2019 THEO MURPHY
AUSTRALIAN FRONTIERS OF SCIENCE
PROGRAM 8-9 APRIL, SAHMRI ADELAIDE

Australian Academy of Science

REDEFINING HEALTHY AGEING TOGETHER

Australian Academy of Science

The South Australian Health and Medical Research Institute is located on the traditional lands of the Kaurna people. We acknowledge and pay respect to the Kaurna people as the traditional custodians of the Adelaide region. We also acknowledge the deep feelings of attachment and the relationship of the Kaurna people to their Place. We pay our respects to the Kaurna ancestors and the living Kaurna people.

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CONTENTS

02 Foreword

03 Symposium organisers

04 Program of events

08 Opening speaker

09 Public engagement workshop

09 Public engagement panel and Q&A

10 Presentation abstracts

19 Poster and rapid-fire abstracts

35 Delegates

50 Sponsors

51 Notes

Professor John Shine AC PresAA
President, Australian Academy of Science

Foreword

The Australian Academy of Science has hosted the Theo Murphy Australian Frontiers of Science symposium since 2003, bringing together the very best Australian scientists at the beginning of their careers to discuss emerging technologies, new opportunities and exciting cutting-edge advances in their fields.

Innovative research to improve the health of the older population is crucial to optimise both quality of life and longevity. Healthy ageing research covers a wide range of topics, from prevention and treatment interventions for specific age-related conditions to improving the quality of aged and palliative care. Improving the capacity for healthy ageing involves the generation of strategies to help older people maintain their physical, cognitive and mental health, independence, social engagements and more.

At this year's symposium, 60 outstanding early- and mid-career researchers from all fields relevant to healthy ageing will share their latest research findings, build networks and create pathways for future interdisciplinary research in this field.

The 2019 Theo Murphy Australian Frontiers of Science–Redefining healthy ageing together symposium is generously supported by the Theo Murphy (Australia) Fund courtesy of the Royal Society of London. The Academy is delighted to have this funding available to enable some of Australia's brightest scientists at the beginning of their careers to engage in fresh thinking and to develop networks that will enrich their careers.

Professor John Shine AC PresAA
President, Australian Academy of Science

Symposium organisers

ORGANISING COMMITTEE

Dr Sarah Bray
Registry of Older South Australians Project Manager and Consumer Engagement Officer
South Australian Health and Medical Research Institute

Dr Monica Cations
Research Fellow
Flinders University

Mr Shane D'Angelo
Senior Research Fellow
South Australian Health and Medical Research Institute

Dr Stephanie Harrison
Research Fellow
South Australian Health and Medical Research Institute

Associate Professor Maria Inacio
South Australian Health and Medical Research Institute and Director of the Registry of Older South Australians

Dr Kate Laver
Research Fellow
Flinders University

Dr Louise Lavrencic
Postdoctoral Fellow
Neuroscience Research Australia

Dr Kylie Radford
Research Fellow
Neuroscience Research Australia

Ms Marjorie Schulze OAM
Consumer Representative
Registry of Older South Australians Research Committee

Dr Janet Sluggett
NHMRC Early Career Fellow
Monash University

Mr George Turley
Community representative
Registry of Older South Australians Research Committee

PROGRAM OF EVENTS

MONDAY 8 APRIL

8.50 AM	**REGISTRATION**
9.25 AM	**WELCOME TO COUNTRY**
9.30 AM	**WELCOME FROM THE ACADEMY** Dr Oliver Mayo FAA FSTE
9.35 AM	**INTRODUCTION** Associate Professor Maria Inacio, South Australian Health and Medical Research Institute
9.40 AM	**OPENING ADDRESS** Professor Caroline McMillen, Chief Scientist of South Australia
9.55 AM	**KEYNOTE: DEMENTIA PREVENTION: A CRITIQUE OF THE EVIDENCE ON RISK FACTORS FROM OBSERVATIONAL STUDIES** Professor Kaarin Anstey, UNSW and Neuroscience Research Australia
10.40 AM	**MORNING TEA**
11.00 AM	**SESSION 1: AGED CARE AND HEALTH CARE**
11.00 AM	*Barriers and enablers to the use of outdoor spaces in aged care homes: a systematic review* Dr Maayken Van Den Berg, Flinders University
11.15 AM	*Policy, discourse and the ageing citizen* Ms Ellen Finlay, Neuroscience Research Australia
11.30 AM	*Culturally safe workforce models for rural and remote Indigenous organisations* Dr Adriana Parrella and Mr Shane D'Angelo, South Australian Health and Medical Research Institute
11.45 AM	*Promoting healthy ageing through community aged care: new models to monitor client outcomes* Dr Mikaela Jorgensen, Macquarie University
12.00 PM	*Screening for deficits using the G8 and VES-13 in older patients with myelodysplastic syndromes* Ms Michelle Wall, SA Health
12.15 PM	**LUNCH AND POSTER PRESENTATIONS**
1.15 PM	**KEYNOTE: REVIEW OF THE OAKDEN OLDER PERSONS MENTAL HEALTH SERVICE: A FAILURE OF GOVERNANCE, LEADERSHIP AND CULTURE** Professor Nicholas Procter, University of South Australia
2.00 PM	**PUBLIC ENGAGEMENT WORKSHOP** **SPEAKER** Dr Jackie Street, University of Wollongong **FACILITATORS** Ms Julia Overton, Health Consumers Alliance of South Australia Ms Lenore de la Perrelle, Flinders University Dr Ashleigh Smith, University of South Australia Ms Anna Sheppeard, Consumer Representative, Registry of Older South Australians Research Committee Mr George Turley, Community Representative, Registry of Older South Australians Research Committee

3.15 PM	**AFTERNOON TEA**
3.45 PM	**SESSION 2: PREDICTORS OF HEALTH AND WELL-BEING**
3.45 PM	*Dementia and exceptional longevity: cognition, function and prevalent dementia in centenarians and near-centenarians of 18 studies across 11 countries* Dr Yvonne Leung, UNSW
4.00 PM	*Longitudinal predictors of self-reported health in older urban and regional Aboriginal Australians* Dr Louise Lavrencic, Neuroscience Research Australia
4.15 PM	*Monocytes from healthy older individuals are more atherogenic than those from younger individuals* Dr Thomas Angelovich, RMIT University
4.30 PM	*Short-term mortality among people admitted to residential aged care facilities in Australia* Dr Jyoti Khadka, South Australian Health and Medical Research Institute
4.45 PM	*Socioeconomic status, health behaviours and all-cause mortality: the Concord Health and Aging in Men Project* Dr Saman Khalatbari Soltan, University of Sydney
5.00 PM	**END OF DAY 1**
5.15 PM	**NETWORKING COCKTAIL RECEPTION**
7.15 PM	**NETWORKING COCKTAIL RECEPTION CONCLUDES**

TUESDAY 9 APRIL

9.00 AM	**WELCOME COFFEE AND TEA**
9.30 AM	**WELCOME**
9.35 AM	**KEYNOTE: GETTING TO THE HEART OF AGEING** Professor Bronwyn Kingwell, Baker Heart and Diabetes Institute
10.20 AM	**PUBLIC ENGAGEMENT PANEL AND Q&A** **PANEL MODERATOR** Ms Jane Mussared, Chief Executive, COTA SA **PANEL** Mr Graham Aitken, CEO, Aboriginal Community Services SA Ms Penelope McMillan, SA President, ME/CFS Australia Mr Ian Gladstone, Dementia Alliance International Ms Judy Smith, Consumer Liaison Officer, Royal District Nursing Service
11.00 AM	**MORNING TEA WITH CONSUMERS**
11.45 AM	**RAPID-FIRE PRESENTATIONS**
11.50 AM	*The energy requirements of adults aged 65 years and over using doubly labelled water: current evidence and opportunities for international data sharing* Dr Kay Nguo, Monash University
11.55 AM	*Preventing Legionnaires disease in the home* Dr Harriet Whiley, Flinders University
12.00 PM	*Community participation, physical activity, loneliness and health-related quality of life in older adults: an observational study* Miss Claire Gough, Flinders University
12.05 PM	*The burden of mental health disorders in older Australians living in permanent residential aged care: implications for policy and quality of aged care practice* Dr Azmeraw T Amare, South Australian Health and Medical Research Institute
12.10 PM	*Valuing expert experience: involving people with lived experience of dementia and care providers in translational research* Ms Lenore de la Perrelle, Flinders University
12.15 PM	*Age at natural menopause and development of chronic conditions and multimorbidity: results from an Australian prospective cohort* Mr Xiaolin Xu, University of Queensland
12.20 PM	*Development of an in vitro cerebral organoid model to understand the role of APOE genotype in Alzheimer's disease pathology.* Dr Damian Hernandez, University of Melbourne
12.25 PM	*Cognitive impairment following coronary artery bypass grafting surgery: a systematic review and meta-analysis of 11 112 patients* Miss Danielle Greaves, University of South Australia
12.30 PM	*Healthy ageing through dignity of risk: starting the conversation* Dr Carolyn Murray, University of South Australia
12.35 PM	*Solitary days, solitary activities and associations with well-being among older adults* Dr Jack Lam, University of Queensland

12.45 PM	**LUNCH AND POSTER PRESENTATIONS**
1.30 PM	**SESSION 3: LIFESTYLE, NUTRITION AND AGEING WELL**
1.30 PM	*A Mediterranean diet (MedDiet) for heart healthy ageing: what we know from Australian trials* Dr Karen Murphy, University of South Australia
1.45 PM	*Optimising 24-hour time use for healthy ageing* Dr Dorothea Dumuid, University of South Australia
2.00 PM	*The effect of a six-month high-intensity exercise intervention on verbal learning and memory* Dr Belinda Brown, Murdoch University
2.15 PM	*Developing a new quality of life instrument with older people for economic evaluation: findings from qualitative interviews with older people living in the community* Dr Claire Hutchinson, Flinders University
2.30 PM	*What is the meaning of good and healthy ageing for older Aboriginal Australians?* Dr Kylie Radford, Neuroscience Research Australia
2.45 PM	**RAPID-FIRE PRESENTATIONS**
2.45 PM	*Modifying the Mediterranean diet for an older Australian population: outcomes of the MedDairy and MedPork studies* Ms Alexandra Wade, University of South Australia
2.50 PM	*Embroidered electrodes for long-term monitoring of wound healing* Ms Irini Logothetis, RMIT University
2.55 PM	*Web platform to promote healthy eating and physical activity in adults with overweight and obesity* Dr Alline Beleigoli, Flinders University
3.00 PM	*Ageing in harmony: music making for health and well-being* Dr Jennifer MacRitchie, Western Sydney University
3.05 PM	*People living in aged care homes need to BE outside not just SEE outside: associations between quality of life and outdoor access: a cross-sectional study* Dr Suzanne Dyer, Flinders University
3.10 PM	*Attitudes of older adults and caregivers in Australia towards deprescribing* Dr Emily Reeve, University of South Australia
3.15 PM	*Healthy ageing and age-friendly communities: moving beyond individuals to communities* Dr Peta Cook, University of Tasmania
3.20 PM	*Age-related changes in decision-making: a systematic review* Ms Nicole Ee, Neuroscience Research Australia
3.30 PM	**AFTERNOON TEA, PRIZES AND CLOSING REMARKS**
4.00 PM	**CONFERENCE CLOSES**

Opening speaker

Professor Caroline McMillen
Chief Scientist of South Australia

Professor Caroline McMillen commenced in the role as Chief Scientist for South Australia in October 2018 after serving as Vice-Chancellor of the University of Newcastle for seven years from 2011.

She is a fellow of the Australian Academy of Health and Medical Sciences, a fellow of the Royal Society of New South Wales and a Bragg Member of the Royal Institution, Australia. She holds a BA (Honours) and Doctor of Philosophy from the University of Oxford, and completed her medical training graduating with an MB, BChir from the University of Cambridge. She has served in academic leadership positions at Monash University, the University of Adelaide and at the University of South Australia, where she held the role of Deputy Vice-Chancellor Research and Innovation prior to her move to Newcastle.

Professor McMillen's research focuses on the role of the environment in early development in determining the metabolic and cardiovascular health of the offspring in later life. Her research group was funded for two decades by both the ARC and the NHMRC, she was a member of the Prime Minister's Science Engineering and Innovation Council's working group on Aboriginal and Torres Strait Islander health, focusing on maternal, foetal and postnatal health and she has been a chair and member of international and national research policy, review and assessment panels. She has also served on a range of industry boards, including the National Automotive Industry Innovation Council, Cooperative Research Centre for Advanced Automotive Technology, Cooperative Research Centre for Rail Innovation, the South Australian Premier's Climate Change Council, the New South Wales Innovation and Productivity Council, as well as a range of state industry and government leadership groups.

Professor McMillen has been invited to speak in international and national forums on the critical role of STEMM in driving innovation and on the role of universities as national and regional catalysts of economic and social transition. Throughout her career she has been committed to building collaborations between universities, government, industry and communities that deliver a positive impact on the economic, social and cultural health of Australia. She was honoured at the end of her term as Vice-Chancellor to be presented with the Key to the City of Newcastle by the Lord Mayor of Newcastle.

PUBLIC ENGAGEMENT WORKSHOP

Monday 8 April

2.00 pm – 3.15 pm

Public engagement in research offers valuable opportunities to gain perspectives from members of the public to help make research better and more relevant. There should be opportunities for public engagement at all stages during research projects, from the planning stage right through to dissemination and implementation of the findings. In this interactive workshop delegates will hear from experts in public engagement in research and discuss in groups some important topics around public engagement. During this workshop delegates will be able to gain a greater understanding of why they should engage with the community, which methods they might use to effectively engage with members of the community and what some of the outputs are that they can expect from community engagement.

Speaker

Dr Jackie Street
University of Wollongong

Facilitators

Ms Julia Overton
Health Consumers Alliance of South Australia

Ms Lenore de la Perrelle
Flinders University

Dr Ashleigh Smith
University of South Australia

Ms Anna Sheppeard
Consumer Representative, Registry of Older South Australians Research Committee

Mr George Turley
Community representative, Registry of Older South Australians (ROSA) Research Committee

PUBLIC ENGAGEMENT PANEL AND Q&A

Tuesday 9 April

10.20 am – 11.00 am

The public engagement panel is an opportunity to hear from members of the public who have been involved in research studies as collaborators and who provide valuable insight in to the development of projects. The panel will be open to the public, and so will provide an opportunity for both EMCRs and members of the wider community to learn about the value of including members of the public in different stages of research projects. Delegates will hear first-hand experiences from people who have acted as public representatives in research and what they have thought about the process.

Panel moderator

Ms Jane Mussared
Chief Executive, COTA SA

Panel

Mr Graham Aitken
CEO, Aboriginal Community Services SA

Ms Penelope McMillan
SA President, ME/CFS Australia

Mr Ian Gladstone
Dementia Alliance International

Ms Judy Smith
Consumer Liaison Officer, Royal District Nursing Service

Presentation abstracts

KEYNOTE PRESENTATIONS

Dementia prevention: a critique of the evidence on risk factors from observational studies

PROFESSOR KAARIN ANSTEY

Senior Principal Research Scientist, UNSW, and Neuroscience Research Australia

The past decade has seen a rapid increase in publication of data from cohort studies identifying risk factors for dementia. This in turn has provided evidence for systematic reviews of risk factors. Professor Anstey will provide an overview of the available evidence on risk factors for dementia, including medical (diabetes, medications, blood pressure, depression, atrial fibrillation, stroke, etc.) and lifestyle factors (for example, dietary pattern, cognitive engagement and exercise). The evidence will be evaluated in terms of whether risk factors have been linked to Alzheimer's disease or Vascular dementia and whether the studies have followed adults from middle age or only late life. While findings on some risk factors are consistent and based on large numbers of studies where the exposure was measured at different ages (for example, diabetes, physical activity, alcohol), there are other risk factors for which evidence is really based on a limited number of studies or ages. Professor Anstey will outline the conceptual and methodological factors that need to be considered when synthesising evidence for dementia risk factors and how this impacts the interpretation of findings. Finally, she will discuss the implications for developing dementia risk reduction guidelines.

Getting to the heart of ageing

PROFESSOR BRONWYN KINGWELL

NHMRC Senior Principal Research Fellow, Baker Heart and Diabetes Institute

Professor Kingwell will share valuable information about how our heart, vasculature and muscles change as we age, and how physical activity helps reduce the effects of ageing in our bodies.

Review of the Oakden Older Persons Mental Health Service: a failure of governance, leadership and culture

PROFESSOR NICHOLAS PROCTER

Chair, Mental Health Nursing and leader of the Mental Health and Suicide Prevention Research Group University of South Australia

In 2017 Professor Procter was an investigator in the highly publicised Chief Psychiatrist's review of the Oakden Older Persons Mental Health Facility, The Oakden Review (2017). The ground-breaking review into poor practices at the facility found fundamental widespread clinical and governance failures extending over a 10-year period. The review received more than 4400 media mentions within three weeks of its release. It also sparked 25 referrals to the Australian Health Practitioner Regulation Authority, seven referrals to the South Australian Police, an Australian Government-commissioned independent review of Commonwealth Aged Care Quality regulator, a Senate Select Committee Inquiry, a South Australian ICAC investigation into maladministration (concluded in 2018) and a Royal Commission into Aged Care Quality and Safety. Recommendations were made by the review team, and accepted by the South Australian Government, to close Oakden and establish a brand-new service. In this presentation Professor Procter will discuss key findings arising from the review and his role as part of the investigation team.

SESSION 1: AGED CARE AND HEALTH CARE

Aged care includes:

- at-home services to help people maintain independence and remain living at home
- respite services to support carers or care recipients to have a break from their usual care arrangements
- transition care services to improve independence and functioning after a hospital stay and
- long-term residential care to support people who are no longer able to live at home.

The Royal Commission into Aged Care Quality and Safety is already highlighting the need for improvements in the quality and safety of aged care. Research to further develop an evidence base to support quality aged care is essential to drive improvements to the aged care system. Healthcare services are equally important to help older people remain living at home and to optimise their health and well-being outcomes. People aged over 65 make up 15% of the Australian population but they use a much higher proportion of healthcare services, including over 40% of hospitalisations, which shows the importance of research to optimise healthcare for the older population.

Barriers and enablers to the use of outdoor spaces in aged care homes: a systematic review

DR MAAYKEN VAN DEN BERG
Flinders University

Regularly getting outdoors is associated with aged care home residents' well-being and quality of life. This review explores and describes barriers and enablers to residents' use of outdoor spaces in aged care homes. Searches were conducted in eight databases and grey literature from 1990 to May 2018. Qualitative or mixed methods studies that described barriers/enablers to use of outdoor areas by residents of aged care homes (aged 65 years and over), as reported by residents, staff or family members, were included. Study quality rating, thematic analysis and stratified analyses were performed. Confidence in the key study findings was assessed using GRADE-CERQual. Twenty-four studies were included. Nineteen had collected data from residents, 15 from staff or caregivers and seven from residents' families.

Thematic analysis identified five major themes: design of the outdoor area, staffing and resident safety, weather and seasons, design of the main building and social activities. Key findings concerned: the importance of greenery and features; adequate built outdoor elements, such as pathways and weather-protective outdoor structures; easy-to-open doors and nearby garden access; safety concerns and staffing issues; connections with people and environment; and adverse weather.

Providing gardens with seasonal plants and interactive features, weather-protected seating, manageable doors at accessible thresholds, planned social activities and appropriate clothing are fundamental to facilitate resident access to outdoors. Considerations of both the benefits as well as the risk of residents having independent outdoor access are necessary to address perceptions of safety as a barrier.

Policy, discourse and the ageing citizen

MS ELLEN FINLAY
Neuroscience Research Australia

While in recent times the World Health Organization has moved away from terminology such as 'active' ageing and critiques of the 'successful' ageing paradigm have been noted, it could be argued that recent shifts in terminology towards 'healthy' ageing do not adequately counter deeper notions that suggest older persons owe continued productivity to the wider population. We conducted a preliminary discourse analysis particularly focusing on the MyAgedCare online service platform and accompanying information website.

We present that the concept of 'healthy ageing' as it is deployed through MyAgedCare, and government information about MyAgedCare, privileges the able body and values individual independence while continuing to undermine the value of interdependence. Older people are not only diverse, coming from a variety of socioeconomic, cultural and educational backgrounds, but may also have aspirations for ageing that counter the notion of 'remaining engaged' or ageing in a manner that is easily accommodated into MyAgedCare models.

Culturally safe workforce models for rural and remote Indigenous organisations

DR ADRIANA PARRELLA AND MR SHANE D'ANGELO
South Australian Health and Medical Research Institute

Planning for and implementing culturally safe aged care services for older Aboriginal clients can be challenging. This project investigated notions of cultural safety from the perspectives of older Aboriginal people in rural and remote South Australia. Specifically, we aimed to understand the extent to which older Aboriginal people felt that their cultural, emotional and spiritual needs were met. We also sought to identify how aged care organisations supported or undermined cultural, emotional and spiritual well-being and how these services could better meet the needs of older Aboriginal peoples in the future.

We conducted qualitative interviews with 63 older Aboriginal people in rural and remote South Australia. Study participants were receiving services within a residential aged care facility or community service and not receiving any formal support. We analysed the interviews thematically to understand participants' views on culturally safe care. Various factors contributed to participants' notions of culturally safe and unsafe aged care practices. These included employing Aboriginal carers, the cultural competency of staff and whether aged care services supported participants to maintain cultural identity. Aged care organisations that facilitated connection to participants' culture, country and community were seen as culturally safe.

Working in a culturally safe manner may require organisations to reflect on their current models of care, policies, service delivery, environments and work practices. Training material developed as part of this project will assist organisations to implement a model of care that meets the expressed needs of their clients.

Promoting healthy ageing through community aged care: new models to monitor client outcomes

DR MIKAELA JORGENSEN
Macquarie University
@mikaelajorgensn

As a growing number of Australians receive aged care services at home, providers and policymakers need valid measures to monitor the effectiveness, efficiency and equity of service provision. Clients also want meaningful information about services and their outcomes. The aim of this research was to examine community care outcomes using routinely collected provider data. Demographic, service use, care needs and outcomes data from the electronic system of a large care provider in New South Wales and the ACT were used to model four outcomes: (1) time between first community care service and entry into permanent residential care, (2) social participation and well-being using the Australian Community Participation Questionnaire and ICEpop CAPability Measure for Older Adults, (3) hospitalisations and (4) service uptake and cessation following policy reforms.

8,785 clients received services with the provider between July 2015 and October 2017. Increased service provision and social support services were associated with delayed entry into residential care, after adjusting for factors including age and care needs. Clients with high care needs had the lowest levels of social participation and well-being. Women and those living in lower socioeconomic areas were more likely to have frequent hospitalisations. Reforms allocating home care packages to individuals resulted in a decrease in new clients but no significant change in the number of clients leaving the provider. Data from providers' electronic systems are a rich source of information to examine community care outcomes. Policymakers, providers and clients can use this information to support healthy ageing and target care improvements.

Screening for deficits using the G8 and VES-13 in older patients with myelodysplastic syndromes

MS MICHELLE WALL
SA Health

Older people living with myelodysplastic syndrome (MDS) have a poor prognosis, often compounded by comorbidities. Routine haematology assessment does not normally identify all geriatric related health issues. A comprehensive geriatric assessment (CGA) is recommended to detect vulnerability to adverse outcomes This prospective pilot study assessed quick screening tools G8 and VES-13 in a cohort of patients with MDS to predict deficits detected on the CGA. Patients aged ≥65 years of age following informed consent were recruited to the study and excluded if they were planned for allogeneic stem cell transplantation within three months of presentation. 68% (62/91) had an abnormal G8, 53% (48/91) had an abnormal VES-13, and 80% (73/91) of patients had at least one deficit on CGA.

The AUC for the VES-13 and G8 did not differ significantly in patients with one CGA deficit (0.86 vs 0.75; p=0.078), however, it was significantly different in patients with two deficits in CGA tools (0.90 vs 0.77; p=0.017). 17/29 (58%) patients with normal G8 scores had at least one deficit in CGA tools and 6/29 (21%) patients had deficits in two or more CGA tools. Despite VES-13 scores being normal, 26/43 (60%) had deficits in at least one and 11/43 (25%) had deficits in two or more CGA tools. Quick screening tools G8 and VES-13 can detect individuals at risk. Ageing is multidimensional and these screening tools are unable to detect patients with subtle deficits across multiple domains that put them at significant risk of decline once treatment is commenced.

SESSION 2: PREDICTORS OF HEALTH AND WELL-BEING

A clear understanding of potentially modifiable factors that impact health and well-being is essential to improve prevention of age-related conditions and to develop effective treatments. Knowledge of predictors of health is needed to inform recommendations for policymakers to implement public health interventions, identify biological pathways to target for development of improved treatments and to improve the public's understanding of modifiable factors that may increase or reduce their risk of certain health conditions or extend or reduce their lifespan.

Dementia and exceptional longevity: cognition, function and prevalent dementia in centenarians and near-centenarians of 18 studies across 11 countries

DR YVONNE LEUNG
UNSW

The world population of centenarians is forecast to reach 2.2 million in the coming 30 years. Some question whether dementia is inevitable if one lives to an extreme old age. The International Centenarian Consortium of Dementia is established to identify factors for healthy brain ageing in centenarians and near-centenarians (aged 95+) by combining data from 18 studies from around the globe. This paper will present our current findings.

We harmonised neuropsychological data from over 4000 participants and calculated prevalences of dementia; cognitive and functional impairments using common diagnostic criteria derived from past literature. Individual participant data meta-analysis was performed to examine whether the associations of common risk factors (age, sex, education) with dementia were consistent across studies. Prevalence increased significantly with age for dementia (from 32% to 73%), cognitive impairment (from 40% to 77%) and functional impairment (from 67% to 92%). Dementia prevalence was significantly higher in women and among those in assisted residence. Education was protective against both dementia and cognitive impairment. Associations between dementia and education were more heterogeneous across studies compared to associations with age and sex.

Centenarians have a nearly one in two chance of having dementia and its prevalence continues to increase into the eleventh decade of life. Men who reach this advanced age are less likely to have dementia. Education is found to be protective against dementia even into exceptional old age. Future work can further understand the determinants of dementia-free survival to 100 years and beyond.

Longitudinal predictors of self-reported health in older urban and regional Aboriginal Australians

DR LOUISE LAVRENCIC
Neuroscience Research Australia

The ageing Aboriginal Australian population experiences higher rates of non-communicable chronic disease, injury, dementia and mortality than non-Aboriginal Australians. Self-reported health holistically measures health perception and may fit well with Aboriginal views of health and well-being. Self-reported health also predicts morbidity and mortality in the broader Australian population.

This study aimed to identify predictors of self-reported health in older Aboriginal Australians. Urban/regional Aboriginal and Torres Strait Islander people (n=227) aged 60 to 88 years (M=66, SD=5.85, 145 female) completed a baseline assessment of demographic, medical, cognitive, mental health and social factors. Self-reported health was quantified using a five-point scale at follow up (1.1 to 4.4 years post-baseline). Correlation, chi-square and ordinal regression analyses were conducted to examine predictors of self-reported health. Being male, having fully independent activities of daily living, having fewer depressive symptoms, participating in more social activities, greater resilience and absence of lung, kidney and vision problems and arthritis were associated with better self-reported health at follow up; while experiencing a fall (during the past year), being hospitalised (during the past year) and multimorbidity (two or more chronic conditions) were associated with poorer self-reported health.

Sex, arthritis, vision and resilience remained significant in a multivariable regression model, controlling for age and cognitive impairment. Compared to other factors, the absence of common non-life-threatening age-related conditions (such as arthritis and vision problems) and perceived resilience predict older Aboriginal peoples' self-reported health. Understanding factors that contribute to perceptions of health could inform future interventions aimed at improving overall well-being.

Monocytes from healthy older individuals are more atherogenic than those from younger individuals

DR THOMAS ANGELOVICH
RMIT University

Ageing is an independent risk factor for coronary artery diseases including atherosclerosis, a major cause of morbidity and mortality in older individuals. Monocytes play a key role in atherogenesis, transmigrating from the circulation into arterial walls where they may form atherogenic lipid-laden macrophage known as foam cells. Monocytes from the elderly display a pro-inflammatory phenotype which may influence atherosclerotic plaque development. However, whether monocytes from 'healthy' older individuals are more atherogenic is unclear.

The atherogenic phenotype of monocytes isolated from young and older individuals with low cardiovascular risk were assessed using an in vitro assay of transmigration and foam cell formation, soluble lipid analyses and qPCR. Using an in vitro model of monocyte transmigration and foam cell formation, monocytes from older men (median age [range]: 75 [58–85] years, n=20) formed foam cells more readily than those of younger men (32 [23–46] years, n=20) ($p<0.003$) following transmigration across a TNF-activated endothelial monolayer. Monocytes from older individuals displayed impaired cholesterol efflux in vitro ($p<0.05$) and lower expression of genes associated with cholesterol metabolism and transport. Serum from older individuals also independently promoted monocyte-derived foam cell formation in vitro. Therefore, monocytes from older individuals are more atherogenic than those from younger individuals, potentially driven by mechanisms both intrinsic and extrinsic to monocytes, which may contribute to coronary artery disease in these populations.

Short-term mortality among people admitted to residential aged care facilities in Australia

DR JYOTI KHADKA
South Australian Health and Medical Research Institute
@jyoti_khadka

The aim of this national cohort study was to characterise people who died within 30 days and 90 days and identify risk factors of mortality after residential aged care admission. People aged ⩾65 years who had an aged care eligibility assessment and were admitted to residential aged care between July 2008 and June 2014 were included. The outcomes were 30 days and 90 days mortality after residential aged care admission.

Adjusted and unadjusted multivariate Cox proportional hazard and logistic regression analyses were used to estimate hazard ratios and identify risk factor for mortality. Data from 345 710 people (mean age, SD; 84.2, 7.0; 62% females; 54% aged 80–90 years) were included. For the entire cohort, 30 days and 90 days mortality were 6.6% and 14.8% respectively. Males had significantly higher mortality both at 30 days (males, 9.07% vs females, 5.12%, p<0.001) and 90 days (males, 19.8% vs females, 11.8%, p<0.0001).

People with a high care needs for activity of daily living (AL) and complex healthcare (CHC) needs were more likely to die within the first 30 days (HR 21.0 for AL; HR 12.0 for CHC) and 90 days (HR 9.4 for AL; HR 6.3 for CHC) after residential aged care admission. Older age, males, higher care needs and multimorbidity increased 30 days and 90 days mortality. Short-term mortality in people admitted to residential aged care was high, especially among males, older age and those with a higher care need. Future studies should target on modifiable risk factors for early mortality and identify appropriate services (such as palliative care) for those high-risk people.

Socioeconomic status, health behaviours and all-cause mortality: the Concord Health and Aging in Men Project

DR SAMAN KHALATBARI SOLTANI
The University of Sydney

Among older people, the mechanisms underlying socioeconomic disparities in mortality are unclear. Health behaviours are major determinants of mortality and are often strongly socially patterned. Thus, we aimed to investigate potential mediator effects of health behaviours in the association between socioeconomic status (SES) and all-cause mortality.

Participants were 1504 men (77.4±5.5 years) from the Concord Health and Aging in Men Project, a prospective population-based cohort (established in 2005–07, Australia). Educational attainment, occupational position, source of income and housing tenure were used to compute a seven-level cumulative SES score (higher value corresponding to higher disadvantages). Longitudinally-assessed health behaviours (alcohol consumption, smoking and physical activity) were investigated as potential mediating factors. All-cause mortality was determined through the state-based death registry up to June 2018. Associations were quantified using Cox regression with cumulative SES scores modelled categorically (tertiles). Mediation was assessed using the 'change-in-estimate' method.

During 14 119 person years of follow up, 615 deaths occurred (mortality rate 46.2 per 1000 person years). The adjusted hazard ratio (HR) for all-cause mortality was 1.63 (95% confidence interval: 1.35, 1.97) for those in the lowest relative to highest tertile of cumulative SES score. The inverse association remained significant after adjustment for time-varying health behaviours (HR: 1.51 95% CI: 1.24, 1.83), with only 16% attenuation (95% CI: 7%, 30%).

In a population-based cohort of older Australian men, health-related behaviours only partially mediated SES-mortality associations. Further research is needed to fully understand the causes of SES disparities in mortality among older people.

SESSION 3: LIFESTYLE, NUTRITION AND AGEING WELL

Exercise and diet can impact many health conditions, longevity and overall quality of life, but research is ongoing to inform what the most effective methods are to optimise healthy ageing through lifestyle choices. It is also important to understand what it means to age well and maintain quality of life for older people by speaking to different populations and working with them to raise awareness of methods to contribute to healthy ageing across the life course.

A Mediterranean diet (MedDiet) for heart healthy ageing: what we know from Australian trials

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For decades Mediterranean populations have enjoyed healthy longevity, mainly due to the plant-based Mediterranean diet (MedDiet). This dietary pattern could offer similar benefits to Western countries, which suffer from obesity, heart disease and Alzheimer's disease. But is it feasible to implement such a pattern beyond the Mediterranean Sea? The MedLey study, a randomised, parallel dietary intervention, investigated whether following a MedDiet for six months would improve cardiovascular disease risk compared with habitual diet (HabDiet) in a population of older adults.

We subsequently followed volunteers one year after trial completion to determine if MedDiet adherence and any effects on health outcomes were maintained. 137 volunteers completed the trial and 128 volunteers completed the follow-up study. At baseline, the MedDiet score was 6.7±0.2, 9.6±0.2 at four months and 7.9±0.3 at eighteen months ($p<0.0001$ to baseline and four months). The MedDiet resulted in improved systolic blood pressure, endothelial dilatation, oxidative stress and plasma triglycerides in comparison with HabDiet, after six months ($p<0.05$). These changes were not sustained at 18 months but did not completely return to baseline values.

Principles of the MedDiet appeared to be somewhat maintained. Consumption of olive oil, legumes, fish and vegetables ($p<0.01$) remained higher and discretionary food consumption ($p=0.02$) remained lower at 18 months than baseline in the MedDiet group.

We have shown that following a MedDiet for six months is feasible and results in reduced cardiovascular disease risk. While principles of the MedDiet were maintained following cessation of dietary support, further support may be helpful in maintaining MedDiet adherence and improved health.

Optimising 24-hour time use for healthy ageing

DR DOROTHEA DUMUID
University of South Australia

Higher levels of physical activity, limited sitting time and sufficient sleep all contribute to healthy ageing. Research has largely considered these three activities separately, when in fact they are parts of the 24-hour day. We can't increase time spent in physical activity without taking time from sitting and/or sleep. Thus, we need to look at how all these activities together contribute to healthy ageing. We aimed to explore how change in 24-hour time use (physical activity, sitting and sleep) was associated with change in mental health and adiposity among older adults.

One hundred and one participants were followed from six months before retirement to 12 months after retirement. At each time point, time use was quantified using a validated computerised 24-hour recall. Depression, anxiety and stress (Depression, Anxiety and Stress Scales: DASS21) and measured body mass index (BMI). Compositional linear models were used to regress change in time use against change in outcomes. Response surfaces for each outcome were plotted and superimposed to indicate optimal time exchanges for both outcomes.

Change in time use (physical activity, sitting and sleep) was associated with change in DASS ($p=0.002$) and change in BMI ($p=0.02$). Replacing sitting with sleep was associated with better DASS, whereas replacing sitting with physical activity was associated with better BMI. Superimposed response surfaces showed that replacing sitting with sleep AND physical activity was associated

with better DASS and BMI. Healthy ageing involves the whole 24-hour day. More physical activity and sleep should be promoted at the expense of sitting.

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

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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 to 80 years) 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.

Developing a new quality of life instrument with older people for economic evaluation: findings from qualitative interviews with older people living in the community

DR CLAIRE HUTCHINSON
Flinders University

Australia's population is ageing with increasing pressure on aged care expenditures. Economic evaluation offers a systematic framework for promoting efficiency and maximising quality of life. However, this is currently no composite quality of life tool suitable for economic evaluation that incorporates the values of older people themselves. This project represents the first of a three-phased program of work funded via the ARC Linkage Program to address this gap. We adopt a bottom-up approach, using qualitative interviews with older people to develop a descriptive quality of life framework on which the new measurement tool will be based.

Participants are community-dwelling people 65 years and over (n=40), receiving aged care services from five aged care partner organisations with coverage across five Australian states. Audio files were transcribed and imported into NVivo to support the analysis. Two researchers independently coded data using a thematic analysis approach. Data collection and analysis is in progress.

We present emerging findings of the quality of life domains deemed most important to community-dwelling older people. Even though older people expect some degree of erosion in some domains, physical health, social networks, independence and keeping active emerged in stage 1 of the analysis as key domains for defining quality of life. Quality of life domains of importance to older people differ to those of younger adults. It is important that older people's values are incorporated into quality of life measures for application in aged care.

What is the meaning of good and healthy ageing for older Aboriginal Australians?

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This project documents the meaning of ageing well for older Aboriginal and Torres Strait Islander people through traditional methods of stories and artwork. There are three aims: (i) to document health, resilience, social connectedness and engagement with community and culture with a diverse group of older Aboriginal people who are 'growing old well', (ii) to share their insights into the meaning of healthy ageing and stories of growing old well and (iii) to identify current services and programs to determine whether these align with the needs and expectations of the ageing Aboriginal and Torres Strait Islander population.

The project uses mixed-methods research design to analyse and report on a comprehensive longitudinal survey of 336 older Aboriginal people from New South Wales through the Koori Growing Old Well Study (2008 to 2018), including participants' perspectives on good and healthy ageing. Additionally, we conducted environmental scans of services currently provided and interviewed staff (n=29) on their knowledge and attitudes of healthy ageing in Aboriginal communities. Qualitative analyses identified a number of key themes for ageing well. We then engaged with Aboriginal health services, local artists and older people to design and produce 'ageing well' resources highlighting these themes.

This project will contribute to dementia prevention and better services through raising community awareness of healthy ageing across the life course, developing empowering educational resources suitable for and accessible to Aboriginal people of all ages and highlighting the meaning of healthy ageing from the perspective of older Aboriginal people and how these align with current services.

Poster and rapid-fire abstracts

NOTE: indicates rapid-fire presentations

Alphabetical by surname

The burden of mental health disorders in older Australians living in permanent residential aged care: implications for policy and quality of aged care practice

DR AZMERAW T AMARE

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Mental health disorders are of major public health concern in older people, as poor mental health is associated with multimorbidity, disability and risk of early mortality. However, a contemporary population-based assessment of the burden, trends and determinants of these conditions in the permanent residential aged care setting is lacking.

An epidemiological analysis and cross-sectional evaluation were conducted using national data from the Historical cohort (2008 to2016) of the Registry of Older South Australians. Logistic regression modelling was employed (odds ratios (OR) and 95% confidence intervals (CIs) provided) to assess resident characteristics associated with having mental health disorders. Out of 434 410 individuals in permanent residential aged care, 57.8% had at least one mental health disorder. The prevalence (%) of depression, phobia/anxiety and psychosis disorders were: 46.1 (95%CI: 46.0–46.2), 14.9 (95%CI: 14.8–15.0) and 9.7 (95%CI: 9.6–9.8), respectively, of which 10.1 (95%CI: 10.1–10.2) had depression and anxiety, 6.8 (95%CI: 6.8–6.9) had depression and psychosis, 2.4 (95%CI: 2.3–2.4) had anxiety and psychosis, and 2.0% (95%CI: 1.9–2.0) had depression, anxiety and psychosis.

Having a mental health disorder was associated with being younger, female, married, separated or widowed, living in temporary shelter or hospital, having certain activity limitations, having a high number of additional physical co-morbidities or taking several medications. The burden of mental health disorders in older Australians living in permanent residential aged care was much higher than the general Australian population. Future research is needed to suggest optimal strategies for addressing mental health problems in the aged care setting.

Web platform to promote healthy eating and physical activity in adults with overweight and obesity

DR ALLINE BELEIGOLI

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Promoting healthy behaviours through digital health interventions is attractive due to their widespread availability and scalability. We aim to present three-month changes in dietary and physical activity behaviours of web platform users enrolled in the POEmaS clinical trial.

POEmaS was a three-arm, parallel, randomized controlled trial that enrolled 18 to 60-year-old students and staff with 25 kg/m2 minimum body mass index (BMI) in a public university in Brazil. Participants were allocated either to the control group or to one of two 24-week behaviour change programs delivered by (1) web platform or (2) web platform plus online dietician coaching.

In the present analysis, we compared pre- and post-intervention frequency of moderate and vigorous physical activity and vegetables, fruits and sweetened beverages intake.

420 participants (75% female; mean age 35, SD11 years, mean BMI 30.1 kg/m2, SD4.7) with pre- and post-intervention data for at least one outcome entered the analysis. Within three months of the intervention, vegetable and fruit intake increased from 3.11 (SD0.94) to 3.35 (SD0.97); p=0.001 and 2.75 (SD0.81) to 3.07 (SD1.00); p=0.02, days/week, respectively. Sweetened beverage intake reduced from 1.8 (1.2) to 1.4 (1.1) times/week (p=0.008). Weekly vigorous activity increased from 45 (SD105) to 71 (SD245) minutes (p=0.001), whereas moderate exercise time did not differ (89, SD137 vs 134, SD188 minutes; p=0.15).

In the short-term, healthy eating and physical exercise increased after a behaviour change program delivered by a web platform. This suggests that digital technologies might be effective to promote healthy habits for tackling obesity.

Antimicrobial resistance: a profound threat in residential aged care

MISS LUCY CARPENTER
South Australian Health and Medical Research Institute

Rapid growth in rates of antibiotic resistance increasingly threaten the ability to manage once trivial infections. Residents of aged care are at particular risk due to a combination of frailty, poor antibiotic stewardship and abundant opportunities for transmission. However, development of strategies to reduce carriage is hampered by a lack of empirical data. The MRFF-funded GRACE study aims to address this by employing metagenomic sequencing approaches to map resistance carriage and transmission in aged care.

As a preliminary analysis, we undertook a systematic review of global resistance carriage rates in aged care facilities. An initial search of databases Medline and Embase identified 1380 publications relating to antibiotic resistance and aged care. After removal of duplicates and title screening, 176 studies remained, of which 21 were selected after abstract screening. These studies were analysed to derive pathogen carriage rates and association with specific risk factors. Analysis focused largely on faecal, skin and nasal carriage, with all studies relying on culture-based approaches to detection and typing. Rates of resistant pathogen carriage were highest for methicillin resistant Staphylococcus aureus (median 26.0%, range: 3.7–49.0%) and extended spectrum beta-lactamase-positive Gram-negative bacteria (median 10.5%, range: 1.9–17%), both important sources of opportunistic infection.

Assessment of risk factors for resistant pathogen carriage identified recent antibiotic exposure, hospitalisation, incontinence and low mobility as significant predictors. High rates of resistant pathogen carriage in aged care residents supports growing concerns about ongoing treatment efficacy. Substantial variance in culture-based studies underlines the importance of detailed metagenomic investigations.

Healthy ageing and age-friendly communities: moving beyond individuals to communities

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Healthy ageing interventions often arise from individualised assessments of physical and cognitive function. While these are important, social and environmental factors exert a significant influence on individual and communal wellbeing and can be overlooked in expert assessments. Social and environmental contexts are also central to age-friendly community design. This research examines the factors important to individuals in fostering healthy ageing within an age-friendly community.

For this qualitative project, participants were recruited through purposive and snowball sampling. In total, 12 younger (aged 14 to 23) and 24 older (aged 66 to 87) adults were recruited, all of whom resided in the City of Clarence, Tasmania.

Each participant took photographs to represent what affects their lifestyle and ageing (photovoice), and subsequently interviewed to gain in-depth understandings. Data were coded using the World Health Organization's age-friendly communities' topic areas. Participants were favourable towards their lifestyle and ageing within the City of Clarence though concerns across the age cohorts included transportation, communication and information, and civic participation. Individual fears about health and wellbeing were consistently connected to social and environmental factors rather than individual physical or cognitive abilities.

While individual behaviours and biological constraints can impede healthy ageing, this research indicates the individual's focus on social and environmental factors that hinder and enable their healthy ageing. As a result, healthy ageing agendas need to move beyond individualised interventions to acknowledge and address social and environmental contexts. This involves policy action in advancing age-friendly communities to ensure the well-being of ageing populations.

Valuing expert experience: involving people with lived experience of dementia and care providers in translational research

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Involvement of people with lived experience in dementia care research is recognised for bringing unique and valuable insights into the design, conduct and translation into practice. The experience from the Agents of Change research will be presented in developing meaningful roles for co-researchers and ways to evaluate costs and contributions of involvement.

An in-built process evaluation in the Agents of Change project focuses on valuing the contribution of people with lived experience of dementia and family carers. Preliminary results will be presented on themes identified at pre-intervention stage with a discussion on the challenges and opportunities for monitoring and valuing influence in the project.

The development of meaningful public roles as co-researchers and identifying costs and benefits are expected to contribute to improved understanding and more opportunities for people with dementia and family carers to be involved in research.

Yeast as a model organism to study ageing-related neurodegenerative disorders

MR SUDIP DHAKAL
RMIT University

Development of drugs to treat ageing-related neurological disorders has not been very successful. Reduced proteostasis is the major consequence of ageing, which is associated with various types of ageing-related neurological disorders. Diseases such as Alzheimer's, Parkinson's, Huntington's, etc., are some such lethal diseases. The unicellular eukaryote yeast, one of the simplest micro-organisms with the complexity of cellular processes comparable to human beings, has been a fascinating model in the past two to three decades. Among the various conserved cellular processes from yeast to human beings, the macroautophagy is crucial, as it is found impaired in almost all of the neurological diseases related to ageing.

The aim of the study is to screen and identify natural compounds that can induce processes to overcome the reduced proteostasis using yeast as model. In this study, Saccharomyces cerevisiae cells are transformed with different plasmids that express green fluorescent protein tagged with Alzheimer's amyloid beta and native amyloid beta. These cells are treated with a very low amount of natural polyphenols as well as their synthetic derivatives, and examined for their effect in fluorescence change using flow cytometer.

From this study, it was found that some of the compounds are promising, as fluorescence from the cells decreased significantly. However, it is still to be determined that these compounds could alter the protein levels inside the cells. Future work in our study will be focused in analysis of the native protein expression using proteomic analysis tools.

Understanding information needs and technology use of newly arrived elderly Chinese immigrants to promote social support and well-being

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This research project conducts a comparative study of Chinese seniors (aged 60 and over) who were recent migrants to Australia and Canada. While there is much research on migrant information behaviour, the elderly population is underrepresented in the literature. In-depth semi-structured interviews were conducted with 16 senior Chinese migrants across two countries: Australia and Canada. The comparative perspective enables an examination of both the specific and situated practices, as well as the transnational dimensions (across countries).

This study identified everyday information practices of these senior migrants using Allard and Caidi (2018)'s translocal meaning-making framework and McKenzie's

(2003) two dimensional information practices model. Findings point to the seniors' daily rituals and coping mechanisms as late-life migrants, as well as their information and meaning-making experiences. We draw implications for the design of information support for seniors as well as for social and digital inclusion of aging migrants.

People living in aged care homes need to BE outside not just SEE outside: associations between quality of life and outdoor access: a cross-sectional study

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Providing outdoor access is important in improving quality of life and function for people living with dementia. This study examines associations between access to outdoor areas with quality of life (QoL) of nursing home residents, and compares use of outdoor areas between alternative models of care. A cross-sectional study was conducted with 541 participants from 17 nursing homes in four states in Australia, mean age 85 years, 84% with cognitive impairment. Associations between access to outdoors and the frequency of going outdoors and QoL (EQ-5D-5L) were examined using multilevel models.

Odds of getting outdoors between a small-scale home-like model and standard Australian models of care were examined. After adjustment for potential confounders (including comorbidities and staffing levels), living in a nursing home with independent access to the outdoors (β=-0.048, 95%CI: -0.119, 0.022) was not significantly associated with QoL. However, going outdoors daily (β=0.145, 95%CI: 0.069, 0.220), was associated with a better QoL. Residents living in a home-like model of care had greater odds of going outdoors daily (odds ratio 22.6, 95%CI: 7.1–71.6).

Going outdoors daily is associated with higher QoL for individuals in nursing homes. However, provision of independent access to outdoor areas alone may be insufficient to achieve potential benefits. Emphasis on models of care with staffing structures, training and designs that increase support for residents to frequently venture outdoors is needed.

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

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Population ageing means a growing proportion of individuals are living longer and at increased risk of cognitive decline. Decision-making is an integral part of daily life and the capacity to make advantageous decisions are fundamental to autonomy and well-being. While age differences in decision-making are well documented in the literature, disparate individual experimental studies, heterogeneous methodologies and outcome measures has made it difficult to ascertain the real-world impact of cognitive ageing and decision-making. This paper sought to synthesise the evidence of age-related changes in economic, social, and health and safety decisions in older adults.

A systematic review was conducted to evaluate the evidence on age-related changes in economic, social and health-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 or observational studies reporting on the relationship between normal cognitive ageing, age-related changes in decision-making and associated health and well-being outcomes were included. Discrepancies were resolved through discussion and consensus.

Preliminary screening yielded 112 full texts of interest. Due methodological heterogeneity meta-analysis was not feasible. The majority of studies employed either the Iowa gambling task or the ultimatum game to investigate performance on decision-making tasks. Several studies explored non-performance-based decision processes such as pre-decision information search strategy, risk aversion, pro-social and altruistic tendencies.

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

Community participation, physical activity, loneliness and health-related quality of life in older adults: an observational study

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With the increasing age of the population and the need to improve the health status of older people, facilitating community participation and physical activity (PA) to support healthy ageing is important. Improved understanding of community participation and PA of older adults in relation to location is required to promote healthy behaviours in older populations.

Participants aged over 65 (n=10) and living independently in metropolitan Adelaide were recruited. They completed standardised mini-mental state examinations (SMMSE), demographic questionnaires, AQOL-8D, the DeJong Gierveld Loneliness Scale and the Pittsburgh Sleep Quality Index (PSQI). Participants were given a Qstarz BT1000XT GPS device and a GENEActiv triaxial accelerometer to carry for seven days while recording a participation diary. An average of 16.5 trips away from home, with 11.9 trips inclusive of social interaction, were recorded over a seven-day period. 81.5% of all activity was away from home. Activity varied between participants, with an average daily sleep time 8.6 hours, 12.5 hours spent sedentary, 1.75 hours spent performing light activity, 1.12 hours moderate intensity activity and less than one minute of vigorous activity per day.

These results report on a small sample of active older adults in good health, with only one reporting loneliness. There is a positive correlation suggested between the number of trips away from home and social interactions. This indicates that increasing both the number of trips taken away from home and community participation would increase social interactions for older adults.

Cognitive impairment following coronary artery bypass grafting surgery: a systematic review and meta-analysis of 11 112 patients

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A systematic analysis of the literature concerning cognitive impairment at multiple time points post-coronary artery bypass grafting (CABG) surgery has never been attempted, despite the large literature. This study aims to identify the prevalence pre and the incidence of cognitive impairment post-CABG surgery across multiple time points and asses how methods of classification affect this rate.

A systematic search was conducted across four databases (Medline, PsycINFO, Embase and Cochrane) using medical subject headings and keywords related to CABG surgery and cognitive outcomes (cognitive impairment, delirium and dementia). Random effects meta-analyses were conducted to identify the prevalence (pre-surgery) and incidence (post-surgery) of cognitive impairment and to assess differences between classification methods.

The study included 157 published papers 11 112 patients. 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 four to six months and then increased to 25% of patients between six months to one year post-operatively. In the long term—between one and five years post-operatively—cognitive impairment increased and was seen in nearly 40% of patients. These rates were greatly influenced by the classification method used.

The results of this meta-analysis demonstrate that cognitive impairment is a major issue in CABG patients, both pre- and post-operatively, and requires specific attention. It is imperative that appropriate methods for investigating cognitive impairment occur in both pre- and post-CABG settings. In clinical settings, comprehensive neuropsychological batteries and classifications based on individuals, not arbitrary cut-offs, should be used.

Harmony in the Bush: an innovative personalised model of care for dementia in rural aged care

PROFESSOR JENNENE GREENHILL
Flinders University

Approximately 30% of people in Australia 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 residential aged care facilities as their loved ones experience progressive decline, particularly when they experience behavioural and psychological symptoms of dementia (BPSD), such as agitation.

BSPD are complex, stressful and costly. Institutionalisation and antipsychotic medications have limited efficacy but are widely used in residential aged care. However, there are creative ways to improve the quality of life, decrease the stress, carer burden and staff workloads. 'Harmony in the Bush' is an innovative project that aims to co-design an effective model of care in residential facilities. The project is funded by an Australian Government Dementia and Aged Care Services (DACS) grant and is a two-year, longitudinal, quasi-experimental design that involves behaviour measurements, interviews, and focus groups in five different kinds of residential facilities to evaluate the model's effectiveness in various rural health contexts.

The five facilities include small and large, private, public, not-for-profit, people from multicultural backgrounds and an Aboriginal-specific facility. Ageing Well in Harmony is a new model of care incorporating personalised care, non-pharmacological interventions and music for people with dementia. This presentation will include an overview of the study design and preliminary findings. A personalised model of care will have long-term positive outcomes for rural communities, especially beneficial for people living with dementia, carers, aged care staff and their workplaces.

Cerebrovascular function in Parkinson's Disease: a new link to cognitive impairment?

MS DARIA GUTTERIDGE
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Recent evidence has linked cerebrovascular abnormalities with Parkinson's Disease (PD), which may provide a new neurophysiological understanding of cognitive impairments in PD. The current study aimed to asses cerebrovascular functioning during cognition in those with and without PD.

Idiopathic PD patients (n=27, mean age=70.6 years, SD=8.0) and age- and gender-matched healthy controls (n=27, mean age=71.0 years, SD=6.8) completed a word generation task while blood flow velocity was monitored with functional transcranial Doppler sonography (fTCD) of the middle cerebral arteries. The lateralisation index and its standard deviation and timing, along with the maximum peak velocity for the left and right hemispheres and their latency and standard deviation, were calculated for each participant.

The PD patients produced fewer words than the control group and showed significantly more variability of the lateralisation index compared to the control group, but there was no difference in the lateralisation index itself. The peak velocity in the left hemisphere showed a significant positive correlation with the word generation task performance in the control group.

Normal aging has been associated with a reduction in the laterisation index, but without any changes in the standard deviation. Therefore, these findings suggest that the cerebrovascular changes in PD differ from typical aging and highlight the need to further investigate the hemodynamic response in PD patients, in particular examining the within-subject variability, previously linked to cerebrovascular coupling, as it may relate to cognitive impairment.

Ambient personalised wearables for the elderly

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As the population ages and life expectancy continues to grow, the number of lone-person households is steadily increasing around the world. How can a holistic approach to the design of wearable health technology facilitate the desires of individuals to remain in their homes longer and maintain a 'good quality of life'?

Working at the interface of engineering, aged care, jewellery and design, this research methodology employs a transversal approach to the design of ambient personalised wearables. Social, co-designed and human-centred methods are employed to cultivate new ways to both enable users and provide intuitive, unobtrusive interventions that address the reduction of loneliness and social isolation in older people.

The CaT (Conversation as Therapy) Pin is the first of an ecology of intuitive wearables developed by a multidisciplinary team working at the intersection of design, health and technology. The pin is a personalised outwardly conventional wearable object that monitors and processes ambient sounds surrounding the wearer in order to identify possible speech sequences within the background noise. The device identifies and counts words over an interval. When the word count drops below a healthy threshold the pin can be linked to real-time intervention services (such as via SMS), notifying carers or family member that action is required.

The CaT Pin is a wearable technology intervention designed to support further research activities into loneliness assessment and highlight the opportunities for elegant personalised wearable IOT solutions for the ageing population.

Development of an in vitro cerebral organoid model to understand the role of APOE genotype in Alzheimer's disease pathology

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Alzheimer´s Disease (AD) is a progressive neurodegenerative disorder characterised by the accumulation of amyloid β plaques and intracellular neurofibrillary tangles of hyperphosphorylated Tau. Strong evidence suggests that the APOE allele ε4 is a major genetic risk factor. However, the mechanisms of APOE involvement in AD remains poorly understood. The lack of human disease models has been a major limiting factor in the understanding of the pathogenesis of AD.

We have generated patient-specific induced pluripotent stem cell (iPSC) lines with the most common APOE homozygous alleles ε3 (APOE3/3) and APOE heterozygous alleles ε4 (APOE4/4) and differentiated them into human cerebral organoids. After 90 days in culture, all APOE isotype cerebral organoids showed evidence of amyloid β deposits and phosphorylation of Tau. However, at 130 days vs 90 days in culture, there was a significant increase in the secretion of amyloid β 1–42 (2.7±0.07 vs 0.5±0.25 pmol/L respectively, $p<0.001$, $n=4–7$) and phosphorylated Tau (0.069±0.012 vs 0.031±0.006 pTauT231/Total Tau, $p<0.05$, $n=3–7$) in the APOE4/4 organoids. Importantly, at 130 days, the levels of pTau T181 were significantly higher in the APOE 4/4 organoids compared to the APOE 3/3 organoids (0.177±0.036 vs 0.031±0.018 pTauT181/Total Tau, $p<0.05$, $n=4$).

To further analyse the effect of APOE isoforms in a human AD model, we have generated isogenic iPSC lines using the CRISPR-Cas9 technology to genetically modify APOE genotype of cells lines. We have generated a human model that will allow a better understanding of APOE genotype in AD pathology such as phosphorylation of Tau.

Comprehensive geriatric assessment predicts azacitidine treatment duration and survival in older patients with myelodysplastic syndromes

DR DEVENDRA HIWASE
Central Adelaide Local Health Network

Treatment of older patients with myelodysplastic syndrome (MDS) is based on disease biology and performance status. Performance status, however, does not reflect increasing co-morbidities, functional dependence or psychosocial issues in older patients. This prospective study evaluated the burden of geriatric-related health issues, assessed feasibility of 'tailored' Comprehensive Geriatric Assessment (CGA) and compared treatment duration and survival in older patients with MDS and oligoblastic acute myeloid leukemia, with and without deficits in CGA domains (n=98).

Although only 27 (28%) patients had an Eastern Cooperative Oncology Group score ⩾2, 78% (n=77) of patients had deficits in at least one CGA domain. Deficits were spread across all CGA domains, including dependence for instrumental activity of daily living (iADL; n=33, 34%). Importantly, patients who were dependent for iADL (3.7±2.6 vs 12.1±7.9; p=0.009), had cognitive impairment (3.5±2.1 vs 10.9±7.9; p=0.034) or impaired mobility (3.8±2.5 vs 13.2±7.6; p=0.001), completed significantly less azacitidine cycles as compared to those without these deficits. Cox-proportional regression showed that iADL dependency (hazard ratio 3.37; p=0.008) and higher comorbidities (hazard ratio 4.7; p<0.001) were associated with poor prognosis independent of disease-related factors. Poor survival of iADL-dependent patients was seen in both azacitidine (six vs 19 months; p<0.001) and supportive care cohorts (26 vs 48 months; p=0.01). CGA detected geriatric related health issues, predicted poor survival and identified patients less likely to continue and benefit from azacitidine. Hence, CGA should be included in the treatment decision algorithm of older patients with MDS.

The impact of pharmacist interventions on quality use of medicines, quality of life and health outcomes in people with dementia and cognitive impairment: a systematic review

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The use of medications in people with dementia is challenging. As medication experts, pharmacists have an important role in improving care of this population. We systematically reviewed the evidence for the effectiveness of pharmacist-led interventions on quality use of medicines, quality of life, and health outcomes of people with dementia or cognitive impairment.

A systematic literature review was conducted using Medine, Embase, PsycINFO, Allied and Complementary Medicine and the Cumulative Index to Nursing and Allied Health Literature databases from conception to 20 March 2017. Full articles published in English were included. Data were synthesised using a narrative approach. Nine studies were eligible for inclusion. All studies were from high-income countries and assessed pharmacist-led medication management services. There was 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, adherence services and proactive adverse event monitoring. Medication management services were generally effective with regards to improving quality use of medicines and health outcomes for people with dementia 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.

Evidence suggests that pharmacist-led medication management services for people with dementia may improve outcomes. Future research should confirm these findings using more robust study designs and explore additional roles that pharmacists could play in supporting people with dementia or cognitive impairment.

Solitary days, solitary activities and associations with well-being among older adults

DR JACK LAM
University of Queensland

Existing studies have devised different measures for capturing social isolation and loneliness of older adults. Drawing on American Time Use Surveys, with information on 'with whom' individuals engaged in their activities over a 24-hour period, we create a measure capturing solitary days and solitary activities to understand their prevalence and associations with well-being. Using multivariate regression models, we examine associations between solitary days and the proportion of the day in solitary activities with life satisfaction. We also examine associations between solitary activities and the mood of respondents while engaged in their activities.

Twelve per cent of older adults report solitary days. Older adults report on average spending 53% of their time in activities alone. Solitary days and a higher proportion of the day in solitary activities are associated with lower life satisfaction. These associations become attenuated after controlling for individual characteristics.

Engagement in activities alone is associated with lower levels of happiness and higher levels of sadness. A sizable proportion of older adults report solitary days, and the proportion of the day in solitary activities increases by age. Examining the activities of older adults and the presence of others could contribute to existing research on social isolation.

An analysis of anticholinergic and sedative medicine effects on medicine-induced deterioration and frailty

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Medicines with anticholinergic or sedative properties often have what might be considered 'minor side effects' that are difficult to detect and frequently unrecognised. These side effects, which we describe as medicine-induced deterioration, include declines in physical or cognitive function and loss of appetite. We aim to test the association between use of medicines with anticholinergic or sedative properties and medicine-induced deterioration (physical function, cognitive function, appetite) and frailty.

This cross-sectional study analysed baseline data collected as part of the Australian Longitudinal Study of Ageing (ALSA), a population-based cohort of 2087 participants aged 65 years or over living in South Australia. Physical function, cognitive function, appetite and frailty were measured at baseline. The association between use of anticholinergics or sedatives and physical or cognitive function, appetite or frailty was assessed using analysis of covariance and ordinal or binary logistic regression. Almost half of the population were using anticholinergics or sedatives (n=954, 45.7%). Use of anticholinergics was significantly associated with poorer grip strength (women only), slower walking speed, poorer instrumental activities of daily living (IADL) and poorer appetite. Use of sedatives was significantly associated with poorer grip strength (men only), slower walking speed and poorer IADL.

We found no significant association between medicine use and cognitive function. Users of anticholinergics or sedatives were significantly more likely to be frail compared with non-users. Use of medicines with anticholinergic or sedative properties is significantly associated with medicine-induced deterioration (physical function and appetite) and frailty.

Embroidered electrodes for long term monitoring of wound healing

MS IRINI LOGOTHETIS
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Clinical wound management is a growing problem and concern in ageing facilities. It is currently performed by practitioners and nurses in accordance with standards for wound prevention and management. This methodology relies on visual assessment, which can lead to misinterpretation of the healing progress. As a result, there is a growing cost of dealing with infections and ulcer treatment from premature withdrawal of

treatments. However, for a substantive share of the wounds such decisions could be drawn by assessing skin integrity objectively and accurately.

Bioimpedance analysis (BIA) measures the resisting electric current flow of the tissue, where the biological tissue responds to an external electric current. Research into monitoring wounds objectively with BIA has created a need for dry electrodes to allow for direct monitoring of the wound healing process. By adapting embroidered electrodes to BIA systems, accurate long-term monitoring of wound healing can be achieved.

Skin impedance measurements are obtained by applying an alternating current at a predefined frequency. Thus, polarisation impedance occurs at the electrodes affecting BIA measurements. For this research, we examined various embroidery characteristics on round electrodes to identify the electrodes with the minimum polarization impedance. By adapting a wafer testing method for a frequency of 50 kHz it was observed that, for round embroidered electrodes, the embroidery characteristics had an insignificant effect on the polarisation impedance compared to the size of the electrodes. This polarisation impedance is vital in designing BIA systems for wound healing that can be adapted in clinical and home settings.

Ageing in harmony: music making for health and well-being

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Learning a musical instrument is unique in utilising a diverse range of cognitive and motor skills and can have many emotional and social benefits. Older adults view taking part in musical activities as culturally and socially important. As brain plasticity is evident across the lifespan, music programs have the potential to stave off cognitive decline and increase quality of life.

This research examines groups of older adults as they learn a musical instrument for the first time, assessing their cognitive and general well-being benefits. Using a waitlisted control design, 15 older adult participants (aged 65+) with no prior musical training were given 10 weeks of 60-minute group music lessons. Cognitive skills were assessed quantitatively via standardised tests conducted pre and post training, including the Addenbrooke's Cognitive Examination-III, the Trail Making Test and the Digit Span Forwards/Backwards.

Participant development was assessed qualitatively through teacher observation and self-report practice diaries, with the participant's experiences captured via individual semi-structured interviews. Although quantitative results showed some cognitive improvements for those that undertook piano training, statistically this could not be solely attributed to the musical training. Qualitative results revealed positive influences of the instructional materials on learning. Group learning provided positive opportunities for socialising and learning to play in musical ensembles. Short-term music instrument programs can provide positive health and well-being outcomes for older adults. Further research is needed to clarify best practices in delivery while increasing accessibility and sustainability of such programs in the community and aged care settings.

Relational engagement with patients who have a diagnosis of dementia

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Person-centred care (PCC) is generally considered the preferred type of care for patients who have a diagnosis of dementia. Several models of PCC exist, focusing on valuing the patient as a person, inclusion in service provision, family involvement and support and environmental considerations.

Our study investigated the relational component of PCC. Participants were health professionals from two older person's mental health teams (inpatient or community). Participants completed a semi-structured interview about strategies to engage with patients with a diagnosis of dementia. Qualitative thematic analysis of responses was completed using NVivo software. Six

themes generated from the qualitative analysis highlight specific strategies and qualities used to develop therapeutic alliance with patients.

The findings indicate that therapeutic rapport is critical to patient care. Recommendations are made to enhance health professionals' skills to engage with patients professionally, on an emotional level.

Assessing the validity of the Registry of Older South Australians' frailty index (FI-Aus)

DR MAX MOLDOVAN
South Australian Health and Medical Research Institute

The Australian Government Aged Care Assessment Program (ACAP) was introduced in 2003 to provide older Australians with approvals for aged care services following an assessment of their health, social and functional needs. Based on data collected by ACAP, a 44-item frailty index (FI-Aus) has been constructed. While 193 health conditions (HCs) choices exist on ACAP, only 10 can be recorded during the aged care assessment, and its impact on the FI-Aus is uncertain.

This study aimed to assess the consequences of limiting the number of HCs to 10 when estimating frailty using the FI-Aus. Using the 903 996 people from the National Historical Cohort of the Registry of Older South Australians, a simulation study was conducted. The maximum likelihood estimation approach was used to select a theoretical distribution for the number of possible HCs that could be observed in case of no HC censoring. Out of 10 000 simulated scenarios, we retained the two most extreme to compare to the empirical estimates.

A negative binomial distribution fits the empirical HC counts the best. In the worst-case scenarios, the mean and upper range of the simulated FIs were 0.20310 and 0.84091 respectively, as compared to 0.20240 and 0.40909 of the empirical FI. No notable difference in survival probabilities estimated under empirical and simulated worst-case scenarios FIs was detected.

In the FI-Aus, limiting the number of HCs recorded has little effect on the burden of frailty estimated in the cohort with no notable differences in survival probabilities, confirming the validity of the FI-Aus.

Healthy ageing through dignity of risk: starting the conversation

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Risk is often described using negative outcomes, and yet living a full life involves taking risks. As people age, they may experience health issues that lead to them become recipients of health services. Health professionals working with older people are expected to be person centred, part of which includes enabling dignity, choice and control. However, tensions exist between individual rights, duty of care, organisational policy, public safety and potential consequences.

This research explored how occupational therapists and physiotherapists managed dignity of risk for people living with brain injury. Even though situated in brain injury, this research is relevant to all areas of health service delivery, including aged care. The research was funded by the Lifetime Support Authority and used grounded theory methodology. Interviews were conducted with 10 occupational therapists and seven physiotherapists working in brain injury rehabilitation in South Australia and Victoria. Interviews were digitally recorded and transcribed verbatim. Transcripts were analysed using constant comparative methods with three researchers involved in data analysis.

The core category of 'the process of weighing up' included four conceptual categories of privileging the client perspective, giving the opportunity to learn through failure, giving the opportunity to experience successes and recognising the importance of living a normal life. In increasingly risk-adverse health service environments, the topic of dignity of risk transcends all practice across the lifespan. Some of the strategies shared by the participants in this research can be translated to aged care for operationalising person-centred care and healthy aging.

The energy requirements of adults aged 65 years and over using doubly labelled water: current evidence and opportunities for international data sharing

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The challenges of the globally ageing population include impacts on the health, social and economic systems. This shift in demographics has implications for nutrition science and practice. To inform dietary strategies, an accurate assessment of energy requirements is critical. This study aimed to determine the international evidence for total energy expenditure (TEE) measured using the gold standard stable isotope method of doubly labelled water (DLW) in older adults aged ⩾65 years.

Participant-level TEE data measured by DLW in individuals aged ⩾65 years were identified using systematic review principles (PROSPERO registration CRD42016047549). Four databases (Embase, CINAHL Plus, MEDLINE Complete and Cochrane Central) were searched up to July 2016. Title and abstract screening and then a full text review of eligible records was undertaken by two independent evaluators.

The search identified 1419 records, with another five identified via other sources. The full text of 317 records were reviewed, of which 170 were excluded for not meeting criteria. In total, data was obtained for 890 participants aged ⩾65 years and 248 participants aged ⩾80 years. Data was unobtainable from approximately 67% of records.

This review identified the extent of records reporting TEE measured in individuals aged ⩾65 years. The majority of original data were irretrievable. An international data repository is necessary to support future research efforts, data sharing and data preservation. A marked deficit of TEE measured by DLW in older adults (⩾80 years) was also evident, thereby identifying an important knowledge gap for future research.

The ageing engineering workforce: perspectives and problem-solving

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Retaining older workers in productive employment is forecast to be a major issue as the world enters 'Industry 4.0', where digitisation and AI will reconfigure how many roles are performed. Work is to become more cognitive, with communication and problem-solving presenting as valued workplace attributes, not least in engineering. As workers age, fluid intelligence decreases—as does related problem-solving abilities. There is also the 'perception' problem, where older workers are stereotyped and excluded from employment-related opportunities.

Engineering work is unlikely to be replaced by computerisation, but the demands for communication and problem solving will increase. This project examines the impact of age on problem-solving ability and perspectives on older engineers in the workplace.

A sample of professional engineers (n=25, range 24–77 years) completed a multiple choice, abstract reasoning test of problem-solving ability. The participants were interviewed individually, exploring perceptions of older engineers in the workplace and the benefits and challenges surrounding this, using thematic analysis. Findings reveal that older engineers (55+ years) outperformed their non-engineer peers on the problem-solving measure. Engineers, regardless of age, scored similarly on the same measure, however the task revealed that older engineers take significantly longer to solve the problems (p=0.004) than their younger counterparts.

The participant interviews countered the negative association of older engineers taking longer to problem solve, revealing that younger engineers rely on older engineers' expertise for training and leadership, stating that this experience is the difference between becoming an engineer and becoming a good engineer. New roles and the future of work is discussed.

Attitudes of older adults and caregivers in Australia towards deprescribing

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Use of harmful and/or unnecessary medications in older adults is common. Understanding of older adult and caregiver attitudes towards deprescribing will contribute to medication optimisation in practice. The aims of this study were to capture the attitudes and beliefs of older adults and caregivers towards deprescribing and determine what participant characteristics and/or attitudes predicted reported willingness to deprescribe.

Participants self-administered the validated revised Patients' Attitudes Towards Deprescribing (rPATD) questionnaire. The rPATD, with additional questions regarding participant characteristics, self-rated health, trust in physician and health autonomy, were distributed to adults aged ⩾65 years old and taking ⩾1 regular prescription medication, and caregivers of older adults. Older adult participants (n=386) had a median age of 74 (interquartile range, IQR: 70–81), while caregivers (n=205) were aged 67 (IQR: 59–76) and were caring for a person aged 81 (IQR: 75–86.25) years old.

The majority of older adults (88%) and caregivers (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 have a medication deprescribed 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 caregivers (aOR=3.71, 95%CI=1.13–12.23). Most older adults and caregivers are willing to have one of their/their care recipient's medications deprescribed although different predictors of this willingness were identified in these two groups.

Can e-bikes support resilient healthy ageing?

MS ELISABETH RUBIE
Queensland University of Technology

Electric bicycles (e-bikes) are part of a mobility revolution sparked by recent technological advancements. Older people are more likely to buy an e-bike than other age groups, yet there is a knowledge gap as to the health and other benefits of e-bikes for older adults for resilient ageing. Using the model of resilient ageing this review aims to find out how e-bikes can aid healthy ageing by increasing exercise and mobility, as well as facilitating recreational and social opportunities for older people.

Using the PRISMA protocols with the Extension for Scoping Reviews (PRISMA-ScR=P), three academic databases (including Web of Science, Scopus and PubMed) are being systematically searched. Resilient ageing is positively influenced by transport independence and increases in recreational and social interactions. E-bikes aid in this process by promoting independent mobility; increasing older people's ride duration; increasing the number of years an older person can ride; facilitating social interactions; supporting maintenance of lower-body strength; and increasing safety for older adults by a reduction in the starting effort for locomotion and e-bike safety additions.

E-bikes are becoming increasingly popular for older adults and they have the capacity to aid resilient and healthy ageing. There are potential policy interventions that could increase the take up of e-bikes by older adults.

Simplifying medication regimens in residential aged care: the Simplification of Medications Prescribed to Long-term care Residents (SIMPLER) study

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Complex medication regimens are common in residential aged care facilities (RACFs). Strategies to reduce unnecessary medication complexity are likely to be valued because complex regimens can be burdensome for residents and nursing staff. This study aims to investigate the application of a structured process to simplify medication administration in RACFs.

SIMPLER is a non-blinded, matched-pair, 36-month cluster randomised controlled trial of a single multidisciplinary intervention delivered to South Australian RACFs. A validated five-item tool was used to assess medications taken by residents in the intervention arm and identify opportunities to reduce medication complexity (such as by administering medications at the same time or through use of longer-acting or combination formulations). The primary outcome is the total number of medication administration times per day at four months post-study entry. Secondary outcomes include time spent administering medications, incidents, resident satisfaction and quality of life, hospitalisations, falls and mortality.

242 permanent residents were recruited from eight RACFs between April and October 2017. The median age of participating residents was 87 years and 179 (74%) were female. Of the 96 residents who received the intervention, opportunities for simplification were identified for 62 (65%) residents. Many recommendations were able to be actioned by registered nurses employed at the RACFs. Collection and analysis of follow-up data is ongoing. Opportunities exist to work collaboratively to reduce medication regimen complexity in RACFs. SIMPLER will quantify the impact of medication simplification on outcomes that are important for residents and aged care providers.

Modifying the Mediterranean diet for an older Australian population: outcomes of the MedDairy and MedPork studies

MS ALEXANDRA WADE
University of South Australia

The Mediterranean diet shows promise for reducing risk of cardiovascular disease and dementia, however, the suitability of the Mediterranean diet may be limited in non-Mediterranean countries, and it is unknown whether the diet can be modified to increase longer-term feasibility. Two randomised controlled trials were conducted to examine the cardiovascular and cognitive effects of increasing the dairy and meat consumption in a Mediterranean diet.

The first trial (n=37) compared a Mediterranean diet with additional dairy foods to meet the calcium needs of older Australians (MedDairy), with a low-fat control diet. The second trial (n=31) compared a Mediterranean diet supplemented with fresh, lean pork (MedPork) with a low-fat control diet. Home-measured systolic blood pressure was the primary outcome of both trials. Secondary outcomes included other measures of cardiovascular health, such as fasting cholesterol, insulin, glucose and body composition, as well as cognitive function across a battery of age-sensitive domains.

Compared to the low-fat control, the MedDairy intervention led to significant improvements in home-measured morning systolic blood pressure, clinic blood pressure, HDL and total cholesterol to HDL ratio. Improvements were also detected in cognitive function and mood. The MedPork intervention led to similar improvements in cognitive function. However, no significant differences were detected between the MedPork intervention and low fat across cardiovascular outcomes. Together, the MedDairy and MedPork trials indicate that the Mediterranean diet can be modified for an ageing Australian population while providing cardiovascular and cognitive benefits to promote healthy ageing.

Preventing Legionnaires disease in the home

DR HARRIET WHILEY
Flinders University

Legionnaires' disease is a potentially fatal pneumonia-like infection caused by the Legionella spp. Globally, the incidence of Legionnaires disease continues to rise, with the elderly and immunocompromised at greatest risk. Inhalation or aspiration of contaminated aerosols from household showers has been identified as a potential source of sporadic Legionnaires disease. This study examined the presence of Legionella in household showers, risk-factors for contamination and public awareness.

Water samples were collected from domestic showers located across metropolitan Adelaide. Legionella spp. and L. pneumophila was enumerated using qPCR and a questionnaire was used to identify factors associated with contamination and public awareness of the risks. Seventy-five per cent (50/68) and 64%

(43/68) of showers were positive for Legionella spp. and L. pneumophila respectively. Statistically significant associations were found between increased Legionella spp. concentration and decreased hot water temperature (p=0.000), decreased frequency of shower use (p=0.000) and increased age of house (p=0.037). The questionnaire identified a lack of awareness of the risk associated with Legionnaires disease in the home.

This study demonstrated that increasing hot water temperature and running showers every week could potentially reduce the risk of Legionella contamination in the home. The current lack of awareness regarding the potential risks association with household showers demonstrates the need for public health campaigns to inform vulnerable populations of the steps they can take to reduce the risk of exposure to Legionella.

Do help-at-home services delay nursing home admission?

DR IMAINA WIDAGDO
University of South Australia

In Australia, government-funded aged care programs can be divided into community-based and residential aged care programs. Community-based programs provide help to older people to maintain their independence and ability to stay at home for as long as possible. To date, the effect of community-based programs on delaying residential aged care admission has not been evaluated. Therefore, this analysis aims to examine the effect of community-based programs on residential aged care admission.

The study will undertake a retrospective cohort analysis of the Pathways in Aged Care (PiAC) dataset. The cohort will include people who received approvals on or after 1 July 2009, for both community-based and residential aged care programs. The outcome of interest is the time to first permanent residential aged care (PRAC) admission after receiving approvals. A Cox proportional hazards analysis will be used to examine the difference between people who used any community-based programs prior to first PRAC admission and those without any programs used. Covariates adjustment will also be conducted for potential confounding factors. The follow-up period will be up to 30 June 2014 and death will be a censoring event.

The analysis will report on the descriptive statistics of general characteristics between people who used community-based programs prior to PRAC admission and those without any use. Adjusted and unadjusted hazard ratios will be reported to determine the effect of community-based programs on delaying PRAC admission. This analysis will contribute to the knowledge in ageing research, particularly in understanding the importance of maintaining independence of older people.

CareTrack Aged: a study protocol for assessing the appropriateness of care delivered in Australian residential aged care facilities at a population level

DR LOUISE WILES
Macquarie University

People living in Residential Aged Care Facilities (RACFs) represent the frailest cohort of the ageing population, with a high prevalence of chronic conditions. It is necessary to understand the proportion of RACF care that is delivered in line with best practice ('appropriate care'). RACF care should optimise Quality of Life (QoL), which includes physical and psychosocial well-being.

CareTrack Aged (CTA) aims to develop indicators of appropriate care for common conditions and assess appropriateness of care and QoL of residents in Australian RACFs. Recommendations extracted from clinical practice guidelines will be converted to indicators of appropriate RACF care for 15 common conditions and care processes via a Delphi consensus process. We will recruit RACFs and their residents in three Australian states using stratified multi-stage cluster sampling. Nurses experienced in aged care will review a one-month period (2019/2020) within residents' care records for adherence to the CTA indicators and assess residents' QoL using validated questionnaires. The study has three primary outcomes: (i) an indicator set representing 'appropriate' RACF care; baseline data on (ii) the proportion of appropriate RACF care and (iii) residents' QoL. The relationship between appropriateness of care and QoL will also be explored.

Percentage of appropriate care will be analysed for each indicator, and aggregated by condition and overall. The

CTA indicators may be used for clinical point-of-care decisions and benchmarking purposes. Population-level data on the appropriateness of care in RACFs and residents' QoL will provide a baseline for ongoing monitoring and quality improvement.

Preventing falls in older Aboriginal people: Ironbark Trial

MR ROLAND WILSON
Flinders University

Older Aboriginal people have identified the impact of falls as a key concern on their independence, families, communities and ability to pass on cultural knowledge. The 'Ironbark: Standing Strong and Tall' program (2014–2016) is a co-designed evidenced-based fall prevention program involving weekly strength and balance exercise and yarning circles for healthy ageing and falls prevention risks.

Several important elements were identified by participants as critical elements of a fall prevention programs that may reduce the rising burden of falls and assist older Aboriginal people's healthy ageing. These include falls prevention education and strategies, inclusive programs delivered in a group setting, accessibility, affordability and sustainability.

The Ironbark Study has now been funded by the NHMRC for a further five years to conduct a randomised cluster control trial. We aim to recruit 600 Aboriginal people aged 45 years and over through 60 community organisations across New South Wales, South Australia and Western Australia to demonstrate that this low-cost, community-based program reduces falls among older Aboriginal people, improves physical health, social well-being, is appropriate, acceptable and cost effective. The Ironbark Healthy Ageing Program comprises an exercise session (45 minutes) and fall-prevention related yarning circle (30–45 minutes), with participants encouraged to exercise at home, with individualised programs for each person developed by the program facilitator. The Ironbark Healthy Community program involves weekly meetings and yarning circles organised by a program facilitator who leads discussions and activities outlined in the control group program and identified by the local community.

Age at natural menopause and development of chronic conditions and multimorbidity: results from an Australian prospective cohort

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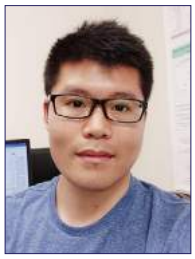

Life expectancy is more than 80 years for Australia women; a third of a woman's life is spent after menopause. Premature or early menopause is associated with many individual chronic conditions, and emerging evidence also suggested that surgical menopause is associated with multimorbidity. However, whether age at natural menopause is associated with multimorbidity or not is unclear. This study examined the associations of age at natural menopause with the development of multimorbidity in midlife.

Data were from a cohort of 11 258 women (born 1946–51) from the Australian Longitudinal Study on Women's Health. Women were followed for 14 years (1996–2010) to obtain information on age at menopause and another six years (2010–2016) to calculate the incidence of 11 chronic conditions. Generalised estimating equations were used to link the age at menopause with the development of multimorbidity (⩾2 of 11 conditions). Among 5107 women included for the analysis, 2.3% reported experiencing premature menopause (⩽40 years) and 55.1% developed multimorbidity. Women who experienced premature menopause had three times higher odds of developing multimorbidity in their 60s (OR=3.03, 95% CI: 1.62–5.64), compared with those who experienced natural menopause at age 50–51 years in the fully adjusted model. Women with premature menopause also experienced higher incidence of individual chronic conditions.

Multimorbidity is common in women's mid-life. Women with natural premature menopause experienced increased odds of developing multimorbidity. Health professionals should consider comprehensive screening and assessment of risk factors for multimorbidity when treating women who experienced surgical and natural premature menopause.

Delegates

Alphabetical by surname

MR GRAHAM AITKEN

Public engagement panel member

Chief Executive Officer, Aboriginal Community Care SA

Graham worked for over 15 years with various commonwealth and state government departments and programs specifically designed for Aboriginal and Torres Strait Islander people. Graham has a passion and commitment to ensure that Elders have access to reliable and consistent aged care services, no matter where they might live.

DR AZMERAW T AMARE

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Azmeraw is an epidemiologist working as a postdoc at the South Australian Health and Medical Research Institute and the Registry of Older South Australians.

DR THOMAS ANGELOVICH

RMIT University

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Thomas is a Vice Chancellor's Postdoctoral Fellow at RMIT University. His research investigates the mechanisms driving inflammatory diseases such as neurocognitive impairment and cardiovascular disease in HIV-infected individuals and the elderly. His findings have been published in journals such as the AIDS, Experimental Gerontology, Journal of Acquired Immune Deficiency Syndrome, Journal of Immunology and Aging Cell. By understanding the immunological mechanisms driving age-related disease, Thomas aims to identify targets for therapeutic intervention and to improve health outcomes for both HIV-infected individuals and the elderly.

PROFESSOR KAARIN ANSTEY

Keynote speaker

Neuroscience Research Australia

Kaarin is the director of the UNSW Ageing Futures Institute and Conjoint Senior Principal Research Scientist at Neuroscience Research Australia. She leads an NHMRC Centre of Research Excellence in Cognitive Health, is a director of the NHMRC Dementia Centre for Research Collaboration and co-deputy director of the ARC Centre of Excellence in Population Ageing Research.

Kaarin's research programs focus on the causes, consequences and prevention of cognitive ageing, dementia and common mental disorders in adulthood. A second focus is on older drivers' risk assessment and safety. Kaarin has worked extensively with longitudinal studies and leads the PATH Through Life Project, a large cohort study focusing on common mental disorders and cognitive function, based in the ACT and surrounding regions.

Kaarin is the chair of the International Research Network on Dementia Prevention, a director of the Board of the Dementia Australia Research Foundation and a member of the World Health Organization's Guideline Development Group on cognitive decline and dementia.

DR ALLINE BELEIGOLI

Flinders University

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Alline is a MD and PhD with special interest in obesity and behaviour change. Over the last few years, her research has aimed at investigating digital health interventions to promote healthy behaviours and tackle obesity, as well as to study obesity-related outcomes at the population level.

DR SARAH BRAY

Member of the organising committee
South Australian Health and Medical Research Institute
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Sarah has a wide interest in science and health and is passionate about science engagement with the wider community. Sarah has worked on a diverse range of projects over her career so far, from medical research projects in cancer biology (leukaemia and rare blood disorders) to her PhD project, wrangling ancient DNA from extinct bears! Sarah is currently based at the South Australian Health and Medical Research Institute, where she is the project manager and consumer engagement officer for the Registry of Older South Australians (ROSA). ROSA is a unique big-data resource that will allow evidence-driven decision-making to improve the lives of all South Australians who use aged care services.

DR BELINDA BROWN

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Belinda is a research fellow at Murdoch University, supported by a NHMRC-ARC Dementia Research Development Fellowship. Her research is primarily focused on understanding the role of lifestyle in maintaining a healthy ageing brain and preventing cognitive decline and dementia. Her previous work has identified a role of physical activity in reducing toxic brain proteins associated with Alzheimer's disease, enhancing cognitive function and maintaining brain volume. She is currently undertaking a trial to investigate the role of exercise intensity on cognitive function and measures from brain imaging associated with declining brain health.

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Lucy is a PhD student supported by a Research Training Program scholarship in the microbiome research group at Flinders University and South Australian Health and Medical Research Institute. She completed a Bachelor of Science (Biomedical Science) majoring in infection and immunity, and physiology. She then undertook an honours year where she investigated the role of host mucosal glycans on susceptibility and severity of asthma, as mediated by the respiratory microbiome. Under the supervision of Professor Geraint Rogers, her current project will focus on approaching antimicrobial resistance in residential aged care facilities with metagenomics, as part of the MRFF-funded GRACE study.

DR MONICA CATIONS

Member of the organising committee
Flinders University
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Monica is a provisional psychologist and epidemiologist who has worked in the ageing and dementia field for over a decade. Her particular interest areas include dementia care pathways, knowledge translation, young onset dementia, epidemiology and psychological trauma. Monica is a postdoctoral research fellow and candidate in the Master of Psychology (Clinical) program at the University of South Australia.

DR PETA COOK

University of Tasmania
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Peta is a senior lecturer of sociology at the University of Tasmania. She is a sociologist of knowledge with a specific focus on ageing, medical science, health and illness, and identity and embodiment. Her current research focuses primarily

on the experiences of ageing; the development of age-friendly and dementia-friendly communities, and challenging and changing ageism. Peta is currently on the national executive of the Australian Sociological Association and the Board of Directors of the Council on the Ageing, Tasmania.

MS LENORE DE LA PERRELLE

Flinders University
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Lenore holds a BA(SW), M(PolAdmin). As a social worker and Manager of Human Services, she has 30 years' experience working in government, private and not-for-profit services.

Her work in aged and dementia care developed award-winning services and training to support well-being for people with dementia. Lenore is a member of Aged Care Practice Group AASW (SA) and field educator at Flinders University. She is currently a private consultant through Dementia is my Business and a PhD candidate working in the Agents of Change project: Creating National Quality Collaboratives to Improve Dementia Care.

MR SHANE D'ANGELO

Member of the organising committee
South Australian Health and Medical Research Institute
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Shane has an extensive background in aged care in South Australia, with much of his recent work relating to the delivery of home-based support services for older Aboriginal and Torres Strait Islander peoples. He recently joined the Wardliparingga Aboriginal Research Unit at the South Australian Health and Medical Research Institute.

MR SUDIP DHAKAL

RMIT University
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Sudip is one of the PhD students at RMIT University under supervision of Professor Ian Macreadie, who spent more than three decades in understanding yeast biology and its potential application to improve health. Sudip's research project aims to understand the molecular processes and overcome the reduced proteostasis in ageing-related neurological disorders using yeast as a model organism. Currently, the project is focused on screening the compounds that can induce the aberrant protein clearance in a yeast model of Alzheimer's disease using cutting-edge technological platforms.

DR JIA TINA DU

University of South Australia
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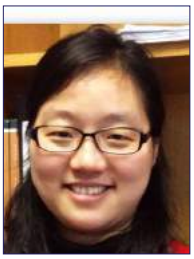

Tina is a senior lecturer at the School of Information Technology and Mathematical Sciences at the University of South Australia. Tina is awarded an ARC Discovery Early Career Researcher Award, has published 80 papers in refereed journals and conference proceedings and raised over $800 000 for research. Her research interests include online search, human information behaviour, marginalised communities and social innovation. Tina is fellow of the South Australian Governor's Leadership Foundation program and the chair-elect for the Association for Information Science and Technology Asia-Pacific Chapter in 2018–19. She is the winner of 2018 South Australian Winnovation Awards for the Maths and Data category.

DR DOROTHEA DUMUID

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Dorothea worked in clinical practice as a physiotherapist for 15 years before undertaking her PhD at the University of South Australia in 2015. She commenced an NHMRC/NHF Early Career Research Fellowship

at the University of South Australia in 2019. Her research focuses on the statistical modelling of lifestyle behaviour data, in particular 24-hour activity patterns (such as sleep, physical activity, sedentary time). She explores how to optimise the daily mix of these behaviours for best health.

DR SUZANNE DYER

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Suzanne is a senior research fellow with experience in health technology assessment (HTA), research and guideline development. At Flinders University she has been involved in producing the NHMRC-approved clinical practice guidelines for dementia in Australia and managing a cross-sectional study of alternative models of residential aged care. She has managed teams contracted to the Australian Government Department of Health and Ageing to provide HTA services for the Medical Services Advisory Committee, who make recommendations for public funding through Medicare, and has experience working in both academic organisations and the private sector.

MS NICOLE EE

Neuroscience Research Australia
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Nicole completed her in Bachelor of Laws and Bachelor of Science (Psychology) (Honours) at the Australian National University in 2016 and is currently PhD candidate at UNSW School of Psychology. Her PhD seeks to investigate the relationship between social participation, well-being and dementia risk in late life in culturally diverse cohorts, so as to progress dementia risk identification and management. She also holds a research assistant position at Neuroscience Research Australia, working on a project in ageing and decision-making supported by the ARC Centre of Excellence in Population Ageing Research.

MS ELLEN FINLAY

Neuroscience Research Australia
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Ellen holds a Bachelor of Arts (Politics and Sociology) (Honours in International Relations) from the University of Notre Dame Australia; has a Masters in International Relations from the University of Sydney and is undertaking her PhD at UNSW. Ellen's current research looks at social and political power asymmetries in health outcomes between Aboriginal and non-Aboriginal Australians, specifically focusing on rates of dementia. Ellen has previously looked at power asymmetries in relation to gender and security, and asylum seekers' access to bodily integrity.

MR IAN GLADSTONE

Public engagement panel member
Dementia Alliance International

Ian is one of the most active advocates for dementia and dementia-friendly communities in South Australia. He travels widely throughout the state and beyond as a speaker with Dementia Australia and in 2017 retired as chair of the Dementia Australia Dementia Advisory Committee (previously known as the Alzheimer's Australia Dementia Advisory Committee).

MISS CLAIRE GOUGH

Flinders University
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Claire is an experienced physiotherapist with a background in musculoskeletal and neurological rehabilitation. On graduating from Brunel University in 2009 with a Physiotherapy Bachelor of Science (Honours), she relocated from London to Australia. In 2015 Claire enrolled in the Master of Clinical Rehabilitation program at Flinders University. During this time her passion for combining progressive technologies with rehabilitation was

enhanced as she worked closely with the Lokomat®, a robotic gait orthosis. Claire is now a PhD candidate researching the location of physical activity of older people, combining GPS and accelerometry at Flinders Digital Health Research Centre.

MISS DANIELLE GREAVES

University of South Australia
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Danielle is a PhD candidate within the Cognitive Ageing and Impairment Neurosciences Laboratory at the University of South Australia. Danielle obtained an applied science degree focused on exercise and sports science in 2014 and a first-class health science honours degree in 2015, investigating the effect of stimulus response conflict on sequenced learning. Prior to beginning her PhD, Danielle worked on a large study investigating neurovascular coupling and its association to cognition in ageing adults. This sparked her passion for age related cognition research, leading her to commence a PhD focused on post-cardiac surgery cognitive impairments, including delirium, in older adults.

PROFESSOR JENNENE GREENHILL

Flinders University Rural Health SA
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Jennene is committed to strengthening the Australian health workforce and aspires to influence health policy to benefit communities. She is director of Flinders University Rural Health South Australia and a member of the South Australian Health Performance Council, a statutory body appointed by the health minister. She developed the Master of Clinical Education programs, was awarded an Honorary Life Member of ANZAHPE and won a vice chancellor's award for teaching excellence. Her research interests include clinical education, health services and aged care. She has several research higher degree students and major funded projects in ageing and rural health services.

MS DARIA GUTTERIDGE

University of South Australia
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Daria is a first-year PhD student within the Cognitive Ageing and Impairment Neuroscience Laboratory at the University of South Australia. Her main research interest centres on how cerebrovascular functions change with ageing and how they relate to cognitive functioning. For her honours thesis in 2018 she investigated the link between cognitive impairment in Parkinson's disease patients and cerebrovascular function, in particular neurovascular coupling. For her PhD thesis she is working under the supervision of Dr Hannah Keage, wishing to understand how blood pressure variability changes with age and how it influences cognition.

DR STEPHANIE HARRISON

Member of the organising committee
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Stephanie is a postdoctoral research fellow and epidemiologist for the Registry of Older South Australians (ROSA) at the South Australian Health and Medical Research Institute (SAHMRI). Dr Harrison's research focuses on the epidemiology of dementia and ways to improve the quality of life for people living with dementia. She completed her PhD at Newcastle University in the UK, examining associations between cardiovascular health and cognitive decline in older adults. Stephanie moved to Australia in 2016 and began working for the Cognitive Decline Partnership Centre at Flinders University and subsequently ROSA at SAHMRI.

DR LEAH HEISS

RMIT University
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Leah is a designer and RMIT researcher working at the nexus of design, health and technology. Her wearable health technologies include Diabetes Jewellery, bio-signal sensing emergency jewellery and swallowable devices to detect disease. Facett, the world's first modular hearing aid that Leah designed for Blamey Saunders hears, won the 2018 Good Design Award and the CSIRO Design Innovation Award. Leah's work is part of Museums Victoria heritage collection and she has exhibited at galleries locally and globally. She teaches through RMIT's Master of Design Futures and her teaching practice focuses on health sector innovation.

DR DAMIAN HERNANDEZ

University of Melbourne
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Damian completed his PhD in the cardiac regeneration group at the University of Melbourne under the supervision of Dr Shiang Lim and Professor Greg Dusting. He developed a cardiac tissue engineering system to study the effect of electrical stimulation in cardiac differentiation of pluripotent stem cells and maturation of cardiac cells. In 2016 he joined Professor Alice Pebay's group at the Centre for Eye Research Australia. He is now at the University of Melbourne studying Alzheimer's disease with a human model of three-three-dimensional cerebral organdies derived from patient-specific pluripotent stem cells.

DR DEVENDRA HIWASE

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Devendra is a consultant haematologist at the Royal Adelaide Hospital, senior lecturer at the University of Adelaide and a senior research fellow at South Australia Health and Medical Research Institute. He has a special interest in myelodysplastic syndromes (MDS), acute myeloid leukaemia (AML) and stem cell transplantation. He started the MDS Research Group and the South Australian MDS registry in 2012. In 2014, he established the multidimensional geriatric assessment and early intervention program for optimising management of frail, older patients with MDS and AML. He is member of the Australasian Leukaemia and Lymphoma Group, Haematology Society of Australasia and New Zealand and the American Society of Hematology.

DR CLAIRE HUTCHINSON

Flinders University
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Claire is a mixed methods social scientist who conducts research in disability and ageing. Claire gained her PhD in psychology from the University of South Australia, where she also completed a postdoc on 'a social return on investment analysis of vehicle modifications for people with disability'.

She is now a research fellow in the newly formed Health and Social Care Economics Group in the College of Nursing and Health Sciences at Flinders University. She is currently working on an ARC Linkage grant to develop a new preference-based quality of life measure with older people to be used for the economic evaluation of aged care services.

ASSOCIATE PROFESSOR MARIA INACIO

Member of the organising committee
South Australian Health and Medical Research Institute
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Maria is an epidemiologist with expertise in the area of population health surveillance systems and the utilisation of existing data and informatics to enhance these systems. She was trained at Dartmouth College and the University of California San Diego in the US. She is the director of the Registry of Older South Australians housed at the South Australian Health and Medical Research Institute. Her team currently leads work in the area of aged care

service utilisation, safety and quality in aged care, and diseases that disproportionally affect the population in aged care, including dementia, musculoskeletal disease and mental health.

DR MIKAELA JORGENSEN

Macquarie University
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Mikaela is an early-career aged care researcher at the Australian Institute of Health Innovation at Macquarie University. She is passionate about improving the care and outcomes of older adults across the health system. Mikaela has expertise in the management and analysis of large and linked routinely collected health datasets. She has a clinical background in allied health and as a community aged care worker.

DR LISA KALISCH ELLETT

University of South Australia
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Lisa is an NHMRC-ARC Dementia Research Development Fellow and a registered pharmacist. Her research interests include identifying associations between medicine use and health outcomes and studying adverse events associated with medicines. Her fellowship is investigating the role of medicines in causing or worsening cognitive impairment. Lisa has also worked on the Department of Veterans' Affairs Veterans' MATES program, which aims to improve the quality use of medicines and health outcomes for veterans.

DR JYOTI KHADKA

South Australian Health and Medical Research Institute
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Jyoti is a research fellow in the Registry of Older South Australians at the South Australian Health and Medical Research Institute. He also works in the Health and Social Care Economics Group at Flinders University and is affiliated with the University of South Australia. He was originally trained as an optometrist. He was awarded a PhD at Cardiff University in the UK, followed by a postdoctoral fellowship at Flinders University. His main areas of research interests and expertise are in patient-reported outcomes, quality of life assessment, healthy ageing and health economic evaluations across the health, aged care and social care sectors.

DR SAMAN KHALATBARI SOLTANI

University of Sydney
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Saman is a research fellow at the ARC Centre of Excellence in Population Aging Research located in the University of Sydney School of Public Health. She holds a PhD in life sciences (University of Lausanne, Switzerland), a PhD in epidemiology and public health (Swiss School of Public Health) and a master's in nutritional science. She trained in nutritional epidemiology during a one-year fellowship at the University of Cambridge. Her current research encompasses the areas of social determinants of successful aging and the role of behavioural, psychological and biological factors in the genesis of social disparities in health at older ages.

PROFESSOR BRONWYN KINGWELL

Keynote speaker

Baker Heart and Diabetes Institute

Bronwyn is a NHMRC Senior Principal Research Fellow and is head of the Translational Research Domain and the Metabolic and Vascular Physiology Laboratory at Baker Heart and Diabetes Institute in Melbourne. She is a graduate and fellow of the Australian Institute of Company Directors. She has adjunct professorships at the University of Melbourne, Monash University, James Cook University, UNSW and the Pierre and Marie Curie University in Paris. Bronwyn's early work was in the area of exercise, metabolic and circulatory regulation, during which she performed landmark studies in rodents and humans, including the first credible clinical trial

evidence that walking reduces cardiovascular risk. She has a long-standing track record in elucidation of the mechanisms by which physical activity provides health benefits, including evidence that aerobic exercise improves endothelial function, arterial stiffness and cardiac autonomic function, contributing to a rational basis for national and international exercise prescription guidelines.

DR JACK LAM

University of Queensland
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Jack is a research fellow of the ARC Centre of Excellence for Children and Families over the Life Course in the Institute for Social Science Research at the University of Queensland. He has a background in sociology and conducts research on health and well-being in later life, often drawing on the life course perspective. A focus of his research is on understanding vulnerability and social disadvantage in later life and investigating how disadvantages can accumulate over the life course. He recently received an early-career researcher grant to study loneliness in older adults.

DR KATE LAVER

Member of the organising committee
Flinders University
kate.laver@flinders.edu.au

Kate has over 15 years of clinical experience as an occupational therapist (from 2003 onwards), working in rehabilitation with people with dementia or stroke. She has research experience in testing rehabilitation interventions (in the fields of dementia and stroke) and other nonpharmacological therapy approaches, and the use of innovative technologies in rehabilitation. She has expertise in applied knowledge translation.

DR LOUISE LAVRENCIC

Member of the organising committee
Neuroscience Research Australia
l.lavrencic@neura.edu.au

Louise is a postdoctoral fellow with the Aboriginal Health and Ageing Program at Neuroscience Research Australia. She is passionate about understanding the factors that affect cognitive ageing and dementia in late life and how we can help people to age well. Louise has a background in psychology and cognitive neuroscience. Her current work focuses on understanding healthy ageing and dementia in urban and regional Aboriginal communities. She is also involved in a neuroimaging study investigating dementia in Aboriginal Australians, using magnetic resonance imaging (MRI) and positron-emission tomography (PET) techniques.

DR YVONNE LEUNG

UNSW
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Yvonne is a postdoctoral fellow at the Centre of Healthy Brain Ageing at UNSW and coordinator of the International Centenarian Consortium of Dementia (ICC-Dementia). Her current research focuses on identifying factors for exceptional longevity and healthy brain ageing that are common across ethno-regional groups. As a cognitive psychologist, Yvonne applied experimental methods to understand the learning of and memory for complex auditory phenomena, particularly in music and environmental sounds. She also conducted interdisciplinary research in human–machine interaction using embodied conversational agents and robots.

DR RENLY LIM

University of South Australia
renly.lim@unisa.edu.au

Renly is an NHMRC Early Career Fellow at the Quality Use of Medicines and Pharmacy Research Centre at the University of South Australia. Her research interests include integrating digital health to improve medicine safety among older

people, identifying associations between medicine use and health outcomes, health program evaluation and community engagement for malaria elimination.

She is currently the clinical research leader of the ReMInDAR trial, a randomised controlled trial evaluating a novel pharmacist service integrating digital tools to prevent frailty and adverse events.
She serves as the early-career researcher representative on the University of South Australia Research Leadership Committee.

MS IRINI LOGOTHETIS

RMIT University
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Irini is a PhD candidate in the discipline of electrical and biomedical engineering. Having completed a double degree in computer science (honours) and electronic engineering (honours), she went on to study fashion design. After being introduced to wearable technology she worked as a research assistant in the area of smart/functional materials and systems development, leading her to focus on adapting this knowledge in the medical industry. Her current research is in adapting bioimpedance for long-term monitoring of wounds with wearable electrodes.

MS EMMA LUKE

RMIT University
emma.luke@rmit.edu.au

Emma is a designer, practitioner and academic at RMIT with an extensive background in wearable product design. Having worked in both international brands and her own labels, Emma's interests are in intuitive technological interventions, post-digital craft practice and personalisation.

Emma is currently completing a PhD focused on ambient wearable technology, exploring emerging constructs of multimodal design practice and new processes of creating hybrid personal objects. This research aims to challenge digital obsolescence and the loss of lasting cultural narratives through a series of multifaceted wearables projects that address health and well-being challenges.

DR JENNIFER MACRITCHIE

Western Sydney University
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Jennifer is a senior research fellow in health and well-being at the MARCS Institute for Brain, Behaviour and Development at Western Sydney University. She works primarily on developing educational programs and technology to enhance music learning for older adults. Partners include those in aged care, music education and local health districts. With a background in electrical engineering and music, her research focuses on the acquisition and development of motor skills in music instrument performance. Studies examine a range of experience, from those who have studied music from a young age to those who are rediscovering music in retirement.

MISS ELLEN MCKENZIE

University of Canberra
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Ellen is a PhD in clinical psychology candidate at the University of Canberra, whose project investigates how psychological variables (such as death anxiety and experiential avoidance) influence health professionals' well-being and their approach to patient care in the context of dementia. Her research draws on social psychology theories as well as a model of clinical psychology practice. Results to date have produced two published papers and were presented at the Alzheimer's Association International Conference in Toronto in 2016. Ellen is working in clinical practice with a strong interest in trauma and attachment-related issues.

MS PENELOPE MCMILLAN

Public engagement panel member
ME/CFS South Australia Inc

Penelope focuses on systemic change as a trained and experienced health consumer advocate, as well as working on projects. Her interests include ageing, carers, disability, chronic illness and, more specifically, ME/CFS. Penelope is involved in many levels of research, from a national committee through to being a research study participant. She finds it rewarding to be involved in policy development and priority setting in research, and using her lived experience to inform studies. 'Everyone has something to offer researchers; it's just a matter of finding your niche.' Penelope considers research to be the foundation of quality healthcare, and her voluntary work reflects this.

DR MAX MOLDOVAN

South Australian Health and Medical Research Institute
max.moldovan@sahmri.com

Max is currently employed as a senior data scientist by the Registry of Older South Australians (ROSA), focusing on the analysis of large complex empirical datasets possessed by ROSA and its partners. The key objective behind the analysis is to extract functional information enabling both targeted and system-wide interventions in order to improve quality of life for people close to entering or entered into the aged care system.

Max obtained his PhD in computational statistics from the University of Melbourne, with his doctoral thesis dedicated to the design and implementation of novel exact inference procedures as applied to clinical trials.

DR KAREN MURPHY

University of South Australia
karen.murphy@unisa.edu.au

Karen leads the Mediterranean dietary patterns group at the University of South Australia and uses an evidence-based approach to explore the effect of whole diet and lifestyle patterns, specifically the Mediterranean diet, on risk of cardiovascular disease and dementia, using randomised controlled trials. She offers expertise in clinical trials, assessment of dietary intake, measures of body composition, cardiovascular health and cognitive performance and collaborates with national and international researchers. Karen translates science and her research outcomes to clinical populations through her role as an Accredited Practicing Dietitian. She was a recipient of a South Australian Young Tall Poppy Science Award in 2009.

DR CAROLYN MURRAY

University of South Australia
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Carolyn is an early-career researcher and a lecturer in occupational therapy and has extensive experience in community work with older people. Carolyn is interested in the perspectives of health and social service consumers about quality of care. In particular, Carolyn's research focuses on older people living with dementia and people living with neurological trauma such as brain injury and spinal cord injury. Carolyn integrates her research into teaching, supervision of research students and preparation of students for the workforce. In 2017 she was a recipient of the Chancellor's Award for Community Engagement for coordinating student placements to deliver group cognitive stimulation therapy for people with dementia and sensory motor programs for preschool children.

MS JANE MUSSARED

Council on the Ageing in South Australia

Jane is the chief executive of the Council on the Ageing in South Australia (COTA SA), an older people's movement promoting the rights, interests and futures of South Australians as they age. Jane joined COTA SA in 2015 after an executive role with a large not-for-profit aged care provider. Prior to this, Jane was the manager of the State Government Office for the Ageing. Jane is on the board of the Maggie Beer Foundation, the deputy chair of Cirkidz and the SA Circus Centre and a member of the Advisory Group of the Centre of Research Excellence in Frailty and Healthy Ageing. Jane is a past winner of the SA Innovation

Award in the Telstra Business Women's Awards and of a Sanicare Aged Care Overseas Study Scholarship. Jane has a master's degree in social work majoring in social policy and research from the University of Michigan.

DR KAY NGUO

Monash University
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Kay works as a research fellow in the Department of Nutrition, Dietetics and Food at Monash University in Melbourne. She began her professional career as a clinical dietitian before transitioning into research and academia. Kay completed her PhD in 2016, investigating the effects of macronutrients on appetite responses and meal-induced thermogenesis in children and adults with obesity. Kay's current research focus is the use of stable isotopes in nutrition research, in particular the assessment of body composition and total energy expenditure using the techniques of deuterium dilution and doubly labelled water.

MISS MICHELLE OPPERT

University of South Australia
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Michelle has an honours degree in psychology and is currently completing her PhD examining psychosocial factors pertaining to successful ageing in the workplace, with a focus on the future of work and engineers. Her prior research explored aged care workers and she is currently involved in several ongoing research projects looking at other workforce disciplines. Her overarching interest is ageing, and she has dedicated her research to this field. Michelle prefers working with mixed methods in order to create the richest description of research and has a primary objective to promote meaningful and useful empirical research findings to end users and stakeholders.

MS JULIA OVERTON

Public engagement workshop facilitator
Health Consumers Alliance of SA Inc

Julia has spent most of her career working within the health system in South Australia. Working across care settings, including health, disability and ageing, Julia has supported individuals and communities to have access to the services they need, when and where they need them. Julia's experience includes supporting both rural/remote and metropolitan populations, with a focus on the most vulnerable people in these communities. Julia is passionate about driving collaborative approaches to achieve progress and developing partnerships to increase organisational capacity, impact and outcomes.

DR ADRIANA PARRELLA

South Australian Health and Medical Research Institute
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Adriana is a research fellow at the South Australian Health and Medical Research Institute's Wardliparingga Aboriginal Research Unit and joined the team in July 2018. The focus of her work is to investigate culturally appropriate models of aged care for older Aboriginal peoples. Prior to this position she spent over 15 years working in the public health research field on projects covering influenza surveillance in the community, maternal immunisation in culturally and linguistically diverse women, adolescent immunisation, health services research and, most recently, the evaluation of a state government workplace health promotion program focusing on improving lifestyle risk factors for chronic disease across various industry sectors.

PROFESSOR NICHOLAS PROCTER

Keynote speaker

University of South Australia

Nicholas is the chair of Mental Health Nursing and leader of the Mental Health and Suicide Prevention Research Group at the University of South Australia. The strategic intent of his work is to partner with people and organisations who can use research to make a difference outside of academia, particularly in consumer and carer engagement and public policy. His most recent book, Mental health: a person-centred approach (Cambridge University Press), is in its second edition. Nicholas was a member of the review team led by Dr Aaron Groves into the former disgraced and now closed Oakden Mental Health Facility in South Australia. In 2017 he was recipient of South Australia's highest mental health honour, the Dr Margaret Tobin Award, and the SA Health's Mental Health Excellence Award for Partnering with Lived Experience. In 2019 he was awarded Department of Correctional Services Merit Award (Community Partnerships category) as a member of the Connecting with People team delivering suicide prevention education to South Australian prison staff.

DR KYLIE RADFORD

Member of the organising committee

Neuroscience Research Australia

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Kylie is a clinical neuropsychologist, NHMRC-ARC Dementia Research Development Fellow and team leader with the Aboriginal Health and Ageing Program at Neuroscience Research Australia. She is also a conjoint senior lecturer at UNSW Sydney. She completed her PhD at the University of Sydney in 2010 and her research over the past 10 years has focused on the epidemiology, neuropsychology and sociocultural experience of ageing and dementia with older Aboriginal people across New South Wales. This work has highlighted the high prevalence of dementia in this population, mostly Alzheimer's disease, and potentially modifiable risk factors across the life course.

DR EMILY REEVE

University of South Australia

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Emily is an NHMRC-ARC Dementia Research Development Fellow and lecturer of pharmacy practice at the University of South Australia. She is also a qualified pharmacist with experience working as a clinical pharmacist in a large tertiary teaching hospital. The first two years of her fellowship were undertaken with the Department of Medicine at Dalhousie University in Canada. Emily's research focuses on optimising medication use in older adults and people living with dementia and/or frailty. She has conducted research into deprescribing, including consumer attitudes towards deprescribing and the development of deprescribing guidelines.

MS ELISABETH RUBIE

Queensland University of Technology

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Elisabeth is a second-year PhD student at the Queensland University of Technology School of Psychology and Counselling. Her research interests include bicycle safety and the lifestyle, environmental and public health benefits of bicycle riding.

MS MARJORIE SCHULZE OAM

Member of the organising committee

Consumer Representative, Registry of Older South Australians Research Committee

Marjorie is a consumer representative on the 'Frontiers of Science–Redefining healthy ageing together' symposium organising committee and is a consumer representative on the Registry of Older South Australians Research and Consumer and Community committees. Marjorie is a former pharmacist with tertiary qualifications in public policy and management and has 30 years of practical experience as a member of not-for-profit boards in the private health, aged care and disability sectors. She was awarded an Order of Australia Medal in 2002 in recognition of her services to local government and the community, particularly through health and human service organisations.

MS ANNA SHEPPEARD

Consumer Representative, Registry of Older South Australians Research Committee

Anna has a Master of Health Science in gerontology and before retiring worked extensively with older people as a physiotherapist. She also has practical experience of supporting her father to remain in his own home until he died at the age 101. She is a volunteer peer educator with Council on the Ageing and is a member of the Health Consumers Alliance of South Australia, where she has undertaken consumer advocacy training. She has a strong belief in older people being able to easily access evidence-based information about their health and well-being so that they can make informed life choices.

DR JANET SLUGGETT

Member of the organising committee

Monash University

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Janet is a pharmacist and NHMRC Early Career Fellow at the Centre for Medicine Use and Safety at Monash University. Janet's research focuses on maximising the benefits and reducing the risks relating to medicines use among older people receiving community and residential aged care services. Janet is a South Australia-based researcher and she collaborates closely with the NHMRC Cognitive Decline Partnership Centre, residential aged care providers and the Registry of Older South Australians.

DR ASHLEIGH SMITH

Public engagement workshop facilitator

University of South Australia

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Dr Ashleigh Smith is a neurophysiologist who is optimising dementia prevention by positioning her research at the nexus of neuroscience, exercise science and cognitive ageing. Her contribution to the field is highlighted by influential publications demonstrating how aerobic exercise positively influences the global brain networks, invitations to speak internationally and 12 awards for research excellence and public engagement in science, including a 2017 South Australia Young Tall Poppy Science Award.

MS JUDY SMITH

Public engagement panel member

Consumer liaison officer

Judy has been involved in the health industry for over 50 years. She has been involved in multiple consumer groups over the past few years and currently provides consumer representation on the Pharmacy Regulation Authority of SA, is the consumer (carer) representative on the Prescribed Psychiatric Treatment Panel and is on the End of Life Care Program Board. She was involved in some of the Transforming Health committees as a consumer.

DR JACKIE STREET

University of Wollongong

Jackie has particular expertise in the use of deliberative inclusive methods, including citizens' juries, to research community views on contentious policy issues. Since her first publication in public health in 2007, Jackie has built an international reputation in the area of community engagement for health policy and health technology assessment. In 2015, in collaboration with Aboriginal community-controlled organisations and researchers, she co-constructed an innovative deliberative forum using storyboard methods appropriate for use in an Aboriginal community. She also has a track record in developing innovative methods using social media analysis to include community voices in health technology assessment. Jackie has been consulted by the Medical Services Advisory Committee (Australian Government), the South Australian Department of Premier and Cabinet and the Department of Health, Alberta, on best practice for community engagement. She has been invited to present on community engagement at national and international conferences and workshops, most recently in 2017 to the Association of Innovative Pharmaceutical Industry Symposium for patient organisations in Prague.

MR GEORGE TURLEY

Member of the organising committee
Community representative
Registry of Older South Australians Research Committee

George is a consumer representative on the 'Frontiers of Science–Redefining healthy ageing together' symposium organising committee and is a community representative on the Registry of Older South Australians Consumer and Community Committee. He worked for 16 years for the former Community Welfare Department in South Australia in various roles, including Residential Care, Community Care and Family Support. George has also worked with a number of NGOs in South Australia on a wide range of service delivery, including with homeless frail aged. He is now retired and living independently in a small retirement village. He has a strong interest in healthy/positive ageing and contributing to the community in helpful ways.

DR MAAYKEN VAN DEN BERG

Flinders University
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Maayken is a senior research fellow at the Department of Rehabilitation, Aged and Extended Care and a senior lecturer in the postgraduate clinical rehabilitation programs at Flinders University. She holds degrees in movement sciences and physiotherapy and received her PhD in rehabilitation sciences from Birmingham University in the UK. Her research interests include mobility and physical activity in people undergoing geriatric and neurological rehabilitation, and the way modern technology can contribute to support opportunity for practice and self-management.

MS ALEXANDRA WADE

University of South Australia
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Alexandra has a background in psychology and is nearing completion of her PhD in health sciences. She has a passion for health research and aims to build evidence for effective lifestyle interventions for cardiovascular disease and dementia.

MS MICHELLE WALL

SA Health
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Michelle is a cancer nurse specialist working at the Royal Adelaide Hospital and the myelodysplastic syndromes (MDS) and acute myeloid leukaemia (AML) Research Group in the Central Adelaide Local Health Network. MDS and AML exist along a continuous disease spectrum and primarily affect the elderly. These diseases are characterised by an overproduction of immature blood cells that result in the lack of healthy mature blood cells. The group aims to optimise patient outcomes and develop new therapeutic strategies through clinical and translational research projects, including mutational profiling, identifying novel biomarkers, exploring the impact of nurse case management and geriatric assessment on patients with MDS/AML.

DR HARRIET WHILEY

Flinders University
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Harriet is a senior lecturer in environmental health at Flinders University. As an environmental microbiologist, her research is aimed at informing best practice to protect human health from pathogens present in the environment. Her research areas include water quality, food safety and risk assessment.

DR IMAINA WIDAGDO

University of South Australia
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Imaina is an early-career researcher who completed her PhD at the University of South Australia in 2016. Imaina has previously worked at the Department of Health, where she was awarded a competitive Australian Public Service data fellowship program with CSIRO's Data61. Imaina has cross-disciplinary research experience in the areas of ageing research, medicine use and healthcare, and data analytics. In addition, Imaina is a pharmacist by training with certification in geriatric pharmacy.

DR LOUISE WILES
Macquarie University
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Louise has a history of working in primary, secondary and tertiary healthcare settings, as well as educational and research institutions. Louise's work centres around quality and evidence-based practice in healthcare, with a focus on clinical indicator development in the CareTrack Kids (NHMRC Partnership Grant APP 1065898), STANDING Collaboration (NHMRC Program Grant APP1054146), and CareTrack Age' (NHMRC Project Grant APP1143223) projects. In addition, she is leading a stakeholder engagement process for, and update of, a Cochrane review of the methods and effects of consumer engagement in healthcare policy, research and services.

MR ROLAND WILSON
Flinders University
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Roland is a member of the Nari Tribal Group from the Hay Plains of New South Wales. He has a Bachelor of Forestry Science from ANU, a Graduate Diploma in Education from the University of Canberra and a Graduate Diploma of International Relations at Flinders University, focusing on Indigenous identity politics, citizenship and Indigenous rights in the global context. Roland is a research associate with the Southgate Institute at Flinders University and is responsible for the conduct of the Ironbark Trial in South Australia.

MR XIAOLIN XU
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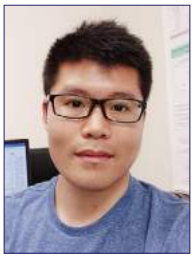

Xiaolin is a graduating PhD candidate in epidemiology with a background in medicine and public health. His research focuses on how people progress from a healthy state to one with multiple chronic conditions (multimorbidity) in a life-course framework and what we can do to prevent and slow down this progression. In addition, Xiaolin is also interested in statistical models and results presentation in longitudinal cohort study and life-course epidemiology.

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