BAYCREST ACADEMY FOR RESEARCH AND EDUCATION

2022-2023 Annual Report

Baycrest

FEAR NO AGE™

Advancing together to revolutionize aging.

The Baycrest Academy for Research and Education is home to the **Rotman Research Institute (RRI)**, one of the world's most acclaimed research centres for the study of aging and human brain function, and the **Centre for Education & Knowledge Exchange in Aging**, a leading provider of innovative education in geriatrics, brain health, and aging.

Together, we are empowering older adults to live their best possible lives.

Baycrest

FEAR NO AGE™

The first Baycrest Academy for Research and Education annual report is dedicated to Dr. Endel Tulving (1927-2023). Dr. Tulving was one of the first scientists to join Baycrest's Rotman Research Institute in 1992. His legacy lives on through his incredible contributions to research and the support he provided to generations of scientists.

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By the Numbers

$31.5M TOTAL FUNDING SPENT

CENTRE FOR EDUCATION

504
STUDENT LEARNERS

72,428
HOURS SPENT LEARNING

25
STAFF

184
STAFF ACADEMIC APPOINTMENTS

89%
OF STUDENTS RECOMMENDED BAYCREST AS A PLACEMENT

18
ACADEMIC PARTNERSHIPS

361
Tele-Education Events

256
Clinical Teaching Rounds

105
Continuing Education Events

29
Conference Presentations & Publications

127 Library Literature Searches

3,996 Visits to Library Homepage

Ontario Centre for Learning, Research and Innovation (CLRI) in Long-Term Care at Baycrest:

3,344
Team Members, Students, and Clinicians Trained

58
Educational Events Offered, Including Face-to-Face Workshops and Virtual Rounds

212
Long-Term Care Homes Reached

$8.3M NEW GRANT FUNDING AWARDED OVER MULTIPLE YEARS

34 NEW GRANTS

ROTMAN RESEARCH INSTITUTE

26 SCIENTISTS

110 TRAINEES

2 CLINICIAN ASSOCIATES

49 RESEARCH STAFF

#1 Research-Intensive Hospital in Canada

16,485 ACTIVE RESEARCH PARTICIPANTS

2 SCIENTIFIC ASSOCIATES

30 ADMINISTRATIVE AND SUPPORT STAFF

26 INTERNATIONAL PARTNERSHIPS

133 Ongoing Studies

201 Publications

103 Keynote and Invited Presentations by Scientists

163 Outreach Events

69 Student Awards

4 CANADA RESEARCH CHAIRS, INCLUDING A CANADA 150 RESEARCH CHAIR

4 ENDOWED RESEARCH CHAIRS

LEADERSHIP MESSAGE

We are pleased to share the first annual report for the new Baycrest Academy for Research and Education, representing an integrative partnership between Baycrest's Centre for Education and Rotman Research Institute.

Together, we will use our existing strengths to amplify our reach and impact as we educate, conduct research, and provide high-quality services to support the discovery, translation, and mobilization of new knowledge to help everyone ***Fear No Age***™. In this report, we share more about the new Baycrest Academy and how, by integrating research and education, we can improve the lives of more older adults in Canada and around the world.

While the COVID-19 pandemic continued this fiscal year, high rates of vaccination and other effective public health measures allowed us to resume more in-person activities across the campus, from the opening of our new Centre for Health Information to welcoming back our research participants and more.

In this report, we highlight just a small selection of these activities. We demonstrate how the Centre for Education continues to provide responsive, innovative, evidence-informed education for all our learners; and how the Rotman Research Institute (RRI) remains a global leader in the field of aging and brain health, driving key scientific advances to better prevent, detect, and treat dementia and other neurological disorders. We feature our state-of-the-art research and education programs, units, and facilities, and share some of the many ways in which they support Baycrest's vision of **a world where every older adult can enjoy a life of purpose, inspiration, and fulfilment**.

We also celebrate some important achievements. Baycrest was once again recognized as the #1 most research-intensive hospital in Canada, according to Research Infosource's latest rankings for Canada's Top 40 Research Hospitals. Grounded in the principles of predictive neuroscience for precision aging, the RRI continued to increase the reach of its crucial research in aging and brain health, Alzheimer's and related dementias, sensory and cognitive neuroscience, and neuroinformatics and computational neuroscience, impacting programs, practices, and policies. In addition, several of our educators and researchers were recognized for their incredible efforts and contributions with prestigious grants, awards, and other accolades.

We also put the spotlight on some of the many individuals without whom research and education at the Baycrest Academy would not be possible, from students and trainees to staff members and volunteers.

Finally, we share the ways in which we are moving forward with new business development and knowledge mobilization strategies, and review our commitment to making changes that lead to a more equal and just workplace and community through our equity, diversity, and inclusion outreach activities.

This has been an incredible year, and we look forward to seeing the Baycrest Academy grow as we continue to pave the way towards a world where we can all age fearlessly.

DR. ALLISON SEKULER

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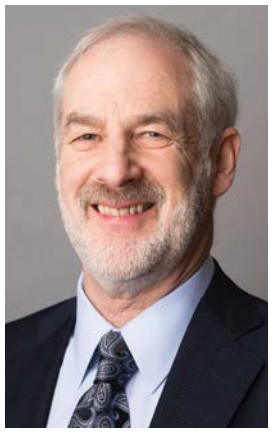

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Integrating Research and Education

The Baycrest Academy for Research and Education represents the amalgamation of the Rotman Research Institute and the Centre for Education and Knowledge Exchange in Aging.

Maximizing impact with the Baycrest Academy

By integrating research and education under the Baycrest Academy, we have an opportunity to maximize the impact of both in the broader community and to reap several additional benefits, such as the following:

- The Academy brings together our unique perspectives on research and education to collaborate on initiatives and projects, amplifying the Academy's reach and influence.
- The Academy strengthens our impact on clinical practice through applied research and evaluation, the use of effective knowledge dissemination and implementation tactics, and innovative technology and pedagogy.
- The Academy brings together clinical students, research trainees, and medical trainees in a holistic approach to drive interprofessional learning and collaboration.
- The Academy benefits from shared methodological expertise and infrastructure, and enhances our ability to apply for more diverse funding and funding success, as well as develop and operationalize sustainable business models and opportunities.

Together, we will use our advances in research and education to drive knowledge discovery and dissemination, and help all older adults and their families live their best possible lives.

Developing a strong strategic plan

At the time of this writing, in line with the broader Baycrest Seniors Care strategy, we are in the process of developing a strategic plan that fully reflects the integration of research and education, and lays the path for the Baycrest Academy's growth and sustainability.

To support us through this comprehensive strategic planning process, we are working with an international management consultancy and engaging numerous members of the Academy, including scientists, staff, students, trainees, and educators, as well as Academy Advisory Committee members and partners beyond the Academy.

Raising Canadians' awareness of dementia prevention strategies

At the end of the fiscal year, the Baycrest Academy secured an important grant from the Public Health Agency of Canada's Dementia Strategic Fund, with the goal of using research and education to raise Canadians' awareness of how to reduce their dementia risk.

The Academy began working with older adults, people at risk for and living with dementia, and their care partners, to create and disseminate a podcast series, videos, infographics, and website all about dementia prevention. This suite of knowledge products will acknowledge that different individuals have different optimal learning modes, and that learning is enhanced when individuals receive related information through different modes of engagement.

The podcast, called *Defy Dementia*, will be hosted by the Baycrest Academy's President and Chief Scientist, Dr. Allison Sekuler, and Canadian author and broadcaster, Jay Ingram, with guests invited to speak about their lived experience and about different factors linked to dementia risk. The information presented in the podcast will be informed in part by Baycrest research, while the Centre for Education team will lead the development of the accompanying videos and infographics. The Rotman Research Institute (RRI)'s Kunin-Lunenfeld Centre for Applied Research & Evaluation (KL-CARE) will evaluate the effectiveness of the project in raising Canadians' awareness and understanding of risk factors for dementia, as well as fostering more inclusive attitudes towards those living with dementia.

By meaningfully engaging older adults and their care partners throughout the co-design and dissemination of these evidence-based, culturally appropriate, and accessible knowledge products, this project will not only raise awareness on how to prevent dementia but also help reduce dementia-related stigma.

Tune in to the Defy Dementia podcast at defydementia.org or wherever you get your podcasts.

Revolutionizing dementia care with the Possibilities by Baycrest™ model

Building on Baycrest's clinical, academic, and research expertise, Possibilities by Baycrest™ is a transformational, compassionate, and customized approach to caring for persons living with dementia.

The model leverages the Baycrest Academy's neuroscience expertise to inform and enable practical solutions aimed at optimizing brain health and supporting individuals in the best possible aging journey. It is designed and delivered by experts in dementia who see beyond daily care tasks and value each individual's choice, autonomy, purpose, and connections.

To enable more care practitioners to deliver this revolutionary model of care, the Centre for Education developed the Possibilities by Baycrest™ Learning Experience. Drawing on literature and best practices from the fields of neuroscience, adult education, medical education, and geriatric practice, it leverages storytelling, adult learning theory, simulation, and case-based learning. In this way, it builds a foundation for relationship-centered care and enables older adults in Possibilities by Baycrest™ communities to live a life of purpose, inspiration, and fulfilment. The curriculum was developed over the course of several years by expert educators in consultation with the clinicians and researchers conceptualizing the entire Possibilities by Baycrest™ model of care. The result combines synchronous and asynchronous education, innovative game-based learning, and expert facilitation to enable new staff to support each resident on their best possible aging journey.

KL-CARE was also engaged to evaluate the program, by examining the program's implementation, user experience, and outcomes with staff, residents, and families.

POSSIBILITIES
by Baycrest™

Aging and Brain Research Feature: Hearing and Music

Many older adults develop hearing loss as they age, which negatively impacts their crucial ability to isolate relevant sounds from background noise in day-to-day communication – for example, following a friend's conversation in a noisy restaurant. Hearing loss not only puts them at risk for social isolation, but also increases their chances of developing dementia.

Foundational research at the Baycrest Academy aims to better understand the relationship between speech comprehension and cognitive impairment, and to use this knowledge to improve older adults' lives.

Enhancing the detection of early listening effort

Hearing impairment is often diagnosed decades after individuals start experiencing substantial effort when trying to understand speech in noisy situations. As such, this listening effort may be a promising early indicator of hearing impairment. However, it is not currently captured by standard hearing tests.

Dr. Björn Herrmann, Baycrest's Canada Research Chair in Auditory Aging and Scientist at the Rotman Research Institute (RRI), aims to address this gap with an important grant from the Canadian Institutes for Health Research (CIHR). He and his colleagues, including collaborator Dr. Jennifer Ryan (Senior Scientist), are studying how eye movements change as listening effort increases, and how this relationship changes in older adulthood. Based on this knowledge, they will develop an innovative method to assess listening effort using eye movements, leading to better outcomes for individuals living with hearing impairment.

Enhancing older adults' speech comprehension

Senior Scientist Dr. Bernhard Ross and his team at the RRI are using magnetic resonance imaging (MRI) and magnetoencephalography (MEG) to study the relationships between hearing loss, brain aging, and understanding speech in noisy situations. They have found that reduced levels of the neurotransmitter GABA – an important chemical messenger in the brain – lead to an imbalance in individuals' brain waves. This imbalance impairs the brain's ability to combine speech sounds into meaningful words, in turn making it more difficult to understand speech in noisy situations.

Based on these findings, the team has developed a new computer-based training program to help older participants with different levels of hearing loss improve their understanding of speech in noise.

Using musical training to maintain the ability to understand speech in noisy environments

In a recent study, Senior Scientist Dr. Claude Alain and his team found that playing a musical instrument can help older adults maintain their ability to understand speech in noisy conditions. The researchers used MRI to compare the brain activity of older musicians, older non-musicians, and younger non-musicians while they were asked to identify different sounds masked by noise.

They found that the older musicians performed as well as the younger non-musicians and had similar brain activity during this task, with comparable regions of the brain being engaged. In contrast, the older non-musicians showed very different brain activity. This suggests that musical training helps the brain sustain its ability to identify speech in noise as we age. This knowledge could lead to the development of novel training methods to help older adults preserve their ability to listen in noisy conditions.

Dementia Prevention

Donors from Boom Health and members of the Centre for Education team at the opening of the new Centre for Health Information.

Introducing Baycrest's new, innovative health literacy and information hub

Sixty per cent of Canadians and up to 88 per cent of older adults have low health literacy – that is, the skills needed to obtain, understand, evaluate, communicate, and use reliable health information for better health, including brain health. The Centre for Education aims to address this challenge.

After a two-year-long revitalization project, the **Centre for Health Information** officially opened its doors on July 25, 2022, to give older adults and their caregivers access to reliable health information to help them participate in their care and more effectively manage their health.

Located on the first floor of the Apotex Centre, Jewish Home for the Aged at Baycrest, the Centre provides resources on brain health, dementia, caregiving, and much more. Following its revitalization, it now offers a larger space for health information; more computers with internet access and improved accessibility features; new services such as personalized health information searches; and an upgraded collection of health information resources. Trained volunteers are available to help visitors find information that is relevant and personalized to them.

The Centre for Health Information also includes the online **Health Information Portal**, which aims to educate residents, caregivers, and community members about aging and brain health through reliable online health education resources.

To access the Health Information Portal, click here.

Lifestyle may be more important than age in determining dementia risk

A recent Baycrest study showed that individuals with no dementia risk factors have similar brain health as people who are 10 to 20 years younger.

The study included data from 22,117 people aged 18 to 89 who completed the Cogniciti Brain Health Assessment, developed by Baycrest. The researchers examined how memory and attention test performance was impacted by eight modifiable risk factors for dementia: low education, hearing loss, traumatic brain injury, alcohol or substance abuse, hypertension, smoking, diabetes, and depression.

Each factor led to the equivalent of up to three years of aging-related cognitive decline, with each additional factor contributing an additional three years of aging. In line with predictive neuroscience for precision aging, research like this will help us identify and address dementia risk factors earlier, helping everyone live their best possible lives.

"All in all, our research shows that you have the power to decrease your risk of cognitive decline and dementia," says Dr. Annalise LaPlume, Postdoctoral Fellow at the Rotman Research Institute (RRI) and the study's lead author.

Dr. LaPlume was supervised by RRI Senior Scientist Dr. Nicole Anderson. This research was supported by the Alzheimer Society of Canada and the Natural Sciences and Engineering Research Council of Canada.

Dementia Detection and Diagnosis

Researchers and educators at the Baycrest Academy are paving the way towards the detection and diagnosis of dementia at its earliest stages, allowing for timely interventions and tailored support for individuals and their caregivers.

Improving the detection and diagnosis of brain health disorders in older adults

Following a successful pilot in 2021, the Centre for Education and the Canadian Coalition for Seniors' Mental Health (CCSMH) received a grant from the Public Health Agency of Canada to deliver 30 education sessions to help healthcare providers better detect and diagnose dementia and other brain health disorders.

Leveraging their experience with the Project Extension for Community Healthcare Outcomes (ECHO) model, the Centre for Education and CCSMH teams assembled a steering committee of experts from across Canada, and they officially launched National ECHO: Geriatric Mental Health in February 2023. This program provides virtual, real-time, interprofessional education sessions to enhance quality of care for older adults by improving healthcare providers' knowledge and skills with regard to detecting and diagnosing dementia and other cognitive and mental health disorders.

Examples of session topics include screening for and assessment of dementia, as well as delirium, substance use disorders, behavioural and psychological symptoms of dementia, suicide risk and prevention, and supporting caregivers' mental health.

Overall, the program's first cycle attracted 205 learning partners from nine different provinces, of whom 95 per cent would recommend the program to a colleague. Future cycles are ongoing.

Using artificial intelligence to improve cognitive screening

Scientists and clinicians at Baycrest's new Pamela and Paul Austin Centre for Neurology and Behavioural Support are developing tools that leverage artificial intelligence (AI) to enhance the brain health assessment process for prospective clients.

As part of their existing, comprehensive assessment, clinicians at the Sam and Ida Ross Memory Clinic, located within the Austin Centre, ask patients to draw a clock with hands in the 10 after 11 position. This is a sensitive test to detect cognitive impairment. However, manually scoring these clock drawings can be time consuming. To address this challenge, a team, led by Dr. Bradley Buchsbaum (Rotman Research Institute (RRI) Senior Scientist) and Dr. Morris Freedman (Medical Director, Pamela and Paul Austin Centre for Neurology and Behavioural Support, RRI Scientist, and Baycrest Head of Neurology), has successfully created an AI-based machine vision tool that can automatically detect dementia. In a sample of 680 cases, the tool was in line with a physician's diagnosis 80 per cent of the time, showing a high degree of accuracy.

Building on the RRI's expertise in precision medicine and predictive neuroscience for precision aging, the tool will be integrated into the Pamela and Paul Austin AI Platform, which will help prospective clients be evaluated more quickly. This will lead to more efficient and accurate identification of the right treatment plans, ultimately helping older adults to live their best possible lives.

To learn more about our latest research findings, visit the news section of the Baycrest website.

Dementia Treatment and Care

Investigating low-level laser therapy for brain health

Dr. Jean Chen has been named the Canada Research Chair in Neuroimaging of Aging for a second consecutive term. In her second term, Dr. Chen aims to deliver non-invasive, personalized interventions to improve brain health.

Dr. Chen is investigating low-level laser therapy, where an infrared laser travels through the skull to improve blood flow in the brain. This has been shown to enhance brain activity.

At present, many brain health therapies require the client to travel to a clinic or hospital on a regular basis. In contrast, low-level laser therapy could easily be adopted and used at home. This would increase the accessibility of brain health treatments to benefit more older adults, including those living with depression, dementia, and other neurological conditions.

"Through my research, I hope to give older adults access to easy, non-invasive tools they can use regularly to maintain and improve their brain health," says Dr. Chen, who is a Senior Scientist at the Rotman Research Institute (RRI). "I really see this as the way of the future."

This work reflects the RRI's leading role in predictive neuroscience for precision aging.

Dr. Chen's research is supported, in part, by the Linda Judith Reed Foundation.

Identifying and mitigating environmental triggers of behavioural symptoms of dementia

Besides cognitive symptoms, people living with dementia may also show responsive behaviours – that is, behavioural symptoms, such as agitation and aggression, that they may use as a way of responding to something negative, frustrating, or confusing in their social or physical environment. As such, there is a need for educational tools that help healthcare workers, students, and caregivers identify and modify environmental factors that can contribute to these responsive behaviours.

To address this need, Baycrest educators developed the Virtual Trigger Room, an online, augmented reality tool presenting a 360° self-guided tour through the living space of a person living with dementia. Participants identify potential triggers for responsive behaviours as they navigate between the sitting room, bedroom, and bathroom in this simulated person's home. Once identified, participants then select appropriate mitigation strategies for each trigger.

This proof-of-concept study was found to be a feasible educational activity that enhanced learning, increased awareness of environmental triggers, and could be helpful in clinical practice. Readers can try the activity at the following URL: **baycrest.org/TriggerRoom**

This project was supported by a grant from the Ontario Ministry of Health and Long-Term Care, Academic Health Science Centre Alternate Funding Plan Innovation Fund.

Training the Next Generation: Clinical Students, and Medical and Research Trainees

Excellence in Training

The Baycrest Academy's Centre for Education supports and enhances the learning experience of clinical students, and medical and research trainees with world-class training. The Centre provides clinical training, observerships, internships, fellowships, and residencies to an array of healthcare professional students locally, nationally, and internationally. Our students and trainees contribute to knowledge sharing at Baycrest and are involved in many programs across the campus.

93% of students said their placement enhanced their understanding of the unique needs of older adults

93% would recommend their preceptor/ supervisor for future student placements

This year, we welcomed more than 500 students from 29 disciplines, representing a diverse range of academic institutions.

Top 5:

1. **University of Toronto**
2. **George Brown College**
3. **Seneca College**
4. **Toronto Metropolitan University**
5. **York University**

Brescia University College
Centennial College
Durham College
Fleming College
Hebrew Union College
Humber College
McMaster University
Medix College
University of Western Ontario
University of Waterloo
University of Windsor
Wilfred Laurier University

"I am undoubtedly a more confident and well-rounded future neuropsychologist as a result of the clinical tools and wisdom I have cultivated through this program."

Pre-doctoral Intern in Clinical Neuropsychology, Neuropsychology and Cognitive Health Program

Research Training Centre

The Research Training Centre (RTC) is a unit dedicated to the technical, professional, and career development of the next generation of scientific leaders. Through expert-led lectures, workshops, internships, scholarships, and public outreach initiatives, the RTC provides trainees with opportunities to build research and leadership skills; network with scientific leaders in academia, industry, government, and not-for-profit organizations; and explore career options.

Rotman Research Day 2022

On September 21, 2022, the RTC successfully hosted a Rotman Research Day at the Prosserman Jewish Community Centre, its first in-person research day since February 2020. The Rotman Research Institute (RRI) came together to celebrate five of our retiring scientists through special keynote presentations from Drs. Gus Craik, Deirdre Dawson, Cheryl Grady, Stephen Strother, and Gordon Winocur. As well, scientific poster sessions were held throughout the day to allow RRI trainees and labs to present their latest research projects and findings. Through the efforts of the organizing committee (Negar Mazloum-Farzaghi [Ryan and Olsen Labs], Dr. Asaf Gilboa, Monique Cheng, and Dr. Rosanne Aleong) as well as many volunteers, the day was a joyous celebration of the RRI's history and a showcase for our exciting research future.

RRI trainees recognized by the Data Sciences Institute

The RRI recently partnered with the Data Sciences Institute (DSI) at the University of Toronto. This partnership enables the Academy to make the most of our behavioural, clinical, and neuroimaging data; connects us to the broader data science community to drive new collaborations and research opportunities; and supports the training of the next generation of data scientists. This past year, a number of RRI trainees received awards and fellowships from the DSI. Dr. Björn Herrmann's undergraduate trainee, Xiaoning Wang, received a Summer Undergraduate Data Sciences (SUDS) Research Opportunity Award. In addition, two postdoctoral fellows supervised by Drs. Nicole Anderson (Dr. Jacklyn Koyama) and Donna Rose Addis (Dr. Isaac Kinley), respectively, with co-supervisors at the University of Toronto, were awarded Data Science Institute Postdoctoral Fellowships for two years.

RRI Rounds Coordinators 2022-2023

The RTC would like to acknowledge and thank Dr. Bruna Seixas-Lima and Alice Zhang (Chertkow Lab) for serving as the 2022-2023 RRI Academic Rounds Coordinators and for their tremendous efforts in developing, organizing, and implementing a wonderful rounds line-up. This included 17 of our regular RRI Rounds, as well as the highly successful Toni Balatinecz Memorial Symposium and a joint RRI Rounds/Ebbinghaus Empire talk featuring Dr. Ken Norman from Princeton University.

$88,471 in scholarships awarded | **22** scholarships awarded

13 professional development workshops | **18** technical/skill development workshops

900 rounds attendees | **25** rounds

5 community-building events | **1,047** workshop attendees

Student Profiles

Ziming (Zi) Cheng is a PhD student working with Drs. Donna Rose Addis and Jennifer Ryan. Using tools like eye tracking and artificial intelligence-based natural language processing, he studies how our eye movements and verbal narratives reflect the organization and reconstruction of our memory. He is currently working on a project examining people's eye movements as they describe an image they have previously seen; the results will increase our understanding of how we construct our memories. "Training at the RRI means that I get to work with some of the best memory researchers in the field, who inspire me every day with their passion, dedication, and creativity," says Zi. "It also means that I get to contribute to the field by discovering new ways to characterize, understand, and improve memory."

As a medical student participating in Baycrest's Summer Older Adult Research Program, **Pooja Sankar** worked under the supervision of Dr. Thirumagal Yogaparan (Executive Medical Director, Baycrest Hospital) and Dr. Samantha Yau (Director, Interprofessional Practice & Pharmacy) to investigate ways to optimize the prescription of medications, to help minimize side effects, and improve quality of life for patients. She also shadowed Dr. Yogaparan during several comprehensive geriatric assessments with older adults, which showed her the importance of an interdisciplinary and collaborative approach to maintaining the well-being of geriatric patients. "I really enjoyed the opportunity to work and learn more about geriatric medicine through my research, while simultaneously immersing myself in the clinical side of the field to learn about best practices, effective patient communication, and skills needed to provide holistic healthcare that is tailored to meet the unique needs of the geriatric community," says Pooja.

Michelle Sosa always knew she wanted to work in healthcare. After obtaining her psychology degree, she enrolled in the Occupational Therapist Assistant & Physiotherapist Assistant (OTA & PTA) program at Centennial College and completed a placement at Baycrest through the Centre for Education. During her time here, she worked with an allied health team and had the chance to learn about different ways to meaningfully help clients, from exercise therapy to palliative care. "My time at Baycrest has been the greatest placement experience I ever had," says Michelle. "I believe every student who gets to go to Baycrest is lucky to be able to experience a placement here."

As a research assistant in the Grenier Lab on Aging and Inequality, undergraduate student **Nicole Velev** is currently supporting Alzheimer Society-funded research aiming to achieve inclusion and meaningful research participation for people living with dementia. Through her involvement, her goal is to help open a discourse about the challenges, harmful presumptions, and exclusionary barriers in dementia research. "To me, training with Dr. Grenier at the RRI means learning from the diverse perspectives, meaningful lived experience, and expertise of fellow students on the team and Canadian researchers in the field of dementia," says Nicole.

Education Technology

The Baycrest Academy's Centre for Education uses state-of-the-art educational technology to promote and enhance teaching and learning across the Baycrest campus.

Serious games for teaching and learning

The Centre for Education is innovating serious simulation games for healthcare education. In partnership with the Centre for Aging + Brain Health Innovation, the Kunin-Lunenfeld Centre for Applied Research & Evaluation, and Launch 57, the Ontario Centres for Learning, Research and Innovation in Long-Term Care (CLRI) designs, delivers, and evaluates meta-simulation game worlds for students and staff to excel in the care of older adults. The Learning Interprofessionally Healthcare Accelerator (LIPHA) combines simulation-, game-, art-, and story-based learning techniques with evidence and best care practices. The goal is to foster clinical specialization, professional socialization, teamwork, and values-based practice. LIPHA is an education technology solution designed to counteract healthcare workforce shortages through effective, virtual learning that is accessible online anytime, anywhere, on any device. To date over 2,000 learners have excelled in LIPHA for long-term care.

eLearning

This year, the Baycrest eLearning team led the instructional design and development of the Cannabis and Older Adults eLearning modules for the Canadian Coalition for Seniors' Mental Health (CCSMH), which launched in March/April 2022. More than 1,700 healthcare providers and healthcare students accessed these modules.

This project was funded by Health Canada (Substance Use and Addictions Program).

As well, the Learning Management System (LMS) continued to support Baycrest staff in providing access to 145 core curriculum and clinical courses. The LMS also served a growing number of external users, such as family medicine students on their geriatrics rotation, physicians and dentists completing re-credentialing, and international physicians attending virtual rounds. More than 14,000 eLearning courses were completed.

Simulation Activities in Gerontological Education

Baycrest's Simulation Activities in Gerontological Education (SAGE) program is one of only a few in the world working with older adult, volunteer-simulated participants (SPs). These SPs play the role of clients, family members, or healthcare providers for educational purposes. SPs and the SAGE program support a wide variety of educational programs to promote the highest quality of care for older adults.

"I have found my participation in SAGE to be quite amazing," says Anne Katz, a long-time Baycrest volunteer. "We're learning, we're acting, we're having a great deal of fun, and we're able to transmit information to present and future caregivers for older adults. I feel it's a very worthwhile contribution."

Ontario CLRI at Baycrest: Strengthening the Long-term Care Sector Since 2012

Baycrest is one of the host organizations of the Ontario Centres for Learning, Research and Innovation in Long-Term Care (CLRI), providing support to enhance the quality of life and care of people who live and work in long-term care.

As a nurse scientist with a passion for education and applied, policy-relevant research, **Dr. Raquel Meyer** brings a wealth of expertise to her role as Director, CLRI at the Baycrest Academy. "I'm curious and eager to support long-term care by bringing the best evidence and leading innovations in education to the Centre," says Dr. Meyer. In her role, she is focused on reinvigorating the workforce and strategically recruiting the next generation of healthcare providers into the field of aging. To that end, she has deepened her interest in serious educational games, scalable educational technologies, and arts-based learning approaches. "It's a joy to explore more effective and creative ways of sparking learning in teams and students who care for older adults," says Dr. Meyer.

PREP LTC: Supporting student placement programs in long-term care

The Preceptor Resource and Education Program in Long-Term Care (PREP LTC) is a $73 million project funded by the Ontario Ministry of Long-Term Care to support long-term care homes (LTCHs) in building and expanding student placement programs. As a CLRI host organization, Baycrest has supported the development of new educational components for LTCHs involved in PREP LTC.

In its second year of implementation, 80 per cent of all LTCHs in Ontario enrolled in the PREP LTC program, and 1,133 LTC team members completed the eLearning course. Across the sector, 84 per cent of LTCHs enrolled in Year 2 agreed that receiving Year 1 funding increased the quantity and/or quality of student placements in their LTCHs.

While the sector continues to fulfil the objectives outlined in the Fixing Long-Term Care Act, LTCHs are working to gradually increase the level of care to four hours of care per resident per day by March 31, 2025, which will require the education and training of new professionals to fill the predicted future shortage of more than 27,000 full-time equivalent jobs. The PREP LTC initiative will continue to provide LTCHs with the necessary supports to help them reach this goal.

Virtual interprofessional internships in innovation and aging in long-term care

Baycrest continues to offer virtual interprofessional internships for students in the health professions. These summer internships provide students with the opportunity to build geriatric competencies, explore careers in aging care, and network with healthcare providers.

From May to July 2022, 15 students completed innovation projects based on design thinking methodology, and participated in small-group and serious educational game-based learning focused on aging, clinical issues in gerontology, and interprofessional competencies. The students were satisfied with their internship experience and would recommend the opportunity to others, noting benefits such as increased knowledge related to interprofessional care/practice, increased confidence interacting with residents in LTC, and more awareness of the clinical realities of working in LTC, among others.

Ben & Hilda Katz Interprofessional Research Centre in Geriatric and Dementia Care

The Baycrest Academy is committed to a collaborative, interdisciplinary, and community-focused approach to research and education. Partnering with clinicians and older adult community members is a key part of our work.

Leading interdisciplinary research across Baycrest

Led by Rotman Research Institute (RRI) Senior Scientists Drs. Nicole Anderson and Amanda Grenier, the Ben & Hilda Katz Interprofessional Research Centre in Geriatric and Dementia Care, also known as the Katz Centre, is guided by the following goals:

- To build capacity for interprofessional research at Baycrest
- To promote scholarly activity among Baycrest clinicians
- To embed interprofessional research into clinical practice

Monthly Katz Centre virtual rounds were launched this year, with an exciting variety of talks and discussions on topics such as:

- Experiences of racism among long-term care staff from residents and family members (Dr. Laura Wagner, University of California, San Francisco)
- The link between heart rate variability and cognitive and mental health (Dr. Linda Mah and Janet Murchison, Baycrest)
- Caregiver tools (Dr. Rob Madan and Dr. Ken Schwartz, Baycrest) as well as caregiver needs and effective interventions (Dr. Adriana Schnall, Baycrest)
- Concepts of precarity and frailty and how they influence inclusion and meaningful participation of older adults (the Katz Centre's own Dr. Amanda Grenier)

In addition, the Katz team began to approve applications from Baycrest and external clinical staff to become Katz Centre Affiliated Investigators, with the goal of fostering increased integration of research and care in geriatrics and dementia.

Kunin-Lunenfeld Centre for Applied Research & Evaluation

Evaluating a mobility robot for North American healthcare settings

FUJI Innovation Labs from Japan has designed the FUJI Hug, a mobility support robot that assists individuals with transferring to sitting or standing positions (for example, from a bed or during toileting). While the FUJI Hug has already been deployed in Japan, FUJI Innovation Labs contracted the Kunin-Lunenfeld Centre for Applied Research & Evaluation (KL-CARE) to help their company better understand North American healthcare settings for older adults, the characteristics of North American clients who may benefit from the FUJI Hug, and the perspectives of North American clinicians who might use the FUJI Hug in their clinical practice.

KL-CARE successfully designed and conducted a product demonstration and focus group-based research study with Baycrest clinicians to identify potential use cases, facilitators and barriers to implementation and adoption of the Fuji HUG robot, as well as recommendations for potential refinement of the product for the North American healthcare system and market.

KL-CARE offers end-to-end applied research and evaluation services to companies like Fuji Innovation Labs, which are seeking to conduct end-user validation of their products, particularly with a focus on clinicians and implementation in healthcare settings.

Evaluating the impact of a dance program for older adults

Canada's National Ballet School (NBS) and Baycrest's Department of Culture & Arts have jointly developed, researched, evaluated, and disseminated Baycrest NBS Sharing Dance Older Adults, a dance program for older adults, including persons living with dementia and their caregivers. Among others, offerings have included in-person dance classes in Toronto and video-streamed dance classes that have engaged over 5,000 older adults in 150 communities across Canada.

Through funding from the Public Health Agency of Canada, NBS produced a short documentary film about dance and dementia, and partnered with Baycrest and KITE Research Institute – Toronto Rehabilitation Institute, University Health Network (UHN), to spread knowledge of Sharing Dance Older Adults across Canada, and evaluate the film.

KL-CARE collaborated with NBS and UHN-KITE on a program evaluation of knowledge translation events related to Baycrest NBS Sharing Dance Older Adults, examining the reach of the events and potential impact on attendees' understanding of dance for older adults. KL-CARE is also investigating the impact of the documentary film on viewers' beliefs and perceptions about individuals living with dementia, and evaluating the impact of dance teacher training opportunities on teachers' beliefs and perceptions about those living with dementia.

Click here to learn more about KL-CARE.

Centre for Aging + Brain Health Innovation, Powered by Baycrest

A solution accelerator for the aging and brain health sector, the Centre for Aging + Brain Health Innovation (CABHI) provides funding and support to innovators for the development, testing, dissemination, and adoption of new ideas and technologies that address unmet brain health and older adults' care needs. Established in 2015, it is a unique collaboration of healthcare, science, industry, not-for-profit, and government partners whose aim is to help improve quality of life for the world's aging population, allowing older adults to age safely in the setting of their choice while maintaining their cognitive, emotional, and physical well-being.

The collaboration between CABHI and the Rotman Research Institute (RRI) represents the deep connection between aging and brain health research and the innovative solutions designed to improve the lives of older adults and their caregivers.

Discover + Adopt Program

In spring 2022, CABHI launched the Discover + Adopt (D+A) program to support care delivery organizations with funding and training to build the skills and capacity required to introduce, implement, and sustain innovations in their own settings. Baycrest was one of the awarded recipients in the first cohort. With support from the D+A program, the project team (led by Jordanne Holland) is implementing and evaluating the Toronto Grace Health Centre Remote Care Monitoring Program, a remote monitoring, alert, and follow-up service. The Academy's Kunin-Lunenfeld Centre for Applied Research & Evaluation team is supporting the evaluation design and implementation to measure project outcomes.

Spark Program

CABHI's Spark Program empowers point-of-care staff to develop innovative solutions for older adults, individuals living with dementia, and their care partners. One of the Spark projects, led by RRI Senior Clinician Scientist Dr. Linda Mah, looks to identify a novel indicator of risk for cognitive decline or dementia based on an assessment of heart rate variability, which can be passively measured using existing wearable technology. The project aims to improve healthcare professionals' ability to identify which older adults are at greatest risk for developing dementia or cognitive impairments so early interventions can be introduced.

Summit

CABHI hosted its fifth annual CABHI Summit, "Daring to Disrupt: Reimagining the Aging Experience," which took place virtually on March 22, 2023. The CABHI Summit 2023 was a true gathering of minds in the longevity sector, with over 1,350 attendees, 20 speakers, and 66 exhibitors from around the world. The jam-packed event brought together a unique blend of thought leaders, innovators, companies, investors, healthcare providers, researchers, older adults, people living with dementia, and care partners across six continents and more than 30 countries.

Members of the Baycrest Academy and CABHI moderated several important discussions throughout the CABHI Summit:

Dr. Allison Sekuler, President and Chief Scientist at the Baycrest Academy for Research and Education and at CABHI, led a captivating fireside chat with Dr. Marla Shapiro, a noted media medical contributor, best-selling author, and a Member of the Order of Canada. They delved into how the COVID-19 pandemic disrupted healthcare, the valuable lessons learned, and the path forward.

Shusmita Rashid, Director of Knowledge Mobilization and Strategic Relations at the Academy and CABHI, moderated a panel featuring the latest cohort of CABHI's D+A Program.

Several Summit sessions will be released as episodes on CABHI's Community of Innovation podcast. Visit cabhi.com/podcast for all the latest episodes.

Anne & Allan Bank Centre for Clinical Research Trials

Clinical trials are an essential step in developing effective treatments for Alzheimer's disease (AD) and related dementias. These research studies are designed to help test health treatments, including drugs, devices, lifestyle interventions, and other therapies, to evaluate their safety and effectiveness. Clinical trials provide many participants with access to cutting-edge treatments and expert medical care.

Dr. Howard Chertkow, Director, Anne & Allan Bank Centre for Clinical Research Trials

With the Rotman Research Institute's focus on predictive neuroscience for precision aging, we want to predict which individuals will benefit the most from specific treatments, thus optimizing treatment outcomes.

Led by Dr. Howard Chertkow, Baycrest's Anne & Allan Bank Centre for Clinical Research Trials (CCRT) works with Baycrest physicians, healthcare providers, and scientists at the Rotman Research Institute to offer a wide range of emerging interventions for older adults with various levels and forms of memory loss.

Research participants play a major role in the development of emerging treatments and the advancement of our knowledge of Alzheimer's disease and related dementias. Yet, approximately 99 per cent of eligible patients are never referred to or consider participating in an AD clinical trial. At the CCRT, we have been able to overcome the barriers to participation and include as many people as possible in clinical trials.

A variety of interventions are offered through the CCRT, including but not limited to:

- Drug therapies
- Dietary advice
- Intense cognitive training and exercise
- Non-invasive and safe electrical brain stimulation
- Meditation
- Light therapy
- Other non-pharmacological approaches to boost brain function

The CCRT team is currently involved in over 16 trials to treat and prevent dementia, which is more than any other centre in Canada. Among others, the team is trialing interventions from Eli Lilly, Alector, Biogen, Roche, and IntelGenX.

The CCRT was one of the participating Canadian sites in the recent Lilly international Phase 3 study of Donanemab, an AD medication. This study led to the recent release of Donanemab in the USA (not yet in Canada). This represents a small but important advance in treatment to stop the progression of dementia.

All studies offered through the CCRT are first reviewed and approved by the Baycrest Research Ethics Board to ensure that they meet current ethical standards.

Through our partnership with Baycrest staff, local family doctors and specialists, and the Alzheimer Society of Canada, the CCRT welcomes members of the public to collaborate on studies that provide hope and potential solutions to individuals living with Alzheimer's disease and other dementias and their loved ones.

Contact us

If you are interested in participating in our clinical research trials, please contact our team to schedule an assessment of your eligibility.

p: **416-785-2500 ext. 3627**
e: **navvaru@research.baycrest.org**
w: **baycrest.org/clinicaltrials**

Imaging Unit

Over the last year, the Rotman Research Institute (RRI) made a number of updates to increase its unique neuroimaging and research technology capacity, helping to advance our researchers' critical work.

Upgrades to the magnetoencephalography lab

Magnetoencephalography (MEG) is an advanced technology used to record the magnetic fields generated by the brain when we see a picture, listen to a sound, remember the past, plan the future, or just let the mind wander. Hundreds of sensors arranged in a helmet pick up the tiny magnetic fields even without touching the head. Baycrest is one of the few hospitals in the world equipped with MEG technology.

To upgrade the experimental capabilities of researchers, a state-of-the-art MEG system was recently installed at the RRI, with system integration of new equipment for stimulus generation and response recording. Among many upgrades, the system now includes ergonomic buttons for research participants to use during experimental tasks; new technology to record participants' muscle activity; and integrated eye-tracking tools.

These upgrades were supported by the Canada Foundation for Innovation and the Ontario Research Fund.

Reducing barriers to research participation with mobile testing

The RRI recently acquired a mobile testing unit, making it possible to use technologies such as eye tracking and electroencephalography (EEG) in a mobile environment. As the RRI is a major partner in the University of Toronto's biobanking network, this mobile unit will allow us to bring research participation to the community, particularly underrepresented groups; reduce barriers to research participation; collect larger amounts of diverse data; and partner with community organizations in our research.

The biobanking network is funded by the Canada Foundation for Innovation.

It is estimated that hundreds of thousands of Canadians suffer from post-COVID-19 condition. They experience symptoms such as fatigue, brain fog, and cognitive and psychiatric complaints, suggesting that COVID-19 may impact the brain long after infection. RRI researchers will use the mobile testing unit to examine the effects of post-COVID-19 condition in the brain. They will assess older adults living with this condition across Toronto, particularly their senses, cognition, and emotion, and utilize EEG to measure their brain activity. These results could help develop client-specific brain treatments to improve the health of many Canadians.

Imaging technology to explore the heart-brain connection

The heart plays a critical role in brain health. As such, it is important for researchers to be able to study both at the same time, to identify new ways to prevent, detect, and treat dementia and other brain health disorders.

Magnetic resonance imaging (MRI) is a non-invasive brain imaging technique that uses radio waves and water molecules in the brain to construct images of the brain. Particularly powerful is MRI's ability to map blood flow and oxygen use in the brain for early detection of dementia, making it an ideal tool in the study of the heart-brain connection.

In addition to a state-of-the-art MRI lab, Baycrest researchers have access to a Biopac system, which can be used in conjunction with MRI to record cardiac activity, skin conductance, and breathing patterns. In 2023, we also installed the Finapres system – the gold-standard device for recording dynamic blood pressure. This system is currently compatible with EEG and will soon be compatible with MRI as well.

To learn more about our unique research facilities, click here.

Kimel Family Centre for Brain Health & Wellness

The first of its kind in the world, the Kimel Family Centre for Brain Health & Wellness is the only community centre focused on personalized dementia prevention.

Combining research and personalized interventions to reduce dementia risk

Research suggests that at least 40 per cent of dementia cases may be prevented by a healthy lifestyle. In line with the Rotman Research Institute (RRI)'s focus on predictive neuroscience for precision aging, the Kimel Family Centre team will develop personalized approaches to help reduce dementia risk and preserve brain health for their members.

Based on a comprehensive intake assessment, members will receive a dementia risk report and a personalized wellness and lifestyle programming strategy to address their risk factors.

Expert-led programming

Based on their individual risk factors, members may participate in one or more of the following expert-led program categories: fitness and aquatics, lectures and continued education, mind and body wellness, performing arts, nutrition and cooking, fine arts and crafts, spiritual support, events, games, and social clubs.

State-of-the-art facilities

Members of the Kimel Family Centre will have access to a number of exclusive facilities, such as:

- A warm-water pool with easy-to-operate chairlift and gentle descending staircase
- Stan's Gym, outfitted with advanced exercise equipment that older adults can use with ease and comfort
- A large, light-filled creative arts studio to support the creation and exhibition of artistic works
- A classroom equipped with cutting-edge audio-visual technology for lectures and courses
- A room with soft flooring for yoga, meditation, and dance

The Kimel Family Centre is directed by Dr. Howard Chertkow, Baycrest's Chair in Cognitive Neurology and Innovation and Senior Scientist at the RRI, and Dr. Nicole Anderson, Associate Scientific Director and Senior Scientist at the RRI. It is the flagship of the Canadian Consortium on Neurodegeneration in Aging (CCNA)'s CAN-THUMBS UP study. Baycrest is home to the scientific headquarters of the CCNA.

If you would like to express your interest in becoming a member, please complete the form at www.baycrest.org/participateinresearch and a member of the Kimel Family Centre team will be in touch.

For a limited time, members will pay an introductory fee of $25 plus GST per month to help cover programming costs. All assessment costs will be covered by donor and research grant funding.

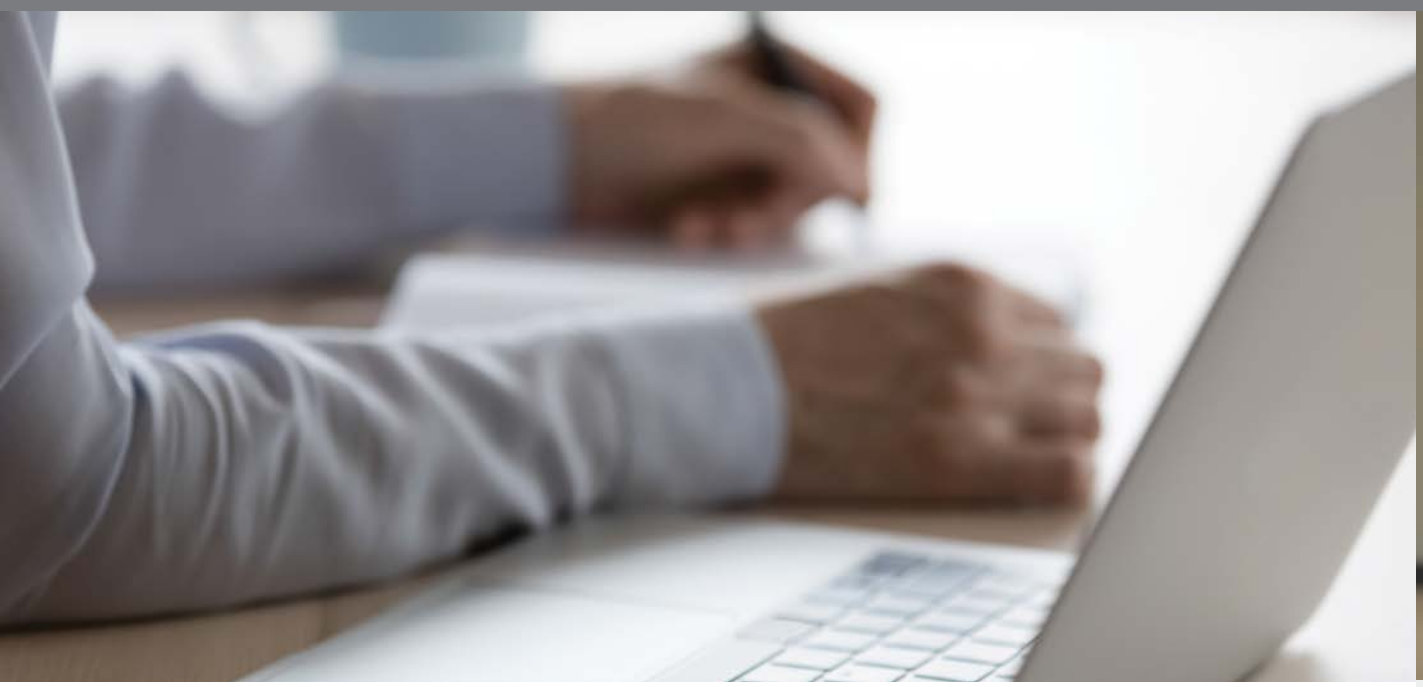
Meet Melanie Santarossa

Having been raised by older adults, working as a volunteer for many hours with this population, as well as holding a Master's degree in Aging and Health, Melanie Santarossa was a natural choice to oversee operations and program development as the Program Manager at the Kimel Family Centre. The role requires her to wear many hats, as the Centre is still in start-up mode. Depending on the day, she might be focused on the budget, developing a policy, engaging with community partners, or co-designing programs, to name just a few examples.

"To be on the ground floor of the world's first-ever research-based community centre is incredibly exciting," says Melanie. "Sometimes I still have to pinch myself that this is my job!"

Knowledge Mobilization, Community Outreach, and Thought Leadership

Educators and researchers from the Baycrest Academy influence several programs, practices, and policies both across Canada and around the world.



Expanding access to critical services for individuals living with dementia

Baycrest has been granted a $2.6 million investment to sustain and expand its Virtual Behavioural Medicine program (VBM), as part of Ontario's Plan to Stay Open: Health System Stability and Recovery. Provided by the Ministry of Long-Term Care (MLTC), the funding will allow the program to serve up to 300 clients per year, supporting the government's plan to expand access to specialized supports and services, including behavioural support for individuals living with dementia.

Created under the leadership of Dr. Morris Freedman (Senior Scientist, Rotman Research Institute and Head of Neurology, Baycrest), VBM offers virtual assessment and management for individuals living with dementia in acute-care hospitals, long-term care homes, or in the community who are exhibiting severe responsive behaviours such as aggression, agitation, and hallucinations.

As part of the program's expansion, the Centre for Education is designing a curriculum to teach healthcare providers at sites beyond Baycrest how to deliver VBM to their clients, thus extending access to this innovative care model to more people living with dementia and their caregivers.

In addition, KL-CARE is leading an evaluation of the VBM program. The team is examining processes and implementation of the program; client, family, and healthcare providers' experiences with VBM; and training outcomes. The results will help further optimize VBM to enhance care for clients and their families and scale the program broadly.

Knowledge mobilization and strategic partnerships

We are pleased to share that we have appointed a new Director of Knowledge Mobilization and Strategic Relations, Shusmita Rashid. Under her guidance, the Academy is engaging diverse communities through outreach events, and facilitating stakeholder dialogue and knowledge exchange among older adults, care partners, health professionals, researchers, innovators, and policymakers. In addition, the Academy is expanding and strengthening its local, national, and international partnerships across the research, education, and innovation ecosystems. This work will help ensure that as many people as possible benefit from the incredible knowledge generated at Baycrest.

Left to right: Dr. David Conn, Minister Kamal Khera, Dr. Allison Sekuler, Sue Iaboni, Member of Parliament Ya'ara Saks, Dr. Andrea Iaboni (University Health Network)

Addressing the public health challenge of dementia

In March 2023, the Academy's Dr. Allison Sekuler and Shusmita Rashid were invited to spotlight the Centre for Aging + Brain Health Innovation (CABHI)'s work for the Public Health Agency of Canada's Federal/Provincial/Territorial Coordinating Committee on Dementia (FPT-CCD). The FPT-CCD was established to provide FPT governments with a forum for collaboration, information sharing, and discussion of programs, policies, and issues related to dementia. This committee helps to strengthen FPT relationships with the purpose of addressing the public health challenge of dementia.

Expanding the reach of evidence-based cognitive rehabilitation

Developed by Rotman Research Institute (RRI) Senior Scientist Dr. Brian Levine, Goal Management Training™ (GMT) is a leading, evidence-based cognitive intervention for people living with impaired executive functioning due to brain conditions or mental illness. The program helps them improve their planning and ability to achieve goals. GMT's train-the-trainer workshop is now accessible on an eLearning platform, with digital tools for therapists and clients to engage in online cognitive rehabilitation anywhere in the world.

Discussing the National Dementia Strategy

Drs. Nicole Anderson and Rosanne Aleong organized and moderated, respectively, a panel at the 2022 Canadian Science Policy Conference titled, "Current and future implementation of the National Dementia Strategy: Delivering sustainable programs and supports for the prevention and early detection of dementia." Besides Dr. Anderson, expert panelists included Jim Mann, Dr. Jane Rylett, Eliav Shaked, and Dr. Saskia Sivananthan.

Improving mental health for older adults across Canada

Managing and enhancing older adults' mental health is an important priority, as it affects their quality of life and their dementia risk. The Baycrest Academy's Executive Vice-President of Education, Dr. David Conn, co-chairs the Canadian Coalition for Seniors' Mental Health (CCSMH), a not-for-profit organization whose mission is to promote the mental health of older adults by connecting people, ideas, and resources.

This year the CCSMH received $2.5 million in funding from the Public Health Agency of Canada. Led by Dr. Conn, a team will use these funds to support best practices in mental health promotion, prevention, and treatment through the review, updating, and creation of best practice guidelines related to anxiety, behavioural symptoms of dementia, depression, and substance use disorders. They will translate this evidence into tools, resources, and training to address stigma around aging and mental health, and empower older adults across Canada to improve their mental health and well-being.

Informing research and innovation policy in Ontario

Dr. Sekuler was named co-chair of the Ontario Hospital Association (OHA)'s Health Research and Innovation Committee. The Committee communicates with OHA management, government, and research sector partners on issues impacting research and innovation within the hospital sector. It also provides a forum for shared communication and education among members.

Leveraging precision medicine to improve future pandemic response

The RRI is a major partner of the University of Toronto-led Canadian Hub in Health Intelligence and Innovation in Infectious Diseases (HI3), a collaborative, multi-disciplinary, and multi-sector coalition of more than 80 partners. They aim to ensure a fast and coordinated response to future pandemics and infectious health threats. With $2 million in funding from the Canada Biomedical Research Fund, HI3 will provide a powerful network and advanced personalized, precision medicine to support a robust domestic pipeline of life-saving vaccines and therapeutics targeting existing and emerging infectious threats.

Empowering older adults to make difficult decisions about driving and dementia

Researchers from Baycrest, Sunnybrook Health Sciences Centre, and the Canadian Consortium on Neurodegeneration in Aging (CCNA) recently launched the Driving and Dementia Roadmap, a first-of-its-kind, free, online resource to empower older adults living with dementia to make informed decisions about when to stop driving. This unique resource brings together information, videos, worksheets, and other materials to help navigate the difficult decision in a way that honours the individual while involving their family or close community.

"Among many other topics, the Driving and Dementia Roadmap helps users understand how dementia can impact driving; identify when it becomes unsafe for individuals living with dementia to drive; and adjust to life without driving once the decision has been made," says Dr. Gary Naglie, one of the project leads, RRI Associate Scientist, Vice-President, Medical Services and Chief of Staff at Baycrest.

To access the roadmap, visit drivinganddementia.ca

Improving healthcare providers' capacity and patient care

Since 2018, the Baycrest Academy's Centre for Education and the North East Specialized Geriatric Centre in Sudbury have partnered to coordinate and deliver Project ECHO® (Extension of Community Healthcare Outcomes): Care of the Elderly across Ontario. Project ECHO® is a learning framework that has been adopted internationally and across disciplines to improve provider capacity and patient care.

Supporting Canadians living with post-COVID-19 condition

As a member of Canada's Chief Science Advisor's Task Force on Post-COVID-19 Condition (Long COVID), Dr. Sekuler helped develop a report titled, "Post-COVID-19 Condition in Canada: What We Know, What We Don't Know, and a Framework for Action." Throughout its development, Dr. Sekuler represented Baycrest and the importance of including older adults and people living with neurological symptoms in the Task Force's work.

#DementiaZero

Dr. Sekuler submitted a brief to the Standing Committee on Science and Research, House of Commons of Canada, which asks them to consider a brain-research moonshot, #DementiaZero, as one of the first moonshots to include in the International Moonshot Program. Aligned with the goals of the Canadian Brain Research Strategy and HealthCareCAN, this moonshot has a specific focus on defeating dementia by 2050, and aims to harness the collective knowledge and resources of the scientific community to eliminate new cases of dementia and improve the lives of people living with dementia and their caregivers.

Dr. Allison Sekuler was part of a panel with the Minister of Innovation, Science, and Industry of Canada, François-Philippe Champagne, at "Let's Talk Science on the Hill - Building Trust in Science" in November 2022.

Aging & Brain Health

The Vascular System and the Aging Brain

2023 Rotman Research Institute Virtual Conference

The 2023 conference attracted leading experts in the field of aging and brain health to discuss state-of-the-art research and clinical practices related to the vascular system and the aging brain.

During this highly anticipated, two-day event, 13 internationally renowned speakers presented their latest discoveries related to the heart-brain connection, as well as innovations and interventions to prevent and manage neurovascular disorders and improve quality of life for those living with these conditions.

Speakers came from leading organizations around the world, including Baycrest, Stanford University, Sunnybrook Research Institute, Columbia University, the University of Toronto, McMaster University, and more. Topics ranged from the benefits of exercise for brain health, to the impact of cardiovascular health on Alzheimer's disease, innovative neuroimaging techniques for aging and vascular health, and much more.

The event was held in the virtual Rotman Research Institute (RRI) space using the gather.town platform. In addition to the fascinating plenary sessions, attendees had access to dedicated networking events and discussions with speakers and sponsors, as well as interactive poster sessions.

The conference also featured a public event about the heart-brain connection, which was jointly produced by the RRI and the Centre for Aging + Brain Health Innovation (CABHI) and moderated by Dr. Allison Sekuler, President and Chief Scientist of the Baycrest Academy and CABHI. Recent studies have shown that what is good for the heart is good for the brain, and it is helpful for all of us not to have to prioritize one over the other. However, with so much conflicting health-related information available, it can be hard to know how best to take care of our hearts and brains. This free panel aimed to cut through that clutter, bringing together experts with unique perspectives from science, innovation, policy, and clinical practice, discussing questions like: "How can we optimize our heart and brain health throughout our lives?", "How can research discoveries about heart-brain connections guide policies to improve public health?" and "Why is heart health important for dementia prevention?"

After the conference, leading innovators, entrepreneurs, older adults, and global companies came together at the CABHI Summit 2023, Daring to Disrupt: Reimagining the Aging Experience. This collaboration between the RRI and CABHI served as a bridge between research and innovation, and connected researchers with diverse stakeholders.

A recording of the public panel discussion can be viewed here.

Media Hits

Sharing our expertise

Baycrest Academy researchers and educators engage in media and advocacy efforts to inform the public about the latest scientific findings and educational developments, and their potential impact on health, science, and government policy. Below, we highlight a small sample of media stories featuring Academy members.

What are memories made of? – Featured Dr. Rosanna Olsen on TVO's The Agenda

New website allows dementia patients to determine whether it's still safe to drive – Featured Dr. Gary Naglie in The Globe & Mail

The Zoomer on extreme longevity – Featured Dr. Allison Sekuler on Zoomer Television

Study: Lifestyle may be more important than age for cognitive functioning and dementia risk – Featured Dr. Annalise LaPlume in Zoomer Magazine

Dr. Allison Sekuler was profiled in the Spring 2023 edition of Lifestyles Magazine (print only)

Protect yourself against dementia – Featured Dr. Nicole Anderson in GoodTimes magazine

Experts temper hope for new FDA-approved Alzheimer's drug – Featured Dr. Howard Chertkow in The Globe & Mail

Dr. Annalise LaPlume was interviewed on national German radio channel BR24

Honouring Alzheimer's Awareness Month – Featured Dr. Gary Naglie on Global News

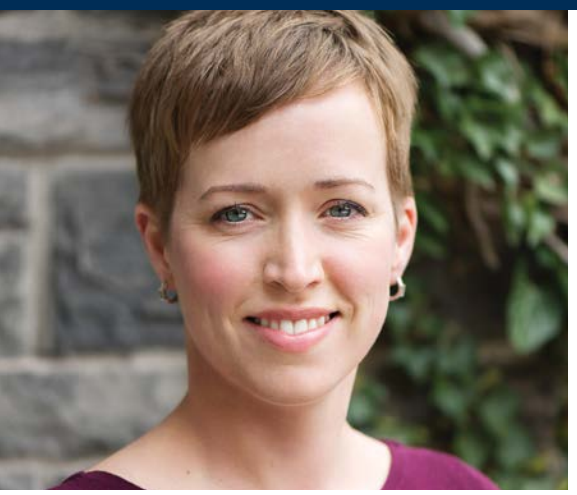
Can bird watching improve your child's memory? – Featured Dr. Erik Wing in National Geographic

Proactive lifestyle changes that will reduce your risk of dementia – Featured Dr. Nicole Anderson on Breakfast Television

Just can't find the right word? Researchers say this might be due to "memory clutter" rather than cognitive decline – Featured Dr. Lynn Hasher in Zoomer Magazine

Spotlight: Those Who Make Us Great

People from all across the Baycrest Academy make critical contributions to our research and education. Without our dedicated staff members, educators, volunteers, and research participants, our work would not be possible.



As the Manager of Simulation and Virtual Learning, **Dr. Meaghan Adams** shares Baycrest innovations in brain health and older adult care with partners across the province, country, and world. This role is ideal for her as it blends her clinical experience as a physiotherapist, her PhD and postdoctoral work in neuroscience and virtual reality, and her interest in health professions education. Says Meaghan, "I'm on a team of world-leading experts who value innovation and knowledge sharing in everything that we do, and I get to do work that has meaningful impacts on clinical care and on the lives of the people we serve. As a clinician, a scientist, and an educator, I couldn't ask for more."

Ruth Cymerman has volunteered in various capacities at Baycrest since she retired 12 years ago, and presently volunteers at the newly renovated Centre for Health Information. As an avid reader and lover of books, this is a perfect fit for her. In this role, she helps clients and caregivers find reliable health resources, like books about dementia and brain disorders, as well as fiction. She also helps them use the computers to access information online. "I find it very rewarding to volunteer in the Centre for Health Information," says Ruth. "I also love observing some moving and tender interactions between senior residents and their wonderful caregivers, be they spouses, children, or professionals." If you would like to volunteer at Baycrest, visit **baycrest.org/Baycrest-Pages/Get-Involved/Volunteer**

As the Senior Grants Development and Pre-Award Specialist, **Deirdre Sequeira** supports the Rotman Research Institute (RRI) in all things related to grants. For example, she identifies new grant opportunities, writes letters of support, and documents annual grant call processes – ultimately helping to ensure critical research gets as much funding as possible. "Working at the RRI has taught me the power of the scientific community within Baycrest and given me a lot of insight into the collaborations and innovations occurring across the institute," says Deirdre. "Since we are currently in the middle of an integration, I am excited to see the increase in partnerships and development across the Baycrest Academy."

Norm Solomon has been an active research participant at the RRI for over 20 years, and sees it as a way of contributing to his community and to humanity more broadly. He recently participated in a magnetic resonance imaging (MRI) study during which researchers observed his brain activity while he completed various tasks, such as listing as many words as possible starting with a particular letter (for example, the letter A). In his free time, Norm likes to travel, read, and cycle. "But in many ways, the most meaningful free time spent for me has been being part of research at the RRI," he says.

The RRI is always looking for individuals to participate in research studies. For more information or to participate, please visit www.baycrest.org/participateinresearch

Honours, Grants, and Accolades

Baycrest Academy researchers and educators are regularly recognized for their extraordinary contributions to the field of aging and brain health.

Baycrest once again named Canada's #1 most research-intensive hospital

Baycrest is proud to be recognized as the #1 most research-intensive hospital in Canada for the second year in a row, according to Research Infosource's latest rankings for Canada's Top 40 Research Hospitals. Led by the Rotman Research Institute (RRI), Baycrest scientists attracted an average of $975,300 each in research funding last year. Baycrest has been recognized among Canada's top research hospitals every year since the rankings began, over a decade ago.

RRI research reaches beyond academia

Senior Clinician Scientist Dr. Linda Mah received a 2023 President's Impact Award from the University of Toronto for serving on the Ontario COVID-19 Science Advisory Table. The table supported the evidence-informed response to the COVID-19 pandemic in Ontario. This award recognizes and celebrates University of Toronto faculty members and teams of faculty whose research has led to significant impact beyond academia.

New named chair and renewed Canada Research Chairs at Baycrest

Dr. Jennifer Ryan was appointed as the new Anne and Max Tanenbaum Chair in Cognitive Neuroscience, a joint position at Baycrest and the University of Toronto. Dr. Jean Chen was named the Canada Research Chair in Neuroimaging of Aging for a second consecutive term. In addition, Dr. Jed Meltzer was granted a second term as the Canada Research Chair in Interventional Cognitive Neuroscience.

Below we highlight some of the other honours, grants, and accolades received by members of the Baycrest Academy this year:

Dr. Morris Freedman was awarded the 2021 Department of Medicine Award in Quality and Innovation from the University of Toronto.

Dr. Raquel Meyer, Shoshana Helfenbaum, Dr. Faith Boutcher, and **Dr. David Conn** received the 2022 David A. Peterson Award from the Gerontological Society of America for their article, "Toward a learning-to-performance program for interprofessional long-term care teams: Team Essentials to foster engagement, reciprocity, and meaningful, sustained practice change."

Dr. Nicole Anderson was elected as a member of the Memory Disorders Research Society.

Dr. Björn Herrmann secured an an Early Professionals, Inspired Careers in AgeTech (EPIC-AT) Early Career Researcher Fellowship.

Dr. Morris Moscovitch received the Society of Experimental Psychologists' Norman Anderson Lifetime Achievement Award.

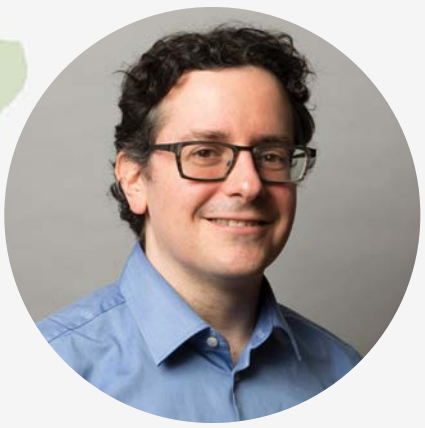
Graduate student **Stephanie Simpson** (Levine Lab) received an an EPIC-AT Trainee Fellowship.

Clinical research fellow **Dr. Durjoy Lahiri** (Chertkow lab) won the Sandra Black Award for Clinical Dementia Research in 2022.

Global Reach

As a member of the International Primary Progressive Aphasia (PPA) Network, **Dr. Regina Jokel** is currently working with clinician scientist colleagues in **Norway** and **Turkey** to advance knowledge and treatment of PPA for individuals living with this condition around the world.

As the 2022 Chair of the Organization for Human Brain Mapping's Diversity and Inclusivity Committee, **Dr. Rosanna Olsen** helped organize outreach events for school-aged children all over the world. In June 2022, they connected 10 schools **across four continents**, including **Africa (Ghana)**, for exciting presentations all about the brain in eight different languages.



Dr. Jed Meltzer worked with a research team at the University of São Paulo in **Brazil** to examine how illiteracy changes the way the brain processes spoken language.

Baycrest Academy educators and researchers have partnerships with organizations around the globe.

The Baycrest Academy helps facilitate international Rounds, such as Behavioral Neurology Rounds and Geriatric Mental Health Rounds, with over 50 countries reached.

In December 2022, **Dr. Allison Sekuler** visited **Japan** for a Canadian Women's Business Mission, where she forged new connections with a number of Japanese experts in the field of aging and brain health.

Baycrest Global Solutions has engaged **Dr. Meaghan Adams, Dr. Faith Boutcher,** and **Kiira Poerschke** from the Centre for Education to consult on the design of the training for all levels of staff, and develop and deliver a primer on the basics of aging and brain health for leaders of the Aspen Tree, a Baycrest partner organization in **Thailand**. The training will help develop awareness of healthy aging, the common conditions seen in older adults, considerations for working with them, and models of teamwork and communication to optimize team function.

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Dr, Donna Rose Addis, Senior Scientist at the Rotman Research Institute

Moving Forward

The Baycrest Academy is committed to making changes that lead to a more equal and just workplace and community, and to being intentional in identifying and eliminating active and passive forms of discrimination in all aspects of our work, including making it more inclusive. Below, we reflect on just some of our equity, diversity, and inclusion (EDI) outreach activities in the community.

As a member of the ALBA Network's Disability & Accessibility Working Group, Dr. Donna Rose Addis helped launch a series of webinars called "Breaking down the ivory tower."

These webinars give a platform to neuroscientists with disabilities across the globe, while reflecting on how to promote inclusive working environments and accessibility to research. The first webinars in the series have featured Drs. Onur Güntürkün and Philip Haydon (Tufts University), both world-leading neuroscientists, who shared their experiences navigating research careers while living with disabilities. Dr. Addis is also leading efforts to update the ALBA Declaration to include examples of policies and initiatives that increase the accessibility and inclusivity of neuroscientists with disabilities in all aspects of research life.

The Centre for Education team supported the implementation of the Toronto Academic Health Science Network (TAHSN) guidelines for learner mistreatment by residents, families, and visitors at Baycrest. These guidelines address all forms of learner mistreatment, including discrimination and sexual harassment. As a member of the TAHSN Education Committee, Dr. David Conn (Executive Vice-President of Education) helped develop these important guidelines.

The Rotman Research Institute (RRI) sponsored BE-STEMM 2023, the Canadian Black Scientist Network (CBSN) Conference. The four-day event featured incredible talks, a science fair, a career fair, and other enriching offerings for attendees. Dr. Allison Sekuler is an official Ally of the CBSN.

The Centre for Education co-facilitated a number of ECHO Care of the Elderly (COE) sessions on EDI-related topics, including "The Canadian Indigenous Cognitive Assessment (CICA) Tool: A Culturally Safe Dementia Case Finding Tool," "Sexual and Gender Diversity in Later Life," and "Sexuality and Aging in Long-Term Care." As well, Education Rounds featured an introduction to equity, diversity, inclusion, decolonization, and accessibility in clinical environments.

On February 3, 2023, Dr. Allison Sekuler and Dr. Rulan Parekh (Women's College Hospital) co-hosted the panel, "Beyond the Binary: Challenging Sex & Gender Variables in Science." This marked the second year Baycrest and Women's College Hospital hosted an event in honour of the Day of Women and Girls in Science.

The RRI helped organize and took part in the 2022 Youth DiverSTEAM Symposium sponsored by the Ontario Hospital Association and Let's Talk Science. This event aimed to promote careers in science, technology, engineering, arts, and mathematics (STEAM) in hospital-based research institutes to high school students across the province, particularly those from underrepresented and racialized communities. Nearly 200 students, researchers, volunteers, and hospital representatives participated in the event.

Michael Shaw, Manager of Business Development at the Baycrest Academy

Business development at the Baycrest Academy

As one of Canada's leading research institutions, the Baycrest Academy is in a unique position to leverage its considerable subject matter expertise in service of external clients and partners. With the appointment of Michael Shaw as Manager of Business Development in the fall of 2022, the Academy's business operations have been rapidly increasing. The business development team is working in collaboration with financial leadership, researchers, and clinicians to create the capacity and infrastructure to drive sustained revenue generation and support the growth of the organization.

Below are just a few examples of what the business development team has achieved since its inception:

- Created new educational products to support the care of older adults that are being delivered in international settings, in collaboration with Baycrest Global Solutions.
- Curated a suite of core services spanning education, research, consulting, and content development to accommodate a wide breadth of industry needs.
- Worked with KL-CARE to support industry partners' product development efforts by integrating research and evaluation expertise with end-user feedback from clinicians, clients, and older adults to optimize business case development, product enhancements, and go-to-market strategies.

In the months ahead, the team looks forward to launching new, scalable offerings in partnership with leaders across the Academy.

Visit baycrest.org/AcademyBusinessDevelopment to learn more about business development at the Baycrest Academy.

Members of the Baycrest Academy performed in Unsung Heroes to raise funds for Baycrest.

Fundraising Spotlight

Musical theatre in support of Baycrest

Unsung Heroes is a musical theatre production that raises funds for one charity annually. In 2022, the Baycrest Foundation was chosen as the beneficiary of their efforts. The Academy's Dr. Regina Jokel, Dr. Mrinmayi Kulkarni, Dr. Allison Sekuler, Rosalind Sham, and the Centre for Aging + Brain Health Innovation (CABHI)'s Bianca Stern sang and danced their hearts out during two incredible performances at the Richmond Hill Centre for the Performing Arts, with a guest performance by Josh Cooper, President and CEO of the Baycrest Foundation. The show raised more than $75,000 for Baycrest, exceeding the original goal by more than 50 per cent. These critical funds will be directed to areas that require timely investments, with the goal of creating a world where every older adult enjoys a life of purpose, inspiration, and fulfilment.

Celebrating the opening of the Centre for Health Information

Led by the Centre for Education, the Centre for Health Information officially opened its doors this year, with the aim to empower older adults to participate in their care by providing them with reliable health information. A grand opening and donor recognition event was held in September 2022 and attended by Centre for Education staff and several key Patient, Family & Consumer Education (PFCE) program donors, including Dany and Lisa Assaf, the founders of Boom Health, the PFCE's largest corporate sponsor.

Dr. David Conn, Executive Vice President of the Baycrest Academy, shared that low health literacy has been described by Statistics Canada as a public health "silent epidemic." He spoke about the importance of health literacy and the PFCE's mission to grow the program and be a leader in providing reliable health information to older adults. Dany and Lisa Assaf shared their passion for providing care and services to our most vulnerable population – older adults – and how pleased they are to contribute to this crucial education component so we can all ***Fear No Age***™. A Boom Health plaque was revealed at the event to recognize their critical contribution.

"Research in Action" donor event

Our generous donors play a critical role in our research, allowing us to maximize our impact. The Baycrest Foundation and Rotman Research Institute hosted "Research in Action", a research-focused event to engage donors in our new research projects and technologies. The event was held in person at the Kimel Family Centre for Brain Health & Wellness, as well as online. Donors had the chance to see live demonstrations of a mobile magnetic resonance imaging unit, eye tracking technology, portable electroencephalography technology, brain stimulation, and more. The event also included a tour of the Kimel Family Centre's state-of-the-art facilities. We look forward to hosting more donor events like this in the future.

Thank you to our generous Research Grant Funders 2022–2023

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***The Baycrest Foundation is extremely grateful for the generous philanthropy of our Research and Education Supporters — thank you!**

To contribute to the Baycrest Academy for Research and Education, please visit **baycrest.org/donate**.

THANK YOU!

Thank you to all our researchers, educators, staff, and trainees for your invaluable support in helping us lead vital research and education so that everyone can ***Fear No Age™.***

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