Australian Government

NHMRC National Institute for Dementia Research

AUSTRALIAN DEMENTIA FORUM

Abstracts

Accelerating research. Enhancing collaboration. Creating change.

Hotel Grand Chancellor Hobart, 13-14 June 2019

nnidr.gov.au

Contact

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CONTENTS

INTRODUCTION

At present, it is estimated that over 436,000 Australians are living with dementia.

Globally, a person is diagnosed with dementia every three seconds.

Since 2015, the NHMRC National Institute for Dementia Research (NNIDR) has been targeting, coordinating and translating the strategic expansion of dementia research in Australia. By collaborating with researchers; engaging those living with dementia in research efforts and connecting with health Professionals and policy makers, NNIDR is committed to achieving the World Dementia Council's international target – the identification of a disease-modifying therapy by 2025.

It is in this context that we present to you the full program and abstracts of the Australian Dementia Forum 2019: *Shining a light on the impact of dementia research* (ADF2019).

ADF2019 is being held in Hobart on 13-14 June.

Building on the success of the Australian Dementia Forum 2018, ADF2019 will bring over 400 leading researchers, health service professionals, policy makers, people living with dementia, their carers and family members, together to examine the enormous impact dementia research has on the Australian community.

Researchers submitted over 266 abstracts and of these 73 were selected for presentation, with a further 145 poster presentations across two poster sessions. For the first time in Australian Dementia Forum history, ADF2019 will feature three parallel sessions.

Three international keynote speakers will participate in ADF2019, with a further keynote address to be delivered by Australian researcher, Professor Lizzie Coulson.

Our international keynotes, Professor Carol Brayne CBE from Cambridge University (United Kingdom), Dr Jeff Williamson from Wake Forest Baptist Health (United States) and Dr Margaret Dudley from the University of Auckland (New Zealand) will each share their insights across prevention, care and living with dementia.

ADF2019 will also facilitate vital discussions on dementia research through roundtables, networking opportunities and a research development workshop.

Program Committee

Associate Professor Anna King, Convenor University of Tasmania
Stephanie Ellis NHMRC National Institute for Dementia Research
Dr Michele Callisaya University of Tasmania
Louise Carnell University of Tasmania
Dr Helen Courtney-Pratt University of Tasmania
Dr Kate-Ellen Elliott University of Tasmania
Dr Maree Farrow University of Tasmania
Associate Professor Lyn Goldberg University of Tasmania
Professor David Phillips National Health and Medical Research Council
Dr Brad Sutherland University of Tasmania
Dr Jane Thompson NHMRC National Institute for Dementia Research
Lynne Thomson National Health and Medical Research Council
Chris Webb National Health and Medical Research Council
Juanita Westbury University of Tasmania

ROUNDTABLE SESSIONS

Wednesday 12 June 2019 - by invitation

9:00 AM TO 11:30 AM

DR CLAIRE BURLEY

Dementia Centre for Research Collaboration (DCRC), University of New South Wales, Sydney

Preventing and managing the behaviours and psychological symptoms of dementia (BPSD)

Behaviours and psychological symptoms of dementia (BPSD) are estimated to effect up to 90 percent of patients and strongly correlate with functional and cognitive impairment (Cerejeira et al., 2012). The topic of BPSD has stirred up much controversy and debate, including: choice of terminology, creating and sustaining dementia friendly communities, reducing stigma through increased education and awareness, determining optimal approaches in the prevention and management, implementing optimal and evidence-based programs through effective knowledge translation, and more recently, determining the economic and societal costs of BPSD on an incremental symptomatic level.

With overwhelming forecasts of increasing dementia incidence, it is imperative that multidisciplinary discussion and action takes place. A BPSD special interest group has recently started at the DCRC, UNSW. The specific aims of the group are to: foster research into the prevention and management of BPSD, encourage research implementation, and encourage collaboration in research and implementation between researchers, service providers, people living with dementia, and their families and/ or care partners. This group is open to anyone with an interest in BPSD, with the intention of bringing together a large group of experts from a diverse background of knowledge and experience.

This invitation is extended to Australian Dementia Forum 2019 attendees and to this Roundtable discussion (if successful). This discussion in Hobart serves an ideal platform for collaboration and growth due to the wide variety of expertise the forum will attract, all of whom are especially interested in dementia and many in BPSD. Every being who has been affected by dementia is an expert in their experience and it is important that this diversity is acknowledged, welcomed, respected and appreciated so that we can join forces and move forward.

Several research themes have been touched upon already though this discussion will invite further suggestions. Below is a summary of discussion points to help guide the session if needed, though the intention is to keep it less structured to encourage new ideas.

10:00 AM TO 12:30 PM

ASSOCIATE PROFESSOR KATE HOY

Monash University

Stimulating Connections: Advancing Brain Stimulation Research in dementia

Dr Ashleigh Smith, NHMRC-ARC Dementia Research Development Fellow, University of South Australia; and Dr Mitchell Goldsworthy, NHMRC-ARC Dementia Research Development Fellow, University of Adelaide

Non-invasive brain stimulation techniques hold considerable promise as novel treatment approaches for dementia. In Australia there are currently over 420,000 people suffering from dementia and, with no significant treatment breakthroughs, this number is predicted to rise to over 1.1 million by 2056. Between 2002 and 2012 there were 413 clinical drug trials for Alzheimer's with an overall failure rate of 99.6%, and of the 244 drugs trialled in this time only one received FDA approval (in 2003). While there are a number of new drugs currently under development, early findings have been largely disappointing. In light of this, the inherent challenges and costs of drug development, and the recent withdrawal of drug companies from Alzheimer's research (i.e. Pfizer announced in January 2018 that it will be ending its research into drug development for Alzheimer's) alternative treatment approaches must be considered. Recent findings regarding the pathophysiology of dementia have indeed suggested an alternative treatment approach, with studies showing damage to specific large-scale, distributed, function-critical neural networks. Whereby it may be the pathophysiological consequences (i.e. abnormal neuronal firing patterns) of the relevant neuropathology which are most related to dementia symptoms. Such pathophysiological processes are ideally suited to both investigation and modulation with brain stimulation techniques that can induce both local and global changes in brain activity (i.e., Transcranial Magnetic Stimulation [TMS], Theta Burst Stimulation [TBS], transcranial Direct and Alternating Current Stimulation [tDCS, tACS]). Indeed in the last 24 months there have been a number of highly promising early findings with respect to the therapeutic potential of these techniques in dementia. However, in order to understand the true potential of these brain stimulation approaches a co-ordinated research effort is required. The quality of research produced by Australia's brain stimulation community is internationally recognised and this community is rapidly growing, as evidenced by the recent formation of the Australasian Brain Stimulation Society (est. 2018). With a strategic and collaborative approach we have the potential to take a leading role internationally in this rapidly developing field. The primary aim of the roundtable discussion will be the formation of a Special Interest Group which will act to facilitate:

1. co-ordination (with respect to sharing of expertise and protocol review/development),

2. collaboration (in order to more rapidly advance this area of research and encourage the pursuit of novel cross disciplinary approaches), and

3. mentoring/sponsorship (to encourage and support the future generation of dementia focused brain stimulation researchers)

It is anticipated that the Special Interest Group will be formed in partnership with Australasian Brain Stimulation Society (A/Prof Hoy is a founding member of the executive committee) in order to maximise impact and reach. As a more immediate outcome the Special Interest Group will also plan to draft and publish a paper on the current state of brain stimulation and future potential of brain stimulation in dementia research; with a view to submit to the leading journal in the field 'Brain Stimulation'.

DR EDWIN TAN

University of Sydney

Safe and effective use of medicines in people living with dementia

Edwin Tan [1], Lisa Kalisch Ellett [2], Tuan Nguyen [2], Julia Gilmartin-Thomas [3], Emily Reeve [2]

[1] School of Pharmacy, The University of Sydney, Sydney, NSW, Australia, [2] School of Pharmacy and Medical Sciences, University of South Australia, Adelaide, SA, Australia, [3] School of Public Health and Preventive Medicine, Monash University, Melbourne, VIC, Australia, [4] Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, TAS, Australia

Medication use in people with dementia is challenging. People with dementia are often less likely to receive pharmacological treatment and interventional procedures that could enhance quality of life. The evidence for prescribing medications are usually drawn from trials of younger, healthier individuals, and there is limited guidance for prescribing in people with dementia. Pharmacodynamic and pharmacokinetic changes that occur in this vulnerable population increase the risk of toxicity of some medications. Inappropriate medication use can lead to deteriorations in functional capacity and increase the need for hospitalisation and aged care services. In extreme cases, inappropriate medication use may lead to increased morbidity and mortality.

At this year's roundtable session, we have the privilege of hearing from Dr Juanita Westbury from the University of Tasmania who will present findings and learnings from the Reducing Use of Sedatives or 'RedUSe' project, a nationwide initiative that promotes the appropriate use of sedatives, in particular antipsychotics and benzodiazepines, in residential aged care facilities. The presentation will be followed by an opportunity for group discussion.

The roundtable session will bring together researchers and health professionals who have an interest in optimising medication use in people living with dementia. It will provide opportunities for research collaboration and developing new research directions in this area, and the continuation of an ongoing special interest group.

ASSOCIATE PROFESSOR LEE-FAY LOW

University of Sydney

Rehabilitation in dementia – pathways to practice change

Lee-Fay Low [1]

[1] University of Sydney, Sydney, NSW, Australia

Building on our roundtable at the NNIDR 2018, researchers have been reviewing and compiling into a book the evidence that rehabilitation can improve outcomes for people with dementia. While more evidence will need to be generated, we need to understand the contexts (settings, care models, funding mechanisms, workforce) in which rehabilitation is, or could be provided in Australia and start discussing how to influence practice in this space.

Last year's roundtable brought together researchers in rehabilitation in dementia from a range of backgrounds. This year we will invite interested advocacy and service providers to join our discussion (by zoom as needed) in order to discuss strategies that might be undertaken to facilitate practice change. Questions include: What evidence must be generated (i.e. priorities for research)? What attitudinal barriers are there to rehabilitation? What clinical tools might be helpful (e.g. assessment or treatment tools or clinical pathways)? Who are key people who we need to talk to?

DR LYN PHILLIPSON

University of Wollongong

Collaborations and priorities for Dementia-Friendly Research – A Roundtable Discussion

Lyn Phillipson[1] and Dennis Frost[2]

[1]University of Wollongong, [2]Chair, Southern Dementia Advisory Group (Dementia Friendly Kiama); Member, Dementia Friendly Communities Dementia Advisory Group and Dementia Advisory Committee (Dementia Australia)

To address the research priority of 'living well with dementia' the Dementia Friendly Communities (DFC) movement has been highlighted as having a role in promoting 'increased awareness and understanding of rights, needs and experience of people with dementia living in the community'. It may also provide an effective mechanism through which the 'dignity, independence and self-determination of people with dementia' can be supported within local communities. However, despite this potential, and the growing number of projects both nationally and internationally, there is currently no strategic or co-ordinated research agenda through which to build an evidence base for these emerging community-based projects.

The 'Dementia Friendly Research Roundtable' will provide an opportunity for people involved in local 'Dementia Friendly' projects to work collaboratively with current and emerging 'Dementia Friendly' researchers to:

• Identify research themes and priorities to support building an evidence base for 'Dementia Friendly' communities of practice

• Discuss the formation of ongoing Special Interest Groups around these research themes and the resourcing needed to support a DFC 'Research and Action' network

• Identify potential opportunities for coordination and collaboration in research around these themes within existing projects

• Identify targets for potential research opportunities and funding

Importantly this Roundtable will promote the participation of people with dementia and their care partners in leading the agenda for priorities and practice within a Dementia Friendly Research Special Interest Group. This EOI has been developed as a collaboration between a researcher (Phillipson) and a person living with dementia (Frost). In the preparation of submission of this EOI we have also gathered indications of support from: the Dementia Australia Research Foundation (Annette Moxey); Dementia Australia Dementia Friendly Communities Program (Victoria Marshall-Cerins); key Dementia Friendly researchers (e.g. Helen Courtney-Pratt, UTAS and Dr Maria O'Reilly, CQU) and the NHMRC National Institute for Dementia Research. Logistical support to enable the participation of those unable to attend the Roundtable in person will also be explored through the use of 'ZOOM' webinar software. As a result of this roundtable, a communique regarding the feasibility and resourcing associated with supporting a 'Dementia Friendly' Research Interest Group in Australia will be produced.

1.30 PM TO 4.00 PM

ASSOCIATE PROFESSOR MARK YATES

Cognitive impairment Identification and Care in Hospitals

2.30 PM TO 5.00 PM

DR RACHEL WONG

University of Newcastle

Maintaining the blood-brain barrier is critical to protect the ageing brain

Safeguarding the homeostasis of the brain's microenvironment, cerebral endothelial cells form a blood-brain barrier (BBB) of specialised tight junctions in which a complex system of transporters regulates bidirectional trafficking of essential substrates and metabolites of neuronal activity. This unique barrier also keeps neurotoxic substances and pathogens out of the central nervous system. Therefore, a dysfunctional BBB has been thought to compromise brain function, including cognition, but reliable human data are lacking. Simple quantifiable methods and biomarkers are needed to evaluate BBB integrity in the living human brain.

The current imaging method for BBB integrity is via the introduction of gadolinium, a contrast agent, used in magnetic resonance imaging. However, the resolution is insufficient to discriminate between regions and the results are only positive in people with severely compromised BBB function such as in stroke, brain tumours, multiple sclerosis and meningitis, as BBB permeability is typically much lower in the normal ageing brain. Using enhanced contrast, recent research has shown that BBB disruption begins at the hippocampus during normal human ageing and worsens in those with mild cognitive impairment1; similarly a five-year study involving 161 older adults showed that people with severe memory problems had the worse BBB function independent of the presence of abnormal proteins amyloid and tau2, thereby implicating microvascular dysfunction in the initial pathogenesis. A growing body of evidence suggest that early vascular dysregulation associated with cerebral hypoperfusion and impaired haemodynamic responses are already detectable before the manifestation of cognitive decline and/or other brain pathologies. Yet, little attention has been given to this aetiology.

The clinical evidence of whether BBB dysfunction and its sequelae are reversible with treatment is lacking. We and others have demonstrated that non-pharmacological treatments such as nutrients from food ingredients and exercise can restore cerebral vasodilator responsiveness, a key index of cerebrovascular function, which is associated with enhanced cognitive performance in older adults without dementia. Mechanisms of action of nutrients in reversing BBB deficits have also been demonstrated in preclinical models of diabetes, another risk factor for developing dementia.

In this proposed round table event, dementia researchers from both preclinical and clinical research spheres will come together for a high-level discussion regarding the suitability, reliability and affordability of biomarkers such as S100-beta to detect early changes in BBB function in humans that can be used in clinical trials to evaluate various non-pharmacological strategies including lifestyle and dietary changes to prevent or delay accelerated brain ageing. We will also discuss strategies to boost awareness of the importance of optimising the health of the cerebral microvasculature for healthy brain function in the research field as well as to the community. Clinicians and representatives from relevant government and NGOs including Diabetes Australia will also be invited to participate.

1Montagne A, Barnes SR, Sweeney MD, et al. Neuron. 2015; 85:296–302.
2 Nation DA, Sweeney MD, Montagne A, et al. Nature Medicine. Published online January 14, 2019.

PROFESSOR IRENE BLACKBERRY

LaTrobe University

Living well with dementia: what does the future hold for dementia research and knowledge exchange in rural and regional Australia?

In 2018, there were an estimated 436,366 Australians living with dementia and this number is expected to rise to 589,807 by 2028 (1). Dementia creates complex challenges and therefore people living with dementia and their care partners (spouse, family and friends) need access to a variety of medical and social care and support services, in the community as well as in residential care. In rural areas, there is frequently a reduced range of available services and rural people might be obliged to travel longer distances to access services, or there might be reduced availability of services close to home.

Given the tenacious challenges faced by rural communities, the John Richards Centre for Rural Ageing Research, at the La Trobe Rural Health School, La Trobe University, has begun to engage in a program of research to better understand support needs and to trial innovative solutions for increasing support for carers and people living with dementia in rural and regional areas. There are five key projects that the John Richards Centre is currently undertaking, in collaboration with communities, health service partners, and Australian and International researchers:

1. Virtual Dementia Friendly Rural Communities (Verily Connect)

This project is trialling custom-designed and freely available online technologies to make information more accessible and to increase support for carers. Twelve rural communities across Victoria, New South Wales, and South Australia are participating. In addition, volunteers in each community provide face-to-face help to carers in using the technologies.

2. HelpDEM

Volunteers are matched with carers of people living with dementia in two rural communities in Victoria. The trained volunteers serve as a resource that carers can access for information, social and emotional support, friendship, and ideas.

3. Webster Rural and Regional Dementia Care Project

This three-year research initiative is funded through the bequest of Mr Gordon Webster. The project aims to improve dementia care pathways within rural and regional Victoria, with emphasis on developing innovative and sustainable care of residents of Bendigo and surrounding regions.

4. Exploring rural community capacity to enable voluntary and civic participation for people living with dementia

This project aims to determine the potential areas of volunteer engagement for people living with dementia within rural and regional community organisations.

5. Implementing and sustaining Cognitive Screening in Rural and Regional Health Services

This project focusses on overcoming barriers and harnessing facilitators to introduce, implement and sustain effective Cognitive Screening in rural and regional Health Services.

In this round table discussion, researchers and consultants involved with these five projects, will use learnings from the research to highlight challenges, successes, and possible future directions for dementia research in rural areas. A specific focus will be to develop an ongoing Special Interest Group centring on dementia care, support, and research in rural and regional communities.

References:

1. Dementia Australia (2018). Dementia Prevalence Data 2018-2058, commissioned research undertaken by NATSEM, University of Canberra. https://www.dementia.org.au/files/documents/2018-2058%20Prevalence%20CED_AUSTRALIA_alph

FRIDAY 14 JUNE 2019

12.00 PM TO 1.00 PM

DR HELEN MACPHERSON

Deakin University

Dementia Prevention Special Interest Group

This round table will form the basis of an Australian Dementia Prevention Special Interest group. We will provide an update on the scope of research relevant to prevention in Australia. Opportunities to apply for funding, harmonise data sets and prepare a position paper will be explored. We will discuss avenues to disseminate research outcomes via initiatives of the International Research Network on Dementia Prevention (IRNDP).

PROGRAM

THURSDAY 13 JUNE 2019			
0700	Registration desk opens		
JOINT OPENING SESSION			
PLENARY SESSION 1			
0815	Introduction to Plenary – ADF2019 Convenor, Associate Professor Anna King		
0820	Welcome to Country – Rodney Dillon		
0830	Opening Address – Ita Buttrose AO, OBE		
0840	Opening Address – Kevyn Morris, Dementia Advocate		
0850	**Keynote Address** **Professor Carol Brayne CBE, University of Cambridge** ***Contemporary populations and dementia, what have we learnt and where are we headed?***		
0940	Panel Discussion: *Dementia Research in Australia: Past, present & future* – Introduction by Janice Besch, Director, NHMRC National Institute for Dementia Research Facilitated by Maree McCabe, CEO Dementia Australia Panel members: Ita Buttrose AO, OBE, Professor Graeme Samuel AC, Glenn Rees, Associate Professor Anna King, Lucy O'Flaherty, John Quinn and Glenys Petrie		
MORNING TEA			
PARALLEL SESSIONS 1			
	Communities and Dementia	**Clinical Assessment**	**New insights into dementia risk factors**
Chairs	Dr Lyn Phillipson	Associate Professor Adam Vogel and Dr Fiona Kumfor	Associate Professor Michele Callisaya and Dr Chris Moran
1100 – 1115	*Moving Pictures; Raising awareness of dementia in CALD communities through multimedia* Associate Professor Bianca Brijnath	*Delusions in neurodegenerative disorders: Insights into the prevalence, nature and neurocognitive mechanisms* Dr Fiona Kumfor	*Cardiovascular risk associated with poorer memory in middle-aged adults from the Healthy Brain Project* Dr Yen Ying Lim
1115 – 1130	*The dementia knowledge of the Tasmanian community* Dr Claire Eccleston	*Predicting diagnostic change over 6 years using subjective cognitive complaints in the Memory and Ageing Study* Dr Katya Numbers	*Pericyte and vascular changes are associated with the development of amyloid pathology and ageing* Miss Catherine Foster
1130 – 1145	*Delivering an evidence-based dementia rehabilitation program using telehealth* Dr Kate Laver	*The TICS-M telephone cognitive screen: Validation and norms from the Sydney Memory and Ageing Study* Dr Adam Bentvelzen	*Metformin use and risk of Alzheimer's disease among community-dwelling people with diabetes* Dr Janet Sluggett
1145 – 1200	*"Not a robot, because it's so impersonal" technology perspectives of people living with dementia* Dr Jacki Liddle and Mrs Eileen Taylor	*Associations between cognitive function and gait under three dual-task conditions* Miss Oshadi Jayakody	*The relationship between adherence to Australian dietary guidelines and brain health in older people* Miss Fateme Zabetiantarghi
1200 – 1215	*An Environment Assessment Tool for use by people with dementia* Mr Dennis Frost	*Is assessment of executive functions useful in the diagnosis of dementia?* Associate Professor Gail Robinson	*Effects of ageing, sex and menopause on total brain volume* Dr Stephanie Than
LUNCH			
Poster Session *(from 1245)* **Priority Areas: Assessment and Diagnosis, Intervention and Treatment, Prevention**			

PARALLEL SESSIONS 2			
	Residential Aged Care	**Neuroscience**	**Living with dementia**
Chairs	Dr Dina LoGiudice and Associate Professor Lyn Goldberg	Dr Brad Sutherland and Associate Professor Lezanne Ooi	Dr Helen Courtney-Pratt and Ms Kate Lawler
1345 – 1400	*Practical issues in intervention research in residential aged care facilities: Insights from the BPSDplus project* Dr Moyra Mortby	*Brain iron is associated with accelerated cognitive decline in people with Alzheimer pathology* Dr Scott Ayton	*Effective involvement of people living with dementia in research – supported participation* Mrs Theresa Flavin
1400 – 1415	*Challenges in undertaking ethnographic research in a secure dementia-care unit* Ms Andrea Price	*Autophagy-lysosomal-protein changes in late-stage pathologically-confirmed human post-mortem brains of Alzheimer's compared with Lewy body diseases* Dr Siva Purushothuman	*Whose values are relevant in dementia quality of life? A comparative analysis of preference elicitation* Dr Kim-Huong Nguyen
1415 – 1430	*Innovations in monitoring health and medications of people with dementia in residential aged care facilities* Dr Kim Lind	*Using patient monocyte-derived microglia to personalize treatment for Alzheimer's disease* Associate Professor Anthony White	*Expectations for the future in people with dementia: An exploration of their care partners' understandings* Ms Sheridan Read
1430 – 1445	*Do acetylcholinesterase inhibitors prevent or delay psychotropic prescribing in people with dementia?* Dr Edwin Tan	*Late-life environmental enrichment preserves short-term memory and may attenuate microglia in male APP/PS1 mice* Dr Jenna Ziebell	*Involving those with the lived experience in dementia research means we all win* Mrs Bobby Redman
1445 – 1500	*Providing optimal nutrition in residential aged care: The role of staff and family knowledge* Dr Emma Lea	*IU1, a selective inhibitor of deubiquitinating enzyme USP14 inhibits Aβ toxicity in neuronal cells* Dr Prashant Bharadwaj	*Consumer perspectives: How younger onset dementia impacts workforce participation during onset and progression of symptoms* Ms Catherine Andrew and Mr Phil Hazel
1500 – 1515	*Residential respite care associates with lower likelihood of using long-term care for people with dementia* Dr Stephanie Harrison	*Oligodendrocytes in the motor cortex from patients with ALS have an RNA trafficking deficit* Dr Samantha Barton	*Better understanding quality of care - capturing the voice of people living with dementia* Ms Madeleine Gardam
AFTERNOON TEA			
PLENARY SESSION 2			
1545	Introduction to Plenary – Professor John McNeil		
1550	**Keynote Address:** **Dr Jeff Williamson, Wake Forest University School of Medicine** ***Intensive v. Standard Blood Pressure Control for the Prevention of Dementia: SPRINT MIND***		
1640	Academic Debate: *APOE gene status – to know or not to know* Moderated by Dr Maree Farrow, University of Tasmania Speakers: Professor Kaarin Anstey, Neuroscience Research Australia; Dr Jo Burke, Tasmanian Clinical Genetics Service; Dr Tony Cook, University of Tasmania, and Professor Ralph Martins AO, Edith Cowan University & Macquarie University		
1730	**DAY 1 PROGRAM CONCLUDES**		
WELCOME RECEPTION **1800 -2000** **Hobart Function and Conference Centre**			

FRIDAY 14 JUNE 2019			
0700	Registration desk opens		
PLENARY SESSION 3			
0825	Introduction to Plenary – Professor Elizabeth Beattie		
0830	**Keynote Address** **Dr Margaret Dudley, University of Auckland** ***Māori and Dementia***		
0920	Dementia research impact stories: Professor Ashley Bush, Professor James Vickers and Associate Professor Belinda Goodenough		
MORNING TEA			
PARALLEL SESSIONS 3			
	Health of Aboriginal and Torres Strait Islander peoples	**Genetics and Biomarkers**	**Risk, prevention and public perceptions**
Chairs	Aunty Patsy Cameron and Professor James Vickers	Dr Carole Dobson-Stone and Dr Matthew Kirkcaldie	Dr Maree Farrow and Professor Kaarin Anstey
1045 – 1100	*Identifying the cognitive care needs of older Aboriginal and Torres Strait Islander people* Dr Jo-anne Hughson	*Neurofilament light chain in neuropsychiatric and neurodegenerative disorders: A 'C-Reactive protein' for the brain?* Dr Dhamidhu Eratne	*Examining the predictors of 'dementia worry' in a community sample* Dr Shannon Klekociuk
1100 – 1115	*A best-practice guide to dementia care in Aboriginal and Torres Strait Islander primary health care* Dr Mary Belfrage	*Age and gender-specific changes to sphingolipid metabolism may sensitise brain regions to neurodegeneration* Dr Timothy Couttas	*Motivations, obstacles and increasing engagement in online studies of Alzheimer's disease: the Healthy Brain Project* Miss Alexandra Lavale
1115 – 1130	*Items of the Good Spirit, Good Life quality of life tool for older Aboriginal Australians* Dr Kate Smith and Mr Harry Douglas	*Genetic findings from the Dominantly Inherited Non-Alzheimer's Disease (DINAD) Study* Associate Professor John Kwok	*The effect of a six-month high-intensity exercise intervention on verbal learning and memory* Dr Belinda Brown
1130 – 1145	*The Preventing Dementia Massive Open Online Course (PD MOOC): Contribution to Indigenous health and wellbeing* Ms Dianne Baldock	*Hippocampal volume associated with object-location memory impairment in Huntington's disease* Dr Yifat Glikmann-Johnston	*Impact of a randomized controlled trial to reduce sitting on cognitive function in older people* Dr Paul Gardiner
1145 – 1200	*Promoting dementia awareness and prevention across the life course with Aboriginal communities* Dr Kylie Radford	*A novel causative gene for frontotemporal dementia – amyotrophic lateral sclerosis* Dr Carol Dobson-Stone	*Circadian rhythmicity relates to neuropsychological and neuroimaging markers in older people at risk for dementia* Professor Sharon Naismith
LUNCH			
Poster Session (*from 1230*) **Priority Areas: Care and Living with Dementia**			

PARALLEL SESSIONS 4				
	Dementia Care Services	**Clinical Interventions**	**Public Information Session**	
Chairs	Dr Kathleen Doherty and Ms Laura Tierney	Dr Juanita Westbury	Professor James Vickers	
1330 – 1345	*Do psychosocial work characteristics predict turnover intentions of aged and dementia care workers in Australia?* Dr Kate-Ellen Elliott	*A pilot cluster RCT of an Alzheimer's family caregiver intervention in Hanoi, Vietnam: REACH VN* Dr Tuan Anh Nguyen	1330 - 1335	*Introduction to session* Dr Maree Farrow
1345 – 1400	*Social participation and wellbeing of older adults with dementia in community aged care* Dr Joyce Siette	*Dementia Stigma Reduction (DESeRvE): Randomised controlled trial to reduce dementia-related stigma in the general public* Dr Sarang Kim	1335 - 1350	*Brain training: Cochrane Review on cognitive training in dementia* Dr Alex Bahar-Fuchs
1400 – 1415	*Provider perspectives on consumer directed care: Facilitators and tensions in supporting people with dementia* Dr Lyn Phillipson	*Addressing inappropriate medication use in people with dementia: A role for pharmacists in memory clinics?* Mrs Amanda Cross	1350 - 1405	*Blood pressure and dementia* Dr Jeff Williamson
1415 – 1430	*Family-assisted therapy for people living with dementia: A systematic review and meta-analysis* Dr Katherine Lawler	*CogStep: A combined psycho-education and home-based exercise program for individuals with early stage Alzheimer's disease* Dr Shantel Duffy	1405 - 1420	*Sleep and dementia* Professor Sharon Naismith
1430 – 1445	*Using administrative data to understand the health profile of people with less common dementias* Dr Rachael Cvejic	*Invasive experimental brain surgery for dementia: Ethical shifts in clinical research practices* Dr Frédéric Gilbert	1420 - 1435	*Physical activity and dementia* Dr Michele Callisaya
1445 – 1500	*Transitions through aged care in the last five years of life among those with dementia* Dr Heidi Welberry	*Early recognition and management of neuropsychiatric symptoms to improve quality of life in Alzheimer's disease* Dr Willem Eikelboom	1435 - 1450	*Public involvement in dementia research* Mrs Jane Thompson
			Q&A	
AFTERNOON TEA				
PLENARY SESSION 4				
1530	Introduction to Plenary Session – Ms Janice Besch			
1535	**Keynote Address** **Dr Elizabeth Coulson, Clem Jones Centre for Ageing Dementia Research** ***Obstructive sleep apnoea as a risk for Alzheimer's disease: what a mouse models tells us***			
1625	*A participant reflection of clinical dementia research* - Eileen and Dubhglas Taylor *The Australian Dementia Network* – Professor Christopher Rowe *Diagnosing non-Alzheimer dementias known as DiNAD* - Professor Glenda Halliday			
1715 - 1730	**Award presentation and Closing**			

KEYNOTE SPEAKERS

Professor Carol Brayne CBE

Professor Carol Brayne is Professor of Public Health and Epidemiology at the University of Cambridge

Professor Brayne is lead principal investigator in the group of MRC CFA Studies which have informed and will continue to inform national policy and scientific understanding of dementia in whole populations. She has been responsible for training programmes in epidemiology and public health for under and postgraduates since the early nineties.

Dr Jeff Williamson MD

Jeff D. Williamson, MD, MHS is Professor of Internal Medicine and Epidemiology and Chief, Section on Gerontology and Geriatric Medicine at Wake Forest University School of Medicine.

Dr. Williamson's primary research interests are in understanding relationships between chronic diseases such as hypertension and diabetes and maintaining brain health and physical function in aging adults, the prevention of aging-related loss of independence, and in developing research methods for including elderly persons in clinical trials. His most recent work is in developing and testing approaches to improving care coordination for vulnerable elderly patients as they traverse the health care system. Dr. Williamson is currently serving on the leadership team for 3 nationwide research studies funded by the National Institutes of Health. Altogether, his NIH research studies have involved more than 30,000 adults over age 65 and 15,000 persons over age 75.

Dr Margaret Dudley

Dr Dudley teaches cultural competence and neuropsychology at the University of Auckland.

Her interests include cognition and the ageing brain, and increasing the Māori workforce capacity in the mental health sector. Dr Dudley leads a large research project to develop a theory and diagnostic tool for dementia in Māori. She firmly believes the interface of science and mātauranga Māori is the way forward for a better world for Māori and New Zealand as a whole.

Professor Lizzie Coulson

Professor Coulson is Group Leader in dementia research at Clem Jones Centre for Ageing Dementia Research, and a founding member of the Queensland Brain Institute.

Professor Coulson's career has focused on understanding the molecular mechanisms regulating neuronal survival and death, with a view to translating these findings into treatments for neurodegenerative diseases, in particular Alzheimer's disease and motor neuro ne disease. Professor Coulson has also investigated the connection between disturbed sleep and cognitive decline in people living with Alzheimer's disease.

PRESENTATION ABSTRACTS

Prevention

DIANNE BALDOCK

Wicking Dementia, Research and Education Centre

The Preventing Dementia Massive Open Online Course (PD MOOC): Contribution to Indigenous Health and Wellbeing

Ms Dianne Baldock[1], Associate Professor Lynette Goldberg[2], Professor James Vickers[2]

[1]Circular Head Aboriginal Corporation, Smithton, Australia, [2]Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, Australia

Dementia is a global public health issue. Indigenous people are at increased risk due to complex intergenerational factors grounded in inequality in health services and economic and educational opportunities. While there remains no drug-related cure for this progressive neurological condition, evidence confirms that increased understanding of dementia and modification of lifestyle factors can reduce risk. The primary risk factors that are potentially modifiable are: not completing secondary school, midlife hypertension, obesity, type II diabetes, depression, physical inactivity, smoking, hearing loss acquired after the age of 55 years, and social isolation. Addressing these modifiable factors globally could prevent or delay over 40 million cases of dementia. The free Preventing Dementia Massive Open Online Course (PD MOOC) is a globally-recognised 5-week course that aims to build self-efficacy in knowledge and management of modifiable risk factors. The course has reached over 68,000 people world-wide and is rated highly; however, its contribution to Indigenous communities has not yet been investigated. We report on the impact of the PD MOOC in a cohort of 16 Indigenous people (20-65 years of age) in Circular Head, Tasmania. All had completed secondary school. Prior to the course, participants' identified risk factors were, in order: depression; midlife hypertension; physical inactivity; acquired hearing loss; smoking; obesity; and social isolation. No participant had diabetes. Six months after the course, all reported they were working to reduce their identified risk factors and described how. Most found the course understandable and respectful but suggested additional content about dementia prevention in Indigenous communities.

DR BELINDA BROWN

Murdoch University

The effect of a six-month high-intensity exercise intervention on verbal learning and memory

Dr Belinda Brown[1], Mrs Natalie Castalanelli[2], Dr Stephanie Rainey-Smith[3], Dr James Doecke[4], Dr Michael Weinborn[2], Dr Hamid Sohrabi[3], A/Professor Simon Laws[3], Professor Ralph Martins[3], A/Professor Jeremiah Peiffer[1]

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Although extensive evidence exists to support the use of exercise to maintain cognitive health, little is known about the type of exercise that is of greatest benefit to the brain. We investigated the role of a six-month high-intensity exercise intervention on verbal learning and memory in a group of cognitively normal older adults.

Men and women (60-80y) were randomised to either six-months of high-intensity exercise (n=33), moderate-intensity exercise (n=34) or control (n=32). All participants underwent fitness testing and verbal learning and memory assessment using the California Verbal Learning Test (CVLT) pre- and post-intervention. We evaluated group differences on CVLT performance pre- to post-intervention, and, in the exercise groups, whether changes in fitness were associated with changes in cognition from pre- to post-intervention.

No differences were observed across groups in terms of performance on the CVLT from pre- to post-intervention. Nevertheless, when evaluating the role of fitness in modulating cognition, we observed an Association between increases in fitness and improvements on CVLT learning (F=7.30, p=0.009). Post-hoc exploratory analyses revealed the Association between changes in verbal learning and changes in fitness were only evident in apolipoprotein ε4 allele carriers (genetic risk-factor for Alzheimer's disease).

Although no changes in verbal learning and memory were observed from pre- to post- exercise intervention, our results suggest increases in cardiorespiratory fitness in response to exercise may play a role in inducing cognitive change. In addition, our findings indicate apolipoprotein ε4 carriers may receive the greatest cognitive benefit from increases in cardiorespiratory fitness.

DR PAUL GARDINER

University Of Queensland

Impact of a randomized controlled trial to reduce sitting on cognitive function in older people

Dr Paul Gardiner[1], Ms Lily Grisby-Duffy[1], Mr Adam Novic[1], Dr Maike Neuhaus[1], Dr Lucy Lewis[3], Dr Amber Watts[6], Professor Nicola Lautenschlager[5], Professor Kaarin Anstey[4], Dr Dori Rosenberg[2]

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This study aimed to evaluate the impact on cognitive function of an intervention targeting reducing and interrupting prolonged sitting compared with usual practice.

42 inactive pre-frail/frail older people were recruited from a seniors centre and randomized to intervention or usual care. The 12-week REduce Sitting to improve Cognitive fUnction in Elders (RESCUE) program was delivered by a health coach in one face-to-face and five telephone sessions. The intervention group completed a workbook during the sessions with the health coach and received printed feedback on device-measured sitting at their initial session. Primary outcome was cognitive function (California Verbal Learning Test and Trail Making Test)

with secondary outcomes of sitting, standing, stepping (activPAL). Analysis was by linear mixed models.

At baseline, participants (88% women; mean±SD age = 80±7 years; MMSE = 29.1±1.0) sat for 607±135 minutes, stood for 258±104 minutes, and stepped for 68±28 minutes of their waking hours. 19 participants completed each condition. There was no intervention effect for the California Verbal Learning Test -0.3 (95%CI: -1.7, 1.0) words. Intervention effects, favouring intervention group, were observed for Trail Making A test -7.3 (-13.7, -1.0; baseline = 43.4±17.7) seconds; Trail Making B test -20.2 (-37.9, -2.5; baseline = 131.3±57.5) seconds; daily sitting accrued in bouts longer than 30 minutes -57.8 (-111.3, -4.2) minutes/day, standing 36.7 (7.3, 65.7) minutes/day; and, stepping 8.5 (2.8, 14.3) minutes/day.

RESCUE successfully reduced prolonged sitting time and positive changes were observed for visual attention and task switching but not verbal learning and memory.

DR SHANNON KLEKOCIUK

Wicking Dementia Research and Education Centre

Examining the predictors of 'dementia worry' in a community sample

Dr Shannon Klekociuk[1], Dr Claire Eccleston[1], Mr Aidan Bindoff[1], Dr Maree Farrow[1]
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Dementia worry (DW) is an emerging phenomenon which describes a state of concern or anxiety related to the development of dementia. Factors Associated with high levels of DW are family exposure to dementia, subjective cognitive complaints, being younger, being female, and having less knowledge about dementia, although findings are inconsistent. Participants from the 2016 Preventing Dementia Massive Open Online Course (n= 3323, mean age= 51, 91% female) completed a suite of surveys aimed at quantifying their level of DW, as well as their dementia knowledge, psychological status, and exposure to dementia. The regression model was significant, explaining 24% of the variance in DW $F(17, 3305) = 63.1$, $p < .001$, $R2 = .24$). Subjective memory rating (past two years) was a significant predictor, with memory decline predicting higher DW scores (B = 3.6), whereas memory improvement predicted lower scores (B = -.27), when compared to reports of no change in function. Similarly, those who rated their current memory as "Poor" (B = 25.0) scored higher on the DW scale than participants who rated their memory as "Excellent" (B = 14.6). Positive family exposure ($F(1, 3305) = 39.3$, $p <.001$) had a moderate positive impact on DW (B = 1.5). Overall, poor subjective appraisal of memory function (past and present) and family exposure to dementia appear to be the most influential on level of DW. It may be possible to reduce DW in the community by helping people appraise their memory appropriately, particularly for those who have family members with dementia.

MISS ALEXANDRA LAVALE

The Florey Institute of Neuroscience and Mental Health

Motivations, Obstacles and Increasing Engagement in Online Studies of Alzheimer's disease: the Healthy Brain Project

Alexandra Lavale[1], Lisa Bransby[1], Christa Dang[1,6], David Baxendale[1], Rachel Buckley[1,3,4,5], Matthew Pase[1], Nawaf Yassi[1,2], Yen Ying Lim[1]

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Alzheimer's disease (AD) remains clinically silent for decades despite abnormal accumulation of AD proteinopathies. Many studies recruit middle-aged adults to characterise disease presentation in this very early stage. As AD is considered a disease of aging, the continued engagement of middle-aged adults in such studies can be challenging. One method involves using online platforms to recruit, monitor and assess participants. We surveyed a large sample of middle-aged adults with family histories of dementia to understand their motivations for participation, obstacles to continued participation, and methods of increasing engagement in online studies.

953 cognitively normal adults aged 40-70 with a family history of dementia were asked about their motivations, obstacles impeding participation, and methods of increasing future engagement.

Common participation obstacles were time commitment (42%), inconvenience (28%), and unawareness of opportunities to participate (28%). Most common reasons for participating were family history of dementia (51%) and wanting to help advance AD research (45%). Participants indicated that personalised progress reports (84%) and reminder emails (64%) would facilitate engagement. Most participants were willing to provide a saliva sample (83%), undergo neuroimaging and blood assessments (~74%). Most participants (73%) would like to receive testing results even if their utility strictly pertains to research.

Our results uncover factors that motivate middle-aged adult participation in AD research. They also support online platform use as a recruitment tool for detailed biomarker assessments. Given the interest in individualised test results, future research is directed to understanding the ethical implications and best-practise methods of disclosure.

DR YEN YING LIM

The Florey Institute of Neuroscience and Mental Health

Cardiovascular Risk Associated with Poorer Memory in Middle-Aged Adults from the Healthy Brain Project

Dr Nawaf Yassi[1,2], Dr Rachel Buckley[1,3,4,5], Dr Matthew Pase[1], Dr Yen Ying Lim[1]

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Midlife cardiovascular risk is Associated with worse cognition and increased risk of dementia in late-life. We aimed to use remote online assessment of cognition and cardiovascular risk in a large group of middle-aged adults to further investigate this Association.

The Healthy Brain Project is an online cohort of middle-aged adults (40-70 years) with a family history of dementia who have undergone cognitive assessment, and self-reported demographic, medical and health history. Cardiovascular risk was determined by combining history of hypertension, hypercholesterolaemia, diabetes mellitus, obesity (body mass index ≥ 30), and current cigarette smoking. Each item contributed a score of 1 (maximum score of 5). Participants were grouped into at-risk (n=273) if their score was ≥2 and low-risk (n=1214) if their score was ≤1. We also explored the effect of each cardiovascular risk component on memory. Age, sex and education were included as covariates.

The at-risk group performed worse on learning and memory than the low-risk group (p=.024, Cohen's d=0.14). Groups did not differ on psychomotor function, complex attention, or working memory (all p's>.13; all d's<0.10). Individually, only obesity (β=-0.174, p=.039) and current cigarette smoking (β = -0.638, p = .001) were Associated with poorer memory.

The presence of at least two cardiovascular risk factors was Associated with poorer memory performance. Our results indicate that obesity and current cigarette smoking were the strongest contributors to this Association. These results suggest that remote online assessment of cardiovascular risk is Associated with poorer memory performance in cognitively normal middle-aged adults.

PROFESSOR SHARON NAISMITH

Healthy Brain Ageing, Brain and Mind Centre, University of Sydney

Circadian Rhythmicity Relates to Neuropsychological and Neuroimaging Markers in Older People at Risk for Dementia

Professor Sharon Naismith[1], Mr Jonathon Pye[1], Mr Jake Palmer[1], Dr Shantel Duffy[1]

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Changes in circadian regulation of the sleep-wake cycle occur with ageing and may be linked to neurodegeneration. It is unclear the extent to which such changes are evident in mild cognitive impairment (MCI), and how they relate to neuropsychological functioning, the integrity of key temporal lobe structures and longitudinal decline.

334 older individuals with subjective cognitive impairment (SCI) and MCI underwent neuropsychological, clinical and wrist-worn actigraphic assessments. Sixty individuals also underwent neuroimaging. Non-parametric circadian rhythm analysis was performed from raw activity counts to obtain intradaily variability, interdaily stability, and activity during the least and most active 5-hours and 10-hours of the day. Cosinor methods were used to derive amplitude, mean, and variability of the rest-activity rhythm. Cortical thickness of the entorhinal cortex and hippocampal volume were derived. Ninety individuals had 2-year longitudinal follow-up data from which memory decline scores were computed.

Compared to SCI, MCIs showed significantly greater intradaily variability, lower activity amplitude across the circadian period, and lower activity during the most active 10-hour period. Across both groups, circadian disruption was significantly associated with poorer verbal memory, visuospatial memory and confrontation naming. Lower activity amplitude was Associated with reduced entorhinal cortex thickness. Longitudinally, greater activity during the least active 5-hours of the day was significantly associated with memory decline.

Rest-activity cycle disruptions relate to memory and language decline cross-sectionally, memory decline longitudinally, and degeneration of key temporal brain regions. Such cycle alterations may represent a preclinical or prognostic marker for dementia and may warrant intervention.

DR KYLIE RADFORD

Neuroscience Research Australia (Neuroscience Research Australia)

Promoting dementia awareness and prevention across the life course with Aboriginal communities

Kylie Radford[1,2], Wendy Allan[1], Terrence Donovan[1], Alison Timbery[1], Kylie Sullivan[1], Margaret Anderson[1], Madeleine Nichols[1], Louise Lavrencic[1]

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Increasing numbers of Aboriginal and Torres Strait Islander Australians are living to old age, at which time life expectancy is similar to non-Indigenous Australians. Despite relatively high rates of dementia, the majority of older Aboriginal Australians do not have dementia or cognitive decline and many are ageing well. The Sharing the Wisdom of Our Elders project focuses on their experiences and knowledge to develop culturally meaningful and strength-based resources to raise awareness of healthy ageing and dementia prevention with Aboriginal people of all ages. This project identified

factors (themes) for "growing old well" using a grounded theory approach to analyse responses to an open-ended interview question from the Koori Growing Old Well Study follow-up (KGOWS; N=165). We then invited submissions from local artists to visually represent the major themes and stories. Themes and artworks were combined with population level data from KGOWS baseline life course health and wellbeing survey (N=336), to produce engaging evidence-based health promotion resources. Key 'ageing well' themes from the perspectives of older Aboriginal people included: connections to Culture; resilience; living a good respectful life; keeping healthy to live a long life; saying no to smoking, drugs and alcohol; respect for Elders and all the mob; and lifelong education. Mounting evidence indicates that dementia prevention needs to start from mid-life or younger, but effectively translating this message can be challenging. This project recognizes the cultural significance and wisdom of Elders to help raise awareness of dementia and promote dementia prevention across the life course with Aboriginal communities.

DR JANET SLUGGETT

Monash University

Metformin use and risk of Alzheimer's disease among community-dwelling people with diabetes

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Type 2 diabetes has been linked to increased dementia risk. Existing research suggests metformin use may be Associated with an increased risk of Alzheimer's disease (AD). We investigated whether metformin use modifies the Association between diabetes and incident AD.

A case control study nested within the Medication Use and Alzheimer's disease (MEDALZ) study was undertaken. Cases were all community-dwelling Finns with a verified AD diagnosis from 2005-2011, and with diabetes diagnosed ≥3 years prior to AD. Cases were matched with up to 2 controls by age, sex and diabetes duration. We determined metformin exposure from dispensings between 1995 and up to 3 years prior to AD diagnosis. Conditional logistic regression was used to estimate Associations, with adjustment for potential confounders.

9862 cases and 19550 controls with a median age of 81 years were included. Metformin use (ever use) was not Associated with incident AD. The adjusted odds of incident AD were lower among people dispensed metformin for ≥10 years (adjusted odds ratio (OR) 0.85, 95% CI 0.76-0.95), dispensed cumulative defined daily doses (DDDs) of <1825-3650 (aOR 0.91, 95% CI 0.84-0.98) and >3650 DDDs (aOR 0.77, 95% CI 0.67-0.88), and among persons dispensed an average of 2g metformin daily (aOR 0.89, 95% CI 0.82-0.96).

Our findings suggest metformin does not increase the risk of AD, with long-term and high-dose use Associated with a lower risk of AD. The apparent Association with increased AD risk in previous studies may reflect medication exposure assessment too close to the outcome.

DR STEPHANIE THAN

Monash University

Effects of ageing, sex and menopause on total brain volume

Dr Stephanie Than[1,2], Dr Chris Moran[1,2,3], Associate Professor Richard Beare[1,4], Dr Wei Wang[1], Adjunct Clinical Associate Professor Amanda Vincent[5,6], Professor Velandai Srikanth[1,2,7]

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Greater age and female sex are risk factors for dementia. Menopause is Associated with cognitive dysfunction and may contribute to dementia risk. Previous work has considered the effects of ageing and menopause as additive. We aimed to study whether ageing and menopause interact to amplify each other's effect on imaging biomarkers of dementia.

Cross-sectional study of participants with detailed structural brain magnetic resonance imaging data from the UK Biobank, a community-based cohort over 40 years of age in the United Kingdom. Using linear regression modelling, we explored the Associations of age, sex and menopausal status with total brain volume (TBV), examining for interactions, and adjusting for APOE4 status.

Data were available for 1824 postmenopausal women, 233 premenopausal women and 2165 men (median age 63.3, range 44.6–78.0 years). There was an interaction between sex and age ($p<0.01$) such that the negative Association of age with TBV was greater in women (β=-5.42, 95%CI:-5.75 to -5.10) than men (β=-4.74, 95%CI:-5.54 to -3.94). In women, there was an interaction between menopausal status and age ($p=0.01$) such that the negative Association of age with TBV was greater in post-menopausal women (β=-5.89, 95%CI:-6.33 to -5.45) than pre-menopausal women (β=-2.87, 95%CI:-5.70 to -0.04). Use of hormonal replacement therapy did not significantly alter this relationship.

Increasing age, female sex, and the occurrence of menopause appears to have synergistic effects on TBV. Further work is required to understand the mechanisms driving these Associations, to develop ways to prevent or delay neurodegeneration and dementia.

MISS FATEME ZABETIANTARGHI

Menzies Institute for Medical Research

The Relationship between Adherence to Australian Dietary Guidelines and Brain Health in Older People

Miss Fateme Zabetiantarghi[1], Professor Velandai K Srikanth[1,2,3], Dr Kylie J Smith[1], Professor Wendy H Oddy[1], Dr Richard Beare[2,3], Dr Chris Moran[2,3], Dr Wei Wang[2], Dr Monique Breslin[1], Dr Michele L Callisaya[1,3]

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Cognitive dysfunction is common in older people, particularly among those with type 2 diabetes (T2D). Dietary Guidelines are evidence-based recommendations to promote health and wellbeing. Higher adherence to American Dietary Guidelines is Associated with better cognition and brain structure. However, it is unknown if greater adherence to Australian Dietary Guidelines (ADG) is Associated with lower cognitive dysfunction in people with and without T2D. The aims of this study were to 1) examine the relationship between adherence to ADG and both cognition and brain structure2) determine whether T2D modifies any Associations.

The Cognition and Diabetes in Older Tasmanians study consisted of 689 people (n=343 T2D) aged 55-90 years. The 80-items Cancer Council Food Frequency Questionnaire was used to assess dietary intake. Neuropsychological tests and magnetic resonance imaging were performed. A score was calculated to assess compliance with the 2013 ADG. General linear models were used to assess the Associations between ADG scores and cognitive z-scores adjusted for age, sex, education, mood and vascular risk factors including T2D. An interaction term with T2D and ADG scores was tested in the model.

The mean ADG score was 65.4 (SD 11.7) (range 24.1 to 95.0). No Associations were observed between adherence to ADG and cognition or brain structure. T2D did not modify any Associations (p>0.05).

This is the first study that investigates the Association between adherence to ADG and brain health. Future prospective studies are required to determine the long-term Associations between adherence to ADG and brain health.

DR JENNA ZIEBELL

Wicking Dementia Research and Education Centre

Late-life environmental enrichment preserves short-term memory and may attenuate microglia in male APP/PS1 mice

Dr Kimberley Stuart[1], DR Anna King[1], Ms Natalie King[2], Dr Jessica Collins[1], Dr James Vickers[1], **Dr Jenna Ziebell**[1]

Wicking Dementia Research and Education Centre, College of Health and Medicine, University of Tasmania, Hobart, Australia, [2]School of Medicine, College of Health and Medicine, University of Tasmania, Hobart, Australia

Environmental enrichment (EE) has been consistently reported to enhance cognitive function in mouse models of neuropathology. Microglia, the immune cells of the brain, have recently been implicated in AIzheimer's disease pathology (AD) to unknown effect. The aim of the present study was to investigate the effect of EE on cognitive function and the potential role of microglia in mouse models of ageing and AD pathology. Male wild-type (Wt) and AD (APP/PS1) mice were randomly assigned to standard housing (SH) or EE from 12 to 18 months of age. Memory testing was performed using maze tasks. Immunohistochemical analysis of AD pathology (plaque load), and microglia function, location, and appearance was examined between conditions. AD mice housed in EE from 12 months of age, had improvements in their short-term memory, despite no reduction in their disease progression (plaque load). APP/PS1 mice in EE had significantly (p = 0.01) higher colocalization of Iba1 and CD-68 labelling, indicative of increased phagocytic microglia compared to mice from SH, which suggests improved functional capacity of microglia. AD mice in SH, had no improvements to their short-term memory, but had an increased immunoreactivity for microglia in their neocortex and hippocampus relative to WT animals. The findings of the present study suggest that EE after substantial disease progression, has the potential to preserve domains of cognitive function, but does not affect AD pathology (plaque load). The current study demonstrates that EE may attenuate microglia in ageing APP/PS1 mice, and may promote alterations in cellular phenotype.

Assessment and Diagnosis

DR MARY BELFRAGE

University Of Melbourne

A best-practice guide to dementia care in Aboriginal and Torres Strait Islander primary health care

Dr Mary Belfrage[1], **Dr Jo Hughson[1], Professor Leon Flicker[2], Dr Kate Smith[2], Professor Dawn Bessarab[2], Professor David Atkinson[3], Professor Sandra Thompson[4], Dr Kylie Radford[5,10], A/Professor Edward Strivens[6,8], Adjunct Professor Mark Wenitong[7], Professor Dimity Pond[11], A/Professor Dina LoGiudice[1,9]**

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This presentation will describe the development of a best-practice guide to cognitive impairment and dementia care in Aboriginal and Torres Strait Islander primary health care settings. The guide has been developed as part of the Let's CHAT (Community Health Approaches To) Dementia study which is a randomised control trial based in 12 Aboriginal Community Controlled Health Services throughout Australia, with the aim of optimising detection and management of cognitive impairment and dementia in Aboriginal and Torres Strait Islander populations.

The guide aims to embed cultural principles and key elements of service design in the translation of clinical evidence into health care that is effective in improving health outcomes.

Consensus about cultural and clinical components of the guide was reached through a modified Delphi process and other consultations. The modified Delphi process involved 2 separate surveys (Round 1 and 2) sent to 60 people. Invitees represented wide-ranging perspectives, experience and expertise including: Aboriginal, Torres Strait Islander and non-Indigenous; urban, rural/regional and remote; and clinicians and researchers with relevant experience and expertise in domains of dementia and geriatrics, primary health care, population health, palliative care, and Aboriginal & Torres Strait Islander culture. There were 39/60 respondents in Round 1 with =/> 80% Strongly agree or Agree being accepted as consensus. Round 2 addressed areas that had not reached consensus or that needed greater refinement.

An overview of key sections of the guide will be presented including health promotion and prevention, detection, and dementia care including carer health and wellbeing.

DR ADAM BENTVELZEN

Centre For Healthy Brain Ageing (CHeBA), University Of New South Wales

The TICS-M telephone cognitive screen: Validation and norms from the Sydney Memory and Ageing Study

Dr Adam Bentvelzen[1], Dr John Crawford[1], Mr Adam Theobald[1], Ms Kate Maston[2], Dr Melissa Slavin[3], Dr Simone Reppermund[1,3], Dr Kristan Kang[1], Dr Katya Numbers[1], Dr Henry Brodaty[1,4], Dr Perminder Sachdev[1], Dr Nicole Kochan[1]

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Phone-based cognitive screens such as the Telephone Interview for Cognitive Status (TICS) can potentially reduce the barriers and costs of assessing cognition in older adults. Existing normative data for the TICS may lack sensitivity as previous studies have not used regression-based demographic corrections, accounted for cases with subsequent dementia, or estimated reliable change in a large and comprehensively assessed sample of older adults. Furthermore, validation of clinically-relevant psychometric properties is lacking. Here, we address these gaps using the TICS-M (modified 13-item, 39-point version) and provide an online norms calculator for clinicians and researchers. Participants were 617 community-living older adults aged 71 to 91 participants from the Sydney Memory and Ageing Study (M = 79.66 years, 11.72 years of education). TICS-M total scores (M = 24.20, SD = 3.76) decreased with age and increased with higher education levels. The robust normative sample, which excluded incident dementia cases, scored higher on the TICS-M and with less variability than the whole sample, particularly at older ages and lower educational levels. An online calculator https://cheba.unsw.edu.au/research-groups/neuropsychology is provided to compute regression-based norms and reliable change statistics. TICS-M scores correlated more highly with ACE-R (.80) than with MMSE (.70) and showed moderate-strength correlations (r ≥ .30) with neuropsychological tests despite the latter being tested non-contemporaneously. Overall, the TICS-M demonstrated sound validity against well-established and diagnostically sensitive cognitive screens and neuropsychological tests. The regression-based and robust normative data provided will help improve the sensitivity, accessibility and cost-effectiveness of cognitive testing with older adults.

DR TIMOTHY COUTTAS

Centenary Institute

Age and gender-specific changes to sphingolipid metabolism may sensitise brain regions to neurodegeneration

Dr Timothy Couttas[1,3], Dr Nupur Kain[3], Mr Collin Tran[1,3], Dr Zac Chatterton[2], Associate Professor John Kwok[2], Associate Professor Anthony Don[1,2,3]

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The major risk factors Associated with Alzheimer's disease (AD) are age and inheritance of the ε4 allele of the APOE gene, which encodes the lipid transporter protein, Apolipoprotein E (ApoE). This suggests a key involvement of lipid transport and metabolism in AD pathogenesis. Sphingolipids, are a class of lipids that exhibit alterations at the prodromal stages of AD, in both brain tissue and serum.

Our study investigated sphingolipids as a function of age and APOE genotype in neurologically normal subjects, aged 65 and over. Lipids were quantified from the hippocampus of post-mortem tissue (n = 80) using mass spectrometry. Significant changes to sphingolipids were observed as a function of age, and were gender-specific. Females had a pronounced decline in the S1P: sphingosine ratio (p = 0.0020). In contrast, males exhibited increases in ceramides (p = 0.0022), sulfatide (p = 0.0002) and sphingomyelin (p = 0.0045). No Association between lipids and APOE genotype was identified.

Previous literature has demonstrated AD progression is Associated with a decline in cerebral glucose utilisation, potentially caused by a loss of insulin receptors at synaptic membranes of the cerebral cortex and hippocampus. Ceramide is a metabolic sensor that drives the development of insulin resistance in liver and adipose tissue, whereas S1P is connected with increased glucose-stimulated insulin secretion. Our results establish gender-specific differences in sphingolipid metabolism in the aging human brain, both of which may contribute significantly to a pro-neurodegenerative phenotype in the aging brain.

DR CAROL DOBSON-STONE
University of Sydney

A novel causative gene for frontotemporal dementia – amyotrophic lateral sclerosis

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Frontotemporal dementia (FTD) and amyotrophic lateral sclerosis (ALS) are clinically and pathologically overlapping disorders with shared genetic causes. Numerous families exhibiting both disorders have been described, and most of them harbour C9orf72 repeat expansions. However, several C9orf72-negative FTD-ALS families remain and the genetic cause of their disease is unknown. We previously identified a disease locus on chromosome 16p12.1-q12.2 with genome-wide significant linkage in a large European Australian family with autosomal dominant inheritance of FTD-ALS and no mutation in known ALS or dementia genes [Dobson-Stone et al 2013, Acta Neuropathol 125:523-533]. We identified a missense mutation in a gene encoding a lysine-63 deubiquitinase (DUB), within this disease locus. We examined brain tissue of two mutation carriers from this family and observed widespread glial immunoreactivity of the DUB in frontal white matter. The mutant protein showed significantly increased DUB activity, more potent inhibition of the cell signaling molecule NF-kB, and impairment of autophagosome fusion to lysosomes, a key process in autophagy. Although mutations in this gene appear to be rare, it interacts with at least three other proteins encoded by FTD/ALS genes, suggesting that this DUB may play a central role in the pathogenesis of these disorders. Our study highlights the importance of autophagy regulation in the pathogenesis of FTD and ALS.

DR DHAMIDHU ERATNE
Melbourne Health

Neurofilament Light Chain in Neuropsychiatric and Neurodegenerative Disorders: A 'C-Reactive Protein' for the Brain?

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Neurofilament light (NfL) has shown promise as a biomarker for diagnosis, staging and prognosis in a wide range of neurological and neurodegenerative disorders. This study explored the utility of cerebrospinal fluid (CSF) NfL in distinguishing primary psychiatric disorders from neurodegenerative and neurological disorders, a common diagnostic dilemma for neurologists and psychiatrists.

This cross-sectional retrospective study assessed CSF NfL on patients referred to a tertiary neuropsychiatry service from 2009 to 2017 for diagnostic assessment of neuropsychiatric and neurocognitive symptoms, who received lumbar punctures as part of a comprehensive workup. The most recent gold standard clinical consensus diagnosis was categorised in to psychiatric disorder (PSY) or neurodegenerative or neurological disorder (NND). Data from healthy controls was available for comparison. Data extraction and diagnostic categorisation was blinded to NfL results.

129 participants were included: 77 NND (mean age 57 years), 31 PSY (mean age 51 years), 21 healthy controls (mean age 66 years). NfL was significantly higher in NND (M=3560pg/mL, 95% CIs=[2918, 4601]) compared to PSY (M=949pg/mL, 95% CIs=[830, 1108]) and controls (M=1036pg/mL, 95% CIs=[908, 1165]). NfL distinguished NND from PSY with an area under the curve of 0.94 (95% CIs=[0.89, 0.98]); a cut-off of 1332pg/mL was Associated with 87% sensitivity and 90% specificity.

CSF NfL shows promise as a diagnostic test to assist with the often challenging diagnostic dilemma of distinguishing psychiatric disorders from neurodegenerative and neurological disorders. Further studies are warranted to replicate and expand on these findings, including on plasma NfL.

DR YIFAT GLIKMANN-JOHNSTON
Monash University

Hippocampal volume Associated with object-location memory impairment in Huntington's disease

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Object-location memory impairment is a cognitive symptom of Huntington's disease (HD) that appears early in disease progression. Although object-location memory is considered a hippocampal-dependent function, in HD, cognitive symptoms are typically viewed as striatal-related because of the early and severe degeneration seen in this structure. As such, the striatum is the target of new treatment candidates, but the likelihood that striatal-focussed interventions will improve object-location memory is unknown. We aimed to determine the relationship between hippocampal integrity and object-location memory in HD while controlling for striatal atrophy.

We studied 25 peri-manifest HD, comprising participants up to 10 years to predicted clinical diagnosis (pre-HD) and participants with early manifest HD (sym-HD), and a comparison group of 32 matched controls. We examined object-location memory with Paired Associates Learning (CANTAB) and an experimental Virtual House task, and generated hippocampal and striatal volumes using T1-weighted MRI manual segmentations.

Object-location memory differed significantly between HD and controls ($p<0.002$), with sym-HD performing worse than pre-HD and controls. Hippocampal volumes did not differ significantly between HD and controls, but sym-HD had slightly smaller hippocampi than pre-HD and controls. Striatal volumes were lowered in the HD group compared to controls ($p<0.001$). Within the HD group, hippocampal, but not striatal volumes, were Associated with object-location memory ($p<0.01$).

Although previous cognitive studies in HD related impairments to frontostriatal systems, this study suggests that object-location memory is Associated with hippocampal integrity. New treatments that target the striatum may not expect to improve object-location memory.

DR JO-ANNE HUGHSON
University Of Melbourne

Identifying the cognitive care needs of older Aboriginal and Torres Strait Islander people

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Aboriginal and Torres Strait Islander people have high rates of cognitive impairment (CI) and dementia (D), a finding noted among other First Nations peoples. Primary health services are key to identifying and managing people with CI/D, however these conditions are often not detected, or detected late. In partnership with 12 Aboriginal Community Controlled Health Services (ACCHS) in four states, the Let's CHAT (Community Health Approaches To) Dementia project aims to implement a co-designed best practice model of care. The primary outcome measure of the study is a significant increase in documentation of CI/D in ACCHS.

This presentation will discuss the baseline audits (n=841) of the study, which outline the dementia risk profile of ACCHS health clients, rates of documentation of suggested or confirmed CI/D, and current care practices with clients who have or may have CI/D. The age range of clients audited was 50 – 95 years (mean age 60). Dementia risk factors – including current smoking (48%), diabetes (41%), depression (33%) and low physical activity (21%) – were frequently documented and clients often had multiple risk factors. Evidence of documentation of health service assessment for, and investigation of, CI was very limited. These data confirm that rates of detection of CI are currently sub-optimal and that there is much scope for improvement in identifying and introducing appropriate care strategies into primary care services to detect and manage Aboriginal and Torres Strait Islander people who have CI, including better management of lifestyle and medical factors that are known to increase progression of CI.

MISS OSHADI JAYAKODY
University Of Tasmania

Associations between cognitive function and gait under three dual-task conditions

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Gait is emerging as an important biomarker of cognitive dysfunction, but there is uncertainty regarding which measure to use. We aimed to examine Associations between cognition and gait under 3 different dual-task conditions.

Participants were from the Tasmanian Healthy Brain Project (n= 92; mean age 69 years). Gait speed was obtained using a computerized walkway under single- and dual-task (alternate letters; counting backwards in 3s; list recall). Cognitive, gait and total cost were calculated as :(single task–dual task)/single task×100. Neuropsychological tests were used to obtain measures of cognition. Partial correlations were used to determine the strength of Associations between cognition and gait.

Under *letter dual-task* poorer 1) attention/processing speed was Associated with slower gait speed (r=.30;p=0.005) and greater gait (r=-.43;p<0.001) and total cost (r=-.26;p=.01); 2) memory recognition was Associated with greater total cost (r=-0.21;p=.045); 3) working memory was Associated with greater cognitive (r=-27;p=.01) and total cost (r=-.28;p=.007) and 4) global cognition was Associated with greater gait (r=-.24;p=.03) and total cost (r=-.25;p=.02) Under *number dual-task*, poorer attention/processing speed was Associated with slower gait speed (r=0.28;p=.008). Under *list dual-task* poorer attention/processing speed was Associated with greater gait (-0.30; p=.004) and total cost (r=-0.26; p=.01). Under *single task*, only poorer verbal fluency was Associated with slower gait speed (r=.24; p=0.02).

The letter dual-task condition was Associated with the most cognitive domains, with gait speed, gait cost and total cost capturing cognitive dysfunction in these domains in healthy older people. Future research should examine motor biomarkers in cognitively impaired samples.

DR FIONA KUMFOR
University Of Sydney

Delusions in neurodegenerative disorders: insights into the prevalence, nature and neurocognitive mechanisms

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Abnormal beliefs and delusions have been reported in some people with dementia, however, the prevalence of delusions, and their neurocognitive basis has been underexplored. Here, we aimed to examine the prevalence, severity and nature of delusions in a large, diverse cohort of dementia patients. 487 dementia patients were included: 102 Alzheimer's disease, 136 behavioural-variant frontotemporal dementia (bvFTD), 53 semantic-variant primary progressive aphasia (PPA), 51 nonfluent-variant PPA, 50 logopenic-variant PPA, 29 motor neurone disease, 46 corticobasal syndrome, 20 progressive supranuclear palsy. All patients underwent brain MRI and cognitive assessment, and the Neuropsychiatric Inventory was conducted with an informant. In our cohort, 48/487 patients (10.8%) had delusions, with the highest prevalence observed in behavioural-variant frontotemporal dementia (5%) and Alzheimer's disease (2.4%). The most common types of delusions were persecutory and delusions of reference. Follow-up analyses revealed that individuals with delusions (n=30) performed worse on the Addenbrooke's Cognitive Examination (p=.035), particularly the attention (p=.022) and memory (p=.013) subtests, than a demographically-matched group of patients without delusions (n=30). Voxel-based morphometry analyses showed that increased severity of delusions was associated with lower integrity of the cerebellum, posterior cingulate and right superior frontal gyrus. Our results reveal that delusions are relatively common in dementia, particularly in behavioural-variant frontotemporal dementia. These symptoms may lead to delayed or inaccurate diagnosis, and therefore increased awareness of the neuropsychiatric features of dementia is important. Patients with delusions appear to have more widespread impairment and may be good candidates for targeted for symptom management.

ASSOCIATE PROFESSOR JOHN KWOK
University of Sydney Brain And Mind Centre

Genetic Findings from the Dominantly Inherited Non-Alzheimer's Disease (DINAD) Study

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Frontotemporal dementia (FTD) is a common cause of presenile dementia and characterised by TDP-43 or Tau neuropathology. Two neurodegenerative diseases diagnosed by a-synuclein neuropathology are Parkinsons disease (PD) and dementia with Lewy bodies (DLB). PD is a movement disorder affecting over 2% of people over 65. DLB is another cause of dementia, and affects 5% of those over the age of 75. Next generation sequencing of genomic DNA is an economical and rapid way to screen candidate neurodegenerative genes. Bioinformatics pipeline for variant calling and annotations based on the latest hg38 genome build has been established. Likely pathogenic and pathogenic variants were classified according to ACMG guidelines. Sequencing of N = 567 C9orf72 mutation-negative patients has been completed. In the FTD subset, strength of family history was consistent with probability of finding a pathogenic variant, with 100% for revised Goldman score 1 and 0.1% for revised Goldman Score 3.5. LRRK2 was the most commonly mutated gene in PD cohort. Unexpected findings include CYP27A1 mutations [Blauwendraat C et al. Genet Med 2018] in FTD patients, presence of double mutations in different neurodegenerative genes (eg. FIG4 and TARDBP), and unexpected phenotypes (eg. CHMP2B mutation in PD). Finally, there are mutation-negative patients with positive family history. Future research will focus on systematic searches of double/multiple mutations in patients and burden analyses to determine the frequency of rare variants. These analyses will impact on knowledge gain and health outcomes in terms of genetic counselling of patients and at-risk individuals.

DR KATYA NUMBERS
Centre For Healthy Brain Ageing

Predicting Diagnostic Change Over 6-years Using Subjective Cognitive Complaints in the Memory and Ageing Study

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Though subjective cognitive complaints (SCCs) remain a core criterion in the diagnosis of mild cognitive impairment (MCI), the usefulness of SCCs in predicting longitudinal clinical outcomes remains unclear. This may be because studies variously operationalise SCCs dichotomously (present/not present), focus on participants' subjective *memory* complaints without considering *non-memory* complaints, or include SCCs from participants only or from both participants and informants.

We examined the usefulness of participant and informant memory and non-memory multi-item SCC scales, as well as a single-item measure, in predicting conversion to MCI and/or dementia over 6-years in participants without dementia from the Sydney Memory and Ageing Study. Participants (M_{age} = 78.4-yrs) completed SCC items, a clinical assessment, and measures of mood and personality. In all analysis, we controlled for age and education.

Overall, SCCs were better predictors of conversion from normal/MCI to dementia than they were for conversion from normal to MCI/dementia. When predicting dementia, both participant and informant memory-specific SCCs were significant predictors, as was the single-item SCC. However, non-memory SCCs were not. Only informants' non-memory SCCs and the single-item SCC predicted conversion from normal to MCI/dementia.

The relationship between SCCs and cognitive decline may be due to the common influence of mood and personality on both. However, inclusion of these variables in the model did not result in a significant reduction in the SCCs predictive power, thus not supporting this suggestion. These results indicate the need for clinicians to take subjective memory complaints seriously. Longer follow-up is being conducted to confirm these findings.

DR SIVA PURUSHOTHUMAN
Brain And Mind Centre & University Of Sydney

Autophagy-lysosomal-protein changes in late-stage pathologically-confirmed human post-mortem brains of Alzheimer's compared with Lewy body diseases

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Lysosomal impairment is implicated to produce various neurodegenerative pathogenic events in Alzheimer (AD) and Lewy body diseases (LBD) patients. This is the first study to explore the differences in autophagy-lysosomal proteins across AD, LBD and mixed-type cases since >40% of cases have overlapping disease-specific pathologies that may lead to diagnostic confusion. Pathologically-confirmed post-mortem brains with age-related changes of "pure" AD (amyloid-β; N=18), "pure" LBD (Lewy bodies; N=19), mixed-type (AD+LBD; N=20), and controls (N=20) from superior temporal (STC; mainly affected) and occipital cortices (OC; variably affected) cases without neuropathology-specific mutations or cerebrovascular diseases were selected. Protein levels of lysosomal and autophagy-related proteins were assessed using immunoblotting. Multivariate and one-way ANOVA with Tukey's multiple comparison statistical analyses were performed. Age, gender or postmortem delay did not affect the results. Lysosomal enzymes such as glucocerebrosidase and Cathepsin K were significantly (p<0.05) reduced in both regions and all three disease groups versus controls, while Cathepsin D level was significantly (p<0.05) increased only within the OC. In both AD brain regions, lysosomal-Associated membrane protein 1 (LAMP1) was significantly (p<0.01) reduced from controls. Against controls, LAMP2 was increased (p<0.0001) in AD for OC only, while LAMP3 was reduced (p<0.01) in AD and mixed-type cases within OC region only. Autophagosome proteins of Beclin1 and p62 in both brain regions were significantly reduced in all three disease groups versus controls. Neurons (assessed using NeuN and TubulinIIIβ) in STC and OC were reduced (p<0.05) in AD only. Results revealed that lysosome-Associated proteins need closer examination across similar diseases.

ASSOCIATE PROFESSOR GAIL ROBINSON
The University Of Queensland

Is assessment of executive functions useful in the diagnosis of dementia?

Associate Professor Gail Robinson[1], Ms Amelia Ceslis[1], Ms Emily Gibson[1], Dr Megan Barker[1], Dr Andrew Martin[1]

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Assessment of cognitive functions is key for a diagnosis of dementia. Integral to this is the use of tests that are both *sensitive* to detect changes and *specific* in that they assess particular cognitive functions and have neural specificity. Although executive functions have not been a major focus for dementia diagnosis, they are crucial for memory encoding and retrieval, as well as for adaptive behaviour in novel contexts. Executive functions are more sensitive to disturbance than other cognitive abilities, in both healthy ageing and dementia. This study aimed to investigate the effect of ageing on the executive processes of initiation, inhibition and strategy use via performance on the Hayling Sentence Completion Test. Baseline cognitive tests and the Hayling were administered to healthy adults across the lifespan (N = 344; 18 to 89 years). Correlations and regression analyses were used to assess the impact of ageing on the Hayling Test components. Older age was Associated with slower response initiation and inhibition times, more inhibition errors and fewer strategic-based responses. These findings remained significant after controlling for demographic factors such as education and other cognitive functions sensitive to ageing such as fluid intelligence, attention, working memory and verbal fluency. This study provides clarification of the effect of age on the processes of initiation, inhibition and strategy generation across the adult lifespan. The results are discussed in relation to the significant challenge of dementia diagnosis; namely, identifying clinical tests that can detect subtle changes at an early stage.

DR KATE SMITH
University Of Western Australia

Items of the Good Spirit, Good Life quality of life tool for older Aboriginal Australians

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Enhancing quality of life is the primary goal of aged care services for people with dementia. Despite this, there are no culturally informed quality of life measures developed with older Aboriginal Australians, including people with dementia. This study aims to address this gap.

The Good Spirit, Good Life package was co-developed with Aboriginal older people and service providers in Perth, and adapted in Melbourne using a Participatory Action Research approach. Thematic analysis identified 12 items for the draft tool: community; culture and identity; elder role; supports and services; spiritual beliefs; family and friends; country; health and happiness; future planning; safety and security; respect; and basic needs. Quantitative data was collected in Perth and Melbourne by Aboriginal researchers administering the survey instrument. Purposive sampling ensured a range of cognition. Factor analysis is being completed for item reduction.

Initial analyses were completed based on responses from the first 41 participants aged 48-92 years, 83% women. Five factors were extracted through principal component analysis, with all 12 items contributing to the simple factor structure with a loading > 0.5. The initial factor labels are: culture; external factors; country; empowerment and respect; and basic needs. Eigen values indicate that the first three factors account for 54% of the variance.

The 12 Good Spirit, Good Life tool items are based on the quality of life priorities of older Aboriginal Australians. Initial analyses identified five distinct factors underlying tool response. Item reduction will be completed based on the larger dataset, and final tool items presented.

Intervention and Treatment

DR SCOTT AYTON
Florey Institute of Neuroscience and Mental Health

Brain iron is Associated with accelerated cognitive decline in people with Alzheimer pathology

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Cortical iron has been shown to be elevated in Alzheimer's disease, and we recently showed that brain iron content, as measured by either quantitative susceptibility mapping (QSM)-MRI (Ayton et al Brain, 2017) or cerebrospinal fluid (CSF) ferritin (Ayton et al Nat Comm 2015; JAMA Neurology 2018), is Associated with longitudinal cognitive decline in people with underlying β-amyloid pathology. Here, we investigated the Association between post-mortem iron levels with the clinical and pathological diagnosis of Alzheimer's disease, its severity, and the rate of cognitive decline in the 12 years prior to death in subjects from the Memory and Aging project (n=209). Iron was elevated (β[S.E.]=9.7 [2.6]; P=3.0x10^{-4}) in the inferior temporal cortex only in subjects who were diagnosed with clinical Alzheimer's disease during life and had a diagnosis of Alzheimer's disease confirmed post mortem by standardized criteria. Whereas iron was weakly Associated with the extent of proteinopathy (plaques and neurofibrillary tangles), it was strongly Associated with the rate of cognitive decline (e.g. Global Cognition: β [S.E.] =-0.040 [0.005], P=1.6 x10^{-14}). Thus, cortical iron might act to propel cognitive deterioration upon the underlying proteinopathy of Alzheimer's disease, possibly by inducing oxidative stress or ferroptotic cell death. These data support lowering iron as a therapeutic strategy for Alzheimer's disease, which we are currently investigating in a phase II study of the iron chelator, deferiprone.

DR SAMANTHA BARTON
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Oligodendrocytes in the motor cortex from patients with ALS have an RNA trafficking deficit

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Oligodendrocytes myelinate and provide metabolic support to neurons; however, these processes are disrupted in motor neuron disease (MND). Many proteins critically involved in myelination and metabolism are locally translated and it is well established that RNA metabolism is altered in MND. We aimed to characterise if RNA trafficking is disrupted in oligodendrocytes in MND.

We used human post-mortem formalin-fixed paraffin-embedded motor cortex from control (n=5), sporadic ALS (sALS; n=5), ALS patients with a C9ORF72 mutation (C9ALS; n=5) and an ALS patient with a SOD1 mutation (SOD1ALS; n=1). Using BaseScope™, we probed for myelin basic protein (*MBP*) and carbonic anhydrase II (*CAII*) (locally translated mRNAs unique to oligodendrocytes). RNA and protein was extracted from frozen tissue for qPCR and western blot, respectively, and tissue was processed for electron microscopy.

In oligodendrocytes in the motor cortex white matter, C9ALS and sALS cases had TDP-43 aggregations, and C9ALS cases had RNA foci (both hallmarks of MND). sALS and C9ALS oligodendrocytes had cytoplasmic aggregations of *MBP* mRNAs and C9ALS had nuclear aggregation of *MBP* mRNAs; control and SOD1ALS had normal mRNA distribution. Total *MBP* mRNA expression was elevated in sALS and C9ALS compared to control.

There was no difference between groups in MBP protein levels or myelin thickness (g-ratio). Both sALS and C9ALS also had aggregations of *CAII* mRNA.

The sALS and C9ALS motor cortices had disrupted mRNA trafficking in oligodendrocytes, coinciding with TDP-43 and RNA foci pathology. Disruption to normal oligodendrocyte function could have an additive detrimental effect on motor neurons in MND.

DR PRASHANT BHARADWAJ

School of Medical and Health Sciences, Edith Cowan University

IU1, a selective inhibitor of deubiquitinating enzyme USP14 inhibits Aβ toxicity in neuronal cells

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Autophagy is a vital intracellular catabolic pathway for misfolded proteins and an attractive therapeutic target for neurodegenerative diseases including Alzheimer's disease (AD). We have previously shown that enhancing autophagy reduced Aβ accumulation and toxicity in cells and improved cognition in an AD mouse model. A wide range of small molecules targeting multiple cell functions have now been developed to modulate autophagy. Assessing the neuroprotective effects of modulators against Aβ toxicity would further our understanding of their protective mechanisms and aid development of novel treatments for AD. Therefore, the main aim of this project is to identify potent autophagy modulators that protect against Aβ induced neuronal cell death.

In this study, we used the MC65 cell line to model Aβ accumulation and toxicity. MC65 is a well-established human CNS derived cell line that generates Aβ by γ-secretase cleavage from a stably transfected C99 fragment of the amyloid precursor protein (APP). Using this cell line as a platform, we screened an autophagy compound library containing 156 small molecules for inhibition of Aβ toxicity. We observed inhibition of Aβ induced cell death by the ion channel blockers carbamazepine, omeprazole and IU1, a selective inhibitor of deubiquitinating enzyme USP14. Overall, IU1 was identified as the most potent compound showing a marked 40% increase in cell survival in MC65 cells producing Aβ. Recent studies show that IU1 regulates autophagy and degradation of prion aggregates in cells. This suggest that its protective effect in MC65 cells is possibly through the upregulation of Aβ protein clearance. Our findings demonstrate a novel role for IU1 in reducing Aβ induced toxicity. Further investigation of its protective effects will be essential in determining its therapeutic potential in AD.

PROFESSOR ASHLEY BUSH

Florey Institute of Neuroscience and Mental Health

Iron and Alzheimer's disease: the 3D Study

Professor Ashley Bush[1]

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Alzheimer's disease is an incurable, prevalent dementia, with hallmark neuropathology of neuronal death, oxidative damage, amyloid and tau deposition in the brain. Pharmacological limitation of amyloid accumulation has not met expectations, and other lesions should be explored. AD brain tissue exhibits iron elevation Associated with the rate of cognitive loss. Pharmacological suppression of iron-mediated oxidation is effective in animal models of neurodegenerative disease, and a recent phase 2 clinical trial of the iron chelator, deferiprone, in Parkinson's disease lowered nigral iron and improved clinical readouts over 18 months. Thus, we are testing deferiprone in a randomised, double-blind, placebo-controlled, multicentre, Phase 2 clinical trial for patients with amyloid positive Alzheimer's Disease (MMSE ≥20), randomised (2:1 ratio, n=171) to receive deferiprone or placebo over 12 months. The primary outcome is a Global cognitive composite from the a neuropsychological test battery = (Episodic Memory + Executive Function + Attention)/3. Intention-to-treat analysis of the intervention will use linear mixed models. Secondary outcomes include whether the change in brain iron values (by MRI QSM) is inversely proportional to extent of change in cognition.

MRS AMANDA CROSS

Monash University

Addressing inappropriate medication use in people with dementia: a role for pharmacists in memory clinics?

Mrs Amanda Cross[1,2], Dr Johnson George[1], A/Professor Michael Woodward[3], Ms Vivien Le[1], A/Professor Rohan Elliott[1,2]

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Medication-related problems (MRP) and inappropriate medication use are prevalent among people attending memory clinics. Pharmacists are not typically involved in the memory clinic team.

To evaluate the feasibility and acceptability of a pharmacist-led interdisciplinary deprescribing intervention for people attending a memory clinic.

A pre- and post-intervention feasibility study was conducted at an outpatient memory clinic. Participants were English-speaking community-dwelling patients identified as being at risk of a MRP. Following baseline assessment, participants received a comprehensive medication review in their home from a consultant pharmacist who collaborated with the patient/carer, memory clinic and general practitioner (GP) to develop a plan for optimising medication use. The primary outcome was feasibility, assessed based on i) proportion of patients

eligible for the study, ii) proportion of eligible patients who consented and iii) proportion of inappropriate/unnecessary medications reduced/ceased at six months. Stakeholder acceptability was evaluated using patient/carer questionnaires, fax-back GP surveys, a memory clinic focus group and pharmacist interviews.

One-third of memory clinic patient/carers were eligible (n=82/238) and 60% (n=50/82) consented to participate. Forty-six patients received the intervention, median (IQR) age was 81.0 (71.5-85.0) years and number of medications was 11 (8.0-13.3). Pharmacists recommended deprescribing 124 medications, and 53 (42.7%) of these had been reduced/ceased at six months. Stakeholder feedback was positive, with majority believing it was important to have pharmacists involved in the memory clinic.

Pharmacist-led interdisciplinary deprescribing in a memory clinic setting is feasible and acceptability to stakeholders. Larger studies are needed to confirm effectiveness and clinical outcomes.

DR SHANTEL DUFFY

University of Sydney

CogStep: A combined psycho-education and home-based exercise program for individuals with early stage Alzheimer's disease

Dr Shantel Duffy[1,2], Ms Kahala Dixon[1,3], Ms Bonnie Tran[1,3], Ms Isabella Leung[1,3], Mr Bradley Skinner[1,5], Ms Ashlee Turner[1,4], Dr Loren Mowszowski[1,4], Professor Yun-Hee Jeon[6], Professor Lindy Clemson[2,7], Professor Sharon L Naismith[1,4]

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Physical exercise in individuals living with dementia may help to maintain functional capacity, improve sleep and mood, and slow cognitive decline. Exercise programs for older adults with cognitive impairment typically do not concurrently implement psychoeducation, which may improve compliance and understanding. This study sought to assess the feasibility of a 12-week combined psycho-education and individualized home-based exercise program (*CogStep*) in older adults with early-stage Alzheimer's disease (AD).

This study aimed to recruit 60 individuals with early-stage AD to assess the feasibility of the study design and examine potential effects of the *CogStep* intervention. All participants completed neuropsychological, medical, physical and mood assessments prior to randomization to *CogStep* or a waitlist control condition, and again after the 12-week intervention period.

Over an 18-month recruitment period, 46 individuals were screened and 15 participants were randomized. Thirteen participants (seven intervention, six waitlist) completed the 12-week follow-up assessment. Post-intervention, change in self-reported physical activity was inversely Associated with body mass index (r=-0.7, p=0.030); increases in habitual and maximal walking velocity were Associated with reduced depressive symptoms (r=0.6, p=0.038; r=0.7, p=0.019); and greater six-minute timed walk distance was Associated with increased processing speed (r=0.7, p=0.038).

Recruitment targets were unmet, with insufficient sample size to investigate between-group effects. Nonetheless, overall, participants demonstrated strong Associations between changes in physical activity levels, exercise capacity, body composition, mood and cognition over 12-weeks, illustrating *CogStep's* therapeutic potential. We now seek to modify the study design to improve feasibility prior to proceeding to a full-scale randomized trial.

MR WILLEM EIKELBOOM

Erasmus University Medical Center Rotterdam, the Netherlands

Early recognition and management of neuropsychiatric symptoms to improve quality of life in Alzheimer's disease

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Neuropsychiatric symptoms (NPS) are nearly universal in persons with mild cognitive impairment (MCI) and Alzheimer's disease (AD), and are Associated with various disadvantageous clinical outcomes. Despite growing evidence on the efficacy of (non)pharmacological interventions to reduce these symptoms, NPS remain under recognized and undertreated in memory clinics. The Behavioral symptoms in Alzheimer's disease Towards early Identification and Treatment (BEAT-IT) study is aimed to improve the quality of life of persons with AD and their caregivers by structuring and standardizing the detection and management of NPS in the memory clinic.

We aim to enroll 150 community-dwelling individuals with MCI or AD and their caregivers. Currently, we are enrolling a historical control group that receives care as usual. Next year, a second wave of participants will undergo the DICE method consisting of the following steps: 1) Describe the context in which NPS occur, 2) Investigate possible causes, 3) Create and implement a treatment plan, and 4) Evaluate whether interventions were effective. Primary outcomes are the quality of life of persons with AD and caregivers. Secondary outcomes include NPS change, caregiver burden, caregivers' confidence managing NPS, psychotropic medication use, the experiences of the participants that underwent the DICE method, and the cost-effectiveness of the intervention.

We present the protocol of the BEAT-IT study, aimed to improve quality of life of individuals with AD. By exchanging knowledge and expertise regarding the management of NPS in AD, we hope to benefit the international forum on care and research concerning NPS in AD.

MISS CATHERINE FOSTER
University of Tasmania

Pericyte and vascular changes are Associated with the development of amyloid pathology and aging

Miss Catherine Foster[1], Miss Natalie King[1], Dr Jo-Maree Courtney[1], Dr Brad Sutherland[1]

[1]School of Medicine, University Of Tasmania, Hobart, Australia

Although the cause of Alzheimer's disease (AD) is currently unknown, five out of the seven preventable risk factors for AD are cardiovascular related. Therefore, vascular dysfunction in the brain may be an important early event leading to the deposition of amyloid and development of AD. We hypothesise that dysfunction or loss of pericytes, a cell involved in blood flow regulation, blood-brain barrier maintenance and amyloid clearance, may play a role in AD development and onset. To better understand how amyloid deposition might affect pericytes and the cerebro-vasculature, we characterised pericyte and vascular density in 3, 6, 9, 12 and 18-month-old APP/PS1 mice, a transgenic mouse line that models the process of amyloid deposition. Greater blood vessel density was identified in 3-month-old APP/PS1 mice compared to wild type mice, which was not observed in the 6-18-month old APP/PS1 mice. Furthermore, a reduction in pericyte number in animals 6-months or older was found in both APP/PS1 and wild type mice compared to 3-month old mice. These results might suggest that when amyloid load is increased, prior to plaque formation, there is a strong increase in brain vascularisation to enhance the clearance of amyloid. Further, a large age-related decrease in pericyte number could reduce amyloid clearance that may lead to the formation of amyloid plaques and could explain changes in vascular function during aging. Overall, vascular clearance of amyloid is critical to maintain brain function, and age-dependant reductions in pericyte number may put an ageing population at risk of developing AD.

DR FREDERIC GILBERT
University of Tasmania

Invasive experimental brain surgery for dementia: Ethical shifts in clinical research practices

Dr Frederic Gilbert[1,2], PhD John Viaña[1], Phd Cand Merlin Bittlinger[3], PhD James Vickers[1], PhD Judy Illes[4]

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The objective is to examine the ethics features of experimental trials involving high-risk invasive interventions for dementia.

We examined studies using invasive unproven neurosurgical interventions to treat dementia registered in clinicaltrials.gov from 2001 to 2018 for eight variables: target brain region, host country, age of participants, MMSE, medical history, consent, context (living and caregiving situation), and IRB/REB approval.

By the end of 2018, we found 37 preregistered high-risk unproven trials from eight countries, which are enrolling or have enrolled 1,646 participants (Figure). Of these participants, 1,279 or 77.7%, have received a neurotechnological intervention just in the last three years (2016 to 2018). The trials involved stem cells, deep brain stimulation, and gene therapy for Alzheimer's, Parkinson's, and Huntington's diseases. Several registered trials permitted inclusion of participants with an MMSE score as low as 0 (1 trial in China) or 3 (2 trials in China). Nine trials required consent from participants only; 8 additionally required consent of a legal designate or of a caregiver/family member.

There is a pressing need to proactively consider and refine the ethics of invasive experimental trials on people with dementia. A set of nine recommendations that builds on ethical consensus set by the Declaration of Helsinki provides a foundation for these deliberations.

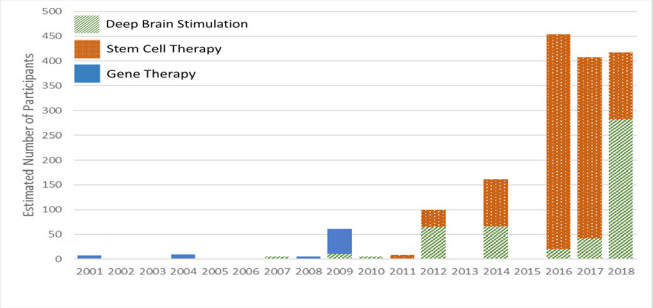

Figure: *Participants enrolled in studies assessing the use of experimental invasive brain technologies (search limited to deep brain stimulation (DBS), stem cells, and gene therapy) in people with dementia up to December 31, 2018. Data was obtained from the U.S. National Institutes of Health clinical trial database, clinicaltrials.gov*

DR SARANG KIM
Wicking Dementia Research and Education Centre

Dementia Stigma Reduction (DESeRvE): Randomised controlled trial to reduce dementia-related stigma in the general public

Dr Sarang Kim[1,2], Dr Alice Richardson[4], Professor Perla Werner[3], Professor Kaarin Anstey[5,6]

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Dementia is a highly stigmatised condition leading to significant negative effects on the health and well-being of people with dementia (PWD), and their carers. Stigma can also prevent people from seeking help, which results in people missing out on timely diagnosis and the utilisation of health and social services. Despite the success of interventions for reducing the stigma of mental illnesses, research on dementia-related stigma is lacking. This project therefore developed and evaluated an intervention program (DESeRvE) aimed at the general public to reduce dementia-related stigma.

1024 Australians aged between 40 and 87 (M=60.8, SD=10.1) participated in the study and 458 completed the 12 weeks follow-up assessment. DESeRvE tested four conditions (online education program (ED), contact through simulated contact with PWD and carers (CT), education + contact (ED+CT), and control). Dementia-related stigma was measured with a modified Attribution Questionnaire and knowledge of dementia was measured by the Dementia Knowledge Assessment Scale.

The preliminary findings suggested that the interventions produced a greater impact on stigma than on knowledge, adjusted for baseline scores. The effect of contact was highly significant, and education less so. A small effect persisted at the end of 12 weeks follow-up.

DESeRvE can be a valuable tool to reduce dementia-related stigma. Having (virtual) contact with PWD and carers and learning about dementia from them can have a positive effect on the general public. This contact will encourage the general public to enable PWD to feel more included and to enhance their quality of life.

DR TUAN ANH NGUYEN

QUMPRC, School Of Pharmacy and Medical Sciences, University Of South Australia

A Pilot Cluster RCT of an Alzheimer's Family Caregiver Intervention in Hanoi, Vietnam: REACH VN

Professor Ladson Hinton[1], Dr Huong Nguyen[2], Dr Hung Trong Nguyen[3], Dr Danielle Harvey[4], Dr Binh Thanh Nguyen[3], Dr Binh Thanh Thi Nguyen[3], Nurse Anh Ngoc Nguyen[3], Nurse Chinh Hong Nguyen[3], Nurse Thu Hoai Thi Nguyen[3], Nurse Thuy Le Nguyen[3], Mrs Anh Phuong Thi Nguyen[3], Dr Ngoc Binh Thi Nguyen[3], Dr Quyen Tiet[5], **Dr Tuan Anh Nguyen[6]**, Mr Phong Quy Nguyen[3], Dr Thang Pham[3]

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Vietnam and other low and lower middle income countries are experiencing a dramatic growth in the number of persons with dementia yet very little is known about interventions and programs to support family caregivers these countries.

Clusters, defined as geographic areas served by commune health clinics, were randomly assigned to either the intervention or enhanced control condition. To be eligible, caregivers needed to be family members identified as providing the most day-to-day care, age ≥ 18, have a score of ≥ 6 on the 4-item version of the Zarit Burden Inventory (ZBI), and be caring for an older adult previously diagnosed with dementia. Caregivers in clusters randomized to the intervention arm received 4-6 in-home or phone sessions over 2-3 months based on the manualized REACH VN protocol. Caregivers in the enhanced control condition received a single educational session. Primary outcomes included the 4-item ZBI and the 4-item Patient Health Questionnaire (PHQ-4) which were assessed at enrollment and three months later by research assistants masked to allocation.

Of the 10 communes randomized, one was dropped because of low caregiver enrollment. Based on analysis of the 51 caregivers who completed the study, there were no differences in ZBI (p=0.9) or PHQ-4 (p=0.5) between the REACH VN and enhanced control groups at baseline. Using analysis of covariance to evaluate the intervention effect, with the month three assessment as the outcome and the baseline assessment as a covariate, we found that the REACH VN group had average ZBI scores 1.2 SD lower (p=0.02) and PHQ-4 scores 0.7 SD (p=0.03) lower than the enhanced control group.

In the first test of a family caregiver intervention in Vietnam, a relatively brief culturally adapted family caregiver intervention (REACH-VN) was found to have good preliminary efficacy compared with an enhanced control condition.

ASSOCIATE PROFESSOR ANTHONY WHITE

QIMR Berghofer Medical Research Institute

Using patient monocyte-derived microglia to personalize treatment for Alzheimer's disease

Associate Professor Anthony White[1], Dr Hazel Quek[1], Dr Lotta Oikari[1], Dr Ben Gu[2], Dr Xin Huang[2], Professor. Eske Derks[1]

[1]QIMR Berghofer Medical Research Institute, Herston, Australia, [2]Florey Institute of Neuroscience and Mental Health, Parkville, Australia

Neuroinflammation is a major contributor to Alzheimer's pathology, but translational outcomes of new drugs are hampered by patient heterogeneity and difficulty of patient selection for drug trials. This is exacerbated by the fact that microglia, the resident immune cell in the brain, are uniquely sensitive to microenvironmental factors and their activation state can therefore be dependent on a range of factors. To overcome these issues a rapid and cost-effective method of generating patient-derived microglia is required for personalized neuroinflammatory therapeutic development in Alzheimer's patients. We have adopted the method to generate microglia-like cells from Alzheimer's patient peripheral blood mononuclear cells. Our preliminary analysis of 20 clinical blood samples has identified key differences between Alzheimer's patients and healthy control microglia including altered cytokine expression (TNF, IL-6, and TGF), microglia migration rate, phagocytosis, and response to immune modulatory compounds. Significantly, we also identify patient-specific differences in microglia inflammatory responses, which could potentially be used to stratify patients for clinical trials or to identify effective patient-specific therapeutics. In addition, we are currently developing genetic and transcriptomic methods to identify new immune targets in patient microglia. This will be combined with drug repurposing to improve efficacy of drug targeting for abnormal microglia function in Alzheimer's patients. This model could form the basis of a clinically applicable precision medicine approach to treating neuroinflammation in Alzheimer's disease.

Living with dementia

MS CATHERINE ANDREW
University of Wollongong

Consumer perspectives: How younger onset dementia impacts workforce participation during onset and progression of symptoms

Ms Catherine Andrew[1,2], Mr Phil Hazel[1], **Dr Lyn Phillipson[1], Dr Lynnaire Sheridan[1]**

[1]University of Wollongong, Wollongong, Australia, [2]Australian Catholic University , North Sydney, Australia

Engagement in meaningful work is important for health and well-being. However, dementia has the potential to cause considerable disruption to occupational engagement. An estimated 26,000 people of working age were living with dementia in Australia in 2017. Further increases are expected as people extend workforce participation either by choice or in response to increasing the age of pension eligibility. Therefore, it is increasingly important that workforce participation issues confronting people living with dementia symptoms are appropriately addressed.

Explore how workforce participation is maintained when symptoms of dementia occur, thereby influencing experiences of transitioning from paid employment to 'retirement'.

Extending on findings from a qualitative study with Australians living with a dementia (n=10) an in-depth case study further explored the experiences of transitioning away from paid work. Following ethics approval, one person living with younger onset dementia co-researched and presented findings regarding enablers and barriers to: (i) maintaining engagement in paid work; and (ii) transitioning to other meaningful roles following retirement.

Specific factors that contributed to maintaining employment, and then transitioning to retirement for the person living with a dementia were identified: (i) early engagement with employers, colleagues and trusted health Professionals; (ii) access to support and reasonable adjustment from the employer and colleagues; (iii) gradual transitions from a full-time role; and (iv) engagement in other meaningful roles post separation.

Access to reasonable workplace adjustments can extend workforce participation people living with a dementia. Opportunity to transition to other meaningful roles after ceasing work is essential.

DR ALEX BAHAR-FUCHS
The University Of Melbourne

Cognitive training for older adults with dementia: An updated Cochrane Review

Alex Bahar-Fuchs[1], Anthony Martyr[2], Anita Goh[1,3], Julieta Sabates[1], Linda Clare[2]

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Cognitive training (CT) was found by previous meta-analytic reviews to be ineffective for people with mild-moderate dementia. The quality of trials was however low, and since 2013 many additional trials were completed.

33 trials were eligible for inclusion, 11 of which were included in our 2013 review. Data were extracted and risk of bias (RoB) was rated using the Cochrane RoB tool. Change from baseline was used to calculate effect estimates, which were expressed as Hedges g, and a random effects meta-analysis was performed.

RoB in several domains was high or unclear in at least 50% of included studies. Relative to a control condition, we found moderate quality evidence of a small to moderate effect of CT on composite measure of global cognition (SMD = 0.42, 95% CI = 0.23 to 0.62), and high quality evidence of moderate effect on verbal semantic fluency (SMD 0.52, 95% CI 0.23 to 0.81) at the end of treatment, and these gains were retained in the medium term (3 to 12 months post treatment). In relation to most other outcomes immediately post treatment and in the medium term, the quality of evidence was low.

This study represents a major update, and with the significant expansion in the body of evidence we now conclude that CT may improve some cognitive functions in the short term and intermediate terms. Low quality of evidence remains an issue, and confidence in the findings in relation to many of the assessed outcomes is correspondingly low.

ASSOCIATE PROFESSOR BIANCA BRIJNATH
National Ageing Research Institute

Moving Pictures; raising awareness of dementia in CALD communities through multimedia

Associate Professor Bianca Brijnath[1], Dr Josefine Antoniades[1], Professor Jon Adams[2], Professor Colette Browning[3], Dr Dianne Goemann[4], Associate Professor Katie Ellis[5], Associate Professor Mike Kent[5]

[1]National Ageing Research Institute, 35-54 Poplar Road , Australia, [2]University of Technology Sydney, Ultimo, Australia, [3]International Primary Health Care Research Institute, Shenzhen, China, [4]University of Newcastle, Callaghan, Australia, [5]Curtin University, Bentley, Australia

Limited awareness of dementia in people from culturally and linguistically diverse (CALD) backgrounds often results in delayed diagnosis, poorer prognosis, and a higher burden of care on families and health systems. Given Australia's rapidly ageing and multicultural population, this disparity needs urgent address.

To inform and educate people from five linguistically diverse backgrounds – Hindi, Tamil, Mandarin, Cantonese, and Arabic – about dementia.

A mixed methods, multimedia design comprising video-interviews with 76 participants including carers from the five languages and key service providers. Data were gathered nationally in 2018 and thematically analysed. Data were used to co-produce 15 short films, comics, and a mobile-optimised website from which data analytics were measured.

The films and comics focused on dementia detection and timely diagnosis, how to navigate the aged care system, and the importance of self-care. Analytics data is currently being collected online and via community forums.

Co-production methods in tandem with digital multimedia are fundamental to developing culturally salient interventions to address dementia disparities in CALD populations in Australia and internationally.

DR CLAIRE ECCLESTON
Wicking Dementia Research And Education Centre

The dementia knowledge of the Tasmanian community

Dr Claire Eccleston[1], Dr Kathleen Doherty[1], Professor Fran McInerney[1], Ms Amber Johnstone[1], Dr Helen Courtney-Pratt[1]

[1]Wicking Dementia Research and Education Centre, University Of Tasmania, Hobart, Australia

Improving education and awareness of dementia have been identified globally as key priorities due to their importance for dementia prevention and supporting dementia inclusive communities. In order to better understand, and therefore serve, the information needs of the broader community, this study sought to determine current dementia knowledge of a cross section of Tasmanians.

Over 400 participants were surveyed using the Dementia Knowledge Assessment Scale in different Tasmanian community settings. The DKAS comprises 25 items within four subscales; causes and characteristics (CCH), prevention and risks (RHP), care considerations (CCO) and communication and behaviour (CB). Demographic indicators including education and dementia-related experience were also collected.

Participants obtained highest median scores for the CCO subscale and lowest for the RHP subscale. Linear regression analysis was conducted for total knowledge and each subscale (372 complete cases). Previous dementia-related work experience and education were significant predictors of total knowledge and all subscales. Educational attainment was a predictor for all subscale scores except CCO, and provision of care for friends or family with dementia was a predictor of CCH and CB. Being close to someone with dementia was a predictor of total knowledge and CCO. Age and income were not significant predictors of dementia knowledge or any subscales. This research will help us to understand the demographic factors that explain levels of community knowledge about key aspects of dementia. It will have demonstrable impact through an increased capacity to tailor education and therefore more effectively support development of dementia aware and inclusive communities.

MS MADELEINE GARDAM
Monash University

Better understanding quality of care - capturing the voice of people living with dementia.

Ms Madeleine Gardam[1], Dr Darshini Ayton[1], Ms Sandra Robinson[1], Dr Elizabeth Pritchard[1], Dr Rasa Ruseckaite[1], Dr Stephanie Ward[1], Professor John McNeil[1], Scientia Professor Henry Broadaty[2], Professor Elsdon Storey[1], Associate Professor Arul Earnest[1], Associate Professor Robyn Woods[1], Professor Mark Nelson[3], Professor Jane Banaszak-Holl[1], Professor Danny Liew[1], Dr Joanne Ryan[1], Associate Professor Susannah Ahern[1]

[1]Monash University, Melbourne, Australia, [2]University of New South Wales, Sydney, Australia, [3]University of Tasmania, Hobart, Australia

Clinical quality registries (CQRs) collect clinical data for monitoring and reporting healthcare quality and safety. CQRs can report lack of consistency in healthcare provided for people living with dementia. Patient-Reported Outcome Measures (PROMs) are increasingly incorporated into CQRs and assess the patient's perspective of clinical care and the impact on function and quality-of-life. There is currently no systematic reporting on quality of dementia care across Australia.

This study aimed to test acceptability of PROMs with people living with dementia to inform the pilot Australian Dementia Network (ADNet) Registry.

A systematic scoping review was initially conducted to identify existing PROMs in dementia care. Acceptability of different measures were explored in face-to-face semi-structured interviews with participants to elicit their healthcare experiences via a think-aloud approach. People living with dementia were recruited via support groups and social media. Content analysis facilitated identification of PROM items for inclusion in the CQR.

The search yielded 4,288 studies, with 21 studies included in the final review. Dementia specific PROMs most used were the QoL-AD (n=12), the DemQoL (n=5), and the QualiDem (n=1). The review identified that no PROMs were currently used in dementia CQRs. Initial qualitative results identified ease of use with the QoL-AD, with full results to be confirmed.

This innovative acceptability study in collaboration with people living with dementia ensures that the voice of the individual is heard. The inclusion of PROMs in the ADNet registry will enhance understanding of patient experiences and contribute to improving quality of care outcomes.

DR KATE LAVER
Flinders University

Delivering an evidence-based dementia rehabilitation program using telehealth

Dr Kate Laver[1], Professor Maria Crotty[1], Professor Lindy Clemson[2]

[1]Flinders University, Adelaide, Australia, [2]University of Sydney, Sydney, Australia

People with dementia and their families have called for programs that involve a rehabilitative approach. Home based programs that offer such an approach have been

shown to be effective in delaying functional decline and improving carer skills. However, travelling to the home to provide home based rehabilitation programs is time consuming and challenging to implement in lean health and aged care services.

This project aims to determine whether telehealth delivery is non-inferior to conventional face-to-face delivery of the same program.

Adaptation of the program for telehealth delivery occurred within a randomised controlled trial examining whether telehealth is a non-inferior approach to conventional home visits. Participants in the telehealth group received two home visits and up to eight consultations with an occupational therapist using videoconferencing software and tablet devices. The home visit group received up to ten visits from an occupational therapist.

60 trial participants have been recruited to date. Participants in the telehealth group received slightly fewer consultations on average (5.0 vs 5.9). The average travel time per program was 284 minutes for those receiving home visits. Planning in advance of telehealth sessions was important to ensure that core elements of the program could be conducted. Many families participating in the telehealth arm of the study already owned devices and use of the technology deterred few participants.

It was possible to provide multiple consultations using telehealth without compromising core principles of the treatment program. Telehealth delivery reduced travel time and the cost of program delivery.

DR JACKI LIDDLE
The University Of Queensland

"Not a robot, because it's so impersonal" Technology perspectives of people living with dementia

Dr Jacki Liddle[1], Mr Peter Worthy[1], Dr Anthony Angwin[1], Professor Janet Wiles[1], Florence Lived Experience Expert Reference Group[1]

[1]The University Of Queensland, St Lucia, Australia

Despite a large growth in technologies aiming to support people living with dementia, there has been low uptake and high abandonment of technology. Research suggests that the technology-focussed rather than person-centred approach to technology development has contributed to this issue. For technology to enable connection, participation, safety and wellbeing, it needs to engage users throughout the process of development. It also requires a deep understanding of the technology related needs, experiences and preferences of people living with dementia and their care partners.

An interpretive description study was undertaken to explore the experiences, needs and perspectives of people living with dementia and their care partners in relation to technology. Twelve people living with dementia and 17 care partners participated. Semi-structured interviews were undertaken, and interviews were transcribed and analysed for core concepts. Core concepts were discussed with the research team including lived experience experts to clarify understanding.

Findings indicated that participants used technologies in a variety of ways. The potential of technology to support people in being *happy, safe and connected* was identified. Importantly, people identified a desire for future technology development to focus on *making the day go better* and supporting the participation of people living with dementia in their daily participation in their homes and communities. Participants also identified the *trouble with technology*, which included problems with usability, and concerns about reducing connection with people, labelling and the lack of transparency in technology. Guidelines as to what technology for people living with dementia should and shouldn't do were developed.

DR KIM-HUONG NGUYEN
The University Of Queensland

Whose values are relevant in dementia quality of life? A comparative analysis of preference elicitation

Dr Kim-huong Nguyen[1], Mr Brendan Mulhern[2], Professor Julie Ratcliffe[3], Associate Professor Tracy Comans[1]

[1]The University Of Queensland, Brisbane, Australia, [2]University of Technology Sydney, Sydney, Australia, [3]Flinders University, Adelaide, Australia

Involving people with dementia and carers in valuing quality of life (QoL) offers a wealth of information on the lived experience of dementia. Traditionally, they have been largely excluded from preference elicitation exercises because general population values were considered sufficient.

This study compared and contrasted the differences in QoL preferences by three groups: people with dementia, carers, and older Australians (aged 55+).

Five domains of dementia QoL were defined by the AD5D instrument: physical health, mood, memory, living situation, and ability to do fun things. People living with mild-moderate dementia (N=103) and carers (N=131) completed a Discrete Choice Experiment with survival duration and a Best Worst Scaling via a face-to-face interview. The older Australia general public (N=710) undertook the same survey using an online platform. Multinomial logistic regressions were used to estimate the relative weights attributable to the five AD5D domains.

The domains considered most important for QoL differed between people with dementia, their caregivers and the older Australians, with memory the least important for all three. For the older Australians, "physical health" ranked first and "living situation" first for the dementia dyads. Compared to the older Australians, the dementia dyads found it challenging weighing up the options presented. However, with appropriate interview techniques and statistical methods, their preferences could be reliably estimated.

This study provides further evidence to support the applicability of elicitation methods to understand the preferences of dementia dyads. This can inform the values of interventions in supporting and treating this increasingly prevalent but currently incurable condition.

MS SHERIDAN READ
Curtin University

Expectations for the future in people with dementia: An exploration of their care partners' understandings

Ms Sheridan Read[1], Associate Professor Chris Toye[1], Professor Dianne Wynaden[1]

[1]Curtin University, Bentley, Australia

Dementia is a syndrome resulting in progressive cognitive decline. Although people with dementia report wanting to uphold their decision making autonomy for as long as possible, proxy decision making may become necessary as the condition progresses. Care partners are family or friends who provide support for the person with dementia, and some who become the person's proxy decision maker report feeling burdened with the responsibility. Given that making informed decisions for another person requires an understanding of their expectations for the future, this study aimed to explore such understandings in care partners of people with dementia. Purposive and theoretical sampling was used to recruit 21 English speaking adults providing care for a family member with dementia at which point data saturation was reached. Recruitment was undertaken via support groups within the metropolitan area and a community radio station. Data were collected using semi structured interviews and analysed using constant comparative analysis. Data analysis ceased when four main categories had emerged. These categories were: *Knowing the person*, *Process of decision making*, *Maintaining normalcy and quality of life* and *Out of their control*. These findings provide insights into the importance of relationships between the person with dementia and their care partner. A person with dementia needs to communicate their desires and expectations for the future to their care partner if the care partner is to be suitably equipped to help safeguard their autonomy and preserve their quality of life as the dementia progresses.

Care

DR RACHAEL CVEJIC
UNSW Sydney

Using administrative data to understand the health profile of people with less common dementias

Dr Rachael Cvejic[1], Dr Ying Ho[1], Dr Preeyaporn Srasuebkul[1], Dr Simone Reppermund[1, 2], Professor Brian Draper[2, 3], Professor Julian Trollor[1, 2]

[1]Department of Developmental Disability Neuropsychiatry, School of Psychiatry, UNSW Sydney, Australia, [2]Centre for Healthy Brain Ageing, School of Psychiatry, UNSW Sydney, Australia, [3]Prince of Wales Hospital, Randwick, Australia

Most studies investigating the health of people with dementia have focussed on Alzheimer's disease and vascular dementia, the most common dementia types. Few have focussed on less common dementias, including frontotemporal dementia, Lewy body disease, and dementia due to other disorders and diseases. Here we explore the utility of routinely collected administrative hospital data to investigate the health profile of people with less common dementia types.

Using a large linked administrative dataset we formed a cohort of people with more common (n=23,128) and less common (n=10,043) dementias aged 25-107 years who were hospitalised in New South Wales from 2001-2010. We compared the principle diagnoses received by people with more and less common dementias at the first admission where dementia was recorded using logistic regression, adjusting for sociodemographic factors.

Compared to people with more common dementias, those with less common types were more likely to be hospitalised for diseases of the nervous system (excluding dementia; OR=5.13, 95%CI=4.65-5.65), injury/poisoning (OR=1.31, 95%CI=1.23-1.40), and other factors influencing health and service use (OR=1.25, 95%CI=1.14-1.38), e.g. problems related to health care. People with less common dementias were less likely to be hospitalised due to dementia itself (OR=0.30, 95%CI=0.27-0.33), diseases of the circulatory system (OR=0.60, 95%CI=0.55-0.65), and cancer (OR=0.64, 95%CI=0.55-0.74).

Our findings provide preliminary evidence of different patterns of primary reasons for hospitalisation for people with more and less common dementia types, highlighting the potential utility of administrative data to investigate the specific health needs of people with less common types of dementia.

DR KATE-ELLEN ELLIOTT
Wicking Dementia Research and Education Centre, University of Tasmania

Do psychosocial work characteristics predict turnover intentions of aged and dementia care workers in Australia?

Dr Kate-Ellen Elliott[1], Dr Michael Quinn[2], Ms Amber Johnstone[1], Professor Jenn Scott[2]

[1]University of Tasmania, College of Health and Medicine, Wicking Dementia Research and Education Centre, [2]University of Tasmania, College of Health and Medicine, Psychology.

Staff turnover can have detrimental effects on care outcomes. The objective of the study is to examine whether psychosocial work characteristics predict turnover intentions of aged and dementia care workers in Australia. Findings will inform the design of workforce development interventions that aim to build capacity, reduce turnover and improve quality of care.

An online cross-sectional survey used validated measures to assess intention to leave and psychosocial work characteristics including general self-efficacy, occupational self-efficacy, work engagement, and occupational communion (a multi-dimensional construct on social connection at work). Intention to leave was the main outcome variable in a multiple regression analysis. The remaining variables were predictors.

Participants (N=662) were predominately female (88%) and on average were 49 years old (SD = 10.31 years, Range 20-73). Nearly half (48%) were care workers, a third nurses (32%), and other category (20%) included allied health, managers or coordinators. Four psychosocial work characteristics significantly predicted intention to leave and explained approximately one third of the variance. Higher intentions to leave were significantly predicted by low 'natural' carer identity, low connection with co-workers, low work engagement, and higher blurred boundaries.

Capacity building strategies that aim to reduce turnover should enhance the psychosocial work environment in aged care. Workers could be supported to develop a caring identity, connect with their colleagues, engage with their job roles, and critically reflect on caring relationships and boundaries with care recipients. Future intervention research has a role to test the efficacy of such strategies prior to implementation.

DR STEPHANIE HARRISON
SAHMRI

Residential respite care Associates with lower likelihood of using long-term care for people with dementia

Dr Stephanie Harrison[1], Ms Catherine Lang[1], Professor Craig Whitehead[2], Professor Maria Crotty[2], Megan Corlis[3], Professor Steve Wesselingh[1], A/Professor Maria Inacio[1]

[1]SAHMRI, Adelaide, Australia, [2]Department of Rehabilitation, Aged and Extended Care, Adelaide, Australia, [3]Helping Hand, Adelaide, Australia

Residential respite care is considered a key aged care service to support carers and delay entry to long-term care, but the evidence-base for respite care is lacking. The aim of this study was to evaluate Associations between use of residential respite and use of long-term residential care.

480,862 people with residential respite care approvals in Australia (2005-2012) and 2-year follow-up were included (28.3% were living with dementia). Cox proportional hazard models and Poisson regression models adjusted for confounding factors were employed.

36.9% of participants used their respite approval (40.7% used respite once and returned home, 32.0% used respite and went directly to long-term care and 27.3% used respite ≥2 times). For people with dementia, compared to people who did not use respite care, using respite once and returning home or using respite ≥2 times was Associated with a lower likelihood of using long-term care (Hazard Ratio (HR),95%CI: 0.85,0.83-0.87). Whereas for people without dementia, using respite ≥2 times was Associated with a higher likelihood of using long-term care (1.07, 1.06-1.08). Using respite ≥2 times was associated with fewer overall days in residential care (respite plus long-term care days) for people with and without dementia (Incidence Rate Ratio, 95%CI: 0.88, 0.88-0.88).

For people with dementia using residential respite care reduces the likelihood of using long-term residential care and the number of days in residential care when people return home after their stay. This suggests using residential respite as intended achieves the goal to help people stay living at home.

MS KATHERINE LAWLER
Wicking Dementia Research and Education Centre

Family-assisted therapy for people living with dementia: a systematic review and meta-analysis

Katherine Lawler[1], Professor Nora Shields[2], Professor Nicholas Taylor[2]

[1]University Of Tasmania, Wicking Dementia Research & Education Centre, Hobart, Australia, [2]La Trobe University, College of Science, Health & Engineering, Bundoora, Australia

Higher doses of allied health therapies improve outcomes for a range of patient groups. Training families to assist with therapy increases therapy dose. Family-assisted therapy may increase therapy dose and address some of the barriers to effective care faced by people living with dementia.

To determine the evidence for family-assisted therapy and its impact on outcomes for people living with dementia and their family members.

Systematic review with meta-analysis of randomised controlled trials. Electronic databases were searched from the earliest available date until November 2018. The search strategy included synonyms for allied health professionals, family members, and randomised controlled trials. Risk of bias was assessed using the Physiotherapy Evidence Database (PEDro) scale.

Eight trials including 840 participants (494 male) with a mean age of 78 years met the inclusion criteria. Trials investigated family-assisted therapy interventions in occupational therapy (n=5), physiotherapy (n=1), psychology (n=1) and physiotherapy and psychology combined (n=1). Individual trials reported family-assisted therapy improved health outcomes for people living with dementia, including reduced pain, behavioural symptoms and depression, and improved physical health and functional independence. Individual trials also reported family-assisted therapy improved outcomes for family members, including reduced distress and improved self-efficacy and quality of life. Meta-analysis of four trials with 267 participants provided high quality evidence that improved outcomes may be achieved without increasing caregiver burden scores (SMD -0.08, 95% CI -0.32-0.16, I2 0%).

Family-assisted therapy is a promising approach to improving outcomes for both people living with dementia and their family members.

DR EMMA LEA
Wicking Dementia Research and Education Centre

Providing optimal nutrition in residential aged care: The role of staff and family knowledge

Dr Emma Lea[1], Ms Kim Page[1], Ms Liz Neville[1], Professor Andrew Robinson[1], Dr Kathleen Doherty[1]

[1]Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, Australia

Working with people living with dementia in residential aged care can be challenging, which is exacerbated by low levels of dementia knowledge. This study investigated the relationship between aged care home staff knowledge of dementia and strain in caring for people with dementia. A cross-sectional survey was conducted in 2017 in three southern Australian aged care homes. Ninety-six staff (53% of staff on shift over a 24-hour period) participated, including nurses, care workers and hospitality staff (i.e. those involved directly and indirectly in care). The questionnaire contained the Dementia Knowledge Assessment Scale and Strain in Dementia Care Scale. Bivariate analyses examined the relationships between scales, subscales and individual item scores. Dementia knowledge was found to be moderate (32.6/50) and strain in dementia care low (4.03/16). A positive relationship was found between dementia knowledge and strain in dementia care - i.e. the higher the knowledge, the higher the strain - particularly with regards to feeling that residents were not receiving appropriate care. The overall relationship between knowledge and strain was weak in staff in direct compared to non-direct care roles. The findings suggest aged care home staff have gaps in their dementia knowledge, but more comprehensive knowledge is also associated with higher strain in the context of perceived lapses in care quality. Further investigation is required on the impact of role on this relationship. However, it may be that employment of a whole-of-organisation approach to increasing dementia knowledge among as many staff as possible is important to minimise strain on individuals.

DR KIMBERLY LIND
Macquarie University

Innovations in monitoring health and medications of people with dementia in residential aged care facilities

Dr Kimberly Lind[1], Dr Magdalena Raban[1], Professor Andrew Georgiou[1], Professor Johanna Westbrook[1]

[1]Macquarie University, Macquarie University, Australia

Aged care is data rich, but information poor. Little is known about the health status of people with dementia living in residential aged care facilities and their medication use. Our objective was to develop a novel approach to monitoring medication use and comorbidities with existing electronic health record data.

We conducted a retrospective dynamic cohort study set in 68 Australian residential aged care facilities during 2014-2017. Using medication administration records and electronic health record data, we developed algorithms to identify dementia and other chronic conditions, and measure longitudinal medication use patterns. We analysed trends in antipsychotic medication use, often used for behavioural and psychological symptoms of dementia, and trends in anti-dementia medications (cholinesterase inhibitors and memantine) used to treat dementia symptoms.

5354 residents with dementia were identified from a total sample of 10,367. Hypertension and arthritis were the most common comorbidities (prevalence of 61% and 57%, respectively). Annual prevalence of medication use ranged from 28% to 38% for antipsychotics and 8% to 9% for anti-dementia medications. Antipsychotic use was longer than guideline recommendations in 65% of residents using these medicines. 83% of residents who used anti-dementia medications were using these medications at admission and 76% of residents who used antipsychotics were using these medications at admission.

Existing electronic health record data can be used to identify the prevalence of common conditions and monitor medication use and health status in residential aged care populations. Monitoring these outcomes is a critical step in improving the quality and safety of residential aged care.

DR MOYRA MORTBY
University of New South Wales

Practical Issues in Intervention Research in Residential Aged Care Facilities: Insights from the BPSDplus Project

Dr Moyra Mortby[1], Professor Elizabeth Beattie[2], Professor Nicola Lautenschlager[3], Professor Colleen Doyle[4], Scientia Professor Kaarin Anstey[1]

[1]University of New South Wales, Randwick, Australia, [2]Queensland University of Technology, Brisbane, Australia, [3]University of Melbourne, Melbourne, Australia, [4]National Aging Research Institute, Melbourne, Australia

The availability of effective non-pharmacological interventions to ameliorate discomfort of Residential Aged Care Facility (RACF) residents with Behavioural and Psychological Symptoms of Dementia (BPSD) remains a pressing sector need. However, the development and testing of such interventions in the complex and challenging RACF environment requires awareness of issues likely to impact access, recruitment and retention, data collection and data quality and staff engagement in the intervention. This presentation discusses the challenges and methodological issues encountered when developing and conducting the BPSDPLUS Program - an embedded trial in residential aged care.

The BPSDPLUS Program provided RACF staff with evidence-based training for BPSD assessment and management using non-pharmacological intervention. 64 staff (81% female) and 76 residents (68% female) from 3 sites of a non-for-profit care provider with dementia-specific units, participated in this 12-month program.

Developmental challenges included the development of an evidence-based training program and materials suitable for care staff from diverse cultural, linguistic and educational backgrounds as well as a research protocol that adheres to scientific rigour, while also facilitating practical fit within RACF operational requirements. Implementation challenges include participant recruitment and retention, staff concerns relating to operational time-constraints, confidentiality and job security when participating, issues with informed/proxy consent and maintenance of privacy when conducting staff and resident assessments.

Conducting Behavioural Intervention Research poses a number of complex challenges above and beyond those of traditional clinical trial requirements. However, embedded research is needed to help generate evidence-based programs that can be used to facilitate and inform practice changes in RACF.

DR LYN PHILLIPSON
University of Wollongong

Provider perspectives on consumer directed care: facilitators and tensions in supporting people with dementia

Dr Lyn Phillipson[1], Dr Louisa Smith[1]

[1]University of Wollongong, Australia

This study provides insights into how aged care service providers define and describe Consumer Directed Care (CDC) within the Home Care Packages program, and in particular the synergies and tensions between these descriptions and providing CDC for older people with dementia. In 2017-2018 telephone interviews were conducted with a convenience sample of n= 16 case managers from n= 6 unique aged care service agencies who were providers of Home Care Packages within NSW (Australia). Thematic analysis of interview transcripts highlighted five components that formed their conceptions of CDC. 'Supporting connections', 'Being flexible' and 'Focussing on choice and control' were recognised as integral, though challenging, when it came to supporting people with dementia – especially if that person was not supported by a family carer. However, the impacts of 'Focussing on budgets' and 'Organisational change' were considered at odds with engaging, including and providing supportive care of people with dementia. While the five components are all in line with government policy around CDC, participants' descriptions of them in practice indicate the need for capacity building around ways to improve implementation of CDC to better enact the principles of empowerment and choice and control for people with dementia.

MS ANDREA PRICE
Wicking Dementia Research and Education Centre

Challenges in undertaking ethnographic research in a secure dementia-care unit

Miss Andrea Price[1], Associate Professor Andrea Carr[2], Professor Fran McInerney[1]

[1]Wicking Dementia Research and Education Centre, University Of Tasmania , Hobart, Australia, [2]University College, University of Tasmania, Sandy Bay, Australia

Participant observation is a key element of ethnographic methodology. Contemporary ethnographic approaches acknowledge that researchers bring values and biases that influence their observations. This presentation discusses how the values and biases of an expert nurse/student researcher contributed to unexpected personal tensions and possibilities during ethnographic research with a vulnerable population.

Participant observation took place over 12 months in a secure dementia-care unit. The researcher was immersed in the day-to-day life of the unit, observing but not actively participating in routine tasks, events and activities. Residents living with dementia often assumed the researcher was a staff member and requested her assistance. Declining to assist was morally and professionally challenging for the researcher, as this conflicted with her personal and nursing values. Ethical challenges emerged during observation periods if a resident was observed to be at risk of harm and staff were not available to intervene. Further tensions emerged when clinical expertise could not be offered to assist staff in care. Identifying boundaries between active participant, non-participant observer, and participant observer roles was complex. For example, residents sought the researcher's company for conversation; as staff had limited opportunity to sit and talk with residents, these conversations could be considered therapeutic interventions, raising further research complexity.

Reflexive journaling and meetings with supervising members of the research team were crucial in uncovering tensions and possibilities around expert clinicians undertaking ethnographic research with vulnerable populations, and serve as a critical data source for exploring this in this presentation.

DR JOYCE SIETTE
Macquarie University

Social participation and wellbeing of older adults with dementia in community aged care

Dr Joyce Siette[1], Professor Andrew Georgiou[1], Professor Johanna Westbrook[1]

[1]Australian Institute of Health Innovation, Macquarie University, Australia

Although social networks play a role in slowing the development of dementia in the general population, much is unknown about the sub group of older adults receiving home- and community-based aged care. We aimed to identify the Associations between cognitive function and interpersonal relationships in older adults receiving community care services.

Older Australians (n=178) receiving community aged care services in NSW were asked about their social networks, health-related quality of life and assessed for cognitive function. Service use and sociodemographic variables were also collected. The primary outcome was cognitive function, measured by the Telephone Interview for Cognitive Status-Modified (TICS-M). Multiple regression analyses were performed to ascertain the Associations between quality of life, social network size and relationship status, demographics and cognitive impairment.

The sample had a mean age of 80.4± 6.7 years and the majority (65.8%) was female. A third (37.6%) had cognitive impairment and reported moderately high social networks (M=33.5, SD=11.8). Having increased contact with friends and high quality of life were significant predictors of better cognitive outcomes, while age, gender, number of family and friends were not associated with cognition.

Our findings suggest that maintaining a socially active lifestyle with friends in later life may benefit cognitive function. This has important implications for community aged care interventions targeting social isolation to improve cognitive function.

DR EDWIN TAN
University of Sydney

Do acetylcholinesterase inhibitors prevent or delay psychotropic prescribing in people with dementia?

Dr Edwin Tan[1,2], Professor Kristina Johnell[3], Professor J Simon Bell[4], Dr Sara Garcia-Ptacek[2,5], Professor Johan Fastbom[2], Professor Peter Nordström[6], Professor Maria Eriksdotter[2,7]

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Behavioural and psychological symptoms of dementia (BPSD) are common. Psychotropics, such as antipsychotics, anxiolytics and antidepressants, are often used to manage BPSD; however, they are Associated with significant adverse effects. The aim of this study was to investigate whether prescribing of acetylcholinesterase inhibitors (AChEIs) prevents or delays the subsequent initiation of psychotropic medication in people with Alzheimer's disease (AD) and Lewy body dementia (LBD).

This was a data linkage study of 17763 people with AD and LBD, who did not use a psychotropic at the time of dementia diagnosis, registered in the Swedish Dementia Registry (SveDem) from 2007 to 2015. Data on AChEI use, psychotropic use and comorbidities were linked using nationwide registers. Propensity-score matched Cox proportional hazards models were used to compute hazard ratios (HRs) and 95% confidence intervals (CIs) for the Association between time-dependent AChEI use and risk of psychotropic initiation.

During a median follow-up period of 2.6 [quartiles 1.3 – 4.2] years, 9959 people initiated a psychotropic. Compared with matched controls, AChEI users had a lower risk of antipsychotic (HR: 0.85, 95%CI: 0.75–0.95) and anxiolytic (HR: 0.76, 95%CI: 0.72–0.80) initiation. In sub-analyses, this Association remained significant at higher AChEI doses, and in AD but not LBD. There were no Associations between AChEI and initiation of antidepressants or hypnotics.

AChEI use may be Associated with lower risk of antipsychotic and anxiolytic initiation in AD, particularly at higher doses. Further investigation into AChEIs in BPSD management in LBD are warranted.

MS HEIDI WELBERRY
University of New South Wales

Transitions through aged care in the last five years of life among those with dementia

Ms Heidi Welberry[1], Scientia Professor Henry Brodaty[2,3], Dr Sebastian Barbieri[1], Dr Benjumin Hsu[1], Professor Louisa Jorm[1]

[1]Centre for Big Data Research in Health, UNSW, Sydney, Australia, [2]Centre for Healthy Brain Ageing, UNSW, Sydney, Australia, [3]Dementia Collaborative Research Centre, UNSW, Sydney, Australia

Aged care policy in Australia has increasingly focused on home and community-based care (HCBC). For those with dementia, staying at home is challenging due to the debilitating nature of symptom progression and it is uncertain whether HCBC is useful for this group towards the end of life.

Survey data collected in 2006-2009 from the 45 and Up study, a prospective cohort of 267,000 people from New South Wales, Australia were linked1 to: Hospitalisations, Deaths, Aged Care data; and Pharmaceutical Benefits Scheme claims2 for the period 2006-2014. We compare patterns of movement through aged care states (Home Support, Home Care, Respite, Permanent Residential Aged Care (PRAC) and Hospitalisation) within the last five years of life for a dementia cohort and age and sex-matched control group.

Those with dementia were more likely to use all forms of care but duration of use was longer for home support and PRAC only. Use of PRAC increased from 6 to 66% within the dementia cohort over the five years before death, and from 3 to 21% among controls. In the last year of life, HCBC use increased among controls (from 12 to 16%) but declined (from 14 to 10%) among those with dementia, mainly as a result of transitioning to PRAC.

Dementia-specific aged care trajectories were dominated by PRAC. Declining HCBC use suggests higher levels of care were needed by most dementia patients at the end of life.

[1] via the Centre for Health Record Linkage and Australian Institute of Health and Welfare

[2] Provided by the Department of Human Services

CONSUMER INVOLVEMENT IN RESEARCH PRESENTATIONS

HARRY DOUGLAS
Presenting with Dr Kate Smith

Items of the Good Spirit, Good Life quality of life tool for older Aboriginal Australians

Harry Douglas is a Gunnai man from south eastern Victoria, and a carer for his mum with dementia and other Aboriginal elders. He is working on the Good Spirit Good Life project with Melbourne University and the University of Western Australia. This personal and work based experience in caring for people with dementia is invaluable for ensuring the research project is collaborating effectively with older Aboriginal participants. This project is developing a package to identify and improve the quality of life of older Aboriginal Australians, including people with dementia. Harry is working closely with Aboriginal people with dementia and service providers in Melbourne and surrounds to ensure that the items of the Good Spirit Good Life tool reflect the wellbeing priorities of older Aboriginal people. He will discuss this process of collaboration with the community and service providers, resulting in the main quality of life themes that have informed the questions of the tool. He will also present the final items of the tool, with co-presenter and co-researcher Kate Smith.

VAL FELL
Presenting with Dr Lyn Phillipson

What happened to Respite?

Providing a range of respite options for people with dementia and their carers has traditionally been considered a core aspect of a well-functioning aged and disability care systems. In an ideal context, supporting informal carers and people with dementia to age in place involves providing access to a broad range of support including flexible respite services in a variety of settings.

Policy and program reforms in Australia are significantly transforming the aged and disability care service sectors, towards a more individualised, consumer directed and market based approach to service delivery. In the context of this fundamental re-design of these systems, what has happened to respite for carers?

In this paper, we will present the results from a content analysis of new national programs to shine a light on how planned and emergency respite have been included in new and continuing national programs including: the Home Care Support Program, Home Care Packages, Commonwealth Care Respite Centres; the Carers Gateway and Integrated Care Plan and the National Disability Insurance Scheme. We will also reflect on the results from over a decade of collaboration on local respite research and advocacy in the Illawarra (NSW) highlighting the insights this has provided to address the challenges facing people with dementia and their carers who identify the need for respite.

This paper provides a timely analysis of the interface between new and continuing national aged, carer and disability programs and their capacity to support access to flexible respite. Results highlight the need for a more integrated approach to respite policy development and service provision to support people with dementia and their carers. It also highlights the value of academic and community partnership in research to promote community impact and benefit.

THERESA FLAVIN

Effective involvement of people living with dementia in research – supported participation

I propose to outline the direct impact of fully integrating consumers into the supported decision- making project, the effectiveness of the resources developed as an output for public dissemination as a result of good integration and lessons learned on effectively working with consumers in a research setting.

PHIL HAZEL
Presenting with Ms Catherine Andrew

Beyond the role of research participant: collaborative consumer involvement as a member of the research team

This paper will detail my research roles: (i) initially as a research participant dealing with the impact of symptoms of dementia on my job; and (ii) co-researcher and presenter of my insights and experiences of extending workforce participation by way of employer support and reasonable adjustment. I will detail the benefits and challenges of being involved in collaborative research and share tips about reasonable adjustment strategies that support the consumer as a co-researcher.

TARA QUIRKE

The Cognitive Decline Partnership Centre (CDPC) at University of Sydney is a federal and industry supported research model with a vision to improve the lives of people with dementia. The Centre has worked closely with the NNIDR, and this presentation will provide overview of the Centre through four voices representing management, residential aged-care partners, consumers, and researchers. The speakers will share individual and group experience and learnings from their participation in this vibrant research centre that has supported and funded thirty-two (32) research teams all addressing contexts of care for people with dementia.

The Centre's collaborative processes facilitated identification of unmet needs, and research priorities for improving care for people with cognitive and related functional decline in Australia. Project grants were awarded to teams expected to include implementation into policy or practice within their scope of work. The Centre worked broadly across eight contexts of care: service model options; pathways and navigation; planning for later life; attitude and culture; clinical guidelines development; functional decline; medication management; and workforce development and education.

Research was funded under a contributory partnership model, with research teams expected to include consumers ie. people with dementia and/or their carers, and industry representatives, across all stages of the research cycle from Protocol development to final reporting. This meant that research outcomes, outputs, and interventions were developed in collaboration with consumers, industry, policy leaders, and health Professionals; enabling implementation of research-informed systems and attitude change to impact care for people with dementia in Australia.

BOBBY REDMAN

Involving those with the lived experience in dementia research means we all win

The involvement of those with the lived experience participating in dementia research provides benefits for everyone involved. Whether it be sitting on steering committees; reviewing surveys / questionnaires; or providing guidance in the preparation of materials to be used with participants, it helps to ensure that respectful and clear communication is used. By providing the filters to ensure that the research is dementia friendly, the participants are better able to respond to questions and use materials, thus providing more accurate responses, with a reduced level of stress for the participants. It also provides the researchers with a greater understanding of the dementia condition and how to better interact with those living with dementia.

However, the most beneficial effects appear to come from hands on involvement, such as in The Dementia Lifestyle Coach study, with benefits to not only the participants, but also to those living with dementia assisting in the research and the researchers. For the participants, these includes a better understanding and acceptance of their diagnosis, and the ways and means of living well with dementia. The peer supporters working in the study reported that alongside the provision of a supportive network, they experienced an increased sense of purpose and greater confidence regarding their own ability to maintain a positive lifestyle and improved organisational skills which helps them to maintain function. Finally, the benefits reported by one the researchers, who reported a change in perspective based on viewing dementia though the humanitarian lens rather than the more common perspective of economics and cost to the community. Giving hope that that in working together people living with dementia, researchers, doctors and other health Professionals will build understanding and a better future for all.

EILEEN TAYLOR

Presenting with Dr Jacki Liddle

Technology teams: Bringing the experts together to make technology that works for people

While many people hope that technology will support people living with dementia with safety, independence and participation, technology has not yet achieved this potential. Researchers and developers have recognised the importance of engaging users in the process of creating and evaluating technologies.

The Florence project aims to develop technology with people living with dementia and their care partners to support communication and participation. Lived Experience Experts are involved in guiding the project, being part of research activities, assisting in analysing findings, and sharing these findings with the community.

Part of the research project involves being part of design teams, supporting their learning about living with dementia, sharing my perspectives on technology and providing feedback on different versions of prototype designs. This is a team approach where we work together to try to create technology that works well for people. It requires challenging stereotypes, providing insights into strengths, interests and needs, and testing to see what is actually usable and acceptable. It is clear that people living with dementia and their care partners are an essential and valuable part of the technology team. We have worked together on a range of technology ideas including ways of connecting with people, calendars, reminders and prompts and making music more accessible. We have also talked about technologies that are currently available for people with dementia and our hopes and concerns with these including robots, monitoring systems and medication reminders.

In this presentation, we want to share the process including what has worked well, what we have learned and what our next steps are.

EILEEN AND DUBHGLAS TAYLOR

A Participant Reflection of Clinical Dementia Research

Research is an important part of our modern world and particularly medical and social research offers the promised of hope for people living with a dementia and their care partners and families. People diagnosed with dementia enter as Research participants full of this hope and expectations either for themselves or for the future of their families and others.

Participants are immediately asked to provide their informed consent to participate in clinical research, potential participants are encouraged to any risks, potential benefits, procedures, and alternatives. Yet it is likely that potential participants do not necessarily "informed consent" requirement. Does their lack of understanding undermine the validity of informed consent. Perhaps a better understanding needs to be provided that helps to appreciate how the generalized knowledge will benefit others in the future, and to the extent to which participating in the study will alter what participants do and what happens to them in the future. This could be done with training prior to and during the research with a compressive follow-up procedure that includes a debriefing and support at the end of the trial. Minimizing the use of technology and preferring a face-to-face conversation, especially if the trial abruptly ends. In this presentation, we want to explore the costs and benefits of researchers adding a training and follow-up process based on what we have learned and what any next steps could be.

POSTER ABSTRACTS

Prevention

DR JANE ALTY
Wicking Dementia Research and Education Centre

Cognitive Reserve not associated with age or gender in baseline Tasmanian Healthy Brain Project

Dr Jane Alty[1], Mr Aidan Bindoff[1], Dr Kimberley Stuart[1], Dr Shannon Klecociuk[1], Professor James Vickers[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

Background: Cross-sectional investigation of cognitive aging may be confounded by age and gender related cohort effects. Access to education and cognitively stimulating life activities is Associated with higher cognitive test scores, and may provide a 'cognitive reserve' (CR) that buffers against the effects of age-related brain pathology. Differences in access to education and cognitively stimulating life activities may confound estimated trajectories of normal cognitive aging, as these are presumed to have varied over generations and between genders.

Aim: To assess the relationships between age, gender and CR.

Method: 565 healthy older adults (68% women; median age 60 years, IQR 55-65) completed a baseline assessment of estimated premorbid cognitive function, a self-report questionnaire on years of school education completed, and the Lifetime of Experiences Questionnaire to gauge lifetime participation in cognitively stimulating activity. These measures were combined to form a proxy measure of CR.

Results: adjusting for age, there was a significant positive correlation between CR and cognitive test scores; but contrary to expectations, there were no significant effects of age or gender (or their interaction) on CR.

Conclusion: lifetime participation in cognitively stimulating activity is Associated with cognitive function, but the hypothesis that age and gender would be Associated with CR was not supported in this study. As participation in the study is voluntary, this may reflect a stratification of CR unrelated to age or gender in this cohort.

MS LISA BRANSBY
The Florey Institute of Neuroscience and Mental Health

Relationship between Perceived Stress, Stressful Life Events and Cognition in a Sample of Middle-Aged Adults

Ms Lisa Bransby[1], Dr Rachel Buckley[1,3,4,5], Dr Nawaf Yassi[1,2], Dr Yen Ying Lim[1]

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Background: Stress is Associated with cognitive dysfunction and increases risk for Alzheimer's disease (AD)-related cognitive decline. Using a remote online assessment platform, we aimed to further investigate this relationship in a large group of middle-aged adults with a family history of dementia.

Method: Participants (n=1384) aged 40-70 with a first- or second-degree family history of dementia enrolled online in the Healthy Brain Project (healthybrainproject.org.au) and completed the Perceived Stress Scale (PSS), the Depression Anxiety and Stress Scale (DASS), the Cogstate Brief Battery and the Cambridge Neuropsychological Test Automated Battery (CANTAB) Paired Associate Learning task. Participants completed the PTSD Checklist for DSM-5 (PCL-5) if they reported a stressful life event (SLE) in the past month.

Result: We observed small, significant relationships between perceived stress and attention (β=-0.0178, p<.001), memory (β=-0.0199, p<.001) and learning (β=-0.0136, p=.021). Participants who reported an SLE did not show worse cognitive performance than those who did not report an SLE. In participants who reported an SLE (n=191), those who reported higher levels of perceived stress performed worse on attention (Cohen's d=0.42), and learning (Cohen's d=0.29).

Conclusion: Higher levels of perceived stress were Associated with poorer cognitive function. This relationship was exacerbated further if individuals had experienced an SLE. This suggests that individuals' ability to moderate perceived stress following an SLE has more important implications for cognition than the event itself. Our results are consistent with those observed in in-clinic studies and support the use of a remote online platform to investigate the relationship between stress and cognition.

MISS ELLIE BUCHER
Wicking Dementia Research and Education Centre

Effects of sleep disruption and neuroplasticity on amyloid-β in a mouse model of Alzheimer's disease

Miss Ellie Bucher[1], Mr John McManus[1], Associate. Professor. Anna King[1], Professor James Vickers[1], Dr Matthew Kirkcaldie[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

Alzheimer's disease (AD) is characterised by progressive accumulation of amyloid-beta (Aβ), thought to arise from an imbalance between the generation and clearance of Aβ. The present study explored the effects of increasing Aβ production and impairing sleep-Associated clearance pathways in the APPswe/PSEN1ΔE9 mouse model of AD. Weekly alternating-row whisker trimming and a moderate sleep disruption protocol (8h on an orbital shaker, activated in intervals averaging 30sec on/90sec off) were employed to induce cortical plasticity, and disrupt clearance, respectively. 120 mice (60 male) were allocated to one of four conditions; subjected to either trimming or sham, and either sleep disruption or sham from eight weeks of age, until endpoints of either three, six, or nine months. Immunohistochemistry was used to label Aβ in the mouse cerebral cortex of the three month cohort. There were no significant effects of any manipulation. Six and nine month cohorts will be included in the final analyses (in progress). However, Arc expression was elevated in all conditions, compared to control, indicating an increase in plasticity in response to both whisker trimming and sleep disruption. This suggests that whilst the experimental treatments induce structural changes in the brain, they do not hasten the onset of pathology in this model. Given that sleep disorders are Associated with increased risk of AD in humans, and that people with AD often experience disturbed sleep, the outcomes of this study may have implications for the treatment of sleep related issues in individuals at risk of, or showing signs of AD.

DR ISABELLA CHOI
University of Sydney

Attitudes towards learning your personal dementia risk profile: A focus group study with at-risk adults

Dr Isabella Choi[1], Dr Rochelle Einboden[1], Dr Cynthia Forlini[1], Professor Nick Glozier[1], Professor Sharon Naismith[1]

[1]University of Sydney, Sydney, Australia

Background: A key question in dementia risk reduction and prevention is how to engage people to address potentially modifiable risk factors. Awareness of personal dementia risk profiles may motivate individuals to reduce their modifiable risk factors, but it may also cause unintended distress. This study explores the opinions of adults at risk of developing dementia about learning their personal dementia risk profile.

Method: Four focus groups were conducted (n=15) with community-dwelling middle-age and older- adults without diagnosis of dementia to explore their attitudes towards learning their personal risk and risk factors of dementia. Focus groups were transcribed and analysed thematically.

Results: Participants described learning their personal risk profile was an important motivator for making lifestyle changes to lower their risk and making plans to manage future care. They also described potential challenges of knowing risk such as coping with anxiety, depression, denial, or feeling helpless that they could not lower their risk. Participants offered differing opinions on the preferred way of learning about their risk (e.g. from a GP or anonymously online), but they emphasised the importance of the risk profiling tool in providing personalised information and resources to support them to lower their risk.

Conclusion: Although participants welcomed and described the benefits to learning their personal dementia risk profile, it appears that a "one size fits all" tool may not be suitable to all, and it is important to tailor the personal feedback and provide resources to support risk reduction.

MS NICOLE EE
University of New South Wales

Age-related changes in decision-making: a systematic review

Ms Nicole Ee[1, 2, 3]

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Background: Decision-making is an integral part of daily life and the capacity to make advantageous decisions is fundamental to autonomy and wellbeing. While age differences in decision-making patterns are well documented, disparate individual experimental studies, heterogeneous methodologies and outcome measures have made it difficult to ascertain the real-world impact of cognitive ageing on decision-making. This paper sought to synthesize the evidence on age-related change in older adult decision-making.

Methods: A systematic review was conducted to evaluate the evidence on age-related changes in economic, social, and health and safety related decision-making. EMBASE, MEDLINE and PsycINFO were searched from inception to 15 January 2019. No language restrictions were imposed. All articles returned by the search were screened by two independent reviewers according to pre-determined eligibility criteria. Experimental and observational studies reporting on the relationship between normal cognitive ageing, age-related changes in decision-making, and any associated health and wellbeing outcomes were included. Discrepancies were resolved through discussion and consensus.

Results: One hundred and twelve articles were identified at the full-text screening stage. A large proportion of studies investigated economic decision-making with the Iowa Gambling Task or the Ultimatum game. Eight studies reported on social decision-making, and only four reported on health and safety related decisions. Remaining studies focused on other processes (e.g. pre-decision information search, risk aversion, discounting, and adaptive decision-making). Due to methodological heterogeneity meta-analysis was not feasible.

Conclusions: Despite evidence showing age differences in a range of decision-making processes, its impact on health and wellbeing outcomes in older adults remains unclear.

MRS HANNAH FAIR
Wicking Dementia Research and Education Centre

Impacts of the Preventing Dementia MOOC beyond those educated: the diffusion of knowledge and behaviour

Mrs Hannah Fair[1], Dr Shannon Klekociuk[1], Dr Claire Eccleston[1], Dr Kathleen Doherty[1], Mr Aidan Bindoff[1], Professor James Vickers[1], Dr Maree Farrow[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

It is estimated that 28 - 48% of dementia cases are attributable to key modifiable risk factors, but several studies suggest low public awareness of this potential for dementia prevention. Effective public health strategies need to be developed to address this gap. A successful public health campaign will diffuse through interpersonal connections within a community, reaching individuals who would otherwise not access the information and increasing the adoption of risk reduction behaviour. The Wicking Centre developed the Preventing Dementia Massive Open Online Course (PD MOOC) to provide accessible education about modifiable risk factors for dementia; this course has attracted over 64,000 enrolments since 2016. 72% of the 3,596 participants who completed the PD MOOC feedback survey in 2018 indicated that they had already applied knowledge gained from this MOOC. They were asked how they had applied this knowledge and a natural-language processing algorithm was used to identify common themes. Sharing information with family, friends and colleagues was among the most prevalent themes. Participants and/or those they shared information with had altered their behaviour to reduce their dementia risk. For example, one participant, a 43-year-old female aged care administrator, reported that she shared risk reduction information with her diabetic mother who subsequently changed her diet. Understanding the characteristics of those who share dementia prevention information, the connections through which they share this information and the lifestyle changes being made will aid in the development of a public health campaign to reduce dementia risk and prevalence across society.

DR CAMILLA HOYOS
University of Sydney

Sleep disruption and circadian rhythm alterations in older people with depression

Dr Camilla M Hoyos[6], A/Professor Chris Gordon[2], Professor Simon Lewis[1], Dr Zoe Terpening[3], Dr Louise Norrie[4], Professor Ian Hickie[1], Professor Sharon Naismith[5]

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Background: Depression in older people occurs commonly and is Associated with underlying brain change and progression to dementia. While sleep disturbance is commonly documented in those with lifetime depression, it is unclear whether circadian misalignment also exists.

Methods: 34 older people meeting DSM-IV criteria for lifetime major depression (mean age = 63.9 years), and 30 healthy controls (mean age = 65.7 years) underwent a 3-night protocol including dim light melatonin onset (DLMO) assessment and overnight polysomnography (PSG). DLMO, area under the curve for total melatonin secretion and phase angle of entrainment (DLMO - mid-point of sleep) were computed. Sleep latency, wake after sleep onset, number of arousals and latency to rapid eye movement sleep were derived from PSG.

Results: Participants with depression had a significantly longer phase angle of entrainment than controls (6.82h±1.45 *vs.* 5.87h±1.60, p=0.02, Cohens-d=0.62). There was a small to moderate yet non-significant difference in DLMO times, with those with depression having an earlier DLMO of 34±27 minutes (20:36±1:48 *vs.* 21:10±1:48, p=0.22, Cohens-d=0.32). There was no statistical difference in melatonin area under the curve between groups. Sleep latency, latency to rapid eye movement sleep and nocturnal arousals were greater in those with depression compared to controls (all p<0.05).

Conclusions: In older people with lifetime major depression and mild residual symptoms, both circadian misalignment and sleep disturbance are evident. These changes warrant evaluation and treatment even when symptoms are remitted particularly since sleep-wake disturbance is Associated with cognitive decline, treatment responsiveness, depression recurrence and dementia.

DR SCHERAZAD KOOTAR
Neuroscience Research Australia

To investigate the Association between cortisol levels and memory impairments in animal and cohort studies

Dr Scherazad Kootar[1], Dr AnaRita Salgueiro-Pereira[3], Dr Ingrid Bethus[3], Dr Helene Marie[3], Professor Kaarin Anstey[1,2]

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Stress, a prominent risk factor for Alzheimer's disease (AD), activates the hypothalamus-pituitary-adrenal axis (HPA axis) which results in high levels of cortisol (in humans) and corticosterone (in rodents). Evidence shows that high cortisol/corticosterone mediated activation of glucocorticoid receptors (GRs) present on the hippocampus and prefrontal cortex is negatively associated with overall cognitive performance and synaptic plasticity. The effect of amyloid-beta oligomers (Aβo) on modulating hippocampal synaptic plasticity is evident, but the functional relationship between these oligomers and GRs at synapses is still mostly unknown.

To explore the Association between corticosterone levels and memory impairment we used the AD transgenic

Tg2576 mouse model (Tg+). Blood corticosterone and episodic memory were measured in these mice. High levels of plasma corticosterone and impairment in episodic memory was observed in the Tg+ mice at 4 months as compared to the controls, indicating an Association between high corticosterone levels and memory impairment. Furthermore, using ex-vivo electrophysiology, our results suggest that hippocampal GRs mediate Aβo-induced deleterious effects on long-term potentiation - an important physiological response to memory consolidation. In order to explore the relationship between cortisol levels and its effect on memory in humans, we are examining the longitudinal data from a cohort of adults aged 60 years and over. The preliminary data from this study will be presented at the forum.

DR LOUISE LAVRENCIC
Neuroscience Research Australia

Dementia incidence and risk factors for cognitive decline in older urban and regional Aboriginal Australians

Dr Louise Lavrencic[1], Ms Hannah Derrig[1], Ms Gail Daylight[1], A/ Professor Kim Delbaere[1,2], Professor Gail Garvey[3], Dr Thi Yen Hill[1,4], Dr Danielle Lasschuit[1,4], Professor Brian Draper[2,4], Professor Robert Cumming[5], Dr Simon Chalkley[6], Professor Peter Schofield[1], Professor G. A. (Tony) Broe[1,2], Dr Kylie Radford[1,2]

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Aboriginal Australians are disproportionately affected by dementia, with incidence in remote populations approximately double non-Indigenous populations. However, dementia incidence and risk factors in the urban/regional Aboriginal population need to be investigated. We assessed a representative sample of Aboriginal Australians aged 60+ years from 5 urban/regional communities, at baseline (N=336) and 6-year follow-up (N=165; n=68 died before follow-up). Dementia and mild cognitive impairment (MCI) were diagnosed based on clinical assessment and consensus review. Biomedical/psychosocial lifecourse risk factors (baseline assessment) were examined for cognitive decline (intact at baseline, to MCI/dementia at follow-up) using logistic regression analyses. ApoE genotyping was available for 89 follow-up participants. There were 16 incident dementia cases (12 probable/possible Alzheimer's disease), with an incidence rate of 17.55 per 1000 person-years (95% CI: 10.03-28.50). Dementia incidence was similar to a remote Aboriginal population, with a comparable age-adjusted rate of 29.73 per 1000 person-years (95% CI: 15.16-44.30). Education was a significant protective factor for cognitive decline (OR=4.05). In a multivariable model, only older age (OR=3.05), male sex (OR=3.68), unskilled work (OR=3.93) and hearing loss (OR=4.55) remained significant risk factors. ApoEε4 allele frequency (a risk factor for Alzheimer's disease) was 24.4%, which is higher than European/US prevalence figures (~14%); ApoEε4 was borderline Associated with cognitive decline (p=.050). These findings provide the first evidence for greater dementia incidence in Aboriginal Australians from urban/regional areas (where the majority of Aboriginal people reside); and shed light on risk factors for late-life cognitive decline in this population, which is important for targeted prevention strategies.

DR MATTHEW LENNON
University of New South Wales

Mid-life hypertension and Alzheimer's dementia – A systematic review and meta-analysis

Dr Matthew Lennon[1,2], Dr Steven Makkar[1,2], Dr John Crawford[1,2], Professor Perminder Sachdev[1,2,3]

[1]UNSW, Kensington, Australia, [2]Centre for Healthy Brain Aging, Randwick, Australia, [3]Prince of Wales Hospital, Randwick, Australia

Background: Hypertension is an established risk factor for stroke and vascular dementia but recent meta-analyses looking at the Association between Alzheimer's disease (AD) and hypertension have found no significant Association. These meta-analyses included a number of short term studies starting in late life which very likely obscured the real effect of mid-life hypertension. We examined the Association of AD with mid-life hypertension, by including only studies with a sufficiently long follow up duration and by clearly defining the type of hypertension.

Methods: Relevant studies were found by searches of MEDLINE, EMBASE and PubMed. Study outcomes were grouped by measures of blood pressure and definition of hypertension (e.g. Systolic hypertension >140 mmHg or >160 mmHg, diastolic hypertension or blood pressure measured in 10 mm Hg increments).

Results: Literature search found 7 eligible studies. There was a significant Association between systolic hypertension (>160 mm Hg) and AD (HR 1.25, 95CI 1.06 – 1.47, p=0.0065). Similarly, for systolic hypertension >140 mm Hg there was a smaller but still significant Association (HR 1.18, 95CI 1.02 – 1.35, p=0.021). For diastolic hypertension, all four studies found no significant Associations between diastolic hypertension and AD, and these data could not be pooled due to heterogeneity in reporting.

Conclusions: Our study found that midlife stage 1 and stage 2 systolic hypertension is Associated with increased risk of AD by 18 and 25 percent respectively, although no Association was found for diastolic hypertension.

MR JOHN MCMANUS
Wicking Dementia Research and Education Centre

Examining gene expression following sleep disruption and induced plasticity in Alzheimer's model mice

Mr John McManus[1], Ms Ellie Bucher[1], Associate Professor Anna King[1], Professor James Vickers[1], Doctor Matthew Kirkcaldie[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

The progressive accumulation of amyloid beta (Aβ) peptides in Alzheimer's disease (AD) is subject to its production and clearance. During sleep, accumulated brain metabolites including Aβ clear via glymphatic pathways. The effects of increasing Aβ production and impairing sleep-Associated clearance were examined in a mouse model of AD. Weekly alternating-row whisker trimming was used to induce plasticity in the right hemisphere somatosensory cortex, in addition to a moderate sleep fragmentation protocol. 60 male and 60 female mice assigned to one of four groups receiving whisker trimming,

sleep disruption, both or neither (control) from 8 weeks until the cohort reached 3, 6 or 9 months. Relative gene expression was determined for plasticity-related genes *Gap43* and *Arc*; *Aqp4*, encoding aquaporin protein responsible for glymphatic clearance of Aβ; and *APP*, encoding the amyloid precursor protein (APP). Current data represented by incomplete groups indicate no significant difference in the expression of *Aqp4*, *Gap43* or *APP* mRNA following either manipulation when compared with age-matched controls. Preliminary results indicate significant increase in the expression of *Arc* in all treatment groups, with no substantial difference noted amongst other target genes. Interestingly, chronic disruption of sleep did not appear to impact the expression of *Aqp4* in affected mice. Ongoing studies intend to confirm these findings and examine the relationship between expression and prevalence of the translated protein. Understanding the molecular biology of Aβ accumulation and the value of sleep in its clearance may even provide new lifestyle and therapeutic targets for the prevention.

DR MORGAN NEWMAN
The University Of Adelaide

Can the zebrafish help us understand the molecular mechanisms of inherited Alzheimer's disease?

Dr Morgan Newman[1], Miss Nhi Hin[2], Dr Stephen Pederson[2], Associate Professor Michael Lardelli[1]

[1]Alzheimer's Disease Genetics Laboratory, School of Biological Sciences, The University of Adelaide, Adelaide, Australia, [2]Bioinformatics Hub, School of Biological Sciences, The University of Adelaide, Adelaide, Australia

Despite over 100,000 publications on Alzheimer's disease (AD), there is still disagreement about what actually causes the disease. To prevent or delay AD onset we must understand its underlying molecular mechanisms. We know that inherited (familial) cases of AD (fAD) are caused by mutations in either the *APP*, *SORL1* or *PSEN* genes. Our research team are world leaders in using zebrafish to investigate these genes. For human disease modeling, zebrafish enable sensitive detection of changes in gene and protein expression that occur due to disease mutations. We have generated fAD-like mutations in the zebrafish and are analysing the mutant brains as they age by monitoring their gene and protein expression and also by observing their responses to stress. Our analysis of young adult fish brains has highlighted changes in energy metabolism, inflammation, hypoxia, oxidative stress and other cellular systems as being early effects of fAD mutations. Importantly, these factors are all known to be involved in the late onset, common form of AD. Intriguingly, when aged mutant fish are exposed to low oxygen (hypoxia) they show an "inverted" pattern of gene response which is reminiscent of the differences seen between healthy human brains and brains of people with mild cognitive impairment and AD. These results support that our zebrafish models can be revealing about both fAD and late onset AD. Our analysis suggests that young pre-AD brains are under energy stress, followed by an "inversion" into the full disease state.

MR GONGBU PAN
Wicking Dementia Research and Education Centre

Association of Alzheimer's disease polygenic risk score with changes of cognitive function in older adults

Mr Gongbu Pan[1], Associate Professor Anna King[1], Professor James Vickers[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

Background: Previous studies show evidence that more than 21 genetic variants and polygenic risk were Associated with the Alzheimer's disease (AD). But the relationship between Alzheimer's disease polygenic risk scores (ADPRS) and cognitive function was unclear due to the lack of longitudinal data. This study investigated the potential Association between ADPRS and changes in cognitive function Associated with ageing.

Methods: The TBHP is an ongoing longitudinal prospective study of 459 healthy older adults. Participants with available genotype data (N=326) were included in analysis. ADPRS was calculated by using sets of AD susceptibility variants identified by a meta-analysis of GWAS data. The cognitive function domain z-scores at baseline and year 1, 2 and 3 were calculated using factor analysis (principal components extraction method). Single factor scores for episodic memory, working memory, executive function, and language processing domains were combined by using factor coefficients via regression analysis. Linear mixed-effects model analysis was performed to investigate the Association between ADPRS and cognitive function longitudinally.

Results: The ADPRS was significantly Associated with the decline of language processing z-score over 36 months (β= -0.09 per one ADPRS; p=0.044). There were no Associations between ADPRS and longitudinal changes in other cognitive domains. Additionally, a negative interaction between ADPRS and age was found for working memory (p=0.045).

Conclusions: ADPRS may influence changes in specific cognitive domains in older adults. Age may be an important effect modifier of the genetic influence on changes in working memory.

MR ANDREW PHIPPS
Wicking Dementia Research and Education Centre

Dysregulation of the neuronal epigenome occurs prior to pathology-onset and evolves with progressive amyloidosis

Mr Andrew J Phipps[1], Mrs. Katherine Giles[2], Associate Professor Timothy Mercer[3], Professor James C Vickers[1], Associate Professor Mark Robinson[4], Doctor Phillippa C Taberlay[5], Doctor Adele Woodhouse[1]

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Therapeutic development is currently hampered by an incomplete understanding of Alzheimer's disease (AD) mechanisms. The epigenetic machinery (including histone modifications) is at the interface between our genes and the environment and is well positioned to be a mechanistic link. Neuronal dysfunction underlies many of the symptoms of AD, yet few studies focus on neuronal epigenetic alterations in AD. We examined H3K4me3 and H3K27ac histone modifications using ChIP-seq in forebrain neurons from 3, 6 and 12 month old wild-type and APP/PS1 mice, representing pre-pathology, pathology-onset and pathology-rich time-points (n=30 total, n=5/genotype/timepoint). There was an increase in H3K27ac and H3K4me3 marking at promoters pre-pathology in APP/PS1 neurons. Enhancers and super-enhancers were differentially enriched for H3K27ac marking between APP/PS1 and wild-type neurons pre-pathology and at pathology-onset. Unlike TSS and enhancers, super-enhancers followed a different pattern of enrichment in APP/PS1 *versus* wild-type neurons across amyloidosis. A partial recapitulation of a pre-pathology histone landscape also occurred in APP/PS1 neurons from pathology-rich brains; >23% of differentially H3K4me3 and H3K27ac marked sites were shared and >70% of these shared sites were consistently enriched at both time-points. Gene ontology analysis annotations were distributed between pathways that were: 1) Unique to healthy aging, 2) Specific to amyloidosis and 3) Altered in healthy aging and dysregulated with amyloidosis. This data provides insight into the epigenetic dysregulation occurring in neurons in a milieu of amyloidosis. Our long-term goal is to identify the epigenetic changes that drive neuron dysfunction and degeneration in AD and discover effective therapeutic targets.

DR JOANNE RYAN
Monash University

Identifying risk and resilience factors to cognitive decline and dementia - ASPREE

Dr Joanne Ryan[1], Professor. Elsdon Storey[1], Professor. Anne Murray[2,3], Professor. Robyn Woods[1], Dr. Trevor Chong[1], Dr. Christine Burns[2,3], Professor. Jeff Williamson[4], Professor. Rory Wolfe[1], Dr. Jessica Lockery[1], Dr. Suzanne Orchard[1], Ms. Brenda Kirpach[2,3], Professor. Christopher Reid[5], Professor. Mark Nelson[6], Professor. John McNeil[1], Professor. Raj Shah[7]

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Background: Large prospective studies of deeply-phenotyped individuals, with regular assessments of cognitive function and rigorous dementia diagnosis, will enable better characterisation of factors Associated with both risk of and resilience to cognitive decline and dementia.

Methods: ASPirin in Reducing Events in the Elderly (ASPREE) is a randomised placebo-controlled trial of daily low-dose (100 mg) aspirin. Eligibility criteria included age ≥70 years (≥65 years for US minorities groups) without cardiovascular disease, physical disability or dementia, and with a Modified Mini-Mental State examination (3MS) score >77. Participants underwent regular systematic assessment of general cognition, language/verbal fluency, delayed recall, attention and processing speed. Dementia diagnosis was adjudicated by an international expert panel according to DSM-IV criteria.

Results: 16,703 Australian and 2,411 US participants were recruited. Mean cognitive scores at baseline varied according to race/ethnicity, country, age, education and gender. Over a mean 4.7 years of treatment, aspirin compared to placebo did not prolong disability-free survival (a composite of death, dementia or persistent physical disability); component analysis showed no independent effect of aspirin on dementia. Although the treatment phase of the trial has ended, all individuals will continue to be followed with regular cognitive testing and adjudicated dementia diagnosis as part of the ASPREE-XT (extension) cohort study.

Conclusion: Given the depth and breadth of high quality data which has been gathered, and will continue to be obtained on such a large population of older individuals, this study will provide a valuable resource to study both protective/resilience and risk factors for cognitive decline and dementia.

MR DIMITRIOS SAREDAKIS
University of South Australia

Feasibility study using virtual reality to reduce apathy

Mr Dimitrios Saredakis[1], Dr Tobias Loetscher[1], Associate Professor Hannah Keage[1], Megan Corlis[2]

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Apathy contributes to a poorer quality of life, particularly for patients in aged care facilities. If untreated, apathy results in a faster rate of cognitive decline and increased burden on the carer. Despite a high prevalence rate, apathy is a poorly understood symptom, occurring in those who are both cognitively healthy and impaired. Reminiscence therapy is a promising non-pharmacological intervention based on a person's past experiences and can involve conversations around items such as photographs or music that the person relates to and can remember. The use of virtual reality may be able to provide a more realistic and

immersive experience that could increase the efficacy of reminiscence therapy and reduce a person's level of apathy. We will report the results of a feasibility study in which we determined the challenges involved in using a virtual reality intervention in an aged care facility and the acceptability of virtual reality technology regarding the use of head-mounted displays in older adults.

DR JOYCE SIETTE
Macquarie University

Associated social factors for cognition of older adults receiving community aged care services

Dr Joyce Siette[1], Professor Andrew Georgiou[1], Professor Johanna Westbrook[1]

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Introduction: Although social networks play a role in slowing the development of dementia in the general population, much is unknown about the sub group of older adults receiving home- and community-based aged care. We aimed to identify the Associations between cognitive function and interpersonal relationships in older adults receiving community care services.

Methods: Older Australians (n=178) receiving community aged care services in NSW were asked about their social networks, health-related quality of life and assessed for cognitive function. Service use and sociodemographic variables were also collected. The primary outcome was cognitive function, measured by the Telephone Interview for Cognitive Status-Modified (TICS-M). Multiple regression analyses were performed to ascertain the Associations between quality of life, social network size and relationship status, demographics and cognitive impairment.

Results: The sample had a mean age of 80.4± 6.7 years and the majority (65.8%) was female. A third (37.6%) had cognitive impairment and reported moderately high social networks (M=33.5, SD=11.8). Having increased contact with friends and high quality of life were significant predictors of better cognitive outcomes, while age, gender, number of family and friends were not associated with cognition.

Discussion: Our findings suggest that maintaining a socially active lifestyle with friends in later life may benefit cognitive function. This has important implications for community aged care interventions targeting social isolation to improve cognitive function.

DR KATE SMITH
University of Western Australia

Co-development of a dementia prevention and risk management program for Aboriginal Australians (DAMPAA)

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Dementia is highly prevalent in Aboriginal Australians, however we have identified that many dementia risk factors are modifiable. These include head injury, hypertension, previous stroke and poor mobility.

Working in partnership with three Aboriginal Community Controlled Health Services (ACCHS) and older Aboriginal people in urban and rural Western Australia, we are developing an Aboriginal Health Worker led ACCHS based dementia risk management and prevention program for Aboriginal Australians (DAMPAA). Program development has been informed by existing best practice guidelines, Elders yarning groups, Theory of Change workshops, and a 2 week program pilot, prior to the DAMPAA randomised controlled trial.

The DAMPAA program enablers identified in three ACCHS worshops (23 participants total): provide transport, 2 part-time health workers at each site, take blood pressure and blood glucose at each session, encompass popular local sporting activities, link into community sport clubs, access students, flexibility around participant work commitments, assessment period split over two sessions. Enablers identified in 2 men's and 2 women's yarning groups (19 participants total) include: Health worker phone calls for motivation, encourage a buddy system for home sessions, family involvement for support, later morning start for caring responsibilities, dancing and water aerobics, no cost, and group education. Pilot results will also be presented.

There was a high level of service provider and Aboriginal Elder interest in participating in an Aboriginal co-developed brain health program. The Theory of Change framework can be used for co-development of Aboriginal health programs to strengthen partnerships, participation, promote enablers, and identify potential barriers.

DR HAMID SOHRABI
Edith Cowan University

Cognitive and CSF biomarkers Resilience in Autosomal Dominant Alzheimer's disease: Contribution of Education Years

Dr Hamid Sohrabi[1,2], Dr Michael Weinborn[1,3], Professor Christoph Laske[4,5], Dr Petra Graham[6], Mr Kevin Taddei[1], Dr Samantha Gardener[1], Dr Pratishtha Chatterjee[2], Dr Stephanie Rainey-Smith[1], Dr Belinda Brown[7], Dr Xiong Xu[8], Professor Chengjie Xiong[8], Dr Jason Hassenstab[9], Professor Anne Fagan[9], Professor Tammie Benzinger[10], Professor Virginia Buckles[9], A/Professor Roger Clarnette[11], Dr Tejal Shah[2], Professor Colin Masters[12], Dr Michael Weiner[13], Professor Nigel Cairns[14], Professor Martin Rossor[15], Professor Nick Fox[15], Professor Neill Graff-Radford[16], Professor Stephen Salloway[17], Professor Jonathan Vöglein[18], Professor Johannes Levin[19], Professor James Noble[20], Professor Peter Schofield[21,22], Professor Randall Bateman[9], Professor John Morris[9], Professor Ralph Martins[1,2]

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Background: Educational and vocational achievements, as proxies to cognitive reserve (CR), may delay functional disabilities and biomarkers changes in late-onset Alzheimer's disease (AD). However, this relationship has not been reported in autosomal dominant AD (ADAD). This study examined years of education as a predictor of global cognition, dementia severity and changes in CSF bio-markers in ADAD families with mutations in one of the three genes (APP, PSEN 1 and PSEN 2) causing early onset dementia.

Methods: Data from the Dominantly Inherited Alzheimer Network (DIAN; Data Freeze 11) cohort carrying the mutation were used in analysis. Linear, ordinal models were used to examine the effects of years of education on Clinical Dementia Rating (CDR) scale, Mini Mental State Examination (MMSE; reversed and natural logarithm taken; higher scores worse), CSF β-amyloid$_{42}$, total tau, and phosphorylated tau$_{181}$. The CDR scores were treated as ordinal categories (normal= 0.0; mild cognitive impairment=0.5; dementia= ≥1). All models controlled for age, gender, *APOE* ε4 status and PiB PET amyloid load. A random intercept for family was used to control for the correlation induced by including members of the same family in the model.

Results: Data of 261 mutation carriers, on average 38.6 (SD=10.9) years old at baseline (144 women and 117 men) from 136 families were included. Education was positively Associated with CSF β-amyloid$_{42}$ ($p<0.05$) and log reversed MMSE ($p<0.001$) [Figures 1 and 2], and negatively with total tau ($p<0.001$), and phosphorylated tau$_{181}$ ($p<0.005$). Every additional year of education was associated with lower (better) log reverse MMSE scores (-0.08, 95%CI:-0.12,-0.04). Odds of being in a higher global CDR score (>0.5) were significantly lower for every additional year of education ($p=0.004$, odds ratio [OR] 0.78, 95%CI: 0.66, 0.93).

Conclusions: Our cross-sectional findings showed a significant relationship between education, cognitive impairments and CSF markers of AD in mutation carriers. Specifically, years of education, as a proxy for CR, was significantly related to global cognition (MMSE), dementia severity (CDR), and CSF β-amyloid$_{42}$, total tau, and phosphorylated tau$_{181}$. These findings lend further support to the CR hypothesis in accounting for the discrepancy in functional and biomarkers outcome measures in ADAD.

PROFESSOR CHRISTINE STIRLING
University of Tasmania School Of Nursing

A Re-AIM real world evaluation of a multi-modal dementia risk reduction program

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This study evaluated the efficacy of a community-based Memory Wellness Program focused on improving physical activity, nutrition, cognitive stimulation and socialisation. Dementia risks were targeted in older adults by increasing health literacy and encouraging health promoting behaviours.

Methods: Across eighteen locations in three states and a territory of Australia 179 older adults aged 65 years and over participated in a nurse-led program involved goal-setting, education, group activity, and introduction to the use of iPads and Misfit activity trackers. A mixed methods evaluation design used pretest-posttest data, with paired t-test analysis on all clinical data, and qualitative interviews with seventeen participants and staff.

Results: Engagement in the program was Associated with improved cognition, lowered BP and stress, increased engagement with technology and a trend towards reduced feelings of loneliness. Participants main motivations for undertaking the program were to improve memory, meet new people and improve technology use and computer literacy, with most participants reporting that these goals had been met through the program.

Discussion and Implications: This evaluation of a community-based Memory Wellness Program demonstrated increased cognitive function in older adults presenting with concerns about their cognition and memory. The evaluation had more external validity but less internal validity than a randomised control trial. The statistically significant results and medium to large effect sizes suggest that further research is warranted to assess

the efficacy of multi-modal community-based programs for improving memory and mental health with a focus on dementia risk reduction in older adults.

DR PAUL STRUTT
Macquarie University

Hearing loss and Dementia Incidence in Australia: Findings from the Sydney Memory and Ageing Study

Dr Paul Strutt[1], Professor Amanda Barnier[1], Professor Greg Savage[2], Professor Viviana Wuthrich[2], Professor Brian Draper[3], Scientia Professor Henry Brodaty[3]

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Interventions targeting risk factors for dementia have the potential to delay or prevent a third of dementia cases. Addressing midlife hearing loss could prevent up to 9% of new cases, the highest of any potentially-modifiable risk factor identified in the 2017 commissioned report in The Lancet. In Australia, hearing loss is the second-most common health condition, affecting 74% of people aged over 70. Estimates suggest that people with mild hearing loss are twice as likely to develop dementia, and people with severe hearing loss are five times more likely to develop dementia. While an Association between hearing loss and dementia has been established internationally, less is known about these Associations for older adults in Australia. Using data from the Sydney Memory and Ageing Study (MAS), in which 1,037 adults aged between 70-90 years were enrolled and completed biannual assessments from 2005-2017, we present the first known Australian-based report of hearing loss and dementia incidence using a large longitudinal Australian cohort. Our primary investigation will determine the Association between self-reported hearing difficulties and incident dementia in the MAS cohort. This analysis is based on data gathered from participant medical history, performance on neuropsychological tests, and consensus diagnostic outcomes across the first 12 years of the study. Benefits Associated with self-reported use of hearing aids will also be discussed. This study is an important first step in understanding the role of hearing loss, a significant and potentially-modifiable risk factor for dementia, on cognitive trajectories in older adult Australians.

DR KIMBERLEY STUART
Wicking Dementia Research and Education Centre

Is stress associated with dementia risk? A systematic review

Dr Kimberley Stuart[1], Dr Christine Padgett[2]

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Background: It has been estimated that one third of dementia cases may be preventable through modifiable lifestyle interventions. Epidemiological evidence suggests a link between stressful life events and ageing-related cognitive decline and dementia, however inherent methodological limitations in examining subjective and biological measures of stress separately leads to interpretive constraints.

Aim: The aim of this study was to conduct a systematic review of the literature that has investigated the Association between stress and dementia risk, in order to synthesise and evaluate the evidence from both epidemiological and experimental studies utilising human participants.

Methods: We conducted a systematic review of cohort, case-control, longitudinal prospective or retrospective studies examining the Association between stress and risk of developing dementia. Studies were identified from a systematic search across major electronic databases from inception to September 2018.

Results: Overall, 24 studies were identified including a total of 1, 102, 764 participants with age ranges from 30 to 80 years old. There was considerable heterogeneity in the definition and measurement of stress. The identified studies could be broadly classified as having operationalised stress as biological, psychological, clinical, or environmental, with most reporting a significant positive Association between stress and dementia risk.

Conclusions: Preliminary analysis shows consistent evidence that biological and clinical measures of stress is Associated with an increase in dementia risk.

DR JAY JAY THAUNG ZAW
University of Newcastle

Neurovascular coupling is impaired in mildly hypertensive older women

Dr Jay Jay Thaung Zaw[1], Professor Peter Howe[1], Dr Rachel Wong[1]

[1]University of Newcastle, Callaghan, Australia

Background: Hypertension-induced microvascular injury is a major contributor to vascular dementia. However, no studies have ascertained the extent to which mild hypertension affects cerebral microcirculation and cognition. Using the American Heart Association's 130/80 mmHg threshold for stage-1 hypertension, we investigated the impact of hypertension on neurovascular coupling and cognitive performance in postmenopausal women without overt disease.

Method: Baseline data was obtained from a two-year intervention trial in 146 postmenopausal women aged 65±1 years who underwent a battery of 10 cognitive tests. Compliance of large and small systemic arteries was assessed with Cardiovascular Professoriler. Transcranial Doppler Ultrasound was used to determine responsiveness of cerebral arteries to cognitive tests (neurovascular coupling). Central adiposity was assessed using Dual Energy X-ray Absorptiometry. Fasting blood lipids were also measured.

Results: Of the 146 women, 54 were hypertensive (141±1/75±1 for SBP/DBP) and slightly older (67±1 years) than the normotensives (64±1 years, 114±1/64±1 for SBP/DBP). The hypertensive group had higher BMI, central adiposity and triglycerides and lower compliance of small (-33%) and large (-20%) arteries. Their neurovascular coupling was significantly lower during tests of processing speed (-31%) and cognitive flexibility (-26%). However, cognitive performance did not differ. SBP was negatively Associated with neurovascular coupling during tests of processing speed ($r=-0.332$, $p<0.001$), cognitive flexibility ($r=-0.294$, $p=0.002$) and overall cognition ($r=-0.326$, $p=0.001$).

Conclusion: Despite having similar cognitive performance, impaired cerebrovascular responsiveness was observed in stage-1 hypertensives compared with normotensives. Both blood pressure and central adiposity can contribute to this dysfunction. Preventive strategies to reduce risk factors are crucial for maintaining optimal cerebrovascular function

DR JAY JAY THAUNG ZAW
University of Newcastle

Cerebrovascular, cognitive and glycaemic benefits of long-term resveratrol supplementation in postmenopausal women

Dr Jay Jay Thaung Zaw[1], Professor Peter Howe[1], Mr Hamish Evans[1], Dr Rachel Wong[1]

[1]University of Newcastle, Wallsend, Australia

Introduction: Due to declining estrogen levels, the impact of vascular ageing that contributes to poor cerebral perfusion affects postmenopausal women adversely. Our 14-week pilot study showed that resveratrol, a phytoestrogen found in skins of grapes and berries, improved cognition and cerebrovascular function in postmenopausal women. We now aim to confirm these benefits in the first ever long-term study with resveratrol.

Method: Postmenopausal women aged 64±1 years, not on hormone replacement therapy, were randomised to take 2×75mg resveratrol or placebo for 12 months (n=141). Blood pressure, compliance of large and small arteries and fasting glucose, insulin and lipids were examined. Cognitive performance was assessed by a battery of 10 cognitive tests. Neurovascular coupling capacity (NVC) was measured with transcranial Doppler ultrasound that assessed vasodilator responsiveness of cerebral arteries during cognitive tests.

Results: Resveratrol group outperformed in verbal recall (d=0.352, p=0.039), pattern comparison (d=0.446, p=0.004) and trail making tasks (d=0.373, p=0.041). By domains, there were significant improvements in cognitive flexibility (d=0.294, p=0.015) and overall cognitive performance (d=0.351, p=0.004). Compared to placebo, resveratrol attenuated decline in NVC by more than 60% (p=0.014), particularly during task of attention (d=0.362, p=0.035). Importantly, the relative improvement in NVC correlated with reduction of fasting blood glucose (r=-0.340, p=0.004). No other changes were observed in systemic vascular function or cardio-metabolic biomarkers.

Conclusion: Confirming our pilot results, these data highlight the potential for long-term resveratrol treatment to restore cognitive deficits by attenuating declining cerebrovascular function in postmenopausal women. Moreover, the accompanying improvement in glycaemic control, even in a non-diabetic cohort, highlights the multifaceted benefits of counteracting vascular ageing with resveratrol.

MRS LUCIANA THEODORO DE FEITAS
Queensland Health

A combined cognitive and exercise program for older adults with mild cognitive impairment: preliminary findings

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Background: Fourteen percent of people with mild cognitive impairment may progress to dementia. Dementia is a leading cause of disability worldwide including Australia, meaning effective interventions are urgently needed to prevent or slow the progression of the disease and its overall burden to the person, community and health services. This pilot-study aimed to identify the feasibility and acceptability of a combined cognitive and functional-task based exercise program to delay the onset of dementia in people with mild cognitive impairment.

Method: A mixed methods approach was used. Individual interviews were conducted with caregivers and participants of the ten-week intervention program. Quantitative data included cognitive and functional assessments performed pre- and post-intervention such as Neurobehavioral Cognitive Status Examination, Verbal Fluency Test, Verbal Learning Test, Trial Making Test A and B, Lawton Instrumental Activities of Daily Living Scale and Problems in Everyday Living Test.

Results: Approximately 80% of the 23 participants completed the program demonstrating its acceptability. Interim results show significant improvements in several cognitive and functional areas. The improvements demonstrate the combined cognitive and exercise program is beneficial for people at risk of dementia. The qualitative findings suggest the program is viewed positively by participants and caregivers. Benefits described by the participants are evident through occupational performance e.g. developing strategies to remember tasks such as taking medication.

Conclusion: The combined cognitive and exercise program is acceptable and feasible. However, identifying people with mild cognitive impairment needs substantial research to develop sustainable pathways in primary care in Australia.

MISS ASHLEE TURNER
University of Sydney

Obesity and oxidative stress in older adults 'at-risk' for dementia: A magnetic resonance spectroscopy study

Miss Ashlee Turner[1,2], Dr Camilla Hoyos[1,2], Dr Loren Mowszowski[1,2], Dr Haley LaMonica[1,2,3], Professor Jim Lagopoulos[5], Professor Sharon L Naismith[1,2], Dr Shantel Duffy[1,4]

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Background: Obesity is an independent modifiable risk factor for dementia, increasing both inflammation and oxidative stress in the body. Glutathione, an endogenous antioxidant, is a marker of oxidative stress and has been implicated in the pathophysiology of neurodegenerative disease. This study aimed to investigate the relationship between obesity and in-vivo brain glutathione concentration in older adults 'at-risk' for dementia. We also aimed to explore the influence of physical activity on the relationship between obesity and glutathione in this cohort.

Methods: Two-hundred and twenty-two older adults 'at-risk' for dementia underwent comprehensive medical, neuropsychological and psychiatric assessment. Glutathione was assessed via magnetic resonance spectroscopy in the left hippocampus and the anterior and posterior cingulate cortex. Body mass index (BMI) was calculated and classified as healthy (BMI<25) or overweight/obese (BMI>25).

Results: The overweight/obese group had significantly greater glutathione in the hippocampus (t=-2.60, p=.011) compared to the healthy BMI group. Glutathione did not correlate with physical activity levels, however, in the overweight/obese group, a higher BMI was Associated with lower physical activity levels (r=-.26, p=.002). No group differences in glutathione were observed in the anterior or posterior cingulate.

Conclusion: This study demonstrates that oxidative stress is evident in a key brain region Associated with memory function in overweight/obese individuals 'at-risk' for dementia. Additionally, outcomes further support the role of physical activity in maintaining a healthy body weight and highlights this as an important therapeutic intervention for overweight/obese individuals. Future research should explore the longitudinal relationship between BMI and oxidative stress, and response to interventions.

DR RACHEL WONG
University of Newcastle

Can resveratrol reverse cognitive and vestibular dysfunction in late-stage postmenopausal women?

Dr Rachel Wong[1], Ms Jay Jay Thaung Zaw[1], Mr Hamish Evans[1], Emeritus Professor Peter Howe[1]

[1]University of Newcastle, Callaghan, Australia

Introduction: Evidence of an Association between vestibular dysfunction and cognitive impairment in older adults may explain the increased risk of falls observed in the dementia population. Building upon our body of evidence that resveratrol, a phytoestrogen present in grapes and berries, can improve cognitive performance in populations at-risk of dementia, we aim to evaluate the reversibility of cognitive and vestibular deficits in older women with resveratrol supplementation.

Method: One hundred and forty one postmenopausal women aged 65±1 years were randomised to take resveratrol (2 x 75mg/day) or placebo for 12 months. Changes in cognitive performance included tests for executive function, semantic, verbal and visuospatial working memory. As a proxy for vestibular function, participants assumed and maintained five poses for 50 seconds each with and without eyes open, on both solid and foam surfaces. Anterior-posterior postural sway information was obtained wirelessly from an accelerometer worn at waist level to determine somatosensory and vestibular efficiency.

Results: Compared to placebo, resveratrol supplementation elicited an improvement in overall cognitive performance (d=0.35, p=0.004). Among late-stage postmenopausal women (>10 years of amenorrhea; age 69±1 years), overall cognition was significantly improved compared to the placebo group (d=0.346, p=0.013). Enhanced postural control was also evident in our cohort (d=0.584, p=0.012); much of this improvement was observed only in late-stage postmenopausal women (d=0.696, p=0.01).

Conclusion: An important study finding is that the benefits of resveratrol on cognition and vestibular function extends to those in the late postmenopausal stage where their responsiveness to prophylactic interventions has not been as successful as in younger postmenopausal women. Our findings warrants further evaluation for reducing falls and dementia risks in the elderly.

MISS LIDAN ZHENG
Neuroscience Research Australia

The International Research Network on Dementia Prevention (IRNDP)

Miss Lidan Zheng[1], Dr Ruth Peters[1], Professor Nicola Lautenschlager[2], Professor Linda Clare[3], Professor Hiroko Dodge[4], Professor Deborah Barnes[5], Professor Suzana Shahar[6], Professor Kaarin J. Anstey[1]

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The International Research Network on Dementia Prevention (IRNDP) is a multinational network that brings together researchers working on dementia risk reduction from across the globe. The network focuses on facilitating knowledge translation, capacity building and collaboration, in addition to generating new knowledge on dementia prevention. The IRNDP is governed by an international Leadership Committee of dementia experts and a high level Independent Advisory Board of academics, global opinion leaders and stakeholders. It is also a flagship project of the Dementia Centre for Research Collaboration (DCRC). The work of IRNDP is aimed at providing resources to inform governments and private organisations on strategies to reduce risk factors for dementia and to develop international and nation-specific guidelines. As part of this, the IRNDP collates and consolidates existing research findings on dementia risk factors and interventions to reduce risk via an online evidence repository. The IRNDP also supports emerging researchers in the field of dementia risk reduction by providing opportunities for information sharing and mentorship through a community of scholars. Current outputs include a bespoke website https://coghealth.net.au/ with an evidence hub, academic publications including editorials and special issues, online and face to face dissemination of research results, links into and support for early career and low and middle income country researchers and facilitating public messages on dementia risk reduction via translation.

Assessment and Diagnosis

MR MUSTAFA ATEE
Curtin University

Changing Practice: The PainChek® Story

Mr Mustafa Atee[1], Dr Kreshnik Hoti[1,2], Professor Jeffery David Hughes[1]

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Pain is highly prevalent amongst people with dementia (PwD), with up to 80% of patients experiencing pain at any time. However, pain often remains undetected and undermanaged for various reasons including the inability of patients to self-report pain, misconceptions around pain perception in PwD, and a lack of a "gold standard" for pain assessment in this vulnerable population.

The PainChek® is evidence-based and clinically useful multi-platform, multi-modal, and hybrid pain assessment system that is accessible on various digital infrastructures. PainChek® is a TGA-cleared Class 1 medical device which uses artificial intelligence (AI), smart automation, and cloud computing to assess pain in people who are unable to verbalise, such as those with advanced dementia. The system consists of a point-of-care (POC) smart device enabled App linked to a web admin portal (WAP), which centralises data collection. The App uses automated facial recognition and analysis in conjunction with other observer-rated clinical pain behaviours to identify the presence and intensity of pain. Such a novel method is validated in clinical studies as means of addressing the subjective and multi-dimensional nature of pain in PwD. A key functionality of the App is its ability to graph and profile changes in pain of individuals over time. This functionality allows perform longitudinal assessments, and provides temporal patterns of pain intensity and clinical manifestations of pain, which are important elements of comprehensive pain evaluation procedures. This paper aims to provide an overview of the PainChek® system, and its role in ensuring optimal pain assessment practices.

DR PIERRICK BOURGEAT
CSIRO

MilxCloud: a web-based platform for PET and MR quantification

Dr Pierrick Bourgeat[1], Dr Vincent Dore[1,3], Dr Parnesh Raniga[1], Dr Olivier Salvado[1], Professor Colin Masters[2], Professor Chris Rowe[3], A/Professor Victor Villemagne[3], Dr Jurgen Fripp[1]

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Background: Visual reading of PET and MR images is part of the standard of care for supporting the diagnosis of neurodegenerative diseases. Visual reading can however be subjective, and with MR images, is typically limited to the identification of gross changes in the mesial temporal lobe and ventricles in Azheimer's disease, or the in the frontal lobe for FTD. When reading Aβ PET images, separating negative from positive subjects can also be challenging, especially when different tracers are used. We introduce MilxCloud, a publicly available cloud computing platform for PET (CapAIBL) and MR quantification (CurAIBL). These tools facilitate visual inspection with quantitative values, z-score maps, and normative graphs in relation to a reference population.

Methods: CapAIBL is a PET-only method tool that allows quantification of FDG and all Aβ PET tracers without the need of a corresponding MRI. Results are presented in terms of SUVr and Centiloid.

CurAIBL implements a pipeline that segments and parcellates brain MR images. Cortical GM and hippocampal volumes are reported on a graph with confidence intervals for an aged-matched normal population. Computed z-score maps of cortical thickness are displayed over a normalised template.

Both tools provide key quantitative values, graphs and mesh rendering on a pdf report which is emailed to the user at the end of the procedure.

Conclusion: CurAIBL provides an efficient clinical inspection and quantitative tool for MR imaging and complements PET assessments with CapAIBL, offering a comprehensive neuroimaging tool for the assessment of Alzheimer's disease and other neurodegenerative conditions. Both tools are available at milxcloud.csiro.au

MS RACHEL BRIMELOW
University of Queensland

A Balanced Mental Health Score Card for Residential Aged Care: Development and Validation

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Background: Mental health symptoms are highly prevalent within Residential Aged Care (RAC), as are dementia and cognitive impairment. However, there is currently no tool within the RAC sector to monitor treatment, environment, and care practices that influence resident mental wellbeing at the facility level.

Aim: To develop a concise sector appropriate self-assessment tool to quantify mental health treatment and care practices and clinical outcomes within RAC using a balanced scorecard (BSC) approach.

Balanced Scorecard: The BSC is a strategic management tool adapted to many industries providing information on areas of strategic importance to assess current system performance and to guide future planning using a balanced set of indicators.

Development: Indicators across the four perspectives (internal processes, learning and growth, client outcomes, and resources) will be developed through consultation with sector experts, clinicians and community engagement. Both systematic and non-systematic reviews have been conducted to identify factors relevant to mental wellbeing. Community involvement will be obtained through focus groups pre and post indicator development. The Delphi method will be used to ascertain key indicators of facility level factors using both RAC staff and research experts in the field. Feasibility testing will comprise inter-rater and test-re-test reliability.

Conclusion: Solutions that encompass aspects of ongoing quality improvement monitoring could provide evidence for the purposes of meeting accreditation standards, identifying staff training needs, increasing identification of gaps in current services at the individual RAC facility level and providing facilities an opportunity to evaluate their current approaches and move towards developing optimal mental health supports.

DR SAMANTHA BURNHAM
CSIRO

Comparison of the Natural History of Neocortical Aβ-Amyloid, Hippocampal Volume and PACC in Sporadic AD

Dr Samantha Burnham[1], Dr Pierrick Bourgeat[1], Dr Charley Budgeon[1], Dr Vincent Dore[1], Professor Greg Savage[2], Dr Simon Laws[3], Dr Olivier Salvado[1], Dr Paul Maruff[4], Professor Ralph Martins[2], Professor David Ames[5], Professor Reisa Sperling[6], Professor Colin Masters[5], Professor Christopher Rowe[6], Dr Victor Villemagne[6]

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The pathological processes and clinical/cognitive decline Associated with Alzheimer's disease (AD) occur gradually. Evidence suggests that biomarkers of these processes do not reach abnormal levels concurrently, but, do so in an ordered, sequential manner. It is paramount to understand the sequential ordering and progression of the various markers to effectively understand the natural history of the disease and adequately time disease-specific therapies.

We applied our method for obtaining longitudinal disease trajectories from short term data[1, 2] to Neocortical Aβ-amyloid, Hippocampal volume and the Preclinical Alzheimer's Cognitive Composite (PACC) using a minimum of three assessments. We used data from the same AIBL individuals (N=209) collected at the same time points to ensure consistency. This resulted in three curves detailing the natural history of neocortical Aβ-Amyloid, Hippocampal volume and PACC. To allow comparison between the curves, all three parameters were aligned to the median values in the mild-AD participants.

Whilst loss of Hippocampal volume was initiated prior to decline on PACC, after the abnormal threshold for Aβ-amyloid was reached, there were no significant differences in the trajectories of Hippocampal volume and PACC (Figure 1). Abnormal thresholds for Aβ-amyloid, Hippocampus volume and PACC were reached, respectively, at 17.43, 7.54 and 5.26 years prior to the respective median values of the mild-AD participants. The threshold for abnormal Aβ-amyloid was reached a decade prior to that of Hippocampal Volume and PACC. These results offer further insight into the natural history of the disease, providing critical data to inform the design and timing of clinical trials.

1doi:10.1002/sim.7300

2doi:10.1016/S1474-4422(13)70044-9

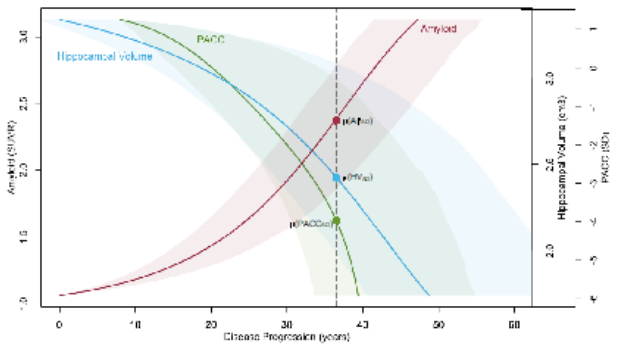

Figure 1: Comparison of the natural history of Aβ-amyloid, Hippocampal volume and PACC in the AIBL cohort. The Hippocampal volume and PACC curves were shifted along the x-axis so that the median values of each of these in the AIBL AD participants ($\mu HV_{(0)}$ and $\mu PACC_{(0)}$, respectively) aligned vertically at the median value of Aβ-amyloid in the AIBL AD participants ($\mu A\beta_{(0)}$).

MR ANISUZZAMAN CHOWDHURY
Wicking Dementia Research and Education Centre

Development of aptamer-based point of care device for measuring biomarkers of neurodegeneration in the blood

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Proteins from the brain can be detected in the cerebrospinal fluid and blood and can be used as biomarkers to indicate brain health or neurodegeneration. Blood-based biomarkers are ideal due to accessibility, invasiveness and cost compared to other fluid biomarkers. We aim to develop a point-of-care device for detecting biomarkers in neurodegenerative disease which will enable rapid and regular monitoring of brain health. However, detecting brain proteins in the blood relies on bio-detectors such as antibodies, which can be unstable and expensive to produce. Aptamers are single-stranded oligonucleotide (DNA or RNA) molecules, which can bind to target molecules with high affinity and specificity. They can be generated from random oligonucleotide pools through a process known as systematic evolution of ligands by exponential enrichment (SELEX) and they are a promising rival for antibodies in diagnostics, therapeutics, and biosensing due to their natural characteristics. The application of aptamers to the field of biomarkers for neurodegeneration has been limited, although they have been developed as tools to investigate biomarkers such as amyloid beta peptide, total tau protein, and α-synuclein. The aim of the current study is to select and characterize DNA aptamers against neurodegenerative disease proteins (e.g.; BDNF, NfL, Tau etc.) using SELEX. We have begun by immobilizing protein for selection and designing a ssDNA library with a randomized 40-60 nucleotide region. The development of point-of-care devices for neurodegenerative disease will have a huge impact on diagnosing and monitoring neurodegeneration in clinical studies as well as in future treatment strategies.

DR KAREN CROOT
University of New South Wales

Measuring computer attitudes and experience in an older Australian adult sample in the CogSCAN Study

Dr Karen Croot[1], Ms Karen Allison[1], Professor Perminder S Sachdev[1,2], Professor Henry Brodaty[1,3,4], Dr John D Crawford[1], Dr Teresa Lee[1,2], Professor Julie D Henry[5], Professor Brian Draper[1,4], Professor Jacqueline Close[6,7], Min Yee Ong[1], Matilda Rossie[1], Professor David Bunce[8], Nan Bosler[9], Daphne Scott[10], Annie Sutherland[10], Dr Nicole A Kochan[1]

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Early identification of cognitive impairment in older adults is critical for timely and accurate diagnosis and intervention, and relies on objective cognitive data. There is an urgent need to develop neuropsychological assessment methods that are efficient and accessible while maintaining appropriate psychometric standards. Computer-administered neuropsychological tests potentially allow large-scale cognitive screening and monitoring. There is, however, little research on the extent to which experience with and attitudes to computer technologies affect the validity, reliability and acceptability of computerised cognitive tests in the older adult population, including individuals with mild cognitive impairment (MCI) and dementia.

The CogSCAN Study is a systematic, independent evaluation of four prominent computerised neuropsychological assessment instruments, currently in progress. CogSCAN aims to identify computerised cognitive tests that are sensitive and specific in detecting MCI and mild dementia in older Australians, taking into account their computer experience and preferences. This paper describes *The CogSCAN Computer Experience and Opinion Questionnaire*, which investigates computer anxiety, comfort with computers, computer self-efficacy, positive and negative attitudes to computers, and familiarity with computer and other technologies, and reports data collected to date using this measure. Sixty-five community-living older adults (72.3% female, mean age 72.5 years, mean years education 14.7) have participated in the study. 53.2% reported "quite a lot" or more experience with a computer and 20% reported finding computers intimidating. Results from this questionnaire will later be used to investigate the extent to which older adults' previous levels of computer experience and attitudes influence performance on a range of computerised tests.

DR VINCENT DORE
CSIRO

Automated reporting of tau PET quantification on brain surface

Dr Vincent Dore[1]

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Background: In the recent years, there has been an increasing number of tau imaging studies. Automatic quantification of tau scans has thus become a priority.

Method: Two hundred and forty-three participants from the AIBL study underwent tau imaging with either ^{18}F-AV1451 (n=83) or ^{18}F-MK6240 (n=140). PET scans were quantified using CapAIBL with a tau specific atlas. Three tau masks: Mesial-temporal (*Me*), temporoparietal (*Te*) and the Rest (*R*) of the neocortex. In each regional mask, the cortical area higher than a specific threshold (AV1451: Neocortical 1.25SUVR, Me 1.35SUVR, Te 1.30SUVR, R 1.25SUVR, and MK6240: Me 1.3SUVR, Te 1.28SUVR, R 1.11SUVR) was extracted. Measures of tracer retention and measures of extent were combined in a single measured denominated CenTauR [SUVR * (1+ %_of_area_higher_than_threshold)].

Results: Mild cognitive impaired (MCI) and AD participants had significantly higher global and regional tau Z-score SUVR when compared to HC. CenTauR Z-scores were also

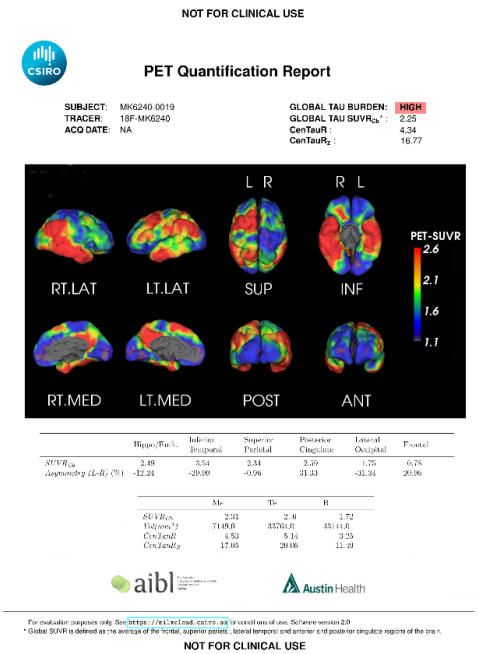
significantly higher for MCI and AD when compared to HC. SUVR and CenTauR Z-scores were highly and similarly Associated with MMSE (r>0.46) and Episodic memory (r>0.46).

The resulting CapAIBL report provides not only the surface projection of cortical tracer retention, but also Z-scores generated using Ab-HC. It also provides global and regional tau measurements as well as their Associated CenTauRs.

Conclusion: Our tau reporting tool discriminates well between MCI, AD and HC. CenTauR Z-score, which captures the degree of tau deposition and its extent, provide high effect size when comparing groups and allow the combination of results obtained with different tau tracers.

1Diag	2NC	3MCI	4AD
5Sample size	6178	730	816
9Gender (M)	1080	1112	1210
13Age	1475.2	1573.5	1670.1*
17Centiloid	1815.9	1967.2***	20105***
21Nctx. SUVR$_z$ (Z-score)	220.4	232.1***	2412.1***
25Me SUVR$_z$ (Z-score)	260.5	272.9***	286.6***
29Te SUVR$_z$ (Z-score)	300.4	312.6***	3213.5***
33R SUVR$_z$ (Z-score)	340.3	351.2*	368.7***
37Nctx. CenTauR$_z$ (Z-score)	380.5	392.8***	4015.0***
41Me CenTauR$_z$ (Z-score)	420.6	434.3***	449.7***
45Te CenTauR$_z$ (Z-score)	460.6	473.6***	4817.6***
49R CenTauR$_z$ (Z-score)	500.4	511.7**	5210.6***

Table1: Demographic of the population, * p-value<0.01, ** p-value<0.001, *** p-value<0.0001compare to NC.



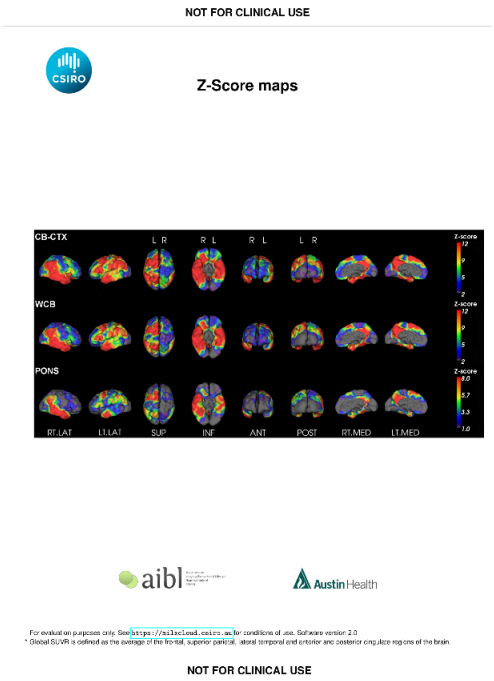


Figure1: CapAIBL report of a ^{18}F-MK6240 scan

DR ANGELA D'ROZARIO
University of Sydney

NREM Sleep Neural Oscillations and Executive Dysfunction in Older Adults at Risk of Dementia

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Sleep spindles and slow wave brain activity (SWA) are distinct features of non-rapid eye movement (NREM) sleep that are critical for sleep-dependent cognitive processes. Marked reductions in these neural oscillations occur in individuals on the dementia spectrum, beyond that seen in normal ageing. Deficits in spindles and SWA during sleep are Associated with impaired overnight memory consolidation in older adults at risk of dementia. These deficits may also underlie executive dysfunction observed in this at-risk population however this has not been previously investigated.

Older adults (n=49, mean age 66.2 yrs) with non-amnestic mild cognitive impairment (naMCI) or subjective memory complaints (SMC) attended the sleep laboratory for an overnight sleep study. All-night electroencephalogram (EEG) recordings at frontal (F3-M2, F4-M1 electrode sites) and central (C3-M2, C4-M1) brain regions were analysed to quantify sleep spindle density (events per min) and SWA (EEG delta power 0.5-4 Hz) in NREM sleep. Correlations between these EEG measures and performance on tasks of executive function were examined.

Lower SWA during NREM sleep at frontal brain regions significantly correlated with worse response inhibition on the colour-word interference test (CWIT) (F3-M1, r=-0.40, p=0.04; F4-M2, r=-0.32, p=0.03). Lower sleep spindle density was Associated with poorer working memory on the digit span (frontal region, F4-M2, r=0.36, p=0.04) but better response inhibition on the CWIT (central region C4-M1, r=0.30, p=0.01). Spindles and SWA during sleep may have utility for predicting cognitive function in older adults at-risk of dementia. Deficits in SWA could be targeted for sleep-enhancing therapeutic interventions to slow cognitive decline.

MR PETER FRANSQUET
Monash University

Blood based epigenetic biomarkers of dementia: evidence, diagnosis and pre-clinical detection

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Australia has an aging population, and the number of individuals living with dementia is rising. Due to obstacles caused by the wide range of different diseases that cause dementia, diagnosis may take years, with many individuals remaining undiagnosed. Timely, accurate diagnosis would reduce the stress Associated with not knowing, as well as allow for early treatment, managing dementia symptoms. Thus, a minimally-invasive, easily measurable, blood-based biomarker would have greatest utility in population-wide diagnostic screening.

Epigenetics marks, including DNA methylation (DNAm) and microRNA, are implicated in dementia. To assess the utility of these marks as a biomarker, we systematically reviewed evidence for an Association with dementia in the blood (DNA methylation (77 studies), microRNA expression (45 studies)). We found there are many inconsistencies and challenges within these fields, limiting concordant findings to date.

With the aim to ascertain both preclinical and diagnostic biomarkers of dementia, we carried out a longitudinal genome wide DNAm analysis, using 120 peripheral blood samples from a randomised, double blind, controlled study. Blood was collected at baseline where all participants were assessed as not having dementia, as well as approximately 3 years after. Where present at 3 years, dementia status was adjudicated by an international panel of clinical specialists, using cognitive/functional assessments, medical records, and blood tests and brain scans.

Our findings suggest DNAm signatures at specific gene regions could potentially be used as preclinical and diagnostic dementia biomarkers, although statistical significance was lost after adjusting for multiple testing. Future studies will aim to replicate these findings.

DR MOJTABA (MJ) GOLZAN
University of Technology Sydney

Retinal and cerebral zinc transporter 3 levels in the APP/PS1 mouse model of Alzheimer's disease

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Synaptic zinc, and its Associated transporter protein zinc transporter 3 (ZnT3), have been proposed to have a significant role in beta-amyloid aggregation and the Associated development of Alzheimer's disease (AD). However, the lack of direct and non-invasive access to the brain's structure has limited the development of an *in-vivo* approach to study the role of ZnT3 in the pathogenesis of AD. As the retina is known to be an extension of the brain, we studied ZnT3 in the retina of 14 month old APP/PS1 and wild type (WT) mice (n=7/group) to determine whether it reflects the ZnT3 depletion observed in the AD brain. Immunoblotting, immunofluorescence and real-time PCR were used to quantify ZnT3 protein (normalised to GAPDH) and mRNA levels (normalised to β-actin) in both brain and retinal tissues. ZnT3 protein levels were slightly reduced in the brain and retina of APP/PS1 mice compared with WT mice (-15% vs -10% decrease; p=0.2). We did not observe any significant difference in retinal and cerebral ZnT3 distribution and mRNA levels between WT and APP/PS1 mice, however, this may be due to the small sample size or the fact that we used whole brains for ZnT3 analysis (rather than specific regions of interest – such as the hippocampus). As the retina is an accessible zinc-rich tissue, our ongoing work on the visualisation and quantification of retinal ZnT3 levels may provide insight into the cerebral regulation of ZnT3, and hence be of relevance to interrogating mechanistic processes in AD that may also have diagnostic merit.

DR INGA HAMEISTER
University of New South Wales

Establishing national assessment standards for cognitive decline and dementia in Australia: ADNeT's Memory Clinics consortium

Dr Inga Hameister[1], Dr Nicole A. Kochan[1], Professor Sharon Naismith[2], Dr Stephanie Ward[3], Professor Henry Brodaty[1], Dr Jurgen Fripp[4], Professor Susannah Ahern[3], Professor Christopher Rowe[5,6], Professor Perminder Sachdev[1,7]

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Memory clinics are specialised centres for the comprehensive assessment of patients with cognitive disorders. In 1997, Victoria introduced a state-wide network

of Cognitive, Dementia and Memory Services (CDAMS), in a first effort to harmonise the assessment of individuals with cognitive decline and dementia and thereby improve quality. Nationally, however, Memory Clinics remain diverse, with limited collaboration. In 2018, the NNIDR-NHMRC provided funding for the Australian Dementia Network (ADNeT), with one objective being the establishment of a collaborative Memory Clinics consortium (ADNeT-MC). ADNeT-MC's major objective is to harmonise diagnostic standards and facilitate the diagnosis process for clinicians and patients. The aim is to ensure that all Australians have access to high quality dementia assessments, irrespective of their geographical location and socioeconomic status. The consultation process for the development of a standard assessment protocol has begun. A platform for data acquisition, storage and sharing will be developed. By linking the individual Memory Clinics to the ADNeT Clinical Quality Registry, ADNeT will, for the first time, be able to provide a comprehensive picture of Australia's dementia care services and the clinical and demographic profiles of Australians living with dementia. Both will inform future health care needs. Additionally, a large normative database can be established to facilitate the formation of a trial ready patient cohorts. Issues of data confidentiality, consent for participation, matching patients to appropriate trials, and the use of data for research are currently being addressed. At the Australian Dementia Forum, the latest developments of the ADNeT-MC initiative will be presented.

ASSOCIATE PROFESSOR HANNAH KEAGE
University of South Australia

A meta-analysis of delirium, cognitive impairment and dementia outcomes in over 90000 CABG patients

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Background: Increasing numbers of older adults are undergoing invasive cardiothoracic surgeries, including coronary artery bypass grafting (CABG). CABG confers improved cardiovascular event outcomes for patients, but Associations with cognitive outcomes are less clear. Our aim was to pool estimates of cognitive impairment across the literature relative to time (from pre- to post-CABG) and diagnosis (cognitive impairment, delirium and dementia).

Methods: A systematic search using four databases was undertaken. 215 studies incorporating data from 91,829 patients were used to estimate the prevalence of cognitive impairments pre- and post-CABG, including delirium and dementia post-CABG, using random effects meta-analyses.

Results: Pre-surgical cognitive impairment was seen in 19% of patients. Post-operatively, cognitive impairment was seen in around 43% of patients acutely; this resolved to 19% at 4-6 months and then increased to 25% of patients between 6-months to 1-year post-operatively. In the long term, between 1 and 5-years post-operatively, cognitive impairment increased and was seen in nearly 40% of patients. Post-operative delirium was apparent in 18% of CABG patients which increased to 24% when a diagnostic instrument was utilized alongside clinical criteria. Dementia was present in 7% of patients 5-7 years post-surgery. Estimates varied relative to the cognitive, delirium and dementia classification method employed.

Conclusion: Cognitive impairments are major issues in CABG patients, even prior to surgery. Delirium is seen in around 1 in 4 CABG patients, and stands as a possible modifiable risk factor for late-life dementia. Estimated dementia rates following CABG are likely low due to not statistically accounting for attrition.

DR MATTHEW KIRKCALDIE
Wicking Dementia Research and Education Centre

Making the most of Alzheimer's models: accurate measurement of amyloid from microscope images using ImageSURF

Dr Matthew Kirkcaldie[1], Mr Aidan O'Mara[1], Associate Professor Anna King[1], Professor James Vickers[1]

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Although the relationship between amyloid β (Aβ) pathology and the symptoms of Alzheimer's disease (AD) is still contested, much research into the cause and progression of AD depends on laboratory models of Aβ deposition in the brain. Images of Aβ deposits are often quantitated to evaluate the outcome of these studies, but this process can be subjective and inconsistent, due to diffuse boundaries and imaging variations such as minor rightness variations. To address this issue and provide more consistent measurement, we have developed ImageSURF, an open-source ImageJ plugin, which uses machine learning techniques to consistently identify and measure Aβ pathology across varying image conditions. We compared ImageSURF to image thresholding, a widely used quantitation technique, to assess its reproducibility, accuracy and generalizability when used on Aβ pathology images. ImageSURF measured deposits significantly more faithfully, and with significantly greater generalizability, than optimized thresholding. In addition to its superior performance in capturing human evaluations of pathology images, ImageSURF is able to quantitate image sets of any size in a consistent and unbiased manner, without requiring additional blinding, and can be retrospectively applied to existing images. The training process yields a classifier which can be shared as supplemental data, allowing fully open methods and data, and enabling more direct comparisons between different studies. We hope that this freely available tool will be used by the research community to improve the quality and reliability of measurement in studying the pathological basis of this devastating disease.

PROFESSOR SIMON LEWIS
University of Sydney

Validation of divergent neural dysfunction in iRBD patients separated using clinical phenotyping

Professor Simon Lewis[1], Dr Kaylena Ehgoetz Martens[1], Dr Elie Matar[1], Dr James Shine[1], Mr Joseph Phillips[2], Professor Ron Grunstein[1], Professor Glenda Halliday[1]

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It is currently thought that nearly everyone with idiopathic

REM sleep behaviour disorder (iRBD) will ultimately develop a synucleinopathy that is either Parkinson's disease (PD) or Lewy body dementia (LBD). Recent work suggests that quantitative motor assessments, such as the alternate tapping test and gait measures, predict *when* and *which* of these two diseases an individual iRBD patient will develop some 3-5 years prior to formal diagnosis. Detailed clinical phenotyping of 23 iRBD patients was used to derive measures intended to explore, which type of Lewy Body disease an individual might develop (PD or LBD) and how soon this transition might occur. The 'Phenotype Conversion Score' was based on the ratio of motor signs to colour vision discrimination (a measure of higher order perception). In contrast, the 'Pathology Severity Index' took an aggregate of weighted scores for known predictors of disease transition (i.e. hyposmia, colour discrimination and motor examination). Of the 23 iRBD patients, the Phenotype Conversion Score revealed 9 with a dominant *motor* phenotype, whilst the other 14 patients had a dominant *perception* phenotype. Interestingly, follow up of the iRBD cases assessed in this study identified that 1 with a motor phenotype and 1 with an intermediate phenotype subsequently converted to PD (one of whom had a Pathology Severity Index of >1 standard deviation). Although 4 of the perception iRBD cases had Pathology Severity Indexes of >1 standard deviation, none have transitioned to date. Validation of divergent neural dysfunction was confirmed by utilising the patterns of functional MRI connectivity obtained from the iRBD patients along with 17 healthy age matched controls whilst performing a validated virtual reality gait paradigm. Perception dominant iRBD patients had a loss of connectivity within the frontoparietal network, whereas motor dominant iRBD patients had a loss of frontostriatal connectivity. Furthermore, an increasing Pathology Severity Index was Associated with increased basal ganglia connectivity across the iRBD cohort. Taken together, this study demonstrates divergent task-related brain connectivity in iRBD patients with different clinical phenotypes that are likely to represent the neural underpinnings of the earliest neurodegenerative changes occurring in Lewy body diseases. Future longitudinal work is required to determine whether these clinical and/or functional MRI signatures will be able to distinguish progression to PD or LBD.

DR CRISTIAN LEYTON
University of Sydney

Dissociated Involvement of Middle and Inferior Longitudinal Fascicle in Logopenic Aphasia and Posterior Cortical Atrophy

Dr Cristian Leyton[1], A/Professor Nikos Makris[2], A/Professor Brad Dickerson[2], Dr Jessica Collins[2]

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The logopenic variant of primary progressive aphasia (lvPPA) and posterior cortical atrophy (PCA) are progressive neurocognitive syndromes, often caused by Alzheimer's disease (AD), that present with distinctive neurocognitive-anatomical profiles. Whereas lvPPA is characterised by prominent language decline and atrophy in the left temporo-parietal junction, PCA exhibits a range of visuo-spatial deficits Associated with bilateral atrophy of the occipital and posterior parietal and temporal cortices. Despite these seemingly clinical-anatomical differences, several clinical series describe overlapping deficits attributed to atrophy of the left posterior parietal and temporal cortices. However, altered connectivity can also play a role in the emergence of cognitive symptoms, as damage to white matter tracts connecting epicenters of maximal atrophy with an intact distant region can affect the performance that it subserves. Accordingly, we investigated microanatomical changes in the Middle Longitudinal (MdLF) and Inferior Longitudinal (ILF) Fascicles, key white matter bundles that connect respectively parietal and occipital lobes with the anterior temporal pole, a key region for semantic integration. We selected 21 lvPPA, 14 PCA and 23 control participants who underwent diffusion tensor imaging (DTI) tractography to reconstruct the MdLF and ILF and extract tract-specific DTI metrics (fractional anisotropy, radial diffusivity, mean diffusivity and axial diffusivity) to assess white matter changes. Whereas participants with lvPPA had more involvement of the left MdLF and left ILF, the right ILF was more affected in PCA, suggesting that extensive white matter damage in temporal-occipital/parietal pathways that may contribute to language deficits in lvPPA, in particular naming impairment.

DR TOM MORRIS
Dementia Centre

Behavioural clusters in dementia: A large cross-sectional Australian study

Dr Tom Morris[1], Conjoint A/Professor Colm Cunningham[1]

[1]Dementia Centre, Sydney, Australia

Behaviours commonly observed of people living with dementia (PWD) rarely occur in isolation, but rather in "clusters" or "syndromes". The number and type of behavioural clusters vary in the literature, but typically include those Associated with mood, psychosis, frontally mediated behaviour, physical behaviour, hyperactivity and hypomania. Not only may such clusters represent a shared aetiology (be they biological, environmental, or otherwise), but treating clusters may be more efficacious and efficient than treating behaviours individually.

The accurate identification and understanding of behavioural clusters is especially important for behaviour management services such as Dementia Support Australia (DSA). However, to date no study has investigated whether PWD who experience behaviours that warrant specialist interventions demonstrate the same, or distinct, behavioural clusters compared to a general dementia population.

This paper reports on a large cross-sectional analysis of behavioural clusters observed in PWD. Specifically, 4,371 PWD referred to DSA for behavioural support were administered the Neuropsychiatric Inventory (NPI), a reliable and valid measure of behaviour in dementia, at intake into DSA services. A principal component analysis of the NPI, based on eigenvalues greater than 1 and a varimax rotation, revealed 5 distinct behavioural clusters: 1. Psychotic (delusions, euphoria, hallucinations); 2. Hyperactive (aggression, disinhibition, irritability); 3. Apathy and eating behaviour (apathy, eating disturbance); 4. Mood (depression, anxiety); and, 5. Physical behaviour (motor disturbance, night-time behaviour).

We report these findings in the context of other reported clusters and how DSA could use this information to better support individuals living with dementia.

DR TOM MORRIS
Dementia Centre

Prevalence of pain and behavioural correlates in people living with dementia

Dr Tom Morris[1], Dr Raj Anand[1], Conjoint A/Professor Colm Cunningham[1]

[1]Dementia Centre, Sydney, Australia

Pain is very common for people living with dementia (PWD) in residential aged care, with some estimates suggesting up to 80% of PWD experience some type of chronic or acute pain at some time. Pain is also one of the most frequently implicated factors that lead to persisting and severe responsive behaviours. In fact, the experience of pain remains the single greatest cause of behaviours referred to the behaviour management service Dementia Support Australia (DSA).

This poster discusses the prevalence of pain and Associated responsive behaviours in a sample of 4,371 clients visited by DSA. This analysis revealed 51.5% of clients experienced some type of pain, and of these 16.6% were found by the PainChek application to be in severe pain. An analysis of behaviours as measured by the validated Neuropsychiatric Inventory (NPI) demonstrated that DSA clients in pain had significantly more types of behaviour, more severe behaviour, and more distressing behaviours for carers (all *p*'s <.0001). Further, analysis of the specific domains of the NPI, controlling for the effects of age and sex, showed (in descending order of contribution) the following behaviours as being significantly associated with pain: aggression, depression, eating behaviour, night-time behaviour, and aberrant motor behaviour.

We report these findings in the context of the importance of ongoing pain assessment in PWD, and how treating pain appropriately can lead to a large and meaningful reduction in responsive behaviour and improvement in quality of life.

MRS SLADANA PAVKOVIC
University of Tasmania

Consumer Consultation on a blood test for brain health and neurodegenerative diseases

Mrs Sladana Pavkovic[1], Mrs Anna King[2], Mrs Maree Farrow[3]

[1]Honours student, Hobart, Australia, [2]Associate Professor, Hobart, Australia, [3]Seniour Academic Lead - MOOCs - Wicking Res Educ Cen, Hobart, Australia

Consumer consultation is an important part of the research process that can have significant impacts on eventual clinical practice by incorporating the real needs of end-users. We are investigating consumer opinions on a blood test for brain health and neurodegenerative diseases in order to inform the ethical research and clinical use of an inexpensive and non-invasive diagnostic biomarker test once such a tool is fully developed. After seeking consumer feedback on draft questions for our survey, we recruited participants in the October 2018 Preventing Dementia Massive Open Online Course (n = 2403, mean age = 50.5 years, 89% female, 50% with a family history of dementia). 78% of survey respondents said they were likely or very likely to have a blood test to determine whether they would develop dementia and 90% to determine if an intervention or treatment was suitable for them. However, when asked how likely they thought others in the community would be to have a blood test, these dropped to 49% and 65% respectively. Respondents with a family history of dementia reported a higher likelihood to have a blood test to determine whether they would develop dementia in future ($\chi^2(4, n=2367) = 29.5$, $p < 0.001$). 85% of respondents preferred to be informed of their blood test result face-to-face as opposed to by telephone or email, and 92% preferred face-to-face follow up support following a positive result. These findings can improve the ethical management of pre-diagnostic, diagnostic and post-diagnostic procedures for pre-symptomatic neurodegenerative disease.

MRS MANUELA PIETZUCH
Wicking Dementia Research and Education Centre

Functional connections strength is not disrupted in APOE and BDNF polymorphisms in older adults

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Functional connectivity has been reported to be reduced in overt Alzheimer's disease (AD) and could, therefore, be a potential biomarker of early brain changes Associated with this condition. The objective of this study was to identify group differences in functional connectivity between individuals with polymorphisms of the brain-derived neurotrophic factor gene (BDNF Val66Met) and apolipoprotein E (APOE) genes in older adults without dementia. Using resting-state fMRI, the brains of 77 healthy, older adults (mean age = 60.5 years, SD = 6.2) from the Tasmanian Healthy Brain Project were scanned. Functional resting-state networks were identified using independent components analysis and dual regression. Fourteen relevant resting-state networks were detected characterizing the entire sample. Adjusting for age and cognitive reserve, we used general linear models (GLM) and partial correlation to investigate edge strength between subject groups. There were no significant differences in functional networks between *APOE* ε4 carriers (n=35) compared to ε3 homozygotes (n=42), p = 0.37, and no significant differences in *BDNF* Met carriers (n=36) compared to Val homozygotes (n=41), p = 0.07. Although, studies suggested that *APOE* ε4 and *BDNF* Met carriage may be useful predictive biomarkers of functional connectivity impairments in AD, the results of this study showed that the genotype did not predict decreased functional edge strength in healthy older adults.

PROFESSOR CONSTANCE DIMITY POND
University of Newcastle

Communicating the diagnosis of dementia: a general practice approach

Professor Constance Dimity Pond[1], Dr Karen McNeil[1]

[1]Discipline of General Practice, University of Newcastle, Australia

Background: General practitioners (GPs) are frequently hesitant to break the news of possible dementia to a patient. Reasons for this include GP, patient and system factors. As part of a literature review funded by the Cognitive Decline Partnership Centre, our team explored the issue of communication about the diagnosis of

dementia. We found that there are established models for communicating health information, including the ask-tell-ask model dialogue, which may prove useful in this situation.

Aims: This poster aims to describe an adaptation of the ask-tell-ask model for use by GPs in breaking the news of dementia

Methods: The ask-tell-ask model will be described. A possible adaption developed for use by GPs will be outlined. Potential GP uses will be explored, including in initial work-up before a definitive diagnosis is determined. GPs practised the model in an education session at a GP conference in 2018, and qualitative feedback from this audience will be described.

Summary: the ask-tell-ask model of communicating health information has been adapted for use by GPs in communicating the news of dementia. Initial trials of the model have been promising and further research is needed to trial the model in the dementia setting.

DR SARAH RUSSELL
James Cook University

Prevalence of Dementia in the Torres Strait: Results and Implications

Dr Sarah Russell[1], Mrs Rachel Quigley[1], Mrs Betty Sagigi[3], Dr Gavin Miller[2], Dr Edward Strivens[1]

[1]James Cook University, Cairns, Australia, [2]Queensland Health, Cairns and Hinterland, Australia, [3]Queensland Health, Torres and Cape, Australia

Introduction: Recent studies in older Aboriginal Australians have identified high rates of dementia and Associated problems of ageing including high rates of falls, frailty, incontinence, and vision and hearing impairment. These conditions were present on a background of complex medical comorbidities and chronic disease. As a result, older Aboriginal Australians are at greater risk of excess disability, reduced quality of life and earlier entry into residential aged care facilities, usually away from country and family. Even though Torres Strait Islander communities have similar socioeconomic disadvantage and poorer health outcomes as Aboriginal communities, rates of dementia and problems of ageing are unknown. The aim of this study was to assess dementia prevalence and problems of ageing in people aged over 45 living in the Torres Strait.

Methods: A total of 323 Torres Strait residents (37% male) aged 41 to 93 years (*M*=64.6, *SD*11.2) participated. Participants were administered a survey assessing health, function and psychosocial domains and also underwent a comprehensive Geriatric Assessment.

Results: Results of the dementia prevalence study are described elsewhere. This paper describes the high rates of associated problems of ageing identified. Results showed that over 44% of the sample were identified as needing further investigation for falls risk; 25% for incontinence; 13% for depression; and 10% for pain and for anxiety.

Conclusions: Results highlighted the need for assessment and management of these conditions. Nevertheless, although there are high rates of problems of ageing found in these communities, many are amenable to intervention, preferably within a multidisciplinary team.

DR KAIKAI SHEN
CSIRO

White Matter Hyperintensity and β-amyloid burden in a cognitively normal preclinical cohort

Dr Kaikai Shen[1,2,3], Dr Pratishtha Chatterjee[2], Dr Ying Xia[1], A/ Professor Kathryn Goozee[4], Dr Jurgen Fripp[1], Dr Samantha Burnham[1], Professor Ralph Martins[2,3]

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Background: The white matter hyperintensity (WMH) comorbidity is thought to contribute to the development of Alzheimer's disease (AD) in addition to the deposition of Aβ-amyloid (Aβ) pathology (Roseborough et al., *Alzheimers Dement* 13: 1154-1167, 2017). WMH lesions are found in FLAIR imaging with increased T2-weighted signal, indicating pathology not only commonly observed in vascular dementia, but also prevalent in AD. In this study, we investigated the relationship between WMH assessed by FLAIR imaging and Aβ burden in a cognitively normal cohort.

Methods: Ninety-eight (33 M, 24 *APOE*ε4 carriers) cognitively normal subjects aged 60-90 (mean 78.4±5.5) years from the KARVIAH cohort were examined. The WMH lesion was segmented on FLAIR images using HIST*. Subjects' Aβ burden was quantified on FBB PET by the standard uptake value ratio (SUVr) computed using CapAIBL†, with Aβ-positivity defined as SUVr1.35. We performed a partial correlation between age and WMH volume controlling for sex and *APOE*ε4 carriage to assess the aging effect on WMH, and a logistic regression on the Aβ positive status with WMH volume as explanatory variable, controlling for age, sex, and *APOE*ε4 carriage to ascertain the relationship between WMH and amyloid status. *,†https://milxcloud.csiro.au/

Results: The WMH volume was higher among *APOE*ε4 carriers (6618mm^3) than non-APOE-ε4 carriers (4448mm^3), although this did not reach significance (t=1.18, p=0.247). The partial correlation analysis showed a marginal correlation between age and WMH volume (CC=0.20, p=0.049). The logistic regression showed an inverse correlation between WMH and Aβ-positivity (t=-2.16, p=0.031).

Conclusions: An inverse correlation between WMH and Aβ was previously reported among the normal as well as the AD population (Provenzano et al. *JAMA Neurol* 70:455–61, 2013). In a scenario where Aβ deposition and WMH have additive yet independent effect on the development of AD (Roseborough et al. 2017), the inverse correlation may be resulted from the 'explaining away' phenomenon that the observation of Aβ-positivity would explain away WMH when conditioned on the cognitively normal diagnosis of our cohort. Thus our results are consistent with independence between the effects of WMH and Aβ deposition on AD.

DR CLAIRE SHEPHERD
Neuroscience Research Australia

Disease and mutation-specific increases in T lymphocytes in FTLD-tau

Dr Claire Shepherd[1], Ani Lack[1], Professor Jillian Kril[2], Professor Glenda Halliday[3]

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Inflammation, in the form of reactive astrocytes and microglia, has long been observed in the brain of individuals with frontotemporal lobar degeneration (FTLD). Recent genetic, blood and in vivo transgenic mice research has further highlighted a role for immunity in the etiology of the disease, most notably T lymphocyte activation and regulation. We performed quantitative immunohistochemical analysis of CD4- and CD8-positive T cells on formalin-fixed, paraffin-embedded sections of the superior frontal cortex in individuals with various forms of FTLD-tau, including; 9 cases with corticobasal degeneration (CBD – 4R tauopathy), 9 cases with Pick's disease (PiD – 3R tauopathy), 7 cases with mutations in the microtubule Associated protein tau (MAPT – all 4R tauopathies including CBD) and 10 age and sex matched controls. Our results showed that CD8-positive, cytotoxic T-cells were significantly upregulated in PiD cases compared to controls (p=0.000). Both PiD (p=0.014) and MAPT (p=0.020) cases had significantly increased levels of CD4-positive T cells compared with controls. No changes in either CD4- or CD8-positive T cells were seen in the brains of individuals with sporadic CBD and no effect of age or post-mortem delay was seen in any group. This is the first study to investigate the role of T lymphocytes in FTLD-tau. The results demonstrate significant increases in cytotoxic and T-helper cells that do not appear to be specific for tau pathology *per se* but are more likely to be Associated with disease-specific mechanisms, thereby highlighting further mechanistic differences underlying these different forms of FTLD-tau.

ASSOCIATE PROFESSOR ADAM VOGEL
University of Melbourne

A review of olfactory function in frontotemporal dementia

Ms Courtney Lewis[1,3], Professor Dennis Velakoulis[5], Professor Mark Walterfang[5], A/Professor Amy Brodtmann[4,6], A/Professor Adam Vogel[1,2,3,4]

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Background: Olfactory impairment is a symptom of many psychiatric and neurological disorders, including Alzheimer's disease (AD) and Parkinson's disease (PD). A growing body of evidence suggests that the clinical syndromes resulting from frontotemporal lobar degeneration (FTLD) may also present with olfactory deficits. The clinical phenotypes of frontotemporal lobar degeneration include behavioural variant frontotemporal dementia and primary progressive aphasia (PPA), further divided into progressive non-fluent aphasia (PNFA) and semantic dementia (SD). Commonly assessed olfactory domains include detection threshold, quality differentiation, identification, familiarity, and to a lesser extent, hedonic and edibility judgement. The characteristics and complexity of each olfactory domain necessitates specific neural networks, cortical regions and hemispheric lateralisation. Olfactory domains can, therefore, be affected differently within and between neurological conditions. Methods: Here we review and summarise the literature on olfaction in FTD as it pertains to the domains of olfaction. Results: The clinical syndromes of FTD are thought to retain olfactory detection and discrimination function, a key difference between FTD and AD or PD. Individuals with FTD most prominently demonstrate deficits in olfactory identification. BvFTD may be susceptible to hedonic processing deficits; however, more evidence is needed. No significant differences in olfactory domain function have been found between the FTD groups. Conclusion: Early evidence suggests that olfactory impairments are present in all syndromes Associated with FTLD pathology. Improved knowledge of olfactory function across the FTD spectrum may provide diagnostically important information and enhance our understanding of other associated symptoms, such as changes in eating behaviour.

ASSOCIATE PROFESSOR ADAM VOGEL
University of Melbourne

An assessment of semantic olfactory processing and eating behaviours in frontotemporal dementia

Ms Courtney Lewis[1,3], Professor Dennis Velakoulis[5], Professor Mark Walterfang[5], A/Professor Amy Brodtmann[4,6], A/Professor Adam Vogel[1,2,3,4]

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Background: Frontotemporal lobar degeneration (FTLD) refers to the pathological process of a group of syndromes in which progressive atrophy occurs in the frontal or temporal lobes of the brain. The clinical phenotypes of FTLD are collectively known as frontotemporal dementia (FTD). Aberrant changes in eating, secondary to cognitive and behavioural deficits, are a common and significant outcome of FTLD. Olfactory function is also thought to be impaired as FTLD pathology affects many of the neural regions responsible for integrating semantic knowledge with olfactory information. Individuals with FTD primarily demonstrate impairment in the identification of flavours and odours. Early evidence suggests hedonic and edibility judgement may also be affected. The effects of semantic olfactory impairment on aberrant eating behaviour remains unclear. Objective: We aimed to characterise semantic olfactory deficits in FTD and evaluate the relationship between semantic olfactory function with eating behaviour, cognition, gender and disease duration. Methods: Forty individuals with FTD (bvFTD, SD and PNFA) completed the Appetite and Eating Habits Questionnaire (APEHQ), Mini Mental State Exam (MMSE) and a novel olfaction assessment. Fifty healthy controls completed the olfaction assessment only. We developed the Semantic assessment of OlfActory Processes (SOAP) to assess the olfaction domains: free identification, recognition, hedonic valence and edibility judgement. Results: Impaired associative olfactory function may contribute to reported

eating behaviours such as mealtime rigidity, bolting of food and diet preference changes. Gender may play a role in the sparing of semantic olfactory processes. Findings may contribute towards differentiating FTLD from other pathologies.

R MICHAEL WALLER
University of Queensland

Using linked data to identify dementia records using the Australian Longitudinal Study on Womens' Health

Dr Michael Waller[1], Professor Gita Mishra[1], Professor Annette Dobson[1]

[1]University of Queensland, School of Public Health, Herston, Australia

Background: The Australian Longitudinal Study on Women's Health (ALSWH) includes a cohort of women followed-up from 1996 through self-reported surveys and routinely collected administrative data. Researchers have developed a method to identify records of women with dementia in this cohort.

Method: The following datasets have been used to construct a listing of all known dementia records in this cohort; Self-reported data (including free text response, information of proxies, and responses received through participant management records), Pharmaceutical Benefits data, Cause of death records, Aged care data (including assessments and funding instrument data), and Hospital admissions data (not available from Victoria). Data linkage was used to collate these records of dementia and estimate a date of diagnosis based on the first available notification date.

Results: Over the first 20 years of the Study, 28% of women (3,482 out of 12,432) had a record of dementia. The largest source of dementia records was the aged-care data, with 75% of dementia records identified from this source. The next most common source was the cause of death data (45%).

Discussion: The data linkage techniques employed have produced credible estimates of the cumulative incidence dementia. The techniques used may provide a template of how linked data sources can be used to generate a registry of dementia cases at a State or national level. Having now developed this resource, researchers can apply to use the dementia records identified through the ALSWH study to answer questions regarding womens' health both before and after dementia diagnosis.

MS ROCHELLE WATSON
University of Newcastle

Dementia is the second most feared condition among Australian health service consumers

Ms Rochelle Watson[1,2,3], L/Professor Rob Sanson-Fisher[1,2,3], Dr Jamie Bryant[1,2,3], Dr Elise Mansfield[1,2,3]

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Background: Community awareness of dementia is crucial for early detection, addressing stigma, and optimising care. Previous international research found the proportion of people reporting dementia as the condition they fear the most had the greatest increase over time than other illnesses.

Aims: To explore among Australian health service consumers the diseases they fear the most and differences in the reasons for fearing cancer versus dementia.

Methods: A cross-sectional survey of people attending outpatient clinics at one Australian hospital. Participants were asked which health condition they most feared from a list of the leading causes of fatal burden in Australia, and the three most important reasons for their choice.

Results: Of 355 participants, the most feared condition was cancer (34%) followed by dementia (29%). For participants aged 65 years and over only, dementia was selected as most feared. The top reasons for selecting cancer were: shortened length of life (69%), physical symptoms and side effects (57%), and emotional impact (43%). The top reasons for selecting dementia were: emotional impact (60%), practical issues (59%), and social impact (40%). Only 16% reported shortened length of life as a reason for fearing dementia.

Conclusion: Increasing prevalence may contribute to fear of dementia, even among younger people for whom it is not a leading cause of fatal burden. More community education may be needed regarding the impact of dementia on life expectancy and preventative health behaviours. Findings highlight the importance of a supported diagnosis process given many individuals may have pre-existing fears about dementia

Intervention and Treatment

DR RACHEL ATKINSON
Wicking Dementia Research and Education Centre

Does TDP-43 pathology cause axon traffic problems?

Dr Rachel Atkinson[1], Dr Jacqueline Leung[1], Dr Olivier Bibari[1], Dr Matthew Kirkcaldie[1], Professor James Vickers[1], Associate Professor Anna King[1]

[1]University of Tasmania, Hobart, Australia

Frontotemporal lobar degeneration (FTLD) is the second most common cause of younger-onset dementia. Alterations to the TDP-43 protein are found in a majority of FTLD cases, characterised by mislocalisation of the protein from the nucleus to the cytoplasm. There is also distinctive loss of axons in the white matter of FTLD brains. We are interested in how alterations to TDP-43 may contribute to axonal loss using the eye as a novel way to model these changes. Adeno-Associated virus (AAV2) was used to deliver wildtype (WT) TDP-43 and TDP-43 with a mutation in the nuclear localisation signal (NLS), to replicate disease conditions, to retinal ganglion cells (RGCs) of C57Bl6 mice (n=15 per group). Histological analysis after 3 months demonstrated that both TDP-WT and TDP-NLS transduced ~60% of RGCs, with WT-TDP expression confined to the nucleus and TDP-NLS expressed throughout the cytoplasm. TDP-NLS expression resulted in axonal pathology including a significant increase ($P<0.05$) in degenerative axonal profiles in optic nerves compared to vehicle controls. Electron microscopy revealed that degenerative profiles resulted from accumulation of autophagic vesicles. Autophagic vesicles are formed in the axon terminal and transported back to the cell body (retrograde transport). Thus our data suggests that mislocalisation of TDP-43 results in disruption to retrograde transport. Our future studies will investigate specific transport cargos affected by TDP-43 pathology. Identifying how axons degenerate following mislocalisation of TDP-43 will aid in targeting therapeutics to stabilise and maintain function of axons in diseases like FTLD.

MR JAMES BENDER
Wicking Dementia Research and Education Centre

Excitotoxic pathology: Description of a model in the visual system of mice

Mr James Bender[1], Mr Alexander Cronk[1], Dr Rachel Atkinson[1], Dr Jacqueline Leung[1], Professor James Vickers[1], Associate Professor Anna King[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

Alzheimer's disease and other conditions causing dementia are Associated with disruption of neuronal circuitry through degeneration of both the axons and neuronal connections. Excitotoxicity is a pathological process known to occur in many of these diseases and has been shown to be capable of inducing axonal degeneration. To develop targets for therapeutic intervention, it is important to understand the mechanisms involved. This study aimed to characterize an *in vivo* model of excitotoxicity in the visual system of mice for therapeutic testing.

Intravitreal administration of a range of concentrations of the excitotoxin kainic acid (KA, n=41), or a vehicle control (PBS, n=13), was performed on adult mice. Optomotor analysis revealed that animals treated with 1nmole KA demonstrated a loss of visual acuity 1-day after surgery but had improved by 7-days, while any dose >1nmole KA resulted in an absence of response at every timepoint after surgery ($p<0.001$). The performance of animals given PBS or <1mM KA was not significantly affected ($p=0.343$). 7-days after excitotoxin exposure, retinal immunohistochemistry revealed an increased immunolabelling for the astrocyte marker GFAP ($p<0.001$) and disruption in markers Associated with the cytoskeleton in retinal ganglion cells (RGC). In the optic nerve, transmission electron microscopy and histology techniques revealed glial infiltration and alterations to the cytoskeleton in RGC axons distal to the site of excitotoxin exposure, indicating that the injury propagates throughout the axon. The future impact of this research is to develop a rapid *in vivo* screening platform for mechanistic studies and testing therapeutic interventions against excitotoxic neurodegeneration.

DR BILL BENNETT
Wicking Dementia Research and Education Centre

Aged mice retain their motor learning ability, which can be enhanced by transcranial magnetic stimulation

Dr Bill Bennett[1], Ms Barbora Fulopova[1], Dr Jessica Collins[1], Ms Hannah Coombe[1], Associate Professor Alison Canty[1]

[1]University of Tasmania, Hobart, Australia

Introduction: We are interested in whether there are intrinsic differences in connectivity in young adult brains and aged brains, in the absence of disease conditions such as dementia. Using sophisticated live imaging and two-photon microscopy, we use transgenic mice with fluorescent neurons to directly image the connections between neurons, known as synapses, in the cerebral cortex of a living mouse. We can track changes in specific synapses, dendritic spines, over days to weeks in the mature adult (7-10 months) and very old brain (22-24 months). Transcranial magnetic stimulation (TMS) is a novel form of non-invasive brain stimulation, which can induce long-lasting changes in connectivity in the human brain. In this study, we investigated the effects of TMS in the adult and aged mouse brain.

Methods and Results: We compared synaptic plasticity (spine density and turnover) in the mature adult and aged brain. After establishing baseline synapse dynamics over a few days, we gave a single round of TMS as a complex pulse train (intermittent theta burst) using a rodent-specific coil, overlying the mouse brain. In mature adults, TMS induced an increase in spine turnover of ~19%. In the aged animals, we saw a similar baseline turnover and an equivalent increase in turnover post-TMS. In both cases, the effect of TMS was transient.

Conclusions: In this population of excitatory neurons, the aged brain maintains similar baseline synaptic dynamics compared to the younger adult brain and responds to TMS with changes in connectivity with the same direction, magnitude and duration.

DR BILL BENNETT
Wicking Dementia Research and Education Centre

Live imaging of dendritic spine plasticity with transcranial magnetic stimulation – findings in aged mice

Dr Bill Bennett[1], Dr Jessica Collins[1], Ms Claire Hadrill[1], Ms Barbora Fulopova[1], Dr Alex Tang[2], Dr Jennifer Rodger[2], Associate Professor Alison Canty[1]

[1]University of Tasmania, Hobart, Australia, [2]University of Western Australia, Perth, Australia

Introduction: We are interested in whether there are intrinsic differences between young adult brains and aged brains, in the absence of disease conditions such as dementia. Transgenic mice with fluorescent neurons allow us to directly image synapses in the cortex of a live animal, using a sophisticated two-photon microscope. We used this cutting-edge technique to track changes in synaptic connectivity (plasticity) over days to weeks, in both young adult and very old mice. Transcranial magnetic stimulation (TMS) is a novel form of non-invasive brain stimulation, which can induce long-lasting changes in plasticity in young adults. We sought to find out whether TMS would have similar effects in aged brains.

Methods and Results: We compared plasticity (spine density and spine turnover) in young adult (3-7 months old) and very old (22-24 months) mice. After establishing baseline values over a few days, we gave a single round of TMS as a complex pulse train (intermittent theta burst) using a rodent-specific coil. In young adults, TMS induced an increase in spine turnover of ~19% within 24hrs. In the aged animals, we saw no significant difference in baseline turnover compared to young adults, and we saw the same increase (~19%) in turnover within 24hrs of TMS. In addition, the effect of TMS upon turnover seems to be quite transient.

Conclusions: We see little or no difference in baseline spine density or turnover between young adult and very old mice. Furthermore, the response to TMS appears to be similar in both groups, with turnover transiently boosted

DR PRASHANT BHARADWAJ
School of Medical and Health Sciences, Edith Cowan University

AMPK activator PRKAG2 is elevated in AD brain and is associated with increased Aβ accumulation

Dr Prashant Bharadwaj[1]

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Previous studies of AD brain shows a marked up-regulation of lysosomal activity, including extensive involvement of various acid hydrolases such as cathepsins B and D with Aβ protein deposits. In addition, The AD brain also shows abnormal activation of nutrient sensing kinase AMP-activated protein kinase (AMPK), which is an important regulator of autophagy. AMPK is a heterotrimeric protein complex composed of a 3 subunits including a noncatalytic regulatory gamma subunit PRKAG2. Recent findings show that PRKAG2 has an important role in regulating stress induced autophagy by AMPK and polymorphisms in PRKAG2 are Associated with cognitive impairment and metabolic dysfunction in old age. The main aim of this study was to determine the expression levels of PRKAG2 and whether it correlates with increased autophagy and Aβ levels in the AD brain.

Gene and protein expression analysis of PRKAG2 was conducted in post-mortem brain tissues of patients with AD, FTD (Frontotemporal dementia), LBD (Lewy body dementia) and in healthy controls. Autophagy markers LC3B-I, BECLIN1 and ULK3 were significantly elevated in the AD brain as compared to healthy control and other dementias showing the abnormal activation of autophagy. Gene transcription and protein levels of PRKAG2 was significantly increased in hippocampus and frontal cortex in AD. More importantly, PRKAG2 protein levels were associated with increased Aβ accumulation and BECLIN1 in all brains. In summary, our findings suggest that increased PRKAG2 may be an important contributing factor to lysosomal dysfunction and Aβ accumulation in AD brain.

PROFESSOR THOMAS BORODY
Centre for Digestive Diseases

Treatment of Alzheimer's disease with combined antibiotics

Miss Harriet Kingston-Smith[1]

[1]Centre for Digestive Diseases, Sydney, Australia

Introduction: Alzheimer's disease (AD) is an incurable neurodegenerative disease characterised by impaired cognition with a pathogenesis hypothesised to be a multifactorial process that may involve bacterial infection. Chlamydia pneumoniae (Cpn) has been detected in the brains of patients with AD and implicated in pathogenesis. We report two patients with AD, treated with antibiotics targeting Cpn.

Case One: A 72 y/o male with a 4y history of AD with short-term memory loss, Mini Mental State Exam (MMSE) score of 18/30 who required high level nursing care was initially commenced on rifabutin, minomycin and roxithromycin with good short term response. He was then commenced on doxycycline, Septrin Forte and metronidazole and by 6 months showed marked improvement, being able to recognise friends, hold and comprehend conversations, follow instructions and complete simple tasks.

Case Two: A 79 y/o female Professional horse-rider with a 15y history of memory loss, MMSE score of 19/30, and diagnosis of AD. She was unable to recognize friends, showed irritability, could not tell the time, unable to ride nor do the shopping. Six months after commencing clarithromycin, rifaximin and sporonox, she was able to drive, shop, ride her horses, and showed significant improvement in cognitive function and memory. Her MMSE score increased to 26.

Conclusions: The response of these patients indicates that treatment of AD with combined antibiotics targeting Cpn may be effective in alleviating symptoms and provides further evidence for an infective cause. The role of combined antibiotics in the management of AD should be further investigated.

MS ALISON BOWMAN
University of Newcastle

Junior Medical Officers' knowledge of implementation of advance care directives (ACDs) for people with dementia

Ms Alison Bowman[1], Dr Jamie Bryant[2], Dr Amy Waller[2], Laureate Professor Rob Sanson-Fisher[2], Dr Robert Pickles[4], Dr Carolyn Hullick[5], Professor Ben White[3], Dr Emma Price[4], Professor Lindy Willmott[3]

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Aim: To determine Junior Medical Officers' (JMOs') knowledge of : (1) the legal validity of advance care directives (ACDs) when making healthcare decisions for persons with dementia; and (2) the correct order in which people should be approached as 'person responsible' if a patient is unable to of consent to their own treatment.

Design: A cross-sectional survey was conducted with JMOs on clinical rotation at two tertiary public hospitals in New South Wales. Participants completed a pen-and-paper survey which included 6 true/false knowledge questions, regarding the legal validity of making treatment decisions and enacting ACDs in different situations. Participants were also asked to rank in order (1-4) who should be approached as 'person responsible' when a patient is not capable of consenting to their own treatment (*Spouse or Partner; Close friend or relative; Guardian; Unpaid Carer)*.

Results: Data collection is ongoing. To date 96 surveys have been completed (response rate 42% - 59% female; 48% post-grad year 4; 94% have provided care to a patient with an ACD). For the 6 questions related to enacting of ACDs, the participants answered an average of 2.57 correctly (SD= 1.13) No participants scored all questions correctly. Only 16% of participants ranked the order of 'person responsible' hierarchy correctly; 17% ranked all incorrectly.

Conclusion: There are significant gaps in the knowledge of JMOs who may be required to treat patients with dementia presenting to hospital with ACDs. These findings suggest there is a need to improve training to JMOs in this area.

DR CLAIRE BURLEY
University of New South Wales

Economic costs of behaviours and psychological symptoms of dementia (BPSD): A review of the literature

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Behaviours and psychological symptoms of dementia (BPSD) affect ≤90% of people living with dementia and strongly correlate with functional and cognitive impairment (Cerejeira et al., 2012). BPSD can cause high levels of distress for people living with dementia, families, care partners and staff; as well as impose a significant financial burden on society. However, little research has been done to calculate the specific costs Associated with BPSD using consistent methodological approaches.

We identified thirty papers that investigated dementia costs and BPSD. The cost of dementia increased significantly as the severity of BPSD increased (as shown by Neuropsychiatric Inventory (NPI) and/or Cohen-Mansfield Agitation Inventory (CMAI)); and was intertwined with activities of daily living, cognition and level of dependence. Several psychosocial interventions were cost-effective in reducing BPSD.

Study types varied (cohort, cross-sectional, intervention, etc.) and although some used similar measures to investigate costs (Client Service Receipt Inventory (CSRI) and the Resource Utilization in Dementia (RUD)), dementia severity (Mini-mental State Examination) and BPSD (NPI/ CMAI), methodological approaches to calculate Associated costs varied considerably (e.g., group comparisons, linear regressions). These approaches will be presented in more detail.

We will provide recommendations for costing approaches and highlight how robust approaches to determine BPSD costs can be developed through interdisciplinary research. By determining clinical and cost-effectiveness of targeted interventions for reducing BPSD, we anticipate that we can provide compelling arguments for service providers to adopt such interventions.

DR MONICA CATIONS
Flinders University

Health Professional perspectives on barriers to broad acceptance of rehabilitation for people with dementia

Dr Monica Cations[1], Ms Natalie May[1], Professor Maria Crotty[1], Associate Professor Lee-Fay Low[2], Professor Lindy Clemson[2], Associate Professor Craig Whitehead[1], Associate Professor James McLouglin[1], Ms Kate Swaffer[3], Dr Kate Laver[1]

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Background: Unlike other progressive neurological conditions and despite increasing demand from key advocates, multidisciplinary rehabilitation is not incorporated into the usual care pathway for dementia. This is despite increasing demand from key advocates. Clinician views regarding the relevance of rehabilitation in dementia care are not well known. This qualitative study explored the perspectives of health Professionals regarding barriers to provision of multidisciplinary rehabilitation programs for people with dementia.

Methods: Sixteen health Professionals from a variety of settings and Professional backgrounds were purposively sampled using maximum variation sampling. Semi-structured interviews were conducted to explore attitudes towards the care of people with dementia and beliefs about the feasibility and value of multidisciplinary rehabilitation in this population. Thematic analysis was used to identify themes.

Results: Participating clinicians acknowledged problems with existing dementia care pathways in Australia, but rarely conceptualised rehabilitation as relevant to this pathway. Analyses yielded two main and related themes: (1) Difficulty defining worthwhile outcomes of a rehabilitation program for people with dementia, and; (2) Perceived barriers to rehabilitation participation in this population. Clinicians felt that achievable outcomes for people with dementia were not sufficiently worthwhile for investment.

Implications: Broader acceptance of multidisciplinary rehabilitation as relevant to dementia care will require a reframing of practice that both educates health Professionals regarding the outcomes that may be achievable for people with dementia and persuades staff to appreciate that the investment is worthwhile.

MS ELISA CHOUDERY
University of Newcastle

Working with people with dementia and their carers–Speech and Language Pathologists' experiences and perceptions

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Background: Rates of dementia diagnosis are increasing. One area affected by dementia is communication impacting quality of life for people with dementia and those they interact with. As communication is a fundamental requirement for every person, Speech-Language Pathologists (SLPs) have comprehensive knowledge and expertise to provide support for people with dementia and their carers. The research presented investigated current clinical practice of Australian SLPs working with people with dementia at a time where services for ageing populations are being reviewed at a national level through the Royal Commission into Aged Care Quality and Safety.

Aims: The aim of this study is to investigate experiences and perceptions of SLPs when working with adults with dementia, their carers and other health Professionals, and to identify factors that influence the treatment and service decisions.

Method: A cross-sectional survey of SLPs is conducted in Australia using a specifically designed web-based survey. The survey explores areas of clinical practice including education and training, referrals, assessment, diagnosis and intervention.

Results & discussion: Preliminary results about approaches and patterns of SLP services and patterns will be presented and considered in light of current and future developments in practice in dementia care. It is anticipated that these results will be used to guide further research regarding speech pathology services delivered as part of a multidisciplinary team in dementia care which may include development of specific Professional guidelines, education and training to support SLPs to implement dementia-related services.

DR PETA COOK
University of Tasmania

How are Cancer Treatment Recommendations and Decisions Reached With/ For Older Adults with Dementia?

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In healthcare, health risk assessments are influenced by technical 'objective' measurements of the physical body and disease; the values that underlie Professional practices; the organisations healthcare Professionals work for; and subjective belief systems of individual healthcare Professionals. As a result, cancer treatments prescribed for older adults can be tempered by personal views about a patient's age and other health conditions or comorbidities that they may have. Drawing from interviews undertaken with nine key staff members in a large cancer service, we examine how treatment recommendations and decisions are determined when older adults with cancer also have dementia; two health conditions more common in older age. This exposes that healthcare workers and Professionals view dementia in diverse ways, which are influenced by subjective understandings of the older adult's lived experiences of dementia and ageing. These beliefs serve to influence and guide how cancer treatment recommendations and decisions for older people with dementia are reached. This process is further layered with power, whereby the ability to influence such decisions are tempered by one's Professional status and their Associated understandings of autonomy (individual versus relational autonomy). As a result, this exposes the multifaceted influences on treatment decisions and recommendations, including the influence of social constructions of health, illness, and age.

DR SANETTA DU TOIT
University of Sydney

A global understanding of dementia care – creating an international learning experience

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Background: An ageing world population and global migration will profoundly impact future health care. Currently various issues Associated with the well-being, belonging and agency of older adults with advanced dementia living within residential care settings have been highlighted by the recent Royal Commission into *Aged Care* Quality and Safety in Australia. Therefore, occupational therapy (OT) students as part of the future healthcare work force need to understand our profession's role in addressing current and future challenges relating to the health and wellbeing of older adults. Method: Collaboration between four universities in Australia, South Africa, Sweden and the UK led to an opportunity for OT students to explore residential aged care from a global perspective. An intra-Professional critical OT perspective assisted OT educators to consider how to develop of a conceptual framework for facilitating on-line collaborative learning.

Results: This project connected health curriculum directly to the larger political, social and economic issues surrounding the profession and aged care agendas on a global level. Collaborative on-line learning activities were developed to support a shared understanding of older adults with advanced dementia as occupational beings and aide in the preparation of a future OT workforce. Authentic learning opportunities would enable students to uncover and take ownership of the contribution the profession of occupational therapy could bring to residential aged care.

Conclusion: Student engagement through digital platforms support the development of international and intercultural competence in dementia care approaches.

MR SAMUEL DWYER
Wicking Dementia Research and Education Centre

Characterisation of oligodendrocyte changes in a rodent Alzheimer's disease model

Mr Sam Dwyer[1], Dr. Jacqueline Leung[1], Dr. Matthew Kirkcaldie[1], Professor. James Vickers[1], Associate. Professor Anna King[1]

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Recent research in Alzheimer's disease (AD) has shown interest in the role of glial cells in AD pathogenesis. Studies have identified the presence of focal demyelination at amyloid plaque sites and alterations in oligodendrocyte populations in animal models of early AD. The aim of this study is to understand the effect of amyloid-beta (Aβ) on oligodendrocyte development and health, which may have subsequent effects on myelin and the degeneration of neurons. We firstly studied the effect of extracellular Aβ on oligodendrocyte development *in-vitro*. Trace analysis of mature oligodendrocytes that have been treated with 5μM Aβ shows significantly reduced branching, suggesting a more immature morphology compared to control. In addition, 1μM Aβ1-40 demonstrated a statistically significant increase in the number of MBP-positive oligodendrocytes and branches (n=10 cells per culture, 3 cultures per treatment, $p<0.05$), suggesting low concentrations of Aβ might have a potential role in oligodendrocyte maturation *in-vitro*. We have also examined alterations in the maturation of oligodendrocytes as well as myelination changes in a model of AD, the TgF344-AD rat. This model may provide a more suitable translational model of disease progression than common mouse transgenic models, as the TgF344-AD rat develops tau pathology as well as amyloid plaques. Alterations to oligodendrocyte populations in key brain regions impacted in AD progression were analysed using immunohistochemistry and protein analysis, alongside myelination changes using electron microscopy techniques. The outcome of this study is to highlight the potential role oligodendrocyte maturation and myelination alterations may have in the disease progression of AD.

MRS BARBORA FULOPOVA
Wicking Dementia Research and Education Centre

Exploring the dynamics of brain connectivity in an amyloidosis animal model of Alzheimer's disease

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Introduction: Synapses are points of communication between neural cells capable of neuroplastic adaptation Associated with learning and memory, and their dysfunction is a common feature in Alzheimer disease (AD). Axonal terminaux boutons are at the output sites of synapses, and reorganisation of these structures can lead to large-scale connectivity changes.

Aim and Methods: To investigate structural dynamic of terminaux boutons, we used cranial windows, two-photon microscopy, and non-invasive transcranial magnetic stimulation (TMS) in healthy transgenic adult mice (Thy1-GFP-M), and an amyloidosis mice model of AD (Thy1-GFP-M x APP/PS1). Longitudinal imaging was conducted in 48-hour intervals over 18 days, and TMS was delivered at day 10 using a rodent specific stimulation coil. Structural dynamics were measured as synaptic density (number of boutons per axon length) and synaptic turnover (proportion of gains and losses between 2 consecutive sessions), and then compared between pre- and post-stimulation timepoints.

Results: We found that density was unchanged across both healthy and amyloidosis groups, and did not change following TMS. Overall baseline pre-stimulation turnover was significantly ($p = 0.005$) lower in amyloidosis group compared to heathy group, and post-stimulation turnover was significantly ($p < 0.05$) increased for up to 8 days in both groups.

Conclusion: One round of TMS induced neuroplastic response of imaged excitatory neurons found in neuropil. Observed cells maintained their total presynaptic outputs post-stimulation, however, targets of these outputs were highly dynamic. Additionally, the post-stimulation increase of low baseline synaptic turnovers in amyloidosis group points to possible clinical applications of TMS in Alzheimer's disease.

MISS OLIVIA HOLLOWAY
Wicking Dementia Research and Education Centre

Microglia demonstrate a heterogenic inflammatory profile in an Alzheimer's disease mouse model

Miss Olivia Holloway[1], Associate Professor Anna King[1], Dr. Jenna Ziebell[1]

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The hallmarks of pathology in Alzheimer's disease (AD) are amyloid beta plaques and neurofibrillary tangles. Recently, microglia, the immune cells of the brain, have been hypothesised to play a role in AD, where they reportedly switch from anti-inflammatory to pro-inflammatory as disease progresses. This study investigated inflammatory microglial markers in an AD model of amyloid plaque formation to identify the shift in the microglial inflammatory profile and whether microglial morphology is tied to function. Spatial localisation in relation to plaque development was also investigated. Immunohistochemistry for anti- and pro-inflammatory markers; TREM2, CD40, CD14 and CD16 was conducted at 3-, 6-, and 12-months of age which correlated with an increasing plaque load (pathology) in mouse brains; (n=6 per timepoint). Data was analysed using two-way ANOVA with Tukey's post-hoc test for multiple comparisons. Significant morphological shifts were observed in AD mice at 6 and 12 months, where there was an increase in activated ($p<0.05$) and amoeboid ($p<0.05$) morphologies.

All inflammatory markers were significantly upregulated at 12 months ($p<0.05$), demonstrating heterogenic inflammation of both anti- and pro-inflammatory profiles. The increased inflammatory profiles occur simultaneously with morphological shifts suggesting a potential relation at late stage plaque development. Spatially, at 12 months there was significant increase in inflammation directly correlating to plaque location ($p<0.05$). Overall, these data suggest microglia display a heterogenic inflammatory profile throughout disease progression, which impacts future research in designing potential therapeutics for inflammatory cascades activated AD.

DR ABRAHAM KUOT

Flinders University Rural Health South Australia

Harmony in the Bush: An innovative personalised care model for dementia in rural residential care

Dr Abraham Kuot[1], Dr Vivian Isaac[1], Mrs Margaret Kimani[1], Dr Mohammad Hamiduzzaman[1], Professor Jennene Greenhill[1]

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There are creative ways to improve the quality of life, and decrease the stress, carer burden and staff workloads in residential care facilities. Harmony in the Bush is an innovative research study aims to co-design an effective model of care for dementia in residential facilities. Approximately 30% of Australians live in rural communities. Dementia is a major concern for many rural communities where there are ageing populations with poor access to health services. Many people rely on aged care facilities as their relatives experience progressive decline, particularly when they experience behavioural and psychological symptoms of dementia such as agitation and wandering. These symptoms are complex, stressful and costly aspects of care. Institutionalisation and antipsychotic medications have limited efficacy but are widely used in residential aged care. The study is funded by the Australian Government Dementia and Aged Care Services grant, and is a two-year, longitudinal, quasi-experimental design involving behaviour measurements, interviews, and focus groups in five different kinds of residential facilities to evaluate the model's effectiveness in various rural health contexts. They include small and large, private, public, not for profit, people from multicultural backgrounds and an Aboriginal specific facility. Our 'Ageing Well in Harmony' is a new model of care incorporating personalised care, non-pharmacological interventions and music for people with dementia (PWD). This presentation will include an overview of the study design and preliminary findings. This personalised model of care will have long-term positive outcomes for rural communities especially beneficial for PWD, carers, aged care staff and their workplaces.

MR ROSS LANGLEY

Wicking Dementia Research and Education Centre

A new method of tracking microglia motility and synapse interactions in vivo

Mr Ross Langley[1], Dr Jessica Collins[1], Associate Professor Alison Canty[1], Associate Professor Anna King[1], Dr Jenna Ziebell[1]

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Microglia are highly motile immune cells found within the brain and their dysfunction has been implicated in the progression of neurodegenerative diseases such as Alzheimer's disease (AD). As the brain's primary immune cell, they constantly survey their surroundings for signs of infection or any "waste" that needs to be cleared. In addition to this they also play a role in the wiring of the brain and have been found to periodically contact synapses, the communication points between neurons. Studies suggest that this is to monitor the functionality of the synapses. It is hypothesised that microglial processes may slow down in AD resulting in a build up of waste and disrupted synapse maintenance. We have developed a protocol that allows us to measure the movements of microglia *in vivo* using mice that express fluorescent proteins on both microglia and neurons allowing these synaptic interactions to be visualised. Following an imaging session, the movement of the microglia is tracked using a program known as Trackmate. This collects data on the speed of the processes, the distance covered and the contacts made with synapses. This is tracked throughout the animal's lifetime allowing us to see if microglia dysfunction occurs with ageing and/or at which stage of AD it occurs. This protocol is the first to allow for the collection of high volumes of microglia movement and synapse interaction data. This has the potential to give us new targets for therapeutics as well as a time period that these treatments will be most effective.

DR JACQUELINE YK LEUNG

Wicking Dementia Research and Education Centre

The role of TAR DNA binding protein 43 (TDP43) in white matter degeneration in dementia.

Dr Jacqueline YK Leung[1], Mr Samuel T Dwyer[1], Dr Rachel Atkinson[1], Professor James Vickers[1], Associate Professor Anna King[1]

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White matter degeneration is a pathological feature of frontotemporal dementia (FTD), although the mechanism of this degeneration is currently unknown. TAR DNA binding protein 43 (TDP43) aggregates have been found in oligodendrocytes; however, the role of TDP43 in oligodendrocytes and its effect on oligodendrocytes development and myelin production has not been determined. Our research hypothesises that TDP43 has a direct role in oligodendrocytes development; hence the dysfunction of TDP43 might potentially contribute to white matter degeneration observed in FTD. To examine this, we have utilised primary cultured oligodendrocyte precursor cells, where the TDP43 expression is manipulated using lentivirus (either overexpression of wild type; TDP43-WT, or nuclear-localisation signal mutation; TDP43-NLS). The morphology of cells was analysed using immunohistochemistry and tracing in Image-J.

Our preliminary data indicate that overexpression of TDP43-WT leads to a significantly ($p<0.05$) more complex cell morphology compared to non-transduced control cells ($n=20$). The expression of a mutant form of TDP43 leads to a less complex morphology when compared to non-transduced control ($n=10$). To examine this further in vivo, we utilise the Sox10-iCre/ERT2 transgenic mouse and AAV carrying the lox-sequence (e.g., lox-TDP43) to create a mouse model where the TDP43 expression is altered in an oligodendrocytes-specific manner. We aim to use this model to study the long-term changes in oligodendrocyte development and myelination in the presence of pathologic TDP-43.

Impact of this study: The data from this project suggest that alterations to TDP43 expression lead to a change in the developmental capacity of oligodendrocytes process in vitro. Thus altered TDP43 may have direct involvement in the mechanisms of white matter degeneration observed in FTD pathogenesis and indicate potential therapeutic targets through maintaining oligodendrocytes health.

DR JACKI LIDDLE
University of Queensland

Learning through making: What making technology with people with dementia taught a technology design team

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With technology expected to play an increasingly important role in supporting the participation, connection and wellbeing of people living with dementia and their care partners, different approaches to development and evaluation are required. Reviews indicate the quality of technology available has been affected by a lack of user-centred design approaches, a reliance on technology-, rather than person-focussed processes, and the impact a lack of detailed understanding of need.

Within a participatory design process, a research through design project was undertaken. A multidisciplinary design team comprised 12 designers and developers (10 students), two health Professionals and three lived experience experts. The team worked through a series of activities to gain insights, understand needs and each develop a piece of technology, to help one person, with one need. Developers worked with the team to develop prototype technology in an iterative process, get feedback and thereby improve the design throughout a 10 week period.

A range of prototypes were made including a connected calendar, streaming music in a familiar form, an encourager for managing apathy, and a personalised sensory cushion. Through examining the series of proposed technologies, and their improvements, the impact of working with lived experience experts was demonstrated. Challenging stereotypes and their impact on design, insights into needs, usability, and the complexity of living with dementia for individuals and their support networks were gained. Technology design changes reflected a deeper understanding of the nature of technologies, environments and individual preferences. These considerations for design can be incorporated into future technology design.

DR MELINDA MARTIN-KHAN
University Of Queensland

The eQC Project: Identifying Patients with Cognitive Impairment in Acute Care

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Introduction: The interRAI Acute Care (AC) nursing assessment tool was pilot tested in adult admitted hospital patients (aged 18 and over) and identified that 24.3% of patients had short term memory problems, common across all age groups, not just the elderly. For those patients who may have cognitive impairment (CI), it can be difficult to detect without the use of a screening tool. A strategy designed only for patients with CI adds significant burden. A "universal" system that also deals specifically with the issues related to CI is desirable. The aim of the eQC project is to conduct a large scale implementation and evaluation of an assessment and care planning system to improve the care and support of people with dementia in hospital.

Method: The interRAI AC (including clinical screeners) will be implemented as a facility wide nursing assessment system administered to all adult patients (18 years and older) at admission, reviewed at handover and discharge as part of a large scale hospital/s implementation. Quality Indicators will be scored automatically using assessment data.

Staff will identify patients with CI or dementia, and patients at risk of poor outcomes, using the electronically generated assessment data which is also linked to other hospital administrative data.

Conclusion: The interRAI AC is being implemented as as an electronic nursing assessment system to improve the care of patients with dementia (or CI). The project will examine nursing admission documentation time, the identification of patients with CI, delirium risk prevention activities and changes in care planning.

MEGAN MCSTEA
University of Queensland

Antimicrobial Resistance costs in the last years of life for patients with dementia in Queensland

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The economic burden of Antimicrobial resistance (AMR) in the acute care setting has not been well quantified. There is a lack of information on whether patients with dementia have similar rates and costs of AMR.

Methods: We used AR-DRG and costs from the National Hospital Cost Data Collection, to analyse AMR identified patients in their last year of life. AMR related ICD-AM-10 codes were extracted from a matched cohort of patients identified having a diagnosis in the 5 years prior to death occurring in 2014-2015 or not.

Results: 1800 patients had at least one resistance code; Dementia vs non-dementia (10% vs 8%). 1240 (69%) patients also had a UTI ICD code. As the number of comorbidities increases so does the proportion with an AMR code.

The mean cost for a patient in public hospitals without identified AMR is $27,917(95%CI: $27,112–$28,723) vs an AMR patient, $48,567 (95%CI: $45,214 =–$51,919). There was no significant difference between the dementia and non-dementia groups. There was a significantly greater shortfall in revenue margin for AMR identified patients as compared to non-AMR patients. DRGs understate the cost of hospitalisation for AMR patients in particular those with dementia. After controlling for cofounders, AMR is associated with additional costs ($16,277, 95%CI: $13,627–$18,927).

Conclusion: Any record of AMR is Associated with increased hospital cost. AR-DRG's do not cover these costs and the level of disparity is significantly more than for non-AMR episodes. While AMR presentations are more prevalent for dementia patients, there is no significant difference in cost.

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DR HOANG NGUYEN
Wicking Dementia Research and Education Centre

Effects of interventions to improve dementia literacy: A systematic review

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Aims: To review and assess evidence regarding the effects of interventions aimed at improving dementia literacy for different groups of non-health-Professionals.

Background: Low dementia literacy is linked to many undesirable health outcomes. Therefore, many interventions to enhance dementia literacy have been conducted. A systematic review of such interventions would inform policy and practice guidelines for promoting dementia literacy, and support the translation of dementia research into practice.

Design: Systematic review and meta-analysis

Method: A systematic search for relevant interventions with any date of the publication was conducted using a range of online databases (e.g. CINAHL, Embase, Medline, ProQuest, and PsycINFO) and hand-searching of reference lists. Eligible interventions were then identified with reference to the inclusion/exclusion criteria and the methodological quality assessment checklist. Meta analyses were conducted on comparable quantitative data using a random-effects model.

Results: The final review included 14 interventions, which were either randomised controlled trials, non-randomised controlled trials, or controlled before-after interventions. The interventions were conducted in Northern America (USA, Canada), Europe (Netherlands, France, UK), and Oceania (Australia). The intervention contents, approaches, settings, and outcome measures were varied. Evidence of improved dementia literacy in various aspects was found, and the intervention effects were strongest on knowledge of dementia-related issues.

Conclusion: There is evidence for the positive impact of dementia literacy interventions on different groups of non-health-Professionals. Best practices in intervention contents, approaches, and outcome measures should be examined to guide future interventions.

ASSOCIATE PROFESSOR LEZANNE OOI
University of Wollongong

Two-dimensional and three-dimensional stem cell models of Alzheimer's disease highlight cell type specific vulnerabilities

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Induced pluripotent stem cells provide the opportunity to generate living neural cells that represent the genomes of late-onset Alzheimer's disease patients and test potential therapeutics in a pre-clinical setting. The utility of these models is highly dependent on the choice of cell type or combination of cell types / tissues generated and whether or not these show the critical disease phenotype(s). Published protocols for differentiation vary widely in the reported efficiency of target cell generation and suffer from reproducibility issues. Additionally, characterization of the cells by expression profile and functionality differs between studies and is often insufficient, leading to highly variable protocol outcomes. We assessed several two dimensional and three dimensional neural differentiations for dementia related phenotypes. From the same cells there are significant differences in the phenotype, including amyloid β, specific phosphorylated tau residues, synapse function, and neuronal excitability. Creating in vitro models of dementia with human stem cells is a useful research tool. However to enable their full potential, differentiation strategies need to be carefully planned and executed depending on the research question and the experimental read-out. Assessing neuronal function is essential to ensuring the appropriate developmental pathway and disease phenotype has been effectively recapitulated. Together our results highlight Alzheimer's disease relevant vulnerabilities in specific cell types.

DR YIJUN PAN
Tohoku University

Upregulating blood-brain barrier FABP5 as a novel way to restore DHA levels in AD brain

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Docoxahexanoic acid (DHA) is a cognitive-beneficial fatty acid, and lower brain DHA levels have been observed in Alzheimer's disease (AD) brains. Brain DHA is primarily derived from the plasma, and therefore we proposed that the reduced brain DHA levels in AD is partially due to impaired DHA transport mechanism at the blood-brain barrier (BBB). Our study highlighted the important

role of fatty acid-binding protein 5 (FABP5) in the BBB transport of DHA: 1) FABP5 siRNA transfection resulted a 21.7 ± 4.1% (n=3) reduction in FABP5 protein expression and 17.1 ± 2.7% (n=12) reduction in ^{14}C-DHA cellular uptake; 2) ^{14}C-DHA brain transport decreased by 40.0 ± 10.7% in FABP5$^{-/-}$ mice (n=5-6), and this was Associated with a 27.4 ± 10.3% reduction in endogenous brain DHA levels (n=3). Interestingly, FABP5 is downregulated (34.5 ± 6.7%, n=7-8) at the BBB of an AD mouse model (APP/PS1 mice), which is Associated with 42.1 ± 12.6% decrease in ^{14}C-DHA transport across the BBB (n=8 animals). Pioglitazone (5 µm, 72 hr treatment) increased FABP5 expression by 1.2-fold, which is Associated with a 1.3-fold increase in ^{14}C-DHA cellular uptake over 2 min. A significant 1.8-fold increase in ^{14}C-DHA BBB transport was observed in pioglitazone-treated C57BL/6 mice (40 mg/kg for 7 days, n=4). The current study therefore demonstrated that FABP5 is important in the BBB transport of DHA, and its downregulation at the BBB could contribute to lower brain DHA levels in AD. Upregulating FABP5 at the BBB using pioglitazone may restore brain DHA levels in AD.

DR SHARN PERRY
Wicking Dementia Research and Education Centre

Motor deficits in a neurofilament knockout mouse model of neurodegenerative disease

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Neurofilaments, part of the neuronal cytoskeleton, provide structural and mechanical support to neurons, where the neurofilament light chain (NFL) protein is essential for the formation of the neurofilament structure. In neurodegenerative diseases, neurofilaments form pathological aggregates in neurons, which can affect motor function and cognition. Previous research has shown NFL is involved in neurodegeneration, as 22-month-old mice with NFL removed (NFL-KO), showed locomotor deficits and altered spinal cord circuitry. The present study aimed to characterise the onset and extent of motor and cognitive deficits and spinal cord neurodegeneration in young (1 to 4-month-old) NFL-KO mice. NFL-KO and control mice performed behavioural tests every month for 4 months, to assess coordination, balance, strength and short-term memory. NFL-KO mice displayed abnormal motor and cognitive behaviours that were present at 1-month-old, and continued to deteriorate as the mice aged. Compared to control mice, NFL-KO mice had uncoordinated hindlimb movements in fine locomotor tasks and showed reduced hindlimb stepping precision and uncoordinated step cycles during balance tasks. NFL-KO mice recorded weaker forelimb grip strength, displayed abnormal motor tremors and were more apathetic than controls. Preliminary analysis of immunohistochemical labelled lumbar spinal cord sections from 6-month-old NFL-KO and control mice indicates altered motor neuron morphology in NFL-KO animals. Together, this data suggests NFL is necessary for normal motor function in young animals and is involved in the neurodegeneration of motor neurons, which is likely underlying the progressive motor deficits seen in NFL-KO mice.

DR EMILY REEVE
University of South Australia

Attitudes of older adults and carers in Australia towards deprescribing

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Introduction: Understanding of older adult and carer attitudes towards deprescribing will contribute to medication optimisation in practice which may reduce carer burden and drug-induced cognitive impairment. The aim of this study was to capture the attitudes and beliefs of older adults and carers towards deprescribing.

Methods: Self-administration of the validated revised Patients' Attitudes Towards Deprescribing (rPATD) questionnaire (older adult and carer versions). The rPATD plus questions regarding participant characteristics, self-rated health, trust in physician and health autonomy were distributed to adults aged ≥ 65 years old, taking ≥1 regular prescription medication and carers of older adults.

Results: Older adult participants (n=386) had a median age of 74 (interquartile range, IQR: 70-81), while carers (n=205) were aged 67 (IQR: 59-76) and were caring for a person aged 81 (IQR: 75-86.25) years old. Over 80% of carers reported that their loved one had 'memory problems'. Majority of older adults (88%) and carers (84%) agreed that they would be willing to stop one or more of their/their care recipient's medications if their doctor said it was possible. In a binary logistic regression model, a low Concerns About Stopping factor score was the strongest predictor of willingness to deprescribe in older adults (adjusted odds ratio (aOR)=0.12, 95% Confidence Interval (CI)=0.04-0.34), while excellent/good rating of physical health was the strongest predictor in carers (aOR=3.71, 95%CI=1.13-12.23).

Conclusion: Most older adults and carers are willing to have one of their/their care recipient's medication deprescribed although different predictors of this willingness were identified in these two groups.

PROFESSOR CHRISTOPHER ROWE
Austin Health, University Of Melbourne

The Australian Dementia Network Trial Screening Program

Professor Christopher Rowe[1,2], Dr Jo Robertson[3], Larry Ward[5], Doctor Vincent Dore[2,4], Associate Professor Victor Villemagne[2]

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Introduction: The Australian Dementia Network (ADNeT) aims to: 1) establish a Clinical Quality Registry for dementia;

2) enhance memory clinics; 3) establish a large cohort for research and clinical trials. Here we report on ADNeT clinical trial screening and recruitment to date.

Methods: Participants with MCI and mild Alzheimer's disease (AD) are being recruited from memory disorder specialists in Melbourne with plans to expand to other major cities later in 2019 as PET imaging facilities and referral networks are developed. Telephone then in-person screening of referrals identifies subjects with MMSE>22 and impaired word list recall who then proceed to beta-amyloid (Aβ) and tau PET imaging with NAV4694 and MK6240, respectively, and 3T MRI. Asymptomatic persons with preclinical AD will be added later in 2019.

Results: In 6 months 170 referrals were received and 68 passed screening. 45 have completed scans (27 MCI, 18 mild AD, age 72±8 yrs, 60% female). 61% of MCI and 100% of AD were Aβ+ve so suitable for AD trials. Tau imaging showed 33% of MCI and 81% of mild AD had cortical tau. When considering both scans in the AD group: 80% were Aβ+ve/Tau+ve and 20% Aβ+ve/Tau-ve. In the MCI group: 34% were Aβ+ve/Tau+ve, 28% Aβ+ve/Tau-ve, 33% Aβ-veβTau-ve, and 1 subject (5%) was Aβ-ve/Tau+ve.

Conclusions: The pilot ADNeT trial screening program is an effective approach to boosting clinical trial recruitment and consequently has attracted financial support from international pharmaceutical companies. This program will be extended to support AD clinical trials across the nation.

DR DUNCAN SINCLAIR

Wicking Dementia Research and Education Centre

Using cultured human neuronal cells to understand hormonal stress responses in Alzheimer's disease

Dr Duncan Sinclair[1], Mr Adoni Fiotakis[1], Dr Jana Talbot[1], Emeritus Professor Alan Mackay-Sim[2], Dr Anthony Cook[1], Associate Professor Anna King[1]

[1]University of Tasmania, Hobart, Australia, [2]Griffith Institute for Drug Discovery, Griffith University, Nathan, Australia

Stress hormone levels are reported to be higher in people living with Alzheimer's disease, while people who are exposed to particularly traumatic events are at increased risk of the disease. This implicates stress hormone dysregulation and/or maladaptive responses to life stress in Alzheimer's disease pathogenesis. Unfortunately, the impacts of Alzheimer's disease processes on stress hormone signaling, and vice versa, have not been investigated experimentally in humans.

Mechanistic studies of stress hormone signaling in Alzheimer's disease have historically been difficult because the glucocorticoid receptor, which mediates cellular stress responses, differs in size, abundance and function across cell types, species and developmental ages. Experiments reveal that different glucocorticoid receptor variants are expressed in rodent versus human brain and that cultured fetal neurons express undetectable levels of the receptor. Despite abundant receptor expression, human embryonic kidney cells display limited sensitivity to stress hormones.

Therefore, we have developed experimental models using human cells of neural origin to study stress signaling in Alzheimer's disease. These are olfactory neurosphere cells and induced pluripotent stem cell-derived neurons. We describe the characterization and utility of these cells for studying hormone-induced receptor nuclear translocation, gene transcription and cell death. Experiments to investigate the influence of Alzheimer's disease-related processes on these parameters are also highlighted. Ongoing work may have profound impact on dementia intervention and treatment approaches. Only by determining how and why life stress plays a role in Alzheimer's disease can therapeutics be developed which buffer stress in individuals who have, or are at risk of, the disease.

MS JOANNA SUN

University of Wollongong

Characteristics of the built environment for people with dementia in nursing homes in Asia

Ms Joanna Sun[1], Professor Richard Fleming[1]

[1]University of Wollongong, Wollongong, Australia

BACKGROUND: This scoping review explores the characteristics of the current built environment used to accommodate people with dementia in East and Southeast Asia. It is structured around the eight principles of design found in the Environmental Audit Tool High-Care. In addition, the review examines the level of knowledge and other influences contributing to the development of nursing homes in the region.

METHODS: The review was carried out utilizing the methodological framework recommended by Arksey and O'Malley. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses provided an overarching structural framework for the reporting process and the Population, Intervention, Comparison, Outcomes, and Context framework defined the scope of the review and focused on the research question. Six databases were accessed for the search, and 1,846 publications between 2001 and 2015 were retrieved.

RESULTS: A total of 48 articles from 9 countries met the inclusion criteria. All articles presented discussions that fundamentally included at least one principle of design and with some including all principles. The most prevailing principle discussed, found in 59% of all the articles was the need for familiarity for residents in the environmental design of facilities.

CONCLUSIONS: The review found that the eight principles of design, when applied with cultural sensitivity in countries in East and Southeast Asia can identify gaps in knowledge of the design for dementia enabling environments and suggest areas for improvement. An assessment tool based on the principles of design will be able to provide a guide for stakeholders in the design, development, or modification of nursing home environments.

PROFESSOR JAMES VICKERS
Wicking Dementia Research and Education Centre

Neurofilament-immmunoreactive neuritic degeneration in the human hippocampal-entorhinal pathways

Dr Jessica M. Collins[1], Associate Professor Anna E. King[1], Professor James C. Vickers[1]

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There has been considerable recent interest in the presence of brain proteins such as neurofilaments (NFs) in the blood as a biomarker of neurodegeneration. NFs are abundantly present in a subset of neurons in the brain, and in Alzheimer's disease (AD) they are selectively vulnerable to degeneration and their accumulation in dystrophic neurites is an early neuronal change Associated with amyloid beta plaque formation. The current study sought to examine NF-immunoreactive neuritic degeneration in the human hippocampal-entorhinal pathways in ageing, AD and Chronic Traumatic Encephalopathy (CTE) using the SMI-32 antibody. SMI-32 labels non-phosphorylated NF heavy subunits which are normally located in the somatodendritic compartment of neurons. We identified a variety of NF-positive neuritic pathologies across aging, AD and CTE, including neurites with altered morphology, ring-like structures of varying sizes, spheroids, intensely labelled cell bodies, sprouting neurons and cell bodies with neurofibrillary tangle-like structures. SMI-32-positive neurites showed thickening, large swellings, bulbs and wiggly- and corkscrew-like morphologies. The white matter tracts of AD cases demonstrated extensive SMI-32-positive axonal pathology and the subiculum of CTE cases had numerous NF-positive ring structures and spheroids. These preliminary results suggest that these brain regions are susceptible to a broad range of age- trauma- and disease-related changes. Ongoing analysis will decipher where these pathological changes cluster and how they are related to AD pathology and degeneration. By understanding the role of NFs in neurodegeneration we may be able to inform approaches to biomarker analysis and therapeutic development to prevent the progression of AD and other neurodegenerative conditions.

DR JUANITA WESTBURY

Wicking Dementia Research and Education Centre

The impact of interactive nurse and care staff education on psychotropic medication knowledge

Dr Juanita Westbury[1], Donnamay Brown[1], Kathleen Franks[1]

[1]University of Tasmania, Hobart, Australia

Over half of aged care home (ACH) residents have dementia. The majority experience 'changed behaviour', including agitation, psychosis and insomnia. Although Professional guidelines endorse detailed assessment and non-pharmacological strategies first-line, many residents are prescribed psychotropic medication, particularly antipsychotics and benzodiazepines, despite modest effectiveness, alongside adverse effects such as falls and stroke. One of the drivers of inappropriate use is thought to be inadequate knowledge about these medications.

Aims: Using the validated 10-question Old Age Psychotropic (OAP) quiz we aimed to:

1. Ascertain staff psychotropic knowledge, and
2. Assess the impact of two educational sessions.

Method: The OAP quiz was taken by registered, enrolled nurses and care staff at 150 ACHs at the start of an educational session, then repeated at the end of the second session, 3-months later. Baseline quiz results were analysed to assess overall psychotropic knowledge. Quiz score differences between sessions were statistically assessed.

Results: The OAP quiz was completed by 1273 participants at baseline. More than half answered questions relating to side effects and guidelines incorrectly, whereas questions about indication were answered correctly by over 70%. Average psychotropic knowledge scores differed significantly between the three participant groups. 780 participants took the quiz again at the 3-month session. OAP quiz scores were significantly higher at the 3-month training than at baseline, with the average number of correct answers improving from 51% to 75%, demonstrating an increase in psychotropic knowledge. Scores significantly improved for all levels of aged care staff ($p<0.01$), with carer scores improving as much as enrolled nurses.

DR ADELE WOODHOUSE

University of Tasmania

Recapitulation of a juvenile-like histone landscape in aged neurons

Mr Andrew Phipps[1], Ms Katherine Giles[2], Associate Professor Timothy Mercer[3], Professor James Vickers[1], Associate Professor Mark Robinson[4], Dr Phillippa Taberlay[5], **Dr Adele Woodhouse[1]**

[1]University of Tasmania, Wicking Dementia Research and Education Centre, Hobart, Australia, [2]Garvan Institute of Medical Research, Genomics and Epigenetics, Sydney, Australia, [3]Altius Institute for Biomedical Sciences, Seattle, USA, [4]University of Zurich, Institute of Molecular Life Sciences, Zurich, Germany, [5]University of Tasmania, School of Medicine, Hobart, Australia

The greatest risk factor for dementia is increasing age. During healthy aging the activity of neurons underlie a range of cognitive trajectories from unimpaired to significant decline. The epigenome is the interface between our genes and the environment and comprises a highly interactive network of chemical moieties (including histone modifications). The epigenetic signature of each cell type is unique, yet few studies have examined the epigenome in aged neurons. We characterised H3K27ac and H3K4me3 histone modifications using ChIP-seq in forebrain neurons from 3, 6, 12, and 24 month (m) old C57/Bl6 mice (n=5/timepoint). H3K27ac and H3K4me3 marking was enriched at promoters and enhancers in neurons from juvenile (3m) and aged (24m) mice compared to neurons from adult mice (6m&12m). Gene ontology (GO) analysis annotated to synaptic and core molecular processes across life. Developmental GOs were unique to juvenile neurons, while annotations that were unique to adult neurons included axonal transport, protein folding and membrane depolarisation. GO pathways that were unique to aged neurons included apoptosis, autophagy and RNA processing. Surprisingly, we detected a partial recapitulation of a juvenile-like histone landscape in aged

neurons; >25% of H3K27ac and H3K4me3 differentially marked sites were shared between juvenile and aged neurons and >87% of these shared sites were consistently enriched in both juvenile and aged neurons. This work reveals epigenetic alterations that impact neurons across aging. Our long-term goal is to identify the epigenetic changes that drive neuronal dynamics in healthy aging and dysfunction in dementia to discover direct and indirect therapeutic targets.

Living with dementia

MRS AZAM BAZOOBAND

Wicking Dementia Research and Education Centre

Scoping Review of the Effectiveness of Participatory-Arts in the Community for Older People with Dementia

Azam Bazooband[1], Dr Helen Courtney-Pratt[2], Dr Kathleen Doherty[3]

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Purpose of the study: Participatory community arts programs have been shown to contribute to overall health and wellbeing and community-based arts engagement has been identified as a promising way to enhance social inclusion by providing opportunities for older people to share their emotions and experiences with their communities by using art. This study aims to explore and describe existing literature on participatory art activities that are inclusive of older people with dementia. It considers the tools used by researchers to evaluate effectiveness in order to inform future research.

Design and Methods: The Methodological Framework (Arksey and O'Malley (2005) for undertaking a scoping review article of was applied to this study. 15027 titles, abstracts and extracted data were identified and systematically screened. Collation, summarizing and reporting the results was carried out taking into account the research questions and according to predetermined criteria.

Results: 25 articles were included in the scoping review having met inclusion criteria, and 65% were published after 2010.The studies used qualitative (24%), quantitative (56%), or mixed methods (20%). The most common art form examined was music (48%). Various types of assessment tools were employed to assess the outcomes and "quality of life questionnaire" was amongst the most used evaluation tools. Arts activities were conceptualized and operationalized in several different ways.

Conclusion: This scoping review article was undertaken to explore the existing literature and possible measurement tools for assessing the effectiveness of participatory arts activities in the community that are inclusive of people living with dementia. The present study establishes a framework for analysing the outcomes of arts activities for older people with dementia in the community through gathering several used measurement tools in previous studies; however, demands more effort in this field. The scoping study outcomes suggest that further work is needed to establish a framework of assessment tools. Such tools can then be used by researchers evaluating the effectiveness of community-based arts activities that are inclusive of people living with dementia and enable comparison across studies.

DR SUSANNE BECKER

Wicking Dementia Research and Education Centre

Generating Community Conversations about Dementia

Dr Susanne Becker[1], Dr Helen Courtney-Pratt[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

Stigma and fear can contribute to isolation of those living with dementia and may result in their subsequent invisibility in the community setting. Dementia cafés are one way to engage the community to support those living with dementia. Although dementia cafés are currently available in communities, their primary purpose has been to provide networking and support groups for carers and/or people living with dementia. This pilot project draws on the history and delivery of death cafés in order to discuss what might be considered a social taboo, talking about dementia. In this research, the intention of our community café was to open the conversation about dementia for all and included those with a diagnosis, those worried about receiving a dementia diagnosis, those interested in prevention or seeking further information, and those caring for someone living with the impact of dementia. Four cafés were held, with 29 of approximately 80 that attended, contributing free text feedback, via postcard, about the café indicating why they attended and what they hoped to achieve by attending, together with suggestions for improvement. The findings suggest that an informal café conversation style initiative may be a useful tool to enhance dementia friendly initiatives and encourage people to openly share experiences, thoughts, and questions. The café may assist with general community knowledge about dementia and support for those with a diagnosis, and their families and friends. Extending the traditional dementia café model may have an impact on reducing the stigma and fear experienced when living with dementia.

DR JAMIE BRYANT

University of Newcastle

Preferences for timing of discussions about Advance Care Planning: Findings from a survey with carers

Dr Jamie Bryant[1], Dr Elise Mansfield[1], Dr Emilie Cameron[1], Laureate Professor Robert Sanson-Fisher[1]

[1]Health Behaviour Research Collaborative, University of Newcastle, Hunter Medical Research Institute, Callaghan, Australia

Aims: To determine in a sample of carers of people with dementia: (1) preferences for timing of discussions about advance care planning (ACP) following a dementia diagnosis; and (2) the characteristics Associated with a preference for healthcare providers to decide the right time to initiate discussions about ACP.

Methods: Eligible carers who were a primary source of support to a person with dementia were identified from

geriatrician clinic and aged care provider records and mailed a pen/paper survey. Participants were presented with information about the benefits and consequences of early and late discussions about ACP, and asked when they thought would be the best time for a health care provider to raise ACP following a dementia diagnosis. Consenting participants returned their survey using a reply-paid envelope.

Results: To date, 83 carers have participated. Almost one third of carers thought that ACP should be discussed when a healthcare provider thought appropriate. Slightly fewer thought that ACP should be discussed at the time of receiving a diagnosis (23%) or in the first few weeks following a diagnosis (23%). No carers thought ACP should not be discussed by healthcare providers at all. Those who preferred healthcare providers to decide the appropriate time to initiate discussions about ACP were more likely to be younger (OR=0.93, P=0.014). There was no significant relationship with sex, education or time since diagnosis.

Conclusions: All carers believe ACP should be discussed by healthcare providers following a diagnosis of dementia However, there is variability in preferences for timing of discussion

DR JAMIE BRYANT

University of Newcastle

Participation in future planning by persons with dementia: Findings from a cross-sectional survey of carers.

Dr Jamie Bryant[1], Dr Elise Mansfield[1], Dr Emilie Cameron[1], Laureate Professor Robert Sanson-Fisher[1]

[1]Health Behaviour Research Collaborative, University of Newcastle, Hunter Medical Research Institute, Callaghan, Australia

Aims: To explore in a sample of carers of people diagnosed with dementia: (1) rates of completion of advance care directives (ACD), Wills and appointment of substitute decision-makers by the person they support; (2) with whom ACP has been discussed; and (3) willingness to use an online resource to engage in ACP.

Methods: Eligible carers who were a primary source of support to a person with dementia were identified from geriatrician clinic and aged care provider records and mailed a pen/paper survey. Participants completed questions regarding completion of various future planning documents by the person they support, including whether these were completed before or after receiving a dementia diagnosis, and the types of Professionals who discussed ACP with them following a dementia diagnosis. Consenting participants returned surveys using a reply-paid envelope.

Results: To date, 83 carers have participated. Almost all participants reported that the person they support had made a Will, appointed an Enduring Guardian, and appointed an Enduring Power of Attorney (98-99%). However only 54% had completed an ACD. Discussions about ACP had most commonly occurred with geriatricians (51%), followed by GPs (49%), within families (40%), with lawyers (36%) and with nurses (23%). While more than three quarters of participants had access to the internet, only 47% reported they would use an internet-based ACP resource.

Conclusions: Despite being at high risk of future decisional incapacity, almost half of people with dementia do not have written ACD. Online ACP tools may be accessed by some, but not all, carers.

ASSOCIATE PROFESSOR MICHELE CALLISAYA

University of Tasmania

Interventions to improve physical function in people with dementia: A review of the evidence

A/Professor Michele Callisaya[1, 4], Dr Susan Hunter[2], Professor Manuel Montero-Odasso[3]

[1]University Of Tasmania, Hobart, Australia, [2]School of Physiotherapy, University of Western Ontario, , London, Canada, [3]Schulich School of Medicine & Dentistry University of Western Ontario, , London, Canada, [4]Monash University, Frankston, Australia

Background: Research in the field of dementia has traditionally concentrated on cognitive function. More recently there has been recognition that mobility is worse, and falls are higher, in people with dementia. The aim of this symposium presentation will be to outline the evidence for exercise interventions to improve mobility and reduce falls in people living with dementia.

Methods: Published systematic reviews, meta-analyses and randomised controlled trials (RCT) that examined exercise interventions aimed to improve mobility and reduce falls in community-dwelling people living with dementia were included. Data extracted included exercise frequency, intensity, time and type (FITT); group versus home-based setting, adherence and outcomes.

Results: Ten RCT met the inclusion criteria. The studies extracted included different types of exercise, intensity, program frequency, and length and mode of delivery (group vs home). The majority of studies included only small sample sizes and inadequate description of the exercise intervention in terms of the FITT principles, progression and adherence. The presentation will outline that there is preliminary evidence that mobility can be improved, and falls can be prevented, with a home-based exercise program for people living with dementia. What can be learned from current trials for clinical practice and recommendations for future studies investigating the topic will be discussed.

Conclusions: Despite higher levels of mobility impairment and falls in people living with dementia, there are very few high-quality clinical trials examining the role of exercise interventions to improve such outcomes

DR SANETTA DU TOIT

University of Sydney

Considering best care options for older prisoners with dementia

Dr Sanetta Du Toit1

1University of Sydney, Lidcombe, Australia

Introduction: The increased number of older people with dementia ageing in prisons poses a significant challenge for

correctional services. Existing work practices fail to meet the specific needs of prisoners with dementia who are a vulnerable group within the broader prison population. Little is known about the best method of responding to the needs of this growing sub-population of prisoners and there is an urgent need to understand the challenges Associated with support of prisoners with dementia as well as identification of optimal models of care.

Method: A scoping review was conducted to explore the extent, range and nature of publications on best care practices for prisoners with dementia. Literature was accessed using online databases and searching reference lists. Data were charted and sorted deductively into key themes.

Results: Eight themes were identified that could support better care practices for prisoners with dementia: (i) early and continuous screening for prisoners aged 50 years and over; (ii) staff training; (iii) specialised services and (iv) activities or programs; (v) specialised units or (vi) adaptations to current contexts; (vii) training younger prisoners to assist older prisoners with dementia; and (viii) early release or parole for older prisoners with dementia deemed at low risk of re-offending.

Conclusion: One of the implications of the international ageing prison population is higher numbers of people incarcerated with dementia. The potential mechanisms for improvements to the way prison services support this population identified here can guide further research into optimal and cost-effective models of care.

DR CYNTHIA FORLINI

University of Sydney

A scoping review of consumer preferences for participating in dementia research

Dr Cynthia Forlini[1], Ms Shivana Chandra[2]

[1]Sydney Health Ethics, University of Sydney, Camperdown, Australia, [2]Brain and Mind Centre, University of Sydney, Camperdown, Australia

Background: Valuable translational research benefitting the health, care and quality of life of dementia patients and their caregivers (i.e. consumers) is being limited by ethical and legal concerns such as adequate consent from persons with dementia and accessibility of novel technologies. The first step in determining whether and how to change the policies and practices governing dementia research is to understand how consumers prefer to engage with research. This study reviewed existing empirical evidence that identifies the preferences of dementia consumers with respect to participation in research.

Method: The review adhered to the PRISMA-P protocol for scoping reviews. A comprehensive literature search was performed using EMBASE, MEDLINE PsycINFO and SCOPUS databases yielding 2048 papers (1718 after deduplication). To determine eligibility of papers for analysis, the sample was filtered by (1) title and abstract, and (2) full-text. 37 papers were deemed eligible for analysis.

Results: Eligible papers were analysed according to six key themes: (1) motivations for participating in research, (2) recruitment of participants, (3) risk tolerance, (4) informed consent process, (5) use of technology, and (6) data sharing. Studies focused on the motivations for research participation, risk tolerance and the provision of informed consent. Limited research has been conducted on preferences related to data sharing and integration of technology.

Conclusion: There are limited empirical studies describing consumer preferences regarding dementia research presenting diverging findings. Potential reform of dementia research policy and practice will require a more consistent evidence base for consideration by advocates, policymakers and government.

MS MADELEINE GARDAM

Monash University

Shining light on consumer and carer engagement to develop a dementia clinical quality registry.

Dr Elizabeth Pritchard[1], Dr Darshini Ayton[1], Ms Madeleine Gardam[1], Ms Sandra Robinson[1], Mr Kevyn Morris[4], Ms Barbara Kain[5], Dr Stephanie Ward[1], Professor John McNeil[1], Scientia Professor Henry Broadaty[2], Professor Elsdon Storey[1], Associate Professor Arul Earnest[1], Associate Professor Robyn Woods[1], Professor Mark Nelson[3], Professor Jane Banaszak-Holl[1], Professor Danny Liew[1], Dr Joanne Ryan[1], Associate Professor Susannah Ahern[1]

[1]Monash University, Melbourne, Australia, [2]University of New South Wales, Sydney, Australia, [3]University of Tasmania, Hobart, Australia, [4]Consumer Representative, Wodonga, Australia, [5]Carer Representative, Melbourne, Australia

The Australian Commission on Safety and Quality in Healthcare (ACSQHC) identified the establishment of a clinical quality registry (CQR) for dementia as a priority in December 2016. A CQR provides benefits to those living with dementia and their carers by improving the quality and experience of care through benchmarking and monitoring of care outcomes.

This modified DELPHI study aimed to develop a set of clinical quality indicators (CQIs) based on evidence, patient and caregiver experience and clinician perspectives across the trajectory of care from diagnosis to end-of-life for the pilot dementia CQR.

An initial list of indicators were compiled from existing dementia registries, academic literature, and clinical practice guidelines. These were further refined by a working group with clinical dementia expertise. A panel of experts was recruited including consumer, carer, clinicians, and academics. Three phases occurred 1) online survey for scoring importance and validity, 2) one-day face-to-face discussion, and 3) final survey round to assess importance, validity and feasibility.

Thirty-three CQIs were initially presented. Following the DELPHI process, 22 indicators were confirmed. These CQIs will be tested initially in memory clinics and inform the data collection processes of the Australia Dementia Network registry (ADNet).

A dementia CQR is fundamental to ongoing monitoring and development of good quality consistent care across Australia. Consumers and carers play a vital part of ascertaining the best possible indicators for collection and need to be included in these projects from the beginning.

MS MINAH AMOR GAVIOLA

University of Newcastle

Implementing individualised music listening intervention: experiences and impact on older people with dementia

Mrs Minah Amor Gaviola[1], Dr Sophie Dilworth[2], Professor Isabel Higgins[1], Associate Professor Elizabeth Holliday[3], Associate Professor Kerry Inder[1]

[1]School of Nursing and Midwifery, University of Newcastle, Callaghan, Australia, [2]Hunter Aged Care Assessment Team, Hunter New England Local Health District, Australia, [3]Hunter Medical Research Institute, New Lambton, Australia

Background: Evidence demonstrates the comparable efficacy of individualised music listening with other more resource intensive interventions in improving a number of outcomes for people with dementia (PWD) especially behavioural and psychological symptoms of dementia (BPSDs).

Aim: To evaluate the impact of individualised music on agitation, quality of life, (QoL), engagement, and psychotropic medication use.

Design: Parallel mixed methods using pre-test post-test design and qualitative interviews.

Methods: Thirty-two older PWD (mild to very severe stage) were recruited from two residential aged care facilities (RACF) in regional NSW. Staff and family/guardian were trained and implemented the intervention over a 3-month period.

Measurements: At baseline and at the end of the 3-month implementation, agitation, QoL, and psychotropic medication use were measured using the Cohen-Mansfield Agitation Inventory, Dementia Quality of Life Questionnaire, and medical records respectively. The Homecare Measure of Engagement Staff-Questionnaire was administered during each month of implementation. Qualitative interviews were conducted with staff and carer at the end of the implementation.

Results: Twenty-two PWD completed the implementation. There was a significant improvement in QoL ($p=0.032$). Agitation improved among participants from one RACF. No significant differences were noted in psychotropic medication use. The PWD's engagement during the intervention increased throughout the implementation period. Qualitative interviews revealed the intervention's impact on the PWD: memory evoking, mood –enhancing, and calming effect.

Conclusion: Findings of this study support the promising impact of individualised music listening as a simple and meaningful non-pharmacological intervention for older PWD. Further larger studies evaluating other outcomes beyond BPSDs are warranted.

MR TIMOTHY GIBBONS

Wicking Dementia Research and Education Centre

Online Dementia Education: Exploring non-completion

Mr Timothy Gibbons[1], Dr. Kathleen Doherty[1], Dr. Vlasti Broucek[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

The Understanding Dementia Massive Open Online course (UDMOOC) was designed to improve understanding and awareness of dementia across a broad cross section of participants. The UD MOOC has a consistently high completion rate; however, a substantive number of enrolees do not complete the course. Given the benefits of the UD MOOC on improving awareness and understanding of dementia across health providers, carers and the broader community, we wished to explore the reasons for non -completion in this cohort.

While the reasons for low completion rates in online education are multifactorial, through examining the underlying reasons why completion rates are frequently so low in similar courses, four key areas of motivation were identified; student factors, content, learning design and delivery. We wished to explore these four factors together with indicators of motivation, perceived effectiveness, self-efficacy and demographic parameters to more fully understand non-completion in the UD MOOC cohort.

Our study design was broken down into four phases: identification of a participant cohort defined by patterns of non-completion, development of an online survey for non-completers addressing their reasons from non-completion across the four factors, telephone interviews with a subsample to further explore reasons of non-completion and analysis of this data in the context of course engagement data derived from their enrolment and progression data.

By taking this approach, we were able to explore non-completion based on motivations and learning behaviours to better inform future iterations, for better translational knowledge of dementia education and direct tangible outcomes in the workforce.

ASSOCIATE PROFESSOR LYN GOLDBERG

Wicking Dementia Research and Education Centre

Aspiring to learn: The impact of education on dementia understanding and care

Associate Professor Lynette Goldberg[1], Ms Dianne Baldock[2], Dr Terry Cox[3], Dr Thi Hoang[3], Ms Andrea Price[1], Dr Merylin Cross[3]

[1]Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, Australia, [2]Circular Head Aboriginal Corporation, Smithton, Australia, [3]Centre for Rural Health, University of Tasmania, Launceston, Australia

Our two-year Department of Health/Dementia and Aged Care Services (DACS) grant has enabled eight Aboriginal students to study in the online Bachelor of Dementia Care (BDC) program developed by the Wicking Dementia Research and Education Centre at the University of Tasmania. The students also undertook a face-to-face

TasTAFE Certificate III qualification in Individual Support (Ageing, Home, and Community) in the first year of the grant. The integration of the two education approaches included practical experiences with people with dementia in a residential aged care setting complemented by placements within the Aboriginal community at-large. This has equipped the students with a vocationally-based qualification, insight into dementia care, and a pathway to continue higher education.

The integrated TasTAFE/BDC project was developed to address a community need to have Aboriginal community members qualified to provide education about dementia and guide care for those living with dementia. The success of the project was measured objectively through (i) the students' completion of the TasTAFE Certificate, (ii) the number of BDC units attempted and passed, and (iii) students' pre- and post-project scores on the validated Dementia Knowledge Assessment Scale (DKAS). Descriptive data were obtained from thematic analyses of students' reflections across each semester and community/education stakeholder feedback.

All students completed the TasTAFE Certificate and are successfully completing units in the BDC. This presentation will detail their achievements and experiences in the two different forms of study and the impact of the dissemination and implementation of their learnings within the community. Unanticipated positive outcomes will be highlighted.

DR PAULINE MARSH

University of Tasmania

Communal garden sites as enablers for RACF residents living with dementia to enhance QOL

Dr Pauline Marsh[1], Ms Hannah Fielder[1], Dr Helen Courtney Pratt[1]

[1]University of Tasmania, Hobart, Australia

As we age in Australia we are less likely to do two things: garden and socialising with others. That older people are less likely than people from younger age groups to be physically active or socially connected [1, 2] is a concern, because both of these activities can be important to ensure we live a good quality of life. This is because there are well-established and wide-ranging therapeutic benefits that come from spending time in green spaces - be they gardens, parks or extreme wilderness [3-5] – and from participating in the gentle exercise of gardening [6]. The positive impacts on health and wellbeing from social connectivity are also well-established, especially amongst older people [7, 8]. The concern is made greater by the fact that older people in Australia who are most vulnerable to social isolation are also those who are least likely to spend time gardening, that is, people who are living in residential aged care facilities (RACF). In an undesirable double bind, RACF residents, an estimated 52% of whom are living with dementia, [17] find themselves frequently indoors and disconnected from others [9]. Academic literature documents widespread concerns about the prevalence of loneliness amongst people living in RACFs [10, 11].

This Roundtable discussion uses the example of a recent study conducted in the south of Tasmania involving residents of a rural RACF. We aimed to understand how residents, including people living with dementia, access communal garden sites and whether this fostered the acts of gardening and social engagement. The research arose from concerns raised by members of a supported community gardening program, DIGnity. For the first 6 months of this unique therapeutic horticulture program, residents from the local RACF were regularly coming down the street to the community garden, accompanied by a lifestyle coordinator. An initial program evaluation confirmed they greatly enjoy participating. However, when the program recommenced after a winter break the residents did not return. When the project team enquired as to why, they were told it was due to a lack of staff and lack of resident interest. At the same time, the RACF had established its own garden within the facility, and employed a carer to conduct gardening activities with residents.

Was this alternative, on-site RACF garden a more suitable site, or a less-than adequate solution designed to accommodate institutional restrictions?

Using a process consent method, 13 semi-structured interviews were held with residents, family members and staff. The interviews reveal the multi-faceted way in which residents relate to and access communal garden sites and the important ways that people living with dementia were able to maintain their identities as gardeners, improve their quality of life and assuage loneliness. Importantly, they enabled people to find meaning and maintain their sense of self. However, accessing the communal garden sites both in and outside of the facility was not straightforward. Many barriers were highlighted concerning resources, infrastructure, attitudes and abilities.

We will discuss the implications of this research, and learn from each other's experiences of living with dementia and accessing communal gardening sites

DR NURUNNAHER NURUNNAHER

Flinders University

A meta-synthesis on experiences of persons living with dementia from Muslim and CALD background

Dr Nurunnaher Nurunnaher[1], Professor Lily Xiao[1]

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Cultural and religious beliefs of people with dementia and their family have a profound influence on the use of dementia care. Little is known about how Muslim people from CALD background live with dementia in Australia and around the world.

The review to examine and synthesise the best available research evidence from qualitative studies on the perspectives and experiences of persons with dementia and their family care from a Muslim and CALD background in high-income countries.

Methods: Meta-ethnography of qualitative studies was applied to the review. Meta-synthesis approach was used to form research questions and review objectives, systematically search literature, critically review qualitative studies and synthesize findings.

In total articles met the inclusion and exclusion criteria and were included in the study. Among these, only 4 articles included persons with dementia as participants. Three

overarching major themes were identified. Persons with dementia perceived dementia condition as the loss of their identity and personhood. Experience of dementia condition is mostly negative as they experience forgetfulness, feelings of loss of sense of belongings, of significance and recognition, and feelings of loss of autonomy. Person with dementia adapted with changes through emotion-focused coping strategies such as denying, tricking, ignoring, and feeling upset.

Conclusion: Persons with dementia from a Muslim and CALD background have unique living experience in a foreign land that have specific care and service delivery needs.

DR THERESA SCOTT

UNIVERSITY OF QUEENSLAND

Beyond mobility: needs and experiences of people living with younger onset dementia and driving cessation

Dr Theresa Scott[1], Dr Jacki Liddle[1], Professor Louise Gustafsson[2], Professor Geoffrey Mitchell[1], Professor Nancy Pachana[1]

[1]The University Of Queensland, St Lucia, Australia, [2]Griffith University, Australia

Stopping driving impacts mobility, independence, and wellbeing of older people living with dementia, however little is known about the experiences of people living with younger onset dementia. The impact of driving cessation may be experienced differently for younger people diagnosed with dementia. This study aimed to understand the needs and experiences of people living with younger onset dementia (YoD) who are adjusting to life without driving. This study explored these experiences through interviews with people with YoD, their family members, and community support workers. Interviews with six people living with YoD, four care partners, and two health Professionals were recorded, transcribed verbatim and thematically analysed. Themes discovered went beyond mobility loss to include identity, role, social cohesion and self-worth; and financial and relationship strain; lack of appropriate available services and transport alternatives; and unfair and overly taxing driver safety assessments.

The findings from this study have application to translating a proven driving cessation intervention for older adults with dementia to meet the needs of younger people with dementia, and to the development of guidelines to support people living with younger onset dementia who are adjusting to life without driving.

DR MORAG TAYLOR

Neuroscience Research Australia

Daily-life walking speed in community-dwelling older people with dementia compared to age-sex matched controls

Dr Morag Taylor[1,2,3], Dr Kimberley van Schooten[1,4], Dr Matthew Brodie[1,5], A/Professor Kim Delbaere[1,4], Professor Jacqueline Close[1,3], Ms Narelle Payne[1], Ms Lyndell Webster[1], Ms Jessica Chow[1], Mr Garth McInerney[1], Professor Susan Kurrle[2], Professor Stephen Lord[1,4]

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Aims: Quantifying daily-life walking speed in people with dementia may help identify individuals at risk of negative health outcomes and highlight opportunities for targeted interventions. We compared daily-life walking speed and walking speed reserve (WSR) in older people with and without dementia.

Methods: Thirty-eight participants with mild-moderate dementia (age: mean±SD=82±6years; 45% female) and 76 age-sex matched controls (1:2) wore a waist-mounted tri-axial accelerometer (DynaPort MoveMonitor, McRoberts) for 7-days, which estimated daily-life walking speeds. Steady-state clinical walking speed was assessed at usual pace over 2.4 to 10.0m. WSR was calculated as proportion of clinical walking speed ([(maximal daily-life [95th percentile] −clinical) ÷clinical] ×100).

Results: Participants with dementia had slower clinical (p<0.001), habitual daily-life (p<0.001) and maximum daily-life (p=0.002) walking speeds compared to controls. Participants with dementia had a restricted range of daily-life walking speed compared to controls (mean±SD=0.78±0.17m/s vs. 0.89±0.19m/s; p=0.002). Clinical (mean±SD=1.20±0.24m/s) and habitual walking speed (mean±SD=0.85±0.16m/s) differed significantly in controls (p<0.001), but not in participants with dementia (median=0.78m/s IQR=0.66-0.98 vs. median=0.72m/s IQR=0.66-0.80; p=0.122). Clinical walking speed was slower than maximum daily-life walking speed in participants with dementia (mean±SD=1.09±0.20m/s; p<0.001) but not in controls (mean±SD=1.23±0.23m/s; p=0.233). In participants with dementia WSR was higher than controls (median=37% IQR=18-60 vs. 2% IQR=-9-16; p<0.001).

Conclusions: Compared to controls, participants with dementia had slower daily-life and clinically-assessed walking speeds and less diverse daily-life walking speeds. Clinical gait speed more closely resembled habitual walking speed in participants with dementia and maximum daily-life walking speed in controls. These findings have assessment, functional (e.g. crossing roads) and training/ treatment implications

Care

BOLA ADEBAYO

Curtin University

Dementia care experiences in migrant aged care workforce

Bola Adebayo[1]

[1]Curtin University WA, Perth, Australia

Background: In high-income countries, an increasing number of people living with dementia in residential

aged care facilities (RACFs) are being cared for by an increasingly multicultural workforce.

Method: A national online survey was conducted among migrant care workers (n= 302) employed in RACFs in Australian major cities. Pre-existing and validated questionnaires including the Dementia Knowledge Assessment Tool Version Two (DKAT-2); Riverside Acculturation Stress Inventory (RASI); the Depression, Anxiety and Stress Scales-21 (DASS-21) were used to investigate migrant care workers 1) knowledge of dementia; 2) experiences of dementia care in RACFs; 3) psychosocial well-being; and 4) working conditions.

Result: Most participants have a good knowledge of dementia and dementia care.

Conclusion: Migrant care workers are valuable contributors to the aged care workforce. It is important to consider their cultural perceptions of dementia in relation to care provision. Additionally, their exposure to occupational psychosocial risk factors in conjunction with the challenges Associated with resettlement and dementia care that may negatively affects their mental health needs to be addressed.

ASSOCIATE PROFESSOR SUSANNAH AHERN

Monash University

The ADNeT Dementia Clinical Quality Registry – a milestone in monitoring and improving dementia care

Associate Professor Susannah Ahern[1], Dr Stephanie Ward[2], Dr Elizabeth Pritchard[1], Dr Darshini Ayton[1], Ms Madeleine Gardam[1], Ms Sandra Robinson[1], Professor Jane Banaszak-Holl[1], Professor Henry Brodaty[2], Professor Perminder Sachdev[2], Professor John McNeil[1], Professor Christopher Rowe[3]

[1]Monash University, Melbourne, Australia, [2]University of New South Wales, Sydney, Australia, [3]Florey Institute, Melbourne, Australia

The Australian Dementia Network (ADNeT) Registry and Clinical Trials Program was established with funding from the National Health and Medical Research Council (NHMRC) in 2018. A key activity of ADNeT is to monitor patients with dementia to better understand disease trajectory and to monitor clinical care. This will be achieved through the establishment of a national clinical quality registry (CQR).

An ADNeT CQR Steering Committee comprising clinicians, epidemiologists, funders, patients and carers, and researchers will oversee the activities of the registry, and its integration with other components of the ADNeT program. The ADNeT CQR is refining a set of clinical indicators to benchmark clinical care and a minimum dataset, informed by the work undertaken by a Pilot Dementia Registry, funded by the NHMRC National Dementia Institute for Research.

The initial source of referrals to the CQR will be from Memory Clinics and specialists in Victoria and New South Wales. Once initial piloting is complete, data collection will rollout nationally, creating a comprehensive database of all patients being diagnosed with dementia and mild cognitive impairment.

Building on models from European dementia registries, ADNeT CQR will also systematically collect process and outcome measures from patients and their carers to better understand needs at different stages of the disease. This presentation will introduce the ADNeT CQR and provide an overview of the project in its first twelve months. The active involvement of patients and carers through the development of the CQR will be highlighted.

DR ANNIE BANBURY

Central Queensland University

The impact on dementia caregivers from co-designing a peer support group program delivered using videoconferencing

Dr Annie Banbury[1], Dr Louise Byrne[2], Associate Professor Sonja Pedell[3], Professor Lynne Parkinson[1]

[1]Central Queensland University, Rockhampton, Australia, [2]RMIT University, Melbourne, Australia, [3]Swinburne of Technology, Melbourne, Australia

The population of informal carers for people with dementia and the need to provide carers support will continue to increase. Carers support groups and programs are commonly delivered in-person thereby limiting opportunities for attendance by rural carers and those who have difficulty in leaving the person cared for. Most studies using technology for social support have employed text-based discussion boards or chat-rooms, few have used real-time interactions, such a group videoconferencing. Delivering a carers support program by group videoconferencing may mitigate barriers for accessing support.

A co-design group consisting of six carers of people with dementia, in a range of circumstances and locations, were recruited to guide the development of a carers support program designed specifically for group videoconferencing. Support was provided for participants to use their own devices to access eight meetings by group videoconferencing. The co-design process used the Double Diamond Model and encouraged participants to share their knowledge, experience and insights into caring. All meetings were recorded and thematic analysis identified key themes. During the meetings participants mapped their care journeys, identified problems and solutions and prioritised issues for inclusion in the final program. At each stage of the analysis themes were fed back to the group for discussion. The final program includes a list of eight discussion topics comprising key carers skills such as advocacy and navigating the health and social care system and issues for discussion such as care managing and developing support networks. Insights were gained in how to organise and run meetings.

PROFESSOR ELIZABETH BEATTIE

Queensland University of Technology

The DCRC Developing Capacity in Dementia Care Research (CBCR) Initiative: Launching the Vision

Professor Elizabeth Beattie[1], Professor Lindy Clemson[2], Dr Elaine Fielding[3], Dr Catherine Travers[3]

[1]Queensland University of Technology, Brisbane, Australia, [2]University of Sydney, Sydney, Australia, [3]Dementia Centre for Research Collaboration, Brisbane, Australia

Background: Dementia care research capacity in nursing and allied health disciplines is at crisis point in Australia. Immediate investment to build capacity in disciplines fundamental to the provision of optimal care to people living with dementia and carers is essential to ensure care research flourishes.

Aim: To establish a tailored mentoring and skills development program for early-mid career researchers in nursing and allied health disciplines to: 1) expand the cadre of competitive researchers in care research, and 2) assist them to build robust independent research programs and join interdisciplinary teams.

Methods: An Expert Advisory Group including leading dementia care researchers informed program development. A rapid review of successful programs in relevant disciplines informed the mentoring strategy. Following extensive advertising and a careful selection process, including review by an independent panel, Fellows were selected.

Fellows' training and developmental needs were assessed using interviews and evaluation tasks, and an individualised program devised for each. Fellows were matched with one or more suitable mentors based on their research foci and needs. Mentors undertook online training in preparation for their role. High-level Sponsors from large teams were approached to facilitate team placement of Fellows.

A rigorous evaluation of impact and outcomes including Fellow engagement, productivity, achievements, mentor experiences and program costs is in progress.

Discussion: Program interest was high, indicating sector need. CBCR Fellows represent the breadth of dementia care research. Program challenges include availability of suitable mentors and sponsors, Fellow time to undertake program activities and limited funding to support activities

MS ANNALIESE BLAIR

Southern NSW Local Health District

Untangling complex relationships between organisations, staff and quality of dementia care and quality of life

Dr Katrina Anderson[1, 2], Ms Annaliese Blair[1, 2], Ms Jennifer Henderson[2]

[1]Aged Care Evaluation Unit, SNSWLHD, Queanbeyan, Australia, [2]Cognitive Decline Partnership Centre, Sydney, Australia

With the commencement of the Royal Commission into aged care, public debate continues about why some aged care homes provide excellent care while others provide poor care. One thing is clear - that residential aged care staff are at the centre of many recommendations. They can, after all be the most important people in a resident's social world.

The current mixed method, longitudinal study aimed to narrow down the most useful targets for intervening with staff to improve quality of life and quality of care for residents with dementia.

Participants: Older adults in residential care with dementia (n=251), their families/care partners (n=225), managers (n=12) and staff (n=228) of 12 residential aged care facilities were followed over 3 waves (baseline, 6 months and 10 months). Facilities ranged in size from 10 to 137 beds and were located from remote to metropolitan areas of NSW/ACT.

Methods: Surveys, interviews, file audits and live observations. Live observations of residents and care staff during care interactions were undertaken in order to rate the quality of the care provided and the effects of care on residents' quality of life. Organisational audits provided information on system variables including staff ratios, rostering practices and training.

Results will be presented with a focus on which aspects of residential care staff experience, practice, belief, policy or deployment it would be profitable to target in interventions aimed at improving the way care is carried out and, as a consequence, improving the lives of people with dementia in residential aged care.

MR JAY BORCHARD

Wicking Dementia Research and Education Centre

Predicting Completion of the Understanding Dementia Massive Open Online Course

Mr Jay Borchard[1], Dr Kathleen Doherty[1], Mr Aidan Bindoff[1], Professor Fran McInerney[1]

[1]Wicking Dementia Research & Education Centre, University of Tasmania, Hobart, Australia

Background: The Wicking Dementia Research and Education Centre developed the Understanding Dementia Massive Open Online Course (UD-MOOC) in response to the need for evidence-based dementia education for both family carers and health Professionals. While MOOCs allow for a more flexible approach to learning than traditional forms of education, completion rates are typically less than 10%. Completion rates for the UDMOOC have been consistently high since its inception, thus the current study aims to investigate key predictors of UD-MOOC completion.

Methods: Participants enrolled in a free 9-week online course focusing on dementia pathophysiology, symptoms, diagnoses, management, perspectives of those living with dementia and impacts on caregivers. UD-MOOC completion was defined as passing the final quiz with a grade of 70%.

Results: 50,276 participants enrolled in a UD-MOOC between 2014 – 2017. Of these, 42% completed the course. A generalised linear mixed model was used to examine

predictors of UD-MOOC completion. It was found that education, sector of occupation, and carer category were significantly predictive, where the predicted probability of completion was greatest for those holding a university degree, working in a hospital setting in a Professional carer capacity at ~ 50% (95% CI: 46 – 54%).

Conclusions: Despite low reported rates of MOOC completion generally, UD-MOOC completion rates are consistently high. This may be explained in part by the demographic profile of MOOC participants, and relevance of content to their employment. Qualitative research into the motivating factors underpinning enrolment and completion will further elucidate this.

DR MONICA CATIONS

Flinders University

Agents of Change: establishing Quality Improvement Collaboratives to improve adherence to Clinical Guidelines for dementia

Dr Monica Cations[1,2], Professor Maria Crotty[1,2], Professor Susan Kurrle[2,3], Professor Jana Anneke Fitzgerald[2,4], Professor Ian Cameron[2,3], Associate Professor Craig Whitehead[1,2], Dr Jane Thompson, Associate Professor Billingsley Kaambwa[1], Ms Gorjana Radisic[1,2], Ms Lenore de la Perelle[1,2], Dr Kate Laver[1,2]

[1]Flinders University, Adelaide, Australia, [2]Cognitive Decline Partnership Centre, University of Sydney, Sydney, Australia, [3]University of Sydney, Sydney, Australia, [4]Griffith Business School, Gold Coast, Australia

Background: The quality of dementia care in Australia is largely dependent on the clinician involved and the extent to which they apply best available evidence in their practice. Programs focused on promoting independence for people with dementia are effective and favored by advocacy groups but not routinely implemented.

Objective: To assess the efficacy of Quality Improvement Collaboratives (QICs) to improve adherence to key recommendations from the Clinical Practice Guidelines for Dementia in Australia.

Method: Clinicians from across Australia were invited to join the three QICs to build their capacity in leading quality improvement projects within dementia care. Clinicians participated in a training program and were supported to enact a quality improvement plan unique to their service context using plan-do-study-act cycles. Monthly consultation summaries were judged for guideline adherence according to standardised criteria, and intervention effectiveness was examined using segmented regression analysis. Implementation outcomes were assessed with inbuilt process evaluation.

Results: Thirty-seven clinicians participated in the project including physicians, nurses, occupational therapists, social workers, physiotherapists, health services professionals, and dieticians. Pre-intervention data from 939 consultations with people with dementia and/or informal carers demonstrated full guideline adherence in 24% of cases, while partial adherence was common (72% of cases). Preliminary post-intervention data suggests a positive impact of the intervention on guideline adherence. Process evaluation identified key barriers to guideline adherence including restrictive policies (for example, where funding is provided only to service the person with dementia and not their carer) and a lack of consultation with clients with dementia before making decisions.

DR TONY COOK

Wicking Dementia Research and Education Centre

Dementia Education for Undergraduate Students

Dr Anthony Cook[1], Associate Professor Alison Canty[1], Professor Fran McInerney[1], Professor James Vickers[1]

[1]Wicking Dementia Research and Education Centre, University Of Tasmania, Hobart, Australia

The Wicking Dementia Research and Education Centre at the University of Tasmania has established a world first Bachelor of Dementia Care (BDemCare) in response to urgent national and international calls to build capacity for dementia care. This fully online, evidence-based program opens opportunities for education to those previously unable to access it, and attracts significant numbers of non-traditional students. The program is front loaded with foundation level skill-building units, and then diverges into 2 majors in understanding dementia and models of care. Commencing in 2012, the course has grown to over 1500 students actively studying at any point in the year. To date, 817 students across Australia have graduated with a Diploma (531), Associate Degree (135) or Bachelor of Dementia Care (151). Surveys of BDemCare students (1236 students, 871 [70%] responses) reveal that 98% of students reside in Australia, 93% are female, and 83% are over 41 years of age. 83% of students work either full-time (47%) or part-time (53%), with 67% having a direct care role for a person living with dementia. Qualitative and quantitative student feedback indicates the BDemCare program provides a supportive online learning environment that provides relevant dementia education, aligned with the NHMRC Dementia Priorities, and which is directly impacting on the care practices of current students and graduates. This program has won awards at both State and National levels for innovative educational design and delivery that enhances learning. The success of this program has led to a suite of postgraduate dementia education programs being developed.

DR HELEN COURTNEY-PRATT

Wicking Dementia Research and Education Centre

Barriers and Enablers to the provision of leisure to people with dementia: An Exploratory Study

Mrs Sharon Stoddart[1], Dr Helen Courtney-Pratt, Dr Sharon Andrews

[1]Thompson Health Care, Terrey Hills, Australia, [2]University of Tasmania, Hobart, Australia

Engaging in leisure pursuits provides a constellation of benefits for the person living with dementia, including improved quality of life (QoL). However, there is a lack of leisure provision for people with dementia who live in residential aged care facilities (RACFs). There has been little research conducted previously in this area that examines the reasons for this phenomenon, from the perspective of personal care attendants (PCAs) with the responsibility for leisure provision.

This research study explored barriers and enablers to the provision of leisure activities to people living with dementia in RACFs.

Using a qualitative exploratory descriptive methodology to frame the research, data was collected from participants in four focus groups.

Findings show that a low staff to resident ratio, high workload and the propensity of staff to prioritise clinical care were barriers to leisure provision.

Secondly, resident characteristics that impact on the provision of leisure in the form of reduced functional capabilities, behavioural and psychological symptoms of dementia (BPSDs), and declined mobility also reduced residents' opportunities for leisure.

Thirdly, leisure provision was influenced by the physical environment in the RACF and the social environment among staff and residents, alongside the support of the manager.

Fourthly, staff knowledge and skills also had an impact on leisure provision for residents with dementia.

Finally, it was found that volunteering was found to improve leisure provision in RACFs.

As leisure has been strongly linked to QoL, there is a need to address barriers, and support staff to provide leisure activities for residents with dementia.

MRS SARAH CRESP

Monash University

The Experiences of Substitute Decision Makers Supporting People with Advanced Dementia: A qualitative systematic review

Mrs Sarah Cresp[1], Associate Professor Susan Lee[1], Associate Professor Cheryle Moss[1]

[1]School of Nursing and Midwifery, Monash University, Frankston, Australia

Background: Substitute decision makers (SDMs) play an important part in making health-care decisions for people with dementia at the end of life (EOL). SDMs report support, physical, and psychological concerns from their role. This systematic review sought to describe the experiences and effects of this role.

Methodology: An apriority protocol using the Joanna Briggs approach was peer reviewed and published. A thorough search of published and unpublished studies from 2007-2017, in English language was undertaken. Three authors engaged in critical appraisal and data extraction. Meta-aggregation of 20 themes into 8 categories, resulted in 5 synthesized findings.

Results:

1 The cultivation of trust in healthcare Professionals positively influences substitute decision-making;
2 Guilt, mistrust and confusion surfaced when faced with medical, care, and social complexities;
3 Translating quality of life to their context whilst navigating EOL decisions was problematic;
4 Negotiating families' practical needs presented a challenge to successfully fulfil their role; and
5 Uncertainty and reactivity resulted from poor understanding of dementia, communication concerns, and ambivalence around advance care plans and EOL care.

Implications: The experience of being a SDM for person with dementia at EOL is complex. No research was found on the education and support needs of SDMs. This significant research area addresses the fifth research priority by the National Health and Medical Research Council, National Institute for Dementia Research. A consumer focus and involvement is pivotal in translating this research into the development of tools and strategies that may be used to meet SDMs' education and support needs.

MS LENORE DE LA PERRELLE

Flinders University

Valuing Expert Experience: involving people with dementia and care partners in Agents of Change research

de la Perrelle, L.[1,2], Cations, M[1,2], Crotty, M[1,2], Kurrle, S[2,3] Fitzgerald, A[2,4], Cameron, I[2,3], Whitehead, C[1,2], Thompson, J[2], Kaambwa, B[1], Radisic, G[1,2], Laver, K[1,2]

[1] Flinders University, Adelaide, Australia, [2] NHMRC Cognitive Decline Partnership Centre, Sydney, Australia, [3] University of Sydney, Sydney, Australia, [4] Griffith University, Brisbane, Australia

Background: The Agents of Change translational research project has been designed to involve people living with dementia, care partners and members of the public at all levels in the research. This involvement is expected to benefit the design of the intervention, the conduct of the research and the success of the implementation of clinical guidelines. The costs of the involvement of the public in research is often seen as a barrier, but not quantified.

Objectives: This process evaluation will quantify the value that involvement of people with lived experience of dementia and care partners adds to a translational research project.

Methods: Semi-structured interviews with 30 research participant clinicians will provide information about the value of consumer feedback to clinician quality improvement plans. Semi-structured interviews and focus groups with 3 expert advisors who live with dementia and 4 care partners will be conducted to ascertain what they contributed to the research and how they viewed their participation. Themes elicited within the interviews, examples of contributions and influences on participants will be synthesised. Cost-benefit analysis will be conducted to examine the costs of involvement relative to the benefits identified. The benefits are monetised through a willingness to pay discrete choice experiment.

Results: Clinicians spoke of the unique opportunity to have members of the public providing feedback on their projects as they implement changes to practice. Members of the public were interested to hear how their contributions made tangible differences to the project. Experience: involving people with dementia and care partners in Agents of Change research.

MS LENORE DE LA PERRELLE

Flinders University

Cost effectiveness of Quality Improvement Collaboratives in translational health research: a systematic review

de la Perrelle, L.[1,2], Cations, M[1,2], Crotty, M[1,2], Kurrle, S[2,3] Fitzgerald, A[2,4], Cameron, I[2,3], Whitehead, C[1,2], Thompson, J[2], Kaambwa, B[1], Radisic, G[1,2], Laver, K[1,2]

[1] Flinders University, Adelaide, Australia, [2] NHMRC Cognitive Decline Partnership Centre, Sydney, Australia, [3] University of Sydney, Sydney, Australia, [4] Griffith University, Brisbane, Australia

Background: Quality Improvement Collaboratives have been used as a strategy for clinicians to share learning and collaborate on healthcare quality improvement. They have the potential to spread innovations, increase the speed of knowledge translation and create learning networks. However, they are resource intensive and little is known on their cost effectiveness.

The aim of this systematic review was to determine the cost-effectiveness of quality improvement collaboratives as a strategy to implement clinical guidelines in healthcare.

Methods: MEDLINE, CINAHL, PsycINFO, Econolit, ProQuest (Health & Medicine, Social Sciences) and grey literature were searched for studies reporting an economic evaluation of a quality improvement collaborative in a healthcare setting. Economic evaluations were included if they calculated cost-minimisation, cost-effectiveness, cost-utility or cost-benefit approach.

Results: 3740 titles and abstracts were screened and 128 full text articles were reviewed. Included studies were conducted in 6 countries and commonly in the areas of surgery, nursing and medical improvements. Only a small number of studies presented data regarding cost-effectiveness and results were mixed. Few examples of cost effectiveness were found to meet the CHEERS reporting standard indicating the need for assessment of cost effectiveness for QICs if they are to be used effectively in healthcare improvement.

DR NADEEKA DISSANAYAKA

University of Queensland

Residential Aged Care Staff, Same Same Only Different: Insight into staff attitudes towards entering RAC

Miss Nicole Walker[1, 2], Dr Theresa Scott[2], Professor Nancy Pachana[2], Dr Nadeeka Dissanayaka[1, 2, 3]

[1]UQCCR, Faculty of Medicine, University Of Queensland, Herston, Brisbane, Australia, [2]School of Psychology, University of Queensland, St Lucia, Brisbane , Australia, [3]Royal Brisbane & Women's Hospital, Herston, Brisbane, Australia

Objectives: This research investigates and evaluates attitudes of people working in residential aged care (RAC) towards entering RAC in the future themselves. It aims to investigate whether education about dementia, older people and RAC is Associated with the extent to which people report positive or negative attitudes towards entering RAC in the future themselves. Finally if mediating factors such as losses of independence, trust and perceptions of RAC workers were Associated with attitudes towards entering RAC.

Results: Analyses revealed that loss of independence was the only mediating variable that predicted variance in levels of resistance to enter RAC in future, therefore the variables trust and perceptions of RAC staff were eliminated. Further it was found that both occupational status and educational level had no direct Association with levels of resistance. Finally, confidence and knowledge were compared in educational levels (total years of education) and there were no significant differences between those with or without university education. The analysis revealed that independence was significantly associated with resistance towards entering RAC. That is, despite education levels or position held, levels of mild and extreme refusal were significant through the variable of independence. The perceived losses of independence once you enter RAC revealed heightened resistance.

Discussion: Largely, the results suggest that despite total years of education and knowledge of people with dementia and RAC, this in itself is not adequate to diminish negative evaluations of living in RAC. This key information in formulating future models of care.

DR KATHLEEN DOHERTY

Wicking Dementia Research and Education Centre

The Understanding Dementia MOOC improves carers' and nurses' knowledge of dementia

Dr Kathleen Doherty[1], Dr. Maree Farrow[1], Mr Aidan Bindoff[1], Professor James Vickers[1], Professor Fran McInerney[1]

[1]Wicking Dementia Research and Education Centre, Hobart, Australia

The Understanding Dementia Massive Open Online course (UDMOOC) was developed by the Wicking Centre in response to the need for improved understanding and awareness of dementia broadly across the community. The UDMOOC has been undertaken by a varied cross section of participants, with a significant proportion employed in the delivery of care to people living with dementia.

We collated data on a cohort of 1770 Australian UDMOOC participants whose work sector was identified as either community or residential aged care (RAC). From survey responses we examined their motivation for commencing the UDMOOC, interaction with course elements, and knowledge of dementia before and after course completion using the Dementia Knowledge Assessment Scale.

All groups overwhelmingly indicated a desire to improve their knowledge of dementia and deliver better care for people living with dementia as motivating factors. Course engagement patterns were similar however, the probability of completing the course was higher for nurses than carers and was positively associated with commencing knowledge score for carers. Commencing scores of both nurses (37.8 +/-7.5) and carers (33.7 +/-8.3) in the RAC sector were higher than nurses (35.3 +/- 8.3) and carers (31.7 +/-9.0) in the community sector. For all groups, knowledge of dementia significantly increased on completion of the course (community: nurses +9.9, carers

+9.7 and RAC: nurses +5.8, carers +7.0).

This study demonstrates that the UDMOOC engages nurses and carers in both the community and RAC sectors and leads to an improved knowledge base on which to deliver better care.

ASSOCIATE PROFESSOR BRIONY DOW

National Ageing Research Institute

What do home care workers need to know to effectively support people living with dementia?

Associate Professor Briony Dow[1], Dr Meg Polacsek[1], Mr Brendan Hallam[1], Professor Colleen Doyle[1], Emeritus Professor David Ames[2], Dr Margaret Winbolt[3], Dr Steven Savvas[1], Dr Sue Malta[2], Professor Philip Clarke[2], Dr Anita Panayiotou[1], Professor Claudia Cooper[4], Professor Gill Livingston[4], Professor Constantine Lyketsos[5], Dr Frances Batchelor[1], Mr Jason Burton[6], Associate Professor Lee-Fay Low[7], Associate Professor Samuel Scherer[8], Dr Samantha Loi[9], Dr Luke Gahan[1], Ms Ellen Gaffy[3], Mrs Anne Fairhall[10], Dr Anita M Y Goh[1]

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Many older people want to remain in their own homes as they age, including when they have received a diagnosis of dementia. As their symptoms progress, formal support is often provided by home care workers. The quality of home care they provide directly influences the person's life quality and ability to remain independent. However, providing home care is uniquely challenging and many home-care workers have limited dementia specialist training and knowledge. The NNIDR-funded study Promoting Independence Through quality Care at Home (PITCH) project aims to fill this gap by co-designing and testing a new evidence-based training program that enables home care workers to provide care that promotes independence, improves quality of life, and recognises the lived experience of dementia. The project involves co-designing and evaluating a training program for home care workers, and evaluating it through a randomised controlled trial. In the co-design phase, 10 home care workers, 5 home care service managers and 5 case managers participated in qualitative interviews, and 38 participated in co-design workshops to share their experiences. Themes from the data relate to dementia knowledge, the importance of collaborating with family carers, effective communication and rapport, and the importance of maintaining safety in the home. Improved processes were needed to enable appropriate support, particularly concerning the stage or progression of dementia. The need for improved training, work conditions and overall recognition were highlighted. The implications of these findings will be discussed, reflecting home care Professionals' views on how to create a skilled, knowledgeable and empathic workforce.

DR SANETTA DU TOIT

University of Sydney

Care settings as micro-communities- Time to focus on a collective approach

Dr Sanetta Du Toit[1]

[1]University of Sydney, Lidcombe, Australia

The right to access and engage in what a person considers to be meaningful is termed occupational justice. Despite culture change and resident-directed care initiatives, residents (especially those living with advanced dementia) in care settings are still prone to experience disengagement and isolation. It appears as if best efforts amount to a state of occupational 'disownment' – engagement dependent on the initiative of others. Staff education and various approaches to address 'challenging behaviours' contribute to an attitude where staff view situations to find a quick 'fix', so that they can carry on with care tasks. These dementia care approaches have impacted on the definition and interpretation of meaningful engagement and need closer consideration. This presentation will critically consider meaningful engagement Associated with advanced dementia care. As the wellbeing of older people with dementia is closely connected to the quality of their doing and belonging, care facilities needs to be considered as micro-communities – i.e. a place where independence and interdependence is part of a continuum. Factors for facilitating a community, where all living and working in the specific social habitat, are contributors to everyone's wellbeing, will be highlighted. This presentation will specifically explore the use assessment tools, recently included in feasibility studies to promote co-occupation and shared doing for collective settings. Proposed key considerations include environmental adaptations; creating occupational spaces; and upskilling staff to promote citizenship, agency and self-determination for residents.

DR LIZ EVANS

3DN, University of New South Wales

Can research guide integrated care for people with intellectual disability who develop dementia?

Dr Liz Evans[1], Ms Rebecca Daly[1], Professor Julian Trollor[1]

[1]Department of Developmental Disability Neuropsychiatry, UNSW, Sydney, Australia

Background: People with intellectual disability (ID) are living longer than previously. People with ID experience substantially increased dementia risk, especially those with Down syndrome. As many people with ID already receive disability supports, those who develop dementia face a unique challenge of accessing dementia supports and integrating these with disability supports. Family caregivers also face challenges: they may no longer be able to meet their relative's needs, and new dementia specific supports may be required. This review aims to examine local and international literature on care models for people with ID and dementia, to identify strategies to promote integrated care.

Methods: As part of an environmental scan, an integrative literature review was conducted. Medline, PsycINFO, and

Embase were searched using a range of MeSH headings and keyword Boolean operators. Both quantitative and qualitative research was reviewed. Articles were selected if they included a focus on existing access to care, or improved provision of care, for people with ID living with dementia.

Results: Themes highlighted included complexity of diagnosis contributing to delays accessing care; incongruence of design in aged care and disability care; reduced access to planned healthcare, including end-of-life care planning; and the potential benefits of staff training, case managers and multidisciplinary approaches.

Conclusions: Research suggests that dementia care pathways in Australia are difficult to navigate for people with ID. Emerging international research points to potential improvements to service provision for people with ID and dementia, which could inform Australian healthcare policy and practice and guide future research

DR ELAINE FIELDING

Queensland University of Technology

Building dementia care research capacity: Using a rapid literature review to inform a mentoring program

Dr Elaine Fielding[1], Dr Catherine Travers[1], Dr Diane Collins[1], Professor Elizabeth Beattie[1]

[1]Dementia Centre for Research Collaboration, Queensland University Of Technology, Kelvin Grove, Australia

Aim: The aim was to identify the key characteristics of successful dyadic research mentoring programs for nurses and allied health researchers to inform the Dementia Centre for Research Collaboration's (DCRC) Flagship program to build dementia research capacity in this group.

Methods: A rapid review of the literature was undertaken, with four databases (CINAHL, ERIC, MEDLINE, PsycINFO) systematically searched for English language articles published between 2008 and 2018. Additional articles were identified through hand searching retrieved articles but grey literature was excluded. Articles were included for review if the paper (a) described a formal dyadic mentoring program (i.e. involving a mentor and a mentee) for (b) nurse or allied health researchers. Key elements of the programs were summarised and synthesised.

Results: Fifteen papers were included in the review. Factors identified as being important for a successful mentoring program including (a) appropriate mentor-mentee matching, (b) preparation of both participants for program involvement, (c) establishing clear goals and participant expectations, and (d) having more than one mentor per mentee.

Discussion: Few published studies of mentoring programs for nurse and allied health researchers were identified, as research mentoring programs for these disciplines appear to be relatively new. Reported results from these studies, however, concur with the findings of mentoring programs from other disciplines (such as medicine) that mentoring results in positive outcomes and the identified key program elements are critical for success.

Conclusions: These findings will inform the development of the DCRC's mentorship program for emerging researchers in dementia care which commenced this year.

DR AMANDA FOX

Queensland University of Technology

Functional decline and predictors of adverse events for people with and without dementia during hospitalisation

Dr Amanda Fox[1], Dr Margaret MacAndrew[1], Ms Katy Wyles[1], Professor Elizabeth Beattie[2]

[1]Queensland University of Technology, Brisbane, Australia, [2]Dementia Centre for Research Collaboration, Brisbane, Australia

People with dementia experience greater physical functional decline, require more constant observation and are at higher risk of complications whilst in hospital. To explore these factors, this research has examined functional decline and the predictors of adverse events for people with and without dementia during hospitalisation. A retrospective chart audit of patients with (n=120) and without (n=120) a diagnosis of dementia, admitted to a regional hospital in 2017 was conducted. Level of physical function on admission and discharge, primary diagnosis, frequency/duration of constant patient observation, allied health treatment/s and adverse events (fall, medication error, wound, and hospital acquired infection/incontinence) were recorded. There were significant differences in physical function between patients with and without dementia on admission and discharge. Patients with dementia were more dependent with mobility, hygiene and feeding, and were more likely to be confused and incontinent. Regardless of dementia status there was no significant variation in physical function of each group from admission to discharge. Patients with dementia were significantly more likely to require constant patient observation (OR=25.286) and/or experience an adverse event (OR=6.000). The most common adverse event experienced was wound. In addition to having dementia, being male and having orthopaedic surgery contributed to the likelihood of experiencing an adverse event. Hospitalisation for people living with dementia is more likely to involve negative outcomes and understanding these needs will assist in developing models of care that promote optimal health outcomes.

ASSOCIATE PROFESSOR BELINDA GOODENOUGH

Dementia Training Australia

Joining the Pipelines: Readiness for Knowledge Translation (R4KT) protocol

Associate Professor Belinda Goodenough[1,7,8], Dr Travis Sztainert[2], Professor Aimee Spector[3], Dr Rachel Davis[4], Ms Kim Burns[5,8], Dr Margaret MacAndrew[5,9], Ms Lidan Zheng[5,8], Ms Jennifer Thompson[6,10]

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The Australian dementia research investment has increased. Outputs from recent boosts to capacity building are adding to existing local inventories of completed projects. An emergent challenge surrounds maximising benefits from this cumulative research effort on an appropriate scale. One priority direction of impact is national workforce training. With a goal of joining the pipelines between generators and implementers of evidence, a knowledge translation work program has been established between Dementia Training Australia (DTA) and the NHMRC National Institute for Dementia Research (NNIDR). The first deliverable is a protocol to assist in curating evidence, and triage into products and activities suited to workforce training. The Readiness for Knowledge Translation (R4KT) protocol has been developed. As a checklist driven tool, it assists in the review of research outputs in three main domains: quality, relevance, and usability. Scores on these domains produce a readiness indicator (not ready, has potential, ready for translation). R4KT items are informed by other checklists and international advisory on indices for end-of-grant implementation readiness. R4KT also includes a stakeholder-specific 'quick screen' to enable fast-track of knowledge products which may meet the strategic objectives of DTA in the area of salutogenic principles of care. The R4KT protocol is now in prototype form and being piloted on projects from the Dementia Centre for Research Collaboration and the Cognitive Decline Partnership Centre. It is anticipated that R4KT will be made available to help researchers self-assess and flag outputs to DTA for consideration as potentially ready for dissemination and implementation in workforce training.

DR MEREDITH GRESHAM

HammondCare

Special Dementia Care Programmes: 10 years' experience

Dr Meredith Gresham[1], Dr Thyuen Truong[1], Dr Natalie Plant[1], Mr John Nadjarian[1], Dr Catriona Lorang[1], Ms Angie Bennett[1], A/ Professor Colm Cunningham[1]

[1]HammondCare, Greenwich, Australia

A small proportion of people living with dementia will develop very severe and persistent behavioural and psychological symptoms of dementia (BPSD) that cause significant distress for themselves, their families, health and aged care staff. As well, severe BPSD provides challenges for systems of health and aged care to provide appropriate long-term accommodation and care. In November 2018 The Australian Government announced the development of 35, 8-12 place Special Dementia Care Programs (SDCP), across Australia. SDCPs are designed to offer intensive care and support programs within aged care homes, through provision of enhanced staffing ratios, greater staff knowledge and skill levels, more intensive intervention and linkages with geriatric and aged care psychiatry services. Support to transition to mainstream aged care will be provided when strategies to manage behaviours are established.

HammondCare established a NSW Health-Aged Care partnership SDCP in November 2007 following a RANZCP Faculty of Psychiatry of Old Age report on the accommodation and management of this group. Comprising an 8-place, 9-bed Special Care Unit, known as 'Linden' and a supported transition-out program, this SDCP has accommodated 77 residents over the first 10-years of operation. This presentation will provide a description of SDCP service elements, a profile of residents' demographic, behavioural and care requirement characteristics and changes over time, derived from a retrospective file audit, and discuss emerging data that may identify which people with severe BPSD may benefit most from this type of service and support development of new services.

DR MEREDITH GRESHAM

HammondCare

Best practice pain management in residential aged care: A participatory action research study

Dr Meredith Gresham[1], Dr Raj Anand[1], Associate Professor Colm Cunningham[1]

[1]Hammondcare, Sydney, Australia

As people living with dementia become less able to effectively verbally communicate their pain or pain related needs (Pautex et al. 2006), there is an increased risk of the pain going undetected and under treated. Preliminary research into pain management for people with dementia in residential aged care (Intervene Phase 1) revealed limited and inconsistent use of formal pain assessment tools and issues of communication between staff as barriers to evidence-based pain management. The Intervene Phase 2 project which ran from 2016 to 2018 was devised to address these key barriers. Dementia Centre researchers co-developed strategies with Multi-Disciplinary Teams (MDTs) at four residential aged care sites to target staff behaviours and foster a pain vigilant culture. Underpinned by theoretical frameworks of participatory action research and the COM-B (Capabilty, Opportunity, Motivation – Behaviour) model, the project recognised the staff as the experts at their local sites and first response caregivers for the residents; and allowed the MDTs to solve local issues that are of concern to them. Findings demonstrate an increase in staff involvement, documentation of pain episodes and the use of formal pain assessment tools as a result of the interventions introduced by MDTs. A synthesis of the findings has informed the development of the 'MDT pain management model', a resource which other residential aged care services can refer to when considering improving their pain management practices.

DR SUNNY JANG

Wicking Dementia Research and Education Centre

Discussion of university-community collaboration for engaging CALD communities in dementia care education and research

Dr Sun Hee (Sunny) Jang[1], Dr Hoang Nguyen[1], Dr Kathleen Doherty[1], Dr Helen Courtney-Pratt[1], Ms Fiona Rees[2]

[1]University of Tasmania, Hobart, Australia, [2]Migrant Resource Centre, Hobart, Australia

Dementia is a growing public health concern world-wide. The prevalence of dementia is increasing due to the ageing of the population. In Australia, the impact of dementia is predicted to be significantly high and highly complex. Australia is a rich multicultural society where one in three Australians aged 65 or over was born outside Australia, and many of them do not speak English as their first language. A considerable body of research reported that

culturally and linguistically diverse (CALD) communities often do not accept dementia as a medical condition and some CALD communities are disadvantaged due to stigma. As a result, CALD communities may not access or receive services and care that is available to them.

According to the Aged Care Act 1997, older people with CALD backgrounds are considered as "people with special needs". The Australian Government have prompted "building capacity for the emerging aged care needs of CALD communities" (Ageing and Aged Care, 2015) as one of the key research areas the Department of Health. In contemporary care practice, there is gathering momentum for listening to the authentic voice of people with dementia, with growing recognition that people with dementia can, and want to, speak for themselves. This is exemplified by the phrase "Nothing about us, without us". However, there is a lack of the participation of CALD people with dementia in the discussions around this condition. University-community collaboration is a potential and powerful way to improve the current situation and to provide opportunities for their engagement, hence better care for people from CALD backgrounds living with dementia and their care givers.

The purpose of this roundtable discussion, through engagement with a wider community, is to identify opportunities, challenges and strategies for university-community collaboration for engaging CALD communities in dementia care education and research.

The discussion topics included in the roundtable will be:

- approaches and priorities to support people from CALD backgrounds living with dementia, and their care givers
- past and current collaborative projects for people from CALD backgrounds living with dementia and their care givers
- identified challenges and issues emerging from suchcross-sector collaboration
- effective strategies for successful university-community collaboration
- potential benefits and opportunities for university-community collaboration for dementia care education and research

This round table will provide an opportunity for people involved in working with or for CALD communities to discuss their shared interest in improving care practices for people from CALD backgrounds living with dementia.

Ageing and Aged Care. (August, 2015). Building capacity for the emerging aged care needs of culturally and linguistically diverse communities. Retrieved from **https://agedcare.health.gov.au/overview/advice-to-the-aged-care-industry/building-capacity-for-the-emerging-aged-care-needs-of-culturally-and-linguistically-diverse-communities**

DR LISA KALISCH ELLETT

University of South Australia

Use of health and support services by people living with dementia in the community

Dr Lisa Kalisch Ellett[1], Associate Professor Nicole Pratt[1], Dr Tuan Nguyen[1], Professor Elizabeth Roughead[1]

[1]University of South Australia, Adelaide, Australia

Background: Providing appropriate health care and supports to people with dementia living in the community and their carers can delay the time to aged care admission or ill health

Aims: To characterise access to and use of healthcare and support services by people with dementia in the community.

Methods: We conducted a retrospective analysis of the Australian Government Department of Veterans' Affairs administrative claims data for people with dementia who were living in the community on 30-June-2017. We identified demographics, comorbidities, healthcare and support service use over the one year period 1-July-2016 to 30-June-2017.

Results: 10,171 community dwelling people with dementia were included. They had a median age of 89 years, 60% were female and 63% lived in a major city. They had a median of 96 visits to six different types of healthcare providers in the one-year period. 98% visited the GP and 99% had medicines dispensed at a pharmacy. Although 82% saw a specialist, only 19% saw a geriatrician. Only 31% received a dose administration aid and 19% received a home medicines review. Less than half had claims for occupational therapist services (48%), community nursing (48%), physiotherapists (41%) or dentist visits (33%). Only 58% received home care supports.

Conclusions: Many people living with dementia in the community do not access all of the healthcare or support services available to them. Ensuring that people with dementia and their carers are supported to live in the community setting for as long as possible is important

DR CINDY KOK

Hammondcare

Evaluation of resident engagement pre and post relocation from a traditional nursing home to cottages

Dr Cindy Kok[1], Ms Meredith Gresham[1], Ms Sabrina Chao[1], Dr Tom Morris[1], Professor Chris Poulos[1], Professor Colm Cunningham[1]

[1]Hammondcare, Greenwich, Australia

Introduction: Community standards and changes to regulatory requirements for the built environment has increased the number of old, frail and cognitive impaired residents being relocated to new buildings. Relocation is frequently associated with negative outcomes including increased confusion, falls and risk of death.

Aim: To describe a range of variables affecting aged care residents with dementia and to monitor behaviours of concern during a relocation from a traditional facility to new purpose built dementia cottages.

Methods: This study is a pre-post observational study of residents transferring from the HammondCare Nursing Home Caulfield to dementia specific cottages. The unique cottage design is home-like and the environment is clustered around a village. Residents scheduled for relocation are eligible if they are permanent residents, have been at the nursing home for longer than three months and are not receiving active end-of-life care.

Observational & Engagement study: The observer will watch each resident at different times of the day and score the resident as either positively, negatively or not engaged. Data is summarised to reflect the percentage of observations the resident was engaged, negatively engaged or not engaged.

Additionally, the observer will mark the location and behaviour of each resident, staff member and visitor on an architectural map of the facility. Staff are recorded as doing tasks that are interactive with the residents, doing something not interactive or off task.

Conclusion: The outputs of this work will inform how practice concerning relocation of this vulnerable group of people may be improved.

PROFESSOR SUSAN KURRLE

Cognitive Decline Partnership Centre

What is good quality care for people with dementia?

Professor Susan Kurrle[1], Ms Jennifer Thompson[1], Ms Sally Grosvenor[1]

[1]Cognitive Decline Partnership Centre, University Of Sydney, Hornsby, Australia

Understanding what good quality care looks like is a focus of the current Royal Commission into Aged Care Safety and Quality[1], and essential to the quality of life for people living with dementia[2]. This presentation will outline how Cognitive Decline Partnership Centre research outcomes are driving practice change in community, residential and hospital settings through translation of research that improve care for people living with dementia.

The "Clinical Practice Guidelines and Principles of Care for People with Dementia'[3] have brought significant change in understanding and application of good quality care. Containing 109 recommendations, these Guidelines are influencing clinical practice, directing government funding initiatives, supporting staff training programs, and informing health and aged care services.

"Supported Decision-Making in Aged Care: A Policy Development Guideline for Aged Care Providers in Australia"[4] is a tool to assist aged care providers in ensuring residents are involved in decisions that impact their lives. Referenced in the new Aged Care Quality Standards, the guide includes a self-assessment audit tool and principles for policy development. In-house training workshops using this resource are being run for aged care staff across most States and territories in Australia.

The Care of Confused Hospitalised Older Persons (CHOPs) program developed the "Key Principles for Care of Confused Hospitalised Older Persons"[5]. The program has been implemented and is being maintained across at least 12 hospitals across multiple States, and the CHOPS seven principles of care have underpinned interstate and international hospital dementia and delirium initiatives.

1 Commonwealth of Australia. 2019. **https://agedcare.royalcommission.gov.au/Pages/default.aspx**

2 Bird et al. 2016. Do interventions with staff in long-term residential facilities improve quality of care or quality for life people with dementia? A systematic review of the evidence. International Psychogeriatrics. 28:12 p1937-1963

3 http://sydney.edu.au/medicine/cdpc/documents/resources/Dementia-Guideline-Recommendations-WEB-version.pdf

4 http://sydney.edu.au/medicine/cdpc/documents/resources/SDM_PolicyGuidelines_FA_V2_Digital.pdf

5 https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0006/249171/CHOPS-key-principles1-2-web.pdf

DR KATE LAVER

Flinders University

Implementing an evidence-based program for Australian people with dementia and their families within existing services

Dr Kate Laver[1,2], Professor Lindy Clemson[2,3], Professor Yun-Hee Jeon[3], Associate Professor Tracy Comans[2,4], Dr Justin Scanlan[3], Ms Miia Rahja[1,2], Ms Jennifer Culph[2,3], Associate Professor Lee-Fay Low[3], Ms Sally Day[2,3], Dr Monica Cations[1], Professor Maria Crotty[1,2], Professor Susan Kurrle[2,3], Associate Professor Catherine Piersol[5], Professor Laura Gitlin[6]

[1]Flinders University, Adelaide , Australia, [2]NHMRC Partnership Centre for Dealing with Cognitive and Related Functional Decline in Older People, Sydney, Australia, [3]University of Sydney, Sydney, Australia, [4]The University of Queensland, Brisbane, Australia, [5]Thomas Jefferson University, Philadelphia, USA, [6]Drexel University, Philadelphia, USA

Aims: The aim of this research was to implement the "COPE" program within existing services in New South Wales and South Australia and evaluate implementation strategies and service and client outcomes.

Methods: In this mixed methods study, the intervention (a structured program provided by occupational therapists and nurses) was implemented in government, non-government and private settings. Implementation strategies included: education (workshops and coaching), process restructure (with an expectation for clinicians to provide data on completed cases), and quality management (reminders, fidelity checking). Qualitative data from interviews with clinicians and managers and quantitative data measuring client outcomes were used to understand the process of adoption and replicability of the program in improving outcomes for program recipients. Families who received the program were interviewed to determine the impact of, and their experience with, the program.

Results: Thirty eight occupational therapists and 17 nurses from 13 organisations were trained and provided with support to implement. A total of 78 dyads have completed

the program (as of February 2019). Preliminary results indicate it was possible to implement the program within existing services and clients who received the program provided positive feedback. Preliminary analysis of data (n=53) showed that 62% of carers reported that their ability to manage day to day caregiving had improved somewhat or improved a lot following intervention despite functional decline.

Conclusions: Implementing evidence-based dementia care programs within existing services is possible but work is needed to upskill clinicians, provide them with tools and resources and provide tailored implementation support.

DR EMMA LEA

Wicking Dementia Research and Education Centre

Link between aged care home staff dementia knowledge and experiences caring for people with dementia

Dr Emma Lea[1], Ms Kim Page[1], Ms Liz Neville[1], Professor Andrew Robinson[1], Dr Kathleen Doherty[1]

[1]Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, Australia

Working with people living with dementia in residential aged care can be challenging, which is exacerbated by low levels of dementia knowledge. This study investigated the relationship between aged care home staff knowledge of dementia and strain in caring for people with dementia. A cross-sectional survey was conducted in 2017 in three southern Australian aged care homes. Ninety-six staff (53% of staff on shift over a 24-hour period) participated, including nurses, care workers and hospitality staff (i.e. those involved directly and indirectly in care). The questionnaire contained the Dementia Knowledge Assessment Scale and Strain in Dementia Care Scale. Bivariate analyses examined the relationships between scales, subscales and individual item scores. Dementia knowledge was found to be moderate (32.6/50) and strain in dementia care low (4.03/16). A positive relationship was found between dementia knowledge and strain in dementia care - i.e. the higher the knowledge, the higher the strain - particularly with regards to feeling that residents were not receiving appropriate care. The overall relationship between knowledge and strain was weak in staff in direct compared to non-direct care roles. The findings suggest aged care home staff have gaps in their dementia knowledge, but more comprehensive knowledge is also associated with higher strain in the context of perceived lapses in care quality. Further investigation is required on the impact of role on this relationship. However, it may be that employment of a whole-of-organisation approach to increasing dementia knowledge among as many staff as possible is important to minimise strain on individuals.

DR MARGARET MACANDREW

Queensland University of Technology

The development and preliminary testing of the Safe Walking Assessment and Planning (SWAP) tool

Dr Margaret MacAndrew[1]

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Despite the known life threatening outcomes associated with dementia-related wandering (exhaustion, malnutrition/dehydration, getting lost, injury), in clinical practice there are currently no validated tools to assess the risks related to wandering and few evidence-based care planning resources available. The *Safe Walking Assessment and Planning* (SWAP) tool, a newly developed tool, has the potential to a) identify risks Associated with the type and intensity of walking, b) provide care planning advice for each identified risk and c) collect vital personal information about the person with dementia to assist with a search if needed. The SWAP tool items were generated from a review of current research evidence and two consultation rounds with an expert panel (N=11; n=3 family carers, n=3 nurses, n=5 dementia researchers). The original 35 items reviewed in Round 1 were reduced to 13 in Round 2 with consensus the items were relevant and acceptable across all care settings, accurately measured risk Associated with wandering, and provided appropriate care planning recommendations. Preliminary testing of the resultant SWAP tool with potential end users (N=5; n=3 nurses; n=2 family carers) demonstrated consensus that the tool is easy to use, applicable to all care settings, and that the care advice provided is useful. Nurse users expressed concern that adding the SWAP tool to their already extensive suite of assessments would create additional burden. The practical application of the tool to guide individual care planning was seen as a positive attribute. Psychometric testing of the modified SWAP tool is now in progress.

PROFESSOR FRAN MCINERNEY

Wicking Dementia Research and Education Centre

The Dementia Literacy Assessment Model - a measure of consumer dementia knowledge and care access

Professor Fran McInerney[1], Dr Claire Eccleston[1], Mr Aidan Bindoff[1], Mr Ron Mason[1], Dr Hoang Nguyen[1], Mrs Laura Tierney[1], Professor Andrew Robinson[1], Professor James Vickers[1], Dr Kathleen Doherty[1]

[1]Wicking Dementia Research & Education Centre, University of Tasmania, Hobart, Australia

Health literacy is defined as "the skills, knowledge, motivation and capacity of a person to access, understand, appraise and apply information to make effective decisions about health and health care and take appropriate action" (Australian Commission on Safety and Quality in Health Care (ACSQHC), 2014). In dementia, this includes the ability to recognise and understand causes, sources and utility of relevant information, knowledge of and access to professional help, and the capacity to take appropriate decisions and actions, either as a person living

with dementia, or else with or for that person. Poor health literacy has been proposed as a major barrier to help-seeking behaviour, timely diagnosis, risk reduction, and effective coping strategies (Noble et al., 2015). These are of particular relevance to the major public health issue that is dementia.

We report here on the development of a tool to measure consumer access to dementia care and support, the Consumer Access Survey – Dementia (CAS-Dem) which, together with our Dementia Knowledge Assessment Scale ((DKAS), Annear et al., 2015) forms the Dementia Literacy Assessment Model (DLAM). Items were generated from analysis of more than 150,000 consenting participant forum texts from our 2014-2016 Understanding Dementia Massive Open Online Course (UDMOOC) and consideration of existing health literacy instruments. The first iteration was trialled with July 2018 UDMOOC participants and subsequently revised and administered to the February 2019 UDMOOC cohort. Participants expressed particular needs around seeking a dementia diagnosis, obtaining community support, and navigating the aged care system.

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DR TUAN ANH NGUYEN

University of South Australia

A systematic review of pharmacist interventions in dementia management

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Background: Use of medications in people with dementia (PWD) or cognitive impairment (CI) is challenging. As medication experts, pharmacists have an important role in improving care of this vulnerable population.

Objective: Systematically review evidence for the effectiveness of pharmacist-led interventions on quality use of medicines, quality of life, and health outcomes of PWD or CI.

Methods: A systematic review was conducted using MEDLINE, EMBASE, PsycINFO, Allied and Complementary Medicine, and CINAHL databases from conception to 20 March 2017. Full articles published in English were included. Data were synthesised using a narrative approach.

Results: Nine studies were eligible for inclusion. All studies were from high-income countries and assessed pharmacist-led medication management services. There was great variability in the content and focus of services described and outcomes reported. Pharmacists were found to provide a number of cognitive services including medication reconciliation, medication review, medication adherence services and proactive adverse reaction monitoring. These services were generally effective with regards to improving quality use of medicines and health outcomes for PWD and their caregivers, and for saving costs to the healthcare system. Pharmacist-led medication and dementia consultation services may also improve caregiver understanding of dementia and the different aspects of pharmacotherapy, thus improving medication adherence.

Conclusion: Emerging evidence suggests that pharmacist-led medication management services for PWD may improve outcomes. Future research should confirm these findings using more robust study designs and explore additional roles that pharmacists could undertake in the pursuit of supporting PWD or CI.

DR TUAN ANH NGUYEN

University of South Australia

Toward Vietnam's national dementia plan – the first step of action

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Problem Dementia is an emerging public health problem in Vietnam requiring a whole-of-government, multi-sectoral and multi-stakeholder public policy response through the development of a national dementia plan. Lack of dementia awareness among national dementia stakeholders, however, is an important gap that needs addressing. **Approach** In September 2018, the Ministry of Health of Vietnam together with Vietnam National Geriatric Hospital, University of South Australia, University of California Davis, and Australian NHMRC Cognitive Decline Partnership Centre organised the first Vietnam National Dementia Conference to foster national dialogue on addressing the problem of dementia in Vietnam. We also provided two training workshops on dementia and geriatric competencies for family medicine for Vietnamese health professionals. **Local setting** In 2015, 660000 Vietnamese people were estimated to live with dementia, incurring a total dementia cost of US$ 960 million. The number of people living with dementia in Vietnam is predicted to increase to 1.2 million in 2030 and 2.4 million in 2050.

Relevant changes Over 270 representatives of Vietnam national dementia stakeholders and international dementia experts participated in the Conference. The participants agreed on dementia as a public health priority and the need for the development of Vietnam's national dementia plan. The subsequent training workshops were well received by 120 lead health Professionals across the country with evidence of immediate pre-post training changes in dementia knowledge. **Lessons learnt** International support and engagement of a consortium of key national dementia stakeholders is critical in advocating for the development of Vietnam's national dementia plan.

PROFESSOR LYNNE PARKINSON

Central Queensland University

Caring for carers of people with dementia project: reducing social isolation and increasing social networks

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Background: In rural Australia, knowledge and utilisation of support by informal carers is not optimal. Multiple factors affect the experience of carers during caregiving, and the success of transitioning through the post-care period. During the caregiving period, socioemotional support from family and friends plays an important role in sustaining caregiving activities. Post-care, strong social networks facilitate adjustment to role change and dealing with grief. The primary objective of this project is to examine the response of isolated rural carers for people with dementia to a 6-week videoconferencing peer support and information program.

Methods: A repeated measures, randomized wait list trial was evaluated with on-line surveys at baseline, Week 8, Week 15, and Week 26. Twenty 20 groups of 6 carers were recruited, from May 2018 to June 2019. Social networks are assessed using a social network analysis tool for Egocentric mapping. Social isolation is measured using the short form UCLA Loneliness Scale (ULS-6), which is appropriate for use among older adults. Effect of the videoconferencing program is assessed across these measures.

Result: Baseline Preliminary results (n=15) found that this was a socially isolated group of people (ULS6 Median 20.00 [IQR 15.00, 22.00] with support networks concentrated on close family.

DR LYN PHILLIPSON

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What happened to Respite? Shining the light on policy reforms and their impact on carers

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Providing a range of respite options for people with dementia and their carers has traditionally been considered a core aspect of a well-functioning aged and disability care systems. In an ideal context, supporting informal carers and people with dementia to age in place involves providing access to a broad range of support including flexible respite services in a variety of settings. Policy and program reforms in Australia are significantly transforming the aged and disability care service sectors, towards a more individualised, consumer directed and market based approach to service delivery. In the context of this fundamental re-design of these systems, what has happened to respite for carers?

In this paper, we will present the results from a content analysis of new national programs to shine a light on how planned and emergency respite have been included in new and continuing national programs including: the Home Care Support Program, Home Care Packages, Commonwealth Care Respite Centres; the Carers Gateway and Integrated Care Plan and the National Disability Insurance Scheme. We will also reflect on the results from over a decade of collaboration on local respite research and advocacy in the Illawarra (NSW) highlighting the insights this has provided to address the challenges facing people with dementia and their carers who identify the need for respite.

This paper provides a timely analysis of the interface between new and continuing national aged, carer and disability programs and their capacity to support access to flexible respite. Results highlight the need for a more integrated approach to respite policy development and service provision to support people with dementia and their carers. It also highlights the value of academic and community partnership in research to promote community impact and benefit.

DR CRAIG SINCLAIR

University of New South Wales

Health professional judgements regarding decision-making involvement among people living with dementia

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Background: A key aspect of living well with dementia is maintaining involvement in decision-making, including receiving support when required. This factorial survey study investigated Professional judgements about the involvement of a person with dementia in a healthcare or lifestyle decision, through the use of hypothetical vignettes, to better understand the factors influencing these participant judgements.

Methods: Australian health Professionals and aged care workers who involved in dementia care were invited to participate in an online survey. Participants were asked to make separate judgements about the ability of a hypothetical person with dementia to make the decision independently, or be 'meaningfully involved' in the decision. Vignette characteristics were pseudo-randomised, and included decision type, person's age, person's gender, severity of the person's cognitive impairment, type of support person, availability of support person and decision urgency. Demographic variables collected from participants included age, gender, Professional discipline, work setting, knowledge regarding dementia and attitudes towards dementia. Multi-level logistic regression modelled key factors contributing to the participant's judgement.

Results: 140 participants completed the survey. Participants judged that the person was able to make the decision independently in 54% of cases and could be 'meaningfully involved' in 87% of cases, with significant variation between participants (intraclass correlation = 0.50). Regression analyses indicated that decision type, severity of cognitive impairment, availability of a support person, Professional discipline and work setting were Associated with Professional judgements.

Discussion: These findings have implications for future interventions aimed at enabling Professionals to take person-centred approaches to dementia care.

MS JENNIFER THOMPSON

Cognitive Decline Partnership Centre - University of Sydney

Cognitive Decline Partnership Centre: partnerships impacting care for people with dementia

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The Cognitive Decline Partnership Centre (CDPC) at University of Sydney is an Australian Government and industry funded national research centre with a vision, to positively impact care for people with dementia through researchers engaging in partnership with consumers, industry and government. The CDPC works alongside the NNIDR, and this presentation will demonstrate the CDPC's successful co-creation model through four voices representing; management, aged-care industry partners, consumers, and researchers. Speakers will share individual and group experiences and lessons from their participation across the thirty-two CDPC projects.

The CDPC's collaborative processes have facilitated identification of unmet needs, and research priorities for improving care for people with cognitive and related functional decline in Australia. The Centre worked broadly across eight contexts of care for people with dementia: service model options; pathways and navigation; planning for later life; attitude and culture; clinical guidelines development; functional decline; medication management; and workforce development and education.

Research was funded under a contributory partnership model, with research teams expected to include consumers ie. people with dementia and/or their carers, and industry representatives, across all stages of the research cycle from protocol development to final reporting. Project teams were also expected to include implementation into policy or practice within their scope of work and as a result, research outcomes, outputs, and interventions were collaboratively developed by the researchers, consumers, industry, policy leaders, and health Professionals. This approach is enabling implementation of research-informed systems change, policy change, and attitude change, to impact care for people with dementia in Australia.

MRS LAURA TIERNEY

Wicking Dementia Research and Education Centre

Activity opportunities and participation among older adults living with dementia in residential aged care facilities

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Introduction: People living with dementia in residential aged care facilities (RACFs) have reported that participation in activities is important for their experience of a good quality of life (QoL) with idleness contributing to frustration and poor QoL. There is limited understanding of differences in resident activity participation in relation to varying levels of impairments or health status or across different types of RACFs.

Method: This national cross-sectional study explored QoL of RACF residents with dementia. Data was collected on facility and resident characteristics including their activity opportunities and frequency of participation as measured by the Activity and Affect Indicators of Quality of Life instrument. Hierarchical multiple linear regression models predicted what factors were Associated with resident activity.

Results: Across Australia, 396 residents from 53 RACFs participated in the study. Residents had the opportunity to participate in an average of eight of the 15 specified activities with a mean frequency of participation score of ten out of 30. In the final activity opportunity model, more severe cognitive impairment and depression, poorer nutritional status, more frequent incontinence and aggressive agitated behaviour and not exhibiting non-aggressive verbal behaviour were Associated with fewer opportunities. In the final participation model, cognitive impairment, pain and depression had negative effects on activity while non-aggressive verbal behaviour had a positive effect. No facility or resident demographic characteristics were significant variables in either model.

Conclusion: These findings contribute to understanding activity opportunities and participation among people living with dementia in RACFs with implications for care in this context.

DR KAREN WATSON

University of Technology Sydney

Nurse perception of influencing factors that support and build dementia research capacity in aged care

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Purpose: Nurses caring for people with dementia are often best positioned to advise on research feasibility in dementia care settings, regardless, their voices are often absent from the research process. This study explores nurse attitudes towards research, particularly the influencing factors that promote and sustain nurse participation in research in the residential aged care facility (RACF) setting.

Methods: Semi-structured interviews were conducted at six aged care facility sites in Sydney with dementia care nursing staff (n=10) before and after participation in a randomised controlled trial on their ward. The interview questions were constructed from limitations in the literature; they explored the nurse perception of the importance of research involving people with dementia and factors that influence nurse participation in research conducted in the RACF setting.

Results: Nurses reported dementia research conducted in RACF settings to be important (90%). The barriers to nurse participation included insufficient time (50%) lack of belief in the intervention effect (30%), deficits in research knowledge (40%) or support (30%). Research perceived as practical (40%) that could be implemented unobtrusively in the dementia care setting (60%), provided tailored education (70%) with effective communication between researcher and nurse (50%) was reported as favourable for nurse participation.

Conclusion: Nurses recognise dementia research to be vital to improving care for people with dementia although challenging to conduct in the RACF setting. Strategies that support nurse research time away from clinical duties, improve access to research education and foster communication between academic and nurse can improve nurse participation in dementia research.

DR CHRISTINE WHILE

La Trobe University

Supporting the inclusion of people with dementia through person-centred research principles to achieve research impact

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The use of person-centred approaches supports research impact when the key stakeholders are people living with dementia. Conventional research methods are not user friendly for people experiencing cognitive changes that impact on language, memory and self-evaluation (Hyden, Swarbrick, Johnson, & Keady, 2017).

This presentation will describe the pathway to research impact in a recently completed PhD study. The research aim was to establish how the construct and meaning of home for the person with dementia is affected by the presence of the community service provider. Strategies to support the inclusion of people living with dementia were vital to increase community service providers' awareness of the consumer experience and promote uptake of research findings.

An early consideration in planning this study was a suitable method to answer the research question whilst having the flexibility to enact person-centred principles in the research setting. This included an inclusionary consent process, simplified participant information, adaptations to the data collection method and the building of a research relationship.

Person-centredness in thinking, research design and behaviour by the researcher and research team will add to a positive research experience for the participant and add to the body of knowledge of the first-person perspective of living with dementia.

Hyden, L.-C., Swarbrick, C., Johnson, A., & Keady, J. (2017). Messages and futures in social research methods in dementia studies. In J. Keady, L.-C. Hyden, C. Swarbrick & A. Johnson (Eds.), *Social research methods in dementia studies: Inclusion and innovation*. ProQuest Ebook Central: Taylor and Francis. Retrieved from **https://ebookcentral.proquest.com/lib/latrobe/detail.action?docID=5092141**

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