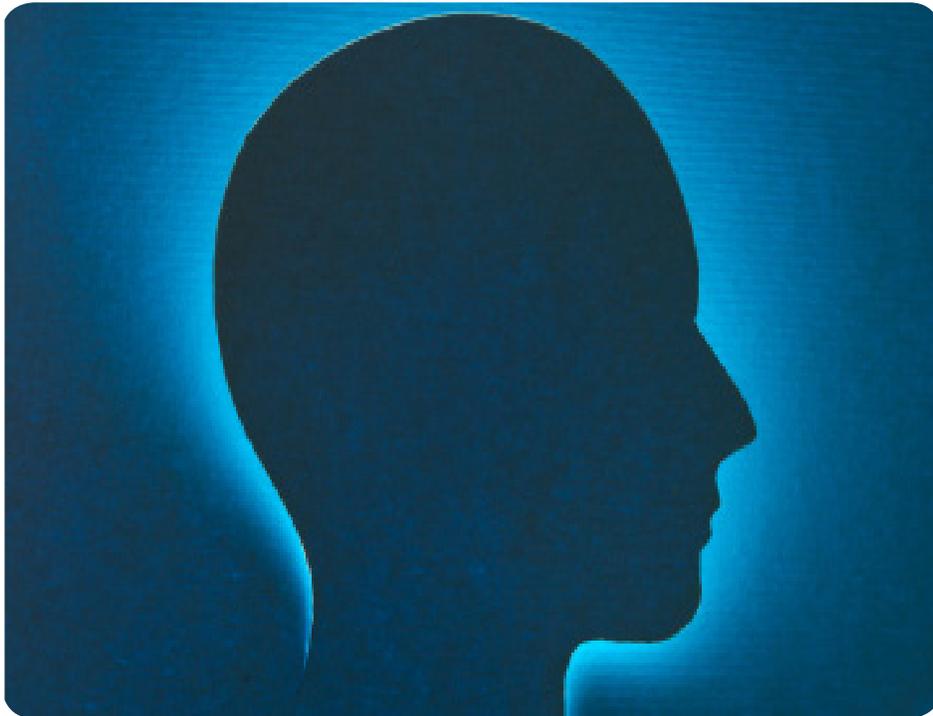


# A FOCUS ON RESEARCH



Currently, there is no cure for Alzheimer's disease or other forms of dementia. To help create a world without dementia, the Alzheimer Society of B.C. champions research for tomorrow's treatments and cures.

We support biomedical and quality-of-life research across Canada through the Alzheimer Society Research Program.

We also help nurture research and discovery here in B.C. through supporting recruitment, partnering with local researchers and through initiatives such as the Ralph Fisher and Alzheimer Society of B.C. Professorship in Alzheimer Disease Research at the University of British Columbia, currently held by Dr Robin Hsiung.

Read on for a variety of information related to research, including:

- Highlights from the 2017 Alzheimer's Association International Conference, the world's largest forum for the dementia research community ([page 2](#)).
- Tips on how to think critically about research you hear about in the news or read online ([page 4](#)).
- An interview with Dr. Mari DeMarco, a Clinical Chemist at St. Paul's Hospital ([page 6](#)).
- Featuring four B.C. researchers who recently received funding from the Alzheimer Society Research Program ([page 7](#)).

## 2017 ALZHEIMER'S ASSOCIATION INTERNATIONAL CONFERENCE

The 2017 Alzheimer's Association International Conference® (AAIC®) was hosted this year in London, England. Researchers, clinicians, health-care providers and students from over 70 countries gathered to network and discuss the latest dementia theories, discoveries and study results. Below, we share some research highlights from the conference.

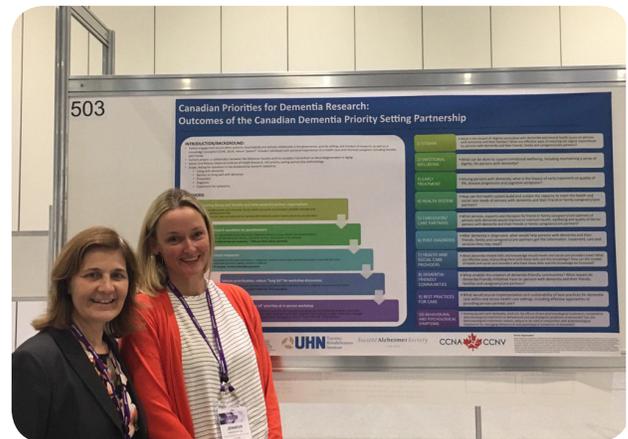
### ONE-THIRD OF DEMENTIA CASES MAY BE PREVENTABLE

*The Lancet* Commission on Dementia Prevention, Intervention and Care reported that approximately 35 per cent of all dementia cases may be preventable through addressing lifestyle factors. Researchers highlighted nine potentially modifiable risk factors, which include less childhood education, hypertension, obesity, depression, diabetes, physical inactivity, smoking, hearing loss and social isolation.

"At an individual level, many people have the potential to reduce their risk of cognitive decline, and perhaps dementia, through simple, healthful behaviour changes. At a public health level, interventions based on this evidence could be extremely powerful in managing the global human and economic costs of Alzheimer's disease and other dementias," shared Maria Carrillo, Chief Science Officer at the Alzheimer's Association.

### TREATING SLEEP PROBLEMS MAY LOWER DEMENTIA RISK

Several new research analyses found significant associations between sleep disordered breathing (SDB) and the hallmark brain changes of Alzheimer's disease. Researchers found that, in their study populations, obstructive sleep apnea (OSA) was associated with increased brain amyloid deposition, decreased cerebrospinal fluid levels of amyloid (which is thought to indicate increased buildup in the brain) and increased tau protein



Alzheimer Society of Canada CEO Pauline Tardif with postdoctoral researcher Jen Bethell presenting on priority setting for dementia research at the AAIC.

levels. SDB was associated with accelerated accumulation of brain amyloid both in cognitively normal individuals and people with mild cognitive impairment.

SDB/OSA is a modifiable factor that – with effective treatment – may help lower the risk of cognitive decline and possibly Alzheimer's disease. However, more research is needed to test this idea.

"Through early diagnosis and effective treatment of these sleep disorders, there is the potential to improve cognition and possibly reduce dementia risk. But first we need to know more about the connections between these medical conditions," said Dean M. Hartley, Director of Science Initiatives at the Alzheimer's Association.

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## PROMISING EARLY STUDY OF BLOOD TEST TO DETECT AMYLOID IN THE BRAIN

Amyloid plaques in the brain are an indicator of Alzheimer's disease. Although spinal tap tests and PET scans can be used to detect amyloid deposits in the brain, there is an urgent need for a less invasive and more cost-effective way of testing for amyloid.

A study in its earlier stages is exploring blood tests as a way to detect biomarkers for amyloid plaques. The findings suggest that the amyloid levels detected in blood can accurately reflect the amyloid buildup in the brain. If successful, this method for early detection may be pivotal in identifying people who are at a higher risk of Alzheimer's disease sooner in the process.

"We envision that one day soon, as part of a regular screening for cholesterol and blood pressure, a person may also get a blood test to find out if the amyloid protein is building up in the brain, and then go on specific treatments to prevent the onset of Alzheimer's disease," said Randall Bateman, from the Washington University School of Medicine.

## HEALTHY EATING, HEALTHY BRAIN

Results from four large population-based studies support a connection between good dietary practices and better cognition in old age.

A group of U.S. scientists found that, among nearly 6,000 older adults, those who consistently followed diets long known to contribute to good heart health were also more likely to maintain strong cognitive function in old age. Close adherence to the MIND (Mediterranean-DASH Intervention for Neurodegenerative Delay) diet and Mediterranean diet was associated with 30 to 35 percent lower risk of cognitive impairment in healthy older adults.



Pauline Tardif and Jennifer Carr at the Alzheimer Society of Canada's poster on young onset dementia.

Another study linked unhealthy diet to markers of inflammation, smaller brain volume and worse cognitive performance.

"Although the idea that a healthy diet can help protect against cognitive decline as we age is not new, the size and length of these four studies demonstrate how powerful good dietary practices may be in maintaining brain health and function," said Keith Fargo, the Alzheimer's Association's Director of Scientific Programs and Outreach.

Of course, healthy eating is only one lifestyle factor that may help reduce a person's risk of developing dementia. There are other healthy lifestyle choices, like being physically active, that may help reduce the risk of getting the disease and help keep our brains as healthy as possible as we age.

For more information about the AAIC, including press releases, video highlights and more visit [www.alz.org/aaic/pressroom.asp](http://www.alz.org/aaic/pressroom.asp).

Source: Alzheimer's Association International Conference®. (2017). News Reports from the Alzheimer's Association International Conference 2017 [Press release].

## READING ABOUT RESEARCH: THINGS TO KEEP IN MIND

It's important to be critical when you read or hear about dementia research. It seems like almost every week, there is a new study that reports exciting progress. We hear about these "breakthroughs" on the internet, in newspapers and in magazines. However, the reports on these studies may not be telling the whole story. So how do you know what to believe?

Below we share several factors to keep in mind when thinking about how reliable a study may be.

### WHAT IS THE SOURCE?

Anyone with an opinion can write an article on a website, but credible research is published in scientific magazines or peer-reviewed journals (publications reviewed by professionals working in the same field).

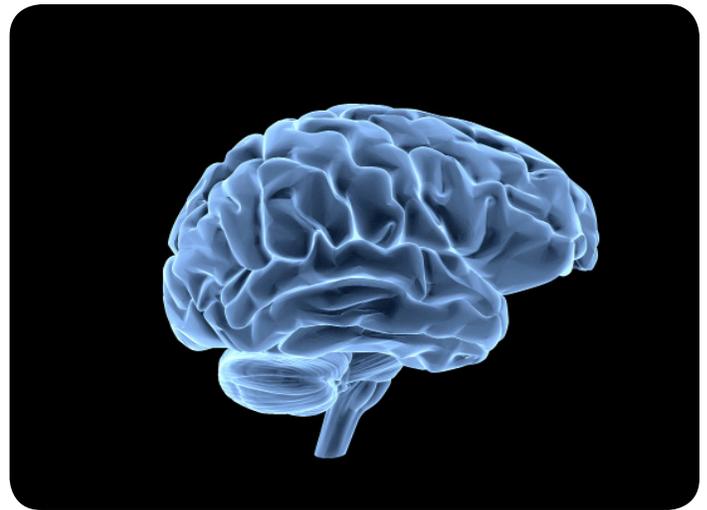
Examples of a good source are a government website or a scientific magazine. A not-so-credible source could be a popular magazine or a website written by someone with no relevant qualifications.

### WHO DID THE RESEARCH?

Legitimate research articles always state the names of the researchers, their credentials, the organization they work for, when the research was done and where the research study was originally published.

A reliable study will also likely come from researchers who are associated with a respected organization or educational institution and have experience in the area they are writing about.

For example, a trustworthy researcher would be a professor from the University of British Columbia who specializes in brain research. A less credible researcher would be a celebrity spokesperson who does not have a medical or research background.

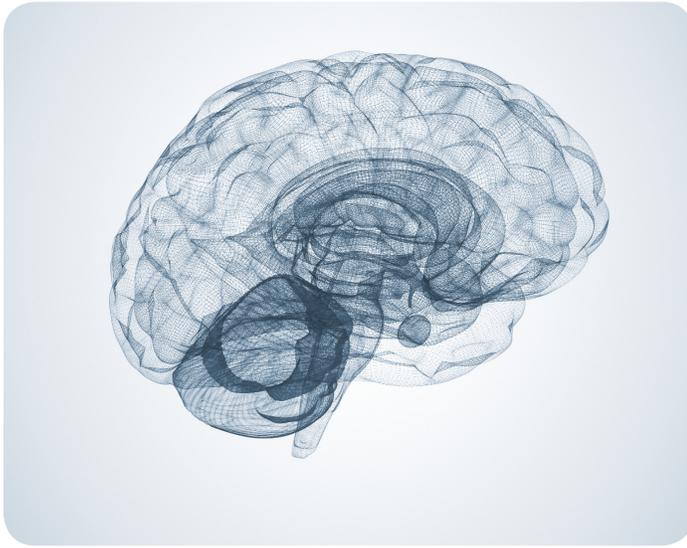


### IS IT AN ANIMAL OR HUMAN STUDY?

There are various steps involved in developing an effective treatment for a disease. For example, when developing a drug, laboratory tests are first carried out using a variety of small animals, like mice, to determine the effects of the drug.

The media may widely report on a study that seems promising, but testing a treatment using animals does not mean that the same results will be found when the same test is conducted with humans. If the study has not advanced to testing on humans, these results may be exciting, but years of more research and testing are required before it could be determined effective or ineffective as a possible treatment.

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### HOW MANY PEOPLE ARE IN THE STUDY?

The higher the number of participants in a clinical study, the more likely the results will represent the larger population being studied. For example, a study done with only 10 people who have a diagnosis of Alzheimer's disease cannot claim to represent all people living with the disease. It may, however, suggest a potential direction for future research.

### WHO FUNDED THE STUDY?

If the organization who funds the research has something to gain or lose from the results of the study (such as having a product or medication approved or rejected), the results may not tell the whole story. Often, if it sounds too good to be

true, it probably is. For example, a supplement company may endorse turmeric as a "miracle cure" even though their claim is based on an inaccurate study or no study at all. Note that a reputable journal requires authors to declare any conflicts of interest.

### ARE THERE OTHER STUDIES THAT SUPPORT THE RESULTS?

Be cautious of vague and sweeping research conclusions, such as "Everyone should take ginkgo biloba supplements." One experiment is rarely enough. Many studies are needed on one topic to know we can trust the results. When enough research has been done, researchers can combine all of these results to look for patterns and draw accurate conclusions.

### HOW TO WEED OUT BAD INFORMATION ONLINE

Many people go online to seek out medical information on preventing diseases, such as Alzheimer's disease, but how do we determine what information is trustworthy?

Dr. Julie Robillard, from the University of British Columbia, shares five tips on how to find the highest quality of information online. To watch visit [www.youtube.com/watch?v=Godg90AY-JA0](http://www.youtube.com/watch?v=Godg90AY-JA0).

### RESEARCH UPDATE 2017

Would you like the latest update in Alzheimer's disease research? In a previously recorded tele-workshop, Dr. Robin Hsiung, from the University of British Columbia's Centre for Brain Health, explores some of the exciting scientific progress being made in Alzheimer's disease research and its potential future clinical directions.

To view the recording visit [www.youtube.com/watch?v=P\\_wizmjP2BY](http://www.youtube.com/watch?v=P_wizmjP2BY).



## Q&A WITH DR. MARI DEMARCO

Dr. DeMarco is a Clinical Chemist at St. Paul's Hospital, and a Clinical Assistant Professor in the Department of Pathology and Laboratory Medicine at the University of British Columbia. Her research focuses on building new biofluid tests for the diagnosis of dementia. The DeMarco lab is leading the way in developing and implementing the protein mass spectrometry tests for patient care that are referenced below. Researchers world-wide seek out her team's expertise on the use of this cutting-edge technology.

### Q: WHAT DO YOU HOPE TO ACHIEVE WITH THIS RESEARCH?

A: When signs and symptoms of Alzheimer's disease first appear, they can mimic other diseases like Lewy body dementia and frontotemporal degeneration. This makes a certain diagnosis difficult.

Our research focuses on developing diagnostic tests for use in health-care, including tests to help identify the early signs of Alzheimer's disease. This is important because an early diagnosis:

(1) enhances patient care (2) accelerates the development of drugs to prevent or stop the disease – for example, by helping with enrollment for clinical trials – and (3) empowers people with knowledge and the opportunity to self-direct long-term care, as well as social and financial planning.

### Q: WHAT IS NOVEL OR SIGNIFICANT ABOUT THIS PROJECT?

A: We are developing new diagnostic tools for Alzheimer's disease using a special technique called mass spectrometry. Mass spectrometry has many advantages; one of them is that it can be used to filter complex biofluids – like blood and cerebrospinal fluid – to select out only the small fraction that is of diagnostic interest.

Imagine a stadium full of people and your task is to count only those wearing yellow shirts. How



can you quickly sort through the crowd and count only those meeting this description? Mass spectrometry can accelerate this kind of task, of course, with molecules, not people. It's great at identifying exactly what you design it to do – and it does so with great accuracy and reproducibility; these are two key metrics in diagnostic testing.

### Q: WHAT DOES THIS MEAN FOR PEOPLE LIVING WITH DEMENTIA AND THOSE WHO CARE FOR THEM?

A: It is our mission to build tests that are needed by patients, physicians and those who are working on developing therapeutics.

As we build these new tools, we are intently focused on how they will be implemented in

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health-care. There is an incredible breadth of dementia research underway; however, this research can easily get “stuck” in university labs and never make the jump into health-care.

To make sure this doesn’t happen with our research, all of our work – designing, testing and one day implementing diagnostic tests – occurs within the laboratory at St. Paul’s Hospital. I think we have built something special with this “lab-within-a-lab” design. That is essential to helping us make positive changes for people living with dementia in B.C.

### Q: HOW HAS FUNDING FROM THE ALZHEIMER SOCIETY OF B.C. MOVED THIS PROJECT FORWARD?

A: This critical funding has allowed us to pursue the development and implementation of new diagnostic tests in B.C. It can be incredibly difficult to find funding for projects that are near-ready for implementation in health-care, as these types of efforts don’t fit nicely into traditional research funding streams. The Alzheimer Society of B.C. has said, “This is the type of research we want to support,” and we couldn’t be more grateful.

## ALZHEIMER SOCIETY RESEARCH PROGRAM RECIPIENTS IN B.C.!

The Alzheimer Society of B.C. is a proud contributor to the Alzheimer Society Research Program (ASRP), a collaborative initiative involving Alzheimer Societies across Canada, other organizations and generous donors. The ASRP has funded over \$50 million in grants and awards since its inception in 1989 and is the leading funder of dementia research in Canada. This research is vital to finding better ways to prevent, diagnose and treat dementia and improve the quality of life of those affected by it. We are excited to share that four B.C. researchers recently received funding from the ASRP. To learn more visit [www.alzheimer.ca/bc/Research](http://www.alzheimer.ca/bc/Research).

### GLORIA PUURVEEN, UNIVERSITY OF BRITISH COLUMBIA QUALITY OF LIFE, POSTDOCTORAL AWARD

Gloria Puurveen is studying end-of-life preferences and shared decision-making processes of people living with dementia and their families.

“Considering the increasing numbers of individuals living with dementia, it is imperative that we listen to their perspective about what is important to them and how to live well with the illness.”



### HEATHER COOKE, UNIVERSITY OF BRITISH COLUMBIA QUALITY OF LIFE, POSTDOCTORAL AWARD

Heather Cooke is examining workplace incivility/bullying among residential care aides in long-term care and its consequences for the care of people living with dementia.



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## JORDAN ALI, UNIVERSITY OF VICTORIA QUALITY OF LIFE, DOCTORAL AWARD

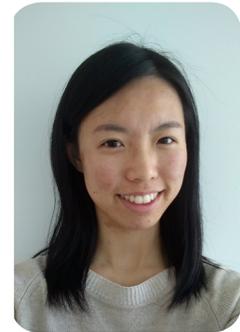
Jordan Ali is comparing the experiences of those with subjective cognitive decline versus healthy older adults. The results of this study will have implications for the early detection of cognitive decline.



## SONJA SOO, UNIVERSITY OF BRITISH COLUMBIA BIOMEDICAL, MASTERS AWARD

Sonja Soo is testing the anti-inflammatory effects of high density lipoprotein (HDL or “good cholesterol”) on specialized cells that surround blood vessels in the brain, with the hope that it could be used as a potential treatment for Alzheimer’s disease.

“Alzheimer’s disease affects millions of people world-wide. The prevalence as well as the complexity of Alzheimer’s disease motivates me to study this disease.”



## THE TOP 10 DEMENTIA RESEARCH PRIORITIES IN CANADA

Over the course of the past year, the Canadian Dementia Priority Setting Partnership study asked Canadians affected by dementia for their unanswered questions about living with dementia, dementia prevention, treatment and diagnosis.

This study set out to identify the top 10 dementia research priorities, and to share them with Canadian researchers and research funding organizations. Over 1,200 participants shared their insights. Thousands of questions were submitted and the shortlist was debated at an in-person workshop held in Toronto.

An Alzheimer Society of B.C. staff member along with members of the B.C. Leadership Group of Caregivers and People Living with Dementia helped to represent British Columbians affected by or concerned about dementia.

The workshop brought together 28 participants



from across Canada (pictured above) – people living with dementia, family members, health and social care providers and members of organizations that represent people living with dementia. Participants worked in small teams and as a group to discuss each question and decide what matters most to them.

Here are the top 10 dementia research priorities, according to Canadians affected by dementia:

1. What is the impact of stigmas associated with dementia and mental health issues on persons living with dementia and their families? What are effective ways of reducing the stigma experienced by people living with dementia and their friends, family and caregivers/care partners?
2. What can be done to support emotional well-being, including maintaining a sense of dignity, for people living with dementia?
3. Among people living with dementia, what is the impact of early treatment on quality of life, disease progression and cognitive symptoms?
4. How can the health system build and sustain the capacity to meet the health- and social care needs of people living with dementia and their friends or family caregivers/care partners?
5. What services, supports and therapies for friends or family caregivers/care partners of people living with dementia would improve or maintain health, well-being and quality of life for persons with dementia and their friends or family caregivers/care partners?
6. After dementia is diagnosed, what would help people living with dementia and their friends, family and caregivers/care partners get the information, treatment, care and services they may need?
7. What dementia-related skills and knowledge should health and social care providers have? What are effective ways of providing them with these skills and this knowledge? How can the number of health- and social care providers who have these skills and this knowledge be increased?



The Canadian Dementia Priority Setting Partnership workshop in Toronto

8. What enables the creation of dementia-friendly communities? What impact do dementia-friendly initiatives have on people living with dementia and their friends, families and caregivers/care partners?
9. What would ensure implementation and sustainability of best practices for dementia care within and across health-care settings, including effective approaches to providing person-centred care?
10. Among people living with dementia, what are the effects of non-pharmacological treatments compared to pharmacological treatments on behavioural and psychological symptoms of dementia? Can non-pharmacological treatments replace, reduce or be used in conjunction with pharmacological treatments for managing behavioural and psychological symptoms of dementia?

The Alzheimer Society Research Program will use these results to help bring the voices of Canadians affected by dementia into the research agenda. These priorities will also be shared with researchers and other research-funding organizations in hopes of stimulating more research in these areas.

Source: Alzheimer Society of Canada (2017). Alzheimer Society Blog. [www.alzheimersocietyblog.ca](http://www.alzheimersocietyblog.ca).

# Alzheimer Society

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## FIRST LINK® DEMENTIA HELPLINE

A confidential province-wide support and information service for anyone with questions about dementia, including people living with dementia, their caregivers, friends, family, professionals and the general public.

Phone: 1-800-936-6033 Monday to Friday, 9 a.m. to 4 p.m.

Email: [supportline@alzheimerbc.org](mailto:supportline@alzheimerbc.org)

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