



Research to improve health and wellbeing

# The 45 and Up Study: Achievements to June 2010

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saxinstitute



## Australia's Largest Cohort Study

Australia's population is ageing. With the proportion of Australians aged over 65 projected to increase by 50% over the next 15 to 20 years, it is crucial we understand what leads to healthy ageing, and how we can remain as healthy and independent as possible as we age.

The Sax Institute, together with funding partners, established the 45 and Up Study ('the Study') – the largest cohort study ever conducted in Australia and the largest cohort study of its kind in the Southern hemisphere - to foster research into healthy ageing. The Study enables timely, locally relevant and inexpensive policy relevant research about healthy ageing.

More than 265 000 men and women from across NSW aged 45 and over – over 10% of this age group – agreed to participate in the Study and have their health followed over the coming decades. Study participants provide demographic, lifestyle and health information through a brief baseline questionnaire and re-surveys at least once every five years. With consent, participant information is linked to other health databases for further studies.

The Study, now fully established as a collaborative resource for internationally leading research, will help us understand how we can remain healthy and independent as we age. Already over 40 research projects using the Study are yielding information that will be vital in shaping health policies and services for our rapidly ageing population.

## Achievements to June 2010

**Collaborative growth.** Established as a collaborative venture, the Study has brought together funding partners, policy makers and researchers committed to creating a shared asset for world class research into healthy ageing. The 6th Annual 45 and Up Study Collaborators' Meeting, held in September 2009, brought together over 150 researchers and policy makers to facilitate the best use of Study data. The number of new Study collaborators continues to grow.

**Sustainability funding.** At June 2010, the Study had earned \$7 million in funding to establish the cohort. The Study is managed by the Sax Institute in collaboration with its major partner Cancer Council NSW and partners the National Heart Foundation of Australia (NSW Division); *beyondblue: the national depression initiative*; NSW Health; Ageing, Disability and Home Care, Department of Human Services, NSW; and UnitingCare Ageing. The Study was also supported over the last year by the Alma Hazel Eddy Trust (managed by Perpetual Limited) and the NSW Office of Science and Medical Research (OSMR).

**Enhanced infrastructure.** Management of the Study is overseen by the Sax Institute Head, Epidemiology and Biostatistics Division, the Sax Institute Research Assets Director, the 45 and Up Study Scientific Director and the Sax Institute Director, Clinical Epidemiology. The core Study team as at June 2010 consists of a part-time Data Manager, a Biostatistician, a Cohort Coordinator, a Policy Officer and two Project Officers and three part-time Project Assistants. Communications and financial management support for the Study have continued to be provided through core Sax Institute staff.

**Robust governance.** Following recruitment, and in recognition of the new phase of the Study, a new [advisory structure](#) has been implemented. A Strategic Advisory Committee is the main source of expert strategic advice; an Internal Management Committee oversees planning, operational, and financial aspects of the Study; an independent Access Committee reviews applications to undertake projects using the Study resource; a series of short term Topic Specific Working Groups provide detailed advice about new projects or specific issues; and

three special purpose panels operate: a Researcher Panel, a Partners' Panel and a Participants' Panel.

**Safeguarding participants.** New policies to ensure appropriate, equitable and transparent access to the Study resource have been developed. **These include:**

- [Access Policy](#)
- [Fees and Charges Policy](#),
- [Policy on Sub-studies](#).

**Communicating with participants.** An annual [participant newsletter](#) has been established to provide participants with updates on the progress of the Study, including some early data, projects underway using the data, as well as information on Study partners, supporters and participants. The second newsletter, distributed in late 2009, was emailed to over 35,000 and posted to 225,000 participants.

**Engaging data users.** Five issues of the [45 and Up Study e-News for researchers](#), a bulletin for members of the 45 and Up Study Research Network, researchers, policy makers and others with a professional interest in Australia's largest cohort study, have been distributed. A Data Users Group has been established and a regular communication through the 45 and Up Study Scientific Director and Biostatistician has commenced.

**Research dollars.** Researchers continue to receive funding for projects using the Study. Over the past year the following were received:

- An Australian Research Council (ARC) Grant of \$565 000 to investigate the long-term impacts of employment, family-building, housing, and migration during Australia's post-war era and the health implications for those who are now moving into retirement (Professor Hal Kendig, University of Sydney, et al)
- A grant of \$504 750 from the National Health and Medical Research Council (NHMRC) to re-contact Study participants, validate self-report of diabetes and collect further information on their health status, treatment and management of diabetes and related health care. Linked data will also be used to assess health outcomes, processes of care and participant characteristics (Associate Professor Elizabeth Comino, University of NSW, et al)
- A grant of \$581 750 from the NHMRC to investigate the relationship between overweight, obesity and hospitalisation (Professor Emily Banks, Australian National University, et al)
- The Inaugural NSW Cardiovascular Research Network (CVRN) Research Development Grant, sponsored by the National Heart Foundation of Australia (NSW Division) and OSMR, awarded to a team of preeminent researchers led by Professor John Chalmers from the George Institute for International Health. A total of \$300,000 was awarded to fund a program of work utilising data from the Study, linked to data on health outcomes, to support advancements in understanding the diagnosis, treatment and management of cardiovascular disease

**Health information linkage.** The full cohort has been included in the Centre for Health Record Linkage (CHeReL) Master Linkage Key. This enables data collected by the Study to be confidentially linked with a wide range of routinely collected health-related data, for example about deaths, cancer notifications, hospital admissions and the use of health services. De-identified, linked records are helping researchers gain a more comprehensive picture of the health of the population than would otherwise be possible. This increases the amount of research that can be carried out within a given budget and helps ensure the best use of research dollars.

**Genes, lifestyle and environment.** Understanding the interplay of biological and environmental factors in causing disease and influencing its progression will become an increasingly important focus for research in the coming years. Cancer Council NSW funded the Link-Up Project; a 'proof of concept' pilot project to collect, process and store detailed physical measures and blood samples from Study participants. Between July and September 2009 the Link-Up Project approached a random sample of Study participants from Wagga Wagga and Parramatta. Participants were invited to complete a brief questionnaire about their health, have physical measurements taken (height, weight, waist circumference, blood pressure and heart rate) and provide a blood sample. In total, 749 blood samples were collected. Blood samples and biodata were collected either through a dedicated clinic or a commercial pathology service.

**Baseline data.** Data entry of baseline information was completed in late 2009 for the full cohort of over 265 000 men and women across NSW. These data have been made available for use in approved research projects.

**First sub-studies underway.** Seven sub-studies, to collect additional information from Study participants, have commenced:

- The HAIL ([Housing and Independent Living](#)) Project will study the home and neighbourhood environments of 200 community dwelling older people, to examine the extent to which these environments can be considered 'supportive'. Data collection for this project is now complete and analysis is underway.
- The SEEF Project will mail a questionnaire to the first 100 000 individuals recruited to the Study to collect more detailed information on the [social, economic and environmental factors](#) that influence health.
- The [Skin Health Study](#) will invite approximately 9 000 Study participants to provide blood and skin cell samples and complete a questionnaire about their health and lifestyle. This project will look at the amount and pattern of sun exposure, as well as other factors such as sun sensitivity, HPV, smoking, and the relationship of these to risk of skin cancer.
- The [Retirement Transition and Health Project](#) will collect detailed information from 2 000 Study participants, over four years, related to their retirement plans and then moving to retirement.
- The [CREDO Research Project](#), a randomised controlled trial of a web-based intervention to improve depression, cognitive function and adherence in people with comorbid cardiovascular disease, will invite up to 5 000 Study participants to join the sub-study in an effort to obtain a cohort of 500 people participating in the online program.
- The [Life History and Health](#) Project will collect data from members of the Study to identify the long-term impacts of employment, family-building, housing, and migration over Australia's post-war era and the health implications for those who are now moving into retirement.
- The [Diabetes Risk Factor Survey](#) will recontact 2 000 Study participants to validate self-report of diabetes and collect further information on their health status, treatment and management of diabetes and related health care.

**Finding answers.** Fifty-seven applications using data from the Study have been approved, and 41 projects from various institutions are under way. Sixteen of these commenced in 2009-2010. A total of 13 papers have now been published, or are in press, using data from the Study. Eleven of these were published in 2009-2010.

**Policy relevant research.** The Sax Institute continues to manage a program funded by Bupa Health Foundation to promote the early use of data from the Study as a resource for policy relevant research. Projects in 2009-2010 included:

- A descriptive analysis of the characteristics of Study participants who have private health insurance
- An exploration of the association between physical inactivity (screen-time) and obesity
- An investigation of participants who have had hip or knee replacements, involving analysis of Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) data, to examine trajectories of service and medication use
- A descriptive analysis of the characteristics of Study participants who are long-term users of opioid medications for chronic non-cancer pain using PBS data
- A description of the mental health status of Study participants, and the interrelationships between their mental health status, other chronic diseases, and risk factors for chronic disease.

## Appendix 1. Research Funding Received

To date, ten projects that use data from the 45 and Up Study have received competitive grant funding:

- Bauman A, Redman S, Banks E, Harris M, Schofield D, McMichael T, Bailey S, Bambrick S, Beard J, Broom D, Byles J, Clark J, Jalaludin B, Jorm L, Nutbeam D. and Rodgers B. Understanding the impact of social, economic and geographic disadvantage on the health of Australians in mid to later life: What are the opportunities for prevention? NHMRC Preventive Healthcare and Strengthening Australia's Social and Economic Fabric Strategic Award: \$1.8 million
- Banks E, Jorm L, and Wutzke S. The 45 and Up Study: Policy in action. Bupa Health Foundation grant: \$429,000.
- Sitas F, Armstrong B, Banks E, Kricker A, Weber M. and Pawlita M. Infectious and lifestyle determinants of non-melanoma skin cancer. NHMRC Project Grant: \$953,200.
- Hesketh B, Griffin B. Retirement transition: a longitudinal P-E fit approach within a "life expectancy" time framework. ARC Discovery Grant: \$240,500.
- Jorm L, Kendig H, Byles J, Bambrick H, Pedlow R, Parkinson L. The 45 and Up Study: exploring met and unmet needs for home care in NSW. HACC research grant from the NSW Department of Ageing, Disability and Home Care: \$112,000.
- Comino E, Harris M, Jorm L, Haas M, Jalaludin B, Flack J, Powell Davies G, Mohsin M. Investigating best practice primary care for older Australians with diabetes using data linkage. Gold Star Award from UNSW: \$30,000.
- Banks E, Bauman A, Butler J, Jorm L, Wade V, Fernando D, Clements M, Korda R, Liu B, Bambrick H. Obesity, overweight and hospitalisation: Identifying targets for interventions to prevent adverse health outcomes. NHMRC Project Grant \$581,200.
- Kendig H, Byles J. Socio-economic determinants and health inequalities over the life course: Australian and English comparisons. Australian Research Council (ARC) Discovery Grant \$565 000.
- Comino A. Best practice primary health care for older Australians with diabetes. NHMRC Project Grant \$504 750.
- Chalmers J, Chisolm J, Redman S, Bauman A, McDonald P, Levi C, Kritharides L, Banks E, Pollock C. The 45 and Up Cardiovascular Research Framework. The inaugural NSW Cardiovascular Research Network (CVRN) Research Development Grant \$300 000.

Additionally, the Study has been awarded funds to support dedicated senior research staff. In September 2006, Cancer Council NSW employed a 45 and Up Study Fellow, Dr Marianne Weber, to use data from the 45 and Up Study for cancer research. In December 2007, the 45 and Up Study Scientific Director, Professor Emily Banks was awarded a 5-year NHMRC Senior Research Fellowship to progress research using data from the Study.

## Appendix 2. Peer Review Publications

To date, 13 papers using data from the Study have either been published or accepted for publication in peer reviewed national and international journals:

1. 45 and Up Study Collaborators. *Cohort profile: The 45 and Up Study*. International Journal of Epidemiology 2008; 37:941-947.
2. Weber M, Banks E, Ward R, Sitas F. *Population characteristics related to colorectal cancer testing in New South Wales, Australia: results from the 45 and Up Study cohort*. J Med Screen 2008; 15:137-142.
3. Banks E, Jorm L, Lujic S, Rogers K. *Health, ageing and private health insurance: baseline results from the 45 and Up Study cohort*. ANZ Health Policy 2009; 6:16.
4. Weber M, Banks E, Smith D P, O'Connell D, Sitas F. *Cancer screening among migrants in an Australian cohort; cross-sectional analyses from the 45 and Up Study*. BMC Public Health 2009; 9:144.
5. Magee C, Iverson D, Caputi P. *Factors associated with short and long sleep*. Preventive Medicine 2009; 49:461-467.
6. Magee C, Iverson D, Caputi P. *Sleep Duration and Obesity in Middle-aged Australian Adults*. Obesity 2009; doi:10.1038/oby.2009.373.
7. Pit S, Shrestha R, Schofield D, Passey M. *Health problems and retirement due to ill-health among Australian retirees aged 45–64 years*. Health Policy 2010; 94:175-181.
8. Banks E, Jorm L, Rogers K, Clements M, Bauman A. *Screen-time, obesity, ageing and disability: findings from 91 266 participants in the 45 and Up Study*. Public Health Nutrition, Published online by Cambridge University Press 22 Apr 2010 doi:10.1017/S1368980010000674
9. Mealing M, Banks E, Jorm L, Steel D, Clements M, Rogers K. *Investigation of relative risk estimates from studies of the same population with contrasting response rates and designs*. BMC Medical Research Methodology 2010; 10:26
10. Liu B, Jorm L, Banks E. *Parity, breastfeeding and the subsequent risk of maternal type 2 diabetes*. Diabetes Care 2010; March 23 (Epub ahead of print).
11. Arora M, Schwarz E, Sivaneswaran S, Banks E. *Cigarette Smoking and Tooth Loss in a Cohort of Older Australians: the 45 and Up Study*. J American Dental Association (in press)
12. Banks E, Byles J, Gibson R, Rodgers B, Robinson I, Latz I, Williamson A, Jorm L. *Is psychological distress in people living with cancer related to the fact of diagnosis, current treatment or level of disability?* Findings from a large Australian study. Med J Aust (in press).
13. Jorm L, Walter S, Lujic S, Byles J and Kendig H. *Home and community care services: a major opportunity for preventive health care?* BMC Geriatrics (in press)

## Appendix 3. Research Findings

Projects using data from the 45 and Up Study continue to produce significant research findings. Some of the most recent research findings include:

**A good night's sleep.** Sleep is increasingly recognised as important for health and wellbeing. Both short and long sleep duration are linked to adverse health outcomes. This study showed that both short and long sleep patterns are common amongst middle aged Australian adults. Short sleep is associated with long working hours and obesity, whilst long sleep is associated with recent treatment for cancer. Initiatives to target short sleep could have significant health benefits (see full reference of paper above, numbered 5).

**Health and early retirement.** New data will allow interventions to prevent early retirement. The study, *Health problems and retirement due to ill-health among Australian retirees aged 45–64 years*, found interventions to prevent or treat health problems would not only bring immediate health gains to individuals but would increase their ability to age productively and contribute to society. The study found women would benefit most from interventions targeting cancers, thrombosis, depression and osteoarthritis and men would benefit most from a focus on stroke, cancers, osteoarthritis, depression, anxiety and heart disease. An ageing population that is healthy increases productivity, because people are able to remain in the workforce for longer and/or participate in voluntary work reducing the demands on a health system facing rising costs - not least because of the population's increasing longevity (see full reference of paper above, numbered 7).

**Get off the sofa or risk obesity.** Whether you are young, old, disabled, male, female, rich or poor; the more time you spend in front of a screen the greater your risk of obesity. The study, *Screen-Time, Obesity, Ageing and Disability: Findings From 91,266 Participants in the 45 and Up Study Cohort*, suggests current anti-obesity campaigns, promoting 30 minutes of exercise a day, must take sedentary time into consideration to prevent obesity. Campaigns tend to focus on spending half an hour a day getting exercise but not the 16 hours of waking time, where, if you're standing up you're using a lot more energy than if you're sitting down. The study showed people who spend eight or more hours in front of a screen per day have double the risk of obesity compared with those with less than two hours of screen time a day (see full reference of paper above, numbered 8).

**Breastfeeding to reduce the risk of type 2 diabetes.** Diabetes is currently the fastest growing chronic disease in Australia and the seventh highest cause of death. This study shows that having children increases a woman's chance of developing type 2 diabetes. Breastfeeding, however can reduce this risk to the same level as women who have never had children. Women who have children and don't breastfeed, have a 50% greater risk of developing type 2 diabetes compared to women without children. Women who have children and breastfed for at least 3 months, have no increased risk of developing type 2 diabetes. Encouraging breastfeeding could have a marked impact on reducing the number of women who develop type 2 diabetes post giving birth to their children (see full reference of paper above, numbered 10).

**Hidden group of Australians with preventable health problems.** A high rate of preventable health problems has been identified among older Australians who are relying on home and community care services in order to remain in their homes and independent. Many have chronic health conditions including diabetes, heart disease and depression as well as high rates of both underweight and overweight, and low levels of physical activity. Identifying this hidden group provides enormous potential for implementing programs that target lifestyle risk factors through the home and community care sector (HACC). HACC clients tend to be sedentary and they have high rates of falls. This emphasises the potential value of programs to increase physical activity, with a focus on improving strength and balance, for this group of older people. Every day 830,000 Australians use nursing, meals, household assistance, transport, day centre and respite care services (see full reference of paper above, numbered 13).

## Appendix 4. Research Completed or Underway

To date, 41 projects are underway that use data from the 45 and Up Study to investigate a variety of health issues:

### *Completed projects*

#### **Pilot study for the collection of biospecimens and biodata from participants in the 45 and Up Study**

This project was led by Professor Emily Banks from the National Centre for Epidemiology and Population Health, Australian National University and Scientific Director of the 45 and Up Study. The project aimed to collect detailed physical measures and biospecimens from approximately 1,000 Study participants through dedicated clinics and existing pathology services to:

- Provide overall information on the feasibility, acceptability and cost of collecting biospecimens and biodata from Study participants.
- Establish likely response rates for collection of biospecimens and biodata from Study participants, overall and according to a range of factors, including data collection method, fasting versus non-fasting status, distance of residence from the collection site, age, sex, socioeconomic status, functional capacity and lifestyle.

It also validated self-reported measures of height and weight against measured height and weight and provided measured data on height and weight to calibrate self-reported height and weight for the rest of the Study.

#### **Breastfeeding and diabetes**

This project was led by Dr Bette Liu, a Research Fellow at the University of Western Sydney. Breastfeeding is known to confer many benefits to the infant and increasingly evidence suggests there are also substantial long term benefits for the mother. This project looked at the results of female Study participants who have had their questionnaire data entered into the study database. An analysis dataset was created using questionnaire data from the Study which includes information on breastfeeding, self-reported diabetes (and age of diagnosis) and other potential confounders (e.g. age, parity, body mass index, socioeconomic status, ethnicity). The results of this study provided some estimate of the risk of diabetes in relation to having breastfed adjusted for many important confounding variables.

#### **Generalisability study**

This project was led by Professor Emily Banks from the National Centre for Epidemiology and Population Health, Australian National University and Scientific Director of the 45 and Up Study. The project sought to investigate the generalisability of 45 and Up Study data by comparing a range of exposure-outcome relationships from the Study and the New South Wales Population Health Survey.

#### **Understanding the factors relating to health insurance status**

This project was led by Professor Emily Banks from the National Centre for Epidemiology and Population Health, Australian National University. Health insurance status varies widely in the population and has a substantial impact on access to health services. It is important to understand the factors relating to health insurance status in order to quantify an important source of health inequality and to better predict use and costs of services. This project used data from the Study baseline questionnaire to examine the relationship between health insurance status and a wide range of demographic, lifestyle, health, social and other factors.

### **The relationship between oral health, diet and systemic health outcomes in the 45 and Up Study Cohort**

This project was led by Dr Manish Arora from the Faculty of Dentistry, University of Sydney. The project described the distribution of tooth loss amongst the Study participants as baseline data for future analyses of trends in oral health status and perceptions of oral health. The project also studied the effect of different dietary patterns on tooth loss and whether tooth loss is related to systemic disease. Finally, the project generated hypotheses for future investigations pertaining to oral health in the Study subjects.

### **The 45 and Up Study: exploring met and unmet needs for home care in NSW**

Led by Professor Louisa Jorm of the School of Medicine, University of Western Sydney, this project provided detailed information, not previously available, about who uses Home and Community Care (HACC) services in NSW and why. Questionnaire information from the 45 and Up Study, linked with HACC MDS and NSW Admitted Patient Data Collection was used to explore older people's capacities to remain in the community, their use of HACC and hospital services, and the factors (personal, environmental and service-related) that influence these. Information from the project regarding met and unmet needs for care will inform the planning of HACC services.

## **Projects underway**

### **Housing and Independent Living (HAIL) Project**

Led by Professor Julie Byles from the Research Centre for Gender, Health and Ageing at the University of Newcastle and the Newcastle Institute of Public Health, this study is examining the home and neighbourhood environments of a sample of community dwelling older people, to determine the extent to which these environments can be considered to be "supportive" according to internationally accepted measures, to identify those people who are least likely to be currently living in supportive environments and to contrast these findings against people's expectations of their increasing needs as they age and of how these needs are to be met. The project's goal is to produce findings that have direct relevance to policy formulation and resource allocation, and that signal practical interventions that will make a significant contribution to enable older people to live independently for a longer period.

### **The social, economic and environmental factors associated with ageing (SEEF)**

This project is led by Professor Adrian Bauman from the University of Sydney. Social, economic and environmental factors play a key role in the health of all Australians. As the Australian population ages, there is an urgent need to understand how people can remain healthy and independent for as long as possible. This research is examining the effects of the way people live as well as their social and financial circumstances and how these impact on their health, hospital use, and risk of illness and death. It will help identify ways in which policy and preventive programs can contribute to improving the health of Australians in mid to later life, particularly among disadvantaged groups.

### **A randomised controlled trial of a web-based intervention to improve depression, cognitive function and adherence in people with comorbid cardiovascular disease (CREDO)**

This project is led by Professor Ian Hickie of the Brain & Mind Research Institute at the University of Sydney. Depression, cardiovascular risk factors and cognitive impairment are key causes of disability and poor health outcomes. Comorbidity of these leads to an even worse prognosis. The primary aim of this project is to determine the effects of an evidence based internet intervention program for depression on depressive symptoms in patients being treated for cardiovascular disease. The secondary aims are to determine the immediate and twelve month effects of the same intervention on cognitive function, adherence and treatment for cardiovascular disease. Subsidiary outcomes include reduction in anxiety symptoms, disability and improved employment status, measured at post intervention and at twelve months.

### **NSW Skin Health Study: Infectious and lifestyle determinants of non-melanoma skin cancer**

This project is led by Associate Professor Freddy Sitas from Cancer Council New South Wales. Basal and squamous cell skin cancers are the leading cancers in Australia, with about 2% of the population developing them each year. As well as sun exposure, a number of other factors are thought to increase the risk of these cancers. This study is examining whether factors such as smoking, alcohol consumption and infection with certain skin related human papillomaviruses also increase risk. Even a small effect from reducing risk from commonly occurring exposures may make a big difference when it comes to preventing these common cancers.

### **Retirement transition: a longitudinal P-E fit approach within a “life expectancy” time framework**

This project is led by Professor Beryl Hesketh of the University of Western Sydney. This project is using validated psychological measures to explore retirement and examine which adjustment path a person is likely to follow and aims to:

- Test predicted clusters of trajectories of changes in satisfaction and coping performance over retirement transitions among baby boomers
- Identify dominant needs and values of retirees and resources required to meet these, and key tasks and competencies for successful coping
- Test predictors of active and reactive patterns of adjustment in retirement transition.

### **Validation of recording of comorbidity in the Admitted Patient Data Collection**

Led by Dr Diane Watson, an associate researcher with the Manitoba Centre for Health Policy and recently visiting Research Fellow at the Sax Institute, this project is using self-reported information from the 45 and Up Study baseline questionnaire to explore the sensitivity and specificity of recording of comorbidities in APDC data, and the factors (person- and hospital-related) that influence this.

### **Health Behaviour Clusters**

This project is led by Dr Barbara Griffin of Macquarie University. Typically, health promotion programs and health communications are aimed at reaching a particular subgroup of the population. Generally, the more specific the tailoring of the message to the characteristics of the subgroup, the more effective the communication and the more likely that attitudinal and/or behavioural change will take place. This project aims to identify whether people can be grouped according to the range of health behaviours in which they engage; to identify the antecedents associated with membership of these different groups or clusters of behaviours; and to examine whether there are differential outcomes for members of different clusters.

### **Joint replacement study**

With the ageing of the population and increasing levels of obesity in the community, rates for hip and knee replacement surgery are rising. There are few population-based studies in Australia looking at outcomes from these procedures. Led by Dr Fiona Blyth, Director Clinical Epidemiology at the Sax Institute, this project is investigating the characteristics of cohort members who have had hip or knee replacements. It involves an analysis of MBS and PBS data to investigate trajectories of service and medication use in people who have had these procedures, and examination of self-reported physical functioning after joint replacement surgery.

### **Long-term opioid use for chronic non-cancer pain**

Use of opioid medications for chronic non-cancer pain in Australia has increased in recent years, but little is known about the people who use them. Led by Dr Fiona Blyth, Director Clinical Epidemiology at the Sax Institute, this project is investigating the characteristics of cohort members who have been using prescribed opioid medications for chronic non-cancer pain. It involves an analysis of MBS and PBS data to identify regular long-term users of prescribed opioid medications then describing self-reported demographic, health, physical functioning, and psychological functioning using Study baseline data.

### **Diabetes related risk factors among Vietnam-born residents in NSW**

This project is led by Professor Louisa Jorm from the School of Medicine at the University of Western Sydney. Type 2 diabetes affects about 700,000 Australians. Several behavioural and modifiable risk factors, including obesity, physical inactivity and unhealthy diet, play a role in the onset of diabetes. Genetic predisposition such as family history and ethnic background also relate to the occurrence of diabetes. In addition, high blood pressure, high blood cholesterol and tobacco smoking are risk factors for diabetes complications. This study aims to investigate the health status, health related risk factors and acculturation into Australia of Vietnam-born residents, especially those who have type 2 diabetes.

### **Physical activity and depression in men living in rural and remote areas of NSW**

This project is led by Professor Louisa Jorm from the School of Medicine at the University of Western Sydney. Depression is one of the most common mental health conditions worldwide, with findings indicating that one in six Australian men will suffer from depression at any given time. The risk of depression and suicide in older Australian men, aged 65 and older, is equally as high, with factors such as physical illness, decreased mobility due to chronic pain, and isolation being major causes. This study is analysing the data collected through the Study questionnaire to explore the (cross-sectional) relationship between physical activity levels and self-reported doctor-diagnosed depression, depressive symptomatology in men aged 65 and over, living in rural and remote areas of NSW.

### **Sleep duration, obesity and health in middle aged and older Australian adults**

This project is led by Dr Christopher Magee from the University of Wollongong. Sleep duration has recently been identified as an important predictor of psychological and physical health in adults. In particular, a number of recent studies indicate that short sleep durations are associated with obesity in children and younger adults, however there is a lack of data on whether these relationships are also evident in middle aged and older adults. This project will provide the first detailed analysis of the relationships between sleep, obesity and health in this age group.

### **An evaluation of the contribution of cardiovascular risk factors to psychological distress and disability in the 45 and Up Study**

This project is led by Professor Ian Hickie of the Brain & Mind Research Institute at the University of Sydney. In Australia, depressive disorders are the leading cause of health-related disability and are second only to cardiovascular disease as the leading cause of all premature death and disability. This project aims to determine which single or combined cardiovascular risk factors predict psychological distress/depression, and to determine the major associations of physical health and psychological distress with measures of disability among participants in the Study.

### **Obesity and hospitalisation**

This project is led by Professor Emily Banks from the National Centre for Epidemiology and Population Health, Australian National University. The prevalence of obesity and overweight is increasing rapidly nationally and internationally and recent estimates show that 39% of Australian adults are overweight and 21% are obese. Surprisingly little is known internationally about the effect of overweight and obesity on hospitalisation and there are no data available relevant to Australia. This project is analysing baseline questionnaire data from the Study to examine the factors related to overweight and obesity in the cohort and will then use these data linked with hospital admissions and deaths to investigate the relationship between baseline body mass index and health outcomes.

### **Maintaining independence**

This project is led by Professor Julie Byles from the Research Centre for Gender, Health and Ageing, the University of Newcastle. This project will explore the factors that enhance the likelihood that older people will "age in place" and stay living independently for as long as possible. These factors include financial resources, good relationships with family and friends, supportive home and neighbourhood environments, physical and mental health status, availability of informal support, and access to support services. The project is linking data from the Study baseline questionnaire with records from the NSW Home and Community Care Program Minimum Dataset (HACC MDS) and NSW Admitted Patient Data Collection (APDC). Analyses will explore who uses HACC services in NSW and why, and the relationships between use of HACC and hospital inpatient services.

### **The correlates of poor memory, mental health and wellbeing in ageing: are they different in the old-old (aged > 80 years)?**

This project, led by Professor Gavin Andrews from the Clinical Research Unit for Anxiety and Depression (CRUFAD) at the University of NSW, is investigating differences in memory, mental health and quality of life/wellbeing between those who are young-old (65-79 years) and old-old (80+ years). This study will help gain a better understanding of what factors are important in delaying disease onset as we age. This knowledge will help to inform health promotion initiatives that aim to 'prevent' certain disease states associated with old age. It will also inform other initiatives designed to minimize the severity or delay the onset of poor health that is somewhat inevitable as we age.

### **Population-based study of factors associated with type 2 diabetes**

Led by Professor Louisa Jorm from the School of Medicine, University of Western Sydney, this project is examining factors associated with type 2 diabetes in the Study cohort, including country of birth, duration of residence, ancestry and aboriginality, other demographic and socioeconomic factors, medical and family history and behavioural and lifestyle factors. The results of this study will contribute to a better understanding of the distribution of and inequalities in type 2 diabetes in the community.

### **Understanding risk factors for cancer in the 45 and Up Study cohort**

Led by Associate Professor Freddy Sitas from Cancer Council NSW, this project is broad ranging and covers aspects pertinent to cancer and the 'cancer journey' including causes of cancer and the use of health services by cancer sufferers. The project is a series of research investigations including:

- The 'picture of overall health' in both current and past smokers within the Study in comparison with life-long non-smokers in NSW. A particular focus will be on the length of time individuals have smoked, the length of time individuals have ceased smoking, and the relationship of these variables with reported geographic location, level of education, annual income, ethnicity, physical activity, diet, oral health, blood pressure, and the reported occurrence of skin cancer.
- Different dietary patterns and whether the intake or avoidance of certain foods is associated with cancer morbidity.
- The relationship between use of hormone replacement therapy (HRT) and cervical cancer.

### **The healthy ageing profile and drivers of health service use for people of diverse cultural backgrounds in NSW (Phase 1)**

This project is led by Dr Magnolia Cardona of the Prevention Research Centres at the University of Sydney. Phase 1 of a larger project, this research is identifying differentials in the risk factors and morbidity profiles of people of culturally and linguistically diverse (CALD) backgrounds aged 50-65 years as compared with their Australian born, non-indigenous counterparts. Utilising the Study baseline questionnaire data, indicators of "healthy ageing" among the Study's CALD participants will be developed covering protective behaviours (eg screening, physical activity, self-reported health service usage) and risk factors (eg smoking, drinking) in relation to health outcomes.

### **Relationship between demographic and lifestyle factors and asthma and hay fever in an older Australian population**

This project is jointly led by Dr Hassan Vally from the Australian National University and Dr Neil Misso from the Lung Institute of Western Australia. Asthma imposes a considerable economic and social burden of disease on the Australian community. Like other chronic diseases such as heart disease and diabetes, it has recently been shown that asthma is also influenced by lifestyle factors. The project is assessing the impact of a range of lifestyle and demographic factors that may be associated with asthma and hay fever.

### **Validation of self-report of surgery in the 45 and Up Study**

Led by Professor Louisa Jorm of the School of Medicine at the University of Western Sydney, this project is investigating the agreement between self-report of surgical procedures and the recording of these procedures in routine administrative hospital morbidity data by linking the Study baseline questionnaire to the NSW Admitted Patient Data Collection. This research will also identify the procedure and patient factors that are associated with accurate self-reporting.

### **Economic impacts of disease on older workers: costs to government and individuals and opportunities for intervention**

This project is led by Professor Deborah Schofield from the University of Sydney. With an ageing workforce, Australia is at risk of having an inadequate workforce to ensure economic growth and to maintain sufficient taxation revenue to support future needs. This project will fill substantial gaps in the Australian evidence regarding the health conditions that keep older workers out of the labour market and that diminish their own immediate and long-term living standards and reduce funds available to government. The project aims to determine the likely impact of disease on older workers, specifically:

- Does increased longevity also result in better health in persons of older working age?
- What is the labour force participation and retirement of older workers and the relationship of these to illness?
- What are the costs to individuals of early retirement related to illness?
- What are the costs to the Australian government of early retirement related to illness?
- Which health conditions have the greatest economic impact in relation to early retirement?
- What is the impact of reduced illness in the older working age population?

### **Sun exposure and its correlates in the NSW 45 and Up cohort study**

Led by Professor Bruce Armstrong from the School of Public Health, University of Sydney, this project aims to confirm the feasibility and scientific value of using the Study cohort as a resource for research to examine the relationship between sun exposure and skin cancer. Initially, the project will use data collected via the Study baseline questionnaire to systematically determine the strongest predictors of 1). skin cancer and 2). sun exposure. The project aims to publish a scientific paper and to use the analyses required for this publication to assess the extent to which the current methods of measuring sun exposure ask for sufficient information about all relevant behaviours.

### **Exploring the relationships between indicators of mental health problems and their correlates in the 45 and Up Study**

This project is Phase 1 of a larger study, and is led by Dr Anna Williamson from the University of New South Wales. As Australia's population ages, the need to identify and understand the correlates of mental health problems in middle to old aged Australians and the predictors of healthy ageing in relation to mental wellbeing is becoming increasingly urgent. The project is utilising baseline questionnaire data to conduct a large-scale examination of psychological distress, self-reported anxiety and depression and psychotropic medication use and their correlates in mid to late life.

### **Mental health and social disadvantage, chronic disease and use of specific mental health care services in the 45 and Up Study**

Phase 2 of a larger study, this project will consider mental health and social disadvantage, chronic disease and use of specific mental health care services in the 45 and Up Study. Led by Professor Julie Byles from the Research Centre for Gender, Health and Ageing, the University of Newcastle, this project describes the relationship between mental health measures on the Study baseline questionnaire and socio-demographic factors, chronic health conditions and risk factors for chronic disease. It will also present initial data on the factors relating to uptake of mental health MBS items.

The 45 and Up Study is managed by the Sax Institute in collaboration with its major partner Cancer Council NSW and partners the National Heart Foundation of Australia (NSW Division); *beyondblue: the national depression initiative*; NSW Health; Ageing, Disability and Home Care, Department of Human Services, NSW; and UnitingCare Ageing.



The Study was also supported over the last year by the Alma Hazel Eddy Trust (managed by Perpetual Limited) and the NSW Office of Science and Medical Research (OSMR). Bupa Health Foundation has also funded a three-year 'Policy in Action' Roundtable to ensure results from the Study can be translated quickly into action to improve health services for older people in Australia. Additionally, *beyondblue: the national depression initiative* has funded a one-year program of work investigating the relationship between mental health measures on the 45 and Up Study baseline questionnaire and socio-demographic factors, chronic health conditions and risk factors for chronic disease.