The scientific achievements from last year were possible thanks to the active participation of our patients, their relatives, and friends. Together, we advance clinical science towards new therapies for Alzheimer’s Disease.

ALZHEIMER DISEASE INTERNATIONAL’S 35TH ANNUAL GLOBAL CONFERENCE

The World Alzheimer Report 2022 (WAR 2022) entitled ‘Post Diagnostic Support for Dementia: Principles of Care’ has been commissioned to McGill University by Alzheimer Disease International (ADI), the umbrella organization representing Alzheimer Associations/Societies in 105 countries. The editorial team includes senior editors Serge Gauthier, José Morais, Pedro Rosa-Neto, Claire Webster, and associate editors Stijn Johannes Servaes and Joseph Therriault, graduate students of the MCSA. These young editors have important roles in writing the section of the report on education about dementia for health professionals and on the analysis of three surveys conducted for this report, respectively.

The report’s final contents will be published online by ADI on September 21st, 2022. The final conclusions are still being written out, but they will be based on 115 essays from persons living with dementia (PLWD), carers, health professionals and members of Alzheimer Societies, survey results and personal testimonies. The report is using stages of dementia as central theme, to help PLWD, their families, formal carers and health professionals plan ahead for symptoms as they emerge over time after the diagnosis.

As a bridge from the World Alzheimer Report 2021 on the Diagnosis of Dementia, edited by the same McGill team, initial chapters of the WAR 2022 study the impact of the diagnosis on PLWD, carers, siblings, and children. Another section describes how to care for the cognitive, functional, mood & behavioral, and motor symptoms. Non-pharmacologic and pharmacologic interventions are discussed, some specific for the PLWD, some for the carers. A specific chapter is dedicated to special care needs depending on the age of the PLWD and the cause of the dementia. Another section deals with current global initiatives in the care of dementia, and studies models of care and support in Brazil, Canada, Scotland, and South Korea. Strategies towards dementia risk reduction offer hope for the new generations, better education about dementia for healthcare professionals will improve the quality of care. The great ending of the report will be about empowering persons at risk of dementia, the PLWD and carers with references to some education programs including McGill, thus providing them with knowledge, support and compassion.

This past June, the 35th Global Conference of Alzheimer Disease International occurred, with the theme ‘New horizons in dementia: Building on hope’. During this conference progress and barriers of the recent years were highlighted, while new developments and
innovations across all 7-action areas of the WHO Global action plan on dementia were discussed. The overall goal of the conference was to shine a light on recent developments and forecast breakthroughs in research, diagnosis, treatment, care, and support, while raising awareness, challenging stigma and advocacy.

Dr. Stijn Servaes from the McGill University Research Centre for Studies in Aging gave an oral presentation on recent work from the lab that described biomarker modelling of Alzheimer’s Disease using in-vivo Braak staging as a novel way of staging disease in living individuals, as was extensively investigated by Joseph Therriault in his recent publication.

Furthermore, both Dr. Serge Gauthier and Ms. Claire Webster highlighted their work on building the McGill University Dementia Education Program and their efforts for writing the World Alzheimer Report, which was published in 2021 after being commissioned to McGill University. In addition, they described the roadmap for the World Alzheimer Report 2022, which is currently in the works.

On Tuesday, June 28th, 2022, MCSA staff, researchers, and students gathered to take a walk down memory lane by welcoming back MCSA Alumni Dr. Jared Rowley. Recent graduate of New York Downstate Medical Center - College of Medicine, and current Radiation Oncology specialist at the Maimonides Medical Center in Brooklyn, NY, Dr. Rowley began his journey of becoming a medical doctor at the MCSA in 2008 as a research assistant.

Having graduated from McGill University in 2008 with a degree in Computer Science, and wanting to get involved in research, Dr. Rowley joined the MCSA team after hearing about about Dr. Pedro Rosa-Neto through McGill University. During his time at MCSA, Dr. Rowley was part of an ongoing project looking into early diagnosis of Alzheimer's Disease. He was responsible for maintaining the database and analyzing the Positron emission tomography (PET), structural Magnetic Resonance Imaging (MRI), Functional Magnetic Resonance Imaging (FMRI), and Diffusion Tensor Imaging (DTI) data using Mink tools and FSL, which is a comprehensive library of analysis tools for FMRI, MRI and DTI brain imaging data. Dr. Rowley wrote software pipelines that automated the analysis of PET and MRI scans and distributed them through a computer cluster.

While the MCSA’s focus is to advance dementia prevention and therapies, it is also a Centre that proudly supports and fosters the educational growth of its students and research assistants. In the years Dr. Rowley was with the MCSA, he obtained a Master’s degree in Neuroscience under the supervision of Dr. Rosa-Neto. It was during that time that he realized that a clinical setting, rather than a research setting, would be a better fit for him. Dr. Rowley expressed that “working at the MCSA was important towards building my career, it helped me build analytical skills and research skills. I got really good at stats and improved my computer science skills,” which in turn helped while applying for medical school.

It was in 2011 that Dr. Rowley decided to shift from researcher to medical doctor. When asked if there was a defining moment that made him realize that a clinical setting would be a better fit, he expressed that rather than a defining moment, it was culmination of the experiences that the MCSA offered him. However, one experience that stood out for him, was the day he spent at the Montreal Neurological Institute-Hospital with Dr. Eliane Kobayashi working with epilepsy patients. Dr. Kobayashi was performing Electroencephalograms (EEG) - which is measurement of epilepsy. Dr. Rowley recalls that the
EEG subjects had electrodes on the head, but they had removed part of the skull and the electrodes were directly on the brain. He found this incredibly interesting, as he was not aware that these types of tests were performed.

Dr. Rowley’s medical school journey started in 2013, and while he expressed that it was challenging, time consuming, and stressful, he loved every minute of it – the fast-paced environment and experience was exactly what he had been looking for. While medical school presents its own set of challenges, the practical knowledge of research analysis gained while at the MCSA greatly helped in the new endeavor. The knowledge he gained by working on the various clinical trials gave him analytic and statistical skills that many others didn’t have a background in. Not only did these skills translate for medical school, but they also help in his current position as a radiation oncologist. While working at the MCSA, he spent a large amount of time analyzing and interpreting PET and MRI scans for research. Now, he analyzes and interprets PET and MRI scan to create treatment plans for his patients.

Two years ago, the COVID-19 virus appeared, and threw everyone through a loop. The pandemic started just as Dr. Rowley was in his third year of residency. With the growing need for medical staff as front-line workers, he was moved to the medicine Unit of the Mount Sinai Beth Israel hospital, in New York to treat COVID-19 patients. He deemed his work at the start of the pandemic as the most intense experience of his life. The medicine unit, which was typically set up for approximately 150 beds, was quickly turned into a unit for over 600 beds within a week, any space available was turned into bed space. It was a difficult experience for Dr. Rowley for obvious reasons, however, the solidarity and support he received from his community was exceptional, “anyone that I had worked with in the past had reach out to make sure I was ok” he states. Once the curve began to flatten in New York, he was able to carry on with his residency, with COVID-19 just being in the background.

This past July, Dr. Rowley took some well-deserved time off to travel with his wife. In the future, Dr. Rowley hopes to continue being a radiation oncologist, and an assistant professor at Down State Medical School, his alma mater. He hopes to be involved in medical education whether it be in radiation oncology or teaching first or second year medical students. In the meantime, he looks forward to working in his current position, and serving the community one patient at a time.

Alzheimer Groupe Inc. (AGI) is a charitable organization that offers therapeutic programs to individuals living with Alzheimer’s disease and other dementias. Additionally, we provide support services to families and professional care partners, focusing on best practices in dementia care while sensitizing the community through education and awareness.

Serving the Great Montreal area, AGI’s approach is person-centred and founded on the premise that all individuals with dementia deserve an excellent quality of life characterized by joyful, loving interactions, which requires: a deep understanding of the individual and their disease, a gentle and empathic approach to physical care, a concern for psychological and emotional wellbeing, and knowledge of appropriate intervention strategies. AGI takes a proactive approach and strives to offer innovative programs and services to people living with dementia while providing caregivers with education and tools that they can use at home.

I have had the pleasure of working at AGI for the last 15 years. As Director of Support Services, my role is to ensure that families and people living with dementia receive quality services, programs and support to make their experience easier. I
work with a dynamic, empathy professional team who helps families accept their new reality with a greater understanding of what to expect as their loved one progresses through the disease. Additionally, I provide individual and family counselling and facilitate support groups.

AGI has had a close relationship with the MCSA for as long as I can remember. MCSA professionals would graciously share their expertise at our annual conferences while MCSA often refers families to AGI who need guidance and services. As an MCSA Education Committee member, I aim to provide input about the needs of families and people living with dementia. I have been delighted to have been a guest speaker for Brainy Boomer lectures and symposiums and have participated at kiosks during Senior's Health Days.

AGI is a pivotal resource to families and people living with dementia. Families can call our helpline 5 days a week for guidance and advice. AGI currently provides both online and in-person services for people living with dementia, which includes an activity program, music and art therapy. Caregivers can take advantage of individual/family counselling, support groups, education courses and webinars where they can learn about resources and helpful tips. AGI also makes presentations to the community to sensitize the public and reduce the stigma associated with Alzheimer's disease or dementia.

For more information, please contact: Phone - 514-485-7233 Email - info@agiteam.org Website - www.agiteam.org

The Alzheimer Society of Montreal was the first Alzheimer Society in Quebec.

Our story begins in 1981, when the Alzheimer Society of Montreal was founded by a small group of visionaries, mainly caregivers, who were confronted by a lack of information about Alzheimer’s disease, limited knowledge of the field, and little support for families affected by dementia.

In the following decades, the Alzheimer Society of Montreal has been on the cutting edge of information, education, and psychosocial support services. Our mission is to alleviate the social and personal consequences of Alzheimer’s disease and related disorders through the development and delivery of leading-edge intervention, care and support services in Montreal.

This year, our team consists of just over 50 employees and our Board of Directors has 11 members, each of whom is very involved and brings their expertise to the Society.

Mrs. Jeane Day, general manager

As the general manager of the Alzheimer Society of Montreal, my role is to ensure that our programs and services meet the needs of families and that they are of high quality and offered in consideration of the best practices in the field, to people living with a neurocognitive disorder and their caregivers on the Island of Montreal. I have full confidence in my team and in their abilities and strengths, allowing them to offer a high-quality service, based on the person-centered approach. The teams are encouraged to work in a collaborative mode in order to optimize the programs and services offered by the Society. Since my arrival in my position, one and a half years ago, I strongly believe that it is important to raise...
awareness of neurocognitive disorders (NCD) in order to deploy inclusive programs and services. The best way to do this is undoubtedly to work together to raise the voices of those who cannot.

Over the last 7 years, we have been very pleased to collaborate with MCSA on several projects: presentations at special events, such as World Alzheimer’s Day, Brainy Boomer conferences on a few occasions, promotions of MCSA’s conferences and health day, and on the educational committee meetings on which we sit. We are looking forward to continuing our collaboration and being stronger by working together.

The Alzheimer Society of Montreal offers a wide range of services to people living with a neurocognitive disorder and their caregivers, 46 weeks per year. In our program, you will find support groups for caregivers and people living with Alzheimer’s, in-home respite and stimulation program, as well as in different activity centers, different artistic activities to stimulate cognition and to offer socialisation opportunities, individual consultations and workshops for health care professionals. This wide range of services is possible thanks to the support of many trusted partners to help us accomplish our mission. Our program is accessible online: https://alzheimermontreal.ca/wp-content/uploads/2022/03/BROCHURE_spring2022_V3.pdf

For more information about the Alzheimer Society of Montreal, please contact us. (514) 369-0800| info@alzheimermontreal.ca

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**GET TO KNOW OUR POST DOC AND PHD STUDENTS!**

**Dr. Stijn Servaes, PhD**

I have been intrigued by the complexity of the brain and the beauty of data ever since I was a young boy. My eagerness to explore the unknown and my drive to push the boundaries further, using the scientific method, have turned me into an ambitious scientist, who is always on the look for a new challenge.

After finalizing a BSc in molecular biology and biomedicine, and acquiring an MSc in Neurosciences, I started a PhD to specialize in medical imaging. During those 4 years, I familiarized myself with an extensive list of techniques and methods, while improving my statistical prowess and data analytical skills. Furthermore, I obtained several certificates from world-renowned institutions in data science and machine learning, helping me form sound hypotheses and clear conclusions combined with the development of concise visualizations and novel insights.

After my PhD in Medical Sciences, I joined the Translational Neuroimaging Laboratory at the McGill Centre for Studies in Aging as a postdoctoral researcher. Because of my training as a data scientist with a combined background in both molecular neurobiology, neuroimaging and computer science, I am positioned ideally to contribute to the development of machine learning technologies and algorithms to identify incipient dementias.

My recent work involved the development of an algorithm that determines Alzheimer’s disease severity using a combination of biofluid and imaging data. My future work entails the identification of key parameters contributing to the progression of this severity.
Jaime Fernandez Arias, PhD Candidate

My academic interests are related to the complex space at the confluence between neuropsychology and biomarkers of Alzheimer's Disease, and how they can be combined to achieve early detection. I have studied Psychology in the University of Oviedo, Spain, and completed two MSc's in the area of the Neurosciences, one in The Netherlands and another one in the US, before joining McGill University for PhD studies. My studies in the US were possible thanks to the funding provided by the Fulbright program.

I am currently involved in a project to study in more detail how episodic memory and tau pathology are interrelated. I am also helping with some data entry. I started working at the MCSA when I joined the Translational Neuroimaging Lab as a PhD student, in 2019. In the future, I intend to continue combining my devotion to Psychology with my background in Neuroscience.

I was recently awarded "la Caixa" fellowship to fund my PhD studies at McGill University. This prestigious award from Spain aims to support the most talented students in the country to pursue education at top universities around the world. The ceremony was held on the 20th of July and was hosted by the King and the Queen of Spain. Other authorities that were present at the ceremony included Spanish Minister of Education Pilar Alegría. Here is a picture at the moment when the King of Spain handed me the diploma.

Yi Ting (Tina) Wang, PhD Candidate

Hello I am Tina! I joined the MCSA as a PhD student in September 2019. I found my interest and passion in neuroscience during my undergraduate research internship at Leiden University Medical Centre in the Netherlands. For me, human brain is one of the most fascinating things in the world! During my master study at Imperial College London, I decided I want to dive in neurodegenerative diseases field. My master research project was part of a clinical trial in which we utilised magnetic resonance imaging (MRI) and positron emission topography (PET) techniques to study how anti-diabetic drug influences neurodegeneration in Alzheimer's disease patients.

I am currently working on sex difference in Alzheimer disease in order to understand why so many more females suffer from AD. My research primarily focuses on PET imaging combining with fluid biomarkers and genetics. I will be working on machine learning models to identify the sex-specific AD imaging signatures associated with genetic risk. I am very honour to receive the FRQS doctoral award with this project!

When I am not sitting in front of the computer analysing data, I love hiking, bouldering, swimming, kayaking and travelling around the world!
SNAP (Screening of Neurobehavioral Abnormalities in the Aging Population) is a virtual cognitive assessment tool designed to screen for dementia at early stages. SNAP features a website that provides free online cognitive assessment and encompasses a comprehensive approach towards the study of variables associated with neurodegenerative disease in elderly population. SNAP consists of 2 memory track tasks meant to provide an estimate on the integrity of the participant’s episodic memory. A series of games to be played is included in the memory track to allow a delayed-recall testing.

André Vallières has joined Dr. Rosa-Neto’s team as a web developer in order to work on SNAP. He is finishing his Master’s degree in quantum optics at McGill University and is starting his PhD at Northwestern University working on superconducting circuits under the supervision of Jens Koch.

The physicians of the Alzheimer’s Disease Research Unit and Dr. Pedro Rosa-Neto, Director of the McGill University Research Centre for Studies, believe that remote technologies for assessing patients in clinical trials seem to be a reasonable alternative for the continuation of data collection. The disruption of important clinical research by the COVID-19 pandemic is linked also to the particular vulnerability of the older adults; the most targeted subjects by COVID-19. At MCSA, two clinical trials on autosomal dominant Alzheimer’s Disease (DIAN-TU-001 and DIAN CRI) are currently in recruitment. Our team will answer all questions in regard to clinical trials and if you are interested in obtaining more information and/or participating in one of our clinical trials please do not hesitate to contact Tamar Tatigian and Abir Chamoun at 514-761-6131 x6314 or email: info.mcsa@mcgill.ca

This August, MCSA research members took part in the most prestigious international conference on dementia research. The AAIC is where the world’s leading basic scientists, clinical researchers, early career investigators, clinicians and the care research community will share breaking research discoveries that will lead to methods of prevention and treatment and improvements in diagnosis for Alzheimer’s disease.

The conference took place in person in San Diego, California, and virtually. The data collected in our TRIAD cohort allowed several of our research staff to take part in this conference by having a presentation and/or having their posters published on the AAIC website. These presentations, and the participation in such a prestigious conference, alongside the biggest names in the field will help advance Canadian studies on Alzheimer’s Disease and other dementias.

Stijn Servaes, Postdoctoral Fellow

- “pTau heterogeneity as a measure for disease severity in incipient Alzheimer’s disease”

The presence of p-tau in biofluids has previously been proposed to be a response to neurofibrillary tangle pathology, one of the hallmarks of Alzheimer’s disease (AD). However, the increase of p-tau in cerebrospinal fluid (CSF) precedes detectable neurofibrillary tangle pathology, as indexed by tau Positron Emission Tomography (PET), by up to a decade, suggesting that soluble tau could be an indication of early tau pathology. With this study, we
investigated the heterogeneity of p-tau species in CSF to assess the disease status of participants of the Translational Biomarkers of Aging and Dementia (TRIAD) cohort.

Jaime Fernández Arias, PhD candidate

- “Verbal recognition declines in later Braak Stages compared to verbal delayed recall”

My poster will present a description of how delayed recall and recognition memory evolve through the Alzheimer’s disease spectrum. We found subtle decline of delayed recall memory when tau starts to accumulate in the brain, and clear decline of both types of memory once tau spreads beyond anterior medial temporal lobe structures.

Jenna Stevenson, Study Coordinator

- “TRIAD multi-dimensional biobank for biomarker discovery”

With dementia being one of the leading, most costly causes of death, the need for early detection, more affordable, less invasive, and more readily available ways to determine disease stage is apparent. The goal of this presentation is to share TRIAD’s wealth of resources available to discover affordable biomarkers needed for early diagnosis and Alzheimer’s disease prevention.

Yi Ting (Tina) Wang, PhD Candidate

- “Neuroinflammation is associated with early Alzheimer’s disease pathology in amyloid-negative elderly”

Results from this study suggested that neuroinflammation is associated with amyloid pathology at early stages of Alzheimer’s disease. In addition, elevation of neuroinflammation was associated with the increase of amyloid and tau accumulation in Aβ-negative subjects.

Vanessa Pallen, Psychometrician/ Research Assistant

- “Adapting to Reality: Effect of Online Assessments as compared to In-Person Assessments”

This study aimed to look at the clinical utility of virtually assisted neuropsychological evaluations in a comparative analysis following the effects of the COVID-19 pandemic. Based on our findings, there was no significant difference when individuals received in-person versus online assessments.

Alyssa Stevenson, Research Assistant

- “Association between tau uptake and verbal fluency converge in language centers”

Recent studies have shown that pathological tau accumulation, a hallmark of Alzheimer’s disease (AD), is closely related to cognitive deficits in older populations. Semantic deficits, measured using tests of category verbal fluency, are among the features of early clinical stages of AD presentations. While the association between semantic decline and AD biomarkers have been evaluated, the use of a novel tau positron emission tomography (PET) tracer
[\textsuperscript{18}F]MK6240, remains relatively unexplored. The poster presentation aimed to evaluate whether tau accumulation is associated with participants’ performance on both category and letter fluency neuropsychological tests and whether category fluency performance is disproportionately impaired in AD in comparison to letter fluency.

Nesrine Rahmouni, Master's Student & Study Coordinator, AAIC 2022 Travel Fellowship Recipient

- “Brain TSPO expression is associated with plasma pTau181 & pTau231 across the AD spectrum”

Microglial activation is an important component of the immune response in the brain of AD patients. However, it is unclear to what extent cerebral microglial activation is associated with biofluid concentrations of phosphorylated tau (pTau). The present study was conducted in a population of 130 individuals from the Translational Biomarkers of Aging and Dementia (TRIAD) cohort. Positive correlations were found between concentrations of both plasma pTau181 and pTau231 and neuroinflammation indexed by PET-imaging. Our findings highlight the importance of neuroinflammation in the pathogenesis of AD.

WHAT IS THE TRIAD COHORT?

The Translational Biomarkers in Aging and Dementia (TRIAD) cohort is a longitudinal observational cohort specifically designed to study mechanisms driving dementia. The cohort studies dementia markers and their progression from pre-symptomatic stages to the onset of Alzheimer’s disease or other types of dementia. TRIAD participants are followed in a longitudinal manner with clinical and neuropsychological assessments, fluid and imaging biomarkers every 24 months. Results generated from the TRIAD cohort help advance scientific knowledge and develop better targeted clinical trials to cure Alzheimer’s Disease and dementia. The TRIAD cohort is actively recruiting participants, for more information about the participation criteria and the different measures please refer to https://triad.tnl-mcgill.com, to get additional information or to participate call our research centre 514-761-6131 ext: 6321. For research participants and sponsors that are interested in donating to the TRIAD Cohort Research Study, please contact Jenna Stevenson by email jenna.stevenson2@affiliate.mcgill.ca

WHY YOUR DONATIONS ARE SO IMPORTANT

Between 2020-2022, our fundraising activities were impacted by the pandemic. Your continued support and encouragement were crucial and have played a central role in the continued success of the Centre’s outreach, research infrastructure objectives, and medical research initiatives for the community. The first edition of the Brainy Boomer Cookbook, written by you—our MCSA Community—helped us raise $27,500.00! We thank you for your loyal and ongoing support! Thank you for helping us advance our mandate towards prevention, aging research, and education. Income tax receipts shall also be issued for all donations exceeding $15.00. If you would like to donate by mail, phone or email, please contact Silvana Aguzzi at 514-761-6131 X 6308 or by email at silvana.aguzzi@mcgill.ca
A free new educational resource, *Dementia, Your Companion Guide*, was designed to help provide answers. With engaging illustrations and a friendly writing style, this approachable guide covers a wide array of topics to assist both the person living with dementia (PLWD) and their care partners. It includes information on the science and progression of dementia as well as practical advice on safety and self-care. The Book is available in English, French, Spanish, Mandarin, and Italian.

The guide was created by a multidisciplinary team at the McGill University Dementia Education Program (DEP) in the Faculty of Medicine and Health Sciences (FMHS). The content was provided by the Program’s founder and former care partner Ms. Claire Webster, geriatrician Dr. José A. Morais and neurologist Dr. Serge Gauthier, along with partners from the McGill University Research Centre for Studies in Aging, the Division of Geriatric Medicine, the School of Physical and Occupational Therapy, and the School of Social Work.

Ask for a copy of the book at your next appointment at MCSA or Crossroads! Or Visit: https://www.mcgill.ca/medsimcentre/community-outreach/dementia

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**Website:**
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