

Over 5000 experts from 70 countries assembled at the Walter E. Washington Convention Center located in the heart of Washington DC for the 2015 Alzheimer Association International Conference; AAIC is the largest gathering of dementia researchers in the world. From July 18-23, 2015, hundreds of brilliant minds congregated into 10 plenary sessions, 32 symposiums, 440 featured/oral presentations and 1200 poster presentations.

Canada was well represented within various sessions and presentations, and for the first time participated in a “Canadian Hub” which featured exhibitors from the Alzheimer Society of Canada, Canadian Alzheimer’s Disease Research Symposium (CANAD), Canadian Consortium for Neurodegeneration in Aging (CCNA), Canadian Institutes for Health Research (CIHR): Institute of Aging (IA), Institute of Neuroscience Mental Health and Addiction (INMHA), Consortium for early identification of Alzheimer's disease - Quebec CIMA-Q, Canadian Longitudinal Study in Aging (CLSA) and The Consortium of Canadian Centres for Clinical Cognitive Research (C5R).



Debbie Benczkowski, Chief Operating Officer; Dr. Larry Chambers, Scientific Advisor; Mimi Lowi-Young, Chief Executive Officer and Nalini Sen, Director, Research Program at the ASC Booth



Joanne Goldberg at the CIHR Booth



Dr. Sébastien Hébert at the CANAD Booth



*Dr. Annie-Kim Gilbert, CIMA-Q
Victor Whitehouse and Dr. Pascale Léon, CCNA*



*Dr. Michael Borrie and Trish Purcell, CSR Booth
Sue Johnston, CLSA Booth*

Featured Research Session: Should there be Shift in the Balance Away from Research Support for 'Early Detection' and Cure to invest more in Prevention and Care for Alzheimer's Disease and other Dementias?

Alzheimer Society of Canada representatives, Mimi Lowi Young and Larry Chambers, chaired this debate that opened the Conference at 8 am Sunday, July 19th.

Debaters in favour of shifting the balance to care were Anders Wimo and Eric Larsen. Anders is a professor of geriatric family medicine at the Karolinska Institutet, Sweden (Anders is the economist who works with Martin Prince in producing the estimates of the prevalence and monetary costs in developed and developing countries for Alzheimer's Disease International). Eric Larsen is Vice President Research at Group Health in Seattle, USA, a practicing medical internist and researcher.

On the side advocating more cure research were Nick Fox and Sylvie Belleville. Nick is a clinical neurologist at the National Hospital for Neurology, Queen Square, London, England. Sylvie is professor in neuropsychology, health of the research center of the Montreal Geriatric Institute and co-lead of the Consortium for Identification of Alzheimer's Disease in Quebec (CIMAQ).

Even though it was early Sunday morning, about 300 members attended and many participated in the audience engagement portion of the session.

At the end of the session, the audience indicated the 'cure' side "won".

Frontal Temporal Dementia

A plenary session on behavioural interventions for psychosocial care and an update on what we know about frontal temporal dementia (FTD) reminded Conference participants of the various types of FTD and its strong genetic makeup.

Although Alzheimer's disease and frontal temporal dementia are very different clinically, there seems to be a molecule that connects them (Progranulin). A decrease in Progranulin leads to deficits in social interactions and also to loss of Retina Ganglion neurons. This loss appears to occur before frontal temporal dementia symptoms are noticeable so this loss may be a very early indicator. An increase in Progranulin prevents neuronal loss in mice with advanced AD and also improves their spatial memory. The question posed was, " Will an increase in Progranulin protect against behavioural impairments among humans? " It seems much more work is needed in this promising area of research.

Timely Diagnosis and Treatment of Dementia

A session on intervening early in the dementia course highlighted issues regarding false positives as a result of early screening. A presenter from the USA discussed a program much like Alzheimer Society First Link® program. The Alzheimer Society of Ontario's Kathy Hickman presented on their work in self management for people with early stage dementia.

Modifiable Lifestyle to Prevent Dementia

Modifiable lifestyle factors in prevention reports echoed Alzheimer Society messaging on this topic, including that it is never too early, or too late, to adopt brain healthy lifestyles. Learning music and languages as well as being physically active as a child seem to have an association with a lower rate of mild cognitive impairment and Alzheimer's disease. Late life social activities have been associated with a lower rate of cognitive decline. Lower rates of mild cognitive impairment and Alzheimer's disease are also associated with having:

- intimate relationships, positive social interactions, feeling engaged and not lonely
- space to move about (a less physically restricted life space)
- emotional connections as a child, free from neglect
- fewer depressive symptoms
- lower rates of chronic distress (different from 'stress' - ie. anxiety, vulnerability to stress, etc)
- regular exposure to new stimuli
- purpose, meaning in life, goal directedness
- self acceptance, environmental mastery, personal goals and growth, self discipline and high conscientiousness

Thus, education and exposure to different languages and arts continues to be emphasized. Emotional connections in positive relationships as well as spending time in meaningful, goal directed activities where one gets out and explores new things can all help cognitive health as can engaging in regular cognitive, social and physical activities.

Sleep and Dementia Prevention

Kristine Yaffe, University of California, reported on a longitudinal study of over 6,000 individuals whose sleep was measured objectively including sleep quality, circadian rhythm activity, sleep disordered breathing using polysomnography and actigraphy. Evaluation follow-up over three to five years of cognitive outcomes showed that poorer sleep quality predicted poor cognitive outcomes.

Vascular Disease and Dementia Prevention

A plenary session focused on microinfarcts and new findings reported by Julie Schneider at the Rush University brain bank research program that vascular disease is implicated with up to 75% of all dementias. The message was clear: Reigning in the rates of Vascular dementia through avoiding or stopping smoking, controlling blood pressure, physical activity and good nutrition are key to the prevention of dementia. In another session, Colleen Maxwell (University of Waterloo and the ON Institute for Clinical Evaluative Sciences) presented Ontario health administration data on dementia showing the incidence of dementia is leveling off. Many commentators attribute this to the link of dementia with vascular disease as vascular disease is decreasing in Ontario and the rest of Canada.

Dental Care of Persons with Dementia

Good dental care throughout the lives of people with dementia is important and a diagnosis of dementia (along with behavioural symptoms) should not lead to less emphasis on this key area of health care.

Hospital Emergency Department Preparedness to Care for Persons with Dementia

Drs Belinda Parke and Kathleen Hunter, supported by the Alzheimer Society Research Program, presented on their “Older Adult Hospital Readiness” research on how to improve the experience of an emergency department visit for both people with dementia and their families. The user-friendly tools that are emerging from this research will be available via Alzheimer Society of Canada’s website in the fall.

Behavioural Interventions for Psychosocial Care

Laura Gitlin, Johns Hopkins University, reported on a systematic review of trials assessing the impact of behavioural interventions used to care for people with dementia. The review is to be published by Springer. Brodryzlova and colleagues (Laval University) also reported in a poster a systematic review of the impact of psychological and social interventions on care duration among informal caregivers of persons with dementia. In both of these reports, there was a call for more carefully conducted trials to increase our confidence in the results.

Evaluating New Drugs in Clinical Trials

Considerable press coverage came out of the Conference reporting on Lilly’s follow-on study of two of its earlier trials. The drug, solanezumab, had missed its overall goals in those studies, but Lilly claimed improvements in some symptoms only among patients in the earlier stages of Alzheimer's disease. Lilly continued testing the medicine on these mild patients, and switched the patients who had taken placebo onto the drug as

well. Known as a delayed-start analysis, the study compared patients who started 1.5 years later with those taking the drug all along. This preliminary study suggested some overall effect that will have to be tested in future trials.

No new drugs and no new clinical trials were reported that slowed the progression of dementia. Numerous presenters at the conference argued for trials of multiple drugs and trials that included persons with dementia who also had multiple other chronic conditions, for example, high blood pressure, congestive heart failure, diabetes, cancer, etc.

Technology and Dementia

Technology options to help keep people with dementia safe revealed many products and strategies responding to a variety of needs of people with dementia and their caregivers. Some focused on detecting sleep issues, individual risk for getting lost and assisting with cognitive testing.

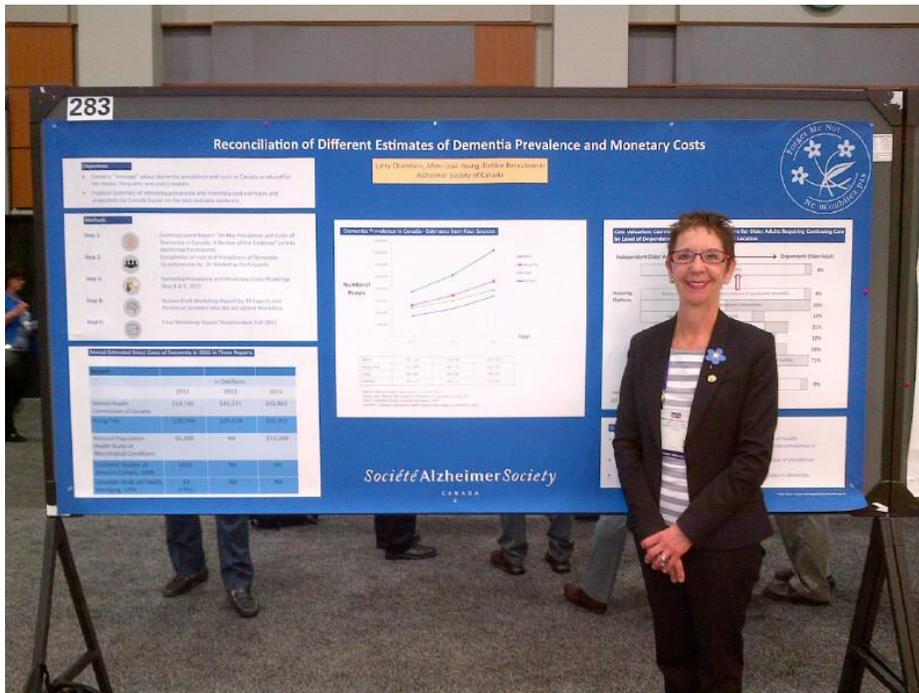
The Davis Technology Acceptance Model was the basis of a questionnaire administered to German (n=100) and American (N=34) caregivers of persons with dementia (Birgit Kramer, Network Aging Research, Heidelberg). Both samples preferred the two emerging technologies: a GPS tracking system and a home health monitoring system. Both groups reported that perceived usefulness of each technology was the most important predictor of acceptance.

Quality of Online Dementia Prevention Information

Julie Robilliard, University of British Columbia, reported that the quality of websites containing information about the prevention of Alzheimer's Disease is variable, with excellent resources coexisting in the online environment with sources of misinformation. These findings have significant implications for the growing computer-literate older adult population and their health care providers.

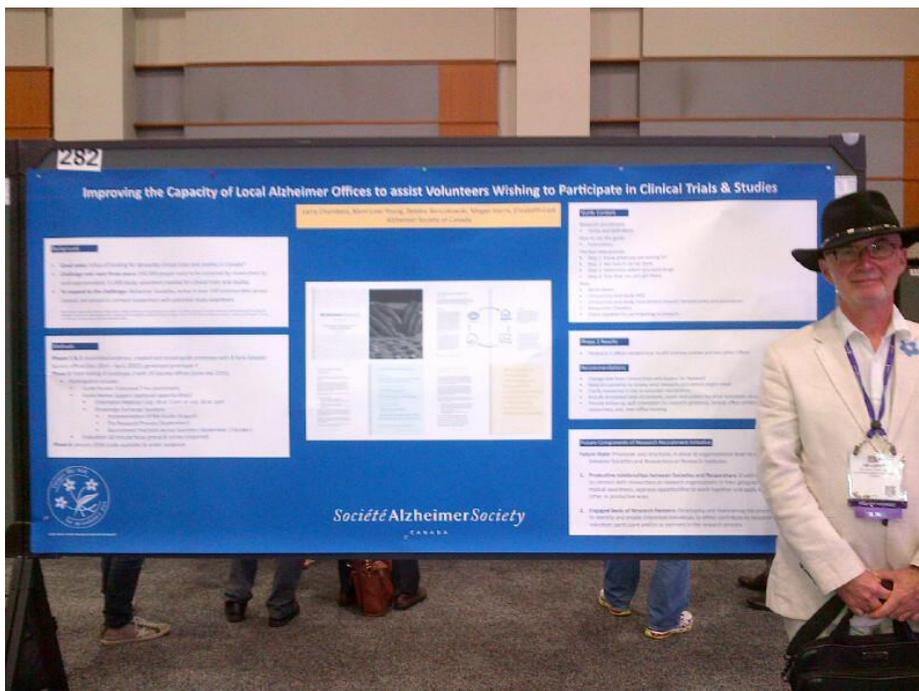
The main Exhibit Hall was lined with 82 Exhibitors from Funding Agencies to Pharmaceutical Companies, Product and Biotech Companies. Within this space, 1200 posters that were presented over the course of the conference, including the following Canadian presenters:

Posters Presented by Alzheimer Society of Canada



Mimi Lowi-Young, CEO of ASC

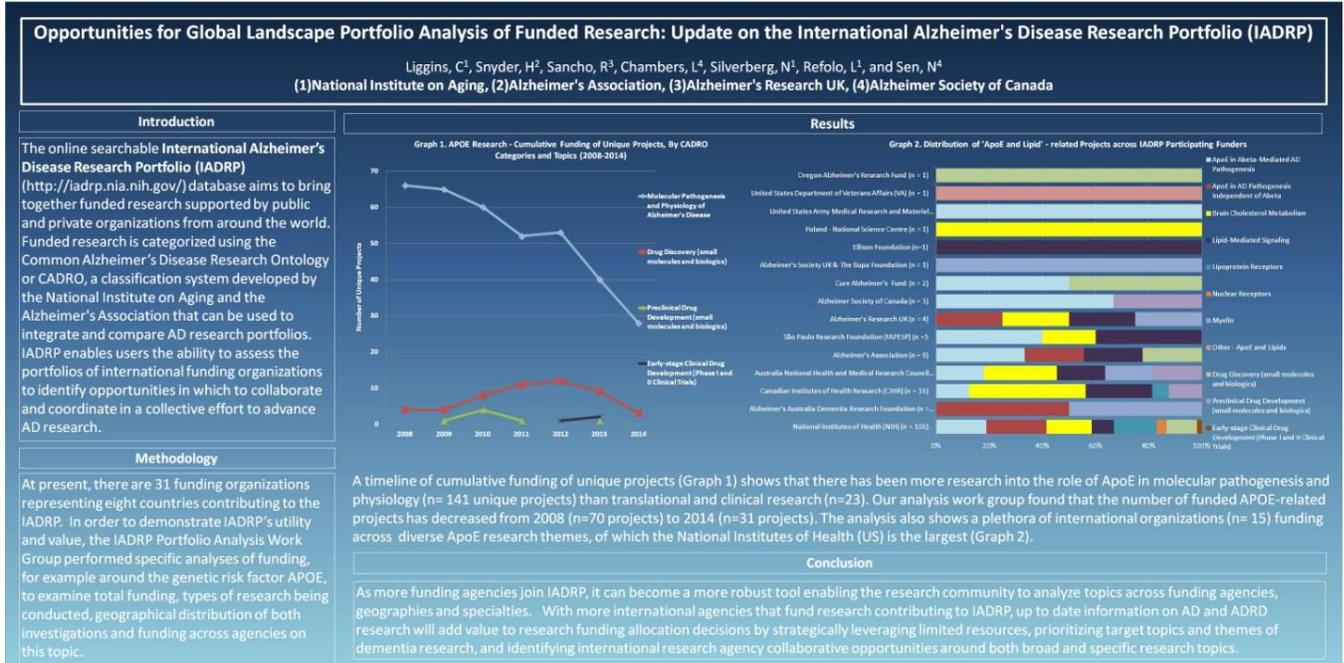
Dr. Larry Chambers, Mimi Lowi-Young and Debbie Benckowski presented a poster on Dementia Prevalence and Monetary Costs in Canada “Reconciliation of different estimates of dementia prevalence and monetary costs”.



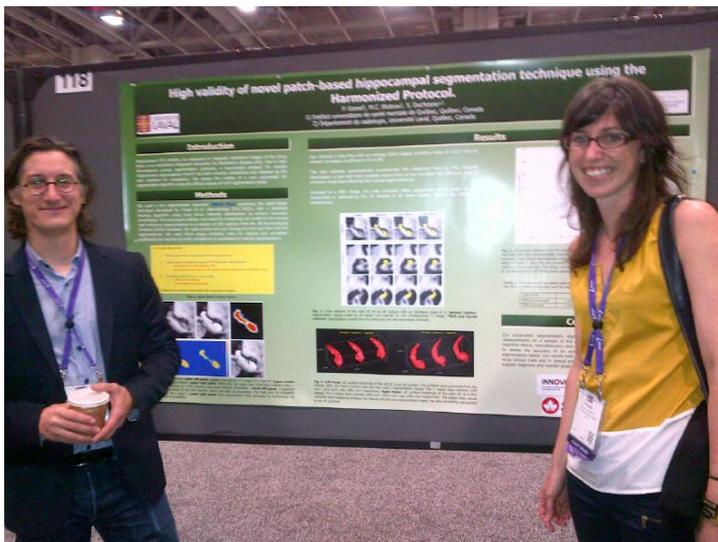
Dr. Larry Chambers, Scientific Advisor of ASC

As well, Larry, Mimi and Debbie also presented another poster with Megan Harris and Liz Lusk on the Research Recruitment Guide “Improving the capacity of local Alzheimer’s offices to assist volunteers wishing to participate in clinical trials and studies”.

Poster on International Alzheimer's Disease Research Portfolio

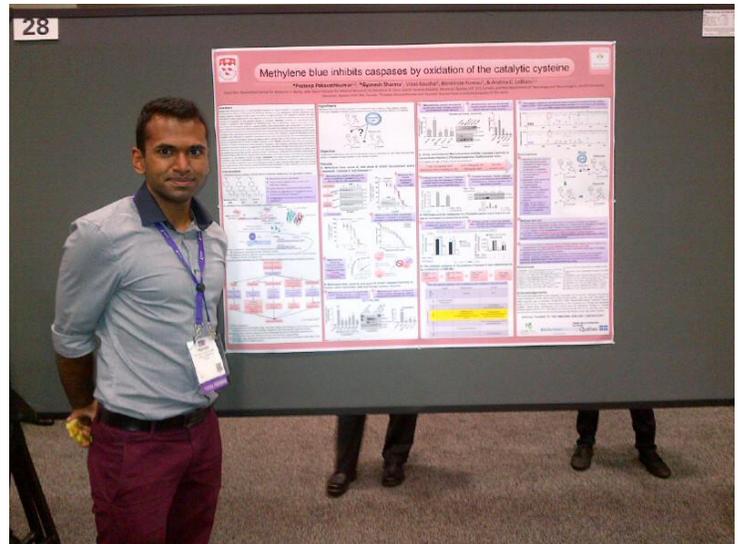


Dr. Larry Chambers and Nalini Sen were co-presenters for the poster “Opportunities for Global Landscape Portfolio Analysis of Funded Research: Update on the International Alzheimer's Disease Research Portfolio (IADRP)”. The Portfolio now receives data on funded research projects and research personnel from 32 funding agencies, including the Alzheimer Society of Canada. The poster outlines how these data can be used in health research priority setting.

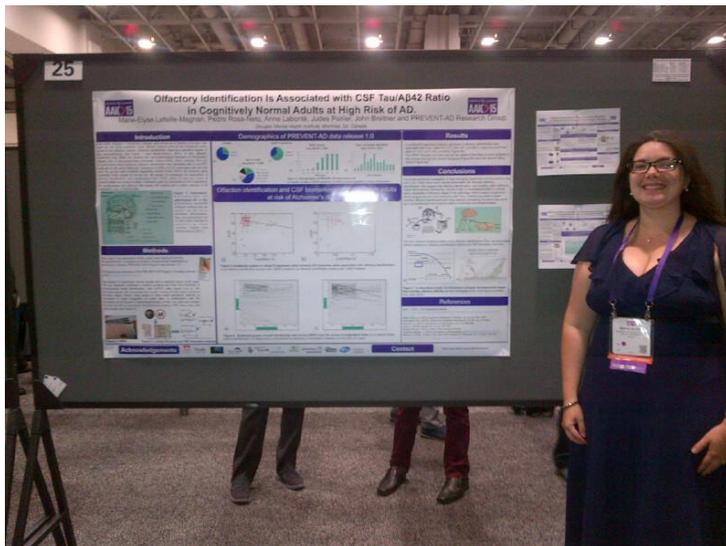


Alzheimer Society Research Program (ASRP) recipient, Dr. Simon Duchense presented on *High validity of novel patch-based hippocampal segmentation technique using the Harmonized Protocol*.

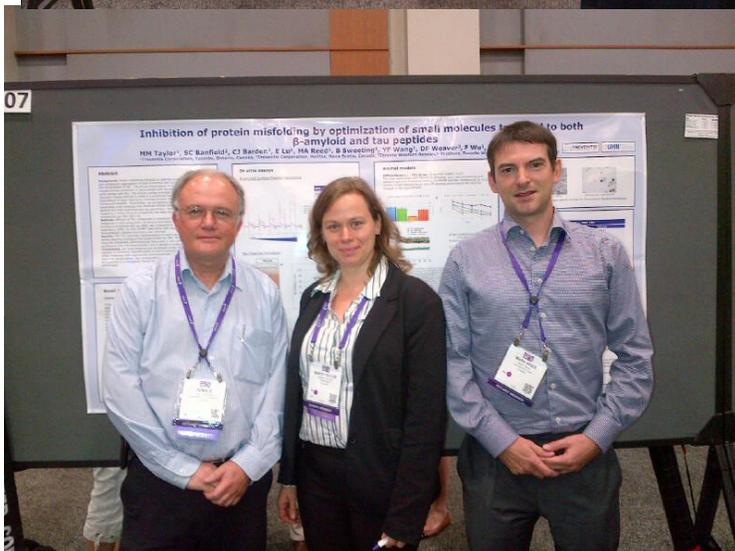
Dr. Prateep Pakavathkumar presents his poster on ASRP funded research *Methylene blue inhibits caspases by oxidation of the catalytic cysteine.*



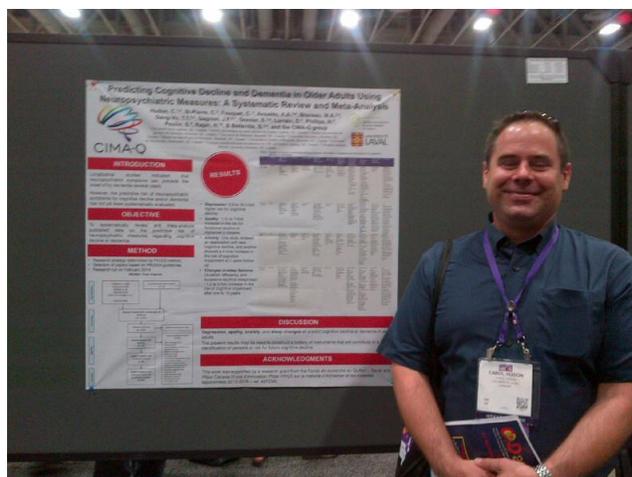
Dr. Marie-Elyse Lafille-Magnan of McGill University presents on *Olfactory Identification Is Associated with CSF Tau/A β 42 Ratio in Cognitively Normal Adults at High Risk of AD.*



Drs. Don Weaver, Marcia Taylor and Mark Reed of Canada present poster on *Inhibition of protein misfolding by optimization of small molecules targeted to both β -amyloid and tau peptides.*

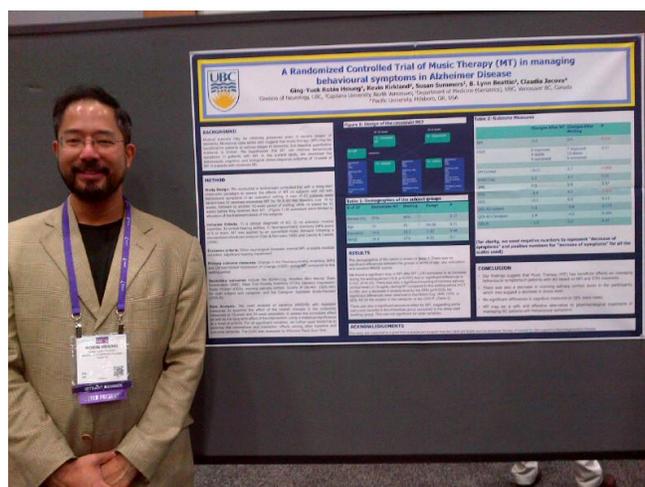


Dr. Carol Hudon from the University of Laval, presents his research on *Predicting Cognitive Decline and Dementia in Older Adults Using Neuropsychiatric Measures: A Systematic Review and Meta-Analysis.*



Dr. Howard Chertkow (Neurologist and Head of Aging and Alzheimer's Research at the Jewish General Hospital in Quebec and Scientific Director, CCNA) and Dr. Ron Peterson (Neurologist at the Mayo Clinic, Member of the World Dementia Council and Member of the Board of Directors for the Alzheimer Association, US) at the CCNA booth.

Dr. Robin Hsiung from the University of British Columbia, presents *A Randomized Controlled Trial of Music Therapy in managing behavioural symptoms in Alzheimer's Disease.*



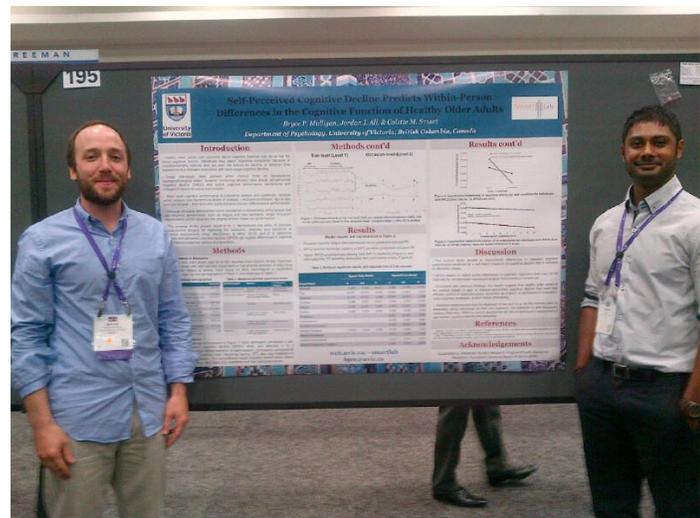


ASRP recipient Dr. Carlos Roncero from McGill University, presents on how *tDCS stimulation plus picture training improves naming scores in dementia patients.*

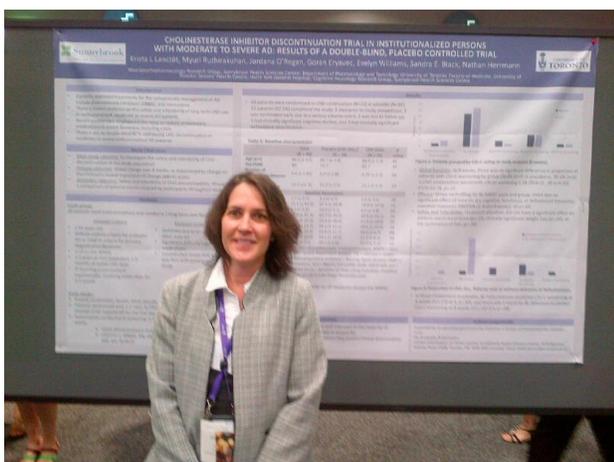


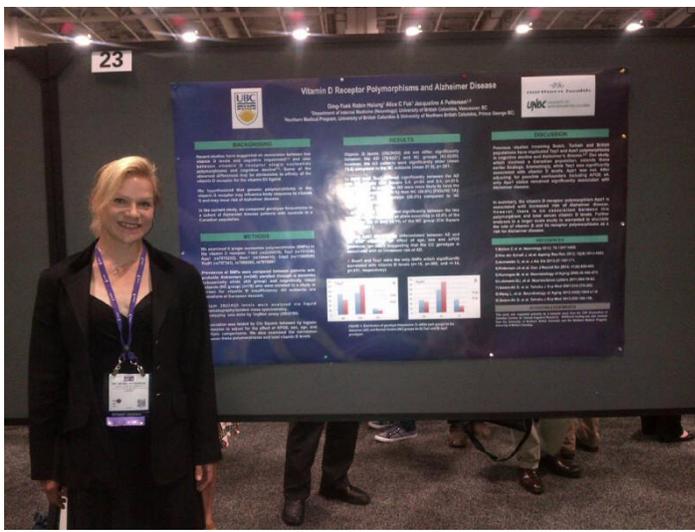
Kathy Hickman from the Alzheimer Society of Ontario presents a posting on how to *Give your mind and body a boost: keeping active and living well with dementia.*

ASRP funded research presented by Bryce Mulligan and Jordan Ali on *Self Perceived Decline Predicts Within-Person Differences in the cognitive Function of Health Older Adults.*

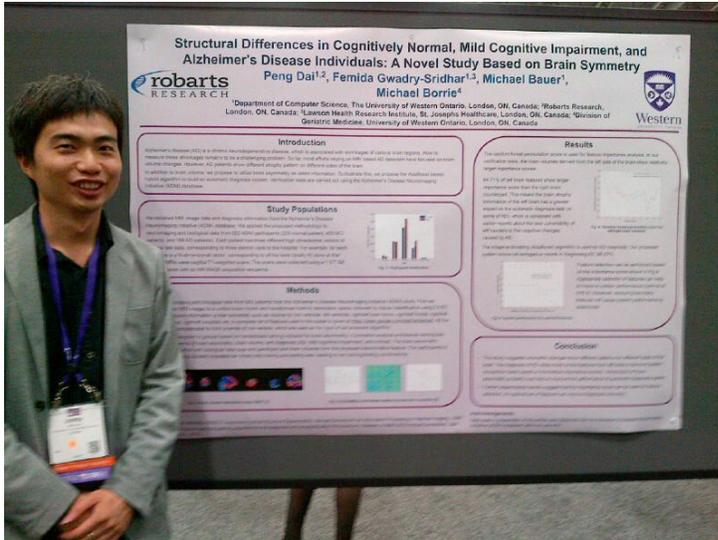


Krista Lanctot from the University of Toronto presents her research on how the discontinuation of cholinesterase inhibitors may impact individuals living with moderate to severe Alzheimer's Disease.

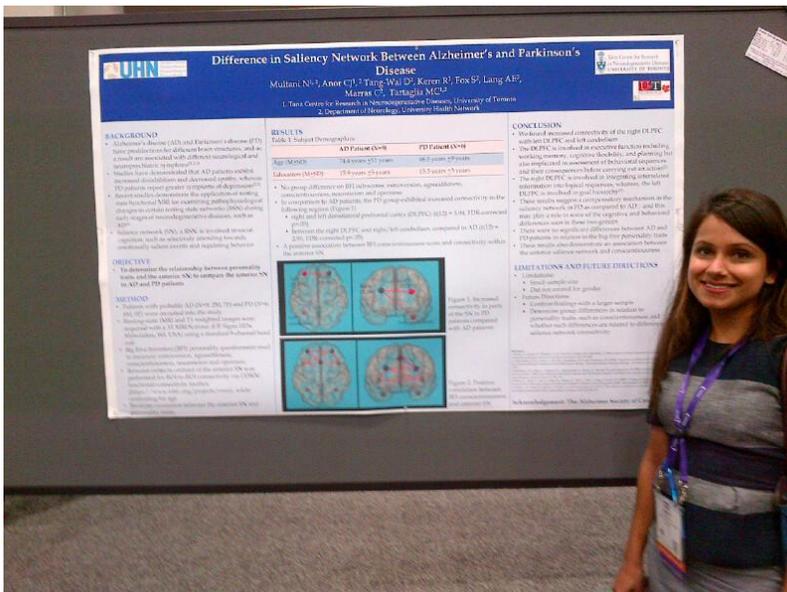




Dr. Jacqueline Petterson from UBC presents on *Vitamin D Regulator Polymorphisms and Alzheimer Disease*.



Peng Dai from Western University presents on *Structural Differences in Cognitively Normal, Mild Cognitive Impairment and Alzheimer's Disease Individuals: A Novel Study Based on Brain Symmetry*.



Namita Multani from the University Health Network presents on the *Difference in Saliency Network Between Alzheimer's and Parkinson's Disease*.

Note: The Alzheimer Society of Canada has ordered a copy of the audio tapes of all the presentations as well as the slides used. Attendees at the Conference also received a memory stick of all the abstracts that includes a search engine. If you

are interested in receiving a copy of the slides for any session, please contact Debbie Benczkowski.

There were a series of meetings and receptions that were attended throughout the conference:

The International Alzheimer's Disease Research Funder consortium (IADRFC) is a group which was developed to discuss funders' priorities and to consider areas of opportunity for collaboration.

- This group discussed the topic of scientific reproducibility and the various issues that should be considered in the process.

Updates were provided on initiatives that have arisen since the G7:

- Marc Wortmann provided an update on Alzheimer's Disease International and Global Action Alliance for Dementia
- Dr. Tarun Dua spoke about the World Health Organization
- Dr. Yves Joannette provided an update on the World Dementia Council
- Dr. Martin Rossor shared an update on the Organisation Economic and Cooperative Development.

This was followed by a meeting of the **IADRFC Charities Workgroup** which was established to identify shared priorities for research funders across the globe with the purpose of information sharing and partnership working.

During this meeting, the workgroup discussed the following topics:

- Current funding collaborations
 - Private-public partnerships between IADRFC participants
 - Discussion of opportunities/challenges in collaborative funding
- IADRFC's role with the Young Leaders Forum

The Global Alzheimer's Association Interactive Network (GAAIN) was launched by the Alzheimer's Association at the conference. Advancing our understanding of Alzheimer's disease requires big data – catalogued, aggregated and accessible. This Network uses cloud computing to link scientists, projects and data together, to ensure the quickest possible sharing of research data among investigators worldwide, enabling them to efficiently mine existing data to develop the field's next steps in Alzheimer's discovery. Visit www.GAAIN.org for more information.

The Future of Clinical Trials was discussed at a dinner hosted by the Global CEO Initiative on Alzheimer's disease, and attended by Mimi Lowi-Young and Debbie Benczkowski. The Global CEO Initiative on Alzheimer's Disease (CEOi) is intended as a high-level, private-sector response to Alzheimer's disease (AD). The CEOi answers the global call from governments to stop the disease by 2025 through greater engagement with business and non-governmental organizations (NGO). As part of efforts to reach this goal, this group works across many sectors to develop an action-oriented global

response to address the major issues in AD research and care. Two key themes emerged from the evening's discussion:

- Current global clinical trial infrastructure in AD research is slow, costly and outdated. Although we are making strides in identifying the right research populations — through initiatives such as ADNI and the Brain Health Registry—there remains a lack of robust recruitment channels, sensitive and specific algorithms to 'narrow the funnel' of volunteers from the general population to those with and at risk for Alzheimer's, and tools to follow and engage volunteers in the recruitment/registry/cohort funnel.
- New mobile and brain gaming technology offer the possibility to connect large populations of volunteers to the clinical research process through continuous and passive monitoring of cognitive and functional decline. This monitoring data, paired with users' voluntary linking of their electronic health records, has the potential to produce longitudinal data, which could transform how we assess brain health and match individuals to appropriate clinical trials. But challenges remain in the validation of the data collected in this fashion, matching that data with clinical data, and in connecting those 'data sources' with 'data destinations' trusted by individuals and accessible to the research community.

In addition, **Raj Long**, Senior Regulatory Officer at the Bill & Melinda Gates Foundation, reported that **regulatory agencies around the world are working together to address, among other areas, clinical trial efficiencies, risk benefit assessments, composite end points and attrition analyses. That process can and should be connected to the technology and industry developments noted above.**

Canada and the Challenge of Dementia: Where We Are and Where We Are Headed

Within this meeting, Dr. Yves Joanette, Scientific Director of the Institute of Aging, Canadian Institutes of Health Research (CIHR) provided an overview of the global distribution of dementia: that there are 7.7 million new cases each year. The CIHR Dementia research strategy was also shared which is composed of both International initiatives such as the Joint Programming Initiative in Neurodegeneration (JPND) which is the largest global research initiative on neurodegenerative diseases, Network of Centres of Excellence in Neurodegeneration (COEN), China and Alzheimer's Disease Neuroimaging Initiative (ADNI) as well as the Canadian Consortium for Neurodegeneration in Aging (CCNA). Dr. Joanette emphasized ASC's role as a leading partner within the CCNA. Dr. Joanette also reported on the four G7 Legacy Events took that place in 2015 as per the direction of the World Dementia Envoy, Dennis Gillings. The following events were hosted by:

- UK: Financial and Social Impact
 - Canada/France: Academia-Industry Synergies
 - Japan: New Care and Prevention models
 - USA: Alzheimer's Summit
- 80 countries have adopted a call to Action.

The Canadian Researcher and International Partners Reception

This event was co-hosted by the Alzheimer Society of Canada, CIHR Institute of Aging (IA) and Institute of Neuroscience Mental Health and Addiction (INMHA), the Canadian

Longitudinal Study in Aging (CLSA) and The Consortium of Canadian Centres for Clinical Cognitive Research (C5R)



Opening remarks were shared by Dr. Ine Wauben (CLSA), Dr. Yves Joanette (CIHR-IA), Mimi Lowi-Young (ASC), Dr. Michael Borrie (C5R), Dr. Tony Phillips (CIHR-INMHA)



Gil Robinovici, MD
University of California

The Early Career Research Reception co-hosted by the Alzheimer Association (US), Alzheimer Society of Canada, National Institute of Aging (US), Canadian Institutes of Health Research, Alzheimer Society UK, Alzheimer's Research UK, Alzheimer Nederland, Alzheimer Drug Discovery Foundation, National Institute of Neurological Disorders and Stroke (US),



Alex Mihailidis, PEng, PhD
University of Toronto

and the Weston Foundation featured two accomplished researchers who have each been funded by more than one of these funding agencies over the course of their careers, who offered words of wisdom and advice to early career investigators.

This extraordinary conference has provided us with an opportunity to participate in and attend presentations, meetings and events which have exposed us to promising international research conducted by passionate investigators with the most brilliant minds in this field. This gives us hope and confidence in believing that we are drawing closer to realizing our vision of a world without Alzheimer's disease.