2020

MIRA and Labarge

ANNUAL
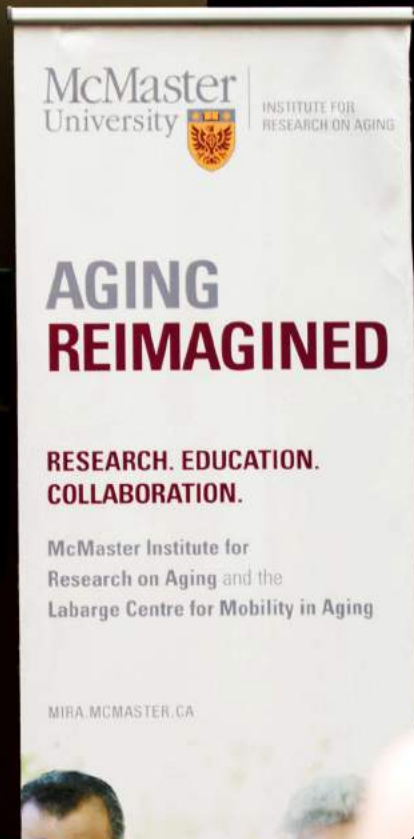REPORT

Contents

Introduction

The vision that drives the McMaster Institute for Research on Aging (MIRA) and the Labarge Centre for Mobility in Aging (LCMA) is a future in which interdisciplinary research supports and enables people of all ages to live longer, healthier lives. We embrace this vision and strive to advance and connect to it through all elements of operation, including through leading-edge research, education and stakeholder collaborations. Our values are cemented in integrity, excellence, collaboration, inclusion and transparency.

Through our approach to interdisciplinary research, the development of novel training programs, community and knowledge translation activities, our research outcomes have a real impact and influence on the well-being of older adults locally and globally. MIRA's researchers, trainees, stakeholders, and partners share our vision, and are working hard to set the stage for the next generation of researchers in aging.

MIRA was formed in 2016 to address the complex issues that face our aging population through organized, interdisciplinary research that integrates older adults, their families, health-care providers and other key stakeholders. The input of multiple perspectives and complementary areas of expertise has ensured that our research is, from the outset, optimized to create useable, practical, older adult-centred solutions that promote aging in place.

The LCMA, MIRA's first focused research centre, also launched in 2016 to facilitate and amplify research initiatives that mitigate the risk and consequences of declining mobility with age. Mobility is critical to healthy aging, and can affect social and economic independence, along with physical and mental health. By better understanding the range of issues associated with mobility in aging, we have the potential to optimize the well-being of Canadians while also reducing health and social costs. The LCMA, which was built on the groundwork of the Labarge Optimal Aging Initiative and the Labarge Foundation, fosters the same interdisciplinary research approach as MIRA.

Our 2020 Annual Report highlights current initiatives in aging research, education and community-based projects that support the health and well-being of older adults. It also outlines how our researchers and research pivoted to account for life during a global COVID-19 pandemic.

This work could not have been possible without the support of McMaster University and the generous donations of its former chancellor, Suzanne Labarge.

McMaster University is one of the top 70 Universities in the world; and with optimal aging as one of our research priorities, McMaster has developed an important influence on the culture of aging research in Canada and internationally.

McMaster's dedication to collaborative research brings together researchers from all disciplines and Faculties, important stakeholders from our community, and students—our next generation of researchers—to develop practical solutions for our aging population. An Age-Friendly University, McMaster is rapidly advancing aging research, as well as educational and community initiatives intended to support older adults.

Continual innovation sets McMaster apart and, as a result, we have developed the capacity to address the most pressing aging-related questions facing older adults, caregivers, health professionals and policy makers today. This impact has been made possible because of the vision and generosity of Suzanne Labarge.

In a year dominated by the global COVID-19 pandemic, McMaster's researchers have shown themselves to be innovative and adaptable in enhancing and improving the aging experience, even under extremely challenging circumstances. I invite you to read more about the impact McMaster is making in this year's report.

Dr. David Farrar
President and Vice-Chancellor

In what has proven to be a challenging year for academic and research institutions across the globe, I am proud to be in a position to continue to champion the Labarge Centre for Mobility in Aging (LCMA), housed within the McMaster Institute for Research on Aging (MIRA). The Centre continues to support its vision with significant success, and has risen to the occasion to support its researchers, trainees, stakeholders and members of the older adult community despite the uncertainties of COVID-19.
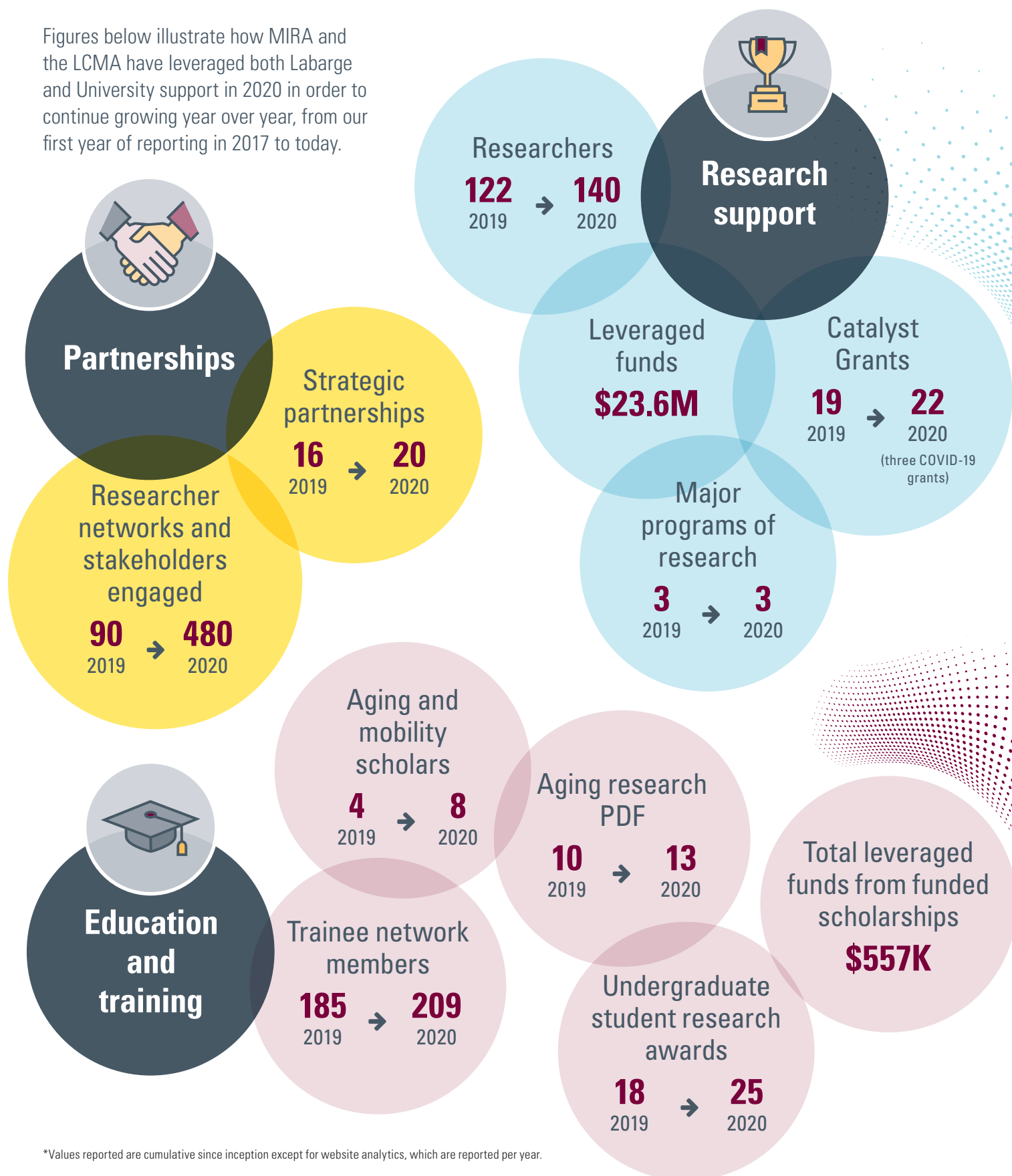
The fact that such a significant portion of our population is aging can be viewed as a human success story, but living longer also comes with its share of challenges. These challenges, including barriers to physical mobility and social and personal support systems, become even more important to address during a pandemic when older people are most vulnerable. MIRA and the LCMA have shown that they have the capacity to confront the difficulties older adults face in their daily lives and during the pandemic. McMaster continues to receive recognition as an international and innovative leader in aging research. Through the LCMA, we will continue leading the way with the translation of important research findings that will help older adults and their caregivers make the best evidence-based decisions for optimal health and well-being.

I am pleased to support our shaping the future of aging research at McMaster. Enabled by the generous investments made by Suzanne Labarge, we will continue to chart an ambitious path for McMaster while adapting to a changing world.

Dr. Susan Denburg
Executive Vice-Dean and Associate Vice-President, Academic, Faculty of Health Sciences
University Lead, Labarge Centre for Mobility in Aging and
McMaster Institute for Research on Aging

By the numbers: 2020 in review

Figures below illustrate how MIRA and the LCMA have leveraged both Labarge and University support in 2020 in order to continue growing year over year, from our first year of reporting in 2017 to today.

Partnerships

Researchers
122 (2019) → 140 (2020)

Strategic partnerships
16 (2019) → 20 (2020)

Researcher networks and stakeholders engaged
90 (2019) → 480 (2020)

Research support

Leveraged funds
$23.6M

Catalyst Grants
19 (2019) → 22 (2020)
(three COVID-19 grants)

Major programs of research
3 (2019) → 3 (2020)

Education and training

Aging and mobility scholars
4 (2019) → 8 (2020)

Aging research PDF
10 (2019) → 13 (2020)

Total leveraged funds from funded scholarships
$557K

Trainee network members
185 (2019) → 209 (2020)

Undergraduate student research awards
18 (2019) → 25 (2020)

*Values reported are cumulative since inception except for website analytics, which are reported per year.

Knowledge translation

Facebook reach
95 2019 → **193** 2020

LinkedIn reach
34 2019 → **83** 2020

Twitter followers
1,675 2019 → **1,964** 2020

Stories in the traditional and non-traditional media
225 2019 → **346** 2020

Website engagement

visitors
10,056 → **14,288**

new visitors
9,945 → **13,896**

page views
41,875 → **44,774**
2019 2020

Community outreach and programming activities

Age-Friendly committee commits to 'Bridge the Digital Divide' and find ways to connect with older adults during COVID-19 pandemic

MacPAGE is launched to give McMaster students interested in aging more experience working with older adults

Intergenerational program 'Meet my Hamilton' launched online in response to COVID-19

More than 75,000 users have accessed the Optimal Aging Portal's new e-learning modules on osteoarthritis and brain health

Leveraged funds
(cash and in-kind)

Total leveraged funds
$11.2M 2019 → **$24.2M** 2020

PART 1:
Labarge Centre for Mobility in Aging (LCMA)

The **Labarge Centre for Mobility in Aging (LCMA)** launched in 2016 in order to direct focus on initiatives that mitigate the risk and consequences of declining mobility with age. Built on the groundwork of the **Labarge Foundation** and the **Labarge Optimal Aging Initiative**, and the generosity of Suzanne Labarge, the LCMA aims to produce tangible outcomes that will improve the lives of older adults in Canada and around the world.

Research approach

The LCMA fosters multiple cross-Faculty approaches to mobility in aging, which includes (but is not limited to):

- Biological and physiological contributors

- Behavioural, cognitive and psychosocial influences

- Biomedical, clinical and technological innovations

- Availability of prevention, rehabilitation and management strategies for mobility challenges

- Environmental components, such as social, economic, policy and physical/structural factors

The LCMA's mechanisms used to conduct research, support community engagement and promote knowledge sharing include:

- Facilitating and funding major interdisciplinary research initiatives

- Establishing partnerships to leverage LCMA funds

- Building capacity by supporting students and trainees

- Hosting events and facilitating outreach to enable research collaboration across disciplines

The LCMA's positioning within MIRA allows the Centre to gain many efficiencies through shared staff, space and governance structures. Together, the LCMA and MIRA are well-positioned to respond to opportunities and enhance the lives of today's aging population.

Researcher support

Developing interdisciplinary programs of research

MIRA has a strong focus on interdisciplinary programming and research. LCMA funded Master's and PhD scholars are required to adopt a mentor from a different Faculty than that of their supervisor, while funded postdoctoral fellows require two such mentors. These outer-Faculty mentors are meant to provide an alternative perspective to the project, and to assist in further developing the student or fellow's capacity to approach aging research with a multi-disciplinary frame of reference.

Grant opportunities funded through the LCMA require proposals to demonstrate inclusion of researchers from a minimum of three different Faculties at McMaster University. This brings identified expertise and added value to the proposed project. In many cases these are researchers that have not worked together in the past. MIRA and LCMA researchers reported that they developed more than 100 new collaborations with researchers in their own disciplines, and more than 200 outside of their disciplines.

The interactive MIRA researcher map which launched in the fall was designed to facilitate interdisciplinary research collaborations within McMaster University across Faculties, allowing users to quickly identify where MIRA members see themselves in terms of research focus and research output (see page 62). MIRA's Research Coordinator promotes interdisciplinary collaborations among MIRA members, Trainee Network members, and industry partners by identifying possible collaborators and facilitating introductions. Further, MIRA has been active in cultivating international relationships and collaborations and industry partnerships, as outlined in the external partners section of this report (see page 86).

MIRA members have been successful in leveraging their collective expertise and, in some cases, MIRA has funded pilot studies to succeed in applications for grants, both large and small in 2020. Some examples include (MIRA Members in bold):

- **Zheng R** (PI), Ashtiani H, Carmichael T, Chiang F, **Deen J**, Eskicioglu M, **Fang Q, Gardner P**, Latulipe C, **Papaioannou A**, **Wilson J**, NSERC CREATE for Smart Mobility for the Aging Population, NSERC CREATE – Collaborative Research and Training Experience Program, **$1,650,000**

- **Shedden J** (PI), **von Mohrenschildt M** (Collaborator). Multisensory processing, self-motion perception, and performance across the lifespan: Behavioural and neural measures **$165,000**

- **Hewston P** (PI and MIRA PDF), **Papaioannou A** (PI), Co-I: **Kennedy C**, **Ioannidis G**, Marr S, Patterson C, Hladysh G. Does GERAS DANCE improve cognitive function in older adults? Alzheimer's Society Foundation, Research Grant – Open Access Publication **$2,000**

- **Beauchamp M** (NPI), **Vrkljan B**, **Fang Q**, **McNicholas P**, **Newbold B**, **Gardner P**, **Kuspinar A**, **Richardson J**, **Zargoush M**, **Raina P**. Monitoring My Mobility (M3): A mobility self-monitoring tool for older adults and their caregivers, Grant, AGE-WELL's Core Research Program (CRP) 2020 Catalyst Grant, Research - New Project, **$30,000**

- **Beauchamp M** (NPI), **Vrkljan B**, **Fang Q**, **McNicholas P**, **Newbold B**, **Gardner P**, **Kuspinar A**, **Richardson J**, **Zargoush M**, **Raina P**. Monitoring My Mobility (M3): A mobility self-monitoring tool for older adults and their caregivers, AGE-WELL Core Research Program (CRP) Grant, Research - New Project, **$600,000**

- **McArthur C** (MIRA PDF), Surlin S, Akinyemi A, **Zheng R**, **Gardner P**, **Papaioannou A**. ABLE-Music: Movement-Music Interactions to Engage Older Adults with Cognitive Impairments. Centre for Brain Health and Aging **$50,000**

Major programs of research

In 2017, MIRA and the LCMA launched a process to support interdisciplinary teams working towards understanding, developing, and evaluating critical issues in aging and mobility. Through an iterative design-thinking process, facilitated by MIRA, several programs of research were developed. Proposals were submitted for review by MIRA's International Scientific Advisory Committee (ISAC) and to external reviewers with relevant expertise. Three major projects of research were funded in mid-2019.

Rebecca
Ganann

The EMBOLDEN trial: Enhancing physical and community MoBility in OLDEr adults with health inequities using commuNity co-design *

In several Hamilton neighbourhoods, there are striking connections between the health inequities of residents (or differences in health status or access to health resources) and social factors (e.g., income, education). The goal of the EMBOLDEN trial is to promote increased physical and community mobility among people 55 years of age and older living in neighbourhoods with lower than average income and barriers to full participation in social programs in Hamilton. This program aims to embolden participants to foster positive changes in physical mobility, social participation, health, and quality of life and to increase their awareness and use of health and social services through a collaborative approach to co-design of the intervention, testing the program, sharing the results, and spreading the program to other communities. The program is being developed such that it can later be implemented throughout Hamilton and adapted to other Canadian communities.

INVESTIGATORS

Rebecca Ganann
Stuart Phillips
Courtney Kennedy
Bruce Newbold
Elizabeth Alvarez
Sarah Neil-Sztramko
Ruta Valaitis
Ayse Kuspinar
Diana Sherifali
James Gillett
Marla Beauchamp
Julia Abelson
Parminder Raina
Lehana Thabane
Terry Flynn
Gina Agarwal
Maureen Markle-Reid
Meridith Griffin
George Ioannidis
Pasqualina Santaguida
Chris Verschoor
Gillian Mulvale
Carol Bassim

RESEARCH IMPACT

This research has resulted in one publication, five conference presentations, 28 new collaborators, the support of 14 trainees/research personnel, and has leveraged an additional $100,000 in funding (CIHR SPOR Catalyst Grant).

"Funding through MIRA's Labarge Centre for Mobility in Aging supports our team's ability to engage older adults living in disadvantaged neighbourhoods in the design of a novel intervention. This strategic initiative enabled the rapid assembly of a highly committed team, comprised of senior, mid- and early career researchers. Over the past year, our team has been working collaboratively, leveraging the diverse expertise across Faculties and disciplines and has strengthened its methodological, theoretical, and contextual grounding."

Rebecca Ganann

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Monitoring My Mobility (MacM3): technological approaches for advancing the assessment of early mobility limitation in older Canadians *

Problems with everyday mobility, such as walking or driving, are common in older adulthood and can negatively impact health and social functioning. To address issues specific to early mobility limitation in older community-dwelling Canadians, this research program will:

- Assess the impact of changes in mobility on an older persons' level of functioning, including consensus on how to best define and measure early mobility problems;

- Apply machine learning to data from the Canadian Longitudinal Study on Aging (CLSA) to find the most relevant predictors of early mobility problems;

- Identify people with differing levels of mobility problems through use of a wearable sensor to monitor everyday mobility in the home and community;

- Using data from the previous three steps, develop a prototype for a tool that will help older adults and their caregivers self-monitor their mobility (the Monitoring My Mobility – M3 tool). This tool will be used to assess and depict an individual's trajectory and risk for mobility decline based on key indicators and, ultimately, help older people, their families, health-care professionals, and policy makers to prevent or delay late-life mobility problems through early detection.

Marla Beauchamp

RESEARCH IMPACT

This research has garnered one media item, one publication, two conference presentations and 26 new collaborators. It has supported 11 students and has leveraged an additional $500,000 in internal funding and $630,000 in external funding. Principle investigator Marla Beauchamp has received a successful notice of decision and will now hold a Tier 2 Canada Research Chair in Mobility, Aging and Chronic Disease for the next five years, enabling her to focus 75 per cent of her time on research activities, and ensure the MacM3 program of research is successful. This work has attracted additional funds to further mobility research as well as to fund a mobility lab within MIRA's office space.

"MIRA/Labarge funding has allowed our team to develop a five-year interdisciplinary research program in mobility, technology and aging. In addition, we have successfully leveraged this funding, and with our AGE-WELL funding partnership, we will assemble the first longitudinal study of its kind dedicated to the comprehensive monitoring of late-life mobility using sensor-based wearable technology."

Marla Beauchamp

INVESTIGATORS

Marla Beauchamp
Qiyin Fang
Paula Gardner
Ayse Kuspinar
Paul McNicholas
Bruce Newbold
Julie Richardson
Darren Scott
Brenda Vrkljan
Manaf Zargoush
Fei Chiang
Jamal Deen
Rebecca Ganann
Saiedeh Razavi
Ann Fudge Schormans
Ravi Selvaganapathy
Jinhui Ma
Pasqualina Santaguida
Norm Archer
Vanina Dal Bello-Haas
Meridith Griffin
Lori Letts
Julia Abelson
Nigar Sekercioglu
Rong Zheng
Reza Samavi
Stuart Phillips
Evelyne Durocher
Thomas Doyle
Sarrah Lal

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

MyLinh
Duong

A real-time mobility monitoring and assessment tool for preventing decline in older hospitalized medical patients *

Older adults hospitalized for acute medical problems are at risk of significant functional and mobility decline during hospitalization, which can lead to an increase in hospital stays, readmission rates and post-discharge institutionalized care. Early Mobility Programs, which encourage early mobilization and scheduled physical activity while in hospital, are showing some benefits with shorter length of hospital stays and better functional outcomes. However, these findings are not consistent across studies, suggesting that a more tailored approach is needed. This program of research will implement wearable sensing technologies to collect continuous mobility data in older hospitalized patients. The data will help characterize the relationship between mobility, functional and health outcomes in the hospital setting. These findings will set the stage for the development of a customized wearable device, which will integrate mobility sensing technology with onboard machine learning algorithms to provide a point-of-care assessment tool for mobility limitation and management.

INVESTIGATORS

MyLinh Duong
Lauren Griffith
Rong Zheng
Nick Miller
Manaf Zargoush
Marla Beauchamp
Paul McNicholas
Jennifer Kodis
Samir Raza
Ameen Patel
Jinhui Ma
Kathryn Fisher
Parminder Raina

RESEARCH IMPACT

This research supports two students and has engaged 50 end-users, including six who are consultants on the project, yielded seven new collaborators and leveraged an additional $450,000 of internal in-kind funds.

"This funding has made it possible for me to collaborate on an interdisciplinary platform. It has allowed our team to address key questions which would not be possible without the input of engineering, statistics, rehabilitation science, and health-care providers. The work and findings will be immediately transformative and impactful."

MyLinh Duong

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Catalyst Grants

MIRA and the LCMA continue to support research collaborations focused on mobility in aging, working with each of McMaster's six Faculties to identify new interdisciplinary projects that align with both LCMA and Faculty objectives. To date, **19 Catalyst Grant projects** have been funded by the LCMA, driving **87 new collaborations** from outside researchers' own disciplines. These projects have also supported **61 Highly Qualified Personnel (HQP)**, including undergraduate students, graduate students, postdoctoral fellows, and research staff. Several Catalyst Grant holders (Jamal Deen, Paula Gardner, Janie Wilson and Qiyin Fang) leveraged Catalyst Grant pilot data to apply for, and receive, an NSERC CREATE grant worth $1.65 million dollars.

Restrictions placed on research due to the global COVID-19 pandemic meant no Catalyst Grants were awarded in 2020. Instead, MIRA and the LCMA introduced a COVID-19 Grant to investigate the promotion of healthy aging through the lens of mobility within the context of the COVID-19 pandemic.

Highlights from Catalyst Grants completed prior to January 2020

Catalyst Grants have provided seed funding for the collection of pilot data on several important aging research initiatives, including:

The development of a comprehensive framework for the conceptualization of physical mobility to be utilized in the assessment and treatment of older adults

A study of the implications of driving cessation amongst Canada's older adults living in rural and small urban communities

An analysis of the transition from driving to driving cessation in older Canadians

The study of whether supplementation with n-3 polyunsaturated fatty acid-enriched fish oil can mitigate the atrophy that accompanies skeletal-muscle disuse in a cohort of older women

"The experience we have gained from this funding has allowed us to incorporate mobility measures into two clinical studies, one of which will test a novel exercise and education program for older adults undergoing knee replacement."

Ayse Kuspinar

"Labarge-funded work has enabled several new research projects and connections, including participation in other MIRA-funded projects (i.e., EMBOLDEN) that focus on mobility issues, as well as other research networks."

Bruce Newbold

"MIRA and Labarge support has helped place McMaster University and its Institute for Transportation and Logistics as a leader in transportation research, especially as it relates to our aging population. The grant helped us to solidify our research on the mobility of older Ontarians and helped us achieve a critical mass."

Saiedeh Razavi

"MIRA and Labarge funding enabled us to analyze muscle mass using Magnetic Resonance Imaging, the gold standard for measuring muscle mass. In addition, this funding enabled us to utilize gas chromatographic/ mass spectrometric techniques to measure integrated rates of muscle protein synthesis."

Stuart Phillips

26 publications

42 conference presentations

The development of a wearable, easy-to-use multi-sensor-based smart knee monitoring system to record and assess mobility-related parameters from the knee joints, and the development of a database to develop a classification model to classify knee joint and gait characteristics by sex, body-mass index, and knee/leg health condition

Jamal Deen

An examination of the ultrastructure of osteoporotic bone and its medical implications in aging populations and the development of a new method of diagnostic imaging to measure nanoscale biomarkers for disease in osteoporosis to track disease progression and therapy efficacy

Kathryn Grandfield

An examination of different definitions of mobility and immobility in an aging population

Meridith Griffin

The creation of a co-designed arts-based rehabilitation program (ABLE) to enhance physical health and mood in older adults

Paula Gardner

46 undergraduate and graduate students, postdoctoral fellows, and research staff were supported

51 new collaborations outside of the grant holder's own discipline

From left to right: Manaf Zargoush, Maryam Ghasemaghaei and Reza Samavi

2017

Cognitive vs. chronological age as barriers to using wearable activity monitors in older persons

Despite widespread availability, the use of smart devices is still very limited among seniors who could benefit from adopting these systems. This study drew on the theory of aging and subjective assessments of health, as well as information systems adoption literature, to propose a theoretical model to explore the effects of older adults' cognitive age on their disability perceptions, which can influence their adoption of smart devices.

INVESTIGATORS

Maryam Ghasemaghaei
Manaf Zargoush
Stuart Phillips
Reza Samavi

RESEARCH IMPACT

This research has engaged 324 end-users and has resulted in two publications and one conference presentation.

"Information systems use for the aging population is an evolving area of research. This funding provided a better understanding of seniors' attitudes towards technology and will be useful in developing other studies in the future. The grant allowed us to acquire technology (wearable devices), and recruit participants. This study could not have been completed without this grant."

Maryam Ghasemaghaei

Andrea
Gonzalez

An Intergenerational and Life course Program of Research (InHamilton)

Behaviors, lifestyle factors, social and economic mobility, and health problems are evident across multiple generations within families. Few studies have examined how relationships between biology, the environment and lifestyles may interact across time and generations, and their effects on aging. This project will track a longitudinal, intergenerational cohort in Hamilton, and enable multi-disciplinary teams to investigate interrelationships among biological, physical, social, lifestyle, psychological and behavioural domains, influencing health across the life course and generations.

RESEARCH IMPACT

This study has resulted in six new collaborators and has leveraged an additional $69,000 in external funding (CIHR CLSA Catalyst Grant).

RESPONSE TO COVID-19

Due to COVID-19 this program pivoted to collect measures examining the impact of COVID-19 on individuals as well as on physical and mental health and family composition and functioning. Multi-generational households are at greater risk for contracting and spreading COVID-19.

INVESTIGATORS

Andrea Gonzalez
Parminder Raina
Marla Beauchamp
Terry Bennett
John Connolly
Andrew Costa
James Gillett
Jeremiah Hurley
Nick Kates
Melissa Kimber
Lauren Griffith
James MacKillop
Harriet MacMillan
Margaret McKinnon
Katherine Morrison
Stuart Phillips
Ravi Selvaganapathy
Gregory Steinberg
Brenda Vrkljan

"MIRA/Labarge funding has also allowed me to foster new collaborations with other researchers at McMaster across multiple disciplines as well as community partnerships. It has been crucial in instigating and cementing my work in the field of aging and adopting a lifespan perspective."

Andrea Gonzalez

Vickie
Galea

David
Harris
Smith

Managing pain in older adults: A virtual learning environment for understanding the physiology of acute pain and its impact on mobility in older adults

The team has conducted several preliminary interviews, observations, and consultations with physicians, physiotherapists, and anaesthesiologists at Sunnybrook Holland Centre. The insights gained in understanding and managing acute pain in the older adult have been incorporated into the design, development and learning outcomes of an online Virtual Learning Environment for understanding acute pain.

RESPONSE TO COVID-19

Due to the COVID-19 pandemic, remote-user testing capabilities have been built into the program, and an evaluative user study will commence in 2021

INVESTIGATORS

David Harris Smith
Vickie Galea
Norm Buckley
Milena Head
Ada Tang
Matthew Woolhouse

"MIRA/Labarge funding allows us to access and combine the expert knowledge of health care providers with state of the art simulation environments for improving clinician training outcomes in the critical area of understanding and managing acute pain in older adults."

David Harris Smith

Manaf
Zargoush

Addressing alternate level of care issues facing older Canadians: A co-designed comprehensive data analytics approach *

Canadian older adults wait too long in hospitals after receiving the required care for which they have been hospitalized. Such Alternate Level of Care (ALC) patients stay on acute and post-acute care beds until transfer to a more appropriate level of care. The delayed discharge of frail geriatric patients leads to a rapid deterioration of their overall health, and ALC wait times lead to significant costs and inefficiencies in the health-care system. To provide analytical solutions for smooth transition of ALC patients, this project utilized advanced data analytics and optimization techniques, and design-thinking principles, to provide a comprehensive and updated understanding of this challenge.

INVESTIGATORS

Manaf Zargoush
Alexandra Papaioannou
Reza Samavi

RESEARCH IMPACT

This research has yielded one publication, supported six students and research staff and leveraged an additional $7,500 in the form of a MacData PhD Fellowship Award.

"This funding helped me to become more established in research on aging, start a new area of research on ALC, which has perfect alignments with my technical/ theoretical expertise, obtain access to a rich dataset, which is vital to my research, and develop novel methods for combining predictive and prescriptive modeling."

Manaf Zargoush

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

From left to right: Daniel Cursio, James Gillett, Manaf Zargoush, Maryam Ghasemaghaei, and Nancy Bouchier

2018

Aging and mobility in nature: A McMaster and Royal Botanical Gardens collaboration *

McMaster University and the Royal Botanical Gardens (RBG) share a similar history and development, and the two institutions border one another geographically. This project has created a closer research relationship between the RBG and McMaster researchers around nature and mobility. Consultations and partnerships were developed on mutual areas of interest, yielding several projects that are ongoing and in development, including studies of the significance of being in nature for well being among older adults, the history of involvement in nature-based activities from the perspective of older adults, and the significance of volunteering at the RBG in creating opportunities for intergenerational engagement. Future steps include scaling up research to include international botanical gardens.

RESEARCH IMPACT

This project yielded eight new collaborators and supported seven students and research staff.

INVESTIGATORS

James Gillett
Meridith Griffin
Gavin Andrews
Marla Beauchamp
Rong Zheng
Nancy Bouchier
Maryam Ghasemaghaei
Manaf Zargoush
Jennifer Heisz

"This funding is impactful on several levels: It further advanced research collaborations between the RBG and McMaster; it helped generate further funding through advancement in studies of nature and mobility; it led to new forms of collaboration among faculty across disciplines (social science, humanities, and science) resulting in the development of SSHRC partnership grants and insight grants; and it raised the importance of looking at new theoretical perspectives in understanding aging and well-being."

James Gillett

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Victor
Kuperman

Writing of age: Linguistic markers of cognitive, emotional, and social well-being among older adults *

Social isolation and loneliness has been linked to decreased physical and mental well-being, but is challenging to recognize. The ability to share life experiences with others provides a unique opportunity for increased social interaction among older adults, even when physical mobility is limited.

Through the prism of language and a large-scale online effort to collect written life stories, this study will enable older adults to both share and tap into the experiences of others, boosting their social network and providing professionals with tools for identifying individuals at risk of social isolation.

INVESTIGATORS

Victor Kuperman
James Gillett
Ranil Sonnara
Aki-Juhani Kyröläinen

RESEARCH IMPACT

This research has resulted in the development of the WritLarge online application allowing people to access written life stories with 1,352 end-users engaged as participants. This work has also supported eight students/staff and yielded one publication, two conference presentations, three media items, and a new collaboration with the Department of Applied Linguistics at Brock University.

"MIRA/Labarge funding contributes to development of non-invasive methods to identify at-risk older adults and promote social engagement."

Victor Kuperman

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Michel
Grignon

How can we improve mobility through alternative transportation modes for seniors? Measuring what works and what does not work in road safety improvements for pedestrians and cyclists *

Hamilton was designed for cars and drivers and, therefore, its streets are not always safe or pleasurable for pedestrians and cyclists. This results in reduced use of active transportation modes. Older adults are more likely to be the victims of collisions as pedestrians. Older citizens residing in safer environments are much more likely to walk and reach a level of healthy activity. This project will measure the effectiveness of various interventions that will allow the City to implement the most cost-effective traffic-calming measures to improve safety for pedestrians and cyclists.

INVESTIGATORS

Michel Grignon
Niko Yiannakoulias
Emmanuel Guindon
Tara Marshall
Jean-Eric Tarride
Mohamed Hussein

RESEARCH IMPACT

This research has yielded one conference presentation, four knowledge translation activities, eight new collaborators, engaged with nine stakeholder groups and leveraged an additional $1,000 in internal funding.

"Thanks to this funding, our team has made good progress to refine the methodology on key aspects (exposure, data quality) and we have generated findings that are of interest to community stakeholders in Hamilton."

Michel Grignon

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Janie
Wilson

A multidisciplinary approach to addressing mobility limitations after orthopaedic joint replacement surgery *

Knee osteoarthritis is a significant burden to older adults and one of the largest contributors to disability and loss of mobility worldwide. Treatment of the end stages of knee osteoarthritis is total joint replacement surgery, with the goals of removing pain and improving patients' function and mobility. Mobility and joint function are very rarely restored, and continued disability and lack of mobility after surgery plague many patients, hindering their ability to live independently and participate in society. The team's research focuses on developing a clinical tool that will collect important information on pain, symptoms, mobility and joint function both before and after surgery to better understand if there are groups of patients who may benefit from different strategies for surgery and rehabilitation.

INVESTIGATORS

Janie Wilson
Lisa Carlesso
Luciana Macedo
Cheryl Quenneville
Elizabeth Hassan
Rong Zheng
Dylan Kobsar
Manaf Zargoush
Dan Tushinski
Dale Williams
Tom Wood
David Wilson
Anthony Adili
Kim Madden

RESEARCH IMPACT

This research has resulted in nine conference presentations, has supported 11 students and research staff, and has leveraged an additional $191,072 in internal funding from McMaster University and affiliated institutes, and $97, 594 in external funding (CIHR Catalyst Grant).

"MIRA/Labarge funding has had a significant impact on my research. It has allowed me to set up and validate translational motion capture systems within orthopaedic clinics at two hospitals, and to mobilize a group of academic orthopaedic surgeons, rehabilitation scientists and kinesiologists to collaborate on these initiatives. Using the developed protocol, we have been successful in acquiring catalyst IMHA CIHR funding as well as HAHSO funding for a pilot clinical trial to examine how robotic joint replacement surgery affects outcomes, including walking, mobility and gait."

Janie Wilson

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

P. Ravi
Selvaganapathy

Bioprinted 3D in-vitro models to determine mechanisms of cognitive benefits of exercise in the elderly *

Exercise can delay or prevent age-related cognitive decline through the release of certain hormones from skeletal muscles, bone and liver into the circulation that are taken up in the brain, and by extending neuroprotective effects. This research program will study the hormones released and their immediate effect on neighboring neurons. Understanding which released hormones promote neuronal health and connectivity will allow the design of exercise protocols suitable for older adults that maximize the release of the most efficacious hormones. It will also allow for the design of pharmaceuticals to provide the same neuroprotective effects for those who cannot exercise, due to frailty, disease or injury.

INVESTIGATORS

P. Ravi Selvaganapathy
Margaret Fahnestock
Aimee Nelson
Christopher Patterson

RESEARCH IMPACT

This research has resulted in one publication, one conference presentation, and has leveraged $10,000 in external funding (NSERC Discovery Grant).

"This funding has been critical in establishing important interdisciplinary collaborations. We have followed this seed funding and have applied for a New Frontiers Grant based on this research theme and with an expanded team of international investigators. The seed funding has established aging-related research as a core vector in my research portfolio."

P. Ravi Selvaganapathy

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Laurel
Trainor

Movement sonification for testing mobility in the context of interacting with complex environments *

The ability to predict fall risk in older adults is important. While effective interventions exist, clinical screening tests for balance and mobility often fall short. Simple lab-based tests may not fully capture abilities to perform sensory-motor interactions with everyday complex and dynamically changing environments. This research examined participants' postural control responses to perturbations in concurrent activities. Participants' ability to coordinate or de-couple these two simultaneous levels of motor control will be used as a potential predictor of other established variables linked to risk of falling.

INVESTIGATORS

Laurel Trainor
Dobromir Dotov
Marla Beauchamp
Tara Packham
Janie Wilson
Qiyin Fang
Matthew Woolhouse

RESEARCH IMPACT

This research has resulted in three conference presentations.

"The funding allowed us to explore a unique perspective on a common problem. Our plans, halted for now, were to test this perspective and also to advertise it as an entertaining task."

Laurel Trainor

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Goran
Calic

Addressing trends in social connectedness and well-being of older adults: Social isolation, loneliness, and the interplay of digital technologies. *†

There is a concern that social isolation and loneliness will affect many older Canadians, which can have negative consequences on physical and mental health. While there may be a "digital divide" in the older population, some social support studies have unveiled promising evidence for the impact of digital technologies on promoting increased social connectedness and improving older adults' well-being.

In the context of COVID-19, the non-tech-savvy older-adult population may experience diminished social connectedness compared with tech-savvy older adults. This project aims to examine the general trends of social isolation and loneliness and the extent to which digital technologies could alleviate social isolation and loneliness among older adults, using data from the Canadian Longitudinal Study on Aging (CLSA).
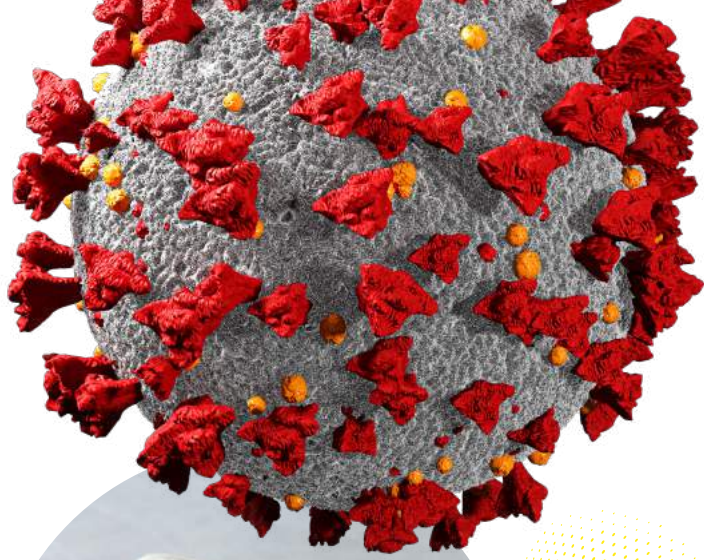
INVESTIGATORS

Goran Calic
Bruce Newbold
Byron Spencer
James Gillett

RESEARCH IMPACT

This research has leveraged $10,000 in additional in-kind funding.

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.
† This proposed research and the project title has been altered in response to COVID-19

2020 Labarge Centre for Mobility in Aging COVID-19 Grants

On March 11, 2020, the World Health Organization declared the coronavirus disease 2019 (COVID-19) a pandemic. People with underlying health conditions or older adults are twice as likely to experience negative outcomes. Social isolation can be challenging for older adults, and there is a concern that older adults are also more likely to experience negative outcomes related to the physical distancing guidelines recommended for preventing community spread of COVID-19. In April 2020, MIRA introduced the Labarge Centre for Mobility in Aging COVID-19 Grant to investigate the promotion of healthy aging through the lens of mobility within the context of the COVID-19 pandemic. In early June 2020, three awards of $25,000 were distributed. In September, all three projects were featured in the Hamilton Spectator newspaper: Iqbal M. (2020 Sept 17).

"Our MIRA/Labarge funding will provide unique insights into how older adults have been coping with social distancing measures across time. The survey results will inform recommendations on how older adults can stay healthy and mobile in their home and community in these types of circumstances where social distancing remains an ongoing challenge. Information gleaned from this study will also be critical for informing other ongoing major research initiatives in aging, in which understanding the impact of the pandemic on the mobility of older adults will be invaluable for guiding changes to study designs and protocols in order to account for these effects."

Marla Beauchamp

Marla
Beauchamp

The IMPACT Hamilton Study – Investigating Mobility and PArticipation among older Hamiltonians during COVID- 19: A Longitudinal Tele-Survey

The recent emergence of coronavirus of 2019 (COVID-19) has caused a pandemic with enormous economic, health and social challenges world-wide. The group most vulnerable to COVID-19 are older adults and those with chronic underlying health conditions. Although older people tend to live alone and may engage less often in social gatherings, it is important to recognize that older adults may be disproportionally affected by the social distancing requirements due to the COVID-19 pandemic. In March 2020, the World Health Organization (WHO) reminded governments to support interventions to ensure older people have what they need in this pandemic to maintain their well-being. Such

interventions should consider ways to maintain social connectivity with families and friends, how to get help for everyday needs, and recommendations on how to maintain mental and physical health during the isolation period. Thus, a survey was developed to understand the short- and medium-term impact of COVID-19 and social and physical distancing on the mobility and participation of community-dwelling older adults. A total of 272 community-dwelling older Hamiltonians completed the full baseline survey. Preliminary analysis of baseline data is underway with three-month follow-ups being completed with participants. Six-month follow-ups will be completed by February 2021.

INVESTIGATORS

Marla Beauchamp
Brenda Vrkljan
Paula Gardner
Heather Keller
Luciana Macedo
Bruce Newbold
Darren Scott
Nazmul Sohel
Elisabeth Vesnaver
Janie Wilson

Victor Kuperman

Relieving social isolation and loneliness through storytelling at the time of a pandemic

This study addresses the pandemic-related threat to social mobility through two online projects. The first project aims to identify changes in social mobility in the aging population (55+) caused by the pandemic. Online standard instruments for evaluating loneliness and social isolation will be administered and participants will be invited to contribute free-form narratives about their current experience and outlook on the future. This project builds on a pre-pandemic database of narratives. Data will be collected during the pandemic, after lockdown is lifted, and several months after the lockdown has ended. The time-series nature of the data collected in this study, will assist in the identification of linguistic and psychosocial factors that influence psychological resilience and adaptation mechanisms in older individuals.

The second project, WritLarge, harnesses a technological solution that facilitates social mobility through story-telling and story-sharing and translates story writing into a tool of social engagement. In times of social distancing, the demand for tools promoting online interactions has increased. The overall output of this research will help to identify demographic and psychosocial factors that contribute the most to perceived social isolation and loneliness in older individuals and track the dynamics of these social factors. Specifically, this study will focus on the impact of the physical isolation imposed due to COVID-19 on perceived loneliness among older adults before and after the period of physical isolation. This, in turn, provides opportunities for knowledge translation that can enable mental health workers and social workers to allocate their limited capacities to more vulnerable demographics in a timely and targeted manner.

INVESTIGATORS

Victor Kuperman
James Gillett
Ranil Sonnadara
Aki-Juhani Kyröläinen

Hsien
Seow

The #Caremongering social media campaign: Understanding its impact and adaptability to combat social isolation among older adults affected by COVID-19

Early in the pandemic, Facebook #caremongering groups sprung up across Canada to pool resources, share information and offer help with groceries, supplies and prescription deliveries. Thousands offered help to those who are at risk and vulnerable during the pandemic, including older adults, many of whom are immunocompromised, sick, or caring for someone who needs their support and, therefore, unable to leave their house. This project will examine how the #caremongering campaign has impacted this group, and it will investigate how older adults were able to use and benefit from the services offered by volunteers in these campaigns. The team will also look at whether the campaign contributed to older adults feeling less socially isolated during the COVID-19 pandemic where additional restrictions and physical/social distancing practices were required. This study seeks to develop a better understanding of how the #caremongering campaign was successful (or not) in supporting older adults during the COVID-19 pandemic. Following this, a group of stakeholders will gather (virtually) to co-design new solutions. These solutions can be adapted and spread across communities to support older adults post COVID-19 and in future pandemics. Finally, by discovering the motives of those involved in the #caremongering movement, this study will determine how these types of social media campaigns can be sustained after COVID-19 is over.

INVESTIGATORS

Hsien Seow
Teresa Chan
Paula Gardner
Allison Williams
Sandra Moll
Julia Abelson
Harvey Chochinov
Barbara Pesut
Madelyn Law
Sara Urowitz
Shelly Cory
Susan Macaulay

Co-funded projects and initiatives

Over the last five years, MIRA has strengthened its interdisciplinary research through co-funded research initiatives aimed at leveraging LCMA funds. This has resulted in a greater reach in nurturing and deepening interdisciplinary connections across a wide range of stakeholders.

AGE-WELL Strategic Investment Program (SIP) Accelerator Funding

Qiyin Fang

Continuous medication and mobility monitoring of older adults living with cancer *

This research program will develop a tool for predictive management of older cancer patients based on longitudinal multimodality data. An interdisciplinary team of clinicians and researchers have assembled to develop low cost, non-intrusive sensing technologies to monitor a patient's indoor location and track the type(s) of medication used and timing of intake. Integration of technologies with wearable sensors will allow round-the-clock monitoring of the physical location and physiological state of a person, which may promote better care and prevent unnecessary use of unplanned and resource-intensive services. This study will yield strategies for optimal design and usage protocol of continuous monitoring technologies in a home setting for older adults living with chronic diseases.

INVESTIGATOR

Qiyin Fang

RESEARCH IMPACT

This research has yielded three publications, one conference presentation, five new collaborators, including a new industry partner, and supported seven students.

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

IPRC and LCMA Catalyst Grants

In 2021 MIRA will be in its third cycle of supporting a Catalyst Grant in collaboration with the Institute for Pain Research and Care (IPRC). Previous grant recipients are showcased here.

"Mobility is critical to aging well. Addressing the influence of pain on the mobility of older adults is an important direction that MIRA is excited to take with the IPRC."

Parminder Raina

A user-centered approach to develop a pre-surgical rehabilitation program for patients with lumbar spinal stenosis *

Luciana Macedo

Lumbar Spinal Stenosis (LSS) is a condition with a degenerative aetiology in which narrowing of the spinal canal results in entrapment of neurovascular structures. The prevalence of LSS is higher in those aged 55 or older and is the most common diagnosis associated with spinal surgery in adults over 65 years of age. Unfortunately, many patients who have surgery for LSS continue to have pain and disability after surgery and are likely to continue to be long term opioid users. This research program will develop a pre-habilitation program for people with LSS to improve post-surgical pain and disability. Research will involve conducting qualitative interventions with participants before surgery and one-year post-surgery. Data from the Canadian Spine Outcomes Registry Network will be analyzed to understand which pre-surgical factors lead to good outcomes. This data will be used to create a pre-habilitation program for LSS.

INVESTIGATORS

Luciana Macedo
Lisa Carlesso
James Gillett
Liz Hassan
Janie Wilson
Brian Drew
Douglass Gross
Raja Rampersaud

RESEARCH IMPACT

This study has yielded one publication, one conference presentation, supported five students/research staff, and engaged two end-users as consultants.

"The grant has allowed me to develop a large number of local and national collaborators, including researchers from different disciplines as well as clinicians, patients and health care administrators. This grant was incredibly important for the development of our network of collaboration, and it provided the building block for other grant applications."

Luciana Macedo

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Feasibility study to assess the added value of Integrated Musculoskeletal BiofEeedback Device (IMBED) combined with neuromuscular exercise and education (GLA-D™) to decrease chronic pain in older adults with osteoarthritis *

This research project will evaluate the feasibility and added value of a new technology called Integrated Musculoskeletal BiofFeedback Device (IMBED). When IMBED is combined with a specialized neuromuscular exercise and education program called Good Living with Arthritis in Denmark (GLA-D™), it is postulated that these combined programs will result in decreased chronic pain in older adults with lower

extremity osteoarthritis. This research will involve the development of a new integrated device that adapts and combines digital mapping of chronic pain (i.e., phone and iPad type screens), monitors muscle activity (i.e., EMG biofeedback), and senses body motion (accelerometers). The IMBED technology will be designed to track pain and body movements in a training and home setting during normal daily activities.

* The project start has been delayed due to COVID-19 restrictions.

Pasqualina
Santaguida

INVESTIGATORS

Pasqualina Santaguida
Qiyin Fang
Stuart Phillips
Patricia Baker

Trainee support

Labarge Mobility Scholarships

Established in 2017 by the Labarge Centre for Mobility in Aging (LCMA), the Labarge Mobility Scholarship is intended to stimulate interdisciplinary collaboration in aging research on the broad topic of mobility. Since its launch, eight students have received a Labarge Mobility Scholarship.

Completed Scholarships: The first two scholarships were awarded to Sydney Valentino, Department of Kinesiology, who studied the effects of exercise on heart structure and function in cardiac rehabilitation, and Michael Kalu, School of Rehabilitation Science, who developed a mobility enhancement comprehensive care model. In 2018, scholarships were awarded to Stephanie Chauvin, School of Rehabilitation Science, to examine the effectiveness of technology for promoting exercise adherence and mobility in older adults, and Tanner Stokes, Department of Kinesiology, for the study of the effect of whole milk on muscle protein synthesis in older women.

Research impact of completed scholarships: These studies resulted in two publications, 16 conference presentations, and leveraged an additional $9,000 in internal and $23,500 in external funding.

Here we report on the Labarge Mobility Scholars who were active in 2020.

2019 Labarge Mobility Master's Scholar

Giulia Coletta

Kinesiology

Improving physical activity and mobility during a pandemic via live online exercise sessions for older persons: a pilot RCT †

SUPERVISOR	MENTOR
Stuart Phillips, Professor, Kinesiology, Faculty of Science	Rebecca Ganann, Assistant Professor, Nursing, Faculty of Health Sciences

Declines in individual physical mobility are often a precursor to social isolation and poor physical and mental health. Reduced physical mobility and an inability to carry out daily living activities are common with aging, and are also risk factors for frailty, increased hospitalizations and premature mortality. This research will measure whether a real-time exercise program delivered via an online virtual platform by registered kinesiologists and physiotherapists will improve older adults' levels of physical activity and mobility.

RESEARCH IMPACT

This research has yielded one conference presentation.

† This proposed research and the project title has changed in response to COVID-19.

"The Labarge funding that I received in my first year of graduate studies has provided me the opportunity to engage in exciting new research and collaborate with researchers in other fields, an experience which has inspired me to want to continue my learning and research through the pursuit of an academic career in physiotherapy."

Erynne Rowe

Modeling deviations in gait coordination and mobility in older adults *

Mobility impairments can lead to social isolation, decreased physical activity and accompanying health co-morbidities. Age-related differences in mobility are frequently accompanied by changes in gait strategies. Certain walking gait parameters may be valuable in the early assessment of cognitive decline and disease development in the aging population. Rowe's investigation aims to define the biomechanical differences in the effect of aging on gait coordination patterns in and between males and females, and to define normative walking gait patterns in both young and older adults. Initial results have defined age and sex-related changes in gait strategies associated with healthy aging, and have provided the framework to compare gait patterns in older adults with clinical conditions at both the Juravinski and St. Joseph's hospitals in Hamilton.

SUPERVISOR

Janie Wilson, Professor, Surgery, Faculty of Health Sciences

MENTOR

Elizabeth Hassan, Assistant Professor, Mechanical Engineering , Faculty of Engineering

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

RESEARCH IMPACT

This research has garnered two conference presentations and leveraged an additional $32,500 in external funding.

2020
Labarge
Mobility
Master's Scholar

Michelle Mei

Kinesiology

Secondary analysis of shared risk factors affecting osteoarthritis, cardiovascular disease, aging and mobility

Osteoarthritis, a progressive joint disease involving breakdown of cartilage and bone, has become the most prevalent cause of physical disability in older adults. There is a greater risk of cardiovascular disease (e.g., ischemic heart disease, heart failure), stroke, and dementia with osteoarthritis. This research explores overlapping shared risk factors for the onset and/or progression of cardiovascular disease and osteoarthritis. Through machine learning approaches, Mei aims to identify potentially overlapping mechanisms between these age-associated diseases. This information will aid in managing the onset and progression of these conditions that affect mobility, independence and, subsequently, quality of life in the Canadian aging population.

SUPERVISOR

Baraa Al-Khazraji, Assistant Professor, Kinesiology, Faculty of Science

MENTOR

Ada Tang, Associate Professor, Rehabilitation Science, Faculty of Health Sciences

Development of clinical tools to guide diagnosis and treatment of osteoporosis in older adults

Osteoporosis, a disease commonly associated with age that reduces bone mass and strength, is a major contributor to hip fractures and one of the leading causes of mortality in older adults. It affects about 1.4 million Canadians including one in three women and one in twelve men over the age of 50. Current tools for identifying osteoporosis (and corresponding hip fracture risk) have limited predictive capability and are poorly correlated with actual fracture risk. The development of a more accurate clinical tool to guide diagnosis and treatment of osteoporosis in older adults will facilitate independence and improve quality of life for older adults by facilitating improved diagnosis of osteoporosis, and by informing development of more accurate individualized treatment plans to prevent osteoporotic-related injuries.

2020
Labarge Mobility
Scholar (PhD)

Ali Ammar

Biomedical
Engineering

SUPERVISOR

Cheryl Quenneville,
Associate Professor,
Mechanical Engineering,
Faculty of Engineering

MENTOR

Janie Wilson, Professor, Surgery,
Faculty of Health Sciences

Labarge Postdoctoral Fellowship

2018
Labarge
Postdoctoral
Fellowship in Mobility

Patricia Hewston
GERAS Centre for
Aging Research

Can dance reduce falls risk in older adults with cognitive impairment?

Older adults who have an increased risk of falling tend to walk slower, with less rhythm and reduced coordination. This research explored the effect of GERAS DANCE (a dance intervention) on gait speed, rhythmicity, and coordination in older adults with early cognitive or mobility impairments. After a 12-week pilot study, participants walked faster with improved rhythmicity and coordination, indicative of reduced falls risk.

RESEARCH IMPACT

This research has resulted in five publications, 10 presentations, two knowledge translation activities, one copyright, one trademark, and 10 media items, and leveraged an additional $10,000 in internal funding.

SUPERVISOR

Alexandra Papaioannou,
Professor, Medicine, Faculty
of Health Sciences

MENTORS

Amanda Grenier, Associate
Member, Social Work,
Faculty of Social Sciences;

Steven Bray, Professor,
Kinesiology, Faculty of Science

"I am honoured to have been selected as the Labarge Postdoctoral Fellow for Mobility in Aging. Learning from an interdisciplinary team has greatly enriched my postdoctoral training to bring ideas to life and visualize innovative solutions. I have learned how to use design-thinking to explore multiple alternative solutions simultaneously, and integrate end-users from the project outset to ensure all perspectives are considered. The GERAS DANCE program of research has shown dance brightens the spirit, strengthens the body and sharpens the mind in older adults. Thank you for helping me to grow as a clinician scientist and, most importantly, helping to keep older adults in our community healthy and active as long as possible!"

Patricia Hewston

Co-funded scholarships and fellowships

AGE-WELL/LCMA scholarships and fellowships

AGE-WELL, Canada's National Centre for Excellence focusing on aging and technology, funds research and trainees through annual, competitive requests for proposals. The Labarge Center for Mobility in Aging (LCMA) and AGE-WELL share an interest in developing trainees whose research is focused on user-centred approaches to solving problems in aging. LCMA has committed to co-funding McMaster trainees selected through AGE-WELL's trainee competition provided that the proposed research is aligned with our own research priorities and interdisciplinary mandate.

2019
AGE-WELL/LCMA
Postdoctoral Fellow

Rasmi Kokash
Human Resources and Management

Emerging issues in older adults' digital inequality *

This study will address the emerging issue of digital inequality among older adults. This is largely imposed by privileges in societal positions and impacts on self-image and social support systems. This study will examine factors influencing older individuals' decisions to learn and adopt technology supported skillsets and activities towards self-employment. Self-employment is one avenue affecting elements of optimal aging, such as labour mobility, social reintegration, and better mental and physical health. Identifying factors that influence older adults' decisions to become active learners of information and communication technology will lead to recommendations to policymakers and stakeholders regarding best policies and practices to promote equality among older adults.

SUPERVISOR

Goran Calic, Assistant Professor, Strategic Management, DeGroote School of Business

"This funding has offered me the opportunity to expand and improve my scholarly critical thinking on contemporary social issues I have not been aware of before. It has allowed me to use new theoretical lenses to study phenomena on aging, technology and entrepreneurship."

Rasmi Kokash

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Remote monitoring of older adults with COPD for infection and fall detection using smart-home technology

To meet the increasing medical needs of our aging population, remote monitoring systems will help caregivers automate many of their time-consuming tasks and help patients rapidly detect medical anomalies to facilitate faster diagnoses and better outcomes. This project will work on the development of smart-home technology that monitors mobility and vital signs in older women and men with Chronic Obstructive Pulmonary Disease (COPD). The end goal of this system will be to provide health-care providers with real-time patient data, automatically detect medical abnormalities for them, and allow older adults to live in their own homes longer.

Linguistic markers of social well-being in late adulthood *

Close to 30 per cent of older Canadians are at risk for social isolation and loneliness, defined as either an entire lack of or an impoverished quality of communication between a person and the outside world. Social isolation is harmful for physical and mental well-being, and often stigmatized either by the individual or the social group. Thus, it is difficult to identify individuals experiencing social isolation, let alone socially engage them. Prevention of social isolation and loneliness can lead to demonstrably better quality of life and reduced health costs among older adults. This project proposes the development of a software application to facilitate the non-invasive identification of older adults at risk of social isolation and/or loneliness and, simultaneously, promotes social mobility and engagement.

SUPERVISOR

Qiyin Fang, Professor, Engineering Physics, Faculty of Engineering

SUPERVISOR

Victor Kuperman, Associate Professor, Linguistics and Languages, Faculty of Humanities

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

Other co-funded Postdoctoral Fellowships

The following PDFs are funded as a result of internal collaborations:

2019
CFN MERST
Postdoctoral Fellow

Megan Racey
McMaster Evidence
Review and Synthesis
Team

2020
CHEPA
Postdoctoral Fellow

Maggie MacNeil
Health Research
Methods, Evidence,
and Impact (HEI)

Physical activity and nutrition recommendations for older adults living with frailty

Frailty is a leading contributor to functional decline and early mortality in older adults but can potentially be reversed through diet and/or physical activity. A systematic review and meta analysis were conducted to identify the effectiveness of nutrition interventions, nutrition interventions with physical activity (combined approach), and physical activity interventions in improving outcomes related to frailty. Results indicated moderate certainty evidence that nutrition, protein supplementation, and combined approach interventions are beneficial for certain components of frailty, and low to moderate level evidence that physical activity interventions are beneficial for frail older adults.

Evaluating impact of a community co-design process

The goal of the EMBOLDEN study is to promote physical and community mobility among people 55 years of age and older living in neighbourhoods in Hamilton. A key feature of the EMBOLDEN study will be the collaborative approach to co-designing and testing the program, sharing results, and planning program spread to other communities. Older citizen partners, community stakeholders and a diverse interdisciplinary research team will inform the evaluation of the co-design component. Although co-design of community programs is becoming common, evaluating the impact of these processes is somewhat of an afterthought in the literature. This study will evaluate the impact of the co-design process as it unfolds in the EMBOLDEN study.

FUNDING COLLABORATORS

This postdoctoral fellowship is co-funded by the Canadian Frailty Network, the McMaster Evidence Review and Synthesis Team, and the Labarge Centre for Mobility in Aging.

SUPERVISOR

Diana Sherifali, Associate Professor, Nursing, Faculty of Health Sciences

FUNDING COLLABORATORS

This postdoctoral fellowship is funded by the Labarge Centre for Mobility in Aging and the Centre for Health Economics & Policy Analysis (CHEPA).

SUPERVISORS

Julia Abelson, Professor, Health Research Methods, Evidence, and Impact, Faculty of Health Sciences;

Rebecca Ganann, Assistant Professor, Nursing, Faculty of Health Sciences

RESEARCH IMPACT

Evidence from these reviews will be used by the Canadian Frailty Network in their development of clinical practice guidelines.

RESEARCH IMPACT

This research has yielded four conference presentations and 45 new collaborators.

Matched funding scholarships

2020
CFN
Interdisciplinary
Fellowship

Julie Reid
Rehabilitation
Sciences

2020
CFN
Interdisciplinary
Fellowship

Erin Webb
Kinesiology

How can we screen frailty to prevent falls in older adults?

Every year in Canada, 20 to 30 per cent of adults over age 65 will fall. Among this age group, falls are the most common cause of injury and often result in hospitalizations. Frail, older adults often have more falls than adults without frailty; but falls can be prevented. Currently, there are several tests to assess both frailty and falls risk; however, which tests are easiest for adults to complete and which give us the most accurate information is unclear. In addition, it is unclear whether screening for frailty might assist in identifying adults at risk for falls. This study will evaluate two tests of frailty to determine if one is superior and determine whether these frailty tests correlate with tests of falls risk to accurately identify at-risk adults. Results will inform current practice on how to assess frailty and falls risk.

Investigation of CARM1 in aging-induced skeletal muscle atrophy

Co-activator associated arginine methyltransferase 1 (CARM1) impacts the response to common physiological stimuli, such as exercise, fasting, and muscle disuse. The function of CARM1 in aging-induced muscle atrophy is unclear. Preliminary data indicate that mice with CARM1 specifically deleted in skeletal muscle (mKO) have a significantly shorter lifespan than their normal, wild-type (WT) littermates. Furthermore, differences in body weight and muscle mass are observed between WT and mKO animals. This study will investigate the role of CARM1 in aging-induced atrophy and dysfunction of skeletal muscle, termed sarcopenia, which may provide insight into novel therapeutic strategies to mitigate sarcopenia and frailty in older adults.

FUNDING MATCHED

As a Canadian Frailty Network Interdisciplinary Fellowship trainee, Julie received matching funding from the Labarge Centre for Mobility in Aging.

SUPERVISOR

Marla Beauchamp, Assistant Professor, Rehabilitation Science, Faculty of Health Sciences

FUNDING MATCHED

As a Canadian Frailty Network Interdisciplinary Fellowship trainee, Erin received matching funding from the Labarge Centre for Mobility in Aging.

SUPERVISOR

Vladimir Ljubicic, Associate Professor, Kinesiology, Faculty of Science

PART 2:

Projects supported by the Labarge Optimal Aging Initiative and the Labarge Foundation

Since its launch in 2012, the Labarge Optimal Aging Initiative and the Labarge Foundation has provided seed funding to support interdisciplinary teams investigating health or social topics related to aging. To date, the Initiative has funded 26 research projects, including 21 Cross-Faculty collaborations and has been the financial backbone of the McMaster Optimal Aging Portal, a free website that offers informative blog posts, resource ratings and evidence summaries drawn from high quality research articles and intended for a general audience.
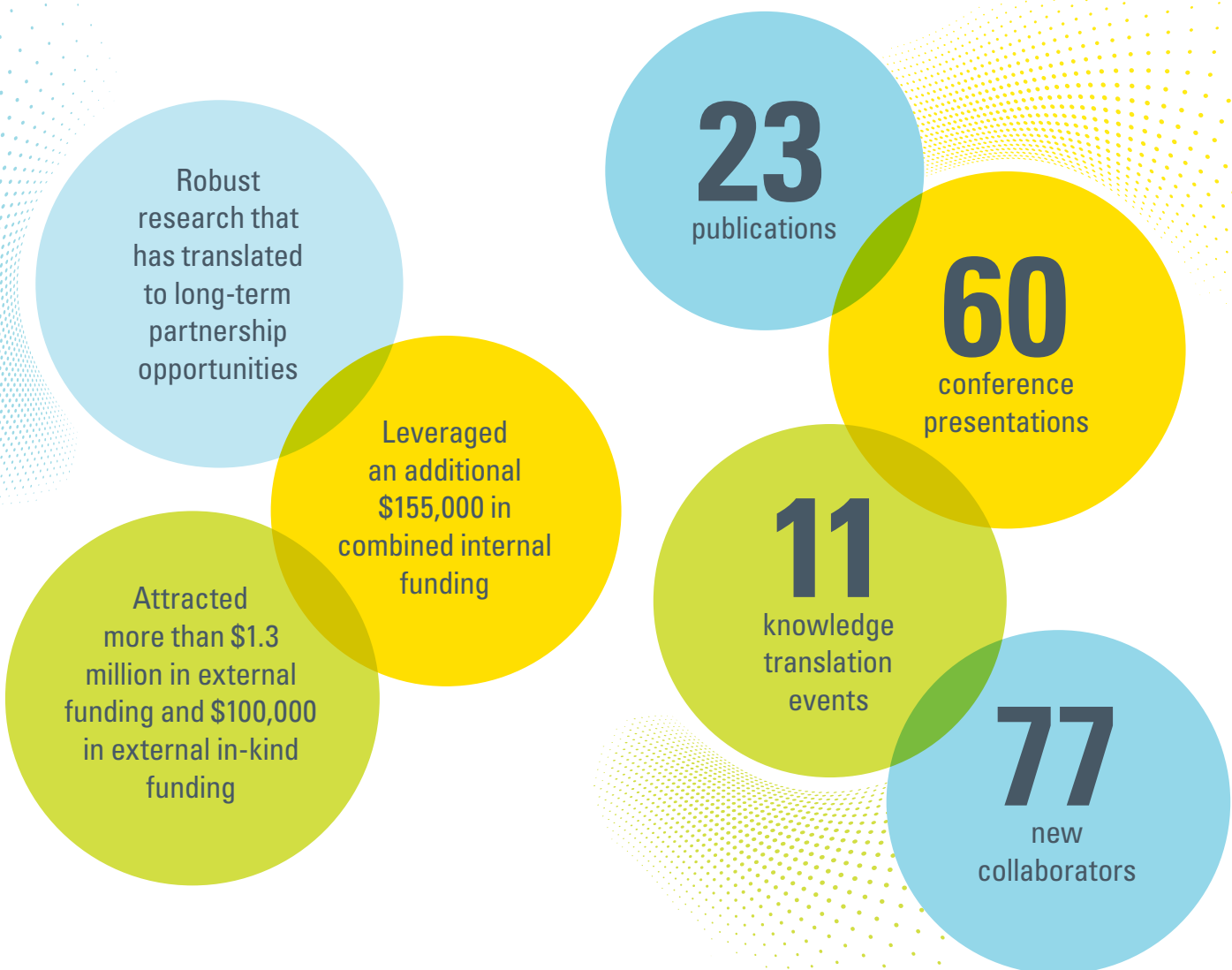
Labarge Optimal Aging Initiative
completed projects

The impact of the projects that have been funded by the Labarge Optimal Aging Initiative have had an incredible reach. Many have provided important insights from multiple disciplines in research and aging. These include:

- The reduction of medications to improve mobility in long-term care (Dee Mangin, Family Medicine);

- The implementation of dance to improve cognition and encourage exercise in older adults (Alexandra Papaioannou, Medicine);

- The prevention of hip fractures to avoid devastating injury (Cheryl Quenneville, Mechanical Engineering);

- A better understanding of the neural and behavioural changes involved in driving and aging (Judith Shedden, Psychology, Neuroscience & Behaviour);

- The evaluation of the impact of the McMaster Optimal Aging Portal on knowledge and behaviours related to physical mobility (Maureen Dobbins, Nursing).

Research impact from completed Labarge projects

Robust research that has translated to long-term partnership opportunities

23 publications

60 conference presentations

Leveraged an additional $155,000 in combined internal funding

11 knowledge translation events

Attracted more than $1.3 million in external funding and $100,000 in external in-kind funding

77 new collaborators

Highlights from completed Labarge Optimal Aging Initiative projects:

TAPER-Mobility: Team approach to polypharmacy reduction to improve mobility in long-term care

- TAPER and its affiliated GERiMedRisk program, an interprofessional geriatric clinical pharmacology and psychiatry consultation and education service, has been invited to four regional specialized services across Ontario;

- TAPER has supported 2,400 patients;

- TAPER has been acknowledged in Canada's National Dementia Strategy: Together We Aspire 2019.

Dee Mangin and Joanne Ho

"Labarge funding gave us the opportunity to pilot the TAPER process in long-term care facilities, to assess whether or not TAPER and GeriMedRisk are scalable in this context and to investigate whether the trial showed signals that TAPER and GeriMedRisk could potentially improve health and mobility outcomes in long-term care residents. This allowed us to identify implementation challenges and develop solutions to help refine and optimize study processes prior to beginning a larger-scale implementation and a randomized controlled trial."

Dee Mangin

DANcing for Cognition and Exercise pilot randomized controlled trial

- Engagement: More than 350 older adult participants within the Hamilton/Burlington/Brantford community;

- The program has expanded to 12 YMCA locations in Southern Ontario;

- This project resulted in further funding that would allow the team to explore the relationship between dance, gait and falls.


From left to right: Courtney Kennedy, Alexandra Papaioannou, Justin Lee, Sarah Radcliffe, George Ioannidis, and Aidan Giangregorio

"Labarge Funding has helped to spark the growth of GERAS DANCE into a well-known program at 12 YMCA sites that span Southern Ontario. Labarge funding has provided the opportunity for mentorship by me of postdoctoral fellow Dr. Patricia Hewston, and has supported the learning and skill development of 10 trainees and research staff, including undergraduate, Masters and PhD students, research assistants and research coordinators."

Alexandra Papaioannou

Evaluating the impact of the McMaster Optimal Aging Portal on knowledge and behaviours related to physical mobility

- Findings indicated that intense knowledge translation strategies are most effective for older adults with lower self-related health;

- This project has leveraged $257,000 to fund its future direction.
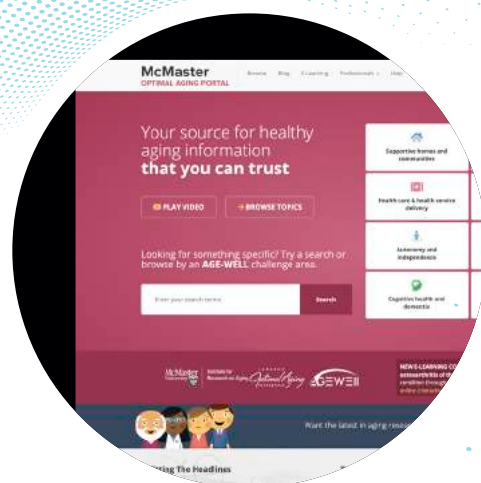
Staying mobile: Age-related enhancement of multisensory integration

Judith Shedden, Professor, Psychology, Neuroscience & Behaviour

"Our first work in aging was entirely based on Labarge funding. We were excited to see the call for proposals in 2016, realizing that we had a unique opportunity to ask important questions about aging, driving, and multisensory processing. We have learned a lot since then, including how to redesign our protocols and test older people.

The purpose of our experiments is to improve understanding about how we adapt throughout the lifespan to maintain safe driving, not only in critical situations to avoid accidents, but also in navigation and spatial memory. We want to find ways to help older drivers stay on the road for longer, safely, and in ways that maintain and enhance mobility and independence. We are building innovative virtual reality tools to safely test older drivers as they navigate in realistic simulated environments. We study neural and behavioural changes across the lifespan that are related to the way that we use multisensory cues to self-motion from visual, auditory, vestibular, and proprioceptive senses. As we age, the way in which the brain integrates multisensory information changes, and good drivers learn to adapt to these changes.

We have aimed a considerable amount of our resources to acquiring further funding to continue this work, which has implications for safer driving across the lifespan, and we would not have taken this approach without the Labarge support and experience it gave us with testing aging drivers. This is a new research path for us, inspired by a generous donation from Suzanne Labarge."

Labarge Optimal Aging Initiative active projects

Marla Beauchamp

Pilot study of a tailored home balance exercise program for reducing falls in older adults with Chronic Obstructive Pulmonary Disease (COPD)

This research project is examining the feasibility and preliminary effects of the first entirely home-based exercise program for reducing falls in older adults with COPD.

RESEARCH IMPACT

Development of improved balance-related measures of fall risk in older adults with COPD;

Pilot data informing the design of an ongoing CIHR-funded international multi-centre trial of fall prevention for older adults with COPD;

The establishment of a new collaboration between two premiere centres for respiratory care in Ontario: West Park Healthcare Centre and the Firestone Institute for Respiratory Health;

Leveraged an additional $900,000 in funding.

INVESTIGATORS

Marla Beachamp
Dina Brooks
Roger Goldstein
Steward Pugsley
Julie Richardson

My story: Marla Beauchamp, Assistant Professor, Rehabilitation Science

"Labarge funding has provided our team with the opportunity to develop and pilot test an entirely home-based fall prevention program for older adults with COPD who are at high risk of falls. This pilot project allowed us to establish a new collaboration between two premier centres for respiratory care in Ontario: West Park Healthcare Centre in Toronto and the Firestone Institute for Respiratory Health in Hamilton.

Our study team includes investigators and clinicians from both sites, and the result is a significantly strengthened research capacity for other projects going forward. Since beginning our Labarge project, the two centers are now collaborating on three different projects related to respiratory health and mobility. We were also able to use components of this program as a template for an international multi-site randomized controlled trial of fall prevention as part of pulmonary rehabilitation.

This project was successful in receiving funding from the 2016 Canadian Institutes of Health Research (CIHR) project scheme competition. Furthermore, the results of this pilot study have provided us with critical information needed to pursue formal evaluation of the effectiveness of the home-based fall prevention program in a larger scale-trial."

Brenda
Vrkljan

Improving confidence and behind-the-wheel skills: Evaluating the feasibility of an older driver-health promotion intervention to optimize safe mobility

This project evaluates the effectiveness of a training program aimed at improving behind-the-wheel performance of older adults. Working together with industry partner Young Drivers of Canada®, this tailored training program used video clips of each participant to provide personalized feedback on their behind-the-wheel behaviour.

INVESTIGATORS

Brenda Vrkljan
Jessica Gish
Lauren Griffith

RESEARCH IMPACT

This ongoing study has resulted in the development of an evidence-based and user-informed driver training program and risk stratification tool (Candrive) aimed at refreshing older adults' driving skills. This work has been presented internationally and was recently featured in the Hamilton Spectator newspaper, and in the newsletter of The Canadian Association of Road Safety Professionals.
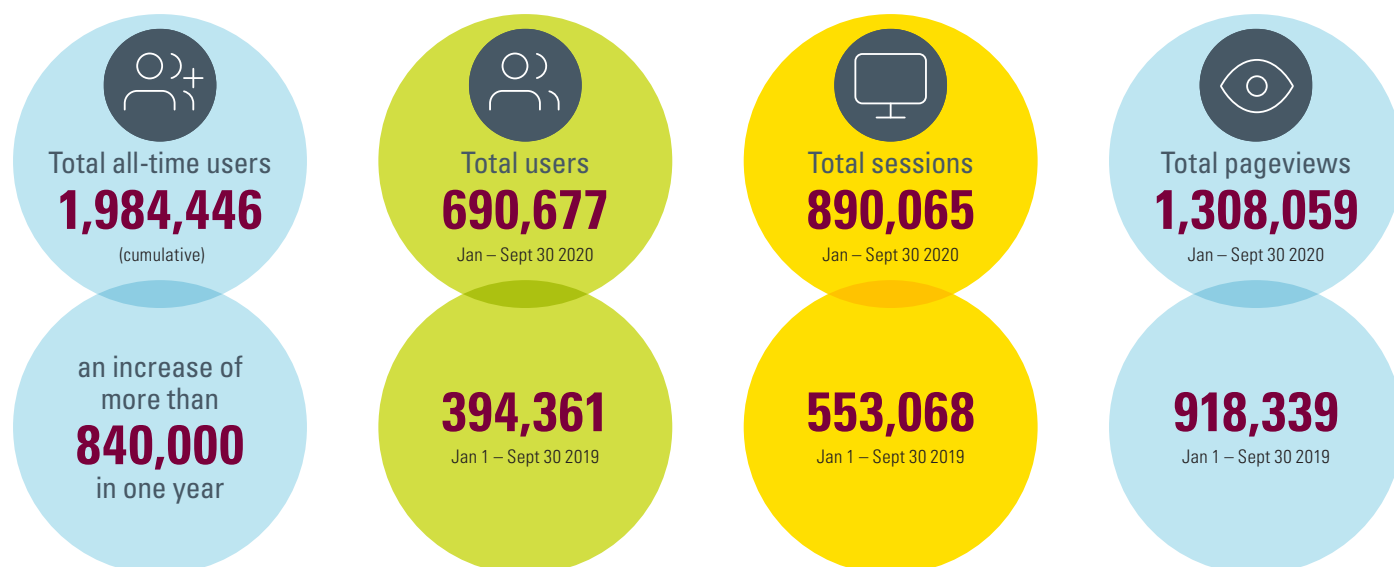
"This funding has been instrumental in establishing linkages with both national and international leaders in the field of driving and aging. Nationally, this program will complement the risk stratification tool that has been developed by Candrive and offers a viable and evidence-based intervention that is needed for those drivers who are flagged by health professionals, but are still deemed medically fit to drive. Internationally, we will present this work as part of a symposium at the 2020 Gerontological Society of America."
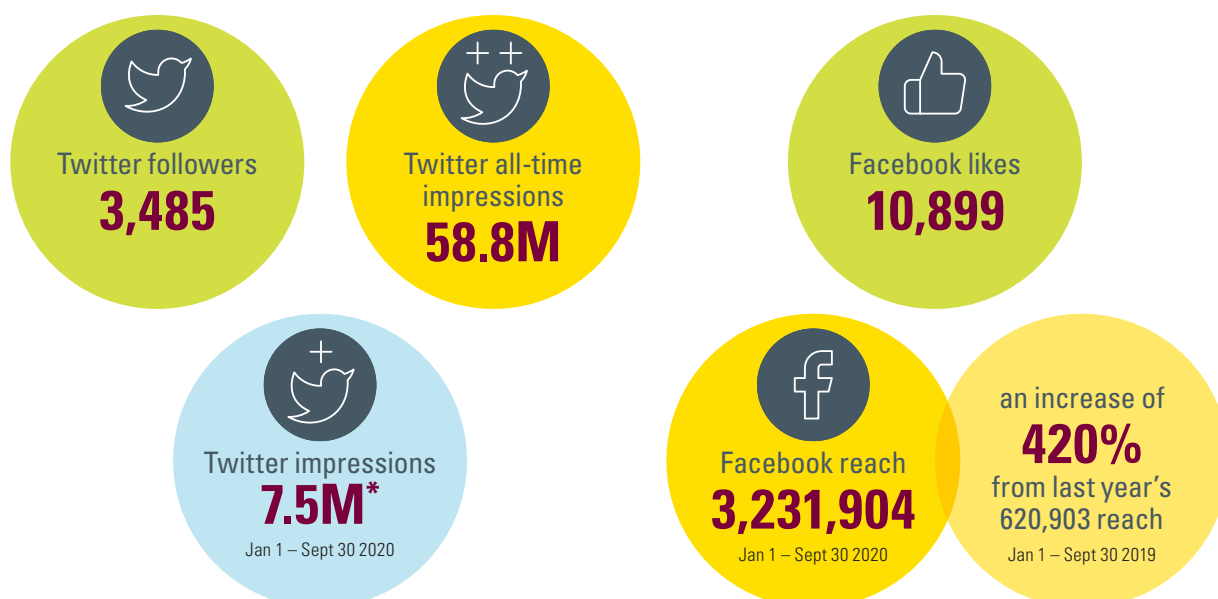
Brenda Vrkljan

The McMaster Optimal Aging Portal

The McMaster Optimal Aging Portal continues to grow as a key resource to support older adults, caregivers, clinicians, public health professionals, social system professionals, and policymakers from around the world who are looking for a trusted source of credible, evidence-based information about the health and social aspects of aging. This year, the Portal shifted its focus toward older adults impacted by the COVID-19 pandemic by highlighting ways to stay active and engaged while practicing physical distancing.
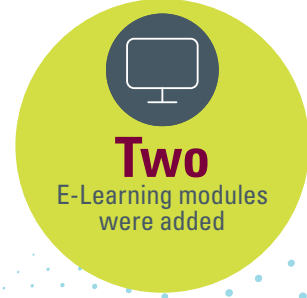
Portal engagement

Total all-time users
1,984,446
(cumulative)

an increase of more than
840,000
in one year

Total users
690,677
Jan – Sept 30 2020

394,361
Jan 1 – Sept 30 2019

Total sessions
890,065
Jan – Sept 30 2020

553,068
Jan 1 – Sept 30 2019

Total pageviews
1,308,059
Jan – Sept 30 2020

918,339
Jan 1 – Sept 30 2019

Social media

Twitter followers
3,485

Twitter all-time impressions
58.8M

Facebook likes
10,899

Twitter impressions
7.5M*
Jan 1 – Sept 30 2020

Facebook reach
3,231,904
Jan 1 – Sept 30 2020

an increase of
420%
from last year's 620,903 reach
Jan 1 – Sept 30 2019

Content

Blog Posts
287

Hitting the Headlines news summaries
205

Evidence Summaries
928

Web Resource Ratings
2,124

Scientific articles for health and social system professionals
43,201

Two
E-Learning modules were added

COVID-19 content and profiling of the Portal through global efforts

In mid-March, the Portal team shifted its content strategy in an effort to meet the changing needs of citizens, caregivers, and health and social systems professionals in response to the COVID-19 global pandemic. Key activities related to COVID-19 were:

- designing a COVID-19 section of the Portal website, with a landing page developed to house all content related to the pandemic;

- re-profiling the 'Hitting the Headlines' content to focus on addressing the most pressing COVID-19 related topics each week;

- producing new Blog Posts and Evidence Summaries giving actionable tips for older adults and their caregivers to help adjust to the new reality;

- tailoring the Portal's advertising content to drive awareness of this new COVID-19

content through Google and Facebook, as well as using a list of relevant Twitter handles to include in messaging (e.g., the Ministers of Seniors, ON Minister of Health Christine Elliot, other ministers with high Twitter followings, PHAC, Ontario Public Health, etc.);

- Overall content tagged with COVID-19 has generated the following:

  - 19,632 sessions focused specifically on COVID-19 topics (March to September 2020)

  - 11,344 new site users

Social Systems Evidence and Portal content on social aspects of aging

Social Systems Evidence (SSE) was launched in fall 2017 with support from the Labarge Optimal Aging Initiative, the Faculty of Health Sciences, the McMaster Institute for Research on Aging, and the Provost's Strategic Alignment Fund. SSE is the world's most comprehensive, continuously updated repository of synthesized research evidence relevant to 20 government sectors and program areas (e.g., community and social services, culture and gender, economic development and growth, education, transportation) and to all of the Sustainable Development Goals (SDG). It covers the governance, financial and delivery arrangements within which these programs, services and products are provided, and the implementation strategies that can help to ensure that these programs, services and products get to those who need them.

In 2020, the Portal received a grant of $25,000 from the Labarge Centre for Mobility in Aging to support SSE and facilitate additional focus on mobility-related topics. As of October 16, 2020, SSE includes **4,166 documents**, which is expected to be closer to 4,300 by the end of the year.

During 2020, the Portal:

- harvested more than 100,000 documents, which are being evaluated for eligibility to be included in the repository;

- continued the SSE **evidence summary e-newsletter**, providing monthly updates of new evidence on topics of interest to 424 registered users;

- created five curated searches on pressing issues related to optimal aging, which registered SSE users can easily access, one being about improving mobility to support optimal aging;

- pursued efforts to add more documents relevant to mobility and aging (13 SSE reviews), as well as citizen content on this topic (five blog posts, 13 evidence summaries, and more than 50 WRRs);

- updated the visual design of the SSE landing page to feature all Sustainable Development Goals, including a dedicated landing page on climate action;

- gave several presentations and workshops about SSE with our partners from the Monash Sustainable Development Institute;

- reached 10,058 unique registered users and 31,514 page views.

The McMaster Optimal Aging Portal's **content on social aspects of aging**, which uses SSE as the source of synthesized evidence, continues to grow and be widely promoted and used. It currently includes 266 documents for social systems policymakers; 83 Blog Posts; 118 Evidence Summaries, 1,195 Web Resource Ratings—all focused specifically on the social aspects of aging.

20 government sectors and program areas

1 Citizenship

2 Children & youth services

3 Climate action

4 Consumer & social services

5 Consumer protection

6 Culture & gender

7 Economic development & growth

8 Education

9 Employment

10 Energy

11 Environmental protection

12 Financial protection

13 Food safety & security

14 Government services

15 Housing

16 Infrastructure

17 Natural resources

18 Public safety & justice

19 Recreation

20 Transportation

Sustainability

Efforts to secure the long-term sustainability of the Portal continued at an increased level during 2020. The Portal was successful in confirming an additional grant of $300,000 over 18 months (Sept 2020-March 2022) from AGE-WELL, and continues discussions about a longer-term collaboration. Progress made with two potential sponsors (long-term care agencies Revera and Chartwell) has been stalled since March because of the pandemic. The Portal has submitted grant proposals to several funding agencies, one of which was successful and four of which are currently under review. Given the McMaster Health Forum's role in leading the Rapid-Improvement Support and Exchange (RISE) to support Ontario Health Teams (OHT) as part of the government's OHT Central Program of Supports, the Portal is continuing discussions about how to integrate directly into the province of Ontario's digital health strategy. This could include integration through patient portals to best harness the Portal's power in achieving measurable improvements in health.

SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

Labarge Foundation Grants

The 2016 Labarge Foundation Grants provided initial funding for several projects

Larkin Lamarche

Pairing nursing and medical clerk students with experienced volunteers to visit older adults in their homes

One project explored the potential of nursing student placements within primary care interventions for community-dwelling older adults. Through the Health TAPESTRY study nursing placement and medical clerkship, students gained experience with an interdisciplinary team functioning around care for older adults, and nursing students had exposure to primary care, which is very difficult to obtain.

INVESTIGATORS

Ruta Valaitis
Heather Waters
Doug Oliver
Larkin Lamarche
Lisa Dolovich

RESEARCH IMPACT

The development of a partnership between the McMaster School of Nursing and the McMaster Family Health Team led to an enhanced version of the nursing student placement that included job shadowing with varied allied health professionals and visits to community-based resources for older adults.

(back row from left to right): Carrie McAiney, Rebecca Ganann, Maureen Markle-Reid (front row from left to right): Jenny Ploeg, Ruta Valaitis

Patient/caregiver engagement in community-based research in older adults

The goal of the Aging, Community, and Health Research Unit (ACHRU) is to work with older adults who have multiple chronic conditions and their family caregivers to promote optimal aging at home. By collaboratively designing and evaluating new and innovative community-based health care interventions, this project aims to improve access to health care, quality of life, and health outcomes in this population, while reducing health care costs. Supported by Labarge funding, ACHRU researchers have been evaluating the process and impact of older adults' and family caregivers' engagement as partners on research teams. As a result

of expertise gained through this project, Jenny Ploeg, Maureen Markle-Reid, Ruta Valaitis, and Rebecca Ganann are co-leads on a large CIHR Strategy for Patient-Oriented Research (SPOR; patient-partnered) Programmatic Grant for older adults with diabetes and multiple chronic conditions and their family caregivers. This grant supports testing of ACHRU-Community Partnership Program (Diabetes) in Ontario, Quebec, and Prince Edward Island. This current grant builds on the expertise of this patient and public engagement study, as well as earlier research funded through the Labarge Foundation and subsequently by CIHR.

INVESTIGATORS

Ruta Valaitis
Carrie McAiney
Maureen Markle-Reid
Rebecca Ganann

RESEARCH IMPACT

Funding from the Labarge Foundation Grant has enabled this group of researchers to attract an additional $5,000 of in-kind internal funding and $3.125 million dollars in external funding to expand this project. This project has generated five publications, 12 presentations, 24 knowledge translation activities and seven media items.

"This funding has made a significant impact to our team as we have learned how to better engage patient and public research partners in ACHRU studies. We have adjusted our reimbursement for contributions of our patient and public research partners, gained more skills in ways to meaningfully engage them as active participants, and created tools and products to help us orient these partners to research and evaluate the contributions that they make to ACHRU research."

Rebecca Ganann
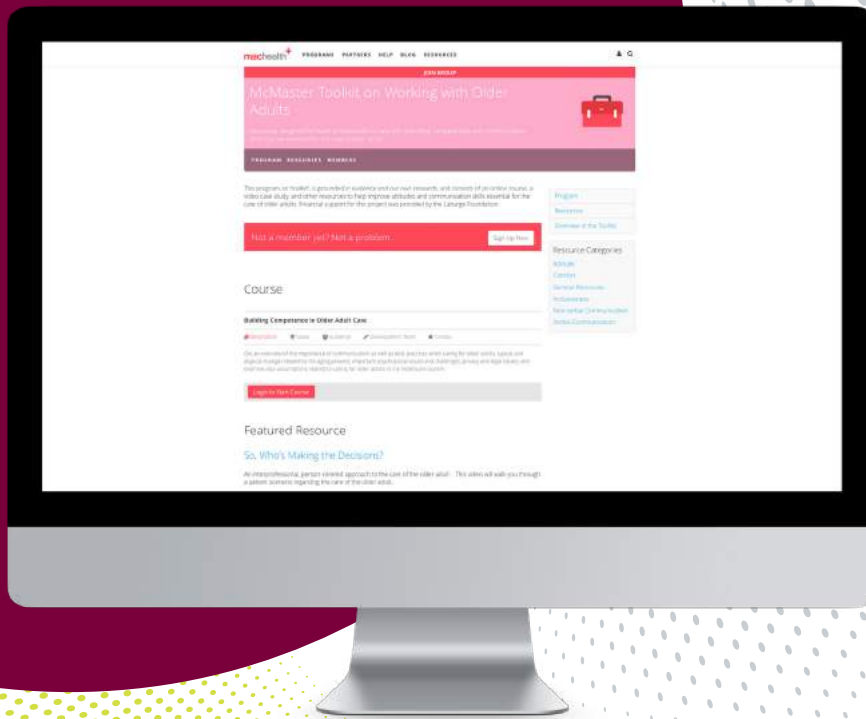
McMaster Toolkit for Working with Older Adults

Labarge Funding from the Foundation supported the launch of the McMaster Toolkit for Working with Older Adults, which was developed by researchers and clinicians at McMaster University with the goal of building competence in older adult care via online instruction and resources. Today, the Toolkit is included as a component of MacPAGE, a platform developed by MIRA researcher Andrew Costa, assistant professor and Schlegel Chair in Clinical Epidemiology and Aging at McMaster University. The platform has been created to stimulate and recognize student interest in geriatrics that has been piloted by the medical school at the Waterloo campus. The Toolkit can be found at: machealth.ca/programs/mcmaster-toolkit/

Other initiatives supported by Suzanne Labarge

Raymond and Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging

Dr. Parminder Raina, Scientific Director of the McMaster Institute for Research on Aging and the Labarge Centre for Mobility in Aging, was reappointed as the Raymond and Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging at McMaster University on April 20, 2018. He is the inaugural Chair holder and has held the Chair for 14 years.

McMaster alumna Suzanne Labarge established the Chair in 2006, named in tribute to her parents, to direct an interdisciplinary program of research aimed at discovering strategies for supporting the health and engagement of older adults in their daily lives. This Chair has been established in collaboration with the Faculties of Social and Health Sciences.

As the Lead Principal Investigator of the Canadian Longitudinal Study on Aging (CLSA), Dr. Raina heads the study of one of the largest and most comprehensive cohorts on aging in the world, with data from 50,000 Canadians collected over 20 years. He is a professor in the Department of Health Research Methods, Evidence and Impact, specializing in the epidemiology of aging. He holds a Canada Research Chair in Geroscience and was appointed to the National Seniors Council in 2018. Last year, he was elected to the Canadian Academy of Health Science, one of the highest honours in the country's health sciences community.

In 2020, Dr. Raina has attended five speaking engagements for colleagues, community members and government stakeholders, and published eight papers in areas such as sarcopenia; depression, hormone therapy and menopausal transition; and body mass index and mortality in older adults in high impact peer-reviewed journals such as the Journal of Clinical Epidemiology, the Journal of the American Geriatrics Society and PLOS One, among others. He is leading the CLSA's COVID-19 study, which will examine the experiences of older adults during the coronavirus pandemic, exploring how they cope, the impacts on their physical and mental health, and changes to how they access health-care services. This data will provide us with a national perspective of the impact of COVID-19 on older adults.

Dr. Raina's appointment of Chair holder is effective through June 30, 2023.

"Without the support from Ms. Suzanne Labarge and her family, the extent to which we have developed a world class program of research on aging would not be possible."

Parminder Raina

CAMH-McMaster collaborative care initiative for mental health risk factors in dementia

Tarek
Rajji

Nick
Kates

Many older Canadians experience episodes of depression and anxiety, as well as showing signs of mild cognitive impairment, all of which can affect well-being and functioning. Early detection and treatment could change the course of these conditions, reduce their impact and, ultimately, lead to improvements in functioning and an increase in community activities. However, these problems frequently go unrecognized. This project aimed to increase the recognition and treatment of these conditions by primary care providers through the implementation of an evidence-informed treatment pathway (i.e., collaborative care) into their practices. This pathway will include standardized assessments for screening and treatments and collaborations with mental health clinicians.

Working with four primary care practices in Toronto and Hamilton, participants completed usual care that included opportunities to attend brain health groups with presentations by professional health care providers; or collaborative care pathways with treatment more tailored to overall assessed severity (i.e., mild, moderate, severe) of these conditions that included psychological therapies, medication trials or a referral

to the study psychiatrist. The team found that over a 24-month period, participants in collaborative care were more likely to have reduced anxiety and depression symptoms and improved quality of life than those in usual care. Time to treatment was also shorter for those in collaborative care than in usual care. Overall, primary care providers recognized the benefits of implementing the collaborative care model: they appreciated the guidance and opportunity to increase knowledge about these conditions and increase the identification and treatment of mental health concerns. However, they also reported that the model seemed too prescriptive, did not address cultural and language barriers for patients, and, importantly without the context of a research team, collaborative care would not be practical to pursue given resource and time constraints.

The study provided key lessons for implementing an evidence-based collaborative care pathway in primary care for the mental health concerns of older adults. For researchers and practitioners keen to improve the quality of life of older adults, such information is important for encouraging the uptake of evidence-based integrated care pathways.

INVESTIGATORS

Tarek Rajji
Nick Kates

Karen Saperson
Carrie McAiney

Pallavi Dham

RESEARCH IMPACT

The team has shared its outcomes and lessons in six presentations and seven publications and abstracts.

"The early detection pathway made a significant difference in symptom improvement for both depression and anxiety when compared with the treatment as usual group, as well as improvements in quality of life. We were really pleased that these indicators continued to show further improvements over the full two years of the study."

Nick Kates

PART 3:
McMaster Institute for Research on Aging (MIRA)

The McMaster Institute for Research on Aging (MIRA) was created in 2016 out of the recognition that the best way to tackle the complex issues facing an aging population was as an organized, interdisciplinary team that integrates the input of multiple perspectives, including those of older adults. These complementary areas of expertise ensures that our research is, from the outset, optimized to create useable, practical, older adult-centred solutions that promote aging in place.

MIRA has mobilized researchers at McMaster University to coordinate their efforts to enhance the University's strengths in aging research. MIRA also acts as a robust entry point to several of McMaster's existing research platforms in aging, such as the Labarge Centre for Mobility in Aging, the McMaster Optimal Aging Portal and the MIRA | Collaborative for Health & Aging.

Message from the Scientific Director

The emergence of COVID-19 in 2020 brought with it a general feeling of uncertainty, particularly around the continuation and delivery of research on aging as a result of limitations placed on in-person research. Older adults are some of the hardest hit by COVID-19, and we know that many were already experiencing social isolation and limited mobility. It was important for us to find ways to continue what we had started with the McMaster Institute for Research on Aging and the Labarge Centre for Mobility in Aging. I am proud to say that I have witnessed MIRA's researchers stand up to these challenges and pivot masterfully, proving that managing the unknown is precisely what we excel at.

This year's report highlights ongoing research projects that are a result of the input of multiple perspectives and complementary areas of expertise, as well as new research, much of it in response to COVID-19. Our continued progress can be attributed to our resilient researchers who share a commitment to advancing research even in uncertain times, as well as to the generosity of Suzanne Labarge and McMaster University.

Dr. Parminder Raina
Scientific Director of the Labarge Centre for Mobility in Aging
and the McMaster Institute for Research on Aging

Message from the Chair of the International Scientific Advisory Committee (ISAC)

As Chair of MIRA's International Scientific Advisory Committee (ISAC), it has been a pleasure to witness MIRA's continued support and advancement of interdisciplinary research in aging at McMaster University. During these challenging times, MIRA continues to expand its researcher network and its influence on interdisciplinary collaborations and co-design approaches to aging research; MIRA has taken the lead in supporting its researchers and their research methods during the COVID-19 pandemic by being flexible and encouraging modifications in research methodology to help deal with these altered circumstances.

COVID-19 restrictions have resulted in reduced access to older adults for research design. In order to adapt, MIRA has had to develop innovative and collaborative approaches. ISAC feels privileged to continue to provide feedback and advice to MIRA's programs in mobility and aging as they work through these adaptations. We have seen MIRA provide funding for COVID-19-related research projects that aim to alleviate the detrimental impact of the pandemic on older adults, as well as develop a support network and Idea Exchange series to help its research network adapt while managing COVID-19-related restrictions.

The ISAC continues to endorse MIRA's novel approaches to address the most pressing aging-related questions facing older adults, caregivers, health professionals and policy makers. We look forward to our ongoing involvement with MIRA, and we offer our continued support and commitment to ensure MIRA's success into the future.

Dr. David B. Hogan
Professor and Academic Lead, Brenda Strafford Centre on Aging, University of Calgary
Chair, International Scientific Advisory Committee (ISAC) of MIRA

MIRA's response to COVID-19

Since the beginning of the year, the COVID-19 pandemic has significantly and severely impacted the lives of many older adults worldwide. Physical distancing guidelines recommended for preventing community spread of COVID-19 meant much research at McMaster University was put on hold. To abide by physical distancing guidelines, MIRA's Exploration and Catalyst Grant funding for 2020 was also put on hold. However, with pre-existing strengths in research in aging and community engagement, MIRA has been able to adapt quickly and respond to the demands of the COVID-19 pandemic, while supporting older adults during physical distancing measures. The following are some initiatives MIRA, its researchers and its associated platforms in aging research, have taken to address the COVID-19 pandemic:

- MIRA administered a survey to MIRA members and trainees to find out how the pandemic had affected them and how MIRA could support them. This survey was then adapted and used by the Faculty of Health Sciences;

- MIRA launched an **Idea Exchange series** to explore concerns and challenges researchers are facing during the COVID-19 pandemic. These brainstorming sessions have helped us to determine the best ways to move forward and continue supporting research in aging during challenging times and in the future;

- MIRA launched **LCMA COVID-19 Grants** to fund COVID-19 research that is focused on mobility in aging within the context of the COVID-19 pandemic. Older adults are impacted more seriously by COVID-19, and the physical distancing that is currently in place to slow its spread. People with underlying health conditions or older adults are twice as likely to experience negative outcomes. Social isolation can be challenging for older adults, and there is a concern that older adults are also more likely to experience negative outcomes related to the physical distancing guidelines recommended for preventing community spread of COVID-19. This funding aims to stimulate research that can address some of these challenges.

- **The Canadian Longitudinal Study on Aging** (CLSA) has launched a COVID-19 study to its 50,000 participants who were between the ages of 45 and 85 when they were recruited, distributed across Canada's 10 provinces. Over the next six months, the CLSA COVID-19 study will collect weekly and monthly data from its participants through online and telephone surveys to gain a comprehensive picture of the spread and impact of the pandemic. The study will examine the experiences of older adults during the coronavirus pandemic, exploring how they cope, the impacts on their physical and mental health, and changes to how they access health-care services. This data will provide us with a national perspective of the impact of COVID-19 on older adults. Funding for this study is provided by MIRA, McMaster University and the Juravinski Research Institute through a new gift for research on the pandemic from Hamilton, Ont., philanthropists Charles and Margaret Juravinski;

- A multi-disciplinary team of researchers led by MIRA Scientific Director **Parminder Raina** and **Andrea Gonzalez** have launched the InHamilton COVID-19 study, to explore how people who work and/or live in Hamilton have been impacted by the COVID-19 health crisis. This study aims to understand how people are responding to the crisis and will use this data to better identify strengths and opportunities for growth in the current pandemic response;

- **The McMaster Optimal Aging Portal** is highlighting ways to stay active and engaged while practicing physical distancing during the current COVID-19 pandemic;

- MIRA researchers across the Faculties are contributing to international research efforts during the COVID-19 pandemic. This includes research that helps us to understand the COVID-19 virus, develop effective treatments, protect frontline workers and support the health-care system during this crisis;

  - MIRA researchers **Dawn Bowdish** (Pathology & Molecular Medicine) and **Michael Surette** (Medicine) are leading two studies identifying COVID-19 infection rates and exploring why some people are more susceptible to the virus;

  - MIRA researcher **Ravi Selvaganapathy** (Mechanical Engineering) helped develop new medical grade masks to improve the availability of personal protective equipment in a time of crisis;

  - MIRA researcher **Michelle Kho** (Rehabilitation Science) was among an international group of cardiorespiratory physiotherapy experts that mobilized quickly to release recommendations on physiotherapy management for COVID-19 for adult patients in acute care hospitals;

- MIRA developed a new initiative called "Staying safe and healthy at home", an evidence and resource-based proposal aimed at supporting older adults during COVID-19. This initiative will connect the community through the training of staff and volunteers about where to find and access the Optimal Aging Portal, which is offering reliable, verified and up-to-date information during the pandemic. This proposal has been shared with government agencies and, applications have been made to several funding organizations.
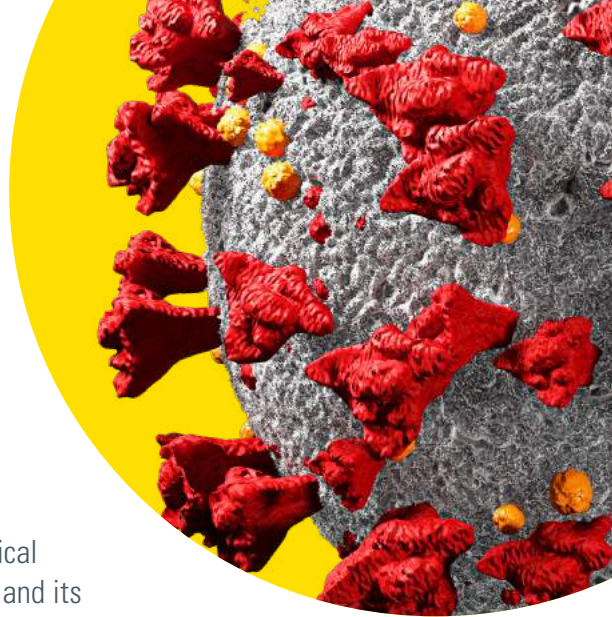
MIRA governance overview

MIRA's governance and management structure has been carefully crafted to ensure scientific excellence. It provides robust management and oversight from both the Labarge gift board as well as University senior leadership. The governance model allows for modification and accountability over time, which will be necessary for management of scientific and executive strategies and growth. As o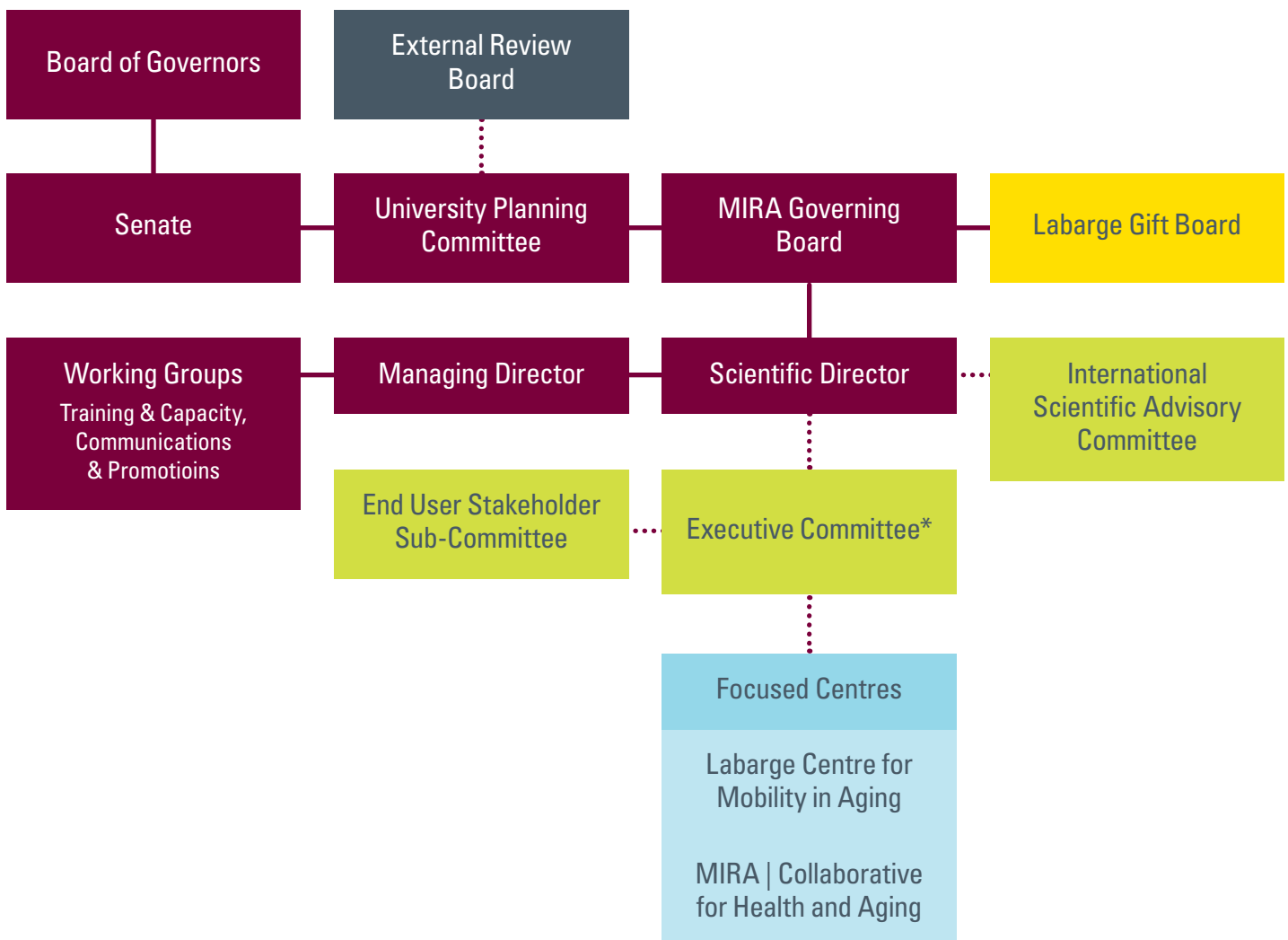utlined in the governance structure, the Scientific Director reports to MIRA's Board and the Labarge Gift board and is advised by the Executive Committee and the International Scientific Advisory Committee. The Scientific Director of both Focused centres has a seat on the executive committee. Working groups and the End User Stakeholder Committee provides a variety of perspectives to support MIRA's research initiatives and programs.

> "It has been a privilege to serve in the role of Chair of the End User and Stakeholder Committee, and I look forward to continuing to lead this important work on behalf of MIRA."

Brenda Vrkljan
Professor, Rehabilitation Science

> "As co-Chairs of MIRA's Training and Capacity Working Group, we look forward to exploring new, innovative opportunities in the years to come."

Janet Pritchard
Assistant Professor, Interdisciplinary Science
Andrew Costa
Associate Professor, Health Research Methods, Evidence, and Impact

Board of Governors	External Review Board		
Senate	University Planning Committee	MIRA Governing Board	Labarge Gift Board
Working Groups — Training & Capacity, Communications & Promotioins	Managing Director	Scientific Director	International Scientific Advisory Committee
	End User Stakeholder Sub-Committee	Executive Committee*	
		Focused Centres — Labarge Centre for Mobility in Aging — MIRA | Collaborative for Health and Aging	

* The Scientific (Co-)Directors of MIRA and the Focused Centres have a seat on the Executive Committee

MIRA's research approach

Design-thinking and interdisciplinary research

MIRA's approach to research is based on the philosophy of co-design and design-thinking. We believe approaches that engage the older adult community, their families, health-care providers and other key stakeholders through every stage of our activities, from research to evaluation and implementation of interventions and technologies, is key to delivering solutions that have real and practical impact. MIRA leads several initiatives that facilitate co-design, design-thinking and user-centred research to support its mandate to foster interdisciplinary collaborations within and beyond McMaster University.

Collaborations in design-thinking

One of MIRA's aims is to explore and promote the use of design-thinking approaches in aging, both within McMaster and more broadly. MIRA has collaborated with experts in these fields, such as Dr. Robert Fleisig (McMaster, Faculty of Engineering), Dr. Harry Mahler (OCADU, Toronto), and Dr. PJ White and Colin Deevy (IT Carlow, Ireland). Dr. White is actively involved with MIRA's Idea Exchange Series to support MIRA researchers through the COVID-19 pandemic.

Interdisciplinary research map

In consultation with research support facilitators in all six Faculties, MIRA has developed a Research Map [below] to illustrate the focus and impact of individual MIRA researchers' work. MIRA researchers have positioned themselves on the two-dimensional plot; the X-axis represents their research focus, ranging from theory and discovery to practice and application, and the Y-axis represents their research output (ranging from products/services at the bottom, to academic in the middle, and to policy at the top). Members are colour coded by Faculty. The map is intended to facilitate connections by highlighting areas of strength and opportunity among MIRA members, while enabling MIRA researchers to view themselves as part of a broader community.

Over the past year, MIRA partnered with the McMaster Library's Experts platform and McMaster's Research & High-Performance Computing Support (RHPCS) team to transform this map into an interactive tool that will allow users to see how MIRA researchers are connected to each other and to MIRA's research projects and initiatives. This interactive and dynamic project was completed in 2020.

"Enabling collaboration and breaking down disciplinary silos is one of the primary objectives of each and every one of McMaster's research institutes. Given this, I think it's incredibly important that we (as an institution) find ways to communicate and highlight the great work being done by research institutes like MIRA to facilitate cross-disciplinary collaboration—both within and beyond McMaster. Though it takes a fair bit of effort to compile this kind of information, structure it appropriately, and create clear and compelling visuals, we hope that those viewing this visualization will agree that it is certainly worth the work."

Jason Brodeur
Associate Director, Digital Scholarship Services
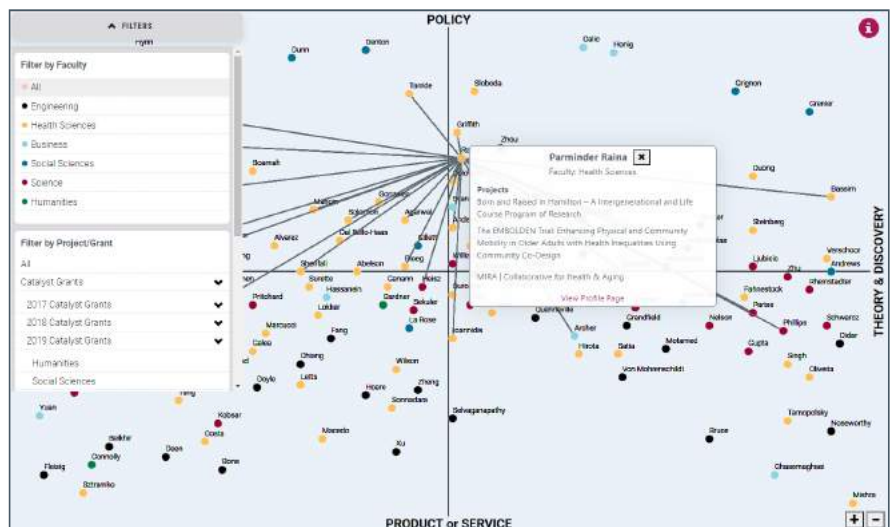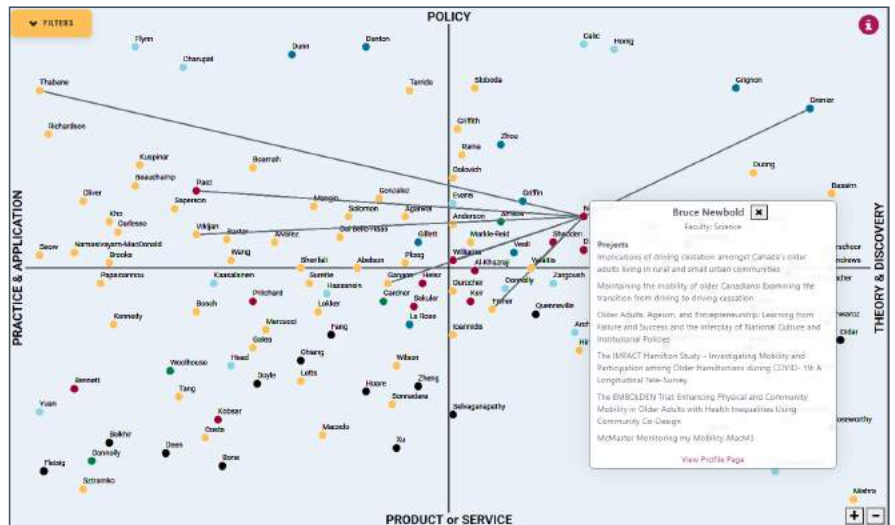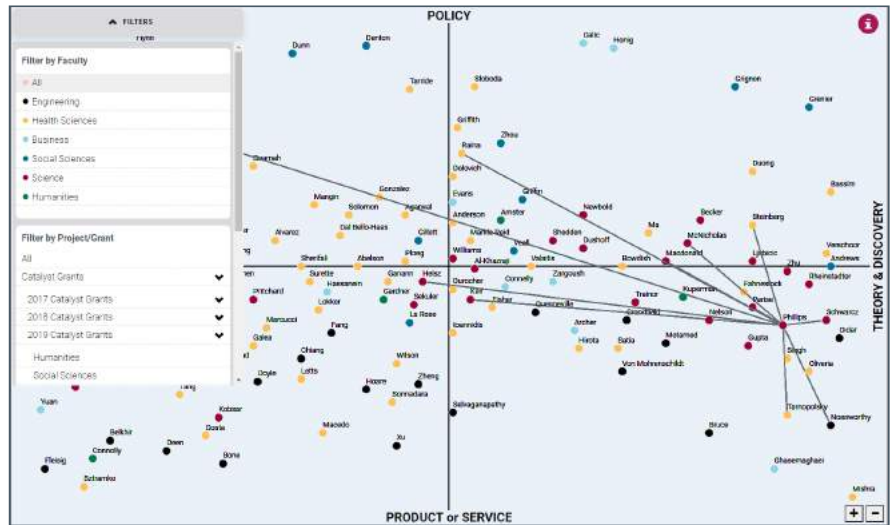
Stakeholder and user engagement

In the spirit of MIRA's co-design and design-thinking approach to research, MIRA has leveraged the expertise of the End User and Stakeholder Committee (EUSC) members to inform research priorities and advance and support projects. The EUSC includes representatives from government, community partners, researchers from other institutions, and older adults. This enthusiastic and welcoming group provides MIRA researchers with an opportunity to share their work with external stakeholders and build relationships with the committee members while offering insights, connections, and a variety of perspectives on the challenges, wants and needs of older adults. Through this committee, MIRA cultivates a community of connections and allies who can support our researchers and trainees in the development of their research.

Training and Capacity Working Group

Over the past year, MIRA's Training and Capacity Working Group has provided feedback to support the cross-campus expansion of MacPAGE, an experiential education program launched online in September 2020. The group has also continued to share their interdisciplinary perspectives on the interests of trainees to ensure that the platform reflects the needs and interests of students across McMaster's Faculties. Over the coming year, group members will continue to explore emerging opportunities to broaden access to programs currently at the University, support the development of robust evaluation frameworks for the programs in place, and share their perspectives on adapting to our new learning environment in 2020.

Communications and Promotions Working Group

MIRA meets regularly with communications representatives from other platforms in aging research at McMaster University to effectively collaborate and cross-promote where applicable. These include McMaster University's Communications and Public Affairs as well as members of the Communications and Promotions Working Group: The Geriatric Educations and Research in Aging Sciences (GERAS) Centre, Gilbrea Centre for Studies in Aging, the McMaster Optimal Aging Portal, the McMaster Health Forum, the Aging, Community and Health Research Unit (ACHRU), and the Canadian Longitudinal Study on Aging (CLSA). In 2020, meetings were informal due to the uncertain nature of work during COVID-19. Next year, quarterly meetings will be reinstated.

Research support

Matched projects

To further improve the positioning of McMaster's researchers in external funding competitions, MIRA and the LCMA have allocated funding that may be used to match or leverage external funds. The following project is a standout example of just how MIRA funds can be leveraged.

Ruta Valaitis

ACHRU community partnership program for diabetes self-management for older adults - Canada

The support of MIRA funding was integral to the implementation of an administrative database study co-led by researchers and patient and public partners. This study utilized data from the Canadian Institute for Health Information (CIHI) Dynamic Cohort, linked to other administrative data sources in Ontario and Alberta, to identify the socio-demographic, health and health-care service use characteristics associated with high Emergency Department (ED) use in older adults with diabetes. These characteristics supported the eligibility criteria for the next phase of the research program—the randomized controlled trial. In consultation with MIRA member, Janet Pritchard, mobility measures were integrated as outcome measures in the clinical trial.

PRIMARY FUND SOURCE

CIHR PIHCI

INVESTIGATORS

Ruta Valaitis
Heather Waters
Doug Oliver
Larkin Lamarche
Lisa Dolovich

MATCHED FUNDING

$25,000

RESEARCH IMPACT

This research has yielded nine conference presentations, two knowledge translation activities, 26 new collaborators, and leveraged $504,173 in in-kind internal funding from McMaster University and affiliated institutes.

Trainee funding

MIRA Scholarship in Aging Research

This was the inaugural year for the MIRA Scholarship in Aging Research, which seeks to promote the study of optimal aging in one or more of the following research areas:

- the impact of exercise on optimal aging
- the interrelationship between psychological function and social functionr
- causes and consequences of multimorbidity, frailty, and polypharmacyr
- the role of caregiving, equity, economics and transportation in optimal agingr
- the understanding of the biological mechanisms of diseases of agingr
- evaluating approaches to knowledge translation to improve optimal agingr
- and the use of technology to promote optimal aging and aging in place.

Our 2020 recipients of the MIRA Scholarship in Aging Research are outlined below:

2020 MIRA Master's Scholarship: Zaryan Masood

Project: Tracking real-world changes in osteoarthritic gait patterns using wearable sensors

Supervisor: Dylan Kobsar, Assistant Professor, Kinesiology, Faculty of Health Sciences

Mentor: Janie Wilson, Professor, Surgery, Faculty of Health Sciences

Gait analysis is useful in understanding healthy aging, and the etiology and progression of common musculoskeletal disorders that accompany older age, such as osteoarthritis. Conventional gait analysis systems, involving motion capture cameras, are expensive and confined to laboratory settings limiting their accessibility and generalizability. Wearable inertial sensors make gait assessments more accessible and affordable, allow for assessments in real-world, out-of-lab environments, and can help alert health care providers to significant gait changes which may be related to osteoarthritis treatment or progression. This research will measure day-to-day fluctuations in the out-of-lab gait patterns of older adults with knee osteoarthritis through a dual-task perturbation measured by wearable inertial sensors.

2020 MIRA PhD Scholarship: Laura Garcia Diaz

Project: Using technology-enabled community engagement strategies to identify community needs of people impacted by dementia

Supervisor: Lori Letts, Professor, Rehabilitation Science, Faculty of Health Sciences

Mentor: Paula Gardner, Associate Professor, Communication Studies & Multimedia, Faculty of Humanities

Dementia-friendly communities can improve the quality of life for people living with dementia and their caregivers by increasing awareness and an understanding of dementia. The objective of this research is to use technology to engage people impacted by dementia as a means to learn about their community needs to develop and implement dementia-friendly community initiatives in Hamilton and Haldimand. The initiatives promote and support aging in place for people living with dementia and will include the development and/or enhancement of existing web-based platforms to provide education and support (medical and social) to caregivers and persons with dementia living in the community.

MIRA Postdoctoral Fellowships

MIRA has now funded and awarded 11 postdoctoral fellowships to incoming trainees. Candidates have one primary supervisor and two mentors from other Faculties.

Past recipients included Caitlin McArthur (2017), for a pilot study of portable technology to support frail older adults to exercise at home, and Wael Brahim (2018), for a study exploring remote monitoring of breathing and mobility patterns in older adults.

The combined research impact of two stand-out recipients (Caitlin McArthur, 2017 and Wael Brahim, 2018) include four collaborators, the support of five students and research staff, two publications, three presentations, an additional $75,000 in external funding, and an additional three years of CIHR postdoctoral support (McArthur). The PDFs we are reporting on have projects that were still active as of January 2020.

Addressing the challenges of caregiving using a 'co-occupation' perspective: An integrated research program examining aging and mobility in the community

SUPERVISOR

Brenda Vrkljan, Professor, Rehabilitation Science, Faculty of Health Sciences

MENTORS

Jennifer Heisz, Associate Professor, Kinesiology, Faculty of Science

Cheryl Quenneville, Associate Professor, Mechanical Engineering, Faculty of Engineering

This project was funded to investigate the challenges experienced by older adult caregivers and their spouses as care-recipients with regard to their everyday mobility. Building on existing collaborations with the internationally-renowned Toronto Rehabilitation Institute (TRI), the implications of advancements in driving and community mobility, such as emerging in-vehicle technologies, was also explored with an aging lens.

RESEARCH IMPACT

This research garnered five publications, six conference presentations, and by leveraging MIRA support, Dr. Kajaks secured an additional year of funding as a 2018 AGE-WELL/ LCMA Postdoctoral Fellow ($50,000).

"The MIRA funding was extremely valuable in allowing me to learn about and contribute to research in a broader aging context than I had before. As a MIRA trainee, I rubbed shoulders with trainees from many other disciplines and learned a great deal from them. The proximity of MIRA to the CLSA allowed me to learn about the tremendous work being done with this dataset, and allowed me to contribute to aging research in unique ways, such as contributing to an ISO standard related to accessibility and transportation."

Tara Kajaks

Improving mobility of Alternate Level of Care (ALC) seniors in the Canadian health care system: Data driven solutions

SUPERVISOR

Manaf Zargoush, Assistant Professor, Health Policy and Management, DeGroote School of Business

MENTORS

Alexandra Papaioannou, Professor, Medicine, Faculty of Health Sciences

Reza Samavi, Adjunct Assistant Professor, Computing and Software, Faculty of Engineering

Alternate level of care (ALC) patients are hospitalized patients who no longer require hospital resources and services, yet have not been discharged because of a lack of beds in rehabilitation or long-term care (LTC) facilities. The average wait time for admission to LTC facilities in Ontario is approximately 94 days. ALC patients prevent access to care for other patients who need intensive care; and since ALC patients do not receive an appropriate level of care, it can negatively affect their health outcomes.

RESEARCH IMPACT

This research resulted in the development of a prediction model as a tool for monitoring health conditions of senior patients to improve their life quality, which is in preparation for submission to a peer-reviewed journal.

"Funding from MIRA is helping us shed new light on alternate level of care problems faced by older adult patients in hospitals."

Ya-Tang Chuang

**2018
MIRA
Postdoctoral
Fellow**

Irene Mussio

Changes in higher order risk attitude during a pandemic: the impact of rapid increases in health background risk on financial decisions

SUPERVISOR

Jeremiah Hurley, Dean,
Faculty of Social Sciences

MENTORS

Andrew Costa, Associate
Professor, Health Research
Methods, Evidence, and Impact,
Faculty of Health Sciences

Jean-Eric Tarride, Professor,
Health Research Methods,
Evidence, and Impact,
Faculty of Health Sciences

Individuals make economic decisions while being exposed to a multitude of risks that they cannot completely control. The current COVID-19 pandemic as well as quarantine measures have prompted changes in behaviour such as impulse purchasing, hoarding non-perishable goods, or defying government rules to social distance or self-isolate. This study proposes to understand changes in behavior involving financial decisions determined by the exogenous introduction of COVID-19 in people's lives. This economic experiment will study the behavior of different age cohorts following introduction of COVID-19, with economic behaviour data collected prior to the start of the pandemic, and aims to determine the differential effect of increased background risk (through COVID-19) and if this effect changes across age groups.

RESEARCH IMPACT

This research has resulted in one
conference presentation.

**2019
MIRA
Postdoctoral Fellow**

Léa Ravensbergen

Understanding older adults' active travel *

SUPERVISOR

Bruce Newbold, Professor,
Earth, Environment & Society,
Faculty of Science

MENTORS

Rebecca Ganann, Assistant
Professor, Nursing, Faculty
of Health Sciences

Christina Sinding, Professor,
Health, Aging & Society,
Faculty of Social Sciences

A key factor relating to older adults' quality of life is their mobility, a basic human need associated with independence, health, and well-being. This project explored older adult's experiences using public transportation (HSR, DARTS, or the taxi-script program) in Hamilton. Preliminary results indicate that there is significant work required for older adults who have little experience using public transportation to learn how to navigate public transit use. Results from this study will contribute to our understanding of how older adults can maintain independent mobility as they age and transition from drivers to non-drivers, contributing to a greater understanding of how to foster age-friendly cities.

RESEARCH IMPACT

This research has yielded nine new collaborators,
supported five students/research staff, and engaged
32 end-users as participants and consultants.

* Progress on this research has been significantly affected by the
COVID-19 research restrictions imposed in March of 2020.

2019 MIRA Postdoctoral Fellow

Tatiane Ribeiro

Accelerating the aging trajectory through prenatal adversity *

SUPERVISORS

Deborah Sloboda, Professor, Biochemistry & Biomedical Sciences, Faculty of Health Sciences

Dawn Bowdish, Professor, Pathology & Molecular Medicine, Faculty of Health Sciences

MENTORS

Jose Moran-mirabal, Associate Professor, Chemistry & Chemical Biology, Faculty of Science

James Dunn, Professor, Health, Aging & Society, Faculty of Social Sciences

Pneumonia in mid- to late-life is associated with an increased risk of developing cardiovascular disease, metabolic disorders, and dementia. More than 30 per cent of older adults who are hospitalized for pneumonia will develop dementia or become cognitively impaired earlier than expected. Examining pneumonia in a murine model, the first phase of this study found that maternal obesity increased the susceptibility to lung infection in neonatal offspring, and that obese dam's offspring also demonstrated increased bacterial colony-forming units in the lungs and spleen during the peak of pneumonia infection. Thirty days after infection, the early life adversity animals also showed increased intestinal permeability. Together these results suggest an increased susceptibility to infection.

RESEARCH IMPACT

Tatiane Ribeiro was awarded a Michael G. DeGroote Postdoctoral Fellowship and will be leveraging MIRA funds to extend her project over the course of two years.

2019 MIRA Postdoctoral Fellow

Sophie Hogeveen

Promoting optimal aging through equitable access to specialized geriatric services in Ontario

SUPERVISOR

Andrew Costa, Associate Professor, Health Research Methods, Evidence, and Impact, Faculty of Health Sciences

MENTORS

Manaf Zargoush, Assistant Professor, Health Policy and Management, DeGroote School of Business

Arthur Sweetman, Professor, Economics, Faculty of Social Sciences

Specialized Geriatric Services (SGS) play a vital role in caring for frail, older adults with multiple, complex needs. However, resources are limited, and services are not equitably distributed geographically. The aim of this research will be to explore factors associated with access to SGS; investigate future supply and demand for these services; develop a SGS tool to equitably allocate SGS resources to frail older adults who would most benefit; increase collaboration and integration between care providers; help policymakers at system-level to better allocate resources; and guide the growth and expansion of SGS services to meet the needs of an aging population.

RESEARCH IMPACT

Sophie Hogeveen received a two-year CIHR Health Systems Fellowship and will leverage MIRA funding to extend this project over three years.

* Progress on this research has been significantly affected by the COVID-19 research restrictions imposed in March of 2020.

2020 MIRA Postdoctoral Fellow
Fatemeh Jazinizadeh

2020 MIRA Postdoctoral Fellow
Xuecong Lu

Enhancing the quality of life for older adults with end-stage knee osteoarthritis through patient phenotyping to tailor the clinical management

Designing a real-time cybercrime alert system for older adults: neurophysiological solution during COVID-19

SUPERVISOR	MENTORS
Janie Wilson, Professor, Surgery, Faculty of Health Sciences	Michael Noseworthy, Professor, Electrical and Computer Engineering, Faculty of Engineering
	Dylan Kobsar, Assistant Professor, Kinesiology, Faculty of Science

SUPERVISOR	MENTORS
Milena Head, Professor, Information Systems, DeGroote School of Business	Brenda Vrkljan, Professor, Rehabilitation Science, Faculty of Health Sciences
	Ridha Khedri, Professor, Computing and Software, Faculty of Engineering

Worldwide, knee OsteoArthritis (KOA) is one of the largest contributors to disability in older adults. End-stage treatment for KOA is total knee arthroplasty surgery; however, up to 30 per cent of patients continue to have significant pain and disability after surgery. Patients presenting with end-stage KOA vary considerably in clinical and structural presentation. Despite this variability, clinical management and perioperative rehabilitation lack the consistency and evidence to incorporate patient-specific factors. This project aims to identify phenotypes of patients with end-stage KOA who would benefit from targeted management of rehabilitation, and clinical and surgical decision-making, in order to improve patient quality of life and reduce the societal, and economic burden.

Older adults are increasingly vulnerable to cybercrime, losing up to $36 billion in recent years in North America. With an increasing number of older adults spending time online, combined with the sense of confinement and anxiety due to COVID-19 restrictions, cybercriminals have taken advantage of the situation. Therefore, it is imperative for governments and online service providers to address this issue of cybercrime targeting older adults. A real-time neurophysiological quantification of the characteristics specific to older adult victims of cybercrime has public policy implications and may assist in identifying persons at high risk of victimization. This can aid in directing interventions to these vulnerable older adults, ideally before they are targeted for cybercrimes. This research seeks to empower older adults to age in place through the design of a real-time cybercrime alert system.

2020 MIRA
Postdoctoral
Fellow

Alireza Shahin-Shamsabadi

An in vitro study on the effect of exercise on brain health in the elderly: studying the crosstalk between the brain, skeletal muscle, and adipose tissues

SUPERVISOR

Ravi Selvaganapathy, Professor, Mechanical Engineering, Faculty of Engineering

MENTORS

Margaret Fahnestock, Professor, Psychiatry & Behavioural Neurosciences, Faculty of Health Sciences

Aimee Nelson, Professor, Kinesiology, Faculty of Science

Exercised skeletal muscle cells are believed to affect brain health and prevent neurodegenerative diseases either directly or indirectly. The objective of the current study is to develop an in vitro model that reliably recreates the effect of exercise on brain health by considering skeletal muscle, adipose and neuronal tissues to identify important signaling factors involved in this process. This model will be used to identify possible drugs that can improve, supplement, or replace the positive effects of exercise on brain health by inducing its effects on skeletal muscle tissue, which will be beneficial for older adults or those that cannot exercise due to physical impairments.

Other Postdoctoral Fellowships

2020
MERIT
Postdoctoral
Fellow

Shera Hosseini

The effectiveness of MIRA's educational program around competency building and interest in older adult care among undergraduate students using a program logic model

SUPERVISOR

Michelle Howard, Associate Professor, Family Medicine, Faculty of Health Sciences

Jonathan Sherbino, Professor, Medicine, Faculty of Health Sciences

FUNDING COLLABORATORS

This postdoctoral fellowship is funded by the Labarge Centre for Mobility in Aging and the McMaster Education Research, Innovation & Theory (MERIT) Program.

Shera Hosseini joined MIRA this year to help evaluate the effectiveness of its educational programs, particularly MacPAGE, in enhancing students' interest in incorporating aging into their future career choices/work areas. She will also identify barriers to students' interest in such educational programming. The long-term goal of this research is to build competency and enhance skills around communication and care for older adults, improve knowledge of aging-related issues, and address gaps in education related to these areas among undergraduate students who take part in the program.

PART 4:
MIRA | Collaborative for Health & Aging

The McMaster Institute for Research on Aging | Collaborative for Health & Aging was established in 2019 by Parminder Raina (MIRA) and Maureen Markle-Reid (ACHRU) with the aim of supporting research on aging and building capacity in patient-oriented research on aging. The Collaborative provides consultation and support to researchers and knowledge users and facilitates important and meaningful connections between diverse stakeholders to enhance research and improve the health and well-being of older adults. Its five focus areas support Canada's Strategy for Patient-Oriented Research (SPOR) core functions (e.g., data platforms, methods, knowledge translation), and forms the basis of its governance structure:

1. Advance the science of **patient engagement** to ensure representation of patient needs, perspectives, and aspirations at all levels of health care decision-making.

2. Support the implementation, evaluation, scale and spread of integrated, **patient-centred innovations**.

3. **Support access to key data holdings**, coordinate the linkage between the Canadian Longitudinal Study on Aging (CLSA) and Institute of Clinical Evaluative Sciences (IC/ES) data and create frameworks to share relevant data in a timely manner to diverse users.

4. **Promote collaborations and partnerships** which facilitates, connects and integrates activities across the province, that engages patients, researchers, health professionals, policy-makers and other health system stakeholders, and builds capacity for Ontario to champion evidence- and value-informed decisions for health care improvements.

5. **Create, enhance, and develop the capacity of stakeholders** (e.g., patients, caregivers, researchers, trainees, health professionals, policy makers) to engage in patient-oriented research.

Research impact

Since 2019, the Collaborative has made key achievements in each of its five focus areas. The Collaborative continues to successfully build capacity in research on aging and patient-oriented research on aging by: (i) developing and disseminating resources (46 social media campaigns, one newly created website, one systematic review, two plain language publications, two online educational materials, two technical reports), (ii) invited presentations at conferences/symposia and offering webinars (20 presentations/webinars), and (iii) hosting its first Annual Knowledge Transfer and Exchange Meeting.

The Collaborative's publications describe best practices for partnering with older adults and will synthesize the evidence on implementation strategies and impacts of patient engagement. The Collaborative is developing a four-part online learning module series on designing, implementing, evaluating and scaling up patient-oriented health interventions with the first module titled, "Scale and Spread of Health Interventions" and supporting video completed. The Collaborative developed and launched a new website which will feature older adult partners of the Collaborative and Knowledge Translation (KT) activities, including a new webinar series that highlights research at McMaster on aging, patient engagement and current issues impacting older adults, such as COVID-19 and long-term care.

Annual Knowledge Transfer and Exchange meeting

Meeting objectives were achieved during the first Annual Knowledge Transfer and Exchange Meeting, which involved the Collaborative's provincial partnership network including the Ontario SPOR Support Units (OSSU), Ministry of Health (MOH), IC/ES, Ontario Health Teams (OHTs), and SPOR Networks. These objectives were to:

1. Share the Collaborative's values, strengths and activities with key stakeholders;

2. Identify capacity to support and build partnerships;

3. Determine alignment with the Canadian Institutes of Health Research (CIHR) — Strategy for Patient-Oriented Research 2.0 funding application;

4. Develop future directions of the Collaborative that align with the priorities of CIHR, OSSU, the OHTs and MOH.
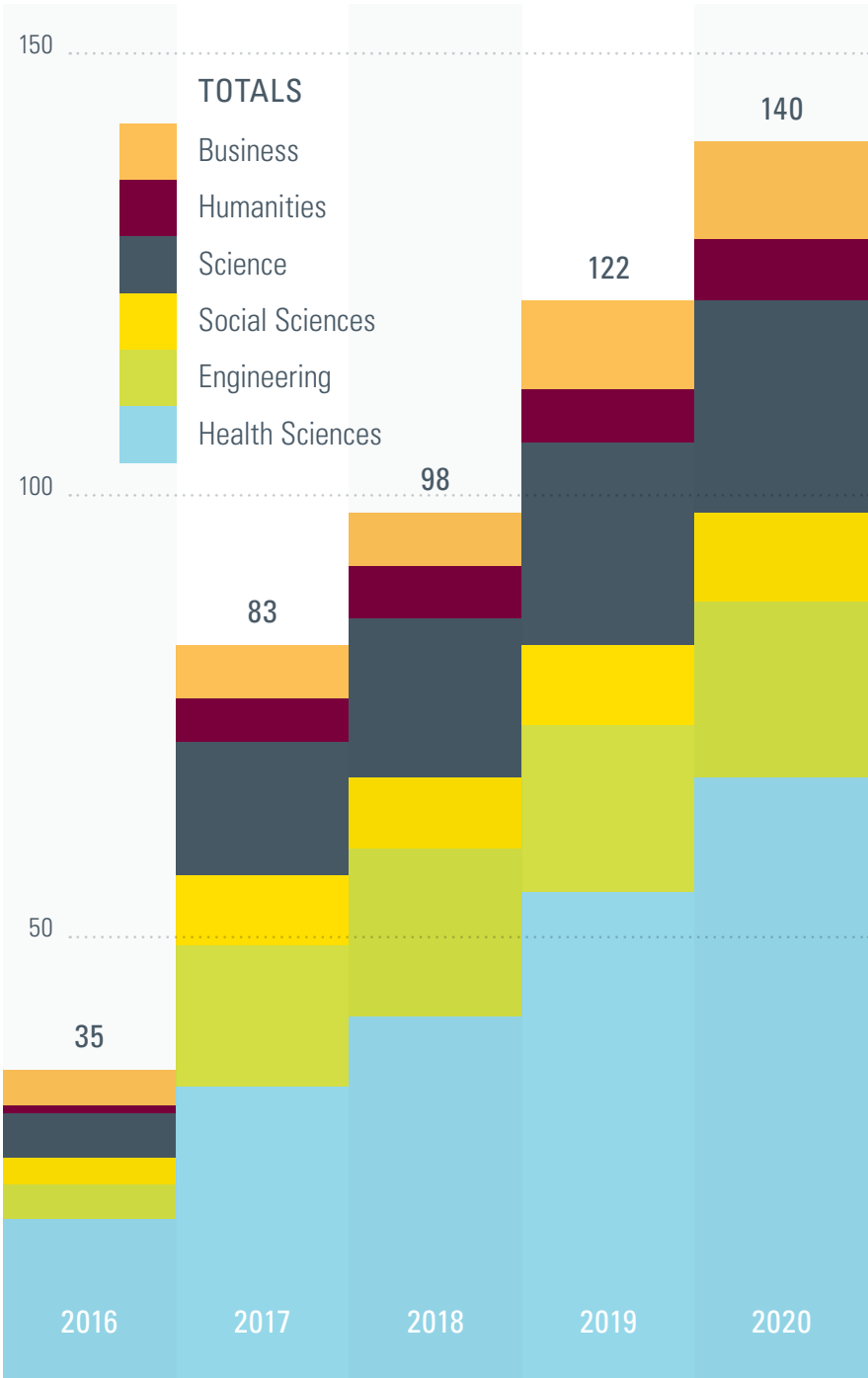
In the area of data platforms, together with Canadian Longitudinal Study on Aging (CLSA) and the Institute of Clinical Evaluative Sciences (IC/ES) stakeholders, the Collaborative developed a detailed plan to link the CLSA to 15 data holdings at IC/ES. The Collaborative supported 33 consultations and outreach to SPOR-funded entities (e.g., Diabetes Action Canada) and diverse stakeholders (e.g., Mosaic Home Care, CorHealth, Juravinski) and strategically engaged more than 50 of its members from the disciplines of Health Services, Rehabilitation, Health Economics, Medicine, Nursing, Policy, Aging, Pharmacy and Primary Care.

PART 5:
Building capacity

MIRA membership

MIRA draws new membership from faculty members with research interests in aging through funding opportunities, outreach activities and community-based projects. New members are also those who are pivoting toward aging research and applying their skills and expertise to challenges and opportunities in the aging landscape. In 2020, MIRA membership grew across all six McMaster Faculties.

TOTALS

- Business
- Humanities
- Science
- Social Sciences
- Engineering
- Health Sciences

150

100

50

35   83   98   122   140

2016   2017   2018   2019   2020

Growth of MIRA membership since inception.
As of November 2020, MIRA has 140 faculty members.

Professional Development for trainees

MIRA and the LCMA are invested in the development of the next generation of researchers in aging. Our investment includes the dissemination of scholarships; the creation and oversight of an active and engaged Trainee Network, which is made up of students and junior faculty members; and the development of a Training and Capacity Working Group, which comes together to explore new ways to build capacity and connections among students and junior faculty members with interests in aging.

Trainee Network

The MIRA Trainee Network includes undergraduate students, graduate students, and postdoctoral fellows across McMaster's six Faculties with interests in research in aging. The Network is self-governed by a seven-member executive committee. It runs its own blog highlighting member research, and meets regularly to discuss challenges and opportunities related to research in aging, gain interdisciplinary perspectives and learn more about potential future careers. Currently, the Network has 81 members.

In the summer of 2020, the Trainee Network welcomed MIRA's third cohort of MIRA Undergraduate Summer Research Fellows (USRFs). Through the course of their summer research, seven undergraduates engaged with senior trainees and presented their experiences at their final meeting. This year, the Network also launched a formal mentorship program that paired interested USRFs with senior trainees to provide one-on-one advice and support over the summer.

In response to physical distancing guidelines around COVID-19, the Trainee Network has moved its meetings and special events online. In October 2020, the Trainee Network hosted its second annual Pitch Your Project event, which was built on the model of the 3 Minute Thesis™ competition, online.

This year, the Trainee Network opened this event to engage more students earlier at a crucial stage where they may be thinking about graduate school and focusing their future plans on aging research. More than 50 attendees heard presentations from 20 trainees.

Training and education

Undergraduate and Graduate Student development

In 2018, MIRA introduced an undergraduate summer student fellowship and a travel award program for graduate students. MIRA continued this support in 2020 even as researchers had to learn new ways of conducting research during the pandemic. Despite these challenges, MIRA provided seven research fellowships worth $1,000 each to undergraduate students working with MIRA members over the summer.

In addition to building capacity among undergraduate students, MIRA also promotes graduate student development through travel awards to support students collecting data or presenting research at conferences. MIRA initially awarded five travel awards to graduate students in the spring, however, due to COVID-19, travel to conferences has been restricted during the 2020 year. To continue to support its graduate students in this new online world, MIRA is allowing applicants to use this funding to support participation in online conferences and professional development opportunities. MIRA received one application for its newly renamed professional development awards for the fall round of funding. Applications are expected to increase as national and international conferences adapt to this new format, and as new professional development opportunities become available.

"As an undergraduate student, entering the research field can be a daunting experience. The MIRA USRF provided me with the opportunity to gain my first experience with research. I conducted a scoping review to analyze whether any literature challenged the implicit prioritization of safety in older adults. Along with this, I was provided with opportunities to network with other MIRA members and to learn more about research on aging."

Sanjum Hunjan
Undergraduate Summer Research Fellow

"A large aspect of scientific discovery and research is collaboration. The MIRA USRF provided my peers and I the excellent opportunity to learn about the many different disciplines that are involved in aging research. Through working on assessing the impacts of lifelong aerobic exercise on aging, I have come to appreciate the value of a multidisciplinary approach."

Matthew Fuda
Undergraduate Summer Research Fellow

"I am grateful for the international experience and certificate I gained from attending the Saltin Integrative Physiology Course and Symposium 2019 in Denmark. This opportunity was made possible, in part by the MIRA Graduate Travel Award. I am still benefiting from this experience in the second year of my PhD because of the research exposure and ongoing personal connections. MIRA is an exceptional example of an innovative organization for allocating funds towards travel and training experiences. These opportunities have a lasting impact on young research students like myself."

Sydney Valentino
PhD Student

Other professional development opportunities for trainees

In preparing trainees for funding success, MIRA has organized live online events, webinars, information sessions and outreach to trainees. MIRA has supported applicants for funding applications from its partner AGE-WELL by hosting an AGE-WELL application information session held specifically for MIRA trainees. One MIRA trainee (Michael Zon, Engineering) was selected for an AGE-WELL trainee award, while Aki-Juhani Kyröläinen (Humanities) received co-funding through MIRA and AGE-WELL for the second year of his postdoctoral fellowship.

In partnership with the National Centers of Excellence, MIRA is in its third year of offering trainees access to a webinar series on topics in professional development, such as science communications, career trajectory, and grant writing. Each network contributor offers one webinar, but gains access to all sessions for their trainees.

MIRA and the Trainee Network are examining options to continue to offer valuable capacity building opportunities during the COVID-19 pandemic.

Educational programming

Increasing awareness of educational opportunities currently available at McMaster University and in the community is part of MIRA's mandate. We recently conducted research on the kinds of opportunities available for learners at different levels, including those available for older adults, graduate and undergraduate students and practicing professionals. MIRA has created a section on its website for this content, which highlights educational opportunities that are available on campus and in the community. MIRA's Training and Capacity Working group continues to discuss new ways to encourage student interest in research on aging and has met this year to ensure students at McMaster are able to access available aging-related learning opportunities while learning from home.

Additionally, MIRA continues to support partners in the University and in the community to expand educational opportunities for several audiences:

Caregiving Essentials

In 2018, MIRA partnered with the McMaster Centre for Continuing Education (CCE) to develop a course for caregivers that was piloted in three Ontario communities. This project was funded through a Seniors Community Grant from the Province of Ontario. In 2019, Regional Geriatric Programs of Ontario (RGPO) entered a partnership that enables CCE to continue free offerings of the program for the next two years as part of their Senior Friendly Caregiver Education Project. CCE co-designed new modules for a second program to align with the RGPO's Senior Friendly Seven toolkit. The two programs include learning opportunities and supports in relation to the identity of a caregiver of an older adult and strategies for caring for an older adult living with frailty. Both programs are free and open to the Ontario public.

This course continues to be a popular and in-demand resource. More than 700 caregivers have participated in the course since it launched, and CCE experienced growing interest in its fall 2020 offering of the course, as many family caregivers have taken on new roles supporting family in their homes during COVID-19 or providing caregiving support at a distance.
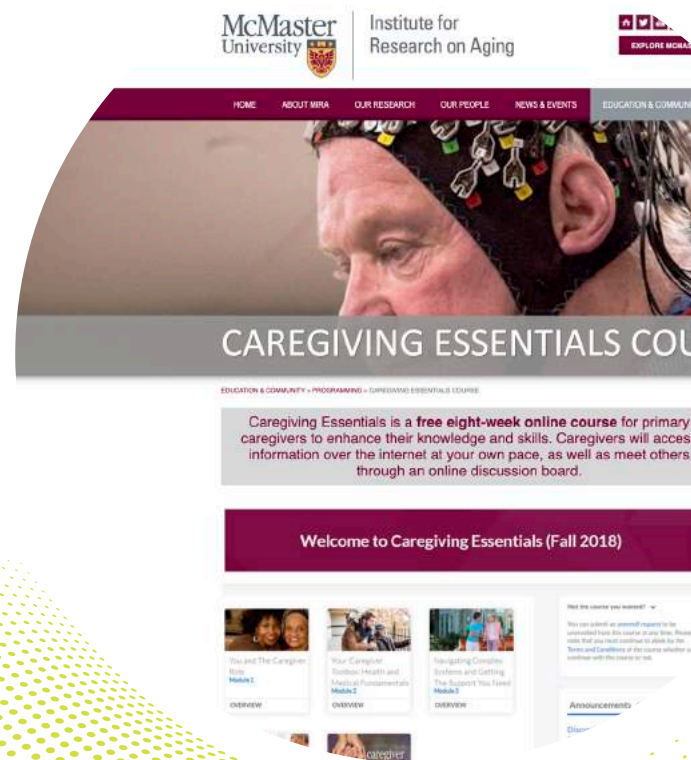
MacPAGE: McMaster Passport for Geriatric Education

MIRA continues to support opportunities for student engagement with older adults and research on aging. Dr. Andrew Costa and his team in the Faculty of Health Sciences at the Michael G. DeGroote School of Medicine Waterloo Regional Campus, together with project partners at Schlegel Villages, the Research Institute for Aging, and MIRA have continued their work on MacPAGE: McMaster Passport for Geriatric Education. The MacPAGE program is designed to encourage learners to engage in experiential education opportunities related to working with older adults, and enhance their skills and geriatrics-related competencies. The MacPAGE program was launched last year and was trialed at the Waterloo Region Campus by undergraduate medical students. Feedback from early participants was overwhelmingly positive, and will be incorporated into future iterations of the program. MIRA submitted its certificate of completion for this program: the "MIRA Certificate of Enhanced Geriatrics Competencies & Education" to McMaster's Undergraduate Council in Fall 2019.

In 2019, MIRA and the MacPAGE team developed MacPAGE 2.0., MIRA's Training and Capacity Working Group and a student working group. MIRA's Trainee Network and undergraduate student fellows provided guidance and feedback throughout the development process to ensure the platform meets the learning needs and interests of students from diverse faculties. MacPAGE 2.0 features updated platform content and functionality, and will be accessible to all students with a MacID. It will be launched to MIRA trainees and researchers in December 2020. The Student Success Centre (SSC) and MIRA ensured the learning outcomes of MacPAGE 2.0 align with tracking tools that will be used in the SSC's forthcoming experiential learning transcript, which will make it easier for students to communicate the value of the skills and knowledge they have acquired through their experiences working with older adults and in research on aging. MIRA staff additionally reviewed all content to ensure it aligns with recommendations from the provincial government for safe learning activities during the COVID-19 pandemic.

Integrated Biomedical Engineering and Health Sciences

MIRA is serving as a community partner for the Integrated Biomedical Engineering and Health Sciences course 4PO4 |Health Solutions and Design Projects IV: Economics and Project Management. In this course, students apply their project management and design skills in partnership with a community partner to develop a solution to a health systems problem. Five teams of students are tackling how to support older adults and combat ageism in the health system, especially in light of challenges created by COVID-19. We look forward to seeing their innovative plans for tackling this ongoing problem and inspiring up and coming engineers to consider the needs of our aging population as they enter the workforce.

PART 6:
Community and stakeholder engagement

Age-Friendly University

Since 2017, McMaster University has belonged to the international Age-Friendly University (AFU) network, a global body made up of higher education institutions that are committed to being more accessible to older adults. Launched in 2012 by Dublin City University (DCU) in Ireland, the AFU network builds on the World Health Organization's Age-Friendly Communities Initiative, which encourages all communities to shape their physical and social environments to support people of all ages.

In 2018, MIRA undertook several studies to understand the alignment of McMaster University's existing facilities and programs with the 10 principles of an AFU. Through this research, MIRA identified three key areas through which McMaster University could improve its alignment with AFU principles and continue developing the campus into a welcoming and inclusive space for people of all ages:

1. **Communications and outreach:** Ensuring members of the public are made aware of relevant events on campus, including research on aging and aging-specific programming; making online information accessible and easy to find and navigate for the public, including older adults.

2. **Accessibility and inclusion:** Ensuring accessibility features on campus are installed and maintained; continue to develop the experience of first-time visitors to campus; communicating the value that older adults can contribute in society and the McMaster community.

3. **Programming and engagement:** Developing educational programming that appeals to older adults and allows this group to learn about McMaster's diverse research strengths; creating new opportunities to bring older adults on campus; encouraging older adults to become or continue to be part of the McMaster community as a means to support the creation of new social networks and combat social isolation.

As a response to these studies, MIRA assembled a steering committee to act on these recommendations. The committee is comprised of 40 members from 30 different units within McMaster University including student, staff, alumni and community service units, as well as representatives from other aging platforms at McMaster, the McMaster University Retirees Association, the Age-Friendly Hamilton Committee, and MIRA's Trainee Network.

Since the emergence of COVID-19 in 2020, the committee has been working to adapt programming for online audiences and new mediums.

Members are transitioning their programs online while offering support to make it easier to access online programming and learning opportunities; developing new programming that is taking advantage of opportunities created by virtual events; participating in research on COVID-19 and aging; and examining ways to continue to engage older adults in our research process. As such, our new priorities are to:

1. **Bridge the digital divide** by supporting online information accessibility for community members of all ages;

2. **Develop an information hub** to ensure members of the public are able to quickly and easily learn about McMaster University and opportunities that are available to them;

3. **Continue to serve as a supportive community of practice**, sharing ideas and programming to stay connected to and engaged with older adults.

Other initiatives

Combatting social isolation during COVID-19

Current guidelines and risks associated with COVID-19 mean we cannot physically welcome older adults on campus at this time. However, McMaster researchers and staff have put great thought and effort into ensuring that the shift to virtual programming is as age-friendly as possible, and that we continue to actively engage with older adults during a time when programming opportunities have been reduced and there is a greater risk of social isolation.

Intergenerational programming

MIRA continues to seek opportunities to engage with older adults in the community through the development of intergenerational programming. Beginning in 2017, a project team led by MIRA and MIRA researcher Brenda Vrkljan (Rehabilitation Science) conducted a study on establishing an intergenerational hub on McMaster's campus, as well as interest in participating in programming together. Based on the findings of this study, which indicated a strong interest in intergenerational activities, MIRA partnered with Residence Life Services to offer intergenerational programming through a Living Learning Community in residence as a pilot program. Living Learning Communities bring together students who have self-identified an interest in living and learning in an integrated academic residential environment focused on a particular area of interest and participating in activities related to that shared interest. In 2019-2020, 28 students and 20 older adults enrolled in this social program and met monthly to provide students and older adults with an opportunity to spend time and engage in activities together.

Funding from the New Horizons for Seniors Program has allowed MIRA and McMaster Residence Life to expand this pilot program offering in 2020-21, engaging more diverse seniors, a larger population of students living in residence, and students from the broader campus community. Due to the COVID-19 pandemic, plans for this program have been adapted to a virtual setting. 'Meet My Hamilton', a virtual intergenerational program, brings together 10 older adults and 20 undergraduate students, with the goal of helping first year students feel like part of the McMaster Community and of keeping older adults connected to their community. These sessions are facilitated by eight conversation partners from the Health, Aging and Society practicum program, who run sessions and design programming and activities. MIRA received additional funding from New Horizons for Seniors to adapt this programming to an online setting and is working on developing a toolkit for running online programming with older adults.

E-learning for older adults

In 2020, MIRA facilitated a partnership between MIRA researchers, the Department of E-Learning and Innovation (DELI) in the Faculty of Health Sciences, and the McMaster Optimal Aging Portal. This partnership aims to leverage the information available on the Portal and share it in new and engaging formats. Through this partnership, DELI has created two e-learning modules that are now housed on the Portal on exercise and osteoarthritis, and brain health. A third module on walking and mobility will be released in November 2020. More than 35,000 users have accessed the osteoarthritis and exercise module since March, and more than 40,000 users have accessed the e-learning module on brain health since its release in July. We are pleased that these resources have provided the community with a new way to engage with research that can support their mobility as they age.

PART 7:
# Funding and research impacts

Research impact

MIRA is a member of Research Canada, a pan-Canadian network of universities whose mission supports institutional capacity to help Canada's researchers maximize the impact of academic research for public good in local and global communities. Over the past year, MIRA has developed new and expanded metrics in our reporting requested from funded researchers to align our reporting with Research Impact Canada's mission.

MIRA has developed an online reporting mechanism to obtain detailed information about research impact from funded projects beyond the usual measures, such as number of publications and presentations. Now, researchers are expected to provide information around knowledge translation products developed, reports, Highly Qualified Personnel (HQP) attracted and developed, new collaborations established within and outside of researchers' expertise, funding leveraged, policies or programs, and media exposure, among others.

MIRA's overall impact
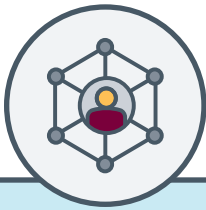
MIRA membership

140 faculty members

209 trainee members

Collaborations and stakeholder engagement

20 strategic partnerships

Collaborations

121 new collaborations with researchers within discipline

208 new collaborations with researchers outside disciplines

151 private industry and non-profits collaborations

2,372 end users as participants in projects

Research impact

109 research projects supported

116 publications

191 presentations at relevant conferences and special events

77 knowledge translation products such as guidelines, policy products, brochures, panels and knowledge exchange events

HQP supported through scholarships: **23** post-graduate (Master's, PhD and PDF) and **25** undergraduate students

164 HQP developed & supported beyond scholarships

38 undergraduate students

31 Master's students

19 PhD students

22 PDF's

54 research staff

Funds leveraged $24.2M to complement the $15M Labarge Centre for Mobility in Aging gift, the $10M Labarge Optimal Aging Initiative gift and the $3.3M investment to date from McMaster University as follows:

LCMA funds leveraged for a total of **$15.6M** to date

MIRA funds leveraged for a total of **$2.9M** to date

LOAI funds leveraged for a total of **$5.7M** to date

Educational and community products

Launched MacPAGE for McMaster students interested in gaining experience working with older adults

Developed an online version of its intergenerational program to adapt to the pandemic

Developed two Optimal Aging Portal e-learning modules focused on osteoarthritis and brain health, accessed by more than 75,000 users

Communications (2020)

Traditional and new media

121 pieces of media coverage specifically mentioning MIRA or MIRA leadership: readership equaled **97.9M**, with an estimated **301K** coverage views **18K** in social media shares

2.39K links back to McMaster University from this coverage

Social media

Established Twitter following: growth from **1,675** to **1,964** followers

Twitter impressions in 2020: **413,800**

Top tweet earned **14.1k** impressions

Facebook and LinkedIn pages launched in 2019

MIRA website

14,288 visitors and **44,774** page views

Newsletter

Monthly dissemination of an exclusive research-specific newsletter to more than **300** researchers and trainees who are interested in research in aging

Events and speaking engagements

Hosted or participated in **16** public and scientific events

Communications team

Two communications interns

"I feel very thankful to be part of an organization taking such positive initiative to optimize healthy aging. MIRA has provided me with opportunities to enhance my communication skills and abilities while working closely with and learning from such a tenacious and brilliant team."

Summer Shepherd

Top tweet

Partnerships

MIRA has a wide network of collaborators and partners who support MIRA's research, educational endeavors and community-based initiatives. Over the past year, MIRA's partnership development focused on collaborating with existing partners to adapt to the new realities of remote working and conducting research during a global pandemic.

2020 partnership highlights include:

- MIRA developed a major partnership with Toronto's Dixon Hall, a multi-service agency that focuses on issues around poverty, social injustices and isolation, with the aim to establish a new centre within MIRA.

- MIRA supported the CLSA for the launch of its COVID-19 study, which will contribute to the establishment of one of the most comprehensive longitudinal data resources on health and well-being of older adults during COVID-19

MIRA has ongoing partnerships with several external partners, partnering on research proposals, events or outreach activities and cross-promotion of initiatives as appropriate.

External partners

MIRA has developed a partnership with Toronto's **Dixon Hall**, a multi-service agency that focuses on issues of poverty, social injustices and isolation. The agency is collaborating with the Labarge-funded intergenerational and life course program of research (InHamilton) (Dr. Andrea Gonzales; 2018 Catalyst grant). In response to COVID-19, this program has pivoted to collect measures examining the impact of COVID-19 on the physical and mental health of individuals. Discussions to form MIRA's newest centre in Toronto in partnership with Dixon Hall are currently underway. Dixon Hall is well-established and celebrated for its commitment to comprehensive client care to support Toronto's most vulnerable, including low-income, homeless and precariously housed older adults. The proposed centre, MIRA | Dixon Hall campus, would be nested within MIRA to extend and expand on MIRA's reach, and that of the McMaster Optimal Aging Portal, while targeting populations of citizens for whom mobility work can have positive consequences. The aim of this proposed collaborative work is to improve quality of life and enable older adults to live with dignity through purposeful initiatives planned over the short- and long term.

MIRA partnered with the **Canadian Longitudinal Study on Aging (CLSA)** to support its study investigating how the pandemic affects both the physical and psychological health of adults as they age. By using the rich data from the CLSA to study COVID-19, we will develop a greater understanding of which factors appear to protect against or increase the risk of developing symptoms. As a result of this work and MIRA's investment, this partnership has resulted in the CLSA's ability to raise an additional $1.2M from PHAC as well an additional $4M from Canada's Immunity Task Force. This latter funding will support the collection of blood samples to measure how widespread SARS-CoV-2 infection is among men and women over age 50, and surveys that will be conducted with more than 20,000 CLSA participants will reveal more about the lives of those individuals since the onset of the pandemic. Together, this information will give us a more complete understanding of the transmission dynamics and the risk factors associated with SARS-CoV-2 infection in aging adults. This collaboration and investment by MIRA contributes to making McMaster, as the custodian of the CLSA, one of the most comprehensive data resources of longitudinal data on older adults during COVID-19.

MIRA is collaborating with the **United Way**, **Ontario 211** and the **Alliance for Healthier Communities** through an Ontario Trillium Foundation grant to convene community stakeholders, conduct an environmental scan and needs assessment, and to develop a pilot study on social prescribing. Social prescribing builds a bridge between social and medical care in pursuit of improving mental, physical and social well-being through a supportive and person centred approach. The leadership team has held meetings in Hamilton and Halton. The team is currently applying for additional funding to roll out its pilot study in 2021.

> "By building on the CLSA's extensive data collection and infrastructure, the study's two-pronged approach will allow us to estimate the levels of immunity among older Canadians and give us a deeper understanding of some of the factors that affect their experience of the disease."

Parminder Raina
Scientific Director, McMaster Institute for Research on Aging

Cloud DX is a full featured virtual care platform that incorporates technology to monitor patients and participant's health remotely, including the capability to remotely collect physical data such as vital signs. The partnership with Cloud DX will support MIRA researchers and trainees through the process of adapting their research to remote data collection during the COVID-19 pandemic. In October 2020, Cloud DX presented at the MIRA Idea Exchange along with several MIRA members.

In 2020, MIRA signed a Memorandum of Understanding (MoU) with **Lancaster University** to develop an international partnership for Highly Qualified Personnel (HQP) through exchange opportunities for visiting scholars, postdoctoral fellows and post graduate students. The partnership will also allow access to infrastructure and research funding from counterpart regions. In July 2020, MIRA held a webinar hosted by international scholar, Dr. Carol Holland, from Lancaster University to discuss "Taking a holistic approach to frailty and resilience in older age: the roles of cognition, mobility, environment and loneliness." The event was attended by 42 MIRA researchers and trainees.

The MIRA | Collaborative for Health and Aging received bridge funding of $300,000 for 2020-2021 by the **Ontario Strategy for Patient Oriented Research Support Units (OSSU)** and was approved for renewal funding, for a total value of $1.5 million for 2021 to 2026. The MIRA | Collaborative for Health & Aging, established in 2019 through the CIHR SPOR Network, has successfully implemented its core objectives and numerous collaborations arose, as listed in Part 4 of this report.

MIRA continues to support its partner the **Institute of Technology (IT) Carlow's** application towards developing a PhD program. IT Carlow has actively supported MIRA in the development of the MIRA Idea Exchange by applying co-design and design-thinking principles to each session. The MIRA Idea Exchange was implemented in the summer of 2020 to help researchers adapt their work due to COVID-19.

MIRA's partnership with the **Canadian Longitudinal Study on Aging (CLSA), Metabolon** and the **Canadian Frailty Network** has continued over 2020. The development of a $4 million research program studying the biological mechanisms underpinning frailty, metabolomics and aging is underway.

To stimulate investment in aging research in Canada, MIRA joined the international alliance between the **Northern Health Science Alliance** and the **Centre for Aging and Brain Health Innovation**, along with its Canadian partners: Michael Smith Foundation for Health Research; AGE-WELL Network of Centres of Excellence; University of Waterloo; and Simon Fraser University STAR Institute. An MoU between these partners enables these organizations to work together to drive knowledge exchange and innovation in healthy aging. The group meets online regularly to disseminate information and collaborate on international funding opportunities.

MIRA and the McMaster Centre for Continuing Education continues to work with the Alzheimer Society and Diabetes Action Canada. The **Alzheimer's Society of Brant, Haldimand Norfolk, Hamilton Halton** and the **Regional Geriatrics Program of Ontario** promote and disseminate the Caregiver Essentials course to caregivers currently engaged with the Alzheimer's Society, and have provided funds to enable continuation of the Caregiver Essentials course for another year (fall 2021).

MIRA continues to engage with several retirement-living, long-term care and aging in place service organizations to explore synergies with MIRA's vision. These organizations have expressed interest in participating in research projects around technology, mobility and well-being, as well as promoting and sharing valuable resources, such as the Caregiving Essentials course and the Optimal Aging Portal, to residents. Collaborations with companies such as **Revera**, **Promerita**, **MedicAlert**, **Live Easy**, and **Mosaic Home Care**, are currently being explored. Other explorative conversations have occurred with the **Canadian Nurses Association**, the **National Research Council** and **Waseda University** in Japan to discuss synergies in research projects, funding strategies and community driven work.

MIRA continues its partnership with **AGE-WELL** and the **Canadian Frailty Network** to support trainees whose interests align with both organizations.

Internal partnerships

MIRA continues to foster and expand partnerships within McMaster University. These include:

The Socrates Project was a dynamic hub for interdisciplinary collaborations, creative exploration and public engagement with the pressing issues of our times. MIRA collaborated with the Socrates Project in June 2020 to host a webinar featuring MIRA researcher Maura Marcucci (Health Research Methods, Evidence and Impact) and Parminder Raina on COVID-19 and its impact on older non-COVID-19 patients.

The McMaster Optimal Aging Portal remains one of MIRA's key strategic partnerships. The Portal sits within MIRA, and communications teams from both platforms work closely together to ensure that efforts are aligned and build upon each other. MIRA leadership and University

Advancement work closely with the Portal team to identify and secure sponsors to support the growth and sustainability of this important platform. This partnership will remain top of mind in the months and years to come, as the Portal serves as both a research and knowledge translation tool to support multiple stakeholders at the University and beyond.

MIRA has established an Age Friendly University Committee that has a broad membership, including **McMaster University's service units for students, staff and alumni, major academic units and aging platforms** and the **McMaster University Retiree Association**. This committee works collaboratively with MIRA to implement initiatives that will assist McMaster in becoming a fully established Age Friendly University. The committee has met twice and is currently working on strategies for the continuation of support during COVID-19.

The VP Administration continues to work with MIRA on the intergenerational hub space intended to facilitate interactions between older adults and McMaster students. In 2020, MIRA worked with **Facility Services** on this initiative and the design of the intergenerational space, which is now finalized and submitted.

MIRA secured funding for the lease for this space from the University. This space will eventually host the intergenerational programming MIRA has designed in partnership with **McMaster Residence Life**. Programming is now running as an online version called 'Meet my Hamilton' and is expected to move into the new Peter George Centre for Living and Learning once COVID-19 restrictions have been lifted.

MIRA has broadened its collaborative efforts to train the next generation of interdisciplinary researchers and trainees in the field of mobility and aging. Through the establishment of collaborations with several groups and institutes at McMaster, MIRA has strengthened its support for HQP development through co-funding opportunities for research trainees while leveraging LCMA and MIRA funds. This has resulted in greater reach in nurturing and deepening interdisciplinary connections across the University. In the past year, MIRA co-funded a catalyst grant with the **Institute for Pain Research and Care (IPRC)** and co-funded a PDF with the **Centre for Health Economics and Policy Analysis (CHEPA)**. MIRA also hired a postdoctoral fellow in collaboration with the **McMaster Education Research, Innovation and Theory Program (MERIT)** to evaluate MIRA's certificate program in geriatric competencies and research on aging.

Other outcomes related to partnerships

MIRA actively explores the creation of additional centers and programs within MIRA in addition to the Labarge Centre for Mobility in Aging, the McMaster Optimal Aging Portal and the Collaborative for Health & Aging. By including new centers within the umbrella of MIRA, MIRA will be able to coordinate major research initiatives, share resources, access knowledge and skills and leverage funds. This further strengthens McMaster's position as a leader in interdisciplinary aging research that addresses and responds to the most pressing issues facing older adults, caregivers, and health professionals.

In 2020, MIRA researcher Dr. Marla Beauchamp established the **Mobility Measurement Co-op** at the McMaster Innovation Park in Hamilton to assess the mobility of older adults. Leveraging Labarge funds, the MacM3 multidisciplinary research team was successful in their application to access the McMaster University Provost Office's Strategic Alignment Fund. In part, this fund supported the establishment of the initial infrastructure for a mobility assessment lab. The lab is situated at a community-based setting that offers easy access for older adults. It will expand the scope and breadth of MacM3 through opportunities for detailed assessment of gait biomechanics, balance and fall risk in a subset of participants. Such in-depth data collection is not typically available in larger cohort studies and will provide key opportunities to study mobility at a more granular level than has been previously possible.

For example, sub-studies designed to determine optimal biomechanical parameters for predicting mobility decline will provide data critical for finding new ways to identify older adults at the highest risk for adverse outcomes and for informing targeted treatment strategies to improve late-life mobility. The Mobility Measurement Co-op will be the first of its kind at McMaster and will allow for collaboration with other leading centres with similar and complementary technology. The Co-op is envisioned to not only serve MacM3 but others at McMaster and in the community with interests in state-of-the-art mobility measurement.

Discussions with St. Joseph's Villa to develop **a centre on palliative care and end-of-life** as well as for the creation of a **Centre for Communication and Aging** in the School of Rehabilitation Science has been delayed due to COVID-19.

Through its funded catalyst grant, **"An Intergenerational and Life Course Program of Research (InHamilton)"**, MIRA has engaged with the **City of Hamilton** and **McMaster University** to design and create a local cohort of City and University employees. The goal of the project is to leverage the engagement of Hamilton-dwelling adults to better understand the health impacts of their work environment as they age. This project pivoted deftly in March toward measuring impacts of COVID-19. It is also being launched in Toronto to measure the impact of COVID-19 in at-risk older adults, in collaboration with Dixon Hall.

Government Relations

Government relations activities continue to be a high priority within the Institute. MIRA recognizes the importance of local government champions, as well as leaders who have a broader, national mandate.

MIRA has engaged in a number of initiatives focused on building awareness among government partners about MIRA and McMaster's strengths in aging research and knowledge translation. On a national level, MIRA's scientific director, Parminder Raina, continues to hold his appointment as Canada Research Chair in Geroscience (Tier 1) and as a member of the National Seniors Council where he advises on key priorities related to the older population.

At the beginning of the year, McMaster's Government Relations office facilitated a meeting between MIRA and several Ontario government officials to engage in information sharing, communications and public affairs work. The Honourable Raymond Cho, the Ontario Minister for Seniors and Accessibility, attended this meeting and MIRA presented a proposal called "Staying Healthy and Safe at Home". This program aims to develop and provide standardized training and access to resources for staff and volunteers who work with service providers. It also includes programs on how to access and share the most appropriate up-to-date and evidence-based resources using the McMaster Optimal Aging Portal. Due to COVID-19, work with the provincial government has been delayed.

Leveraging MIRA and LCMA funds

In partnership with MIRA's stakeholders, the Institute continues to leverage both MIRA and LCMA funds to support many of our initiatives. In 2020, thanks to several new partnerships listed in this report and support from MIRA's stakeholders, the Institute leveraged 2020 LCMA and MIRA funds for a total of $5.7M.

Examples of leveraged funds include:

- Required matching funds for MIRA & LCMA trainee funding opportunities ($166,000)

- Co-funding five PDFs with the Canadian Frailty Network (2), AGE-WELL, CHEPA and MERIT ($69,750)

- Co-funding of the IPRC Catalyst grant ($40,000);

- Through a research investment in a new study with the CLSA, MIRA supported the CLSA COVID-19 study, subsequently the CLSA was able to obtain additional funding to expand its COVID-19 research to study seroprevalence ($4.2M);

- Funds were contributed to form the MIRA | Collaborative for Health & Aging in 2019. In 2020, in collaboration with ACHRU, the Collaborative was successful in obtaining additional funding ($300,000) for a bridge year.

PART 8:
Communications, outreach and events

Strategic communications are an essential component to MIRA's mandate, and to raising the profile of McMaster's strength in aging research. In 2020, this included:

- **MIRA's website**, which attracted 44,774 page views in 2020, compared with 41,909 views in 2019 and 27,000 in 2018;

- **Storytelling and public relations.** Communications staff at MIRA have written or facilitated 121 pieces of media coverage specifically mentioning MIRA or MIRA leadership. Of the 121 pieces of coverage, readership equaled 97.9M, with an estimated 301K coverage views and 18K in social media shares;

- **An internal newsletter** sent monthly to MIRA members highlighting relevant events and funding opportunities, both internal and external;

- **Social media** continues to be a strong tool for elevating the profile of MIRA among its audience of researchers, clinicians, caregivers, policymakers and members of the community. MIRA has experienced continuous growth in its Twitter following, from 1,675 to 1,962 followers in one year. In 2019, MIRA launched Facebook and LinkedIn pages;

- Capacity building through **internal relations**. The communications team at MIRA connects regularly with communications representatives from other platforms in aging research at McMaster University to effectively collaborate and cross-promote where applicable. These include Communications and Public Affairs at McMaster University, all Faculty communicators, the Geriatric Educations and Research in Aging Sciences (GERAS) Centre, Gilbrea Centre for Studies in Aging, the McMaster Optimal Aging Portal, the McMaster Health Forum, the Aging, Community and Health Research Unit (ACHRU), and the Canadian Longitudinal Study on Aging (CLSA);

- MIRA works with McMaster's Department of Communication Studies and Multimedia **internship and work-study programs**. Students complete tasks in-house that build skills in the areas of communication, creation of promotional materials, social media strategy and implementation, blog design, event support and some writing. MIRA has had two work-study students in 2020.

Events

The emergence of COVID-19 in Canada meant plans for face-to-face events had to change quickly. The MIRA communications team familiarized themselves with new platforms in order to move planned events to an online format. As such, MIRA has been able to continue hosting and co-hosting several scientific and public events throughout the year. Events in 2020 included:

MIRA | Collaborative for Health & Aging Knowledge Transfer and Exchange Meeting

January 23, 2020

The First Annual Knowledge Transfer and Exchange Meeting involved the Collaborative's provincial partnership network, including the Ontario SPOR Support Units (OSSU), Ministry of Health (MOH), IC/ES Ontario Health Teams (OHTs), and SPOR Networks.

MIRA Webinar: Exercise and the future of cognitive aging research

February 28, 2020

For its webinar series, MIRA pairs two scientists from different disciplines to cover one topic related to aging research. Research consistently shows that age-related cognitive decline and dementia can be improved with exercise, but little is known about the mechanisms—or how best to capitalize on them. During this

seminar, Margaret Fahnestock (Biology) and Ravi Selvaganapathy (Mechanical and Biomedical Engineering) discussed how neuroscience, kinesiology and bioengineering can come together to reveal the pathways that allow muscle, bone and liver cells to influence the brain.

Learn how to age well by using the McMaster Optimal Aging Portal

March 10, 2020

The McMaster Optimal Aging Portal presented at the Burlington Public Library to share information with its target audience about exercise, nutrition, social issues, common health conditions and more.

Meeting with Deputy Minister for Seniors and Accessibility

March 16, 2020 (cancelled due to Ontario COVID-19 lockdown)

A meeting with Denise Cole, the Deputy Minister for Seniors and Accessibility, was scheduled to introduce MIRA and highlight funded research and to provide a tour of our facilities. This meeting was cancelled due to the COVID-19 lockdown in Ontario.

## AGE-WELL Information Session

May 1, 2020

AGE-WELL Education Program Manager Samantha Sandassie gave an online presentation outlining funding opportunities for graduate students and postdoctoral fellows. She also discussed specific COVID-19-related funding opportunities as well as answered questions related to AGE-WELL's various project and entrepreneurship funding streams. Following Sandassie's presentation MIRA highlighted its own active funding calls.

Navigating every day life in times of major personal disruption

May 26, 2020

MIRA member Brenda Vrkljan (Rehabilitation Science) Spoke to the Dundas Rotary Club online about the notion of occupation, and how older adults can stay healthy in times of uncertainty, such as during the COVID-19 pandemic. She shared the work she is doing with MIRA in Hamilton ensuring older adults have the interventions they need to maintain mental and physical health during periods of isolation.
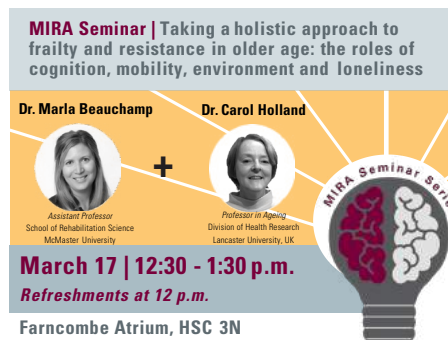
The Socrates Project: The impact of the pandemic on older non-COVID-19 patients

June 3, 2020

MIRA member Maura Marcucci (Health Research Methods, Evidence and Impact; Medicine) spoke online about how older non-COVID-19 patients are also impacted by the pandemic. The talk was moderated by Parminder Raina.

McMaster Alumni Day: The Wisdom of Aging with Dr. Parminder Raina

June 5-6, 2020

Parminder Raina spoke virtually for McMaster's annual Alumni Day about the wisdom of aging.

The Summer Program in Aging (SPA 2020)

June 7-12, 2020 (postponed)

In collaboration with the CIHR Institute on Aging, MIRA was to host the Summer Program in Aging (SPA 2020) from June 7-12 at the Hockley Valley Resort, approximately one hour north of Toronto. The program attracts graduate students and postdoctoral fellows internationally and from across the country, and was to be focused on longitudinal studies in aging. Due to COVID-19, the program has been postponed to the summer of 2021, and will be held virtually.

Social prescribing and how health professionals refer patients to support

June 23, 2020

MIRA Managing Director, Ine Wauben, and MIRA member, Rebecca Ganann, spoke online alongside representatives from the United Way of Halton & Hamilton about social prescribing and how health professionals refer patients to support in the community to improve their health and well-being.

Navigating life in times of personal disruption: An occupational therapy perspective

June 25, 2020

During this presentation, Brenda Vrkljan (Rehabilitation Science) spoke to members of the public at the Hamilton Public Library about how we can stay healthy in times of uncertainty, such as during the current COVID-19 pandemic, and she shared details around her research, which focuses on COVID-19 with community-dwelling older Hamiltonians.

MIRA Idea Exchange: Designing the "New Normal"

July 15, 2020

MIRA held its first idea exchange, which is part of a co-design series. MIRA invited its researchers to join us virtually for a brainstorming session to explore how researchers in aging are coping with research directives that were announced in response to COVID-19, and how MIRA can support researchers during these challenging times.

MIRA Webinar: Taking a holistic approach to frailty and resilience in older age

July 27, 2020

During this webinar, Dr. Carol Holland, psychologist and researcher from the Centre for Ageing Research at Lancaster University in Lancashire, England, discussed how frailty interventions can be successful and lead to a reduction in vulnerability to adverse outcomes. This talk was moderated by MIRA member Marla Beauchamp.

MIRA Webinar: Active older bodies – benefits and stumbling blocks

September 28, 2020

For its webinar series, MIRA pairs two scientists from different disciplines to cover one topic related to aging research. In this webinar, Stuart Phillips (Kinesiology) and Meridith Griffin and her PhD student Kelsey Harvey (Health, Aging and Society) spoke about the benefits and stumbling blocks of being active in older age.

MIRA Idea Exchange: Exploring capacity for remote research

October 14, 2020

In this idea exchange, attendees explored options and opportunities around remote research. Speakers included Robert Kaul, President and CEO of Cloud DX Inc., Dawn Bowdish (Pathology and Molecular Medicine) and Michael Wilson (Health Research Methods, Evidence, and Impact).

Pitch your project: A MIRA Trainee Network event

October 30, 2020

The MIRA Trainee Network hosted a morning of 3-Minute Thesis-style presentations in aging research.

MIRA Webinar: Polypharmacy and deprescribing

November 11, 2020

In our third webinar pairing two scientists from different disciplines, James Gillett (Health, Aging and Society) and Dee Mangin (Family Medicine) discussed the paradox of prescription medication for older adults.

MIRA and Labarge Research Day

December 7, 2020

The McMaster Institute for Research on Aging and the Labarge Centre for Mobility in Aging present its annual

MIRA and Labarge Research Showcase

DEC 7, 2020 | 9:30 a.m. - 2:15 p.m.

Click here to register!

Join us on December 7th as we showcase research in aging from across McMaster University and recognize the generous donations of McMaster's former Chancellor, Suzanne Labarge.

Our research day will highlight interdisciplinary projects in aging, real-world examples of how researchers have pivoted to adapt to COVID-19, and strategies for leveraging funding to further launch programs of research in mobility and aging. This year's program will be held virtually.

AGENDA

9:30 a.m. – 11 a.m.	Interactive poster session
11 a.m. – 12 p.m.	Welcome Presentations: Pivoting during a global pandemic
1 p.m. – 2 p.m.	MIRA year in review Presentations: Leveraging MIRA funding
2 p.m. – 2:15 p.m.	Awards and closing remarks

REGISTER BY DEC 1: bit.ly/MIRA-Labarge-Research-Day-2020

For more information, visit mira.mcmaster.ca or contact MIRA's research coordinator Gésine Alders at aldersgl@mcmaster.ca

McMaster University | Institute for Research on Aging

LABARGE CENTRE FOR MOBILITY IN AGING

MIRA's largest internal event will be moving online this year. This annual event is an opportunity to showcase and celebrate aging research from across McMaster University. It will include poster presentations, speakers and networking opportunities. Following the public session, the members of the Labarge Gift Board will have their annual meeting.

PART 9:
Review of achievements and goals for 2021

This year has been both challenging and insightful as MIRA has adapted to new ways of operating and conducting research during a global pandemic. As highlighted in this report, MIRA's team acclimatized to working from home and quickly set out to find strategies that would support MIRA's researchers and stakeholders during this time. These have included providing funded researchers and trainees an initial six-month extension, followed by an additional six-month extension, to their projects. MIRA also conducted a survey to determine how COVID-19 has impacted research projects, and what the most pressing needs are around research in aging. As well, MIRA connected with its partners to ensure our COVID-19 policies were in coordination with theirs.

MIRA has adjusted its funding offerings to align with the current landscape. Instead of offering Catalyst Grants, for example, MIRA created three new LCMA COVID-19 grants, which focus on mobility in aging within the context of the COVID-19 pandemic. As elective travel was no longer possible for trainees, MIRA modified its Graduate Travel Award to become a Graduate Student Professional Development Award.

All other funding awards were launched and completed this year. MIRA was pleased to add two inaugural scholarships for Master's and PhD students in aging in any discipline.

In July, MIRA launched an Idea Exchange series intended to apply co-design principles to determine what challenges researchers in aging are facing in the context of COVID-19 research restrictions, particularly around remote research, and what actions need to be taken to assist them. To date, two sessions have been held. In response to feedback from members, MIRA is developing a resource summary and space for researchers to share ideas about managing programs of research while having to work remotely or within significant restrictions.

Despite the challenges presented by the emergence of COVID-19 and ensuing interruptions to workflow, MIRA achieved many of its objectives set out for 2020. Others were delayed to create room for new initiatives. Specifically, MIRA delayed the development of the next two major programs of research. Instead, focus was diverted to leveraging existing projects and initiatives. MIRA supported a change of direction of the intergenerational cohort project (Andrea Gonzalez), for example, to a COVID-19 study, in collaboration with McMaster University's Human Resources Department, that will evaluate how older adults and families are navigating through the pandemic in Hamilton and in Toronto.

MIRA has created a resource guide, highlighting how to engage and support older adults during the pandemic, and has worked with the MIRA | Collaborative for Health & Aging to provide this to stakeholders who conduct patient-oriented research. To complement information being disseminated by public health authorities, the McMaster Optimal Aging Portal is profiling its most relevant articles and blog posts while also developing new content that provides evidence-based actionable tips for older adults to help them adjust to COVID-19 countermeasures, such as quarantine and physical distancing protocol.

MIRA is pleased to have expanded its development of metrics to evaluate the impact of MIRA's activities as listed throughout this report, and has implemented recommendations derived from member surveys.

Our goals for 2021 are in development as we continue to adapt to our ever-changing environment. MIRA's five-year review will take place in early 2021.

Strategic growth

- Continue turning the challenges of COVID-19 into opportunities by supporting research in aging and mobility;

- Determine the focus of the next two major programs of research.

MIRA stakeholder engagement

- Consider new approaches to MIRA's community engagement strategies;

- Support a partnership model to expand MIRA's strategic directions to obtain national and international influence and collaborations;

- Raise additional funding to support ongoing and new initiatives in research, education and community engagement within MIRA and the LCMA;

- Continue to deliver McMaster's position as an Age-Friendly University.

Communications

- Continue to expand on and update MIRA's Researcher Map;

- Expand MIRA's web-based platform to share information about educational opportunities for students/ trainees and community members, and to place more emphasis on MIRA's major research projects;

- Develop a citizen platform that will bring all stakeholders together, enhancing internal and external collaboration.

About us

MIRA staff work from the McMaster Innovation Park, which is funded by the Vice-President, Research. During the global pandemic, MIRA staff have been working and communicating safely with each other from home.

Senior leadership

Parminder Raina, Scientific Director

Ine Wauben, Managing Director

MIRA team

Kara Aaserud, Communications Manager

Gésine Alders, Research Coordinator

Allison Dubé, Project Manager

Alison Outtrim, Program Coordinator

Audrey Patocs (on leave), Research Manager

Summer Shepherd, Communications Assistant