoy better connections with others, leading to a better overall quality of life.

In 2015/16 Dr. Bernhard Ross continued the development and testing of a new analysis method that allows for digitization of the head in 3D, which can be used in the context of analysing neuroimaging data acquired for examining hearing and language problems in seniors. As well, Dr. Regina Jokel maintained momentum in developing software that aims to analyse spontaneous speech that will differentiate and diagnose disorders like depression or dementia.

ART-ON-THE-BRAIN

Using Art to Improve Cognitive and Social Engagement

Older adults, especially those with complex health issues, have reduced access to recreational activities that provide cognitive and social engagement, this can result in feelings of isolation and loneliness. Art-on-the-Brain uses artwork as a vehicle for meaningful intellectual and social engagement for adults with and without dementia. The primary goal of the application is to promote improved health and well-being, while the secondary goal is to provide physicians and care providers with a proven and safe tool for patient use. The commercial partners for this project are Art Gallery of Ontario, Canadian Art Magazine, Memory & Company, QoC Health, MaRS Innovation, and Quanta Computer Inc.

In June 2015 the mobile application beta prototype was developed at a Hacking Health event in Toronto, leading to Art-on-the-Brain winning the Gevity Innovation Award, as well as being awarded the runner-up prize as Ontario Telemedicine Network (OTN) Most Innovative Solution. Following this event, and throughout 2015/16, the project team met with partner candidates such as software developers, designers, and mobile experts who have the ability to develop the beta version of this solution into a fully functioning mobile application that has the potential for widespread commercial dissemination.

COGNICITI BRAIN HEALTH ASSESSMENT

Brain Health Powered by Science

Early identification of potential cognitive problems could lead to early diagnosis along with appropriate care designed to help the individual maintain their cognitive health and independence for as long as possible. Cogniciti Brain Health Assessment is a science-based brain health test developed by clinical neuropsychologists and cognitive scientists at Baycrest to help determine if certain memory changes warrant a visit to the doctor. The test, for adults 50 to 79, was co-developed by Cogniciti Inc., which is owned by Baycrest and partner MaRS Discovery District. To date, more than 40,000 adults have completed the test. The commercial partner for this project is Johnson and Johnson Inc.

In 2015/16 the beta Brain Health Registry was developed and allows consumers who complete the brain health assessment to sign up for further research opportunities; this registry may be made available in the future for pharmaceutical companies and other Research and Development (R&D) organizations to recruit volunteers for clinical trials and accelerate the R&D process. As well, the initial development stages of a tablet version of the software to broaden the accessibility of the program began in 2016.

ONLINE GOAL MANAGEMENT TRAINING

Rehabilitating Executive Function Impeded by Brain Disorders

When an individual's executive function is impaired their ability to control behaviour decreases, this can affect their ability to do everyday activities such as work, remember simple tasks, or keep emotions stable.

Goal Management Training® (GMT) is a Baycrest therapy with proven efficacy in the rehabilitation of clients with executive dysfunction resulting from brain disorders. GMT is structured into nine modules, with interactive discussions designed to raise awareness of various aspects of goal management, tasks that illustrate goal management concepts in action, and homework assignments designed to facilitate the transfer of concepts to real life.

In 2015/16 the project began developing an online version, which will provide wider access for GMT therapists to reach more patients such as those who have limited or no access to in-person therapy due to geographical or physical restrictions.

E-LEARNING SYSTEM

Disseminating Information to Educate the Healthcare Community

For all healthcare professionals, continuous education is an important part of ensuring consistent knowledge and quality patient care. This project involves developing and implementing a rigorous and comprehensive Learning Management System that provides e-learning courses for healthcare professionals and those who interact with the healthcare system, including seniors, their families, and their caregivers. This initiative will see the acquisition, configuration, integration and deployment of CC-ABHI's Learning Management System.

In 2015/16 this project developed 3 modules to educate clinicians on how to better care for their patients, modules that will eventually populate the e-Learning platform. Online modules were designed as part of a blended learning course to train staff on how to work with older adults and seniors. Training for staff was also included to help them understand more about the complex needs of older adults, including normal aging and sensory and cognitive changes that can affect care. Staff completed the on-line modules independently and then participated in a full day face-to-face workshop to apply what they had learned online. The first deployment of the on-line material was for 15 clinicians at St. Michael's Hospital in Toronto.

BRAIN HEALTH PROMOTION

Researching the Impact of Healthy Habits on a Healthy Brain

A recent study suggested that a 10-25 percent reduction in risk factors such as diabetes, mid-life hypertension, mid-life obesity, smoking, depression, and physical inactivity could potentially prevent as many as 1 to 3 million cases of AIzheimer's Disease worldwide. A comprehensive understanding of how lifestyle factors contribute to brain disorders and developing new interventions that would promote sustained healthy lifestyle behaviours throughout the lifespan could ultimately reduce the incidence of dementia and other age-related disorders.

Supported by CC-ABHI, researchers at Baycrest are investigating factors that affect brain health, including diet, social engagement, and mood, to develop non-pharmacological interventions and processes (e.g. lifestyle changes) to promote and optimize brain health across the lifespan.

The goal of the project is to reduce the likelihood of developing brain disorders such as cognitive impairment, dementia, and late-life depression. This knowledge will serve as a basis for developing new interventions that take into account the individual's psychosocial environment, activities, and other strategies to promote sustained changes in lifestyle behaviours.

2015/16 accomplishments include research performed by Dr. Nicole Anderson that explored the feasibility and efficacy of using long-term care homes' volunteers to administer a cognitive stimulation program to residents. This research discovered that the volunteer-administered cognitive stimulation program demonstrated both feasibility and efficiency. With additional research, and larger sample sizes, the long-term impact may lead to an efficient and scalable way to improve cognition in seniors living in long-term care homes.

For more comprehensive information about each project, including the challenges each is designed to counter, the solution each represents, the impact each will have, and information about the value (Key Performance Indicators) for each, visit our website **ccabhi.com** or contact us at **info@ccabhi.com**

FINANCIAL REPORT

TOTAL OPERATIONS	
Core Operations	$$4,883,000
Industry Projects	$458,692
Strategic Projects	$3,081,284
Knowledge Mobilization Projects	$279,008
Total	**$8,701,984**

CORE OPERATIONS	
Project Support, Business Development & Operations	$3,487,929
Develop	$361,291
Test & Validate	$391,639
Disseminate & Adopt	$642,140
Total	**$4,883,000**

INDUSTRY PARTNER PROJECTS	
QOCA Home Solution Trial	$27,440
Art on the Brain	$124,442
Online Memory and Aging Program (MAP)	$129,393
Cogniciti Brain Health Assessment	$177,417
Total	**$458,692**

STRATEGIC PROJECTS	
The Virtual Brain	$506,044
Virtual Care: Dementia & Transitional Care	$659,811
Trigger	$29,294
Virtual Care: Virtual Rounds	$190,287
Virtual Care: Care in Transition	$57,004
Neurovascular Reactivity	$478,482
MRI Neuroinformatics	$150,735
Rational Neurorehabilitation	$213,135
Communications Neuroscience	$235,372
Brain Health Promotion	$353,073
Eye-Tracking Cognitive Assessment	$208,047
Total	**$3,081,284**

KNOWLEDGE MOBILIZATION PROJECTS	
Online Goal Management Training	$248,359
E-Learning System	$30,650
Total	**$279,008**

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ONE Ontario Network of Entrepreneurs

The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.

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Canadian Centre *for*
Aging & Brain Health Innovation

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