Investing in a future without dementia
Profiles of Alzheimer’s Australia Research Grant Recipients
Front cover photograph by Lynton Crabb. Photographs on pages 3 and 4 provided by Professor Henry Brodaty (Photo credit: Britta Campion) and Glenn Rees, respectively. All other photographs provided by the researchers.
German psychiatrist and pathologist Alois Alzheimer first described Alzheimer’s disease in 1906, but it is only in the last 25 years that there has been a significant investment in dementia research.

We do not yet understand fully the causes of dementia, but we have a much better understanding of the changes that occur in the brain. We understand that it is not a natural part of ageing and that although dementia mainly affects older people, it can affect younger people too.

An exciting point has been reached in dementia research. We know that the pathology of dementia develops many years before a diagnosis of dementia. This provides a window of opportunity to intervene and delay the onset of dementia providing we are able to better identify those at risk of dementia. This strategy of early intervention and delay in the onset of dementia provides the most exciting possibility for reducing the future numbers of people with dementia.

Investment in dementia research in Australia has been poor in comparison to other chronic diseases, whether in relation to disease costs, disease burden or prevalence. Nonetheless, Australia has made and continues to make an important contribution to dementia research.

Australian scientist, Professor Colin Masters and his team were among the first to isolate and characterise amyloid protein from the brains of people with Alzheimer’s disease in the mid 80’s. Today that team is continuing their work on new therapies. Professor Antony Jorm, through his work on the epidemiology of dementia, laid the basis for identifying risk factors, including family history, high blood pressure, mental activity and exercise.

I have been privileged in my own work with many good Australian researchers to present evidence that well designed carer intervention programs significantly improve the quality of life of people with dementia, their families and carers as well delaying nursing home admission.

As this booklet shows, Alzheimer’s Australia Research has contributed to Australia’s proud record in dementia research by assisting new researchers. There has been an increase in the number of people we have been able to support in dementia research in recent years, but we are a long way short of where we need to be.

Support from the community for dementia research to complement the important resources provided by Government is vital. I ask those reading this booklet to make a donation to Alzheimer’s Australia Research.

Professor Henry Brodaty
Chairman
Alzheimer’s Australia Research
Alzheimer’s Australia Research (AAR) was established as the research arm of Alzheimer’s Australia just over a decade ago and since then it has supported Australian dementia research by directly funding research, advocating for increased research spending, and publicising research findings.

A key priority of AAR is to encourage the next generation of dementia researchers by helping new researchers establish their careers in the dementia research field.

This is achieved through a variety of different means. Through doctoral scholarships to encourage promising researchers into dementia research, small grants to those undertaking research for the first time and postdoctoral fellowships to enable those who commit to a career in dementia research to get a foothold on the research ladder.

Often the awards of grants and scholarships are cost shared with Universities and research organisations. This enables the funding of AAR to be driven further as well as ensuring the commitment of other organisations to dementia research.

Grant applications for the Dementia Grants Program are subject to rigorous assessment by our Scientific and Medical Panel as well as by other eminent Australian researchers in order to identify the most high quality applications.

In 2009 the members of our Scientific and Medical Panel were Professor Henry Brodaty, Professor Colin Masters, Professor Rhonda Nay, Professor Kaarin Anstey, Professor Lynn Chenoweth, Associate Professor Peter Dodd, Professor Leon Flicker and Professor James Vickers.

The excellence of the AAR assessment process has proved attractive to charitable foundations who have used it to administer funding that they wish to make available to dementia research. In this way they have been able to badge research grants in their own name while avoiding the need to create their own assessment processes.

Australia has the potential and expertise to be a world leader in dementia research. This can not happen at the current level of investment, which is currently well below 1% of the direct cost of dementia to the health system.

Although AAR has been able to support increasing numbers of researchers over the past few years, we need your help to keep up the good work.

Glenn Rees
Company Secretary
Alzheimer’s Australia Research

Foreword
I am currently working as a Research Fellow at the School of Psychiatry, UNSW and the Neuropsychiatric Institute, Prince of Wales Hospital.

My research was kick-started by a grant from Alzheimer’s Australia Research looking at the effect of memory training on brain biochemistry in older individuals. This study, along with others investigating how complex mental activity can reduce dementia risk, was awarded the prestigious Eureka Prize for Medical Research in 2006.

The Alzheimer’s Australia Research grant was actually my first grant submission and the fact that it was successful was a major boost to my self confidence. It also cemented in my mind a decision to pursue dementia research as a career.

My current research continues the theme of further understanding the competing forces of neuroplasticity and neurodegeneration in the ageing brain. I work on a range of studies across various technologies, including in vivo brain imaging, post-mortem brain tissue analysis, neural stem cell culture, and animal behaviour. Specific topics include how mental activity can affect brain biology at the cellular level, the potential for stem cells to treat memory dysfunction, and a new clinical trial to test whether combining mental and physical exercise can help prevent the onset of dementia.

Over the next few years, I aim to finish these long term projects and continue growing my fledgling team. I have been particularly lucky to have a great mentor in Professor Perminder Sachdev, who has helped guide me in the often perilous transition from PhD student to independent researcher.

The problem of dementia is a critical one for modern society. Communicating ideas about how to maintain a healthy brain is therefore a real priority of mine. This has included appearances on ABC TV’s Catalyst program and the ABC radio program Mornings with Margaret Throsby. I have also recently written a popular science book called ‘It’s Never Too Late to Change Your Mind’ about what individuals can do to minimize their chances of getting dementia, which was released by ABC Books in early 2009.
Prior to receiving the Alzheimer’s research grant, I was working for the Royal District Nursing Service (RDNS) as a Music Therapist in the Western Region, in Melbourne. My work was directly focussed on aged care, people with dementia, and their carers.

I am also a Division 1 registered nurse, a degree which I completed prior to choosing music therapy. Whilst nursing I used to be fascinated by the response of clients with dementia to music. I myself used to sing to very agitated clients with dementia whilst assisting them to the shower. This seemed to significantly decrease the agitation.

Hence my desire to follow my passion to study music therapy, and indeed focus on the area of dementia.

Whilst working at RDNS as a music therapist, a colleague of mine notified me of the available research grant, and thus the opportunity to research the effects of the music therapy service that I was delivering not only to the clients with dementia but to their carers. At this point, I had never really considered a career in research. However, I applied for the research grant, and was successful in receiving approximately $10,000 from the Alzheimer’s Association.

This grant introduced me to the world of music therapy research, which combined several areas that I was passionate about including music therapy, as well as working with people with dementia and their carers in a community setting. Thanks to this grant, I was given the opportunity to complete my Masters in this area.

Following the completion of this study in 2003, hearing about my work with carers of people with dementia, I was approached by a social worker, Katerina Tzikas at the Commonwealth Carers Respite Centre, Western Region, to pilot some music therapy sessions with such groups. This was so successful, that the sessions are still running today, in 2009. Also, a CD of songs which I co-wrote with 59 carers over a three year period was produced and launched in 2007, entitled ‘Catching dust in mid air’. The CD is available free of charge through Carers Victoria: www.carersvic.org.au or 1800 242 636.

From initially not considering a career in research, I am truly ‘hooked’ now. The results of my Masters indicated that music therapy improved not only the quality of life of the people with dementia, but also the lives of their carers. The results of the study also indicated that the music therapy sessions improved the client’s clarity of thinking during and immediately after the sessions, as indicated by their spontaneous speech and sentence structures.

It is the results of this study, and the invaluable experience I gained as a researcher, that has led me to where I am now. I am currently in my final year of my PhD at the National Ageing Research Institute in Parkville, Melbourne. My research is looking at the effect of music therapy on the speech deficits of people with dementia in a sub-acute hospital setting. I am planning to submit my thesis in February 2010.

What to after that? The question has been asked of me many, many times. My answer has been “I will leave my options wide open.” But I can assure you it will definitely have something to do with music therapy and dementia research!
I was born in Switzerland where I grew up and lived until early adulthood. I received a Bachelor of Psychology from the University of Geneva before completing a Master’s degree in Clinical Neuropsychology at the University of Melbourne and a PhD in Psychology at the University of Sydney. My doctoral thesis, which I completed in 2001, investigated changes in executive function in individuals over the age of 85 years living in the community. At the time of writing this short biography, I have over 12 years clinical experience dedicated to ageing and neurodegenerative diseases.

At the time of my application for research funding with AAR, I had been working in the field of dementia and ageing for about 5 years, combining clinical work and research. Obtaining this grant from AAR early in my career was very valuable as it was my first successful grant as an independent researcher post PhD. Funding sources that are appropriate and targeted towards early career researchers are rare. Larger funding bodies attract researchers with greater experience and competition is therefore considerable and not many options exist for researchers with limited previous experience. For that reason, AAR has an important role in supporting researchers in the early stages of their professional career. In addition, research funding opportunities such as those offered by AAR provide valuable experience in learning the skills that will be necessary to become a successful grant recipient. For me, there is no doubt that the success of this grant increased my profile and demonstrated to other funding agencies that I had the capacity to become an independent researcher. It provided a valuable stepping stone towards obtaining additional research funding. Shortly after obtaining this grant, I was awarded a 4-year postdoctoral fellowship from the National Health and Medical Research Council (NHMRC), which allowed me to develop my research skills and train in structural and functional neuroimaging overseas and in Australia.

Six years later, I am still working in the field of dementia and ageing research. I am now the recipient of an NHMRC Clinical Career Development Award Fellowship that supports my research on early detection of dementia syndromes. In 2008, I also received a project grant from the NHMRC to investigate changes in emotion processing in early frontotemporal dementia. My goals for the future are to continue to develop my research programme. The overarching objective of my research programme is to characterise the changes in cognition that represent early indicators of progressive neurodegenerative brain disorders, such as frontotemporal dementia or Alzheimer’s disease, and to define their biological correlates with the aims to improve early diagnosis, diagnosis accuracy and improve care and management of patients. This research is achieved by using a convergence of clinical and experimental cognitive tests combined with structural and functional neuroimaging approaches, as well as neuropathological studies.
I am a nurse who completed hospital-based training at St Vincent’s Hospital, Melbourne, in 1970 then specialized in critical care. My husband’s employment moved me around Australia, and the world. For years I worked where I could, including some aged care work. After completing a Bachelor of Nursing in 1993 I found myself clinical teaching for La Trobe University in residential aged care. The experience was salutary; I realized how little I really knew about this relatively new field of expertise. However, I was intrigued and then hooked. I became aware of the difference expert nursing could potentially make for this client group. Working for Alzheimer’s Australia Victoria in the early 1990’s honed my interests and skills in the preparation of health workers for aged care work and, in particular, care for people with dementia and their families.

Becoming interested in the leadership and management of staff as well as education and training, I completed a Master of Education in Leadership and Management at RMIT in 1998. In 2002 I worked as a sessional lecturer for Victoria University in the multidisciplinary Master of Aged Services Management program which had the only dedicated dementia-care content at post-graduate level in Australia. My interest in leadership grew through teaching and interacting with the mature students doing the course and in being part of the University’s curricula review that occurred at that time. The advertisement for the Alzheimer’s Australia Research 2002 Dementia Research Grants was brought to my attention by the Head of School. The Scholarship offered an opportunity to seek out answers to questions that were not at that time available in the literature about how to prepare post-graduates to become leaders in the field of dementia care. These future leaders would, I hoped, become the expert practitioners and motivators for positive change, influencing policy development, setting standards and directing curricula in the future. The outcomes of the research were incorporated as learning objectives into the Master of Aged Services Management program.

What I learnt through the Scholarship also impacted on me personally as a freelance educator and consultant. How I viewed the role of leaders in aged care changed, and reflection on that change led me to ideas about how to improve the way in which staff are led and managed through the process of problem-solving for people with dementia. I gained a PhD scholarship at La Trobe University in 2006 and through this have developed and tested my ideas. The process I tested has improved problem-solving and staff learning over time, as well as the quality of care-planning in residential aged care. Currently I am writing up my thesis and beginning to publish the key findings. I am optimistic that what I have discovered will aid others who are concerned about developing and delivering quality care. I believe that a collective concern and critical analysis of what we see and do can build a better future for those with dementia in residential aged care.

Ms Sue Aberdeen

Grant Received: 2002
Grant Value: $15,000

Project Title A review and development of leadership objectives in dementia and aged care education
I am passionate about science and I am fascinated by the human brain, but most of all I have a strong desire to make a difference and to contribute in ways that directly and positively impact on people’s lives and well-being. In this context, after completing in 2006 a PhD in psychology with a marked neuroscience focus and with a background in intensive care nursing, I was thrilled to be the beneficiary of an Alzheimer Australia Research fellowship in collaboration with the Centre for Mental Health Research at ANU. I had not planned a career in ageing research, despite having cared for numerous older persons in the past, but as serendipity would have it, all the stars were aligned making it possible for me to bring together my personal values and interests, a worthwhile cause, and exciting research.

The fellowship’s focus was an investigation of the risk and protective factors of cognitive ageing and dementia and for the next two years I was to analyse data from a large longitudinal study of ageing, the PATH through life Study. Moving from one field of research to another is not trivial and cannot be achieved without substantial help from others. AAR and the Centre for Mental Health Research provided me with the encouragement, the support, and the stimulating research environment I needed. As part of my fellowship I reviewed the literature, analysed large amounts of data, wrote research articles but importantly I was also able to develop new skills and a network of collaborators. As I had a strong interest in neuroscience and neuroimaging, I progressively acquired the knowledge and resources required to take active part in these demanding fields of research including obtaining a processing grant to efficiently analyse brain scans at the National Supercomputer Facility. I also joined the Dementia Collaborative Research Centres, a federal government initiative aimed at supporting collaborative dementia research throughout Australia.

The research conducted during my fellowship led to a number of important finding relating to health, lifestyle, dietary, genetic and cognitive predictors of mild cognitive impairment and cognitive decline which have either already been published in peer-reviewed scientific journals or soon will be. In turn, such results inform clinical practice and future research as well as contribute to the identification of targets for early detection and prevention of dementia and Alzheimer’s disease.

Ultimately, the ambition of any researcher is to stand on their own two feet and attract funding through the national grant agencies. For this aim to be achievable, one has to develop a strong track record and learn essential skills to navigate the very competitive domain of research grant applications. In 2007, I felt sufficiently well equipped to lodge an NHMRC fellowship application which fortunately was successful. Since 2008, I have continued my work in ageing research with the support of the NHMRC and although many of the projects started under the AAR fellowship are on-going, my research is now particularly focused on investigating the role of the frontal part of the brain in cognitive ageing and dementia. I am supervising a doctoral student and continue to develop a neuroimaging laboratory at the Centre for Mental Health Research. I remain very grateful to AAR for their support and will continue to work hard to help improve the lives of people with dementia and promote healthy ageing and well-being.
I am a post-doctoral research scientist working in the Department of Biochemistry & Molecular Biology at the University of Melbourne, and the inaugural recipient of the 2007 Ann Miller New Investigator Dementia Research Grant. My research is focused on the identifying the role of exosomes in Alzheimer’s disease. Exosomes are small vesicles released from cells including neurons and have been identified by our research lab to contain the toxic amyloid-β peptide. Exosomes also contain genetic information that may be able to instruct to cells to become amyloidogenic, that is, produce more amyloid-β peptide and contribute to development and progression of Alzheimer’s disease. My preliminary research has identified a group of genetic regulatory signals contained within exosomes that may influence AD pathogenesis. This research may lead to the development of novel therapeutic targets and clinical intervention strategies in treatment of AD.

Prior to the Ann Miller AAR grant, I was researching the role of copper in Alzheimer’s disease gene regulation as a part of my PhD studies in the Department of Genetics at the University of Melbourne, and published papers in The Journal of Biological Chemistry, Journal of Neurochemistry and Journal of Neuroscience. My research efforts were rewarded with a two-year fellowship from the Australian Research Council in 2005 that allowed me to develop new and exciting research approaches in Alzheimer’s research. During this time I joined the Neurodegeneration Research Group at the University of Melbourne, headed up by Professor Colin Masters, where I first learned of the AAR funding program. The program provides vital research support for scientists and clinicians, especially those in the early stages of their career, to begin new projects in the Dementia field.

With my strong background in Genetics through my PhD and interests in gene regulation of the key Alzheimer’s gene, I began collaborating with Associate Professor Andrew Hill (Dept. of Biochemistry & Molecular Biology, The University of Melbourne) on the role of exosomes in regulating the progression of Alzheimer’s disease. We decided that the AAR grant program was ideally suited to allow us to develop the necessary skills and enhance my research profile in a new and exciting area of research.

The awarding of the Ann Miller New Investigator Research Grant contributed to a number of significant achievements towards my research and career aspirations by enabling me to apply for further funding. In 2008, based on our preliminary research from the AAR Dementia research grant we were awarded funding for the project from the American Alzheimer’s Association. In 2009, I was awarded the J.N Peters Fellowship through the University of Melbourne, and also the prestigious Australian Biomedical Training Fellowship from the National Health & Medical Research Council. Together these fellowships will enable me to pursue this research until 2013.
The number and types of grants available in the annual grants program depends on how much money is donated to research each year. Donations of less than $5,000 contribute towards awards such as research and travel grants while larger donations may go towards postgraduate scholarships (for PhD students) or postdoctoral fellowships.

With large amounts (over $10,000), it may be possible to supplement these with AAR funds to make a grant, and perhaps name the grant after the donor or their loved one. Examples of this include the Ann Miller New Investigator Dementia Research Grant, the Hunter Postgraduate Scholarship, and The George Hicks Postgraduate Scholarship for Dementia Prevention and Risk Reduction Research.

In the past, AAR has offered a range of grants including:

**Research Grants**  
($10,000 - $20,000)  
These grants include seeding grants for new researchers in a dementia relevant-area. Grants are awarded in both biological/non-clinical and clinical psychosocial research areas. Grants are also available for research into dementia care. Suitable projects might include research into carer support, best quality care practices, activities and non-pharmaceutical therapies for people with dementia, or any other aspect of dementia care research.

**Travel Grants**  
($5,000 - $15,000)  
These grants enable Australian researchers or clinicians to travel overseas in order to:
- Attend and present their research related to understanding dementia, dementia care and management or carer support at a conference or similar event;
- Research aspects of dementia overseas that are not fully available in Australia and are relevant to the advancement of understanding dementia or dementia care and management; or
- Travel overseas for a period of approximately one month, and learn new techniques and/or network with well known international research teams at a hospital or university outside Australia.

**Postgraduate Scholarships**  
($20,000 - $30,000 per annum for three years)  
These scholarships support PhD students undertaking research in dementia. Past scholarships have had a focus on a particular aspect of dementia research such as social research, understanding the causes of Alzheimer’s disease, and prevention and/or risk reduction of Alzheimer’s disease or dementia.

**Postdoctoral Fellowships**  
($45,000 cost-shared - $90,000 per annum for two years)  
These fellowships support PhD graduates undertaking research in an area related to dementia.
How can you contribute?

Alzheimer’s Australia Research would not be able to fund research through its Dementia Grants Program without the support of the generous individuals and organizations that give to research each year through donations, gifts and bequests.

To make a donation to Alzheimer’s Australia Research, please:

- Send a cheque to
  Alzheimer’s Australia Research Ltd
  PO Box 4019
  Hawker ACT 2614

- Call 02 6254 4233 to make a donation via credit card

- Donate online at www.alzheimers.org.au and follow the links to our secure payment facility

Donations over $2 are tax deductible.

Please contact us if you wish to be sent information on how to remember Alzheimer’s Australia Research in your Will.