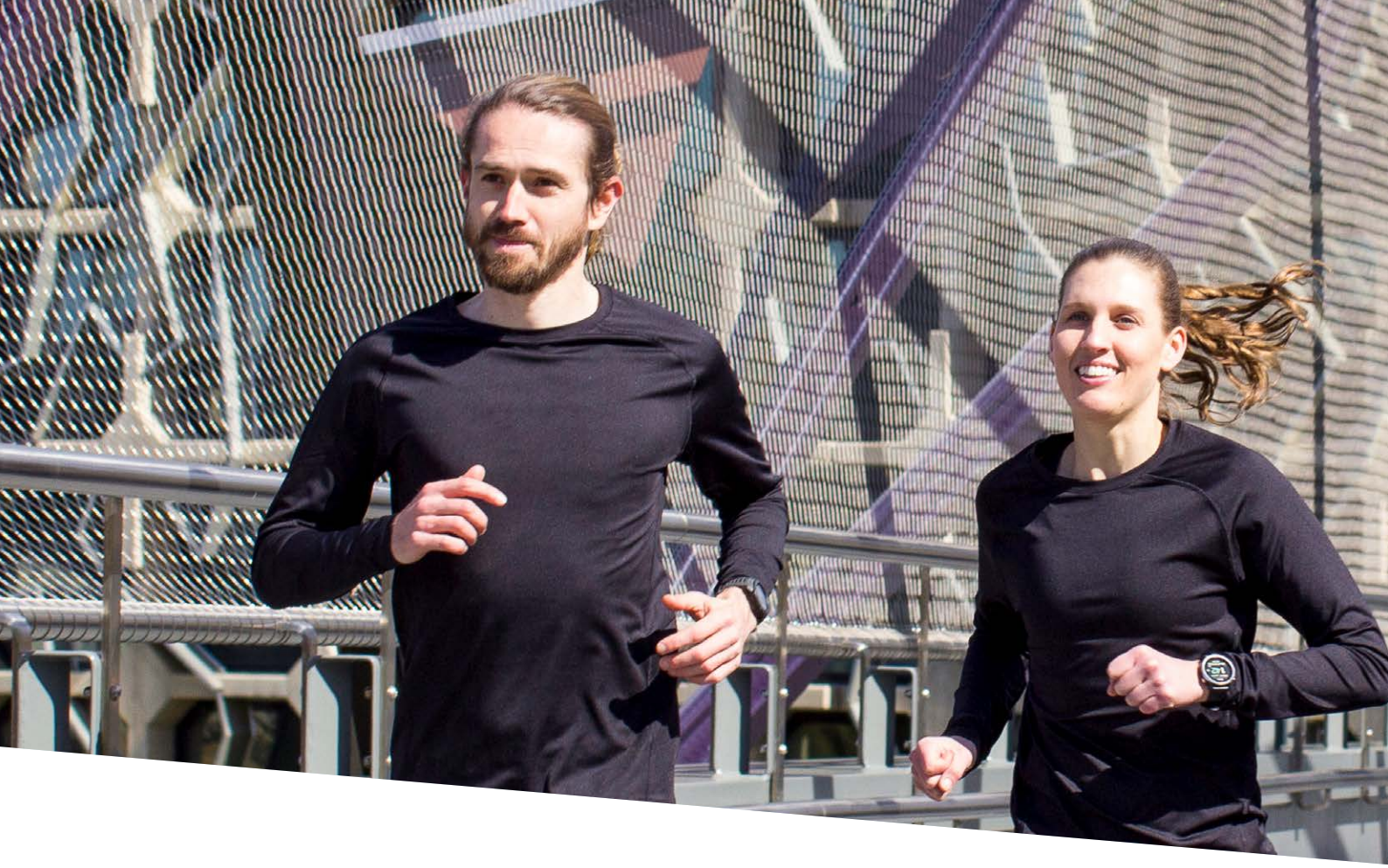
Annual Report

2021

UNIVERSITY of TASMANIA

WICKING

Dementia Research and Education Centre



CONTENTS

Our Mission

The Wicking Dementia Research and Education Centre is unique in Australia as an integrated dementia centre that is active across a range of disciplines, seeking to improve the lives of people with dementia and their caregivers.

The Wicking Dementia Centre aims to:

- Better understand the diseases affecting the brain that cause progressive decline in functioning, affecting memory, problem-solving skills, function and social behaviour;
- Develop evidence-based models of care provision for people with dementia and their caregivers;
- Develop innovative approaches to reducing risk of dementia;
- Provide educational programs to build knowledge and understanding of dementia within the community.

The rising prevalence of dementia is creating new challenges and a pressing need for change in the way our systems and practices support people who live with dementia. The Wicking Dementia Centre has created a collaborative environment of researchers and global specialists who are working together to advance progress across the cause, prevention, and care of dementia.

There are currently estimated to be over 55 million people worldwide living with dementia. The number of people affected is set to rise to 139 million by 2050, with the greatest increases in low- and middle-income countries.

(World Alzheimer Report 2021)

Message from the Director

2021 has been another challenging year for Centre staff as well as our students, research participants and community supporters in light of the COVID-19 pandemic. We have been grateful for everyone's positive contributions in light of these circumstances, and we are grateful that we have been able to move ahead on a number of educational and research fronts.

I would like to highlight a few important milestones. This last year saw us surpass half a million participants having enrolled in our free MOOCs. We are very grateful for the word-of-mouth support we have had, as well as the continued support to be able to offer these for free through the J.O. and J.R. Wicking Trust, which is managed by Equity Trustees. 2021 was also notable for us being able to have face-to-face graduations again, where we were very pleased to have our first two Master of Dementia students, Agnieszka Chudecka and Tim England, graduate.

ISLAND, our project focussed on reducing risk of dementia in Tasmania, continued to grow throughout 2021. It was great to be able to have a Dementia, Prevention and Wellbeing Expo in Devonport, as well as a fundraising event, RUN for the ISLAND, which was developed and organised by Centre staff and involved running over 480 km from one end of Tasmania to the other. This event helped to raise the profile of the Centre and also highlight how lifestyle changes may impact risk of dementia.

The ISLAND Clinic also had a busy year. The clinic involves a variety of clinicians who work together to provide a timely diagnosis, and also supports a range of clinical research projects. The ISLAND Clinic also works closely with Dementia Australia to provide post-diagnostic support.

These are just a few of the projects that advanced through 2021 and represent a commitment from Wicking Dementia Centre staff and students as well as the great support we receive from funding organisations and philanthropic donors, through to the engagement of participants in the community who were directly involved.

Distinguished Professor James Vickers
Director

Our Grant Funding

Total current project funding	**$13,751,642**
Total new or announced funding in 2021	**$1,444,966**

Our Educational Outcomes

Undergraduate study	Graduates to date	Graduated in 2021
Bachelor of Dementia Care	304	61
Associate Degree in Dementia Care	268	41
Diploma of Dementia Care	1145	188
Diploma of Ageing Studies and Services	2	2
Undergraduate Certificate in Aged Care Services	1	1
Total number of graduates	**1720**	**293**

Postgraduate study	Graduates to date	Graduated in 2021
Master of Dementia	2	2
Graduate Diploma of Dementia	2	2
Graduate Certificate in Dementia	20	11
Total number of graduates	**24**	**15**

MOOCs	Enrolments to end 2021	Total enrolled in 2021	Australian enrolments in 2021	International enrolments in 2021	Completion rates in 2021
Understanding Dementia	315,506	47,960	29,574	18,386	38%
Preventing Dementia	186,727	38,776	23,711	15,065	37%
Understanding Traumatic Brain Injury	17,622	17,622	11,124	6,498	45%
TOTALS	**519,855**	**104,358**	**64,409**	**39,949**	

We have received enrolments from 223* countries to date including 185 UN member states.

* Countries as included on the MOOC enrolment form as listed in the ISO 3166 Standard of 249 countries, territories, or areas of geographical interest.

Worldwide cost of dementia is US$1.3 Trillion. It would be the 14th largest economy if dementia was a country.

(World Alzheimer Report 2021)

Our Education

The Wicking Dementia Research and Education Centre is a global leader in dementia research and the largest provider of dementia education. We offer world-class online education that is based on the latest evidence and suitable for everyone at any stage in their career.

MASSIVE OPEN ONLINE COURSES (MOOCS)

The development of our free MOOCs has been supported by the J.O. and J.R. Wicking Trust (Equity Trustees), who have been instrumental in our success over the years by providing substantial funding to the Centre. Along with our many private donors, funding bodies and organisations, the success of our MOOCs has seen them grow to over half a million enrolments globally in 2021.

Improving dementia literacy, through maximising the reach of our MOOCs and evaluating the impacts of this program, is a major focus for the Centre over the next few years.

The introduction of the Understanding Traumatic Brain Injury MOOC in June 2021 added a new dimension to our free courses. It offers a course that looks at the causes and consequences of traumatic brain injury and aims to raise awareness and build knowledge to reduce risk and improve management and rehabilitation outcomes for people who have experienced a traumatic brain injury.

UNIVERSITY AWARD COURSES

We offer a range of university courses for undergraduate and postgraduate study. All courses are online and can be studied part-time or full-time to fit with other commitments.

The **Diploma of Dementia Care** provides a specialised understanding of dementia to help broaden the knowledge base and scope of practice in health care, community and aged care sectors. It is particularly relevant for carers, aged care and community health workers, and anyone with an interest in learning more about dementia.

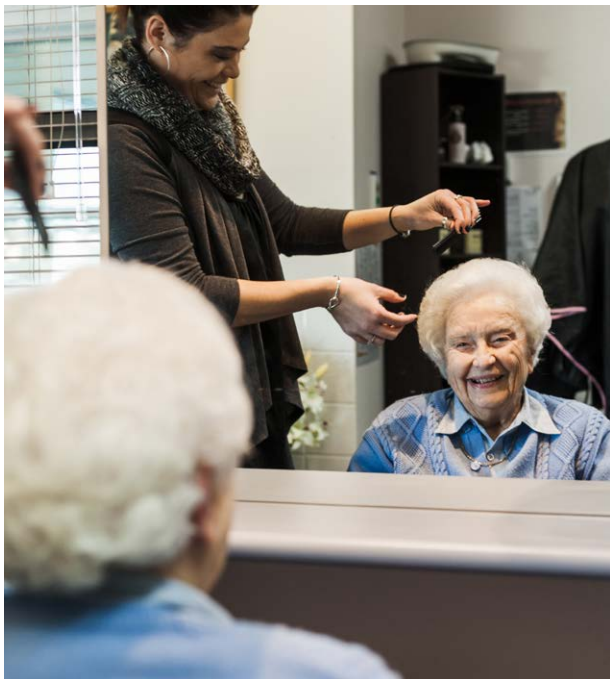
Students will learn from experts, lecturers and clinicians from a range of disciplines who are active in dementia research, and learning is supported with the use of real-life case study examples.

The **Bachelor of Dementia Care** is unique in Australia as the only undergraduate degree in dementia care.

This degree provides specialised knowledge, with second and third years of study offering the opportunity for a more in-depth exploration of research, policy, neurobiology, and specialised approaches to care and therapy, as well as the development of skills in evaluation and critical thinking.

A new optional major, Ageing Studies and Services, covers contemporary and emerging issues relating to attitudes, care, and services for ageing populations.

The **Diploma of Ageing Studies and Services** covers contemporary issues relating to care and services for older people. It will equip graduates with the knowledge to assist older adults and their families in navigating the complexity of the aged care system and the trajectory of the needs and wants of older adults across complex health and social systems. It is unique in Australia as the only undergraduate diploma focusing on ageing studies and services, addressing the need for holistic knowledge of the ageing process.



Postgraduate study in Dementia covers the four domains of policy, care, public health and neurobiology to help lead positive change. It provides a global perspective on the impact of dementia on individuals and societies. Acquired knowledge is linked to individual situations in assessments, keeping the program relevant and up-to-date.

Anyone who wishes to improve the lives of people living with dementia, their families and communities, and our society's dementia inclusivity and awareness, will find the knowledge they need in our broad range of courses.

TESTIMONIALS

"The degree has helped me understand that there's an enormous amount that we can do, every day, to help support people living with dementia to live well. Not just in an aged care setting, it's in a broader social impact as a society, as a community, as organisations."

Jayne, 2021 Bachelor of Dementia Care graduate

"I have now completed all three MOOCs and can honestly say that they have been the catalyst for me wanting to further my studies. I work with people living with dementia and can truly say that the insight the Diploma course content has given me has made a remarkable difference to how I conduct my professional self within my role. I find myself trying to 'live in their world' because I now have just a glimpse into that world."

Christina, 2021 Diploma of Dementia Care student

"This is the best course I have ever completed. I am a Registered Nurse with Postgraduate, Certificate and Diploma qualifications and I cannot believe how wonderful this course was. It was like having a great book, you are sad to finish. I am disappointed it is over, but excited about the brain injury course coming up in June. I have never worked with people living with dementia and now want to get into that field. You should be congratulated, this course is amazing. Well done, you should be so proud."

Kate, 2021 Understanding Dementia MOOC

"The program was excellent from start to finish. Thank you so much for opening this course up to people across the world at no cost. I am much better informed about dementia, the risk factors and what I as an individual can do to modify my risks as a result of the course."

Donna, 2021 Preventing Dementia MOOC

Read more testimonials at:
utas.edu.au/wicking/testimonials

Our Research

The Wicking Dementia Centre is at the forefront of translational research of relevance to people living with dementia, their caregivers, and health professionals. We undertake multidisciplinary research around key themes of care, cause and prevention of dementia.

Read more about our research at: **utas.edu.au/wicking/research**

SELECTION OF CURRENT RESEARCH PROJECTS

The future in our hands: Screening for preclinical Alzheimer's disease by analysing hand movements using TAS Test

Did you know that certain patterns of hand movements are associated with higher risk of developing dementia in the future? TAS Test, or Tasmanian Test, is a newly developed computer test that analyses a range of brain functions through hand movement and aims to detect the earliest brain changes associated with Alzheimer's disease 10-20 years before any cognitive (thinking, memory) symptoms occur.

TAS Test will recruit adults aged over 50 years old from Tasmania and Sydney and analyse the speed and reaction time of their hands, as well as memory for sequences and shapes, visual processing, speech and language functions. We will compare TAS Test results with other validated measures of dementia risk, such as blood biomarkers and cognitive tests, to help us work out the most discriminating computer tests of early dementia risk. Detecting risk at an early stage will give people the opportunity to modify risk factors before they develop significant cognitive decline.

Objectives: This Tasmanian-developed test aims to solve a worldwide problem: to reduce the prevalence of dementia by identifying people who are at highest risk of developing dementia in the future and targeting risk reduction.

Research team: Associate Prof Jane Alty, Prof James Vickers, Prof Anna King, Dr Kate Lawler, Dr Edward Hill, Aidan Bindoff, Dr Larissa Bartlett, Chris Parker

Beliefs and attitudes toward dementia and their associations with dementia risk reduction behaviours

Stigma associated with dementia remains common. It can prevent people living with dementia and their carers from seeking help, accessing timely diagnosis and engaging socially. It can also potentially impact on attitudes to dementia more generally, reducing the likelihood that people are comfortable discussing dementia and its possible risk factors.

We have now developed a new questionnaire to better understand the prevalence and extent of dementia stigma in the general public, so we can explore ways to reduce it. Lack of understanding and knowledge of dementia are known to lead to stigma. However, it is unclear if attitudes toward dementia and dementia risk reduction also play a role in encouraging people to adopt and maintain healthy behaviours and lifestyle choices to reduce their dementia risk.

Objectives: To develop a valid tool to measure dementia-related public stigma and explore associations between knowledge on dementia and dementia risk factors, dementia-related stigma, dementia fear, attitudes towards dementia risk reduction, and dementia risk reduction behaviours.

Research Team: Dr Sarang Kim, Dr Claire Eccleston, Dr Peta Cook, Dr Shannon Klekociuk, Dr Kathleen Doherty

Delineating the key neuronal epigenetic alterations in Alzheimer's disease and healthy ageing

Alzheimer's disease (AD) is a complex disease in which genetic and environmental risk factors interact and contribute to disease onset and progression. All the cells in our body have the same DNA code, and in healthy individuals the right genes are expressed in the right amount, in the right cell types at the right time. This is achieved by the epigenome, which orchestrates the addition or removal of small chemical residues on top of the DNA (methylation), and modifications that alter how our DNA is packaged (histone modifications). Epigenetic marks on our DNA can change in disease and increasing evidence suggests that epigenetic changes contribute to the disease process in AD. However, few studies of epigenetic alterations in AD examine epigenetic changes in specific cell types or assess the different epigenetic layers together. We are examining the epigenetic changes in the set of nerve cells that degenerate and die in AD. In addition, we are also investigating how the epigenome of nerve cells can be enhanced in healthy ageing with an enriched environment.

Objectives: To identify the key alterations across multiple epigenetic layers occurring in neurons in AD.

To determine whether environmental enrichment improves cognitive function in ageing via maintaining adult - rather than aged - epigenetic signatures in neurons.

Research Team: Associate Prof Phillippa Taberlay (Tasmanian School of Medicine), Dr Adele Woodhouse, Dr Duncan Sinclair, Dr Beth Signal (Tasmanian School of Medicine), Prof James Vickers, Bao Ngoc Tran, Thalia Perez-Suarez, Shannon Huskins

Almost 62% of healthcare practitioners worldwide incorrectly think that dementia is part of normal ageing.

(World Alzheimer Report 2021)

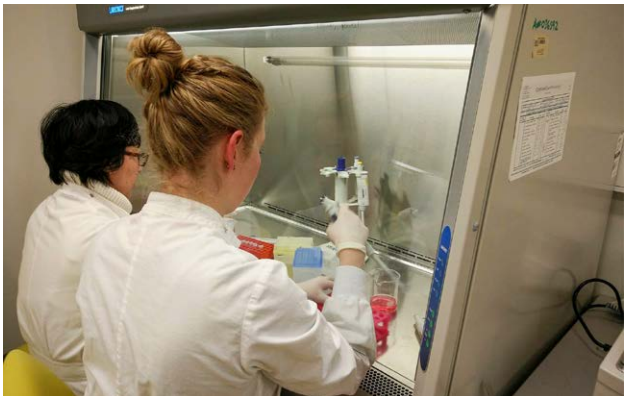
Using induced pluripotent stem cells to model childhood dementia

An estimated 2 million Australians – 8% of the population – live with one of >7,000 rare diseases. Of note, there are >70 rare genetic diseases that cause childhood dementia and premature death, and which affect >2,000 Australians and their families. Batten disease (also known as neuronal ceroid lipofuscinosis) is one such disease, and which affects ~1 in 100,000 children born in Australia. The progressive and disruptive effect of Batten disease on the brain impacts the person's ability to carry out tasks associated with daily living, resulting in high care needs, with premature death occurring on average at 14 years of age. Despite the identification of >12 genes that cause Batten disease, the mechanisms contributing to neurodegeneration are poorly understood. Our research focuses on Batten disease caused by CLN3 gene variants, which account for ~30% of the disease burden.

To investigate how variants in CLN3 affect the cells of the brain, we have used advanced techniques in stem cell biology and gene editing technology. The major advantage of this technology is that it utilises a person's own cells (e.g. skin fibroblasts), complete with inherent causative variants, to generate stem cells in the laboratory, which can then be matured into brain cell types for research. When coupled with gene editing techniques, it is possible to conduct experiments using cells where the only genetic difference is the disease-causing variant in the CLN3 gene. This approach enables us to answer highly specific questions about how CLN3 causes Batten disease, and thereby will (i) provide targets that will facilitate drug repurposing or drug screens to identify novel lead molecules, and (ii) provide a means to rationally select, test and determine the efficacy of novel combinatorial therapeutic strategies targeting CLN3 variants.

Objectives: To further understanding of how brain cell types are affected by genes that cause Batten disease, and thereby generate mechanism-driven hypotheses regarding new treatments.

Research Team: Associate Prof Tony Cook, Dr Jana Talbot, Sueanne Chear, David Stellon, Jan Leng Cheng

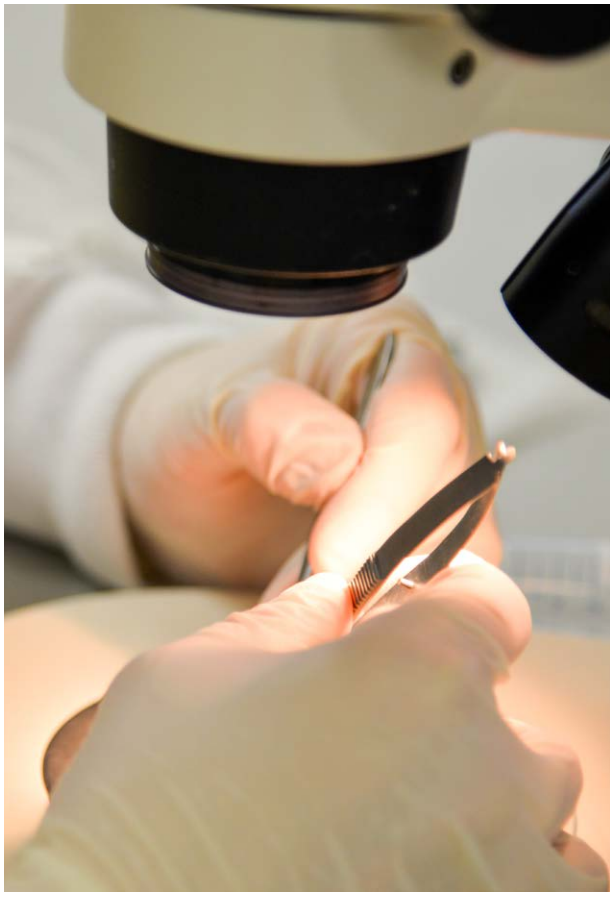


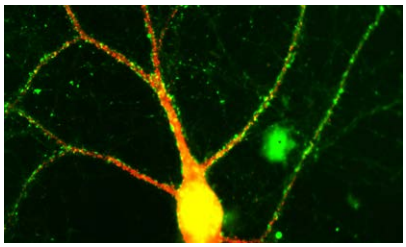
Evaluating the culturally responsive elements, effectiveness, and transferability of online dementia education and training with Aboriginal and Torres Strait Islander communities

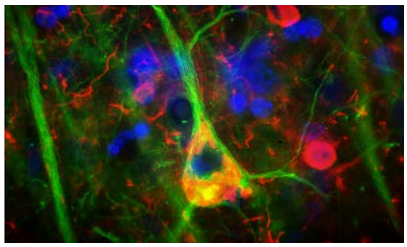
This research is funded by the Australian Association of Gerontology (AAG) Research Trust – 2021 Strategic Innovation Program. The aim is to evaluate an online dementia training program, Caring for Spirit, developed with Aboriginal and Torres Strait Islander peoples and communities. We want to identify the key elements that support successful and culturally appropriate online dementia education approaches, particularly for Aboriginal communities in rural and remote areas.

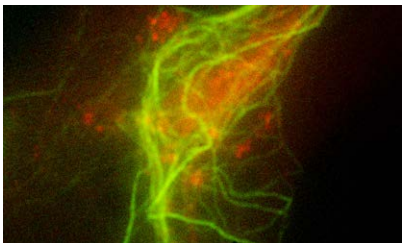
Objectives: Implement *Caring for Spirit* with the Circular Head Aboriginal community and evaluate its impact on dementia literacy, learning outcomes, and care practices. Evaluate the transferability of this program across Aboriginal communities. Propose a framework to guide the design of culturally responsive online dementia health literacy programs and tools, and provide a report on the outcomes with recommendations for future Aboriginal culturally designed dementia training resources.

Research Team: Lauren Poulos, Neuroscience Research Australia (NeuRA), affiliated with the University of New South Wales, Dianne Baldock, Circular Head Aboriginal Corporation, Dr Kylie Radford, NeuRA, Associate Prof Lyn Goldberg, Wicking Dementia Centre, Sharon Wall, NeuRA, Terry Donovan, NeuRA, Dr Louise Lavrencic, NeuRA









SELECTION OF 2021 PUBLICATIONS

Studying at university in later life slows cognitive decline: A long-term prospective study. Bindoff A, Summers M, Hill E, Alty J, Vickers J. *Alzheimer's Dementia*

Predictors of dementia knowledge in a rural general public sample. Eccleston C, Courtney-Pratt H, McInerney F, Johnstone A, Doherty K. *Australian Journal of Rural Health*

TDP-43 mislocalisation drives neurofilament changes in a novel model of TDP-43 proteinopathy. Atkinson R, Leung J, Bender J, Kirkcaldie M, Vickers J, King A. *Disease Models and Mechanisms*

Association Between Components of Cognitive Reserve and Serum BDNF in Healthy Older Adults. Collins J, Hill E, Bindoff A, King A, Alty J, Summers M, Vickers J. *Neuroscience Frontiers in Ageing Neuroscience*

Interactive effects of the APOE and BDNF polymorphisms on functional brain connectivity: the Tasmanian Healthy Brain Project. Pietzuch M, Bindoff A, Jamadar S, Vickers J. *Scientific Reports*

Age-at-Injury Determines the Extent of Long-Term Neuropathology and Microgliosis After a Diffuse Brain Injury in Male Rats. Doust Y, Rowe R, Adelson P, Lifshitz J, Ziebell J. *Frontiers in Neurology*

Room for improvement: An online survey of allied health professionals' dementia knowledge. Lawler K, Kitsos A, Bindoff A, Callisaya M, Eccleston C, Doherty K. *Australasian Journal of Ageing*

The ISLAND Project

The Island Study Linking Ageing and Neurodegenerative Disease (ISLAND) Project is a major strategic project for the Wicking Dementia Centre. ISLAND is raising awareness amongst Tasmanians aged over 50 years about modifiable risk factors for dementia and offers a range of studies to help us better understand who is most at risk and how they can self-manage that risk.

To date we have:

- 13,500 Tasmanians who have signed up to ISLAND
- 8,500 Tasmanians who participate in ISLAND research
- Circulated 32 newsletters focussed on modifiable risk factors to ISLAND participants
- Attended over 35 face-to-face information sessions across Tasmanian communities
- Held our inaugural Dementia, Prevention and Wellbeing Expo with over 300 attendees
- Offered two online cognitive tests on working memory, learning and executive function, reaction times and attention and movement pattern
- Collected around 1,000 blood biomarker samples to help profile how blood markers influence risk of dementia
- Provided assessments for 87 Tasmanians who have been referred to our cognition clinic

Raising awareness and changing behaviour so that Tasmanians are focussed on good brain health is the main motivation of ISLAND. We know that Tasmania has some areas of high risk for dementia, including obesity and smoking, and we aim to keep raising awareness within our communities. We hope to partner with other organisations to help us engage with even more Tasmanians next year and beyond, and work with locals to learn the best ways to engage with different community groups.

A range of research projects are underway:

Annual Surveys and Dementia Risk Profile

ISLAND participants complete a range of surveys when they initially join the program and every year thereafter. This information provides valuable information about knowledge, modifiable risk factors and attitudes towards dementia and how these change over time. These surveys are core to our research success and the longitudinal understanding we need to have about how risk profiles change throughout a lifetime. Our Dementia Risk Profile provides participants with personal risk feedback and provides a platform for discussion with health professionals about how to improve health and wellbeing.

A new case of dementia arises somewhere in the world every 3 seconds.

(World Alzheimer Report 2021)

ISLAND Resilience

Our Resilience study investigates the association between stress, resilience and dementia and includes an opportunity to complete a course designed to promote factors around resilience, coping and preparation for the Tasmanian bushfire season. Participants also have opportunity to provide biological samples to assist us in understanding how stress hormone levels change across time. Through ISLAND Resilience, we aim to examine the impact of short- and long-term stress and trauma on dementia risk and whether having resilience skills for coping with future stress can help lower risk.

Blood Tests to help us measure dementia risk

Around 1000 ISLAND participants have provided a blood sample to help us in our aim to find new ways to accurately detect dementia risk and measure the response to interventions that aim to reduce that risk. Whilst brain scans allow us to detect proteins in the brain that contribute to dementia, they are expensive and time consuming. Research now shows that these proteins are also found in our blood and using blood samples is far cheaper and less invasive than brain scans. We aim to collect blood from participants every two years for the duration of the ISLAND project to investigate changes in the levels of proteins to show whether changes in lifestyle alters an individual's risk of dementia.

Thinking, Memory and Hand Movement Tests

Participants have been invited to undertake two online thinking, memory, and hand movement tests: CANTAB and TAS Test. Both tests assess cognitive function – memory and thinking – and provide valuable information about brain health.

ISLAND Clinic

Our Dementia and Cognitive Assessment Clinic combines bulk billed diagnostic services and cognitive research for Tasmanians with subjective cognitive impairment. Our multidisciplinary team collaborates with the Tasmanian Health Service, I-MED Radiology, Dementia Australia, and the national Australian Dementia Network to offer state of the art diagnostic services to Tasmanians, in one place and usually at one time. Patients receive a comprehensive discharge report, linkage to local services and supports and can participate in new and novel research.

ISLAND Campus

The ISLAND Campus initiative offered ISLAND participants members a fee waiver on over 40 University of Tasmania courses in 2020. Over 1,500 Tasmanians are involved in this study, with over 600 starting a degree and the remainder acting as a control group. ISLAND Campus participants continue in their university courses and provide us with valuable information to measure the long-term effect of education in mid-later life on changes in dementia risk and cognitive performance or decline. Both groups will be followed up over five years.

Participant Quotes

*"Research is so important. I feel each one of us needs to be responsible for our own health." – **Anne***

*"I joined the ISLAND Project because I'm a firm believer that prevention is better than cure." – **Warren***

*"When this opportunity came up, I decided to take it on – just to make sure that I can do things to mitigate against getting dementia." – **Jane***

Our People

The Wicking Dementia Centre staff and research higher degree student numbers reached 116 in 2021. The Executive, listed below, continued to oversee the strategic and operational direction of the Centre.

WICKING DEMENTIA CENTRE EXECUTIVE

Distinguished Professor James Vickers

Director

James Vickers is the founding Director of the Wicking Dementia Centre. He has research interests including neurodegenerative disease (particularly Alzheimer's disease), traumatic brain injury and brain plasticity, and currently leads the ISLAND Project that seeks to reduce risk of dementia in the Tasmanian population.

Caroline Gray

Business Manager

Caroline Gray oversees the business operations of the Centre, across operational and strategic functions. She leads major projects and day to day operations around budgeting, resource management, workforce planning, governance, and strategy.

Professor Anna King

Associate Director (Research)

Anna King is currently an NHMRC Boosting Dementia Research Leadership Fellow (2018 – 2022) and convenes the Wicking Dementia Centre's Neuroscience research group. Anna also plays a key role in the Wicking Dementia Centre's educational offerings including the Bachelor of Dementia Care, and the Understanding Dementia MOOC.

Associate Professor Alison Canty

Associate Director (Learning and Teaching)

Alison Canty was centrally involved in leading the development and rapid growth of the Dementia Care Degree Program and has held an education governance role within the Centre for several years. Alison's research focuses on mechanisms of neuroplasticity, degeneration, and trauma – all of which are central to understanding the pathology of dementia.

Dr Kathleen Doherty

Senior Research Lead Dementia MOOCs

Kathleen Doherty convenes the Wicking Dementia Centre's Translational Research group which focuses on education, care and community engagement. She is responsible for delivering the program of research which centres on our massive open online courses and growing knowledge, changing attitudes and behaviours through education and building dementia literacy. She contributes to the education program through the Master of Dementia.

WICKING DEMENTIA CENTRE | STAFF AND STUDENTS IN 2021

Staff	
Dr Melissa Abela	Lecturer in Dementia
Associate Professor Jane Alty	Associate Professor, Neurology
Dr Rachel Atkinson	Research Fellow
Lily Bartkevicius	Student & Learning Skills Advisor
Dr Larissa Bartlett	Research Fellow
Monique Belfer	Participation Engagement Officer – Online Education
Dr Bill Bennett	Senior Technical Officer
Aidan Bindoff	Statistician
Jay Borchard	Research Assistant
Dr Vlasti Broucek	Senior Technical Developer
Louise Carnell	Marketing and Events Officer
Dr Jessica Collins	Research Fellow
Dr Peta Cook	Senior Lecturer, Course Coordinator (Diploma of Ageing Studies and Services)
Associate Professor Tony Cook	Associate Professor
Dr Helen Courtney-Pratt	Senior Lecturer in Dementia, Graduate Research Coordinator
Helen Douglas	Project Manager - ISLAND Project
Samuel Dwyer	Research Assistant
Joshua Eastgate	Senior Technical Developer
Karin Easton	Team Leader – Medical Science Precinct, College Services
Dr Claire Eccleston	Senior Lecturer, Course Coordinator (Bachelor and Diploma of Dementia Care)
Dr Kate-Ellen Elliott	Senior Research Fellow
Dr Maree Farrow	Senior Academic Lead - Dementia MOOCs
Oliver Freeman	Senior Technical Developer
Dr Barbora Fulopova	Research Assistant – ISLAND project
Rachael Gates	Project Manager – Online Education
Dr David Gell	Research Fellow
Timothy Gibbons	Social Media Coordinator
Associate Professor Lyn Goldberg	Associate Professor, Graduate Research Coordinator
Dr Mohammad Shoaib Hamrah	Research Fellow
Dr Edward Hill	Research Fellow
Dr Sharyn Hunter	Lecturer in Dementia
Dr Sunny Jang	Lecturer in Dementia
James Jestrimski	Award Course Administration Officer
Dr Adam Kane	Project Officer – ISLAND Project
Justine Keay	Project Officer – ISLAND Project
Kim Kennedy	Clinic Administrator
Dr Sarang Kim	Research Fellow
Dr Matthew Kirkcaldie	Senior Lecturer, Course Coordinator (Master of Dementia Program)

WICKING DEMENTIA CENTRE | STAFF AND STUDENTS IN 2021 (CONT.)

Alex Kitsos	Data Analyst
Dr Shannon Klekociuk	Lecturer in Dementia
Dr Maneesh Kuruvilla	Lecturer in Dementia
Dr Katherine Lawler	Lecturer in Dementia
Dr Emma Lea	Senior Lecturer
Karina (Iek) Lei	Senior Technical Developer
Dr Jacqueline Leung	Lecturer in Dementia
Graeme McCormack	Senior Technical Officer
Dr Scott McDonald	Research Fellow
Professor Fran McInerney	Professor of Dementia Studies & Education
Associate Professor Deirdre McLaughlin	Senior Research Fellow – ISLAND Project
Helga Merl	Lecturer in Dementia
Dr Hoang Nguyen	Lecturer in Dementia
Chris Parker	Manager Digital Futures
Dr Sharn Perry	Lecturer in Dementia
Dr Andrew Phipps	Post-doctoral Research Fellow
Samantha Poulson	Media Resources Officer
Anthony Ray	Senior Administration Officer, Educational Programs
Catherine Robertson	Executive Assistant
Dr Alice Rota-Bartelink	Lecturer in Dementia
Dr Katharine Salmon	Coordinator, Dementia and Cognition Clinic
Tim Saunder	Data Analyst
Ian Smith	Senior Technical Developer
Dr Duncan Sinclair	Senior Lecturer, Graduate Research Coordinator
Dr Rebecca St George	Research Fellow
Dr Megan Stronach	Lecturer in Dementia
Dr Kimberley Stuart	Research Fellow
Dr Joanna Sun	Relationship Manager
Dr Jana Talbot	Research Assistant
Dr Nan Tian	Technical Officer
Dr Laura Tierney	Research Fellow
Tanya Wadwell	Student Support Team Leader
Dr Adele Woodhouse	Senior Lecturer in Dementia
Dr Jenna Ziebell	Senior Lecturer in Dementia

Honours Students	
Neda Radfar	2021 Wicking Centre Erica Bell Scholarship
James Tucker	2021 Rhonda Ewart Scholarship in Dementia Research
Adelene Chiam	2021 Wicking Centre Neuroscience Honours scholarship in Dementia Research
Lyzette Matthews	2021 Wicking Centre Neuroscience Honours scholarship in Dementia Research

PhD Candidates			
Azam Bazooband	Yasmine Doust	Radhika Mani	Manuela Pietzuch
James Bender	Sam Dwyer	Ignacio Martinez Escobedo	Andrea Price
Aidan Bindoff	Hannah Fair	Ron Mason	Neda Radfar
James Brady	Barbora Fulopova	John McManus	Tara Sinclair
Samantha Bramich	Olivia Holloway	Helga Merl	David Stellon
Ellie Bucher	Ensieh Izadi	Nkoli Mmako	Sharon Stoddart
Sueanne Chear	Fariha Kabir	Aidan O'Mara	Bao Ngoc Tran
Jan-Leng Cheng	Yashoda Koirala	Gongbu Pan	Xinyi Wang
Anisuzzaman (Novel) Chowdhury	Ross Langley	Sladana Pavkovic	
Nina Daniels	Kerri Magnussen	Thalia Perez Suarez	

In the spotlight

STAFF

Dr Duncan Sinclair

Understanding the roles of stress, trauma and resilience in ageing and dementia.

Dr Duncan Sinclair is a Senior Lecturer at the Wicking Dementia Centre who divides his time between research and teaching in undergraduate dementia-focussed degree programs. He also supports PhD students across the Centre as a Graduate Research Coordinator.

Stress is an inescapable part of daily life, which can profoundly influence our health. Duncan's research focusses on how stressful and traumatic experiences impact our brains as we age. Duncan is particularly interested in how to foster resilience in the face of trauma and chronic stress, in the hope of improving brain health during ageing and minimising risk for dementia.

Duncan's research started at the level of cells and molecules, using brain-like cells from human donors in the laboratory. He continues to use these cells to explore how stress hormones interact with dementia-related molecular processes to influence cellular health and neurodegeneration.

More recently he has extended this work to involve participants and communities across Tasmania. In 2021, Duncan and a team of researchers at the Wicking Dementia Centre, School of Psychological Sciences and Menzies Institute developed the ISLAND Resilience Initiative, a sub-study of the ISLAND project. This 10-year study investigates how prior life events and ongoing life stresses, including bushfires, impact mental health, cognition, physiology and wellbeing. The ISLAND Resilience Initiative features a new short course, Bushfires and Your Health, which aims to build bushfire-related health knowledge, preparedness and resilience.

Josh Eastgate

Developing educational and research tools.

Josh Eastgate is a full-stack developer who joined the Wicking Dementia Centre in August 2017 as a Senior Technical Developer. He is part of a small development team responsible for creating an in-house LMS (Learning Management System), which is used to deliver the MOOCs and research projects, such as the ISLAND Project. Josh and the MOOC team were awarded the 2019 UTAS Innovation Award for their work on the LMS.

Recently, Josh has been focused on developing the ISLAND Project platform to handle various sub projects, connect third-party research software to the platform, and at the same time maintain an intuitive user experience for our participants. In 2021 Josh also took part in a new initiative called "RUN for the ISLAND" (with colleagues; Dr Edward Hill, Dr Jessica Collins, and James Brady). It is a new initiative to promote physical activity in the community, raise awareness for dementia risk reduction, recruit research participants and raise funding for the ISLAND Project at the Wicking Dementia Centre. This involved the team running over 480km in a relay over five days through the Tasmanian Trail, from Devonport to Dover, while also participating in community events along the way.

Josh is planning to do further study in 2022, focusing on automated systems and machine learning. Josh hopes to utilise this new knowledge and skills to develop new tools in the future for the Wicking Dementia Centre.

Already 60% of people with dementia live in low and middle-income countries, but by 2050 this will rise to 71%.

(World Alzheimer Report 2021)

Associate Professor Jane Alty

Developing digital biomarkers for dementia and Parkinson's disease.

Associate Professor Jane Alty joined the Wicking Dementia Centre and Tasmanian School of Medicine in January 2019, having moved from the North of England with her husband and three children. Jane is a Neurology Staff Specialist at the Royal Hobart Hospital and early career researcher at the University of Tasmania. She previously worked as a doctor in the UK National Health Service and was awarded local NHS Clinical Excellence Awards for outstanding clinical contributions in 2016, 2017 and 2018, partly in recognition of her roles leading several clinical trials. She is now the Co-Director and Neurologist of The ISLAND Cognitive Clinic, a one-stop interdisciplinary research cognition clinic that provides a statewide diagnostic service for adults residing in Tasmania who have cognitive symptoms. She is also on the Steering Committee for the ISLAND Project, runs a specialist Parkinson's disease and movement disorders clinic in Hobart and is an invited member of the Australian Dementia Network (ADNeT) Health Professional Expert Panel.

Jane's research interests include dementia prevention, the development of digital biomarkers to improve early accurate detection of dementia and Parkinson's and analysing how human sleep and movement patterns change in the earliest stages of degenerative brain disorders. She believes that interdisciplinary collaboration leads to the best research and enjoys working closely with people with lived experiences, colleagues across the Colleges of Health and Medicine and Science and Engineering and with researchers and clinicians in the UK and the Netherlands.

In 2022, Jane looks forward to leading the TAS Test research program to develop a new online test to detect pre-clinical Alzheimer's disease, supported by a 5-year grant from the NHMRC. She also looks forward to working with Associate Prof Lyn Goldberg, Dr Kate Lawler, Dr Edward Hill and others at the Wicking Dementia Centre to develop a new smartphone app to detect cognitive impairment, supported by a Major Project 3-year grant from the Royal Hobart Hospital Research Foundation.

Dr Sharn Perry

Understanding the how and why of degenerative diseases.

Dr Sharn Perry joined the Wicking Dementia Centre in 2017 as a Lecturer and Researcher. During her time with the Wicking Dementia Centre, Sharn has applied her knowledge of movement networks within the brain and spinal cord, to understand the development and progression of neurodegenerative diseases. Her current research focuses on understanding why and how some parts of our nervous system that control movement are vulnerable to degenerative diseases, such as motor neuron disease. Together with her colleagues, Sharn is working on projects funded by FightMND and the National Health and Medical Research Council (NHMRC) to see if we can stop the breakdown of motor neurons, essential cells for communicating movement signals throughout the body, to slow the progression of amyotrophic lateral sclerosis, a type of motor neuron disease.

In addition to her research interests, Sharn is the Deputy Course Coordinator for two of the Wicking Dementia Centre's award programs; Diploma of Dementia Care and Bachelor of Dementia Care. These programs have global reach with a breadth of diversity in student backgrounds. These programs assist carers in understanding the biology behind the behaviours and emotions observed in individuals under their care, enabling the students to learn strategies to best support people living with dementia and other conditions. Sharn has led the redevelopment of several units of study to increase the accessibility of material and concepts to student groups who are traditionally at higher risk of not completing their studies.

In the spotlight

STUDENTS

Yasmine Doust

Investigating sex differences in recovery after a traumatic brain injury.

Yasmine Doust joined the Wicking Dementia Centre in 2017 as an undergraduate student. This undergraduate study ignited her interest in the connection between biological sex in the recovery patterns of traumatic brain injury; the topic of her PhD.

Traumatic brain injury is a neurological condition, with the most common form being concussion, that can occur as a result of motor vehicle accidents, falls and assault including intimate partner violence. Long-term symptoms are a common implication of traumatic brain injury which can include cognitive and memory impairments. A history of traumatic brain injury has also been linked to the development of neurodegenerative diseases in later life, such as dementia. Why this happens remains unknown. To date, the majority of traumatic brain injury research has been conducted in males, however, recent studies have reported that females exhibit more severe and prolonged symptoms after a traumatic brain injury.

It is currently unclear as to what is driving the biological sex differences in recovery following traumatic brain injury, but it has been theorised to be due to differences in the underlying brain pathology. We do know that the brain's immune system exhibits sex-specific functions during development, adulthood and ageing which may affect the immune response to damage and, thus, the ability to restore brain health, after a traumatic brain injury. Yasmine's research explores structural changes in the brain between males and females following traumatic brain injury and the role of the immune system in brain repair which is important when creating potential treatments and therapeutics.

Yasmine's 2021 highlights include being selected as a finalist and invited to present her work for the Tasmanian Postgraduate Student Award from the Australian Society for Medical Research (ASMR). Yasmine has also published two scientific articles; one discusses the sex-specific roles of the brain's immune system in dementia, and the other is an international collaboration which investigates the effects of age-at-injury upon long-term recovery following traumatic brain injury.

James Brady

Factors of resilience against stress-related neurodegeneration.

James Brady is using his background in psychology and behavioural neuroscience to explore the impact of biological and psychological stress on cognitive health in ageing. The world is becoming an ever-stressful place and Tasmania is no exception, particularly as we learn to cope with the COVID-19 pandemic, and the ever-rising threat of major bushfires. It is no secret that instances of dementia are rising, and it is essential that we understand the roles that stress and trauma play in its onset and how we can prevent it.

Stress is ever-present, and essential for survival. It underpins the waking response, motivation, and alertness. However, research suggests that prolonged exposure to stress, beyond our body's limit, could have deleterious effects on our wellbeing. There are myriad biological, sociological, and psychological factors which may influence the way in which we cope with, mitigate, and experience stress and trauma. Each of these factors may play a potentially crucial role in maintaining healthy cognitive function in our day-to-day lives. James, through the newly launched ISLAND Resilience Initiative, seeks to understand these factors in the context of older Tasmanians and ageing.

During the first two years of his PhD James has co-authored a paper on the impact of the COVID-19 pandemic lockdown on older Tasmanians, helped design and launch the longitudinal ISLAND Resilience Initiative study, and gathered locks of hair, tubes of saliva, and assisted in collecting bloods from hundreds of participants across the state. A particular highlight of his PhD journey thus far has been raising $10,000 for dementia research while relay running the length of Tasmania in five days alongside Wicking Dementia Centre researchers Dr Edward Hill, Dr Jessica Collins and Josh Eastgate.

Radhika Mani

Stress as a risk factor for Alzheimer's disease.

Radhika Mani commenced her doctoral research with the Wicking Dementia Centre in 2020 studying the role of stress in the development of Alzheimer's Disease. She moved to Australia from Mumbai, India, for her undergraduate studies in 2015, and has been a part of the Wicking Dementia Centre since 2017.

Alzheimer's disease is a complex neurodegenerative disorder and research in the field has identified several factors that contribute to the progression of the disease. Some, like genetic causes, are unmodifiable, however, lifestyle factors that can be improved are an exciting area of research.

Life stress has been proposed to be one such modifiable risk factor, and clinical research has established that stressful experiences increase risk, and stress hormone cortisol levels that are linked to disease progression. However, so far, drugs targeting stress have failed because the mechanisms underlying stress signalling in humans are not well understood.

Radhika's research aims to identify specific pathways by which stress contributes to the development of Alzheimer's disease. Stress is a pervasive condition in our day, and Radhika hopes that her work will be able to identify clinical targets that may reduce the risk of developing Alzheimer's disease. Her study is very close to her heart, as her grandmother was diagnosed with Alzheimer's disease in 2016. Her 2021 highlights included serving on the University Medical Research Student Committee and organising social events to boost student morale.

Almost 80% of the general public are concerned about developing dementia at some point and 1 in 4 people think that there is nothing we can do to prevent dementia.

(World Alzheimer Report 2021)

In 2021, there are an estimated 472,000 Australians living with dementia.

Without a medical breakthrough, the number of people with dementia is expected to increase to almost 1.1 million by 2058.

(Dementia Australia 2018)


TASMANIAN TRAIL
The Tasmanian Trail
Devonport
Launceston
Hobart
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Community Engagement

RUN for the ISLAND

RUN for the ISLAND is an initiative developed in 2021 to promote physical activity in the community, raise awareness for dementia risk reduction, recruit research participants and raise awareness for the ISLAND Project.

Wicking Dementia Centre's Dr Edward Hill, Dr Jessica Collins, Josh Eastgate and James Brady were put through their paces as they completed the Tasmanian Trail – a 480km fundraising run – from Devonport in the state's North, to Tasmania's southernmost settlement of Dover – in only five days.

Each RUN for the ISLAND runner completed a 25km stretch of the Tasmanian Trail each day, with the team stopping at designated regional population centres to promote health and wellbeing factors recognised as reducing dementia risk.

RUN for the ISLAND is an initiative supporting the Wicking Dementia Centre's flagship ISLAND Project through fundraising, education, and community engagement. The runners stopped at various regional areas across Tasmania to recruit participants into ISLAND and to encourage community engagement in healthy lifestyle activities.

ISLAND Expo

On Thursday 23 September, during Dementia Action Week, The ISLAND Project hosted a Dementia, Prevention and Wellbeing expo at the Devonport paranaple convention centre.

The ISLAND Project, St Lukes Health, Dementia Australia, the Cancer Council, and many other organisations from the health and community sectors were onsite to connect residents to local services and activities supporting their health and wellbeing. Over 30 organisations and services attended, allowing people to easily find out what was available in the community.

AGFEST 2021

The Wicking Dementia Centre again attended AGFEST in 2021 providing information about our ISLAND Project and free online MOOCs. Over the course of the event our team were able to discuss our research activities with the general community, offering information about dementia risk reduction as well as recruiting participants to the various projects associated with ISLAND. The inflatable brain was again a source of great interest to the younger audiences!

Wicking Dementia Centre Seminar Series

Our virtual seminar series continued in 2021 with three events covering diverse topics such as stem cell research, stress and dementia, and how our diet impacts brain health. These webinars have been extremely successful with over 1000 people registering. It allowed our researchers to discuss their work with the broader community, offering expert opinions on topics of interest.

With the limited access to events due to COVID-19 restrictions, this has ensured our community engagement continued throughout the year.

- Questions about dementia, challenges for stem cells – 27 April 2021
- Stress and Dementia – 21 June 2021
- Food for thought: How does diet impact brain health – 8 December 2021

You can watch our webinars again at:
utas.edu.au/wicking/about/seminar-series

Dementia is the second leading cause of death of Australians and the leading cause of death for women.

(Australian Bureau of Statistics 2020)

Achievements

Honours Scholarships

In 2021 the Rhonda Ewart Scholarship was awarded to **James Tucker** *(above)*. James' Honours thesis looked at a biomarker of neurodegeneration to see if it was related to ageing and changing in thinking and memory in healthy people without neurodegenerative diseases such as Alzheimer's disease. As the University of Tasmania's longest serving employee, Rhonda Ewart said her personal experience with her mother, who had Alzheimer's disease, moved her to introduce the $5000 scholarship in 2015. It is awarded annually to a student undertaking Honours with the Wicking Dementia Centre.

Other scholarships awarded by the Wicking Dementia Centre in 2021 were:

Neda Radfar	2021 Wicking Dementia Centre Erica Bell Scholarship
Adelene Chiam	2021 Wicking Dementia Centre Neuroscience Honours scholarship in Dementia Research
Lyzette Matthews	2021 Wicking Dementia Centre Neuroscience Honours scholarship in Dementia Research

'Joy Coghlan' 2021 Tasmanian Palliative Care Honour Roll

This Award recognises contributions to the sector, putting a spotlight on those who have gone above and beyond. The 2021 Tasmanian Palliative Care Honour Roll recognised Professor Fran McInerney.

Professor Fran McInerney is a registered nurse and health sociologist. Her clinical practice in aged care, palliative care, and dementia care spans more than 30 years. She has engaged in education and applied research in areas including teaching aged care facilities, advance care planning, dementia palliation, media representations of health, illness, and death, and dementia knowledge and literacy over that time, publishing and presenting extensively in these fields.

Approximately 70% of people with dementia live in the community.

(Australian Institute of Health and Welfare (2012) Dementia in Australia)

GRADUATIONS

It was a pleasure to meet our graduates in person for the graduation ceremonies in Hobart in August and December after the hiatus of 2019. It is an honour to be able to celebrate the fantastic achievements of all our graduates and December saw the first Master of Dementia graduates.

Short film: Rosa and Max

Shining a light on dementia experiences

Rosa and Max was launched in early 2021 and is a three-and-a-half-minute film produced by award-winning Tasmanian animator Amara Gantz in collaboration with the Wicking Dementia Centre. The film was developed during COVID-19 and across continents, with Amara working in Portland, Oregon on the Guillermo del Toro animated film *Pinocchio*.

The animated short film follows Rosa, a fictional character inspired by the real experiences and stories shared by participants in the online course, the *Understanding Dementia* MOOC.

The film highlights the risk of social isolation for people living with dementia and how those around them can support people with dementia to remain engaged in the community and in their everyday lives.

Rosa is living independently and, while the symptoms of her dementia pose serious challenges, with supportive and understanding people around her she has the best chance of continuing to enjoy and actively participate in life.

View *Rosa and Max* at **mooc.utas.edu.au/the_difference**


TASMANIA

Your Support

Thank you to all who have supported our work this year with a donation; we are incredibly grateful for your generosity. You are helping us to develop our research and deliver our free short courses on Understanding Dementia, Preventing Dementia, and our new Understanding Traumatic Brain Injury (TBI) to others in our community.

Our continued work in education and research here at the Wicking Dementia Centre is vital to maximise the quality of life for those living with dementia, help support families and caregivers, and educate all of us about how lifestyle changes could potentially prevent 40% of dementia cases. Your ongoing support is needed to advance our research for the benefit of all. Your gift – be it large or small – or a planned gift in your will, or a donation in memory of a loved one, makes a difference.

We are also most grateful to Rowena Howard and her family who featured in our 2021 appeal.

Almost half a million Australians are now living with dementia. Three times that number are involved in their care. As medical advances enable us all to live longer, these figures are set to increase significantly.

Like so many, Rowena Howard suspected something was wrong with her father, Roger, long before he was diagnosed. His vision had deteriorated, he had lost his sense of smell and neighbours reported he was driving dangerously. A doctor's appointment resulted in his driver's license being cancelled, but it would be another year before an official diagnosis. Her father had Alzheimer's disease.

Rowena was kind enough to share the challenges she faced caring for her father and how completing the MOOCs gave her a better understanding of her father's condition and the skills to help him continue to live life to the fullest.

In 2021, it is estimated that almost 1.6 million people in Australia are involved in the care of someone living with dementia.

(Dementia Australia)

Donations from the 2021 Appeal

- **373** donations, totalling **$24,692**

Donations from the RUN for the ISLAND Appeal

- **128** donations, totalling **$10,482**

Total donations during 2021

- **853** donations, totalling **$172,271**
- **662** new supporters in 2021, with **26** supporters choosing to make a recurring donation

More information:
utas.edu.au/wicking/about/donate

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