

# the NeuRA

magazine

Issue 38 | Spring 2021



## Addressing dementia: the cluster of diseases that could impact us all

- Dementia Awareness Month • NeuRA's Schizophrenia Research Trajectory
- A Day in the Life in NeuRA's Aboriginal Health and Ageing Team

## Message from our

# CEO

Professor Peter Schofield AO



Prof Peter Schofield AO

Welcome to the Spring edition of NeuRA Magazine for 2021. Thanks to your generous support, we have made serious headway in research programs that focus on maintaining

cognitive health, injury and fall prevention, motor impairment and schizophrenia.

With September marking Dementia Awareness Month, this issue shines a light on some of NeuRA's current research initiatives with a specific focus on programs developed to provide support for those with dementia and their carers.

We decided to reignite our series of virtual NeuRAtalks before the current lockdowns impacted so much of Australia. However, that proved timely in providing an interactive way in which you can enjoy hearing from our research leaders from the comfort of your own home. The first featured our future research leaders and the most recent webinar focused on maintaining brain health, discussing the programs and therapies being developed by some of our most senior researchers to treat dementia - a health issue that has become one of the biggest global health challenges of the twenty first century. The feedback we received has been extremely positive and if you missed these NeuRAtalks, you can watch them at [talks.neura.edu.au](https://talks.neura.edu.au)

We hope you can join us for the third NeuRAtalks webinar "Staying Mobile: Managing Falls and Pain" to be held on 6 October.

If you would like to attend the webinar, please register at: [talks.neura.edu.au/registernow](https://talks.neura.edu.au/registernow)

A handwritten signature in black ink, appearing to read 'P Schofield'.

Prof Peter R Schofield AO *FAHMS PhD DSc*  
CEO



Carole Renouf

## Carole's Column

**This month, I've been learning about two interesting phenomena in mental health research from our NeuRA groups focused on this area.**

The first is known as the 'heterogeneity problem' and I was quite unaware of it before. Heterogeneity means diversity and in this case, signifies that not only are there subsets within each mental disorder, but also within the mechanisms that drive a particular disorder - there is no single mechanism that is the cause. This double whammy of heterogeneity therefore increases the challenges of diagnosis, prognosis and treatment enormously.

On the other hand, more optimistically there is 'transdiagnostic opportunity'. Mental health disorders exist on a sort of continuum and there can be overlap between them. Thus, the work that NeuRA's immunopsychiatry lab is doing on inflammation in the brain, for instance, potentially has application not just for schizophrenia but also for depression, autism, anxiety and cognitive decline more generally.

When I used to raise funds for breast cancer research, I knew that breast cancer was actually at least 11 genetically different diseases. I had not understood the 'heterogeneity problem' applied to mental health, and this contributes to the frustration for researchers, those affected by these conditions and those who love them. But the 'transdiagnostic opportunity' is an avenue of hope.

Carole Renouf  
Executive Director of the NeuRA Foundation



Prof Cyndi Shannon Weickert, NSW Chair of Schizophrenia Research.

Therefore, we aim to develop a novel and sensitive way to detect brain inflammation by using a simple blood test. Once successful, we can then determine which people with schizophrenia may benefit most from anti-inflammatory medication.

**“We have discovered that almost half of people with schizophrenia have brain inflammation that is interfering with brain function. We aim to use treatments that can suppress this damaging brain inflammation.”**

## NeuRA’s Schizophrenia Research Trajectory

**There is a surge of activity underway in NeuRA’s schizophrenia research teams with the return of schizophrenia group leader, Professor Cyndi Shannon Weickert, from her 18-month stay in the United States - unforeseeably prolonged due to the pandemic.**

Professor Weickert and her team are currently embarking on a number of new schizophrenia projects aiming to improve methods of diagnosis, better treat the condition and reduce symptoms.

**1** We are designing a trial with CBD (Cannabidiol) adjunctive treatment for people with schizophrenia. This trial will be led by a collaboration of research scientists and medical doctors who both aim to find better treatments for people with schizophrenia. We plan to follow a similar strategy to the recent clinical trial from Dr Philip McGuire and colleagues (published in 2016) showing that taking CBD along with antipsychotics can improve symptoms - more likely to be

improved after six weeks. We plan to extend this treatment period to 12 weeks and to determine if blood biomarkers can be used to predict beneficial response.

**2** We have discovered that almost half of people with schizophrenia have brain inflammation that is interfering with brain function. We aim to use treatments that can suppress this damaging brain inflammation. But first, we need to find the best way to measure brain inflammation. In other tissues, like the lung for example, doctors would take a biopsy to confirm the type and extent of inflammation in the lungs. However, a brain tissue biopsy would be difficult as the brain sits within the bony skull and is not as accessible.

**3** We discovered that macrophages (also known as “big eaters” as they devour cells) invade the brains of people with schizophrenia. These macrophages are not normally in the brain as they are derived from bone marrow, and circulate in the blood and then have to cross the blood-brain barrier (BBB). We plan to determine the full molecular signature of these tissue-damaging macrophages so that we can discover how they are causing problems. We also will determine the changes in the BBB that allow macrophage passage into the brain, so they can be stopped in their tracks. We plan to administer monoclonal antibodies (already developed and known to be safe) to block immune cell transmigration in clinical trials in people with schizophrenia. Thus, we hope to test if better treatments for schizophrenia can be achieved by blocking macrophage transmigration into the brain. ●

# Dementia Awareness Month



**Dementia is a group of brain disorders that affect a person's memory, thinking and ability to interact socially. It is caused by damaged nerve cells and can interfere with people's ability to function independently - either mildly or severely, depending on the brain region it affects.**

Currently, more than 400,000 people in Australia have dementia and 250 new diagnoses are made each day. These diagnoses are expected to rise to over 300 per day within the next five years, which means more of us will experience the impact of dementia amongst family and friends as time progresses.

With September marking Dementia Awareness Month, NeuRA is on a mission to improve awareness, mechanisms for prevention, and treatments for this isolating disease.

Some of our most recent research initiatives into dementia include:

## **Self-management and Health Promotion in early-stage dementia with E-learning for carers (SHAPE)**

Receiving a diagnosis of dementia can lead to an overwhelming mix of emotions, and a sudden need to understand the impacts of the degeneration that is going to occur. What is apparent to researchers and clinicians alike is that people in the early stages of dementia need better access to support, advice and control.

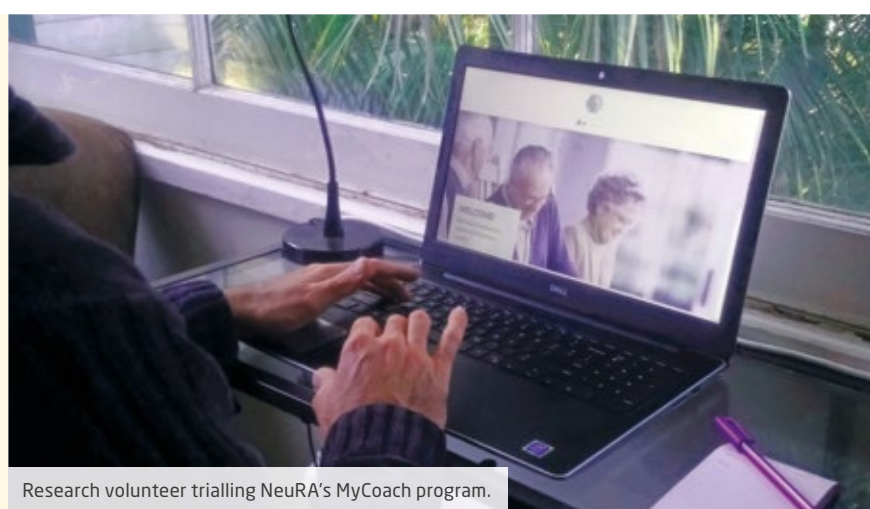
The SHAPE trial is led by Professor Kaarin Anstey, Senior Principal Research Scientist and Director of UNSW Ageing Futures Institute. It will test whether an online training and support group for people in the early stages of dementia, together with an e-learning programme for carers, can help to improve a person's ability to cope with the condition.

Participants in the trial are invited to a training and support group that runs for 10 weekly sessions, online. Those taking part will be supported to develop skills in areas such as decision-making, symptom management, healthy habits adapting and coping. The trial also caters for care partners, who receive an e-learning program that follows similar themes and provides additional support.

"Our aim with SHAPE is to provide individuals with early dementia, and their families, access to knowledge and support, so they are better able to manage their own health and wellbeing," Professor Anstey said.

Results from previous research show self-management groups are beneficial for people with early stage dementia. However, this is the first time this intervention has been conducted online and with a concurrent e-learning program for care partners.

[neura.edu.au/project/shape](https://neura.edu.au/project/shape)



Research volunteer trialling NeuRA's MyCoach program.

## My Connected Advice for Cognitive Health (MyCoach)

Mild cognitive impairment is characterised by trouble with memory, language, thinking and judgement. Despite common belief, it is not a guaranteed part of ageing and when left unmanaged, can lead to further cognitive decline and eventually, dementia.

However, it is now well recognised that by managing dementia risk factors, such as poor diet and poor cardiovascular health, cognitive decline can be reduced and the risk of dementia reduced.

Professor Anstey and her team at NeuRA have designed an e-learning course specifically for people with cognitive decline and mild cognitive impairment, which is designed to run for 12 weeks.

The course gives people in the trial information on memory impairments and dementia, memory strategies, and the association of different lifestyle factors (diet, social and cognitive activity, stress) with brain ageing. People in the course are also given practical support to implement healthy lifestyle changes over the 12-week period.

If proven effective, MyCoach will provide a widely accessible and cost-effective tool to support healthy ageing and reduce dementia risk. It could be a resource used in primary health care to support ageing Australians who express concerns about their memory or who have demonstrated mild cognitive impairments.

[neura.edu.au/project/mycoach](http://neura.edu.au/project/mycoach)

## Caring for Spirit

Dementia currently affects Aboriginal and Torres Strait Islander peoples 3-5 times more than the general Australian population, but this often goes undiagnosed. Furthermore, awareness of dementia in these communities is low, most aged care services are not well-equipped to deliver culturally responsive care, and culturally relevant resources for people with dementia are lacking.

Dr Kylie Radford leads the Aboriginal Health and Ageing Team which developed NeuRA's Caring for Spirit resource. The program includes an online, culturally appropriate and accessible dementia training package designed with, and for, Aboriginal and Torres Strait Islander communities, including health and aged care service providers.

The training modules in the program are interactive and self-paced, including original films and narration, and are also relevant to family carers of Aboriginal and Torres Strait Islander people living with dementia.

"The aim of Caring for Spirit is to enhance access to culturally relevant and evidence-based information on dementia for Aboriginal and Torres Strait Islander communities. We have used the online training modules to emphasise the importance of seeking assessment and support, to provide information about life experiences and development of dementia and how to minimise risk, as well as practical tips to support families living with dementia," said Lauren Poulos, Project Coordinator.

Since launching, the Caring for Spirit training modules have already had 39 users registered from across Australia. Now, researchers from NeuRA are collaborating with Circular Head Aboriginal Corporation and Wicking Dementia Research and Education Centre (University of Tasmania) to evaluate the implementation and outcomes of Caring for Spirit in a remote Tasmanian Aboriginal community.

[caringforspirit.org.au](http://caringforspirit.org.au) ●

# A Day in the Life of NeuRA's up and coming Aboriginal Health and Ageing Expert, Dr Louise Lavrencic

**We caught up with Dr Louise Lavrencic, a mid-career researcher at NeuRA who has been specialising in Aboriginal Health and Ageing for almost four years.**

## **What is your role at NeuRA? And what does this involve?**

I am a Senior Postdoctoral Fellow in the Aboriginal Health and Ageing Program. I work across a range of research and translation activities, which includes attending community events, creating resources and sharing our research with community members, and consulting with communities to make sure that we are prioritising their needs.

## **What drew you to this area of research?**

I have always been passionate about ageing research, and understanding how the brain changes with age. I am also acutely aware that there are immense inequities in society.

## **What research projects are you currently working on?**

The team has many projects on the go at once, not including other community activities and events that we participate in! We have a few large-scale studies that are currently running, along with smaller projects. Currently, I am working on two main projects.

I manage the neuroimaging sub-study (part of the Koori Growing



Dr Louise Lavrencic

**I have also led the co-design and piloting of the Ngarraanga Giinganay program (meaning 'thinking peacefully' in Gumbaynggirr language). This mindfulness-based program is culturally-grounded, and will be trialled as part of the Standing Tall with Our Mob Program (STOMP!) trial.**

Old Well/Our MOB study) which involves magnetic resonance imaging (MRI) at NeuRA and positron emission tomography (PET) at Royal Prince Alfred Hospital. We are aiming to recruit a total of 200 participants to this study, which will primarily investigate underlying brain changes related to cognitive decline and dementia.

I have also led the co-design and piloting of the Ngarraanga Giinganay program (meaning 'thinking peacefully' in Gumbaynggirr language). This mindfulness-based program is culturally-grounded, and will be trialled as part of the Standing Tall with Our Mob Program (STOMP!) trial.

## **How does your research benefit the community at large?**

The primary aim of all the projects we run is to benefit the communities we partner with, as well as Aboriginal and Torres Strait Islander peoples more generally.

Our work has contributed to increased understanding of dementia and modifiable risk factors in Aboriginal communities.

In addition, the programs that we are trialling in communities aim to improve wellbeing and other health outcomes, and we are working to ensure that these programs are sustainable and could be implemented following the trial. ●

# Mapping the Brain to Understand Dementia



The brain, like the sea floor, is largely unexplored and still hides tremendous treasure and mystery, even though it is something that we have been familiar with for millennia. To explore its largely unknown landscapes, brain cartographers at NeuRA employ MRI and cell stains to map the brain.

Understanding the different regions of the brain and their interconnections is critical to provide valuable insights in how neurodegenerative disorders, such as dementia, affect the brain and how this in turn affects the person. For example, by pinpointing where the hippocampus (the part of the brain that forms memories) is and what it connects to, scientists can better understand its signature degeneration in Alzheimer's disease and the resulting symptoms that manifest.

This is not restricted to just Alzheimer's, but also extends to all the dementias as well as Parkinson's disease, where scientists track the degeneration of the substantia nigra (the part of the brain responsible for the tremors that result from nerve degeneration).

What's more, NeuRA researchers, Professor George Paxinos and Dr Steve Kassem, use brain maps of the highest detail to permit the greatest degree of understanding in this disease and others.

Researchers rely on these maps to understand the brain's organisation, so that they can develop accurate interventions and even cures.

To learn more about NeuRA's brain mapping and cartography work visit: <http://hba.neura.edu.au/>

## DONATION FORM

Yes, I would like to donate to research at NeuRA

*All gifts over \$2 are tax deductible*

Title:	First Name:
Surname:	
Address:	
Suburb:	
State:	Postcode:
Phone:	
Email:	

### How I choose to give my gift:

Please accept this one-off gift to support research at NeuRA

I would like to invest in the future and become a *Discovery Partner* with a regular donation of

\$ \_\_\_\_\_  monthly /  quarterly (*please select*)

\$50  \$100  \$250 or \_\_\_\_\_

A cheque payable to the NeuRA Foundation is enclosed OR

I wish to make my gift by credit card:

Visa  Mastercard  American Express  Diners

Card No: \_\_\_\_\_

Expiry Date: \_\_\_\_\_

Cardholder's Name: \_\_\_\_\_

Cardholder's Signature: \_\_\_\_\_

*If you do not require a receipt, please tick here*

Please send me:

Details about how I can support NeuRA in my Will

- Mail this coupon in the reply paid envelope
- Call us on **1300 888 019** to make a donation over the phone
- Make a secure online donation at [neura.edu.au/donate](http://neura.edu.au/donate)

**A message from the NeuRA Foundation:** The NeuRA Foundation may co-operate with other like-minded reputable Australian charities to promote our work to our respective donors. If you'd prefer that NeuRA does not share your information with other charities, please phone us on **1300 888 019**, email us at [foundation@neura.edu.au](mailto:foundation@neura.edu.au) or write to us using the enclosed envelope.

*Thank you for generously supporting our research into diseases*

If you wish to update your preferred communications from NeuRA, please call 1300 888 019.

NeuRA (Neuroscience Research Australia) Foundation  
Margarete Ainsworth Building  
139 Barker Street, Randwick NSW 2031 Australia  
T 1300 888 019 F +61 2 9399 1082 ABN 57 008 429 961

[www.neura.edu.au](http://www.neura.edu.au)





# NeuRA has partnered with free online Will-writing platform Gathered Here

## Did you know that 70% of Australian adults don't have a legally binding Will?

Having an updated Will is one of the most important things you can do for yourself and the people you care about. Not only does it allow you to make your wishes known when you pass, but it will save time, money, and considerable stress for your loved ones who are left behind.

That's why NeuRA has partnered with Australia's top-rated will-writing platform, Gathered Here.

Gathered Here allows you to write your Will for free in under 10 minutes and provides you with unlimited updates for life.

Writing a Will gives you the opportunity to leave a lasting gift to NeuRA. Leaving even just a small gift from your estate to NeuRA is a lasting and meaningful way that you can help our researchers continue to discover, conquer and cure for generations to come.



If you would like to discuss in confidence leaving a gift in your Will to NeuRA please call Stephanie Grove, Gifts in Wills Manager on 02 9399 1270 or email [s.grove@neura.edu.au](mailto:s.grove@neura.edu.au) or you can visit [wills.gatheredhere.com.au/c/neura](https://wills.gatheredhere.com.au/c/neura) to start your online Will now.

## We would like to thank you

Please let us know that you have left a gift to NeuRA in your Will.

Your generosity deserves recognition in your lifetime. We would like to keep you up to date on our activities and vital research, as well as invite you to become a **BEQUEST FOR CURES** partner.

Be assured that we will keep your personal details in the strictest of confidence, and understand if you wish to remain anonymous. ●

**BEQUEST FOR CURES**

## Thank you for your support

If you wish to update your preferred communications from NeuRA, please call 1300 888 019.

NeuRA (Neuroscience Research Australia) Foundation  
T 1300 888 019 F +61 2 9399 1082  
ABN 57 008 429 961

Margarete Ainsworth Building  
139 Barker Street, Randwick NSW 2031 Australia

[www.neura.edu.au](http://www.neura.edu.au)

