

September 2020 will mark the ninth World Alzheimer's Month, an international campaign to raise dementia awareness and challenge stigma.

During world Alzheimer's Month, the Australian Alzheimer's Research Foundation will be providing free public lectures to bring awareness to Alzheimer's disease and the research work that will hopefully provide a better future for those at risk of developing the disease. As the second leading cause of death in Australia, Dementia, including Alzheimer's disease, is a significant issue for all Australians.

Our public lectures are always very popular and we hope you can join us online this year.

To ensure everyone's safety during the COVID-19 pandemic, we will be delivering our public lectures online, as webinars this year. There will still

be an opportunity to ask questions and each session will be videoed, so if you are unable to join the live webinar, you can watch the lecture at a time that is convenient to you.

To register for each webinar please visit our website www.alzheimers.com.au and follows the prompts. If you need some assistance with this, please call us on (08) 6457 0253.

There will be five webinars over the month of September held weekly, every **Tuesday at 11am (AWST)** and each will be approximately 40 minutes long. Once you have registered, you will receive an email with the instructions on how to join the live webinar on the day.



September 1st - What is Alzheimer's disease presented by Professor Ralph Martins AO

September 8th - Alzheimer's disease blood test update presented by Dr Pratihtha Chatterjee & Alzheimer's disease eye test update presented by Dr Tejal Shah

September 15th - Sleep and Alzheimer's disease presented by Dr Stephanie Rainey-Smith & Childhood dementia presented by Dr Prashant Bharadwaj

September 22nd - Dementia and age-related cognitive decline presented by A/Professor Hamid Sohrabi & Exercise and brain health presented by Dr Belinda Brown

September 29th - Clinical diagnoses of Alzheimer's disease presented by Dr Roger Clarnette & Treatments and Drug Trials presented by Paula Mather

Meet our new Chairman!

The Australian Alzheimer's Research Foundation is delighted to announce that Mr Graeme Prior has accepted the role of AARF Chairman having joined the Board in 2019.

"I am delighted to take on the role as Chairman and look forward to be building on the strong foundations at AARF. There is much to be done in the field of Alzheimer's research and we need to move as quickly as possible in our mission to provide real solutions to those affected by this very complex disease", he said.

Graeme has a deep understanding of aged care and Alzheimer's disease research within Australia and internationally. Graeme is co-founder and CEO of Hall & Prior, a national aged care provider. Graeme is currently the President of the International Federation on Ageing and Deputy Chairman of the Commonwealth Government sponsored CRC for Mental Health. Graeme is also a Director of the Australian Aged Care Workforce Industry Council and a Committee Member of the

Commonwealth Department of Health's Aged Care Sector Committee (Ministerial Appointment).

Mr Enzo Sirna AM has resigned as Chairman of the Foundation having served in the role for the last 7 years. We would like to extend an enormous thank you to Enzo for his leadership and tireless commitment to the Foundation and the Alzheimer's disease research under the leadership of Professor Ralph Martin's AO. Enzo continues to be a member of the AARF Board, which will ensure a smooth transition to the Foundation's incoming Chair.

Mr Graeme Prior



Clinical Trials Division

The Foundation is proud to be involved in many ground breaking clinical trials, which provide the opportunity for people in Western Australia to gain access to potential new therapies for Alzheimer's disease.

Clinical trials are an essential part of medical research. In order for new medications to make it onto the market, they must first undergo meticulous testing to determine their overall safety and effectiveness. These trials offer hope for many people and an opportunity to help researchers find better treatments for others in the future. They also provide an opportunity to potentially access the latest therapies being researched internationally for Alzheimer's disease.

The Foundation is actively involved in 10 studies currently with another 7 planned to commence within the next 6 months.

We are excited to be taking part in the Phase 3 trial of BAN-2401, jointly sponsored by two pharmaceutical companies, Eisai and Biogen. Earlier studies have been very encouraging, showing the drug to be effective in treating both the changes in the brain and the symptoms of the disease.

The Foundation has been selected to take part in a new study looking at the role of ketosis to improve mitochondrial metabolism, which demonstrated improvements in cognition in an earlier study.

If participating in a clinical trial for new drugs being tested for Alzheimer's disease is of interest to you, please contact our Clinical Trial Division on (08) 9389 6433 or email aarfctd@alzheimers.com.au

All of our current clinical trials can also be viewed on our website: www.alzheimers.com.au

The Foundation is extremely grateful to everyone who generously gives their time to participate in our research. Your involvement is always greatly appreciated.



Cognition Therapeutics (CogRx) Update

The Foundation has been working with Cognition Therapeutics (CogRx) since 2017 on their clinical trials into their drug CT1812, or Elayta which aims to prevent the binding of β -amyloid at the synapse level, while also restoring synaptic loss.

The Foundation conducted a Phase 1 study of the compound, which was quickly followed by a Phase 1b/2 study in late 2018 due to early promising results for participants with mild to moderate Alzheimer's disease. We were proud to be the highest recruiting site in Australia enrolling 10 participants.

In June 2020 Cognition Therapeutics, Inc. announced that the U.S National Institute on Aging (NIA) has awarded Cognition Therapeutics a significant grant to support a 540-patient Phase 2 study of CT1812 in individuals with early Alzheimer's disease.

We look forward to updating you if a new study of this therapy opens at the Foundation.



The Australian Alzheimer's Research Foundation has been part of the Biogen clinical trials since 2015 to evaluate the efficacy and safety of aducanumab in people with early Alzheimer's disease.

On June 9th 2020, Biogen (a U.S. Pharmaceutical Company) completed a submission to the U.S. Food and Drug Administration (FDA) for the approval of aducanumab, an investigational treatment for Alzheimer's disease.

If approved, aducanumab would become the first therapy to reduce the clinical decline of Alzheimer's disease and would also be the first therapy to demonstrate that removing amyloid beta resulted in better clinical outcomes.

Biogen have recently announced the Biogen EMBARK study to assess the long-term safety and efficacy of aducanumab. This study commenced at the Foundation in July for the four participants who took part in the earlier Biogen study.

Paula Mather, Clinical Trial Unit Manager, expressed her enthusiasm, "We are thrilled that there have been such promising results for aducanumab. Having now started the Biogen EMBARK study, it is fantastic to be able to provide continued access to aducanumab for those who previously participated in the earlier ENGAGE study".

The FDA has not approved a drug treatment for Alzheimer's disease in more than 17 years. The last approved drug was memantine in 2003.

The AUstralian-Multidomain Approach to Reduce Dementia Risk by Protecting Brain Health with Lifestyle intervention (AU-ARROW) study

Lifestyle factors such as sleep, diet, exercise and cognitive stimulation have been shown to significantly change the course of Alzheimer's disease.

A preliminary multi-modal trial integrating a number of lifestyle modifications has shown significant benefits. These findings have led to a global initiative for dementia risk reduction called World Wide FINGERS.

The Australian AU-ARROW study led by Prof Ralph Martins is strongly aligned with the US-POINTER study, another member of World-Wide FINGERS.

The multi-modal intervention includes adherence to a specific dietary pattern, regular exercise with increasing intensity, online brain training through the BrainHQ program, and vascular risk factor monitoring throughout the two-year study duration.

The study will recruit 600 individuals aged 60-79 years, who are at higher risk of dementia. Participants will be randomised into either the multi-modal lifestyle intervention group, or the Health Education and Coaching (control) group.

Current study status

The AU-ARROW study team have completed the extensive planning and study set up required for a trial of this magnitude.

The research protocol is being finalised and the recruitment of specialist staff has started. We anticipate the study will commence in early 2021 at two locations: Macquarie University in Sydney, NSW and the Australian Alzheimer's Research Foundation in Nedlands, WA (supported by Edith Cowan University).

Led by Prof Ralph Martins with his team of collaborators in Sydney and Perth, the project has been supported by the NHMRC Medical Research Future Fund and the US Alzheimer's Association.

Conclusions to be gained

The primary outcome of the intervention is improvement in memory and thinking scores, with a multitude of extra outcomes including physical function improvements and diet changes.

AU-ARROW has a unique and innovative set of biomarkers including retinal (eye) imaging, brain scans measuring amyloid load, and MRIs measuring brain volumes that at least half of the participants will undergo at the start and end of the intervention.

A subset of up to 400 participants will also be invited to take part in a sleep study to test whether the lifestyle interventions improve sleep quality including sleep fragmentation and duration.

In combination, the tests above will provide comprehensive data which have the ultimate purpose of increasing knowledge of the pre-symptomatic stages of Alzheimer's disease, and will help not only to develop pre-symptomatic Alzheimer's disease diagnostic tests, but also determine the effectiveness of the lifestyle interventions.

AU-ARROW

If you are interested in the AU-ARROW study, please contact Samantha Kirby on (08) 6457 0419 or email s.gardener@ecu.edu.au.

Thank you Wesfarmers!

We are incredibly appreciative of Wesfarmers' support of the important research we are undertaking into Alzheimer's disease. During a challenging 2020, with COVID-19 affecting so many people in the community, this support provides critical funds to enable vital research into this debilitating disease to continue.

Over the last 4 years, Wesfarmers has contributed an incredible \$800,000 to the Australian Alzheimer's Research

Foundation. Their generosity means we have been able to:

- Maintain our research facilities here at the Ralph and Patricia Sarich Neuroscience Research Institute.
- Continue the WA Memory Study, which aims to identify factors influencing cognitive functions in ageing.
- Research lifestyle factors that can potentially delay the onset of dementia.

- Continue to support research into the potential diagnostic utility of retinal imaging for Alzheimer's disease.

Thanks to the support of Wesfarmers our researchers are able to advance critical research that we hope will bring us one step closer to an Alzheimer's free world.



Music and Dementia

Lifestyle factors such as sleep, diet, exercise and cognitive stimulation have been shown to significantly change the course of Alzheimer's disease.

Music is regarded as a safe, non-invasive, culturally diverse, and easily accessed intervention to improve the psychological wellbeing, quality of life and behavioural difficulties seen in all individuals including people with dementia. Personalised music delivered via headphones is demonstrated to be a low-cost intervention that may moderate psychiatric symptoms of dementia. Specifically, daily music appears to have at least a temporary positive impact on the moods and behaviours of people with dementia.

A/Prof Hamid Sohrabi, Dr Ronniet Orlando and Prof Ralph Martins have teamed up with The Rotary Club of Freshwater Bay, here in WA to examine the effects of personalised music on psychological

and behavioural symptoms of mild to moderate dementia. The Music for Dementia project aims to find whether tailored music can improve behavioural difficulties of people with dementia as compared to random or no-music conditions. Informed by previous literature, we hypothesise that a daily dose of personalised preferred music, delivered via headphones, will reduce the frequency and severity of agitation, anxiety and depression, and improve cognitive outcomes, in people with dementia in residential aged care facilities. We will recruit up to 250 people with dementia living in nursing homes and will follow them for 3 months to determine whether personalised music has some beneficial impacts as compared to no-music condition.



A/Professor Hamid Sohrabi
Associate Professor, Murdoch University

How important is the human eyes for the early diagnosis of Alzheimer's disease?

Brain damage in Alzheimer's disease begins up to 20 years before the onset of disease symptoms and it is this pre-symptomatic phase that provides the best opportunity for effective treatment of Alzheimer's disease. However, there are no reliable, cost-effective methods for detecting the earliest signs of Alzheimer's disease. Avenues such as imaging the retina to identify markers that could reflect the built up of beta amyloid protein in the brain holds promise as the retina is a direct extension of the central nervous system and can be imaged non-invasively.

The Hyperspectral Retinal Imaging Study ultimately aims to develop a simple eye test that has the potential to provide a valuable tool for population screening of preclinical Alzheimer's disease and for monitoring therapeutic response. Research being undertaken by Dr Tejal Shah and the project's study clinician and eye surgeon Dr Sunil Gupta is playing a critical role investigating the potential of

an imaging technology known as hyperspectral imaging in identifying the retina as an Alzheimer's disease diagnostic tool.

Their work includes differentiating and understanding the mechanisms behind retinal changes due to eye diseases such as macular degeneration and/or brain diseases such as Alzheimer's disease. Two hyperspectral retinal imaging cameras have been purchased for studies at Macquarie University, Sydney and the 2nd is located at the Australian Alzheimer's Research Foundation in Perth (donated by the Lions Alzheimer's Foundation).

Retinal hyperspectral imaging is a relatively new technique and the research team have been successful in differentiating visually, the characteristics of retinal-amyloid like hyperintense 'nano dots' in raw hyperspectral retinal images captured from the study participants. This world first preliminary finding was recently presented at the 2020 Alzheimer's Association International

Conference (AAIC). Research is currently underway to analyse retinal images using artificial intelligence and machine learning in collaboration with IBM Research Australia, to determine if the amyloid-like hyperspectral imaged retinal 'nano dots' have any diagnostic significance. The study will also investigate the relationship between retinal markers and other Alzheimer's disease brain, blood markers and cognition.



Dr Tejal Shah
Research Fellow, Macquarie University

In Memory of Peter Frederick Roberts

We are pleased to announce a very generous bequest made to the Australian Alzheimer's Research Foundation in memory of Peter Frederick Roberts.

Peter was an active, social, intelligent, respected, retired businessman. He was a loving husband, much loved father and grandfather. In 2011 Peter was sadly diagnosed with Alzheimer's disease, and after an 8 year battle, Peter passed away peacefully on the 9th of July 2019, at 83 years. We are extremely grateful to the Roberts family for their incredible support towards research that we hope will discover earlier diagnosis tools, better treatments and ultimately, a cure.

The Foundation remains as committed as ever in our quest to find better outcomes for people with Alzheimer's disease.

We would like to express our heartfelt condolences to the Roberts' family and thank them very much for their generosity.

We are honoured to share in keeping the memory of Peter alive.



Mr Peter Frederick Roberts

Blood Biomarkers for Alzheimer's disease

A blood based diagnostic tool for Alzheimer's disease continues to be a major focus of Prof Ralph Martins' research team based at Macquarie University and Edith Cowan University.

Dr Pratishta Chatterjee is part of this team and is a Research Fellow at Macquarie University (Sydney) and Adjunct Lecturer at Edith Cowan University (Perth). Her main aims are to improve diagnostic and prognostic methods in clinical practice, improve design of clinical trials to facilitate development of therapies, and understand disease mechanisms in humans.

One of the biochemical pathways her recent studies have focussed on is the dysregulation in the iron metabolism pathway in older adults at risk of Alzheimer's disease. In these studies, she observed increased levels of the iron storage protein, ferritin, and the iron regulating protein, hepcidin, in the blood of individuals at risk of Alzheimer's disease. Further, in collaboration with scientists at King's College London, she showed that blood proteins implicated in iron and heme metabolism, are increased in Alzheimer's disease patients.

Together, these studies contribute to the body of evidence supporting that iron dyshomeostasis occurs from the early stages of Alzheimer's disease. These findings indicate that proteins involved in the biological pathways involving iron metabolism may add value to a panel of blood markers that contribute toward identifying individuals at risk of Alzheimer's disease.

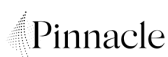
Additionally, Dr Chatterjee is also investigating blood metabolites that are associated with neurodegeneration prior to the manifestation of symptoms to understand early pathological steps in the cellular mechanisms involved in neurodegenerative processes. In this study Dr Chatterjee found evidence that suggested a link between neurodegeneration and biological pathways that were associated with neurotransmitter regulation, nitric oxide homeostasis, inflammation and mitochondrial function.



Dr Pratishta Chatterjee

The blood metabolites identified to be associated with neurodegeneration may have the potential to serve as prognostic markers for neurodegenerative diseases. Additionally, these findings may also provide further insight into the identification of potential drug targets for Alzheimer's disease and other neurodegenerative diseases. Dr Chatterjee is also looking forward to investigating other promising blood-based biomarkers that could be employed to develop a blood-test for the early diagnosis of Alzheimer's disease using the ultrasensitive Single Molecule Array (Simoa) platform.

With thanks and appreciation to all our partners



The Personal Impact

Sharing your story helps others appreciate the difficult journey and significant impact this disease has on those diagnosed with it, and their loved ones. It also highlights the importance of research into this disease and the need for funds to enable us to continue our vital research work.

Lyn is one of our generous supporters and has agreed to share her story...

It's true that time heals all wounds though a hole in my heart remains. There is something missing every day, something I crave in my life, especially when times are tough or moments are so glorious that they ought to be shared with all my loved ones.

It's my mother I'm referring to of course. It will soon be the second anniversary of her passing. She died at 87 from dementia, most likely Alzheimer's disease. I am grateful every day for the many treasured memories I have with mum - as a child growing up and a mother myself with her so often by my side. Thinking back on these good times fuels me to keep going, be inspired, love more deeply, forgive more easily, share more generously, laugh more loudly.

No-one can steal these from me ... yet a disease can.

I know how hard it was for Mum while she was in decline with this hideous disease...

It is not just about forgetting. **As Alzheimer's took a stronger grip and she "regressed" in age, she would often call out "I want my mummy!". This was a sentiment we both painfully shared in those moments.**

For this reason, I chose to do my bit to help those who do valuable research and studies - seeking to find ways for prevention, cessation and cure. Please if you can help through donations, volunteering or any other ways - reach out to Australian Alzheimer's Research Foundation.

It would be great to think that one-day in the future dementia was eradicated and it then became something we were able to forget



Mrs Marie Murphy

Share Your Story

If you have a story about how Alzheimer's disease has affected you or a loved one that you can share with us, please call (08) 6457 0253 or email info@alzheimers.com.au We'd love to hear from you!

Contact us

Australian Alzheimer's Research Foundation
PO Box 963, Nedlands WA 6909
T: (08) 6457 0253 E: info@alzheimers.com.au

We're Social



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Yes I will join the fight for memories!

Make a donation by:

- Calling (08) 6457 0253
- Visiting our website: alzheimers.com.au
- Mailing the completed form to:
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PO Box 963, Nedlands WA 6909

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