2017-18
RESEARCH OPPORTUNITIES

Doctor of Philosophy, Masters and Honours students
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Australian Catholic University – CRICOS registered provider 00004G
A WORD OF WELCOME FROM
THE DIRECTOR OF THE INSTITUTE
FOR HEALTH AND AGEING

PROFESSOR
MARITA McCABE

The Institute for Health and Ageing (IHA) is a research institute located at the Australian Catholic University’s Melbourne campus.

The Institute brings together a multidisciplinary team of experts who are passionate about the study of ageing and making a positive impact on people’s lives. The Institute investigates the impact of people’s experience on the ageing process, and develops, implements and evaluates interventions that improve the quality of life of older people, their family and carers.

IHA researchers work across a range of settings spanning the individual, family, community, aged care and health sectors, government and private enterprise to increase the health and social connectivity of older people.

IHA is seeking high quality research candidates (PhD, Masters, Honours) to undertake projects with a focus on ageing well in the following areas:

- Active living and the built environment
- Supportive care in cancer
- Aged care
- Biostatistics
- Musculoskeletal health and health economics
- Women’s healthy ageing
- Ageing and fragility

ACU research graduates are eminently employable because the attributes required for success in their research courses are the same attributes that are in high demand by employers: the ability to manage projects, expertise in thinking independently and critically, and in solving problems; and finesse when communicating with others.

IHA welcomes your enquiries about these and other potential ageing-related research projects in our areas of expertise:

Email: iha@acu.edu.au
Phone: +61 3 9230 8170
MY EXPERIENCE AT IHA

EARLY CAREER RESEARCH AND DOCTORAL EXPERIENCES AT IHA

Studying and working at IHA has been an amazing experience for me so far. I’ve had the chance to learn from, and work with, researchers who are at the top of their fields, and am constantly being inspired to push myself. Everybody is passionate about their work, and willing to share their knowledge and experiences with you. Doing a PhD can be an intense experience, so being able to work with such supportive mentors and being around a great group of other grad students is an experience of a lifetime, and makes me grateful for the opportunities I’ve been given.

Ashley Macleod
Current PhD student studying Psychology

Dai Barnett
Current PhD Candidate studying Behavioural Epidemiology

Venurs Loh
Current PhD Candidate studying Social Epidemiology

It’s a privilege to be one of the IHA ‘family’! It is not always common to have the best of the best in each field gathered in one place, and as a PhD student, my learning experience has been substantially enriched by the multidisciplinary team of experts in the health and ageing discipline. Working with people from different areas has helped enlarge my vision to see things from different perspectives. I especially enjoy the small chats and coffee breaks with other like-minded early career researchers and PhD students. Did I mention that IHA is strategically located at the centre of Melbourne CBD with an incredibly scenic office view? Cutting-edge researchers, supportive learning environment, and well-equipped facilities in one of the most liveable cities in the world ... what more can you ask for?
My experience at IHA has given me more than I could have ever hoped for as an early career researcher. The Institute has provided me with countless opportunities and resources to establish my research career. In addition, the dedication of the IHA team to the pursuit of excellence in research is something I am very proud to be part of.

Gemma Tatangelo
Early career researcher
ACU research institutes and faculties include some of the very best researchers in the world. We aim to support research of the highest quality and to ensure that our graduate research candidates have a rewarding experience.
Australian Catholic University (ACU) was opened on 1 January 1991 following the amalgamation of four Catholic tertiary institutions in eastern Australia:

- Catholic College of Education Sydney in New South Wales
- Institute of Catholic Education in Victoria
- McAuley College in Queensland
- Signadou College of Education in the Australian Capital Territory.

The University is a member of the publicly-funded national system of Australian universities, the Association of Commonwealth Universities and the International Federation of Catholic Universities. ACU is a member of Universities Australia, the peak body representing the university sector in Australia.
Through research, we aim to improve quality of life, promote active living, improve social connection, and create age-friendly environments that enhance the ability of older people to age well.
Located in Melbourne’s central business district at 215 Spring Street, the Institute for Health and Ageing aims to set the benchmark for research into healthy and active ageing. Our vision is an age-friendly future.

Through research, we aim to improve quality of life, promote active living, improve social connection, and create age-friendly environments that enhance the ability of older people to age well.

At IHA, we focus on quality of life and healthy ageing - things that don’t occur in isolation. We examine how mental, physical and environmental factors intersect, drawing on the broad ranging skills and experience of our expert team.

Our research into areas such as musculoskeletal health, urban spaces and active ageing, and exercise and chronic illness emphasises the importance of people remaining fit and active to age well.

Our work around mental health, inequalities in health and aged care highlights how ageing ‘in place’, and having control is key to maintaining quality of life in later years.

Finally, we believe that healthy ageing should be possible for everyone, regardless of postcode or background. We seek to build resilience in older people across a range of social, economic and cultural settings.
The proportion of older adults in urban areas is growing rapidly, leading to increases in health care costs associated with chronic diseases. This problem can be offset by creating urban environments that support an active lifestyle across mid-to-late adulthood. Research will be undertaken to identify key elements of urban environments that promote an active lifestyle in the mid-aged, fully-functional workforce, as well as the older, disadvantaged segment of residents with restricted mobility. This knowledge will inform equitable, universal activity-friendly community design suitable to all age groups.

There are a number of potential PhD projects within these extant studies. Research candidates can choose to focus on substantive or methodological issues. Examples of projects that may stem from the studies include:

**Project 1:**
Age, gender and geographical differences in types and profiles of destinations promoting physical activity across mid-to-late adulthood. This project will identify mixes of neighbourhood services and destinations that are most supportive of an active lifestyle, and the extent to which they are generalisable across genders, age groups and country of residence.

**Project 2:**
Activity spaces in mid-to-late adulthood. This project will identify places and types of destinations where mid-aged and older adults engage in physical activity and whether these differ across age groups.

These projects will be led by PROFESSOR ESTER CERIN.
SUPPORTIVE CARE IN CANCER
IHA is undertaking research on how the neighbourhood environment influences health and well-being as we age. Many studies have documented an association between the neighbourhood that people live in and their health, however we know very little about how and why the neighbourhood environment affects health. Possible areas of research include the built environment, the social environment, transport, planning, neighbourhood disadvantage and inequity, and urban design. These (and other) factors could be examined in relation to physical activity, active travel, sedentary behaviour, diet, overweight and obesity, smoking, and physical and mental health. Depending on their chosen topic, research candidates will have access to HABITAT, an internationally recognised study that investigates how neighbourhoods influence health. Importantly, each research candidate’s PhD project will be flexible in scope, and there is considerable opportunity to design your own program of research.

Neighbourhood environment and ageing

These projects will be led by PROFESSOR GAVIN TURRELL
The design of urban and residential environments can influence the way older adults move, interact and carry out daily activities. Environments that support active lifestyles are important for older adults to reduce the risk of chronic disease and to maintain their functional capacity. Environmental design can also influence their mental health: therapeutic building/site design seeks to enhance occupiers’ well-being by optimising the level of stimuli (e.g., social, visual, auditory). Thus, the design of urban and residential environments can make an important contribution to active and healthy ageing. This research theme investigates a wide range of environmental design attributes that can support older adults’ active lifestyle and mental health.

Large social, economic, environmental, and health benefits will accrue in society if there is an increase in use of active transport – public transport, walking, and cycling. These benefits include reductions in air and noise pollution, traffic congestion, road trauma, fossil fuel dependency, and greenhouse gas emissions. Active transport also leads to increases in productivity, improvements in public health (via increasing physical activity and decreasing obesity), and cost-savings to the healthcare sector. Increasing active transport among an ageing population requires a more detailed understanding than is currently known about the range of complex interacting factors such as psychological, economic and social relationships, that influence the commuting decisions of people.
The Institute has a research stream dedicated to supportive care in cancer which strives to enhance the lives of people with cancer through innovative and impactful research. The Supportive Care in Cancer team conducts research focused on the prevention and management of adverse effects of cancer and its treatment. We aim to enhance outcomes for people with cancer by developing and evaluating interventions that improve physical, psychological and social wellbeing. The main focus of our research is the application of exercise as medicine for the management of cancer.

This is an opportunity for a research candidate to join our highly productive team. The PhD candidate will have the opportunity to develop an independent research career with guidance from our senior academic staff and clinical collaborators. The candidate will also have the opportunity to contribute to the team’s research activities and benefit from IHA’s collaborative, multidisciplinary research environment.

The main focus of our research is the application of exercise as medicine for the management of cancer.
A number of projects are currently being conducted in the area of aged care with both community and residential aged care organisations as partners.

1. Caring for the Carer is research exploring the needs of family carers in the community. This project develops and evaluates interventions specifically designed to tailor the services provided in the aged care sector to meet the needs of families of people with dementia.

2. Consumer Directed Care (CDC) is a significant challenge in residential care. This study is concerned with both identifying the specific needs of residents and working with organisational structures to ensure the resident is at the centre of care. This project explores the nature of these challenges, and will develop, implement and evaluate a program to assist staff and organisational leaders in residential care to make decisions that improve the quality of life of residents.

3. Transitioning to aged care is often a stressful time for both older people and their families. Although such a transition may be the best solution for the physical health of the older person, there is frequently a deterioration in their mental health, and also adjustment problems experienced by their family carers. This project explores the factors related to a successful transition to residential care, as well as evaluating a program to assist both older people and families to negotiate this change.

These projects will be led by PROFESSOR MARITA McCabe
The concept of health is important to individuals, health professionals, and policymakers. However, it is difficult to define and measure. In 1948, the World Health Organisation defined health as ‘a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity’. Since then, this definition has been repeatedly challenged on the grounds of its lack of operational value. Despite repeated calls in the literature for a revision of this definition, no generally accepted definition has emerged.

Measures of ‘health’ that are currently available, such as the Sickness Impact Profile, the Nottingham Health Profile, and the 36-item Short Form Health Survey (SF-36) continue to focus on measuring ‘the absence of disease’. The objectives of this research project are to:

1. Synthesise research literature on the conceptualisation and definition of ‘health’
2. Develop an operational definition of ‘health’, and
3. Use this definition as a blueprint to develop and evaluate a measurement tool for the assessment of ‘health’.

Statistical approaches to handling multimorbidity in observational and experimental studies

Multimorbidity is the presence of multiple chronic conditions within one person. In addition to being a significant public health problem in Australia and the developed world, multimorbidity poses methodological challenges to health researchers, as adjustment for multiple conditions during data analysis has the potential to substantially reduce the strength of the study. Additionally, modelling each chronic condition as a separate ‘outcome’ variable doesn’t take into account clustering of different chronic conditions within the same individual, which could potentially explain why the same set of risk factors, for example smoking and high body mass index, have been implicated in a number of chronic conditions. The overall objectives of this research project are to:

1. Identify statistical methods suitable for modelling the multidimensional nature of multimorbidity
2. Evaluate the methodological soundness of these methods
3. Make recommendations for the best statistical practice in handling multimorbidity during data analysis.
Osteoporosis is a disease in which the density and quality of bone are reduced, leading to weakness of the skeleton and increased risk of fracture, particularly at the hip, spine and wrist. It is a relatively common disease that is usually silent until a fracture occurs.

There are major studies commencing in 2017 addressing the principle areas where the immense burden of disease imposed by fractures in older adults can be significantly reduced –

1. Improvements in identifying those at risk of fracture
2. Reducing the substantial risk of recurrent fracture(s)
3. Improving recovery in patients with fracture.

The outcomes of these studies will close gaps in the field. They will be not only of relevance in Australia, but will have a high impact on an international scale. IHA has access to very large Australian and international cohort studies. Data from these studies has been collected with appropriate scientific rigour and includes all the variables needed to address these identified gaps in knowledge. We also have the opportunity to conduct a pilot intervention phase in two clinical settings. These studies will facilitate transfer of findings into clinical practice, and offer results to inform government support for policy and national guidelines on fracture management and care.

These projects will be led by PROFESSOR KERRIE SANDERS
Research projects in women’s healthy ageing are available across three themes:

1. **Mood** – This project will cover: early detection and preventative measures; the effects of vitamin D insufficiency on depression and other mood related disorders; the association between alcohol intake and depression in community-dwelling older women; and, the relationship between social activities and mood, focussing on loneliness from midlife into ageing.

2. **Cognition** – This project includes the identification of individuals at increased risk of Alzheimer’s Disease, particularly those with cardiovascular risk factors, and the implementation of preventive lifestyle factors on cognitive performance.

3. **Vascular Disease** – This project will examine the association of vitamin D insufficiency, sex hormone and physical inactivity on lifetime risk of cardiovascular disease.

These projects will be led by **PROFESSOR CASSANDRA SZOEKE**.
There are a number of projects in this theme and these include:

1. Studies of ageing and the microstructural basis of bone fragility
   There are a range of prospective studies that have been carried out locally and internationally in which bone microstructure has been measured in cohorts ranging in number from 500 to 1000 persons. Fracture rates have been documented during follow-up of 1 to 10 years. The aim of this project is to identify microstructural features present at baseline, before the fractures occurred, to determine whether the baseline microstructural deterioration present identifies women and men who fracture their bone during the subsequent 10 years. By establishing this, the information will be used to develop healthcare plans to treat persons at risk for fracture. This work has important health economic implications for Australia and overseas.

2. Racial and sex differences in bone microstructure and the risk for fracture
   It is known that Caucasian women are at higher risk for fracture than Caucasian men. It is also known that Chinese persons are at a lower risk for fracture than Caucasian persons. There is incomplete information regarding why there is gender and racial dimorphism in fracture risk. Data accumulated in over 1000 Chinese females and males, and over 5000 Caucasians is available for analysis as a short (1-2 year project) or longer term PhD project, to understand differences in fracture risk in our community.

3. Studies in twins
   People are fascinated to see that identical twins look alike. To the scientist, what is fascinating is how they differ because the differences in twins give us a way of measuring the effect of the environment - nutrition, exercise, smoking, calcium intake, obesity, diseases, alcohol intake - on a phenotype like bone mass, bone microarchitecture and hormonal measurement. Data of over 350 pairs of identical and non-identical female twins is available to study the effects of environment on health and bone mass, muscle mass and fat mass. A student interested in this research can analyse the data as a short or long term study.