



**SUBMISSION TO THE
HOUSE OF REPRESENTATIVES STANDING COMMITTEE
ON AGEING**

**FROM
NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL**

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Introduction

The National Health and Medical Research Council (NHMRC) welcomes the opportunity to assist Government with its inquiry into long term strategies to address the ageing of the Australian Population over the next 40 years.

The NHMRC plays a major role in supporting the implementation of the Commonwealth's investment in health through its support for research, and makes an important contribution to improved public health and safety outcomes through the dissemination of authoritative health advice.

The NHMRC is a statutory body within the Health and Ageing portfolio with principal responsibility for advising the Australian community and Commonwealth, State and Territory governments on standards of individual and public health, and supporting research and research training to improve those standards. The NHMRC's work involves a large number of committees that draw on Australian's leading academics and researchers as well as representatives from professional and scientific organisations, welfare, business and consumer groups and government. The Minister for Health and Ageing makes appointments to the NHMRC every three years, with the present triennium ending in May 2003.

The NHMRC is committed to progressing the Government's National Research Priorities as announced by the Prime Minister in December 2002, in particular *Promoting and Maintaining Good Health*, which recognises as a priority goal, *Ageing well, ageing productively*. The NHMRC has recognised that developing a whole-of-life approach can only be achieved by promoting the best policy developed from, and underpinned by, good evidence which the NHMRC is uniquely placed to provide and facilitate.

Investing in Health and Medical Research

Investment in health and medical research is widely acknowledged to have significant economic benefits. For example, it has been calculated that improved health from reduced cardiovascular disease alone benefits the US economy by over one trillion dollars a year¹.

The focus of the NHMRC in supporting excellence in health and medical research and excellent researchers, has resulted in world-class research output and in the NHMRC achieving a prestigious reputation both in Australia and abroad. According to internationally recognised benchmarking, published research funded by the NHMRC is referenced at a rate above world averages².

NHMRC & Healthy Ageing

The NHMRC supports research across the continuum of basic, clinical, population health and health research. Numerically, Project Grants remain the NHMRC's main avenue for the support of research in universities, medical schools, hospitals and other research institutions. (A Project Grant is defined as support for a scientific investigation proposed by one or more of the staff of an institution.) Program Grants are substantially larger grants, and provide support for teams of researchers to pursue broadly based collaborative research activities. One such Program Grant is that awarded to Professor Colin Masters of the University of Melbourne.

Professor Masters, who leads a prestigious team of ten researchers, has been awarded \$6,525,000 over five years to study *Neurodegenerative diseases of the ageing brain: diagnosis and therapy based on the study of aggregated protein deposits*. Specific conditions addressed in this research program include: Alzheimer's Disease, Parkinson's Disease, Huntington's Disease and motor neuron disease.

The NHMRC also supports individual researchers through a range of 'people support' activities that include fellowships, career development awards and training scholarships

To progress the development of strategies to address the ageing of the Australian population, the NHMRC is working on a "whole-of-portfolio" approach which will see the NHMRC identify key 'researchable questions' in a number of ageing-related areas.

The NHMRC already makes a strong contribution to the collaborative research effort both domestically and internationally. The "whole-of-portfolio" approach to demographic ageing will bring this strength "closer to home" and enable the NHMRC to share its expertise in identifying the key researchable questions and facilitating the appropriate research across a broad range of ageing related areas, with the Ageing and Aged Care Division of the Commonwealth Department of Health and Ageing.

Ageing Research

Since 1997, the NHMRC has funded through its annual project grant program, over 100 projects to the value of almost \$35m on ageing-related research. An additional \$23m was spent in 2002 alone on funding research into ageing-related areas such as, osteoporosis, arthritis, dementia, Alzheimer's disease and injury.

Current Program

In addition to the above, Ageing was identified, through extensive community consultation conducted by the Strategic Research Development Committee (SRDC), as a research priority for this triennium. The SRDC is one of four Principal Committees of the NHMRC and is responsible for overseeing the development and implementation of strategic research in areas where the research effort is not commensurate with the magnitude of its importance to health care in Australia. At the end of the previous triennium, following a comprehensive process to determine research priorities within the broad theme of Ageing, the SRDC made \$2 million of research funding available and, in February 2002, called for a broad range of research across a number of ageing related areas.

Substantial interest was received and eight projects were recommended for funding. This recommendation was endorsed by the SRDC on 25 July 2002 and approved by the Minister for Health and Ageing, Senator Kay Patterson on 3 December 2002. Attachment A details the projects approved for funding. Unfortunately, limited funding meant that several worthy research projects could not be supported.

The Future in Ageing Research

The possible implications of demographic change and the structural ageing of Australia's population have been highlighted in two key documents:

- The *National Strategy for an Ageing Australia* released by the Minister for Ageing, the Hon Kevin Andrews MP in February 2002; and
- The Treasury's *Intergenerational Report (IGR)* released by the Treasurer as part of the 2002-03 Federal Budget.

The IGR is focussed on the direct financial impact on government of a steadily ageing population. Effective evidence-based policy aimed at sustaining a healthy aged population may ameliorate the outcomes predicted by the IGR. Delivery of the evidence requires a "whole-of-portfolio" approach. This is a major undertaking requiring a significant investment of dedicated resources.

A dialogue has been initiated between the NHMRC and the Ageing and Aged Care Division of the Department to advance the development of a research base to inform healthy and productive ageing. At this stage the discussions are necessarily broad, with many areas already identified as requiring research to underpin future policy.

In Summary

The public place great value on medical research and correspondingly have great expectations for outcomes that will positively affect their well being. Although the impact of an ageing population will not be felt for some time, the issue is at the forefront of public awareness.

The NHMRC is well placed to make a significant contribution to strategies to the development of an evidence base to inform strategies to address the ageing of the Australian population and is currently involved in a number of collaborative exercises to further this issue.

Investment in health and medical research can deliver overall economic benefits. Making a concerted effort now in research aimed at sustaining a healthy ageing population is an investment that will deliver the evidence for optimal policy and practice. It will be a major driver for Australia's future economic and social well being.

Functional Ageing, Health and Services: A longitudinal outcomes study

Contact Prof Hal Kendig (02) 9351 9222
La Trobe University, VIC

Recommended Funding \$211,465 over 3 years

The Functional Ageing, Health and Services (FAHS): A Longitudinal Outcomes Study of healthy ageing will examine ways in which functional ageing, medical conditions, and health behaviours influence the health, well-being and service use in a sample of 1,000 older people from 1994-2005. The study will add to an existing longitudinal study that has been following older people living in the community since 1994.

This study aims to provide a comprehensive knowledge base on changes in the functioning, health status, self-rated health, well-being, service use, and survival of a longitudinal sample of 1,000 older people from 1994 to 2005. It will describe annual changes in these outcomes areas and test hypotheses that explain improvement, as well as deterioration, in multiple aspects of ageing. Extensive bio-psycho-social data at 1994 baseline and subsequent years will show the influence on key outcomes of physical and medical conditions, health behaviours, and psychosocial factors. The large sample and long duration will identify rare outcomes and gender, socio-economic, and other sources of variability. All subjects first surveyed ten years earlier will have entered the critical age group of 75 years and over by 2004.

These findings will inform the key influences on changes in functional ageing as required for the targeting of interventions for older people. The findings of this study will identify the most important factors that precipitate disability onset, service use, duration of care at home after disability onset, and predictors of entry to residential care. The implementation of the National Strategy on an Ageing Australia over the next decade will benefit from the FAHS findings and their implications for self-help education, clinical practice, care planning and policy developments.

Pain and Suffering in people with Alzheimer's Disease

Contact A/Pr Stephen Gibson (03) 8387 2329
National Ageing Research Institute, VIC

Recommended Funding \$120,000 over 1 year

Persons with Alzheimer's disease receive fewer pain relieving medications than other older adults matched for age, despite having similar levels of comorbid medical disease and injury. This apparent anomaly of unrelieved pain and suffering has started to attract widespread international condemnation of aged health care facilities, although there remains one important, untested assumption; Do older adults with Alzheimer's disease feel pain in the same way and to the same extent as adults without dementia? If persons without dementia are relatively insensitive to painful stimuli then the current analgesic management may be entirely appropriate and adequate. The present study seeks to answer this fundamental question by examining pain sensitivity and an objective physiological measure of central nervous system pain processing in older adults with Alzheimer's disease. Attitudes, the meaning attributed to pain symptoms and cognitive beliefs about pain will also be examined. A 24-month follow-up study of all participants will allow the researchers to monitor

alterations in pain sensitivity and brain processing with the progression of Alzheimer's disease and cognitive impairment. This research will create a collaborative platform between leading Melbourne medical research facilities for multi-disciplinary research into cognitive aspects of ageing. In terms of scientific outcomes, the researchers expect the study results to provide some of the first evidence of similarities and differences in the pain experience of demented older persons. The findings should help guide the practice of pain assessment and management as well as inform routine clinical care for this highly dependent and vulnerable group (ie. the need for extra care and concern when undertaking bed transfers, mobilisation or any other procedures likely to cause pain and discomfort).

Australian Ageing Alliance: Geriatric Pharmacology

Contact	Prof David Le Couteur (02) 9767 7212 Anzac Research Institute, University of Sydney, NSW
Recommended Funding	\$165,000 over 3 years

Ageing is a major risk factor for disease and disability and has profound effects on response to therapeutic interventions. Older people are likely to benefit from pharmacological therapies because of the high prevalence of disease. Unfortunately they are also more likely to suffer from adverse drug effects. Appropriate prescribing for older people is difficult and made even more hazardous by the lack of scientific evidence from clinical trials in frail older people.

One of the reasons that drug therapy is more complex is because ageing is associated with impaired ability to metabolise drugs, particularly related to ageing changes in the liver. The researchers have previously discovered changes in the blood vessels of the liver called pseudocapillarisation that are likely to reduce the transfer of drugs from blood into the liver. This will cause higher drug levels and increase adverse drug effects. The researchers now propose to examine the effects of pseudocapillarisation on the metabolism of drugs used to treat psychiatric conditions. This provides a basis for selection of appropriate drugs and dosages.

Genetics of Cellular Ageing

Contact	Dr Lily Huschtscha (02) 9687 2800 Children's Medical Research Institute, NSW
Recommended Funding	\$300,000 over 3 years

Many of the cells that constitute human tissues and organs need to be continuously replenished during a lifetime, and some need to be replenished to heal wounds or repair other types of injuries. To do this, cells need to be able to reproduce themselves (ie., to proliferate). It is now known that there is a limit on the number of times that this can happen, and that this limitation contributes substantially to aspects of the ageing process. An obvious example is delayed wound healing in older individuals. To understand ageing, and to be able to prevent and treat diseases of ageing, it is therefore very important to understand what limits cellular proliferation.

According to current understanding, cellular ageing is primarily due to progressive shortening of the ends of chromosomes (ie., telomeres) that occurs normally during cellular

proliferation. When a cell's telomeres become too short, it is unable to proliferate any further.

However, it has been recently found that factors other than telomeres must also be involved.

In this study, the researchers will use a suite of recently developed analytical technologies to identify the molecular mechanisms responsible for the telomere-independent component of cellular ageing. This will lay the foundation for the eventual development of new ways of preventing and treating those aspects of diseases of ageing that result from limited cellular proliferation.

How well do health and community services help older people with neurodegenerative disorders and their family care givers?

Contact Prof Annette Dobson (07) 3365 5346
The University of Queensland, QLD

Recommended Funding \$124,705 over 2.5 years

This is a comparative study of older people (sufferers and their carers) living with two groups of neurodegenerative disorders which are likely to require different types of support and services: Alzheimer's disease and dementia; and Parkinson's disease, multiple sclerosis and the residual effects of stroke. Family caregivers of people with these conditions will be recruited using the Australian Longitudinal Study on Women's Health. Information will be obtained from the carers of their experiences of health care and other services, and the impact of caring on their own health. By comparing the responsiveness of health services to people living with these disorders under varying circumstances throughout Australia, it will be possible to identify opportunities for improving services and reducing the burden on carers.

Osteoarthritis in a rapidly ageing population

Contact Assoc Prof Nick Fazzalari (08) 8222 3269
Institute of Medical and Veterinary Science, SA

Recommended Funding \$240,000 over 3 years

The process of bone remodelling is fundamental for the maintenance of skeletal integrity. There is little information regarding the expression of specific molecules in human bone tissue or their role in skeletal disease.

This project will study human cancellous bone samples donated by patients undergoing surgery and, with the consent of the next-of-kin, taken at autopsy. The elucidation of the molecular signalling in the human bone microenvironment is essential for the effective diagnosis and treatment of bone and joint diseases. In addition, molecular and histomorphometric studies will determine whether the understanding derived from tissue culture and animal experiments is consistent with associations demonstrable in the human cancellous bone microenvironment.

Recently reported studies have shown very persuasively that primary osteoarthritis (OA) might initially be a bone disease, rather than, or in addition to, a cartilage disease. Preliminary data shows that IL-11 mRNA gene expression is negatively correlated with age

but in OA is expressed at a level one half that of non-OA cases. The researchers will further investigate mRNA gene expression of a number of cytokines involved in bone cell signalling and their association with primary OA of the hip. Using microarray technology we will seek to determine the bone remodelling abnormality associated with OA and the abnormal cytokine signalling. Furthermore, the cellular and molecular mechanisms that lead to the trabecular structures seen in OA are not well understood. These studies will provide new insight into the processes that determine trabecular structures. This project will investigate these mechanisms and increase our understanding of bone cell function, essential for diagnosis and design of rational treatment for OA and other bone diseases.

The problem of dementia in Aboriginal and Torres Strait Islander people in the Kimberley region

Contact	Dr Dina LoGiudice (03) 8387 2148 National Ageing Research Institute, VIC
Recommended Funding	\$200,000 over 2 years

Dementia is a term used to describe the symptoms of illnesses that cause a progressive decline in a person's memory and thinking functions. Dementia occurs more commonly in older people and has a major impact on the lives of those with the condition and their families. Symptoms of confusion, disorientation, poor memory, personality changes and loss of ability to do everyday tasks are often seen. The diagnosis of dementia is made after a clinical assessment that includes asking questions that test for memory loss and other aspects of thinking function, and a physical examination. Family members are consulted about changes they have noted in their relative's ability to perform usual activities. Common causes of dementia are Alzheimer's Disease, stroke, head injury and alcohol use.

Recent research indicates advances in the assessment and management of dementia, including the benefits of certain medications and psychosocial interventions, including education and carer support programmes. Unfortunately the vast majority of the research in the area of assessment and management of dementia has been performed on non-Indigenous groups and therefore cannot be easily translated to Australian Indigenous communities. The limited data available indicate there may be a higher prevalence of dementia in Indigenous communities, with cerebrovascular disease, injury and excessive alcohol use being common underlying and potentially reversible causes.

Further research is needed to determine the magnitude of the problem of dementia in the Indigenous population. Before this can be ascertained, an appropriate means of assessing a person with memory problems and possible dementia needs to be developed in a culturally sensitive manner. This study aims to develop and validate an assessment tool that is specific for those of Indigenous background. A study will also be performed to determine the prevalence and underlying causes of dementia, in a representative sample of older Indigenous people living in the Kimberley region. This will have significant implications for the planning of effective and culturally appropriate services for older Indigenous people with dementia and their families and carers.

