



MIRA

Five Year Report
2020

**BRIGHTER
WORLD**



Institute for
Research on Aging



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Five years in review

In 2016, Statistics Canada announced that, for the first time ever, people over the age of 65 outnumbered children under the age of 15. This shift in demographics is an incredible triumph of public health and modern medicine—and it profoundly impacts individuals, families, communities, health care and social systems.

That same year, the McMaster Institute for Research on Aging (MIRA) was established as a means to conduct *research that would advance our understanding of aging, and, more specifically, to focus on the maintenance of functional autonomy as we age, a critical element to aging in place*. MIRA grew from the recognition that the best way to tackle complex issues facing our aging population was through organized, interdisciplinary research teams committed to engaging the older adult community, their families, health care providers, and other key stakeholders through every stage of activity—from research and evaluation to implementation of interventions and technologies.

MIRA brings together researchers from across *all six Faculties* at McMaster University. Multiple perspectives ensure our research is, from the outset, optimized to create useable, practical, human-centred solutions. Although members of the Institute are diverse in their areas of expertise and fields of research, they share the goal of advancing the science of aging at McMaster University.

After several months of consultations with researchers across the University, 'Mobility in Aging' was identified as a research area in which McMaster had substantial expertise

to become a national and international leader. Thus, the Labarge Centre for Mobility in Aging (LCMA) became MIRA's first formal centre developed to facilitate and amplify research initiatives that mitigate the risk and consequences of declining mobility with age. As MIRA grew in membership and strategic networks, further opportunities to develop additional priorities in aging, both within and outside of mobility, also grew.

This five-year report highlights the activities, successes and impact of MIRA and its focused centres and programs. As the Institute comes to the end of its fourth year of full operation, we take great pride in knowing that we have had, and continue to have, a real influence on the culture of aging research, which includes education and community-based initiatives.

I am proud of the **researchers, trainees, staff and stakeholders** who have fully embraced our vision and continue to engage with enthusiasm and dedication. We'd like to thank the **Deans of each Faculty** who helped promote and support MIRA's cross-disciplinary vision. Aging has been identified as a key research priority at McMaster University, and we are grateful for the ongoing support from the **Provost and Vice-President, Research** as well as **McMaster senior leadership**. Finally, the level of success we have seen since our launch in 2016 would not have been achieved without the generous donations of McMaster's former chancellor and alumni, **Suzanne Labarge**, as well as the ongoing commitment and championship of **Dr. Susan Denburg**, Executive Vice-Dean and Associate Vice-President, Academic, Faculty of Health Sciences.



A handwritten signature in black ink that reads "Parminder Raina".

Dr. Parminder Raina

Scientific Director of the Labarge Centre for Mobility in Aging
And the McMaster Institute for Research on Aging

MIRA's vision, mission and commitment

Vision

MIRA's vision is a future in which interdisciplinary research supports and enables people of all ages to live longer, healthier lives.

Mission

In aspiring to this vision, MIRA has adopted the mission of optimizing the health and longevity of the aging population through leading-edge research, education, and stakeholder collaborations, while upholding the values of integrity, excellence, collaboration, inclusion and transparency.

Strategic direction

Strategic research priorities

- Act as a robust entry point to some of McMaster's existing research platforms in aging
- Develop new centres focused on priority areas that address aging from cell to society
- Integrate, mobilize and facilitate **interdisciplinarity** among McMaster researchers and trainees
- Ensure end user stakeholder engagement to achieve **transformative** research impacts


Build upon McMaster's emerging paradigm of research on aging

- Amplify existing infrastructure and research strength
- Establish links and **collaborations** between existing and new centres
- Develop models for emerging technologies
- Position McMaster as the university of **excellence** in aging research in Canada

Build a world-class MIRA training program

- Capitalize on McMaster's innovative approach to education
- Develop the next generation of aging researchers who foster **integrity, transparency** and a collaborative approach to research
- Centre training initiatives around interdisciplinarity and end user engagement to create useable, practical, human-centred solutions

Guiding principles

	Goal	Action
	Foster interdisciplinary research	<ul style="list-style-type: none"> • Incorporate design thinking and interdisciplinary approaches to research • Multi-Faculty involvement in funding opportunities and scholarships • Coordinate a shared research agenda
	Engage end user and community stakeholders	<ul style="list-style-type: none"> • Engage stakeholders in all stages of research, evaluation and implementation of interventions • Engage in community outreach, programs and events • Create resources to help researchers engage end users • Create interactive hubs for researchers and community stakeholders
	Capacity building	<ul style="list-style-type: none"> • Build MIRA membership in all Faculties • Develop and support a network of trainees • Develop qualified, innovative researchers with interdisciplinary training in aging to work across industry sectors, enabling McMaster researchers to prolong and improve the health of Canadians
	Knowledge translation	<ul style="list-style-type: none"> • Build upon McMaster's strength to support translation of generated knowledge into policy and practice • Build educational programs • Develop research impact strategies and employ collaborative and non-traditional communications strategies that involve community stakeholders
	Expand MIRA's reach locally, nationally and internationally	<ul style="list-style-type: none"> • Develop strategic partnerships on national and international levels • Develop new centres to attract high profile partners and funding • Enhance existing and new platform strength in research and aging

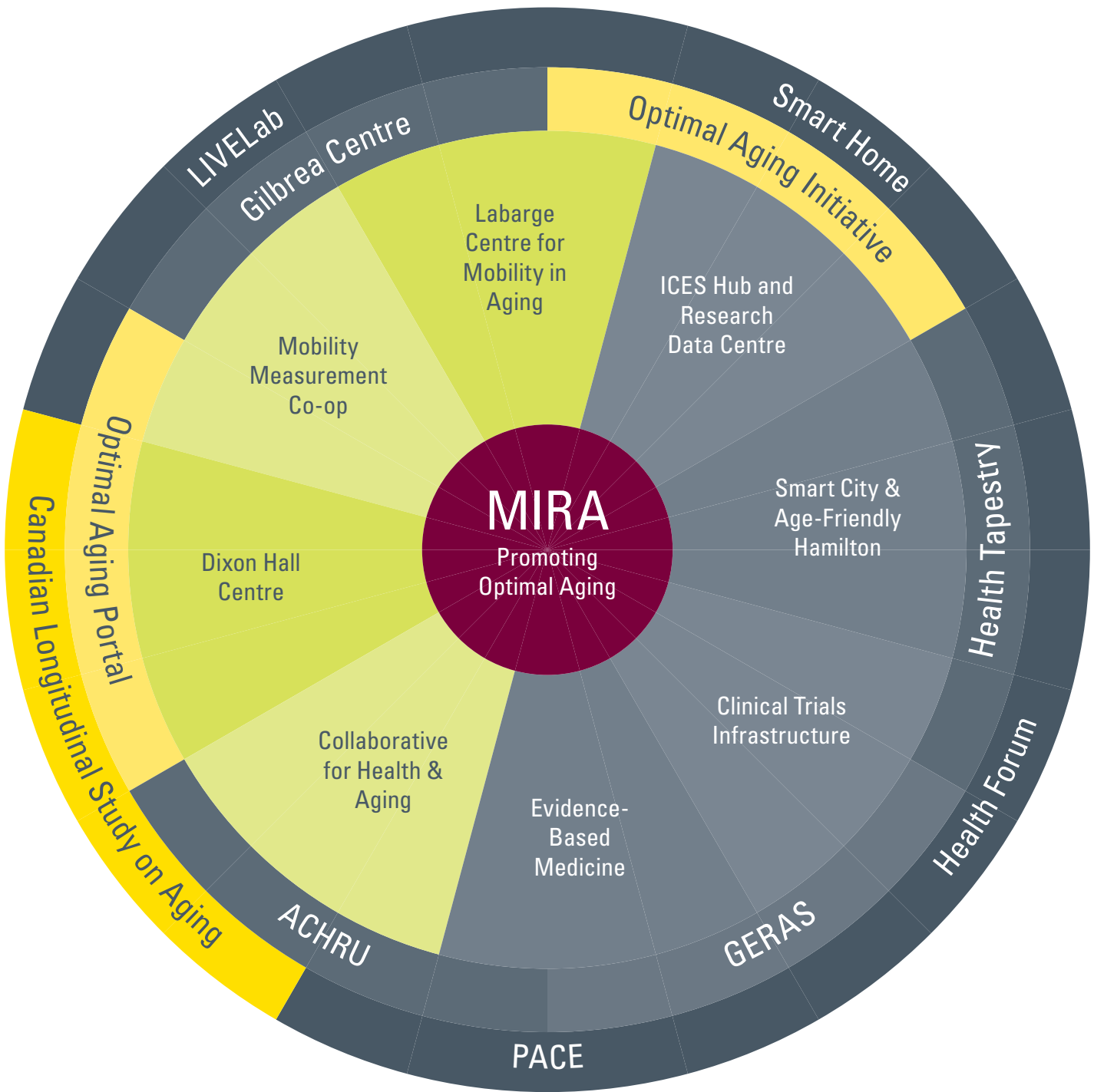


About the McMaster Institute for Research on Aging (MIRA)

MIRA was built on the groundwork laid by the Labarge Optimal Aging Initiative and the Labarge Foundation. Since 2016, MIRA has brought together more than 140 researchers and 200 trainees from across all six McMaster Faculties to conduct studies that address issues faced by older adults, their families, health care and social systems, and our society as a whole. One of the most effective ways to mobilize McMaster researchers and ensure a transformative research impact is through the development of centres that are focused on priority research areas. Using a design thinking approach, MIRA's focused centres promote the rapid integration of solutions into policy and practice. Further, MIRA's focused centres are intended to complement other existing university centres where there may be potential for mutual beneficial synergies. MIRA's focused centres help to advance its mission and build upon McMaster's existing strengths in aging, evidence-based medicine, population and clinical studies, knowledge exchange and policy, and the development and evaluation of interventions.

The virtual structure of MIRA.

This figure demonstrates the foundation on which MIRA was built (yellow) and the new centres and programs that have been established over the last five years (green). The other entities listed depict other institutional centres, institutes, and initiatives that are key platforms for research on aging, and are instrumental to positioning McMaster as a leader in research on aging.



Centres and programs

Labarge Centre for Mobility in Aging

The Labarge Centre for Mobility in Aging (LCMA) launched in 2016 to direct focus on initiatives that mitigate the risk and consequences of declining mobility with age. Built on the groundwork of the Labarge Foundation, the Labarge Optimal Aging Initiative, and the generosity of Suzanne Labarge, the LCMA uses an interdisciplinary approach to examine the biological, behavioural, technological and environmental factors that can affect individual and community mobility in older adults.



Since its launch in 2012, the **Labarge Optimal Aging Initiative** 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.

MIRA | Collaborative for Health & Aging

Funded by CIHR Strategy for Patient Oriented Research (SPOR), the **MIRA | Collaborative for Health & Aging** was established in 2019 by Parminder Raina, MIRA, and Maureen Markle-Reid, Aging, Community and Health Research Unit (ACHRU), with the aim of supporting research on aging and building capacity in patient-oriented research on aging.

MIRA | Dixon Hall Centre

MIRA, in partnership with Toronto's Dixon Hall, a multi-service agency that focuses on issues of poverty, social injustices and isolation, has formed MIRA's newest centre. The **MIRA | Dixon Hall Centre** will be nested within the Institute in order to extend and expand on its reach. The aim of this 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. This new partnership was made possible thanks to the generosity of Suzanne Labarge.

Mobility Measurement Co-op

In 2020, MIRA researcher Dr. Marla Beauchamp (Rehabilitation Science) established the **Mobility Measurement Co-op** at the McMaster Innovation Park in Hamilton to assess the mobility of older adults. The lab is situated in a community-based setting that offers easy access for older adults. It will expand its scope and breadth through opportunities for detailed assessment of gait biomechanics, balance and fall risk in study participants. The Co-op is envisioned to serve researchers at McMaster University as well as others in the community with interests in state-of-the-art mobility measurement.



A timeline of activities: 2016 to 2020



2016

- The McMaster Institute for Research on Aging (MIRA) and the Labarge Centre for Mobility in Aging (LCMA) are established
- Facilitation of collaborations between members of McMaster's Faculties begins



2017

- Planning Grants are developed to explore and establish new cross-Faculty partnerships with the goal of generating research questions that integrate the perspectives of multiple disciplines
- Catalyst Grants are developed to conduct feasibility/pilot studies or scaling of interventions for groups that have already established cross-Faculty partnerships
- Labarge Mobility Scholarships are developed for graduate students to learn skills and gain experience in aging research
- In partnership with the Walrus Foundation, MIRA hosts a public event focused on mobility in aging from several diverse

perspectives, attended by 250 participants, including researchers and members of the public

- Partnership established with founders of designCORE at the Institute of Technology (IT) Carlow in Ireland to collaborate and further develop strategies for implementing design thinking into the interdisciplinary research process
- Trainee Network made of students from all six Faculties is formalized
- Facilitated by MIRA, McMaster University joins 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



2018

- Two major programs of research—The EMBOLDEN Trial and MacM3—are launched
- Partners with McMaster's VP Administration and AVP Facility Services to conduct a project focused on the walkability of the McMaster campus for older adults and other people with mobility challenges
- Receives grant funding from the Government of Ontario to develop, implement and evaluate a course targeting unpaid and/or family caregivers of older adults with partners THRIVE Group and the McMaster Centre for Continuing Education (CCE)



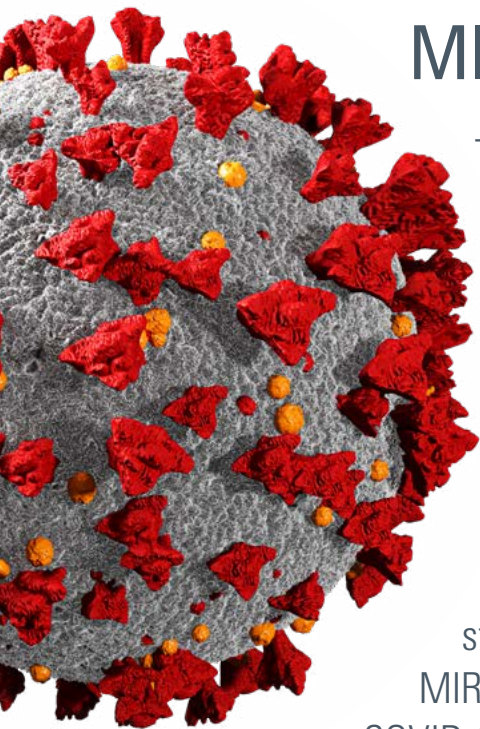
2019

- Launches several co-funding opportunities for researchers and students with partners Michael G. DeGroote Institute for Pain Research and Care (IPRC), McMaster Evidence Review & Synthesis Team (MERST), McMaster Education Research, Innovation and Theory Program (MERIT), Michael G. DeGroote Centre for Medicinal Cannabis Research (CMCR), AGE-WELL and the Canadian Frailty Network (CFN), among others
- Intergenerational program established and article highlighting the program published in *Gerontology & Geriatrics Education*
- Walkability report is published internally
- Age-Friendly Committee implemented to support AFU
- Planning Grants allocated for trainees to plan two annual knowledge sharing activities: 'Pitch your Project' and 'Meet my Method'



2020

- Intergenerational program 'Meet my Hamilton' launched online in response to COVID-19
- E-learning modules on osteoarthritis and brain health are rolled out by the McMaster Optimal Aging Portal, attracting more than 75,000 users in 2020
- Idea Exchange series initiated to explore concerns and challenges researchers are facing during the COVID-19 pandemic
- Awards three LCMA COVID-19 Grants (\$25,000 each) to investigate the promotion of healthy aging through the lens of mobility within the context of the pandemic. Research featured in the Hamilton Spectator
- macPAGE is launched to give McMaster students interested in aging more experience working with older adults
- MIRA's researcher map goes online, allowing users to quickly identify where MIRA members see themselves in terms of research focus and research output



MIRA's response to COVID-19

The COVID-19 pandemic dominated much of 2020, severely impacting the lives of many older adults worldwide. Physical distancing guidelines recommended by McMaster University meant much research was put on hold. However, 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. MIRA strategically delayed the development of some initiatives, but supported new opportunities created by COVID-19. With pre-existing strengths in research in aging and community engagement, MIRA shifted focus quickly and responded to the demands of the COVID-19 pandemic, while also supporting older adults from a distance.

The following are some of the initiatives MIRA, its researchers and its associated platforms in aging research have taken to address the COVID-19 pandemic:

- **Adjusted funding offerings** to align with the current landscape. This included modifying the Graduate Travel Award to become a Professional Development Award and the creation of a LCMA COVID-19 Grant, which focuses on mobility in aging within the context of the COVID-19 pandemic. MIRA also provided funded researchers and trainees with an initial six-month, no-cost extension, followed by an additional six-month, no-cost extension.
- MIRA **administered a survey to its members and trainees** to find out how the pandemic had affected them and how we can support them. This survey was then adapted and used by the Faculty of Health Sciences.
- Using the data collected in the member survey, MIRA launched an **Idea Exchange series** to explore concerns and challenges faced by researchers during the COVID-19 pandemic. These virtual brainstorming sessions help determine the best ways to move forward and continue supporting research in aging during challenging times and in the future. In response to feedback from these sessions, MIRA is developing a resource summary and space for researchers to share ideas about managing programs of research while working remotely and under restrictions.
- Created a **resource guide**, highlighting ways to engage and support older adults during the pandemic, and provided this guide to stakeholders who conduct patient-oriented research through the MIRA | Collaborative for Health & Aging.
- The **McMaster Optimal Aging Portal** is highlighting ways to stay active and engaged while practicing physical distancing during the current COVID-19 pandemic.
- 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 Canadian Longitudinal Study on Aging (CLSA)** launched a COVID-19 study to its 50,000 participants across Canada. Over the next six months, the CLSA will collect data from its participants through online and telephone surveys to gain a comprehensive picture of the spread and impact of the pandemic. The study is examining 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 philanthropists Charles and Margaret Juravinski.

- 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. Through the training of staff and volunteers, this initiative aims to connect the community to reliable, verified and up-to-date information during the pandemic through the McMaster Optimal Aging Portal. This proposal has been shared with government agencies and we are actively seeking external funding support.

Designing the “New Normal”

A MIRA idea exchange series for researchers in aging

Wednesday, July 15, from 9 - 10 a.m.

We invite all MIRA researchers to join us virtually for a brainstorming session. We'd like to know how McMaster's new research directives that were announced in response to the COVID-19 pandemic have impacted you and your research:

- How have you pivoted your research?
- What questions, concerns and challenges have you faced?
- What challenges have you overcome?

The information you provide is critical in understanding how we can support your research in aging during these changing times and in





An interdisciplinary approach to research

Interdisciplinary research and design thinking

MIRA takes an interdisciplinary approach to examining the biological, behavioural, technological and environmental factors affecting how people age, by combining the following:

- A coordinated, collaborative research agenda that brings together academic researchers and clinicians from all Faculties;
- The use of a design thinking approach to generate human-centred solutions;
- Ongoing interaction with diverse stakeholders in all of MIRA's work.

Design thinking MIRA's approach to research

Design thinking is a formal method of solution-focused thinking. Rather than working to solve a specific problem, it starts with a goal and explores multiple, alternative solutions simultaneously. It is an especially useful method to investigate ill-defined problems where many factors may be unknown. This approach is collaborative and integrates end users (community members and other stakeholders) from the project outset to ensure that every possible perspective is considered.

Design thinking provides a framework where ideas are created through a dynamic, iterative process within a 'system of spaces' (inspiration, ideation, and implementation), as opposed to an orderly (linear) set of steps, which is commonly employed in traditional approaches to innovation and design. Within these spaces, individuals trained in a variety of disparate disciplines collaborate to observe, evaluate and work directly with users to determine innovations that come from understanding the problem.



In the context of aging, innovations could include, but are not limited to, assistive devices or technologies (products), clinical or caregiver-targeted programs (services), and/or other interventions (e.g., changes in urban design). Such research can involve basic science research labs that act as centralized knowledge-generating hubs and population-based cohorts that improve our understanding of mechanisms at the cellular and population levels, while involving stakeholders to accelerate discovery and its adoption in practice.

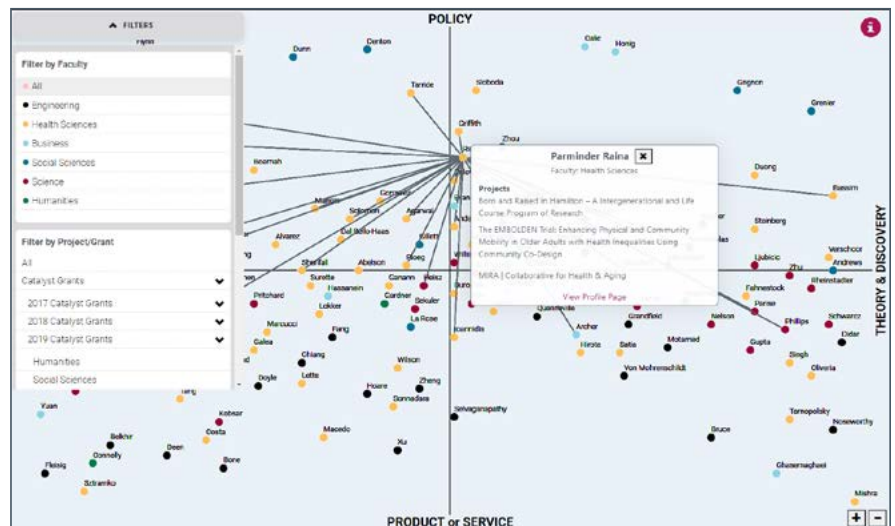
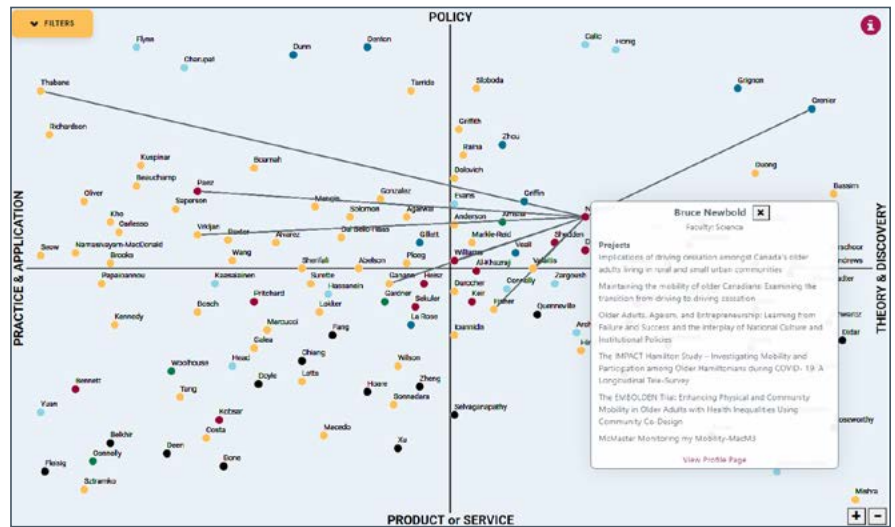
MIRA's approach to research is based on this design thinking philosophy. MIRA believes approaches that engage older adults, their families, health care providers and other partners through each stage—from research and evaluation to implementation of interventions and technologies—are key to delivering solutions that have real-world impact.

With an aim to explore and promote the use of co-design methods in aging research both within and beyond McMaster University, MIRA has consulted and collaborated with experts such as Dr. Robert Fleisig (McMaster, Faculty of Engineering), Dr. Harry Mahler (OCADU, Toronto), and Dr. P.J. White (IT Carlow, Ireland) whose current involvement is centred on 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 spent the last several years developing a Research Map 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 them 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

Research support

MIRA's mandate is to facilitate interdisciplinary research collaborations and mobilize researchers.



Planning Grants were developed and awarded to explore and establish new cross-Faculty partnerships with the goal of generating research questions that integrate the perspective of multiple disciplines.



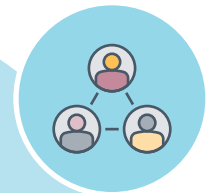
Catalyst Grants aim to conduct feasibility/pilot studies or scaling of interventions for groups that have already established cross-Faculty partnerships. MIRA works with each Faculty to identify a new interdisciplinary project that aligns with the objectives of each Faculty and the LCMA.



MIRA contributes funds to **researchers using the Canadian Longitudinal Study on Aging (CLSA)** data and infrastructure.



Two major programs of research were developed and supported by MIRA through an iterative process facilitated by design thinking experts in a variety of meetings, workshops and stakeholder consultations, coordinating a shared research agenda.



Through the establishment of collaborations with various stakeholders and co-funding opportunities, MIRA has strengthened its interdisciplinary research while leveraging LCMA funds. Collaboration between three Faculties is a requirement of all MIRA funded awards.

This graph summarizes the research projects supported by LCMA and MIRA

Planning and Exploration Grants (LCMA)		3	4	5		12
Catalyst Grants (LCMA)		7	6	6	3	19+3 COVID 19 grants
Major Programs of Research (LCMA/MIRA)				3		3
Matching funds for research projects (LCMA/MIRA)			2	1	1	4
Data access fees for projects using the CLSA research platform (MIRA)	3	1	2	2	3	11
Labarge Foundation Grants and Labarge Optimal Aging Initiative*	13+8	5				26
	2016	2017	2018	2019	2020	Total

* 13 projects were funded through LOAI prior to 2016

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

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

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

* 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.

A researcher's perspective

Paula Gardner

Associate Professor, Communication Studies
and Multimedia, Faculty of Humanities

On MIRA and interdisciplinary research

"With an interdisciplinary approach, you try to find a common language across your methods, common objectives and goals. But a transdisciplinary method is when you combine all of your assumptions, objectives and desired outcomes to create a new method that integrates all of your disciplinary practices together. That's a really tall order. For most of us, we're simply not trained to do that.

A lot of times people see interdisciplinarity as an encumbrance because it slows you down as a researcher, and it will slow you down. It takes a lot of emotional labour; it takes extra time and very often that time spent can't be quantified as an outcome on your CV, but it's worth it.

Your methods become improved because you're creating innovative methods that aren't possible if you stay in a disciplinary practice. I do hear administrators discussing procedures to reward the extra time and labour that comes with this kind of collaboration, so I am hopeful that this kind of work is going to be better supported and rewarded at the university level in the future.

MIRA doesn't just accommodate interdisciplinary research, they cultivate it. They're leading the conversation on the benefits of interdisciplinary research, and how to create transdisciplinary methods."



Impact of interdisciplinary programs of research

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, NSERC Discovery Grant **\$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**



Enhancements of research platforms

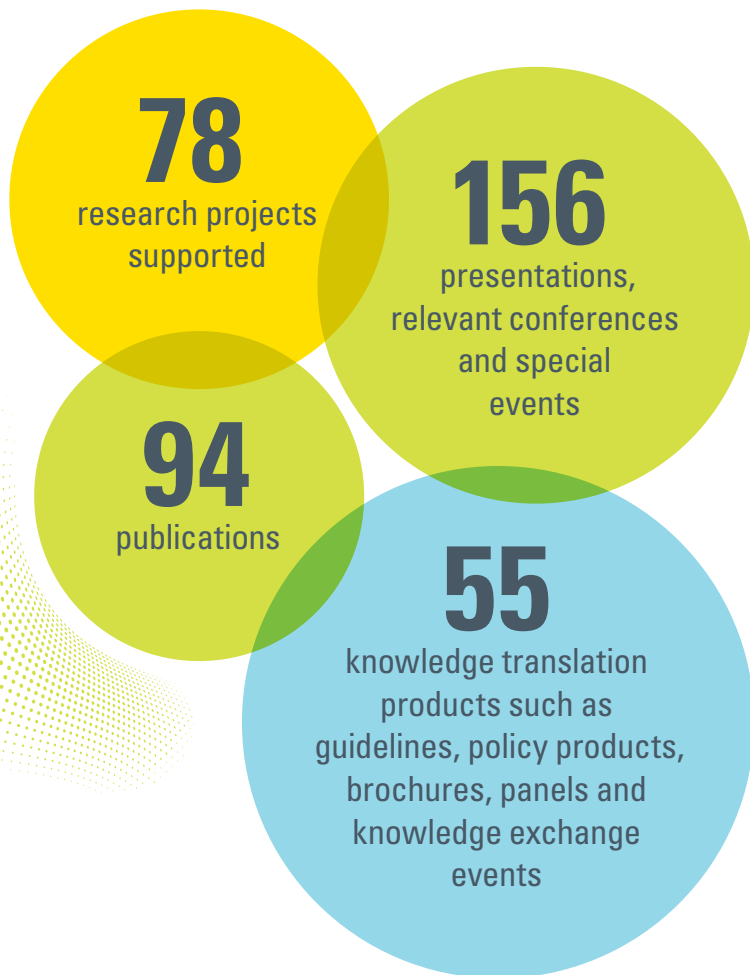
MIRA partnered with the Canadian Longitudinal Study on Aging (CLSA) to support its study investigating how the pandemic affects both the physical and psychological health of adults as they age. By using the rich data from the CLSA to study COVID-19, we will develop a greater understanding of which factors 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 \$1.2 million from the Public Health Agency of Canada (PHAC) as well as an additional \$4 million 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 resources of longitudinal data on older adults and COVID-19.

MIRA has also supported the expansion and enrichment of the CLSA through collaborations with Metabolon Inc. and frailty biomarker analyses. To date, there has been little consensus on the biological mechanisms underpinning frailty. Frailty is known to result in mobility issues and the ability to perform routine tasks in older adults. Analysis of CLSA samples will allow researchers to identify metabolites that will help to improve early prediction of frailty, and also lead to further research on treatments addressing specific aspects of frailty.

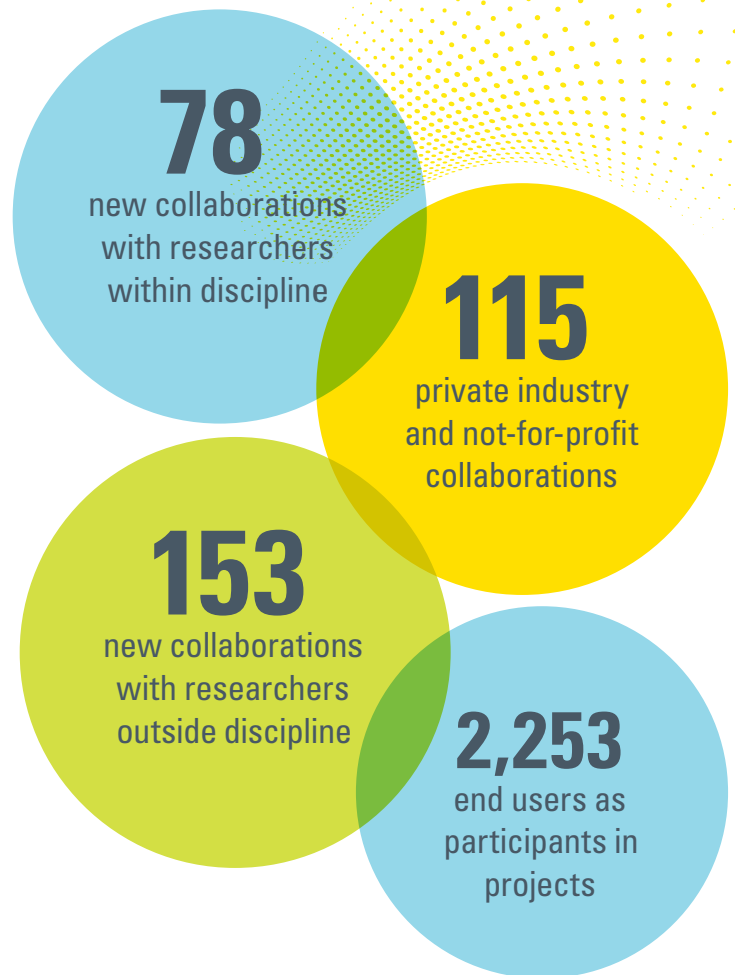


Research impact of funded projects

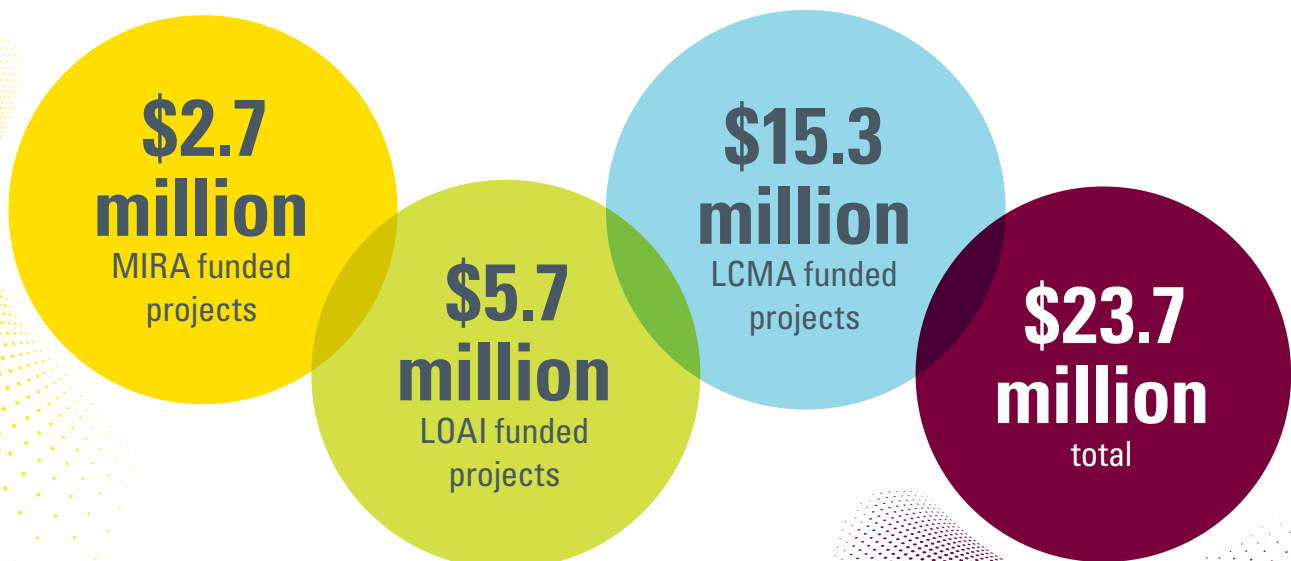
Research impact



Interdisciplinary collaborations

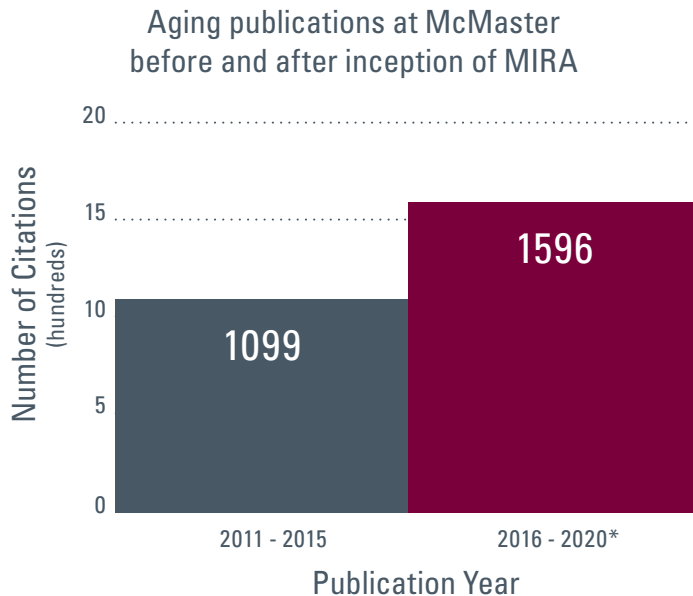


Collectively, these projects have resulted in leveraged funds as follows:



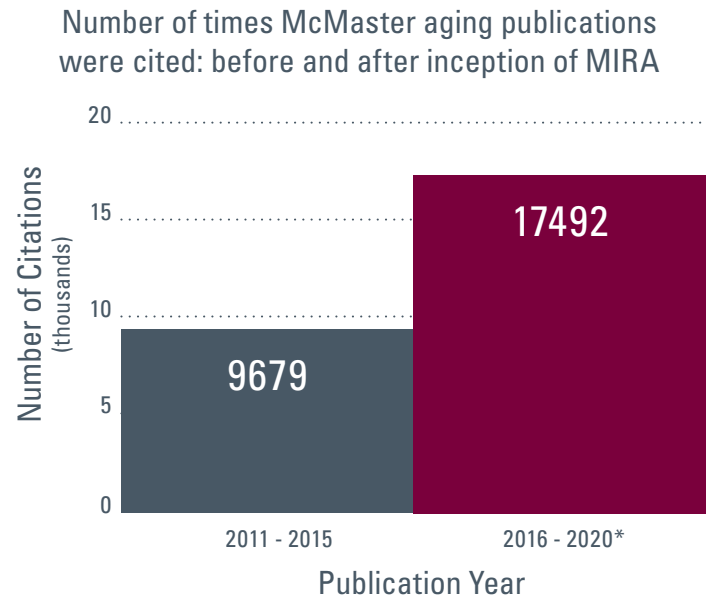
Overall research impact

Since the inception of MIRA in 2016, McMaster University has increased its productivity and reach in aging research. McMaster researchers involved in research in aging collectively acquired more than \$92 million in peer-reviewed funding during this period. A significant increase in both publications and citations by McMaster researchers in the field of aging further supports the gathering influence of McMaster as a powerhouse in aging research.



* as of November 18, 2020

Data derived from the Web of Science database searching the title, author keywords and Keyword Plus ® for the terms “ageing”, “aging”, “seniors” or “elder” and using the organization group search term “McMaster University” between 2011 and November 18, 2020.



* as of November 18, 2020

Data derived from the Web of Science database searching the title, author keywords and Keyword Plus ® for the terms “ageing”, “aging”, “seniors” or “elder” and using the organization group search term “McMaster University”. Citations are counted within each category. Thus, for papers published between 2011 and 2015, citations are counted that occurred between 2011 and 2015. For papers published between 2016 and 2020, citations are reported that occurred between 2016 and November 18, 2020.

Since 2016, the following Canada Research Chairs were established by McMaster researchers and **MIRA members** in aging research

- Canada Research Chair in Human Skeletal Muscle Health in Aging, 2016, **Stuart Phillips**
- Canada Research Chair in Palliative Care & Health System Innovation, 2016, **Hsien Seow**
- Canada Research Chair in Indigenous Well-Being, Community Engagement, and Innovation, including issues faced by elders, 2017, Chelsea Gabel
- Canada Research Chair in Person-Centred Interventions for Older Adults with Multimorbidity & Their Caregivers, 2017 (renewal), **Maureen Markle-Reid**
- Canada Research Chair in Geroscience, 2017 (renewal), **Parminder Raina**
- Canada Research Chair in Interdisciplinary Microbiome Research, 2017 (renewal), **Michael Surette**

This strengthening of research in aging at McMaster University would not have been possible without the generous gift of \$15 million by Suzanne Labarge and the more than \$3 million investment by McMaster to establish MIRA and the LCMA.



Community and stakeholder engagement



151
new collaborations
with not-for-profit
organizations, community
partners and private
industry

More than
2,300
end users participated in
109
funded projects



End user and stakeholder engagement

In the spirit of MIRA's co-design and design thinking approach to research, MIRA has leveraged the expertise of its End User and Stakeholder Committee (EUSC) members. The EUSC includes representatives from government, industry, and community partners. This group informs MIRA's research priorities, provides researchers with an opportunity to share their work and build relationships with external stakeholders, and offers varied, multi-sectoral perspectives on the challenges, wants and needs of older adults.

MIRA's initiatives outlined in this report are a reflection of the activities MIRA engaged in to ensure input from stakeholders in all stages of research and program development. This has included the development of resources for end user engagement to be shared among the research community and creating interactive hubs for researchers and community stakeholders to promote collaborative interactions.



Intergenerational programming

In 2017, a MIRA project team led by researcher Brenda Vrkljan (Rehabilitation Science) conducted a study on the establishment of an intergenerational hub on McMaster's campus. These findings were published in *Gerontology & Geriatrics Education*. The paper, "Creating an Intergenerational University Hub: Engaging Older and Younger Users in the Shaping of Space and Place", went on to win the Gerontological Society of America's David A. Peterson Award in November 2020 honouring excellence in academic gerontology and/or geriatrics for an article.

Based on the findings of this study, which indicated a strong interest in intergenerational activities, MIRA partnered with McMaster's 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 spend time and engage in activities together.

Funding from the New Horizons for Seniors Program has allowed MIRA and McMaster's Residence Life Services to expand this pilot program offering in 2020-21, engaging more diverse older adults, 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 transition this programming to a virtual setting and to develop 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 eLearning 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 early 2021. 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. These resources

have provided the community with a new way to engage with research that can support their mobility as they age.



McMaster as an 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.



Dixon Hall: An exciting new partnership

MIRA has developed a partnership with Toronto's Dixon Hall, a multiservice 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 Gonzalez; 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 Centre, 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 outcomes. The aim of this collaboration is to improve quality of life and enable older adults to live with dignity through purposeful initiatives planned over the short- and long-term.

The 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:

1. 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),
2. invited presentations at conferences/symposia and offering webinars (20 presentations/webinars), and
3. 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. 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.



“The trainee network has provided me with the opportunity to connect with other researchers in aging, gather feedback on study and data analysis protocols, and practice skills in knowledge translation. I’m looking forward to maintaining these connections moving forward as I finish my PhD.”

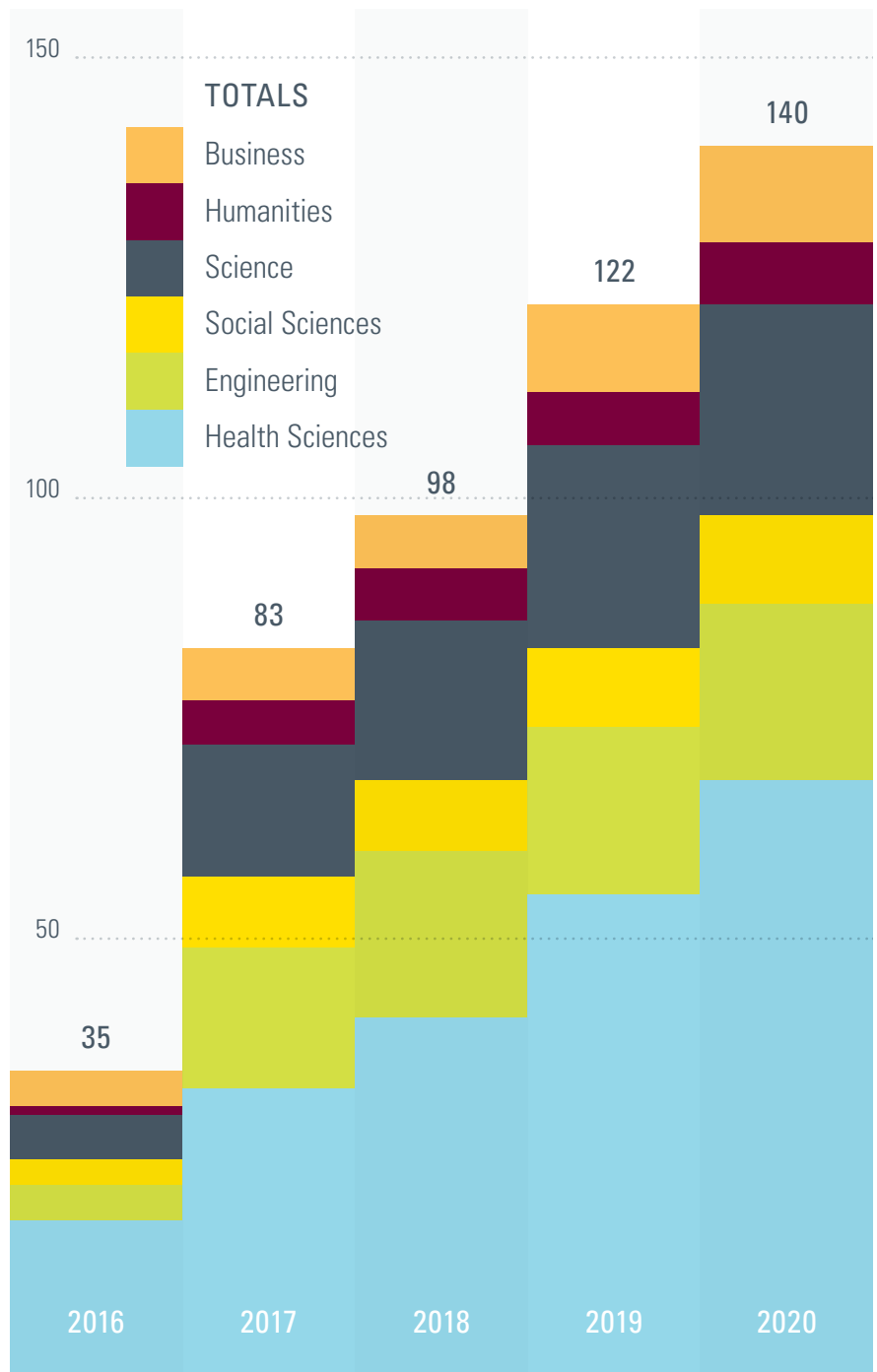
Sara Oikawa

Kinesiology

Capacity building

Researcher membership

Engaging faculty members and trainees in cross-Faculty collaboration is achieved through outreach activities, satisfaction surveys, one-on-one conversations, educational activities and through the development of a trainee network that supports the next generation of researchers in aging. 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.



Growth of MIRA membership since inception.

As of November 2020, MIRA has 140 faculty members.

Trainee membership

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. Over the last five years, more than 200 students have been a part of the Trainee Network. Currently, the Network has 81 members.

In the summer of 2020, the Trainee Network welcomed its 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 online, which was built on the model of the 3 Minute Thesis™ competition.

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.



"Funding from the Labarge Mobility Scholarship has opened a door for me where I can work alongside McMaster's aging experts to make a difference in the lives of older adults."

Stephanie Chauvin
Rehabilitation Science



Trainees supported by LCMA and MIRA

The Labarge Centre for Mobility in Aging (LCMA) and the McMaster Institute for Research on Aging (MIRA) provide scholarships to recipients that demonstrate high academic achievements, proven interest in aging and mobility research and ambition to collaborate with other disciplines, including participation in research activities that

can benefit older adults. Postdoctoral fellows broaden their expertise with mentorship from two separate Faculties. Since 2018, MIRA has provided support to undergraduate summer students working with MIRA members. Finally, through collaborations, MIRA has strengthened its trainee development with multiple co-funding opportunities.

Since 2017, the LCMA and MIRA have provided the following student scholarships and fellowships:

Postdoctoral Fellow (MIRA/LCMA)	3	4	3	3	13
PhD (MIRA/LCMA)	1	1		2	4
Master's (MIRA/LCMA)	1	1	2	2	6
Co-funded trainees (MIRA/LCMA)			2	6	8
Undergraduate Summer Research Fellows (MIRA)		8	10	7	25
	2017	2018	2019	2020	Total

Impact of funded scholarships

Research impact

56

research projects supported

35

presentations at relevant conferences and special events

22

peer reviewed publications

22

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

Leveraged funds from funded scholarships and fellowships:

MIRA **\$239,000** and
LCMA **\$318,000**



trainee support
\$557,000

Collaborations

43

new collaborations with researchers within discipline

55

new collaborations with researchers outside discipline

36

private industry and not-for-profit collaborations

119

end users as participants in projects

"Labarge funding has invigorated my passion for studying human aging and the efficacy of nutritional/exercise countermeasures for preventing muscle loss that occurs in the elderly population. It is my desire to continue working with the elderly population."

Tanner Stokes

Kinesiology



Training and education

Graduate student development

Each year, MIRA promotes graduate student development through travel awards to support students collecting data or presenting research at conferences. Due to COVID-19, travel to conferences has been restricted. To support ongoing professional development, MIRA is allowing applicants to use this funding to participate in online conferences and professional development opportunities.

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. Trainees applying for funding from

MIRA partner AGE-WELL are supported through dedicated information sessions and guidance in proposal development. Through its partnership with AGE-WELL, MIRA helped secure AGE-WELL funding for three trainees:

Michael Zon



"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
Kinesiology

(Engineering), Aki-Juhani Kyröläinen (Humanities), and Rasmi Kokash (Business). In partnership with AGE-WELL's Networks of Centres 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.

The Summer Program in Aging (SPA 2020)

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.

Highly Qualified Personnel (HQP) development

MIRA has directly supported 48 trainees for research projects in aging. Through MIRA and LCMA funded research projects beyond funded scholarships, an additional 164 HQP were supported as follows: 38 undergraduate students; 31 master's and 19 PhD students; 22 postdoctoral fellows and 54 research staff.





Knowledge translation

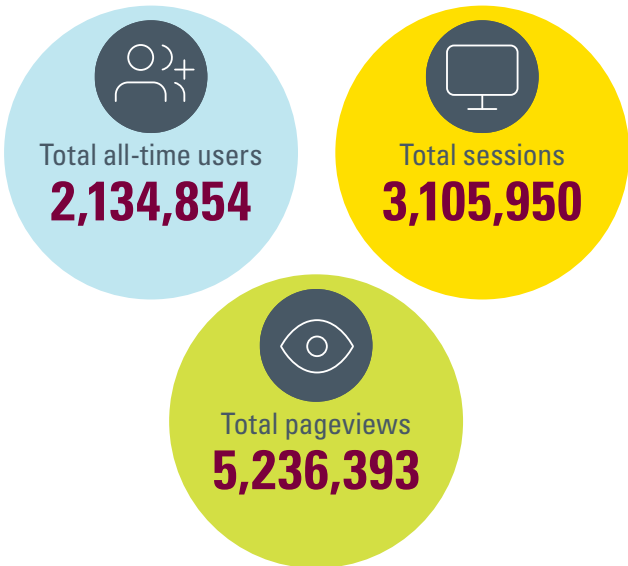
MIRA's mandate to generate knowledge that informs practice and policy is facilitated through several programs, events, platforms and communications activities.



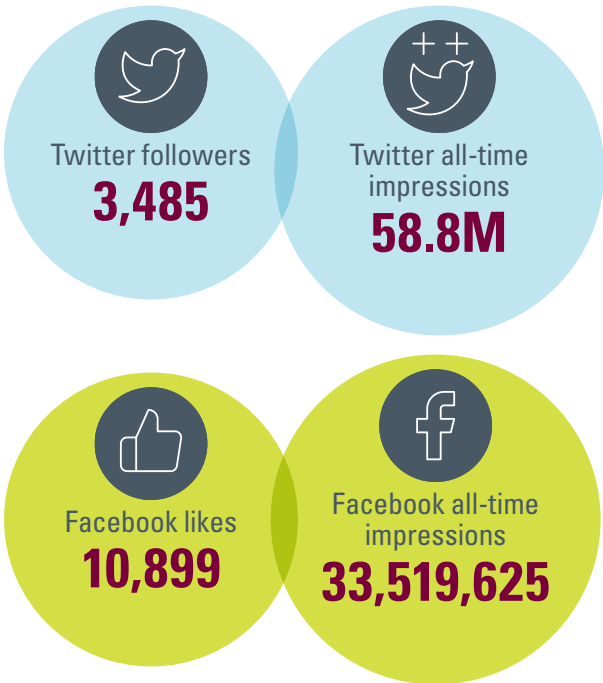
The McMaster Optimal Aging Portal

The McMaster Optimal Aging Portal grew from an investment in the Labarge Optimal Aging Initiative. Year after year, the 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.

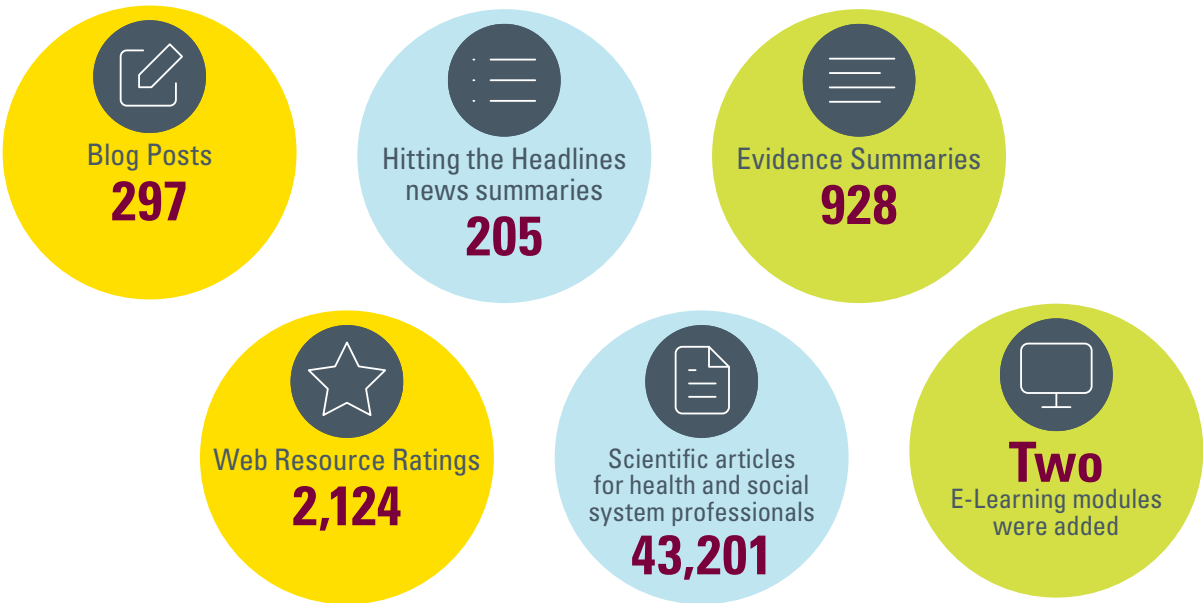
Portal engagement



Social media



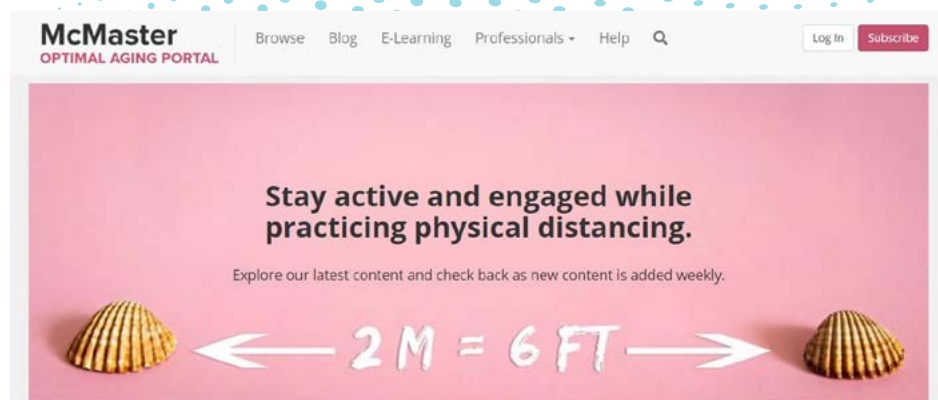
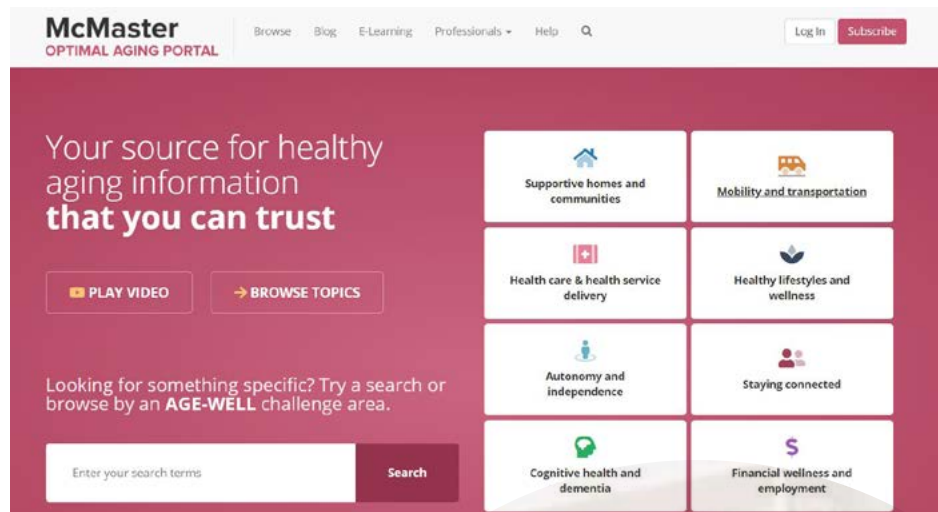
Content



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

In mid-March 2020, the Portal team pivoted its content strategy to respond to the pressures of the pandemic and meet the changing needs of citizens, caregivers, and health and social systems professionals. The overall content tagged with COVID-19 generated **19,632 sessions** (March to September 2020), and **11,344 new site users**. Some of the key pivoting strategies included:

- Designing a COVID-19 section of the Portal website, with a landing page to house all content related to the pandemic;
- Re-profiling the 'Hitting the Headlines' content to focus on the most pressing COVID-19 related topics;
- Producing new Blog Posts and Evidence Summaries that give actionable tips for older adults and their caregivers to help adjust to the new reality;
- Tailoring advertising content through Google and Facebook to drive awareness to the new COVID-19 landing page, and using a list of relevant Twitter handles to include in messaging (the federal and provincial ministers for seniors, ON Minister of Health Christine Elliot, other ministers with high Twitter followings, PHAC, Ontario Public Health, etc.)



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 Web Resource Ratings);
- 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 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.



Educational programming

Training and Capacity Working Group

Increasing awareness of educational opportunities in aging is part of MIRA's mandate. The Institute recently conducted research on opportunities available for learners at different levels, including older adults, graduate and undergraduate students and practicing professionals. MIRA created a section on its website for this content, which highlights educational opportunities at McMaster and in the community.

MIRA's Training and Capacity Working Group was established to share interdisciplinary perspectives on the needs and interests of trainees in aging research across McMaster's Faculties. They supported the cross-campus expansion of

macPAGE, an experiential education program launched in 2020. The working group continues to discuss new ways to encourage student interest in research on aging, explore opportunities to broaden access to programs currently at the University, support the development of robust program evaluation frameworks, and ensure students are able to access 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.

macPAGE: McMaster Passport for Geriatric Education

In 2017, 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 designed 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 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., along with 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

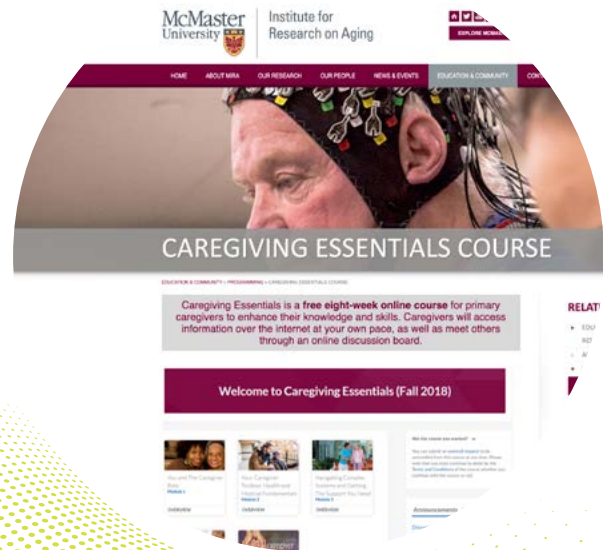
McMaster students. It will be launched to MIRA trainees and researchers in December 2020. The Student Success Centre (SSC) and MIRA ensured the learning outcomes of macPAGE 2.0 align with tracking tools that will be used in the SSC's forthcoming experiential learning transcript, which will make it easier 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.



Caregiving Essentials

In 2018, MIRA partnered with THRIVE Group and 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.



Integrated Biomedical Engineering and Health Sciences

MIRA is serving as a community partner for the Integrated Biomedical Engineering and Health Sciences course 4P04 |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. MIRA looks 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.



Communications

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

Through strategic communications, MIRA has significantly amplified McMaster's strength in aging research:

- **MIRA's website** has attracted 39,436 new visitors since launching in September 2016.
- Communications staff at MIRA have written or facilitated 346 pieces of **media coverage** specifically mentioning MIRA or MIRA leadership.
- **An internal newsletter** is sent monthly to more than 200 MIRA members, staff and faculty across the University highlighting relevant events and funding opportunities.
- **Social media** continues to elevate 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 527 to 1,964 followers since 2017. In 2019, MIRA launched Facebook and LinkedIn pages.
- Capacity building through regular **internal relations**. 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 Education and Research in Aging Sciences (GERAS) Centre, Gilbreath 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.
- 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. In five years, MIRA has hired and mentored six students in this capacity.



Events

Events offer an important avenue for MIRA to facilitate the connection of its researchers, stakeholders and the community. Each year, MIRA is committed to hosting and co-hosting several scientific and public events. These events help MIRA to raise its internal and external profile, bring attention to McMaster as a powerhouse of aging research, and facilitate the development of new partnerships while enhancing existing relationships. Some key events since MIRA launched in 2016 have included:



The Walrus talks mobility October 2017

In partnership with the Walrus Foundation, MIRA hosted a public event focused on mobility in aging from diverse perspectives. Speakers included Doreen Spence, a Cree elder, Sanjay Khanna, a futurist, and Adam van Koeverden, Olympic and world champion kayaker, among others. The event was attended by more than 200 participants, including researchers in aging, trainees and members of the public.

Able aging: What aging with a disability means for older adults and their caregivers May 2018

Ontario's former Lt.-Gov. David Onley spoke on ways to enable optimal aging for people with disabilities and their caregivers in order to build a more inclusive society. The special speaker session was co-hosted by MIRA and Hamilton's THRIVE Group.



MIRA panel presentation: How can Smarter Cities Support and Connect our Aging Population? April 26, 2018

MIRA and its International Scientific Advisory Committee (ISAC) delivered a public panel presentation at the McMaster Innovation Park that explored how smart cities can be beacons for active aging, better accessibility and less social isolation. The event also featured posters and exhibits from McMaster's next generation of researchers in aging, including the popular Seniors of Canada photo exhibit, which is a student-run initiative, and was attended by partners from the City of Hamilton, including Mayor Fred Eisenberger who provided opening remarks.

Music and aging series 2018 and 2019

MIRA partnered with the Hamilton Philharmonic Orchestra, the Hamilton Public Library and the Burlington Public Library, along with the McMaster Institute for Music and the Mind to examine connections between aging and music. These engaging multidisciplinary talks ran for two years and were well-received by both participants and attendees.





The future of aging

July 2019

MIRA partnered with the Faculties of Engineering, Health Sciences and Science for a full day exploring new research and smart technologies that can allow older adults to live more independently. The event featured research snapshot presentations, a poster and exhibit hall, a keynote speaker and tours of leading McMaster facilities, including LIVELab, PACE and the Westdale Smart Home.

Bridging the divide: How social inequality impacts health and aging

August 2019


In a public panel presentation, MIRA's International Scientific Advisory Committee (ISAC) members, along with Steve Buist, Investigative Reporter for the Hamilton Spectator's Code Red series discussed the societal factors that contribute to healthy aging.



One topic, two disciplines: A MIRA Webinar Series

Active older bodies—benefits and stumbling blocks


Dr. Stuart Phillips




Professor, Kinesiology
McMaster University

+

Dr. Meridith Griffin





Assistant Professor, Health, Aging
& Society, McMaster University



SEPT 28 | 9 - 10 a.m. | Zoom link: mcmaster.zoom.us/j/987636

MIRA is pairing two scientists from different disciplines to cover one topic related to aging research. In our next seminar, Dr. Stuart Phillips, Kinesiology, and Dr. Meridith Griffin and her PhD Student Kelsey Harvey of Health, Aging and Society will be discussing **Active older bodies: Benefits and stumbling blocks**. For more information, visit: mira.mcmaster.ca

mira@mcmaster.ca
[f @MIRAMcMaster](https://www.facebook.com/MIRAMcMaster)
[t @miramcmaster](https://twitter.com/miramcmaster)
[y MIRAseminar](https://www.youtube.com/channel/UCMIRAseminar)



MIRA webinar series: One topic, two disciplines

February, July, September, November 2020

This webinar series was designed to promote interdisciplinarity by pairing two scientists from different disciplines to cover one topic related to aging research. Topics included exercise and the future of cognitive research (Margaret Fahnstock, Biology, and Ravi Selvaganapathy, Mechanical and Biomedical Engineering); Taking a holistic approach to frailty and resilience in older age (Carol Holland, psychologist from the Centre for Ageing Research in Lancaster University, and Marla Beauchamp, Rehabilitation Science); Active older bodies—benefits and stumbling blocks (Stuart Phillips, Kinesiology, and Meridith Griffin, Health, Aging and Society); Polypharmacy and deprescribing (James Gillett, Health, Aging and Society, and Dee Mangin, Family Medicine).

MIRA Idea Exchange series

July and October 2020

MIRA invited its researchers to come together for a series of brainstorming sessions exploring how to best cope with new research directives around COVID-19, and to determine ways MIRA can best support its researchers.

Designing the "New Normal"

A MIRA idea exchange series for researchers in aging

Wednesday, July 15, from 9 - 10 a.m.

We invite all MIRA researchers to join us virtually for a brainstorming session. We'd like to know how McMaster's new research directives that were announced in response to the COVID-19 pandemic have impacted you and your research:

- How have you pivoted your research?
- What questions, concerns and challenges have you faced?
- What challenges have you overcome?

The information you provide is critical in helping us to understand how we can best support your research in aging during these challenging times and in the future.

For more information, contact mira@mcmaster.ca or click here to register.

Click here to register!





Partnerships and collaborations



Partnership development



Develop strategic partnerships locally, nationally and internationally



Develop new centres to attract partners and funding



Build new and enhance existing platform strength in research in aging

Over the past five years MIRA has developed a wide network of collaborators and partners who support MIRA's research, educational endeavors and community-based initiatives. MIRA's partnership development has focused on strengthening goals and leveraging resources while collaborating with new and existing partners who complement the Institute's research strengths.

MIRA has formalized 20 strategic partnerships, while many more informal collaborations have been developed with a wide variety of stakeholders within McMaster University, locally, nationally and internationally. These collaborations are with other academic institutions, government agencies, not-for-profit and private industry partners.

MIRA's partnerships have resulted in significant leveraged funds, expanded research programs or platforms, new educational programs and interdisciplinary learnings. This report highlights several partnerships and collaborations that showcase the diversity of partners engaged with MIRA and how they support the Institute's many goals—from developing institutional strength in aging and mobility through scientific exchange programs to enabling stakeholder and citizen networks and promoting aging in place with evidence-based resources.



Partnership highlights



Interdisciplinary research

Institute of Technology
Carlow (Ireland)

United Way Halton
& Hamilton

Northern Health
Sciences Alliance (UK)

National Innovation
Centre for Aging (UK)



Research platform development

Metabolon Inc. (US)

Canadian Frailty
Network

Diabetes Action
Canada



Co-funding of grants and scholarships

AGE-WELL

Michael G. DeGroote
Institute for Pain
Research and Care (IPRC)

McMaster Education
Research, Innovation
and Theory (MERIT)

Canadian Frailty
Network (CFN)

McMaster Evidence
Review and Synthesis
Team (MERST)



Communication and promotion

The Socrates Project

The Walrus

McMaster University
Advancement

Alzheimer's
Society of Brant,
Haldimand Norfolk,
Hamilton Halton



Community initiatives

THRIVE Group

Hamilton Philharmonic
Orchestra

Hamilton Council
for Aging

Hamilton Public Library
Dixon Hall



Policy development

Ontario Ministry
for Seniors and
Accessibility

Public Health Ontario

City of Hamilton

Public Health
Agency of Canada



Technology Development

Aditum Health

Cloud DX (US/CDN)

AGE-WELL



Trainee development and education

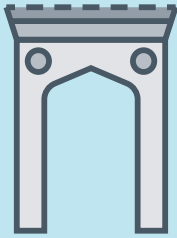
Lancaster
University (UK)

Regional Geriatrics
Programs of Ontario

McMaster Centre for
Continuing Education

Partnership highlights

Internal



MIRA works with partners internal to McMaster University to foster a culture of collaboration and to collectively support McMaster's strength in research in aging. Many of these partnerships allow MIRA's researchers to conduct world-class studies and develop programs that address the issues faced by older adults and their support systems. Some internal partners include the **Office of International Affairs** (Engagement of International partners); **McMaster Residence Life** and **Assistant Vice-President and Chief Facilities Officer** (Intergenerational programming and hub); **McMaster University's Service Units for students, staff and alumni**; major academic units and aging platforms; and the **McMaster University Retiree Association** (implementation of Age-Friendly University principles). **University Advancement** has also committed to working with MIRA and the LCMA around sustainability planning for the Optimal Aging Portal. There is a broad commitment from McMaster to prioritize aging in its fundraising and donor relations. Collaborations with internal institutes, such as the Michael G. DeGroote Institute for Pain Research and Care (IPRC), have led to co-funded research projects and the facilitation of interdisciplinary research.



National

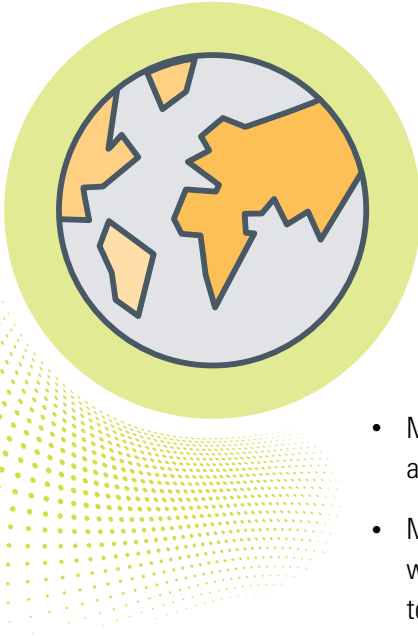
National partnerships position McMaster as a leader in interdisciplinary research that can address and respond to the most pressing issues facing older adults. In the last five years:

- MIRA has collaborated with **AGE-WELL** and the **Canadian Frailty Network** to strengthen capacity development through co-funding graduate and postdoctoral fellowships.
- 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 wellbeing 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.
- A collaboration with Toronto's **Dixon Hall** enables MIRA to work closely with a population impacted by issues of poverty, social injustices and isolation.

- Working with **Government Agencies** directly or through research platforms affiliated with MIRA continues 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 engages with the **Ontario Ministry for Seniors and Accessibility** (formerly the Ministry of Senior affairs) on an ongoing basis to develop strategy around an Ontario institute dedicated to research and relevant projects.

- MIRA co-funded the CLSA's COVID-19 study, which has subsequently attracted additional funding from the **Public Health Agency of Canada** to support policy development.

Research partnerships are fostered through the co-funding of research projects, facilitation of interdisciplinary research, and through collaboration with internal institutes such as the **Michael G. DeGroote Institute for Pain research and Care (IPRC)** and other partners such as **AGE-WELL**, **Diabetes Action** and the **Ontario Strategy for patient-oriented research support unit (OSSU)**.



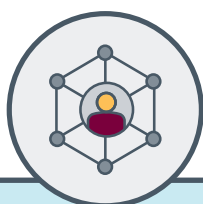
International

International partnerships support MIRA to achieve global reach and also position MIRA's researchers for emerging international funding opportunities. In the last five years:

- MIRA has signed a Memorandum of Understanding (MoU) with a new international alliance between UK's **Northern Health Science Alliance** and its Canadian partners.
- MIRA has developed international partnerships with **Lancaster University** (UK) as well as the **University of Leeds** (UK). Both partnerships demonstrate commitment to the establishment of international collaborations that can support Highly Qualified Personnel through exchange opportunities for visiting scholars, postdoctoral fellows and post graduate students, as well as accessing infrastructure and research funding from counterpart regions. The collaboration with the University of Leeds is positioned around emerging funding opportunities to study frailty in population-based cohorts.
- Another key partnership was formed between the CLSA, **Metabolon Inc.** (US) and the Canadian Frailty Network to support the analyses of bio specimens in the CLSA for frailty biomarkers. This also includes an investment by the Canadian Frailty Network. The development of a \$4 million research program studying the biological mechanisms underpinning frailty, metabolomics and aging is underway.
- Cloud DX** is a digital health company based in the U.S. and Canada. It 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.
- MIRA's partnership with designCORE within the **Institute of Technology Carlow** (Ireland) has been fundamental in developing design thinking, co-design and interdisciplinary principles.

Impact highlights

The overall impact of MIRA and LCMA work is demonstrated in this figure.



MIRA membership

140 faculty members

209 trainee members



Research impact

109 research projects supported

116 peer-reviewed publications from funded projects

191 presentations at relevant conferences and special events



Community initiatives

Age-Friendly University

Intergenerational programming

Combatting social isolation during COVID-19

Social prescribing pilot



Collaborations and stakeholder engagement

20 strategic partnerships

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



Highly Qualified Personnel (HQP)

HQP supported through scholarships: **48**
(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 postdoctoral fellows

54 research staff



Leveraged funds

Leveraged \$24.2 million in funds to complement the \$15 million Labarge Centre for Mobility on Aging gift, the \$10 million Labarge Optimal Aging Initiative gift and the \$3 million investment from McMaster University as follows:

LCMA funds leveraged for a total of **\$15.6 million**

MIRA funds leveraged for a total of **\$2.9 million**

LOAI funds leveraged for a total of **\$5.7 million**



Educational products

Caregiving Essentials course

macPAGE for students interested in gaining experience working with older adults

New online version of intergenerational programming to adapt to the pandemic

Two Optimal Aging Portal e-learning modules focused on osteoarthritis and brain health



Knowledge translation

MIRA is committed to advancing research and knowledge translation activities that are focused on aging.

Since MIRA launched in 2016, it has facilitated:

77 knowledge translation products, materialized as guidelines, policies, brochures, panel presentations and knowledge exchange events

MIRA-driven speaking engagements, public and scientific events: **10** in 2017, **21** in 2018, **25** in 2019, and **16** in 2020

Over the past five years, MIRA has built strong communication platforms intended to raise the profile of McMaster's strength in aging research. These include:

Stories in traditional and non-traditional media: **26** pieces of media coverage (2017) → **346** stories (2017 to 2020)

Twitter followers: **527** (2017) → **1,964** (2020)

Facebook launched in 2019 → **192** follows (2020)

LinkedIn reach launched in 2019 → **83** followers (2020)

Website engagement

8,144 new visitors (2017) → **39,436** new visitors (2017-2020) (13,896 new visitors in 2020 alone)

29,571 page views in 2017 → **143,472** page views (2017-2020) (44,774 page views in 2020 alone)

* Impact of the MIRA | Collaborative for Health & Aging and the Optimal Aging Portal are listed in sections 5 and 7 respectively

Impact stories



“MIRA and Labarge funding will contribute to a better understanding of how social isolation and loneliness are reflected in language use and how we can develop non-invasive methods to identify at-risk older adults and promote their social engagement.”

Victor Kuperman

Associate Professor,
Linguistics and language,
Faculty of Humanities



“I am thankful for the MIRA and Labarge funding that is enabling us to better understand and measure the ability of older adults to successfully interact in real world dynamic environments. My hope is that this will lead to better identification of those most at risk for falling so that interventions can help them to stay healthy.”

Laurel Trainor

Professor, Psychology,
Neuroscience & Behaviour,
Faculty of Science



“MIRA funding helped me to become more established in research on aging and start a new area of research aligned with my technical and theoretical expertise.”

Manaf Zargoush

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



“The catalyst funding provided by MIRA and the Labarge Centre for Mobility in Aging has been instrumental in our ability to come together as a multidisciplinary team.”

Janie Wilson

Professor,
Surgery,
Faculty of Health Sciences



“I have been at McMaster for twelve years, both in the Department of Health, Aging and Society and the Gilbrea Centre for Studies on Aging. I was able to watch the development and launch of MIRA from a front row seat. MIRA provided me with the opportunity to broaden my horizons and work with colleagues – often from Science and Health Sciences – who I would not otherwise have worked with.”

Gavin Andrews

Associate Professor,
Health, Aging and Society / Geography
and Earth Sciences,
Faculty of Social Sciences



“Before the Catalyst Grant, I did not have streams of research directly related to aging. Therefore, this grant was the key component in moving my program of study towards aging.”

Kathryn Grandfield

Associate Professor,
Department of Materials Science
& Engineering and School of
Biomedical Engineering,
Faculty of Engineering





The future of MIRA

When MIRA and LCMA became operational in 2016, several short- and long-term impacts were envisioned. These were broadly categorized as **Institutional, Scholarly, Health Policy, Practice** and **Community Engagement**.

As illustrated in this report, tremendous achievements have been made in the past five years to position MIRA as a research institute that has set the course for interdisciplinary aging research focused on developing human centred solutions that can address issues faced by older adults, their families, communities and our society as a whole. Many of MIRA's envisioned short-term impacts have been realized:

- MIRA has been at the forefront of the research landscape at McMaster, championing aging as a key priority while implementing design thinking and co-design principles that engage end users;
- MIRA has developed an interdisciplinary training program for the next generation of researchers;
- MIRA has significantly leveraged funds;
- MIRA has developed several partnerships, including international scientific exchange programs, produced high-impact publications and attracted high quality trainees;
- MIRA promotes aging in place through major mobility research programs, knowledge translation activities and program development using evidence-based resources such as the Optimal Aging Portal;
- MIRA has established a presence within the community locally and beyond to implement practice and policies through the creation of stakeholder and citizen networks.

There remain many opportunities to continue to develop MIRA and fine tune the process of inquiry and collaboration between students and faculty across diverse disciplines. This continued work will help us to reach anticipated long-term impacts, such as enriching existing and creating new strategic platforms, remaining at the cutting edge of new research, recruiting, retaining and training faculty in strategic areas and contributing to driving change in policy and practice through research yielded scientific products that will redefine health and social care models.

Looking forward to 2021 and beyond, MIRA will focus on the following activities:

Building innovative and strategic research priorities

- Develop additional major programs of research while strengthening MIRA's collaborations between Faculties;
- Continue to turn the challenges of COVID-19 into opportunities by supporting research in aging and mobility and identifying emerging topics;
- Develop new centres focused in priority areas that address aging from cell to society;
- Develop a technology-based citizen-platform that will bring all stakeholders together, enhancing internal and external collaboration to ensure end user stakeholder voices and engagement to achieve transformative research impacts.

Enriching McMaster paradigm of research on aging and research platforms

- Amplify existing infrastructure and research strength, such as the development of an intergenerational and life course program of aging;
- Develop models for emerging technologies to bring them to market and integrate them with existing models by facilitating the connection with commercial partners and capital.

Expanding MIRA's training program

- Expand MIRA's web-based platform to share information about educational opportunities for students/trainees and community members;
- Collaborate with partners to create and deliver an international training program such as the Summer Program on Aging (SPA) or the development of formalized interdisciplinary training in aging at McMaster University.





Expanding MIRA's strategic priorities

Additional strategic priorities have been identified through consultation with university stakeholders. These new priorities will form the research agenda of the Institute, harmonize with its overall vision, and complement its first priority area: Mobility in aging.

Additional strategic priorities include:

1. **Intergenerational aging:** The goal is to understand how environmental, lifestyle, psychosocial and biological factors cross generations to affect the aging process and how one could design intergenerational communities that support healthy aging.
2. **Brain and sensory aging:** This strategic area would explore issues related to changes in hearing and vision, and how they are linked to functional autonomy and healthy aging brain.
3. **Social, community and technology innovation and aging:** The purpose of this strategic area would be to determine how social, structural, or community environments and their interaction with technology facilitate age-friendly environments.
4. **Economics, public policy and aging:** There is a tremendous opportunity to understand how economic drivers and public policies at the federal, provincial and municipal levels shape aging societies.

5. **Comparative aging:** This area would focus on basic science that is fundamental to the understanding of biological processes involved in aging, for example comparing different aging model systems (e.g., flies, worms, rodents, and humans).

MIRA leadership is developing an Intergenerational and Life Course Cohort and Intervention Research Platform that will set the stage for research and training for the next five years. Adopting a multi-systemic approach, these platforms will provide a powerful model to investigate social aspects of aging, aging in place, explore disease etiology and unravel complex interactions between genetics, epigenetics, environment, behaviors, and socio-demographic factors in the cross-generational transfer of risk factors and health outcomes. The vision of this proposed platform is to create a longitudinal, intergenerational cohort which will serve as a data platform to enable multi-disciplinary teams to address a wide variety of research questions.





MIRA governance and management

Governance

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 the management of scientific and executive strategies and growth. As outlined in the governance structure, the Scientific Director reports to MIRA's Governing 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 provide a variety of perspectives to support MIRA's research initiatives and programs.

Focused centres created within MIRA use a single, centralized, and shared operational, governance and administrative model to facilitate advancement of the strategic objectives of all centres, beginning with the Labarge Centre for Mobility in Aging, as part of the advancement of strategic scientific objectives. The centralised governance and administration model maintains MIRA's unique operating structure while creating multiple focused centres that will advance diverse but integrated strategic priorities. Individual Centres, Institutes and Initiatives created prior to, or outside of MIRA's structure, will retain their own governance and administrative models but will work closely with MIRA to position McMaster University as a leader in research on aging.

MIRA governance



Members of the MIRA Governing Board

Dr. Karen Mossman
(Chair), Vice-President, Research

Dr. Susan Tighe
Academic Provost and
Vice-President, Academic

Dr. Susan Denburg
Executive Vice-Dean and
Associate Vice-President,
Academic, Health Sciences

Dr. Paul O'Byrne
Dean, Health Sciences

Dr. Maureen MacDonald
Dean, Science

Dr. Ishwar Puri
Dean, Engineering

Dr. Jeremiah Hurley
Dean, Social Sciences



Members of the Executive Committee

Dr. Paula Gardner
Humanities

Dr. Michel Grignon
Social Sciences

Dr. Milena Head
Business

Dr. Bhagwati Gupta
Science

Dr. Peter Mascher
International Affairs

Dr. Alexandra Papaioannou
Health Sciences (Clinical)

Dr. Ravi Selvaganapathy
Engineering

Dr. Michael Surette
Health Sciences (Basic Science)

Dr. Brenda Vrkljan
Health Sciences (Design Thinking)

Dr. Maureen Markle-Reid
(MIRA | Collaborative
for Health & Aging)

TBD
(MIRA | Dixon Hall Centre)

Members of the International Scientific Advisory Committee (ISAC)

Dr. David Hogan
(Chair), University of Calgary,
Academic Leader, Brenda
Strafford Centre on Aging,
O'Brien Institute for Public Health,
Cumming School of Medicine

Dr. Amelia DeFalco
University of Leeds, University
Academic Fellow in Medical
Humanities / Cultural
representations of aging,
disability, dementia and care

Dr. Tom Kirkwood
Newcastle University, Professor
Emeritus (formerly Associate Dean
for Ageing), Institute for Ageing

Dr. James Nazroo
University of Manchester,
Professor of Sociology, Honorary
/ Director, Cathie Marsh Centre
for Census and Survey Research

Dr. S.V. Subramanian
Harvard University, Professor
of Population Health and
Geography, Department of
Social and Behavioral Sciences

Prof. Nicola Palmarini
Newcastle University,
Director, National Innovation
Centre for Ageing

Members of the Training and Capacity Working Group (TCWG)

Dr. Andrew Costa
(Co-Chair), Health Sciences

Dr. Janet Pritchard
(Co-Chair), Science

Dr. Magda Stroinska
Humanities

Dr. Kim Dej
Science

Lorraine Carter
Centre for Continuing Education

Dr. Jocelyn Harris
Health Sciences

Dr. Yvonne LeBlanc
Social Sciences

Sarah Novosedlik
Engineering

Dr. Bhagwati Gupta
Science

Dr. Milena Head
Business

Members of the End User and Stakeholder Committee (EUSC)

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(Chair), McMaster University

Dr. Hugh Boyd
St. Joseph's Villa

Jordan Antflick
Ontario Brain Institute

Lisa Maychak
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Janine Mills
Thrive Group/Able Living

Marie-Lison Fougère
Deputy Minister,
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John Oliver
MP, City of Oakville

Mary Lou Tanner
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Barry Spinner
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Members of the Communications and Promotions Working Group (CPWG)

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Laura Lawson
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Erin Young
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Aging Research, Administration
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Naomi Scobie
(temporary), GERAS Centre for
Aging Research, Administration
and Communications

Management

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



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Communications Manager



Gésine Alders
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Allison Dubé
Project Manager



Vincenza Gruppuso
Research Coordinator (part-time)



Alison Outtrim
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Audrey Patocs
Research Manager

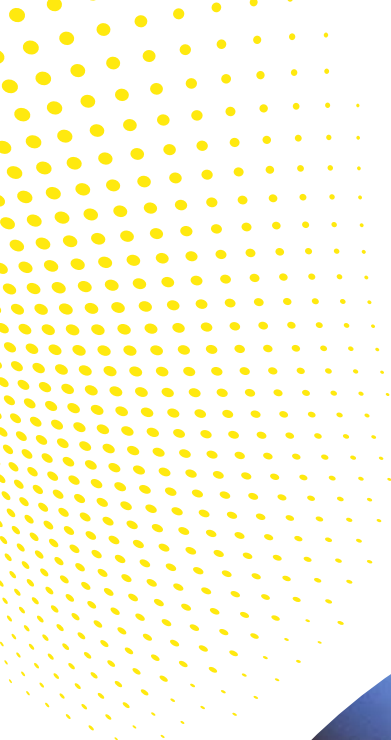


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