Report 27

women’s health australia

the australian longitudinal study on women’s health

December 2006


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EXECUTIVE SUMMARY

1. This report covers the six-month period from July to December 2006. Research Directions have been set for the project up to 2010. Other major project activities during this period have been the processing of data from Survey 4 for the Young women, the preparation of the data book for Survey 4 for the Old women and piloting and ongoing preparations for Survey 5 for the Mid-aged women which will be conducted in 2007.

2. Survey 4 of the Younger cohort was posted in March 2006 and participants are continuing to send back their surveys. Further mail outs and reminder phone calls have continued throughout the year with a total of 8,324 (66%) received as of 12th October 2006.

3. The fifth survey of the Mid-age cohort is scheduled to take place from March 2007 when the women will be aged between 56 and 61 years. The pilot study was mailed to 347 women on 11th July 2006. There were 286 participants (82%) who returned surveys by the end of September. Data have been collated and checked, and finalisation of the questions is underway.

4. Analytic work on methods and measurement has covered a range of areas during the last six months. The anthropometric data (relating to measures of height and weight) have been examined, further information has been provided in relation to physical activity data, and there have been developments in the use of imputation, general linear latent variable growth modelling with Mplus and generalised estimating equations in relation to correlated binary data. Definitions of prevalence and incidence of chronic conditions have also been revised and work has continued in relation to linkage with Medicare/PBS data.

5. Three reports have been submitted in the last six months. These are:
   - Major Report A. This report examined the prevalence and incidence rates of chronic conditions and changes over time for all three cohorts.
   - Retirement Report. This report examined issues for mid-aged women from Survey 4 about work and retirement, intentions, expectations and income, and patterns and predictors of labour market attachment.
   - Carers Report. This report examined paid employment and responsibilities for caring for another person with a long-term illness, disability or frailty among mid-aged women from Survey 4.

6. There have been 18 papers published or accepted for publication in national and international scientific journals during the reporting period. 12 conference papers have been presented to scientific and professional audiences both in Australia and internationally. One PhD and one Masters Student completed their theses and there are another 17 postgraduate students currently working on aspects of the project. Postgraduate students are an investment in the future of health research and evaluation in Australia. Supported by scholarships and grants from other sources, they add to the project and its outcomes without significant cost to core funds.
1. COLLABORATIVE RESEARCH ACTIVITIES

1.1. Research Directions

Research Directions have been set for the project up to 2010 (see Table 1.1). These directions reflect the forthcoming major reports and will shape the priorities of the research team.
Table 1.1 Research Directions

<table>
<thead>
<tr>
<th>Family Formation Issues:</th>
<th>Young women</th>
<th>Mid-age women</th>
<th>Older women</th>
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<tbody>
<tr>
<td><strong>Current and Future Directions:</strong></td>
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<td><strong>Reproductive health:</strong></td>
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<tr>
<td>● Infertility (incidence, risk factors, age, smoking, help seeking, service use).</td>
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<td>● Birth outcomes and breastfeeding</td>
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<td>● Pregnancy – and postnatal</td>
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<td>● Health management</td>
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<td><strong>Life stage / social roles:</strong></td>
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<tr>
<td>● Changing living conditions – transitions through marriage, divorce, sole and partnered parenthood, blended family scenarios. Partner violence.</td>
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<tr>
<td>● Difficulty conceiving: delaying pregnancy (have data on IVF or one other technique).</td>
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<td>● Contraception – Reproductive choices to conceive. safe sex and infection – safe sex versus contraception patterns of use, time in relation to life events and reproductive events</td>
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<td>● Unplanned pregnancies</td>
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<td>● Childcare &amp; paid work</td>
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<td>● Fertility for young 5 &amp; 6</td>
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<tr>
<td><strong>Future data collection</strong> needed on: Service use in Y5 and Y6, Parenting by Y5</td>
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**Future directions across all three age groups**

- Weight
- Physical activity
- Methodology for measurement and data analysis (longitudinal analyses)
- Impact of new Medicare items/policy, eg. Mental health items. Medication review
- Health Service use
- Prevention of chronic conditions - Depression and anxiety; - Cardiovascular disease; - Diabetes; - Asthma; - Osteoporosis and arthritis.

**Middle-aged women**

- Employability / Retirement, skills.
- Policy issues regarding how to help people remain working. Economics (skill level, income, options, structure)
- Financial security
- Family disbursement
- Caring
- Management of chronic conditions

**Older women**

- Carers
- Caring
- Aged care
- Independent living issues – informal / formal care / institutionalisation (high and low care)
- Management of chronic conditions

**Future data collection:**
on work and retirement
1.2. Scientific Meetings and Teleconferences among the Research Team

The Steering Committee is responsible for the overall direction of activities and resources to ensure that timelines and deliverables are met. Meetings and teleconferences are conducted at least once a month among the Steering Committee, with agendas, notes and minutes circulated to all Investigators. In addition to this, a monthly update is provided to all Investigators, staff, students, associates and others with an interest in the progress of the project. Steering Committee membership is flexible and decided on an annual basis, so that a group of about six Investigators are involved at this level at any one time. Current Steering Committee members are:

- Professor Annette Dobson (Chair)
- Professor Wendy Brown
- Professor Lois Bryson
- Professor Julie Byles
- Professor Christina Lee
- Dr Deborah Loxton
- Dr Penny Warner Smith
- Dr Anne Young
- Dr Leigh Tooth.
- Dr Jayne Lucke

Steering Committee meetings during the reporting period have been held by teleconference on 14th June, 19th July, 20th September, 18th October, 15th November, as well as a face-to-face meeting in Queensland on 30th August. For minutes of the Steering Committee meetings held during 2006 see Appendix 1.

The Data Management Group takes responsibility for all technical issues involving data quality, derivation of variables, checking and cleaning of data sets, linkage, and archiving. This group is chaired by Dr Anne Young, and current members include Investigators Professor Annette Dobson and Professor Julie Byles, as well as staff members Anne Russell (Project Officer - UQ), Jayne Lucke and Leigh Tooth (Senior Research Fellows), Deborah Loxton (Project Manager) Anna Graves (Data Management Assistant - UN), Jenny Powers, Melanie Spallek, Gretchen Carrigan, Richard Gibson, Richard Hockey (Statisticians), Andrew Hampson and Xenia Dolja-Gore (Assistant Statisticians).

Monthly newsletters are circulated to the research team and collaborators in order to keep everyone up to date about project progress. These are shown in Appendix 2.
1.3. Key New Research Findings

1.3.1 Projects completed and in progress by ALSWH Investigators and Collaborators

<table>
<thead>
<tr>
<th>Project:</th>
<th>To what extent does having babies contribute to weight gain in young women?</th>
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<tbody>
<tr>
<td>ALSWH Investigator:</td>
<td>Professors Annette Dobson and Wendy Brown</td>
</tr>
<tr>
<td>Collaborative Investigators:</td>
<td>Dr Yvette Miller (School of Human Movement Studies, University of Queensland) and Mr Richard Hockey (School of Population Health, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>NHMRC Capacity Building Grant in Public Health</td>
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</table>

A paper “Does having a child increase weight gain in young women? Findings over seven years from the Australian Longitudinal Study of Women’s Health” is being prepared.

Objective: The aims of this study were to investigate the relative impact of childbearing patterns and behavioural and demographic variables on weight gain among young women over a seven year period, and to estimate the relative rate of weight gain associated with each significant determinant of weight gain.

Study design/setting: Participants were 14,779 women in the Australian Longitudinal Study of Women’s Health, aged 18-23 years when recruited from the national Medicare database in 1996. Consenting women completed surveys about demographics, health behaviours, and health outcomes in 1996 (S1), 2000 (S2) and 2003 (S3). A random effects model was used to estimate average annual percentage weight change (kgs) in women who did and did not have their first child between S1 and S2, and between S2 and S3, after adjustment for other statistically significant determinants of weight change (education, physical activity, sitting time, and energy intake).

Results: Patterns of childbirth and physical activity were significantly associated with average annual percentage weight change between S1 and S2, and between S2 and S3. Sitting time, energy intake and education were significantly associated with average annual percentage weight change between S1 and S3. After adjustment for all other variables associated with rate of weight gain, women who had their first baby between S1 and S2 had higher mean annual weight gain (1.78%, 95% CI 1.51-2.05; approximately 1.2kgs) than those who had never given birth (0.79%, 95% CI 0.70-0.88; approximately 0.5 kgs). Those who had their first baby between S2 and S3 had higher annual weight gain in that period (1.89%, 95% CI 1.62-2.16; approximately 1.4 kgs) than those who had never given birth (1.0%, 95% CI 0.91-1.09; approximately 0.7 kgs) or had their first child between S1 and S2 (0.39%, 95% CI 0.11-0.68; approximately 0.3 kgs), and higher weight gain compared with their previous nulliparous period (0.95%; 95% CI 0.69-1.21; approximately 0.6 kgs).
Conclusion: Having a first baby resulted in an increased rate of weight gain compared with ageing-related weight gain among women who do not have children or had their first child previously. Weight gain prevention for young women should concentrate on promoting increased physical activity, reduced sitting time and reduced energy intake during and immediately after first pregnancy.

<table>
<thead>
<tr>
<th>Project:</th>
<th>How to measure multi/co-morbidity?</th>
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<tbody>
<tr>
<td>ALSWH Investigators:</td>
<td>Professors Julie Byles and Annette Dobson</td>
</tr>
<tr>
<td>Collaborative Investigators:</td>
<td>Dr Leigh Tooth and Mr Richard Hockey (School of Population Health, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>None</td>
</tr>
</tbody>
</table>

This project is now completed and a paper “Multi-morbidity indexes predict mortality, health service use and health-related quality of life in older women” has been submitted.

Objective: To develop indexes of multi-morbidity, based on self-report, to predict mortality, health service use and health-related quality of life (HRQOL) in older women.

Study design/setting: Cross sectional survey of 10,434 women, aged from 73-78, in the Australian Longitudinal Study of Women’s Health in 1999, with mortality follow-up to 2005. For analysis, the sample was equally split into a development and validation sample. Weighted and unweighted multi-morbidity indexes were developed and tested.

Results: Outcomes ranged from 14% for mortality to 47% for specialist doctor visits. Mortality was predicted by heart disease, stroke, low iron, diabetes, cancer (non-skin), bronchitis/emphysema and Alzheimer’s disease. Different patterns of morbidities were associated with the other outcomes. Weighted and unweighted multi-morbidity index scores were linearly related to increasing risk of each outcome. For each outcome, the weighted scores had the best fit and wider range of possible values.

Conclusion: These multi-morbidity indexes predict mortality, health service use and HRQOL in older women. The indexes could be used as covariates in research with weighted scores having a better chance of discriminating between patient groups than unweighted scores. Low iron and Alzheimer’s disease were consistently related to the outcomes, and should be included in indexes measuring morbidity.
This research was commissioned by the Australian Government Department of Health and Ageing to provide information to support policy development for the Employed Carers Innovative Project (ECIP) and also to provide a good base from which to build more focused research questions on employed carers and carers generally. A preliminary report has been submitted.

**Objectives:**

1. To describe data related to employment status and caring roles.

2. To examine the relationship between employment status and caring in relation to other important variables including:
   - Demographics: marital status, area of residence, education, language spoken at home, difficulty managing on income
   - Lifestyle: retirement plans, type and number of people cared for, social support, discretionary time
   - Health related quality of life, physical and mental health scores from SF36
   - Psychosocial factors: optimism and stress
   - Medical history: conditions, symptoms, stress, sleep, use of health services

3. To examine the main patterns of caring and employment by demographic, lifestyle, and health-related variables at each survey and over time.

   Depending upon the results of the first 3 stages, DoHA may then fund a substudy of mid-aged carers.

4. Mid-aged participants in ALSWH who have reported caring for someone who lives with them, or for a substantial amount of time per week (not as part of their employment), would be surveyed on:
   - the services the women require;
   - the services the women currently use;
   - the impact of caring on their own lives, including their health and well-being, and employment/retirement.
Project: How well do health and community services help older people with neurodegenerative disorders and their family caregivers?

ALSWH Investigators: Professor Annette Dobson, Professor Christina Lee and Ms Anne Russell.

Collaborative Investigators: Professor Andrew Wilson, Dr Leigh Tooth (School of Population Health, University of Queensland) and Associate Professor Gerard Byrne (Psychiatry Department, University of Queensland)

Funding Source: NHMRC Healthy Ageing Research Program

Objectives: How the nature of the cognitive and/or physical impairment experienced by care recipients impacts on outcomes for their carers is not well understood. This study investigated the effect of type of impairment on the use of health and community services among elderly Australian carers and on their satisfaction with services, level of burden and quality of life (QOL).

Study design/setting: A nested cross-sectional substudy of older women (aged 78-83 years) enrolled in the Australian Longitudinal Study on Women’s Health. Of 674 carers approached, 306 (45.4%) completed a postal survey.

Results: Type of impairment of care recipients influenced use of personal home care and respite but not use of medical or allied health services or carer’s satisfaction with services. Carers of people with both physical and cognitive impairment, or cognitive impairment only, reported greater burden than those caring for people with just physical impairment. The carer’s QOL was not strongly affected by type of impairment.

Conclusions: Poor awareness and low levels of use of services is a problematic issue for the Australian health care system, regardless of the type of impairment of persons who require care.
This newly funded project is just beginning.

Maintaining health and independent living are high priorities for Australia’s older population. This project capitalises on two existing large-scale studies, to increase our scientific understanding of strategies for maintaining the health and well-being of community-living older people. Two separate longitudinal research projects, the Australian Longitudinal Study on Women’s Health involving over 10,000 older women selected from every part of Australia, and the Perth Health in Men Study involving over 5,000 older men from the Perth region, have been following older Australians in order to determine what contributes to older people’s health and quality of life. The two research teams have designed the projects to be compatible, with identical survey questions and overlapping research designs. The Women’s study is larger and has national coverage, while the Men’s study includes more direct physical measures and a wider age range. This project provides the resources to combine data from these two major research projects. The Men’s study already has linkages to administrative records from WA hospitals, cancer registries and other relevant databases; these can be added for the Women living in WA. Similarly the Women’s study involved linkage to Medicare data and such information will be sought for the Men. Linkage to official data on Aged Care will be sought for both cohorts. The two projects contain a breadth of data and can address the following questions:

1. What health-related, personal, lifestyle and social factors predict survival and healthy non-disabled life in men and women aged 70-90 years?
2. Do changes in lifestyle in older age (e.g. smoking cessation) affect length and quality of life?

3. Who makes greatest use of health services, and who least, and how does this relate to health outcomes?

4. How are health and lifestyle factors related to social connectedness and independent living in older age?

5. What health and lifestyle factors predict positive mental health in older age?

6. How are older men’s and women’s lifestyles and health status different, and how are they the same? Should health promotion programs target men and women separately in this age group, or not?

---

**Project:** Use of ALSWH data to illustrate methodology for analysing longitudinal data

**ALSWH Investigators:** Professor Annette Dobson and Dr Gita Mishra

**Collaborative Investigators:** Ms Gretcehn Carrigan, Ms Nadine Smith, Dr Adrian Barnett, Dr Jolieke Van der pols, Dr Leigh Tooth and Dr Robert Ware (School of Population Health, University of Queensland)

**Funding Source:** NHMRC Capacity Building Grant in Public Health

Missing data is a common problem in survey based research. There are many packages that compensate for missing data but few can easily compensate for missing longitudinal data. WinBUGS compensates for missing data using multiple imputation, and is able to incorporate longitudinal structure using random intercepts. We demonstrate the superiority of longitudinal imputation over cross-sectional imputation using WinBUGS. We use example data from the Australian Longitudinal Study on Women's Health.

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**Project:** Predictors of change in illicit drug use in young women

**ALSWH Investigator:** Ms Anne Russell

**Collaborative Investigators:** Associate Professor Cathy Turner and Ms Emily Yorkston (University of Queensland)

**Funding Source:** None

**Objective:** This project aims to examine predictors of change in illicit drug use between Surveys 2 and 3 (2003 to 2006) among women from the Younger cohort. A draft manuscript has been prepared with the main findings as follows.
Results:

Overall patterns of change
Among women who had not previously used illicit drugs, 542 (16.8%) began using drugs in this 3 year period; 13.2% used cannabis exclusively and 3.6% used multiple drugs. Among these new users 427 (13.2%) had tried illicit drugs between surveys but had not used them in the previous 12 months; 115 (3.6%) reported use in the previous 12 months. The majority (85.7%) of the women who used marijuana exclusively continued to do so, while 14.3% used multiple drugs between surveys.

Illicit drug initiation
Initiation of drug use among previous non-users was associated (in multivariate analysis) with tobacco smoking, alcohol use and the initiation of sexual activity. All categories of cigarette smokers, with the exception of those women who adopted and then quit smoking between 2000 and 2003, were significantly more likely to initiate illicit drug use. Women who do not drink alcohol are less likely to initiate illicit drug use (PR 0.36 [0.21-0.62]). The likelihood of beginning to use illicit drugs is enhanced for all other categories of drinkers. Illicit drug initiation was also reduced for women whose first sexual experience occurred between 2000 and 2003 (PR 0.58 [0.26-0.92]), or who are not yet sexually active (PR 0.36 [0.21-0.56]).

Illicit drug cessation
Similar factors were associated with cessation of illicit drug use. All categories of smokers, except ex-smokers and those who adopted and quit smoking between surveys, were significantly less likely to quit using illicit drugs, whilst women who became pregnant between surveys were significantly more likely to cease illicit drug use (PR 1.39 [1.18-1.63]). Women who continued to drink at long/short term risk at both surveys were significantly less likely to cease using illicit drugs (PR 0.65 [0.52-0.82]). Those women whose alcohol consumption changed increased from either non-drinking or low risk in 2000 to short/long term harm in 2003 were also significantly less likely to cease using illicit drugs (PR 0.65 [0.49-0.86]). The experience of continuing emotional abuse (both before 2000 and between 2000 and 2003) was significantly associated with a reduced likelihood of ceasing illicit drug use (PR 0.76 [0.63-0.93]).
The aim of this study was to develop a diet quality score reflecting adherence to national dietary recommendations for the Australian Longitudinal Study of Women’s Health (ALSWH) and to compare this against energy standardized nutrient intakes and indices of health. Dietary intake was assessed using the Cancer Council Victoria Dietary Questionnaire for Epidemiological Studies (DQES) Version 2 that was included in Mid 3 in 2001. The index was calculated based on reported intakes of items consistent with national recommendations in the Dietary Guidelines for Australian Adults and the core foods given in the Australian Guide to Health Eating. Data from 9,895 women aged 50-55 who participated in the 2001 survey and had four or less missing values on their food frequency questionnaires were used to calculate the Australian Recommended Food Score (ARFS). Correlates of ARFS were investigated including nutrient intakes and indices of socioeconomic status, self-rated health and health service use. The analysis showed that the ARFS can be used to rank mid-aged women in terms of diet quality and nutrient intake and is associated with indices of self-rated health and health service use. The ARFS can be used to measure future associations with health outcomes and mortality. This study highlights the gap between present national dietary recommendations and actual dietary habits and may provide a basis on which to refine key dietary messages for this population of mid-aged Australian women. Further analysis is underway to examine the relationship between the dietary index and indicators of health service utilisation in mid-aged women in the ALSWH using self-report and Medicare data.
Use of specific types of CAM practitioners by mid-age women was the focus of recent research by this group. The analysis has now moved to longitudinal analysis rather than cross-sectional analysis of CAM use. The research is also being extended by the addition of a new question in the Young 4 survey in 2005 (and in Mid 5 for 2007) on use of CAM therapies. The seven-item question includes items about use of vitamins and minerals, meditation, herbal medicines and Chinese medicines. The Mid 5 pilot study also asked women whether in the past four weeks they had taken any Medications, vitamins, supplements or herbal therapies bought without a prescription at the chemist, supermarket or health food shop. They were also asked to write down the names of all medications, vitamins, supplements or herbal therapies. These data will be coded to examine the prevalence and correlates of use of CAM therapies in this age group.

This research is examining the relationship between alcohol consumption and a range of measures of health and well being among mid-aged women over the nine-year period 1996-2004. The hypotheses being tested are that mid-aged women who consume alcohol within the recommended guidelines have better physical and mental health than non-drinkers or risky drinkers; that mid-aged women who have poor mental health are more likely to be risky drinkers and to remain risky drinkers over time; that mid-aged women whose mental health deteriorates over time are more likely to become risky drinkers and that mid-aged women whose mental health improves are more likely to cease being risky drinkers.

In particular we are examining the associations between alcohol consumption and measures in Mid 4 including the Goldberg Anxiety and Depression Scale, CES-D and an assessment.
of memory impairment. Analysis is progressing and the project should be completed in early 2007.

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<tr>
<th>Project:</th>
<th>Weight Control Practices of Mid-age Women: Social Determinants and Health Impacts</th>
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<tr>
<td>ALSWH Investigator:</td>
<td>Dr Anne Young</td>
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<tr>
<td>Collaborative Investigators:</td>
<td>Dr Lauren Williams (School of Health Sciences, University of Newcastle) and Dr John Germov (School of Humanities and Social Science, University of Newcastle)</td>
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<tr>
<td>Funding Source:</td>
<td>2005: RGC, University of Newcastle</td>
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Cross-sectional analysis of ALSWH data collected in 1998 in Survey 2 of the Mid-age cohort showed that 75% of the cohort reported actively trying to control their weight. Dietary modification was used more frequently than exercise. Two-thirds of the weight-controlling women used a combination of practices, the two most common being ‘decreased food quantity, cut down on fats/sugars and exercise’ (32%), and ‘decreased food quantity and cut down on fats/sugars without exercise’ (15.6%). Potentially health-damaging practices (smoking, laxatives, fasting) were relatively uncommon, at 8%. The majority of mid-age women attempting weight control used safe practices consistent with public health messages. Despite their efforts, the group was mostly unsuccessful in preventing weight gain. Public health authorities and health practitioners may need to make more quantitative recommendations and emphasise the importance of balancing physical activity with dietary intake to achieve successful weight control for this group. The findings are of interest as ALSWH is one of the first studies internationally to explore the links between weight control practices and weight change outcomes in a representative population-based cohort. Further analysis examining the association between self-reported social class and weight control strategies is underway.

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<tr>
<th>Project:</th>
<th>Health care for women with diabetes living in rural areas: a longitudinal study of access to care and health outcomes</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Dr Anne Young and Professor Julie Byles</td>
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<tr>
<td>Collaborative Investigator:</td>
<td>Dr Julia Lowe (School of Medicine and Public Health, University of Newcastle)</td>
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<tr>
<td>Funding Source:</td>
<td>2006 Diabetes Australia Research Trust</td>
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The provision of equitable access to effective and appropriate health services for people with chronic disease in rural and remote areas is essential. A number of Medicare
initiatives, such as the diabetes annual cycle of care, have been introduced in recent years to improve the care of people with diabetes. This research aims to evaluate the access to quality diabetes care for women living in rural and remote areas across Australia. Longitudinal self-reported ALSWH survey data has been linked with Medicare and Pharmaceutical Benefits Scheme (PBS) claims data 1997-2004 to determine whether women have diabetes. The empirical data are supplemented by self-reported access to health care services such as hospitals, specialists, bulk billing and after hours care and also qualitative data from the women. Almost 7,000 women aged 79-84 years completed Survey 4 in 2005, including 3,809 older women living in rural and remote areas of Australia. The prevalence of diabetes among women in the older cohort was 8% in 1996 when they were aged 70-75 years. By 2005 the prevalence of diabetes among these older women was 14% in urban areas, 16% in large rural centres, 18% in small rural centres and 17% in other rural and remote areas. The analysis is currently being updated with the Medicare and PBS data for 2005 which have recently been received. The project is due for completion in early 2007.

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<tr>
<th>Project:</th>
<th>The relationship between migration and health in mid age women</th>
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<td><strong>ALSWH Investigators:</strong></td>
<td>Dr Anne Young</td>
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<td><strong>Collaborative Investigators:</strong></td>
<td>Dr Ann Larson (Combined Universities Centre for Rural Health, WA) and Dr Martin Bell (School of Geography, Planning and Architecture, University of Queensland)</td>
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<tr>
<td><strong>Funding Source:</strong></td>
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This research project has recently been updated by exploring how the socio-economic composition of Australia influences and reflects our migration patterns and population distribution. The work by Ann Larson is planned to contribute to a book on internal migration being edited by Martin Bell. Using data from the ALSWH mid-aged cohort Survey 1 to Survey 3, the relationship between changing residence and social networks/social support is being examined. The research questions of interest are whether women who have strong social ties in their local community are less likely to move and secondly, to determine whether women who do move are able to re-establish their support networks. Items from the Duke Social Support Scale and the Neighborhood Satisfaction Scale are being used to measure social connectedness.
The purpose of this study was to explore the relationship between oral contraceptive pill (OCP) use and the experience of depressive symptoms amongst the ALSWH younger cohort. The study was confined to young women who responded to Survey 2 in 2000 (n=9,688) and Survey 3 in 2003 (n=9,081). After adjusting for potential confounders, the odds of a woman who did not use OCP having depressive symptoms was not found to be significantly different from that of a woman who did use OCP. Women who used OCP for reasons other than contraception were 1.32 (95% CI: 1.07, 1.62) times as likely to be depressed as women who used OCP for contraception. The percentage of women who reported experiencing depressive symptoms declined as the number of years of OCP use increased (p=0.009). The results of this study suggest that after adjusting for confounders there is no independent effect of OCP use on depressive symptoms in younger Australian women. Analysis has now been completed for this project and a paper is in press.

The rapidly increasing cost and complexity of drug treatment is likely to escalate as the population ages. Recent papers have debated the efficacy of the ‘polypill’ (a combination of six individual ingredients: thiazide diuretic, angiotensin converting enzyme inhibitor, beta blocker, statin, aspirin, and folic acid) with the assumption being that when combined together, the drugs have a synergistic treatment effect. This study is investigating how many older women in ALSWH are taking drug combinations that comprise the virtual polypill (or subsets of the drugs); the uptake of drugs in this combination over time; factors associated with adoption of these drugs; the health and sociodemographic characteristics of these groups of women and whether there are differences in health outcomes. The PBS claims data for the period 2002-2004 have been matched to a file of ATC codes and PBS items numbers have been recoded, where possible. In the ATC classification system, the drugs are divided into different groups.
according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties. PBS data for 2005 have recently been received and are being incorporated.

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<tr>
<th>Project:</th>
<th>Comparison of self-reported medications and PBS records</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Dr Anne Young and Professor Julie Byles</td>
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<td>Collaborative Investigators:</td>
<td>Professor David Henry and Dr Lynne Parkinson</td>
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<td></td>
<td>(School of Medicine and Public Health, University of</td>
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<td></td>
<td>Newcastle)</td>
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<tr>
<td>Funding Source:</td>
<td>University of Newcastle Strategic Pilot Research</td>
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<td></td>
<td>grant</td>
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The data for this study is from two sources. The first is the Medicare Australia records of prescriptions submitted for payment of a subsidy under the Pharmaceutical Benefits and Repatriation Pharmaceutical Benefits Schemes (PBS/RPBS). The second is the self-reported medications collected during 2005 for Old 4. A comparison of the PBS data and self-report medications will provide an estimate of the non-subsidised use of medicines among older women as well as the accuracy of self-reported medications (which are eligible for subsidy) defining the PBS data as the gold standard. PBS data can assist the evaluation of quality use of medicines, and changes to the availability and uptake of medicines. It can also be used to track drug expenditure, particularly for chronic conditions. Hence it is important to know how closely the PBS data compares to self-report and which medications are not covered in the PBS records. This work will be the first stage of other projects that can then use the PBS data. Progress to date has involved designing a system for coding both the self-reported medications and the PBS medication item numbers to the ATC coding scheme. The PBS data for 2005 has only recently been received. The coding will commence before the end of 2006 and comparison with the self-reported medications will follow.

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<tr>
<th>Project:</th>
<th>The causal impact of young motherhood</th>
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<tr>
<td>ALSWH Investigator:</td>
<td>Professor Christina Lee</td>
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<td>Collaborative Investigator:</td>
<td>Dr Bruce Bradbury (Social Policy Research Centre,</td>
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<td>University of New South Wales)</td>
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<tr>
<td>Funding Source:</td>
<td>Department of Family, Community Services and Indigenous Affairs</td>
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Women who have their first child when young have significantly poorer socio-economic outcomes than women who delay child-rearing. However, this does not necessarily
imply that being a young mother causes socio-economic disadvantage. Much of the observed association between age at first childbirth and later socio-economic outcomes could be due to women with poorer education and labour market prospects being more likely to have children at a younger age – a selection effect – rather than a direct effect of young motherhood per se. These different causal mechanisms have quite different implications for policy.

This project seeks to identify the direct effect of being a young mother on later socio-economic outcomes. It does this by comparing women in the Young sample who were pregnant prior to wave 1 but did not have a miscarriage with a corresponding group of women whose pregnancy miscarried. Because miscarriage is largely random (particularly after controlling for smoking) this permits the identification of the causal link from young childbirth to later outcomes. The instrumental variable method is used to control for the fact that not all non-miscarriages end in childbirth (because of terminations). Outcome variables include marital status, education, employment and income measured in wave 3.

A final report from the project has been submitted to FaCSIA and a discussion paper version is available on the SPRC website (www.sprc.unsw.edu.au/dp/DP148.pdf). A journal article is in preparation.

The main findings are that there is little evidence of a causal impact of young childbirth on the economic outcomes of the women when they are aged in their late 20s. That is, the observed association is largely a selection effect. However, there is evidence of a direct impact on relationship status. Women who miscarry are more likely to be legally married, implying that a young childbirth reduces the chance of being legally married in the woman’s late 20s. Similarly, having a child in the early rather than late 20s leads to a greater likelihood of being a lone parent at around age 30. These results may reflect the fact that young motherhood reduces the likelihood of being in a relationship with the father of the child – because the relationships evident in the late 20s are more likely to have been formed after the first childbirth.

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<tr>
<th>Project:</th>
<th>Resilience and Coping: Predicting positive well-being following life transitions and major life events among young Australian women</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Professor Christina Lee and Dr Nancy Pachana</td>
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<tr>
<td>Collaborative</td>
<td>Ms Helen Gramotnev (School of Psychology, University of Queensland)</td>
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<td>Investigator:</td>
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<tr>
<td>Funding Source:</td>
<td>ARC Discovery Grant to Lee &amp; Pachana</td>
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Within the broad rubric of understanding the processes of emerging adulthood, a number of analyses are being conducted. These focus particularly on transitions in the life domains of residential independence, study and work, romantic relationships, and
motherhood. A series of analyses on the transition to motherhood has been completed and four papers have been published.

A second set of analyses aims to characterize the transitions of young adulthood and to identify relationships between transitions of various types (forward or backward, normative or non-normative) and indicators of emotional well-being. Two papers, currently in press with the International Journal of Behavioral Medicine, explore the timing and sequencing of transitions and their effects on stress, using data from Surveys 1 and 2. These demonstrate that, contrary to expectation, major life transitions in this age group are associated with low levels of stress and with an absence of increasing stress over time. Cross-sectionally, living independently, not being a student, being married, and being a mother were associated with the lowest levels of stress. Normative, “forward” transitions such as moving out of home, moving from studying to work, or becoming a mother, were associated with no increase in stress, while marrying was associated with a significant decrease in stress. Transitions associated with increases in stress fell into three categories: “backward” transitions to more adolescent statuses, remaining in adolescent statuses, and transitions which represented having already achieved the most adult status at an early age. The data suggest that high levels of stress during this transition are associated, not with normative changes, but with reverse changes, delays in changing, or changing earlier than one’s peers – in other words, making “off-time” transitions. Thus, this analysis of a large and representative sample of young Australian women suggest that normative transitions in young adulthood, although involving considerable change, are not associated with high levels of stress.

A third paper in this series, currently under editorial review with Developmental Psychology, examined changes over three years, in health-related quality of life, optimism, depressive symptoms, stress, and life satisfaction, in relation to these transitions, among 7,619 Younger participants using data from Surveys 2 and 3. Positive changes in mental health occurred for women moving into cohabitation and marriage, while reductions were observed among those experiencing marital separation or divorce, and those taking on or remaining in traditionally “feminine” roles (out of the workforce, motherhood). The data suggest that the women are continuing to cope well with major life changes at this life stage, but reductions in psychological well-being are associated with some transitions. The findings suggest that preventive interventions to improve women’s resilience and coping might target women undergoing these transitions, and that social structures may not be providing sufficient support for women making traditional life choices.
In November 1999, the Australian government introduced Medical Benefits Schedule item numbers for enhanced primary care (EPC) services. These services included case conferencing and complex care plans, and health assessments for those aged 75 years and over. The health assessment items (Medical Benefits Schedule items 700, 702, 704, 706) were the most rapidly adopted items and one of the questions surrounding the introduction of these health assessments was how well, and how equitably, they would be taken up by older people in the community.

The Australian Longitudinal Study on Women’s Health (ALSWH) includes 4646 women who were aged 75 to 78 years when the EPC items were introduced and who provided permission to access their Medicare records. Survey data on socio-demographic variables, access to care and health service use were linked to Medicare records to measure the uptake of health assessments and to describe the health and sociodemographic characteristics of users and non-users. Among these women there was an increase in uptake of assessments over four years: in November 1999 12% of eligible women had a health assessment during the following year; by October 2003, 49% had at least one Health Assessment. Few had repeat assessments. Women who visited a GP more often and who were satisfied with the number of GPs available were more likely to have assessment in the first 12 months, and women who visited a GP more often, those taking more medications, and those caring for another were more likely to have at least one assessment in four years. Women in smaller rural and remote areas were less likely to have an assessment than women in urban areas. The next phase of this research is to examine whether there are differences in health outcomes for women who do and do not have health assessments.
A paper from this study has been submitted

The aims of this research were to report the prevalence of consultation with a dentist by Australian women and to identify factors associated with consultation with a dentist. Women in this study were participants in the ALSWH. The analysis was conducted on information obtained from the Second Survey of 12,338 Mid-age women (47-52 years) and 10,434 Older women (73-78 years), in 1998 and 1999 respectively. Women in the Mid-age cohort were more likely to have consulted a dentist in the previous year (57%) than women in the Older cohort (35%). In both age groups, those who consulted a dentist were more likely to live in an urban area, be better educated, have a greater ability to manage on their income, and be in better physical health. They also tended to be higher uses of both traditional and alternative health services. This study has highlighted not only the association between oral health care and other aspects of good health, but also a major source of inequity in the community. Given the breadth of evidence to support the importance of regular dental care in protecting other aspects of health, the under use of dental services by certain socio-economic groups may be a major factor in health inequity.

Arthritis is Australia’s major cause of disability and chronic pain, and more than 60% of all people with arthritis are women. Arthritis and related conditions are the most common cause of activity limitation and disability among older women, but arthritis is not a natural part of ageing. The broad aim of the proposed research was to explore the burden of suffering (physical, mental and social) associated with arthritis and musculoskeletal symptoms in older women, and the management of these conditions over time, from a secondary analysis of Australian Longitudinal Study on Women’s Health data.
It was proposed that analysis of the ALSWH data on older women be used to explore:
1. Incidence and prevalence of musculoskeletal symptoms over the four survey times,
2. Burden of suffering from musculoskeletal symptoms over time,
3. Medications
4. Management of musculoskeletal conditions, and
5. To validate self reports of symptoms and conditions against arthritis impact measures to establish the validity of self-reported symptoms.

This project will yield national data on musculoskeletal conditions in older women, the burden of suffering associated with those conditions, and their management. We expect to be able to make actionable recommendations from these findings to governments, health service managers and professional bodies about how the impact of musculoskeletal conditions on older women’s lives can be reduced.

**Publications:**

<table>
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<tr>
<th>Project:</th>
<th>Self-rated health, age and gender in longitudinal studies in Australia</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Professor Julie Byles and Professor Annette Dobson</td>
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<tr>
<td>Collaborative Investigator:</td>
<td>Dr Kaarin Anstey (Centre for Mental Health Research, Australian National University)</td>
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<tr>
<td>Funding Source:</td>
<td>Ageing Well Ageing Productively NHMRC grant</td>
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There is now a large amount of data collected on ageing from Australian studies, providing potential for collaborative re-analysis projects that will greatly advance our knowledge of Ageing in Australia. The present study investigates self-rated health in 5 Australian longitudinal studies, to demonstrate the value of bringing these valuable data sources together and to document some of the factors that need to be considered when conducting this type of research. The specific research questions to be addressed through these analyses are:

1. What is the distribution of excellent or very good, average and fair or poor self-rated health over adulthood in Australia;
2. How does the distribution differ according to gender, and education;
3. How do studies conducted within a state, city or territory compare with a nationally representative sample on the distribution of self-rated health?
Past research has shown that many older Australians do not tend to seek professional help for depression. This research will determine some of the factors that might be contributing to this reluctance to seek help, and will lay the groundwork for future research to determine how this reluctance might be overcome.

Analysis of the last three surveys of the Australian Longitudinal Study on Women's Health shows that around 7% of women report that they have been told by a doctor that they had depression (in the past three years), and almost 5% are on medications for this condition (and these percentages remain stable for all surveys). However, analysis of symptoms of depression suggests that the problem of depression may be two to three times higher than diagnosed.

To date, the majority of our work on this project has been in coding and assessing data from the pharmaceutical benefits scheme so we can compare patterns of anti-depressant use among those women who do and those women who do not report depression, and between those with and without symptoms of depression. To code these data, we have used the WHO Anatomical Therapeutic Chemical (ATC) classification system which is internationally recognized as the standard classification system for drug consumption studies. One advantage of using the ATC code to classify the medications is that researchers can select a group of drugs which have a particular therapeutic effect e.g. the drugs with ATC code starting with NO6 are drugs for the treatment of depression. Our preliminary analysis of these data for 2004 indicates that 14% of the women in the study were taking drugs that could be classed as anti-depressant medication. This prevalence rate is almost three times the self-reported use of medications for depression, and around twice the self-reported rate of doctor diagnosed depression. Comparing 2004 PBS data on anti-depressant medication use and Survey 4 self reported diagnosis of depression indicates that:

- among the 7% of women who reported depression in the 4th survey, 42% are taking anti-depressant medications and 58% are not;
- among the 93% of women who do not report depression, 9.5% are taking anti-depressant medications and 90.5% are not.

The most common anti-depressant medication used by the women was 6AB06 Sertraline, used at some time by around 14% of the women in the study.

In general, women reporting depression used more prescribed PBS listed drugs as women who did not report depression (Median Number of medications: No Depression=2.9; Depression=4.3). While the most common types of drugs taken by these women were similar, those with reported depression were more likely to use antidepressants (as
expected), and also anxiolytics (used by 16% of those reporting depression), opioids (14.5%), and hypnotics and sedatives (14%).

We have also coded over 40,000 self-reported medications, including over-the-counter medications, so that these medications can also be used in our analyses. To do this, a database was written to record each participant’s medications along with any extra information that the participant provided. As the medication was entered it was checked against the recognised list of medications and each time a possible new medication was found it was confirmed that it really was a new medication by cross referencing with MIMS, theSchedule of Pharmaceutical Benefits or the World Health Organisation (WHO) Anatomical Therapeutic Chemical (ATC) list of Medications. Thus coded, the self reported list of medications taken by a participant can be linked with the Pharmaceutical Benefits Scheme (PBS) records for that participant.

Some of the medications listed by our participants are herbal remedies, and these may also be used by people with depression either as adjuncts to conventional treatments or as alternatives.

We have also been undertaking preliminary analyses of follow-up data which will allow us to determine the different mental health outcomes for those who do and do not have depression and those who are and are not treated.
Measures to assess anxiety and depression separately often incur difficulties due to overlap of these constructs, especially in older individuals. Using the Goldberg Anxiety and Depression Scale (GADS) we aimed to confirm the factor structure of the instrument in a large cohort of older Australian women, to validate the instrument against other self-report information, and to assess its ability to predict a variety of health-related outcomes.

Participants were 7264 women (aged 75-82 years) enrolled in the ALSWH. Measures of anxiety and depression included the GADS, the mental health components of the Medical Outcomes Study SF-36, and self reported information on mental health diagnoses, symptoms and medications. The factor structure of the scale was examined using latent trait analysis, while receiver operating characteristic curves were used to explore the performance of the scale against other criteria. Latent trait analyses replicated prior findings demonstrating high correlations between anxiety and depression as measured by the GADS and suggesting a third factor related to sleeping problems. Receiver operating characteristic curves showed that a simple score formed by summing responses to GADS items had high sensitivity and specificity in relation to other measures of anxiety and depression. This large study provides support for the hypothesis that anxiety and depression are not readily distinguishable entities in Older women and that the GADS is a useful tool for measuring the composite construct for epidemiological studies.

We have been working for 10 years now with the Older cohort of the ALSWH. We have self-report survey data from over 8,000 women who were aged 70-75 in 1996 when the
survey began, and have provided information regularly since then. While this provides valuable insights from the women themselves, we want to know how their self-reported depression, anxiety and memory changes might reflect objective indicators of emotional distress and cognitive decline. Thus, we propose to use standardised telephone diagnostic assessment tools, administered by mental health professionals, with two groups of older women – 150 who report depression, anxiety or memory changes, and 150 who do not – to assess the extent to which the self-report data they have given us accurately reflects any clinical diagnoses. This will give us more confidence in interpreting the results from the larger survey and ensuring that recommendations to government concerning mental health among older women generally are based on accurate information.

Interviews with the cohort of 300 women are approximately two-thirds complete. Data from this project forms the basis of two Masters of Clinical Psychology theses.

<table>
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<tr>
<th>Project title:</th>
<th>Women consider retirement: a critical investigation of attitudes towards work, ageing and retirement in three generations of Australian women</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Dr Penny Warner-Smith, Professor Julie Byles</td>
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<tr>
<td>Collaborative Investigators:</td>
<td>Dr Christine Everingham, Dr Deborah Stevenson (School of Humanities and Social Sciences, University of Newcastle) and Dr Lynne Parkinson (School of Medicine and Public Health, University of Newcastle)</td>
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<tr>
<td>Funding Source:</td>
<td>ARC Discovery Project grant</td>
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This study, which takes a generational perspective on women and retirement, is now in the final data collection stage. A substudy of women in the mid-age cohort is being carried out to test models of retirement developed from data collected in earlier phases.

In their fourth ALSWH survey in 2004, the mid cohort, then aged 53-58 years, reported a diversity of work participation patterns as they approached retirement age. Focus groups and interviews with women in the same age as the mid-age ALSWH group were carried out in 2004 and 2005. The results also suggested that retirement had multiple meanings for these women. Using these data and data from a series of qualitative interviews and focus groups with similar aged women, three models for women and retirement were developed:

Gateway
This model conceives of retirement as the end of the working life. It assumes a traditional male employment trajectory, based on the work/non-work; work/leisure dichotomies. Time is ‘empty’ and ‘filled in’ through work and leisure.
Transitional
In this model, retirement is still ‘not work’ but working life is extended through flexible work practices. It accommodates a wider range of work experience but still depends upon the work/non-work; work/leisure dichotomies. Again, time is ‘empty’ and ‘filled in’ through work and leisure.

Transformative
Retirement in this model is a lifestyle which may include paid work, but the nature of work is transformed. It assumes various work histories. The work/non-work boundaries are less clear. Work is satisfying and/or under the worker’s own control. It may involve a transitional period to set up the desired lifestyle via a number of strategies, eg diversification and other ways of extending the working life. Multiple temporalities are acknowledged and flexibility needed.

In order to test these models, a mail-out survey is being conducted with sub samples from two groups of the mid-age cohort: women who had recently retired at Mid4 and women who said at Mid4 that they were planning to retire in the next 12 months.

Some of these data will also be examined by Meredith Tavener, a PhD student, who will look at how women manage retirement: their expectations and coping strategies; how different aspects of their lives are expected to change, how other aspects are expected to remain the same; and how time is spent now and expected to be spent in the future.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Health effects of female labour force participation in Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALSWH Investigator:</td>
<td>Dr Penny Warner-Smith</td>
</tr>
<tr>
<td>Collaborative Investigators:</td>
<td>Dr Robert LaJeunesse (School of Policy, University of Newcastle)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Early Career Researcher grant from the University of Newcastle</td>
</tr>
</tbody>
</table>

An academic article on these findings has been prepared and submitted and is presently under review.

This study examines the impact of female labour force participation on health in Australia. An analysis was conducted to capture the impact of labour market attachment on the physical component health score of young (n=5,883) and mid-age (n=7,480) female workers. After controlling for the healthy worker effect - wherein firms hire and retain the healthiest workers - and other health-related changes in socio-economic status, the analysis suggests that an attachment to the paid labor force has benevolent effects on health relative to no or marginal attachment. Given the existing social structure in Australia, remunerative work generally appears to enhance the health of young women and arrest the decline of health for older female workers.
An article on these findings is being revised for the journal *Social Science and Medicine*.

Achieving work-life balance has taken on increasing significance as the dual earner family has been normalised over recent decades. While the issue has become the subject of research, scant attention has been paid to the relationship between work-life balance, stress and health, or to the strategies people adopt to manage the tensions they face.

Drawing on qualitative focus-group data on managing the tensions, as well as ALSWH quantitative data regarding family, work, stress and health, stress was found to be associated with feeling a lack of control. The data show a general sense of individual responsibility for dealing with the stress of managing work, family and other responsibilities. In Australia, it seems, work-life tensions remain identified as ‘private troubles’ rather than ‘public issues’, something that can only exacerbate the effects of such tensions.

Height, weight, and physical activity are of interest both as study and outcome variables. Self-report is a common means by which to collect data on these variables from large population-based samples, as in the case of the ALSWH, but may be intentionally or unintentionally misreported by research participants. More objective forms of data collection are however, more costly and resource intensive, and less pragmatic for large population-based samples. This project aimed to compare self-reported height, weight and physical activity (PA) with objective measurements, and to determine the extent of
participant misreporting in relation to body mass index (BMI), health status, and sociodemographic characteristics. A secondary aim of the project was to obtain data on key PA indicators, such as the average number of steps per day (weekdays and weekends) taken, frequency of incidental PA, and average time spent sitting per day.

This study was limited to mid aged ALSWH participants living in Brisbane. Recruitment and data collection (telephone recruitment; mail surveys; and individual home visits to deliver PA monitors and logbooks, and assess height and weight) is complete. Data analysis is underway, with 159 women providing pedometer data and 44 providing accelerometer data.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Physical activity and bone health in mid aged women</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALSWH Investigators:</td>
<td>Professor Wendy Brown</td>
</tr>
<tr>
<td>Collaborative Investigators:</td>
<td>Dr Kristiann Heesch and Dr Yvette Miller (School of Human Movement Studies, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>ALSWH, NHMRC program grant, NHMRC capacity building grant</td>
</tr>
</tbody>
</table>

This prospective study examined the association between physical activity and the incidence of self-reported stiff or painful joints among mid-age and older women over a 3-year period.

Data were collected from the mid-age women (51-56 yrs; N=7514) and older women (73-78 yrs; N=5750) who completed the mailed surveys in 2001 and 2004 (mid-age) and in 1999 and 2002 (older). Physical activity was measured with the Active Australia questions and was categorized based on MET.mins/week: none (<40); very low (40-<300); low (300-<600); moderate (600-<1200); and high (1200+). Cohort-specific logistic regression models were used to examine the association between physical activity at time 1 and reporting stiff or painful joints ‘often’ at time 2.

In univariate models, the odds of reporting these symptoms "often" were significantly lower for mid-age respondents who were moderately active (odds ratio \[ OR \] = 0.74, 95% CI 0.60, 0.91) and highly active (OR = 0.78, 95% CI 0.64, 0.95) than for those who were sedentary. After adjustment for education, country of birth, diagnosis of depression, smoking status, and body mass index, these associations were no longer significant (OR = 0.87, 95% CI 0.71, 1.08 for moderately active and OR = 0.94, 95% CI 0.77, 1.15 for highly active). In contrast, older women in the very low (OR = 0.81, 95% CI 0.66, 1.00), low (OR = 0.81, 95% CI 0.66, 1.00), moderate (OR = 0.57, 95% CI 0.45, 0.70), and high (OR = 0.58, 95% CI 0.48, 0.71) physical activity categories had significantly lower odds of reporting stiff or painful joints "often" at time 2 than sedentary older women, even after adjustment for the confounding risk factors.
These results are the first to show a dose response relationship between physical activity and arthritis symptoms in older women. They suggest that public health and clinical advice for older women should routinely include counselling on the importance of physical activity for preventing the onset of stiff and painful joints.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Health costs of inactivity and overweight</th>
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<tbody>
<tr>
<td>ALSWH Investigators:</td>
<td>Professors Wendy Brown and Annette Dobson</td>
</tr>
<tr>
<td>Collaborative Investigators:</td>
<td>Mr Richard Hockey (School of Population Health, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>ALSWH</td>
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</table>

The aims of this study were to quantify the relationships between physical activity, body mass index (BMI) and Medicare costs in the mid aged and older cohorts of women participating in ALSWH, and to estimate the potential population cost savings of increasing physical activity and decreasing BMI in sedentary women. We conducted cross-sectional analysis of survey and health service linkage data, with data from 7004 mid-age women (50-55 years) and 5161 older women (73-78 years).

The mean (median; interquartile range) annual costs of Medicare subsidised services were AUD542 (358; 158-699) and AUD714 (525; 257-953) in the mid-age and older women respectively. Costs were 17% higher in obese than in healthy weight women and 24-26% higher in sedentary than in moderately active women. For sedentary obese women, mean costs were 43-44% higher than in healthy weight, moderately active women. Adjusted relative risk of high number of Medicare claims (≥ 15 claims for mid-age, ≥ 24 claims for older women) was greater in obese sedentary mid-age women (1.47 [95% CI: 1.25, 1.74]) and older women (1.72 [1.39, 2.15]) than in women with moderate physical activity/healthy weight. For sedentary women, increasing physical activity to between 60 and 150 minutes per week, without concomitant changes in BMI category, would result in Medicare costs in women aged between 40 and 80 years being reduced by AUD76.2m per annum.

These analyses indicate that lower physical activity and higher BMI are associated with small but significant increases in healthcare costs. At the population level there would be significant cost savings if all sedentary mid-age and older women achieved at least low levels of physical activity. Greater investment by governments in "activating" mid-age adults appears to be a good public health strategy for reducing future healthcare costs.
This project examines the impact of physical activity on the health of mid-aged and older women in Australia.

The first stage involved a literature review of the prospective evidence published since 1996 that prospectively examined physical activity and health outcomes in women. This information was also used to determine the amount of physical activity necessary for women to achieve health benefits. There was evidence that physical activity provided a protective effect against cardiovascular disease, type 2 diabetes, breast cancer, colon cancer, bladder cancer, endometrial cancer, poor well being, and cognitive decline. There was mixed evidence relating PA and gestational diabetes, pancreatic cancer, injury, depressive symptoms, and reproductive health outcomes. There was evidence for no association between physical activity and renal cell carcinoma, lung cancer, and osteoarthritis. While 150 minutes of moderate intensity physical activity per week (600 MET.mins) was associated with a range of health benefits, benefits were also obtained from 60 minutes per week (240 MET.mins). It may be necessary to accumulate greater amounts of physical activity to prevent some conditions, such as breast and colon cancer. There was evidence indicating that mid age and older women will not gain additional health benefits from vigorous physical activity than from walking or moderate intensity physical activity, after adjustment for total energy expenditure.

The second stage of this project is in progress and focuses on whether Australian women are currently achieving sufficient physical activity for health benefit. The final stage is also ongoing, and includes new analyses from the ALSWH data on the relationships between physical activity and selected health outcomes in mid-age and older women.
A series of analyses are being undertaken to map mid-aged women’s use of services provided by a counsellor/psychologist/social worker in the past 12 months. While rates of psychological distress in the Australian community are on the rise, it appears that the use of counselling and psychological services is relatively low. This series of studies aims to understand factors associated with use of counselling services, first in cross-sectional analyses, and then using longitudinal predictive analyses.

One completed analysis examined self-reported use of counselling in the past year using data from Survey 2, and describes the psychosocial, health behaviour and demographic profile of women who seek counselling. Using multivariate analyses to control confounding, women who had consulted a Counsellor/Psychologist/Social Worker in the last year (6.9%) were found to have an increased odds of higher stress, life satisfaction and perceived control, and lower optimism. They also had higher odds of experiencing more life events over the past 12 months, changed health status compared with a year ago, taking more prescribed medications, living in urban versus rural areas, having university versus no formal education, living alone or with others rather than spouse/partner, and have ancillary versus full private health insurance.

The implications of this study are discussed in relation to women’s needs for services, counsellor training and workforce development.

Three other papers are in preparation with analyses based on Survey 2 data completed. One examines the relationship between physical health and use of counselling services, another investigates the use of health services among women who seek counselling and those who don’t, and the third paper discusses the mental health profiles of women who have sought counselling. Longitudinal analyses will then be examined.
Increasing rates of prescription and use of medication have been noted in the Australian community. This series of analyses aims to examine mid-aged women’s use of medication, particularly use of medication for anxiety, depression and stress.

The analyses also aim to determine factors associated with the use of these medications. It will map the demographic profiles and the mental health and physical health of women who do and do not use medications, and examine their use of health services.

The reliability and validity of the 10-item version of the Centre for Epidemiological Studies Depression Scale (CESD) was examined within the Mid-aged cohort of the ALSWH, using data from Survey 1. The CESD is a self-report screening measure for depression that has been widely validated internationally. Construct validity of the 10-item measure was assessed by using factor analysis to confirm the one-factor model of depression. Reliability of the factor structure was assessed using inter-item correlations and Cronbach’s alpha to assess internal consistency, communalities, amount of variance explained by the factors, and sampling adequacy (MSA).

Concurrent validity was assessed through correlations with the SF-36 MCS, whether they had ever been diagnosed with depression, and how often they reported having felt depressed in the past 12 months. Validity of the respective factor structures was also assessed by correlations with a range of demographic, psychosocial and health related variables potentially associated with depression, such as marital status, life events, social support, and stress. The paper is being finalised and will be submitted for publication.
Objective: To test the hypothesis that morbidity and health related behavioural factors are stronger than social factors as predictors of death among older women.

Study design/setting: We used data from 12,422 participants in the Australian Longitudinal Study on Women’s Health who were aged 70-75 in 1996. Proportional hazards models of survival up to 31st October 2005 were fitted separately for the whole cohort and those women who were initially in ‘good health’.

Results: Among the whole cohort, 18.7% died during the follow-up period. The strongest predictor of death was ‘poor’ or ‘fair’ self-rated health (with 52.3% and 28.0%, respectively, of women in these categories dying). Among the women in ‘good health’ at baseline 11.5% died, with current cigarette smoking (hazard ratio $HR = 2.00$, 95% confidence interval (1.52, 2.63), physical inactivity (HR = 1.52 (1.20, 1.92)), age (HR = 1.06 (1.02, 1.92) per year), self-rated health and the physical health component score from the SF36 health profile as statistically significant predictors of death.

Conclusion: Among older women, current health and health related behaviors are stronger predictors than social factors of relatively early mortality. Adopting a healthier lifestyle, by doing more exercise and not smoking, is beneficial even in old age.

The evidence of a beneficial effect of moderate alcohol consumption on health is substantial. Recently some researchers have argued that the apparent protective effect of low to moderate alcohol consumption on disease may be due to misclassification of ex-drinkers as non-drinkers. Others have argued that non-drinkers have given up drinking after developing a serious illness.
All four surveys of the ALSWH mid-aged cohort were used to explore the impact of alcohol consumption on health over the eight years. Random coefficient models were used to examine changes in self-reported general health by alcohol consumption, adjusted for socio-demographic and health factors and changes in smoking and comorbidity. General health was better among moderate and occasional drinkers than non-drinkers. In addition, the general health of occasional and moderate drinkers declined with decreased or variable alcohol consumption, but increased alcohol consumption did not significantly improve the general health of non-drinkers. Exclusion of women with an existing chronic condition at Survey 1 did not alter these findings. The results add support to previous findings of the beneficial effects of moderate alcohol consumption on health but do not refute the theory that non-drinkers may include sick quitters.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Prevalence of back pain in Australian women and its relationship to incontinence and respiratory disease</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Ms Anne Russell and Professor Christina Lee</td>
</tr>
<tr>
<td>Collaborative Investigators</td>
<td>Ms Michelle Smith and Dr Paul Hodges (School of Health and Rehabilitation Sciences, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>National Health and Medical Research Council</td>
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</tbody>
</table>

Although the mechanism for the development of low back pain is not well understood, it has been extensively argued that it is associated with changes in control of the trunk muscles. Many trunk muscles, such as the diaphragm, transversus abdominis, and pelvic floor muscles, contribute to postural stability, but are also essential for respiration and continence. Altered function of these muscles in people with incontinence and respiratory disease may interfere with the physiology of spinal control, and provide a link to back pain. The aim of this project was to establish the association between back pain and disorders of continence and respiration in women.

We first conducted a cross-sectional analysis of Survey 1 data using multinomial logistic regression to model four levels of back pain in relation to incontinence, breathing difficulties and allergy. Disorders of continence and respiration were strongly related to frequent back pain. The relationship may be explained by physiological limitations of coordination of postural, respiratory and continence functions of trunk muscles. This study has been published in the *Australian Journal of Physiotherapy*.

Second, we calculated univariate and multivariate prevalence ratios to determine the associations between the development of back pain and change in the presence of incontinence and breathing difficulty. Women with pre-existing incontinence and women who developed breathing problems were more likely to develop back pain than women without such problems. This provides the first evidence that the presence and/or development of incontinence and breathing problems are associated with future
development of back pain. This paper has been submitted to the *British Journal of Medicine*.

Thirdly, to further our understanding of the relationship between these conditions, we are performing a final analysis to determine whether the presence of incontinence, breathing problems and back pain increases the risk for the future development of these conditions. Preliminary data suggest that incontinence and breathing problems are risk factors for the development of back pain, and vice versa, back pain is a risk factor for the development of incontinence and breathing problems. This analysis is being completed and a manuscript is being prepared.

**Publications and conference presentations:**

Smith MD, Russell A, Hodges PW. Disorders of breathing and continence have a stronger association with back pain than obesity and physical activity. *Australian Journal of Physiotherapy*. 2006;52:11-16.


<table>
<thead>
<tr>
<th>Project:</th>
<th>The relationship between back pain and incontinence in Australian women during pregnancy and post-partum</th>
</tr>
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<tr>
<td>ALSWH Investigators:</td>
<td>Ms Anne Russell and Professor Christina Lee</td>
</tr>
<tr>
<td>Collaborative Investigators</td>
<td>Ms Michelle Smith and Dr Paul Hodges (School of Health and Rehabilitation Sciences, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>National Health and Medical Research Council</td>
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</table>

Back pain and pregnancy are thought to be related, but studies have not directly compared incidence with non-pregnant or nulliparous women. Urinary incontinence is common during pregnancy, but its relationship with back pain during pregnancy is unknown. The aims of this study were to compare prevalence of back pain in parous and nulliparous, and pregnant and non-pregnant women, and to determine whether there is an association between incontinence and back pain in pregnant women.

Associations between back pain, pregnancy, parity and incontinence were assessed using chi-square analysis, and the odds of back pain were modelled with multinomial logistic regression. Back pain was more frequent in parous than nulliparous, and pregnant than non-pregnant younger women; however, no associations were seen for mid-aged women. This finding suggests that pregnancy may lead to earlier development of back pain,
without affecting long-term prevalence. Incontinence and back pain were related in pregnant women, and may be due to the contribution of the pelvic floor muscles to continence and lumbopelvic control. This paper is being prepared for submission to the International Urogynecology Journal.

Publications and conference presentations:

<table>
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<tr>
<th>Project:</th>
<th>Volunteering and Older Women</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Professor Julie Byles</td>
</tr>
<tr>
<td>Collaborative Investigators</td>
<td>Lynne Parkinson, David Sibbritt, Richard Gibson, (Research Centre for Gender and Health, University of Newcastle) and Jeni Warburton (Australiasian Centre on Ageing, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>None</td>
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</table>

A recent review of the international literature proposed that a number of health indicators such as morbidity rates, functional health indices, self reported health and life satisfaction may be affected by social involvement, such as volunteering. This evidence suggests that volunteering may be associated with better health. While it is very difficult to assert a causal relationship, there are suggestions that being active in the community through volunteering helps keep people healthy psychologically and even physically. This may be particularly important for older women, who benefit from the social aspects associated with volunteering, and who are more likely to have a long term commitment as volunteers. However, some recent Australian evidence has suggested that volunteering might actually be bad for your health because it can be a stressful, time-consuming activity. Therefore the broad aim of this research was to explore the relationship between health and volunteering in older women, from a secondary analysis of Australian Longitudinal Study on Women’s Health (ALSWH) data, across three survey periods.

A “volunteer” was defined as those who undertook regular community or organizational volunteering (eg fundraising, community welfare, church activities, organising groups or classes), every day, every week, or every month. Those who undertook this type of activity less than every month or never were defined as not volunteers. Thirty-seven percent of women reported volunteering (2% every day, 20% every week and 15% every month). Volunteers were more likely to live in another rural or remote area than in an urban area. Volunteers were also more likely to be younger, more educated, Australian born, to live alone and have private health insurance, be of English speaking background, to have income besides the pension, to report managing on their income, than non volunteers. Volunteers rated their health as excellent to very good more often than did non-volunteers. Volunteers were also more likely to be healthier than non volunteers on a
variety of physical measures (health problems in last 12 months, GP visits in last 12 months, satisfaction with physical ability, eyesight, exercise level and alcohol intake) and psychosocial measures (depression, major personal illness or injury in last 12 months, major decline in health of spouse or partner in last 12 months, major life events last 12 months, social connections).

So the profile of an older woman volunteer in Australia is someone who is less than 80 years of age, has some education, is financially comfortable, is a rural dweller, living alone, Australian born, not depressed, socially connected with friends and family, and who considers themselves healthy.

The next phase of this work is to develop model of relationship of demographic, health and psychosocial variables to volunteering over time.

<table>
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<tr>
<th>Project:</th>
<th>Asthma amongst elderly women</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Professor Julie Byles</td>
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<tr>
<td>Collaborative Investigators</td>
<td>Dr Peter Gibson (Hunter Medical Research Institute), Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle) and Ian Robinson (Research Centre for Gender and Health, University of Newcastle)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>None</td>
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There is little evidence regarding the epidemiology and natural history of asthma among older women in Australia. The outcome for older people with asthma remains poor, in spite of improvements in mortality and quality of life for people with asthma at earlier ages. In part this outcome may be due to higher risk of illness at older ages, but may also be due to misdiagnosis and under-treatment of this condition among older people. In this study our aims are:

1. To estimate the prevalence of asthma among older women and the incidence of reporting new cases with age
2. To explore the association between asthma and changes in the health of the women as they age.

Preliminary results of this research show that 13% of the women in the study at Survey 1 reported that they had ever been told by a doctor that they had asthma. A similar proportion reported taking medications for asthma when this question was asked at Survey 3. The prevalence of symptoms of breathing difficulty at Survey 1 was higher at around 21%. A total of 989 (9%) women who provided data on diagnoses and symptoms at Survey 1 could be considered to have asthma at that time. Across Survey 1 to Survey 4, 17% of women could be considered to have ever had asthma. Those who had asthma had higher rates of most symptoms and conditions, not just those relating to breathing difficulties, and they had higher rates of health service utilization. Not all women with
asthma were taking asthma medications. Further research will look at health outcomes for women with asthma compared to other women in this cohort.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Further research on incontinence among women in Australia</th>
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<tr>
<td>ALSWH Investigators:</td>
<td>Professor Julie Byles</td>
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<tr>
<td>Collaborative Investigators</td>
<td>Dr David Sibbritt, Ms Cynthia Miller (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle) and Dr Pauline Chiarelli (School of Health Sciences, University of Newcastle)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>None</td>
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Urinary incontinence is a common and under-enumerated problem in our community.

It is estimated that almost two million community-dwelling women in Australia have problems with urinary incontinence. This problem poses a major social burden for many of these women, and also carries considerable costs for the health care system.

In the 1996 baseline surveys of the ALSWH, 36.1% of Mid-age women (45-50) and 35% of Older women (70-75) reported leaking urine sometimes or often. More in-depth surveys of these women have identified cross-sectional associations between incontinence severity and BMI, other urinary symptoms, smoking, hormone replacement therapy, and hysterectomy\(^1\). The study also found that many women who had incontinence were employing methods to prevent incontinence that may have other detrimental health outcomes. For example, many women reduced their fluid intake\(^2\) and many avoided physical activity\(^2\) in an attempt to reduce their symptoms.

While these findings emphasise the importance of the problem of incontinence in our community, because they are cross-sectional in nature they provide little details on the incidence, natural history, risks and adverse health outcomes associated with the problem of incontinence. Since these findings have been published more data have been gathered on the three cohorts of women participating in the ALSWH. These data provide an opportunity to explore longitudinal changes among women with incontinence and to explore those factors that place women at greatest risk of developing incontinence. Comparing responses across Survey 1 to Survey 3, 9.3% can be considered to have developed incontinence over these years.


incontinence at Survey 1 that was also present at subsequent surveys, 6.5% had incontinence at some surveys but not others, 7.7% developed incontinence after Survey 1. Only 54% of the women never reported incontinence at any survey. Longitudinal models for Survey 1, Survey 2, and Survey 3 demonstrate significant relationships between dysuria, prolapse, prolapse repair, constipation, obesity and overweight, Physical disability, falls and health service use. Extended analyses are being undertaken to further explore these relationships.

1.3.2 Completed Postgraduate Theses

<table>
<thead>
<tr>
<th>Project:</th>
<th>Carers and psychosocial correlates across time: a longitudinal analysis</th>
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<tbody>
<tr>
<td>Doctor of Psychology (Clinical and Clinical Neuropsychology) Candidate:</td>
<td>Dr Sally Price (School of Psychology, University of Queensland)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Dr Nancy Pachana (School of Psychology, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>School of Psychology, University of Queensland</td>
</tr>
<tr>
<td>Conferred:</td>
<td>July 2006</td>
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</table>

It was the aim of this research project to investigate the health of Australian women aged 70 years and over who are caring for someone ill or disabled at home. This sample of women was drawn from the Australian Longitudinal Study of Women’s Health (ALSWH) which is a large population-based mail-out survey examining aspects of health in these women. Study one was cross-sectional in nature. Results of independent t-tests indicated that caregivers (N= 851) reported poorer mental health as compared to demographically similar non-caregivers (N = 9,583), and no differences between groups were found for self-reported physical health. There were few observed differences between these groups on measures of social support, stress and personality traits. Results of hierarchical multiple regression analyses indicated that health-related hardiness (HRH), physical activity, social support, neighbourhood satisfaction and income are important in fostering positive ratings of mental health. Higher stress and the occurrence of more than one major life event in recent years were not helpful for caregiver mental or physical health. HRH, physical activity and income were important in fostering positive outcomes for self-reported physical health. There was no support for any interactive or moderating relationships. Study two aimed to investigate caregiver health over time where continuous non-caregivers were compared to caregiving groups via linear mixed models analyses. While the means for mental health for all caregiving trends fell within the average range for Australian norms, statistical analysis suggested a downward trend over time for caregiver mental health. There was a lack of definitive support for the adaptation hypothesis as it stands at present, and there was no support for improvement in mental health following cessation of the caregiving role. Caregiving was not associated
with declines in self-reported physical health. However, age was associated with declines in this domain, where over time, all caregiving groups and the non-caregivers reported worse physical health. Implications for future caregiving research and for social and health care policy are discussed.

1.3.3 Student projects in progress

<table>
<thead>
<tr>
<th>Project:</th>
<th>Physical activity and perceived cognitive decline in older women</th>
</tr>
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<tbody>
<tr>
<td>PHD Candidate:</td>
<td>Ms Siobhan O'Dwyer (School of Human Movement Studies, University of Queensland)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Professor Wendy Brown, Dr Yvette Miller (School of Human Movement Studies, University of Queensland) and Dr Nancy Pachana (School of Psychology, University of Queensland)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>APA postgraduate award</td>
</tr>
<tr>
<td>Expected Completion:</td>
<td>Early 2008</td>
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</table>

Objectives: To explore the relationship between physical activity and perceived cognitive decline in the older cohort and to identify the variables which may mediate that relationship.

Results: Women from the older cohort who did not have complete responses to the physical activity and memory items at Surveys 2 and 3 were excluded from the sample (6018 excluded). Women who reported diagnosed psychological or neurological conditions, or the use of psychological or neurological medications, were also excluded (4407 excluded). These conditions and medications are known to be detrimental to cognitive functioning.

Stage One Analyses
Univariate relationships between physical activity (defined as Exercise Status at Survey 3), perceived cognitive decline (as measured by self-report on the MACQ at Survey 3), and a range of health, demographic, lifestyle, and psychological variables were explored. Physical activity levels and scores on the MACQ were found to be associated, with highly active women reporting significantly less cognitive decline than less active women. Both physical activity levels and scores on the MACQ were found to be associated with optimism, mental health, health-related hardiness, alcohol consumption, and indicators of heart disease. Higher scores on measures of optimism, mental health, and hardiness were associated with higher levels of physical activity and reduced reporting of cognitive decline. Presence of heart disease was associated with low levels of physical activity and high levels of perceived cognitive decline. Low to moderate consumption of alcohol was associated with reduced reporting of cognitive decline and higher levels of physical activity, relative to frequent drinking.
Stage Two Analysis
Those variables that were associated at the univariate level with both physical activity and scores on the MACQ were included in the regression model. The model indicated a small but significant relationship between physical activity and perceived cognitive decline, which was mediated by the use of heart medications, health-related hardiness, and mental health.

Stage Three Analysis
This analysis utilised data from Survey 3 and Survey 4, to explore the association between physical activity and changes in perceived cognitive decline. Univariate associations between physical activity at Survey 3 and changes in MACQ score from Survey 3 to Survey 4, were not significant. No further analyses were undertaken.

Conclusion: Although cross-sectional analyses support an association between physical activity and perceived cognitive decline, this relationship is not evident in longitudinal analyses. This may be explained the limited usefulness of the MACQ as a measure of cognitive decline. The MACQ is a self-report measure of perceived memory decline. It is not an objective, clinical measure of memory functioning, and may not be sensitive to subtle changes over time.

Presentations:
Data from Stages One and Two have been accepted for presentation at the 9th International Congress on Behavioural Medicine (Bangkok, November 2006). The abstract was given a Citation Award.

<table>
<thead>
<tr>
<th>Project:</th>
<th>A functional model of fall risk</th>
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<tr>
<td>PhD Candidate:</td>
<td>Afsoon Hassani Mehraban (School of Health sciences, Occupational Therapy, University of Newcastle)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Professor Julie Byles (Centre of Research and Education in Ageing, University of Newcastle), Dr Lynette Mackenzie (School of Health Sciences, University of Newcastle) and Associate Professor Catherine D’Este (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)</td>
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<tr>
<td>Expected Completion:</td>
<td>December 2007</td>
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Objective: This project will explore and apply a new conceptual model of health and function to the problem of falls among older women. Falls are a major cause of morbidity among older women in Australia. They are the leading cause of injury related death in people over the age of 65 and they increase the risk of admission to residential care, reduced activity, leading to social isolation and frailty. However, despite numerous studies of medical and physical risk factors in frail individuals there has been little work
to understand the complexity of factors (medical, social, environmental & personal) that influence the risk of falls for women in the community. This project applies the newly developed International Classification of Functioning developed by the World Health Organisation to data collected as part of the Australian Longitudinal Study on Women’s Health.

**Study design/setting:** This project has developed a self-reported version of a validated home hazard checklist (the HOME FAST) designed to identify environmental risks for falls in older people. Using this checklist, data on home hazards and falls have been collected from a sub-sample of 568 women from the ALSWH (86.5% response rate). Combined with other ALSWH surveys, these data allow in-depth analysis of the influence of social and environmental factors on falls risk among community living elder women and the interaction between these factors and established physical and medical risk factors.

**Results:** Preliminary analysis indicates that about 20% of the sub-sample experienced a fall in the previous six months. Qualitative responses indicated that these falls can prevent women from continuing with some of their activities, such as domestic activities, outdoor activities and walking. Also, fallers have more hazards at their home than non-fallers. They have more difficulty in doing everyday activities such as dressing/undressing, walking without help, getting outside the house. According to Modified Falls Efficacy scores, non-fallers are more confident in doing their activities without falling such as preparing simple meals, taking bath/showers, simple shopping.

A validation study is also being conducted to compare self report and the ratings given by health professionals when using the two versions of the HOME FAST (self-report and health care professional versions). This involved several stages of assessing validity:

1. **The validity of the devised scoring method to convert self report scores to the HOME FAST scores (out of 25).**
   Two raters independently rated the self report HOME FAST surveys returned by 56 participants from the ALSWH sub-study. The kappa statistic shows good to excellent agreement for most of the items (0.65-1) except for the item about getting in/out of the bath. This was thought to be due to ambiguity around this item related to the diversity of bathing arrangements in the homes of older people. On the basis of these findings further adaptations to the items for the self-report HOME FAST survey have been developed.

2. **The concurrent validity of the self reported HOME FAST against a health Professional rating of the HOME FAST.**
   Using data from a companion study involving 39 home visits where an occupational therapist completed the HOME FAST, and the older person completed the self report HOMEFAST, the kappa statistic measure was used to assess inter-rater agreement. The result ranged from very poor agreement (for getting in/out of bath and reaching items in the kitchen = -0.04) to excellent agreement (for having grab rail and non-slip mats in bath/shower = 0.8, 0.7). Self-reported ratings by the older people in the study identified consistently higher numbers of hazards than the ratings by the health
professionals. Further work will need to be done to determine the possible reasons for this.

Further analysis will be conducted using longitudinal data to understand the nature of falls risks, limitations in physical home environment and their consequences.

Preliminary findings have been presented in two posters presented at the World Federation of Occupational Therapist Congress 2006 on 23-28 July in Sydney.

**Poster 1:** *The development of self-report version of Home Falls and Accidents screening Tool (HOME FAST)* Authors: Afsoon Hassani Mehraban, Professor Julie Byles, Dr. Lynette Mackenzie

**Poster 2:** *A cross-sectional study of falls and the home environment with 650 older Australian women* Authors: Afsoon Hassani Mehraban, Professor Julie Byles, Dr. Lynette Mackenzie

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<th>Project:</th>
<th>Socioeconomic inequalities in women’s use of health care services in Australia</th>
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<tr>
<td>PhD Candidate:</td>
<td>Rosemary Korda (National Centre for Epidemiology and Population Health, Australian National University)</td>
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<tr>
<td>Supervisors/ Collaborators:</td>
<td>Professor Jim Butler (Australian Centre for Economic Research on Health, Australian National University); Dr Mark Clements, Dr Emily Banks and Dr Jane Dixon (National Centre for Epidemiology and Population Health, Australian National University) and Dr Anne Young (Research Centre for Gender and Health, University of Newcastle)</td>
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<tr>
<td>Funding Source:</td>
<td>Australian Postgraduate Award (APA) and NCEPH supplementary scholarship</td>
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<td>Expected Completion:</td>
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This project is part of a PhD thesis on socioeconomic inequality in the use of health care in Australia, and the impact on health outcomes. The purpose of this research is to investigate whether or not there are inequalities in health care based on a person’s socioeconomic status (SES, as measured by income, occupational and educational status, as well as area-level measures of SES).

The ALSWH data are being used to address the following research questions:

1. Is there socioeconomic inequality in the use of ambulatory health care services once health status is taken into account?
2. What is the effect of health care cards and private health insurance on socioeconomic inequality in health service use?
3. What is the effect of accessibility of services, as measured by remoteness, on socioeconomic inequality in health care use?

4. Have there been changes in inequality in screening rates in the last ten years?

5. Is there socioeconomic inequality in women’s ratings of access to health care services?

Data analysis is about 80% complete. Results indicate significant inequality in the use of ambulatory health care services, favouring more advantaged women. This is apparent across a range of SES measures (including education, household occupation, household income, and area-level socioeconomic status) and inequality measures. Pathway analyses indicate that health care cards protect against inequality in GP services, while inequality in use of specialist, allied health and dental services is partly mediated through private health insurance. Preliminary results show that accessibility of services (as measured by remoteness) has little effect on socioeconomic inequality in health care use, with similar patterns evident in city and regional/remote areas. Preliminary results also show clear SES gradients in how women rate their access to services; however, this is modified by a women’s health status, with poorer health more likely to result in lower ratings of access.

The written output from this project will comprise two PhD chapters. I expect to complete drafts of both chapters by December 2006. I also expect to write several papers to submit to journals, however, these are not expected to be completed before December.

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<th>Project:</th>
<th>Modelling Dynamic Choice: Private Health Insurance</th>
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<tr>
<td>Honours candidate:</td>
<td>Ms Vineta Salale (University of New South Wales, and Centre for Health Economics Research and Evaluation)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Professor Denzil Fiebig (University of New South Wales, and Centre for Health Economics Research and Evaluation), Professor Jane Hall (Centre for Health Economics Research and Evaluation) and Dr Anne Young (Research Centre for Gender and Health, University of Newcastle)</td>
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<td>Expected Completion:</td>
<td>November 2006</td>
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This paper uses ALSWH data on the young cohort over the first three waves to build and test a model for private hospital insurance choice in Australia. An understanding of why Australians choose private cover is pivotal to designing policies that will ensure a well functioning private health system.

Further, the Australian market seems to exhibit a high level of persistence in this choice. Consumers that are insured tend to stay insured and vice versa. This is despite a wide range of legislation changes to try and induce movement into the private system. So far,
researchers have been unable to quantify this persistence due to the limitations of cross-sectional data and have therefore missed a crucial piece of the puzzle. Use of the ALSWH panel data set has allowed this study to track women as they move in and out of cover, measuring changes in decisions over time and over individuals.

**Objective:** To model consumer choice to purchase private hospital insurance in Australia using a dynamic framework to account for persistence, unobserved heterogeneity across individuals, and socio-demographic drivers.

**Study design/setting:** The final data set was created by using the first three waves of the Young Cohort of the ALSWH data and then defining variables consistently across all waves so that changes over time could be measured.

**Results:** Investigation of bi-variate relationships indicated self-assessed health, income, age, education, employment and child rearing variables were highly positively correlated with the choice to insure. Risk assessment variables such as smoking were negatively correlated. Other models that were tested but rejected included: models using a single cross-section; a static panel specification; and a fixed effects specification. These were rejected due to bias from non-dynamic specification.

The final model specification uses a dynamic, random effects probit model, which allows for persistence in decisions, differences across individuals, and controls for socio-demographic groupings.

The dependant variable - the choice to insure - is measured through a binary choice, latent variable framework.

The independent variables included were:
1. A lagged dependant variable (to account for persistence in decisions);
2. Exogenous socio-demographic controls such as income, employment and age;
3. A linear specification for the correlation between unobserved heterogeneity and the exogenous variables.

**Conclusions:** Factors that lead to a greater propensity to insure included insurance status from last period, income (both personal and household), employment, self-assessed health, not being single, and being pregnant in the past 12 months. Factors that lead to a lower propensity to insure included: living in a regional or rural area and being born outside of Australia.

These results shed further light on why Australians choose private health insurance. Specifically, if the Australian government wishes to improve access to the public system by ensuring greater movements into the private system, the results from this study will be helpful. The significance of dynamic choice specifications discovered by this study highlight the need for panel data sets, such as the ALSWH set, to provide a true understanding of health related behaviours.
**Project Title:** Battling the Black Dog: an exploration of the strategies used by young Australian women coping with depression.

**PhD candidate:** Catherine France (School of Psychology, University of Queensland)

**Supervisors:** Professor Christina Lee (School of Psychology, University of Queensland) and Dr. Sue Outram (School of Medical Practice and Population Health, University of Newcastle)

**Funding source:** None

**Expected completion:** March 2007

**Objective:** The overall aim of the project was to bridge the gap between coping research and clinical application by creating a model which identified strategies which women use to pass successfully through periods of depressed mood, in order to make recommendations for treatment.

**Study design/setting:** The first part of the project involved an exploration of the correlates and predictors associated with depressive symptoms, through analyses of the main survey data collected in 2000 and 2003. The second part investigated the styles and strategies used to cope with ‘depression’ through the use of a substudy questionnaire (Coping Survey) which was sent to participants in July 2004.

**Results:**

*Cross-sectional results*
In the cross-sectional analysis, approximately 30% of young women indicated that they were experiencing depressive symptoms, as indicated by the CES-D 10. The following demographic variables were related to depressed symptoms: low income, low educational qualifications, a history of involuntary unemployment, not being in a relationship, and living arrangements other than living with a partner. Those health-related variables which were significantly associated with depressive symptoms included frequent visits to doctors and medical specialists, and a higher number of physical symptoms experienced and diagnoses made. More illicit drug use, higher use of cigarettes and alcohol, and lower exercise status were also significantly associated with depressive symptoms.

*Longitudinal results*
Data from Survey 3, completed three years later, showed that approximately 25% of young women scored 10 or over on the CES-D 10. Comparing data from 2000 and 2003, four ‘depressed’ transition status categories were determined: ‘never depressed’; ‘no longer depressed’; ‘became depressed’; ‘remained depressed’. The specific research questions for the analyses were: “What changes are associated with becoming ‘depressed’?” and “What changes are associated with recovery from ‘depression’?”

After adjusting for all the transition variables in the model, compared with those who were ‘never depressed’, women were more likely to be categorised as ‘became
depressed’ if they reported the following: becoming unpartnered, having an increase in the number of major life events, having a decrease in social support, and becoming less physically active. They were also more likely to be in this group if they reported an increase in the number of physical symptoms, and if they had any change in the number of physical diagnoses they have received, compared with Survey 2. The only transition variable significantly associated with lower likelihood of ‘becoming depressed’ in the adjusted model, was reporting a change in income in either direction.

After taking all transition variables into account, compared with those who ‘remained depressed’, women were more likely to be ‘no longer depressed’ if they reported: decreases in income, number of life events and physical symptoms experienced. The only significant variables in the adjusted model for a reduced likelihood of being ‘no longer depressed’ were the reporting of a decrease in social support, and a change – increase or decrease – in the number of visits to medical specialists.

**Conclusion:** These results support the view that depression is one aspect of a multifactorial cluster of negative conditions across several domains of functioning, including physical ill-health, risky behaviours, and marginal social status. The complex interactions between these conditions, of which depression is only one, underscore the difficulties which arise in the treatment of depression and support the value of preventive interventions as an important public health strategy.

*Styles and strategies used by women with depressive symptoms*

The second part of the project has been addressed through analyses of the Coping Survey. 1200 surveys were sent to women, randomly selected from each of the four ‘depressed’ transition groups: 300 for each group. Data collection phase ended in February 2005.

The analyses failed to find any meaningful groupings of strategies and styles in the data. What this suggests is that there is no overall pattern in their choices which distinguishes these groups of women when they feel depressed. While there was a broad spectrum of specific recommendations made by the women, apart from the importance of talking to someone about how you are feeling, many of the recommendations fell under the categories of either focusing directly on the problem itself, or deliberately distracting oneself from the problem. Many women emphasised the importance of both approaches so that there was a balance between spending time trying to sort out the current issues, while also making time to ensure that the issues did not consume one’s life.

Our data suggest that women move out of depression if they have social support and other resources, and remained depressed if these resources are not available to them. Therefore, the answers to questions about recovery from depression or preventing depression, may lie less in the women themselves than in the circumstances in which they live, and a more fruitful approach for further research is in identifying and modifying the social, cultural and structural factors which affect whether or not women are likely to suffer from depression.
Project: The anxious road to depression: risk factors for secondary depression following anxiety in Australian women

Honours Candidate: Ms Elizabeth Knock (School of Psychology, University of Newcastle)

Supervisors: Dr Deborah Loxton (Research Centre for Gender and Health, University of Newcastle)

Expected Completion: December 2006

Research has documented the comorbidity between anxiety and depression, and found anxiety to commonly occur first in the relationship. The present study examined predictors of comorbid depression in women who had previously experienced anxiety alone, using longitudinal data from 7743 participants in the Australian Longitudinal Study of Women’s Health. Women suffering from anxiety alone at time one, were significantly more likely to develop depression than women who suffered from neither illness. Contrary to expectations, the same predictors were identified for the development of comorbid depression, as pure depression. These results suggest that the difference in development rates of pure and comorbid depression, are potentially the result of prior anxiety, rather than different predictors, and provide support for the role of anxiety as a causal factor for depression.

Project: Childlessness and the Role of Choice in Childless Women’s Reproductive Outcome

PhD Candidate: Ms Heather McKay (School of Population Health, University of Melbourne)

Supervisors: Associate Professor Jane Fisher (School of Population Health, University of Melbourne) and Professor Christina Lee (School of Psychology, University of Queensland)

Funding Source: a) Melbourne Research Scholarship (Faculty-Based MRS), & b) The Victorian component of data collection for this study is supported by a grant from the Helen Macpherson Smith Trust

Expected Completion: March 2007

Since the 1960’s significant economic, political, social and cultural changes have occurred in Australia that has affected the nature of families and family values. At the same time there has been a decline in our fertility rate and an increase in lifetime childless rates. It is now predicted that between 20 and 25% of Australian women will
not give birth to a child and that increasingly women are choosing this reproductive outcome.

Knowledge of women’s experience of childlessness is limited, and whether their assessment of the positive and negative outcomes of this life course is affected by the voluntary/involuntary nature of this reproductive outcome is virtually unknown. While changes have given women expanding opportunities, new possibilities, and a greater ability to control their own lives (including, for the first time, the option for married women to choose childlessness) women’s own perception of what choice in remaining childlessness means is also under-investigated.

**Objectives:** This study aims to investigate why women remain biologically childless, the role of choice in this reproductive outcome, and its impact on women’s lives. In doing so it also seeks to develop and enhance knowledge of voluntary childlessness.

**Study design/settings:** ALSWH participants from the mid-age cohort were chosen for this study because although their childless status is unchangeable, they are young enough to have lived their childbearing years after the baby boom (1961) and since effective contraception became widely available.

Data for the project was obtained in two ways: firstly via a sub-study survey sent to a subset of the mid aged WHA participants who indicated in Survey 1 that they had never given birth to a child, and secondly via secondary analysis of existing relevant information collected as part of the main WHA project.

Five hundred and thirty five sub-study surveys were sent with a response rate of 80%.

**Results to date:** Analysis of this data is well underway. Substantial examination of women’s views about their choice in, and reasons for, remaining childless has been undertaken. Additionally responses have been categorised into three groups according to the degree of choice women state they had in remaining childless. Comparisons between these groups are progressing.

The secondary analysis phase has been completed. After determining motherhood status for the participants, comparisons were made between mothers and childless women in the areas of residential location, marital status, education, workforce participation, and well-being (measured as self rated life satisfaction and health). These results are currently being prepared for publication.
| **Project:** | Coping with Miscarriage: Young women’s experiences |
| **PhD Candidate:** | Ms Ingrid Rowlands (School of Psychology, University of Queensland) |
| **Supervisors:** | Professor Christina Lee and Dr Nancy Pachana (School of Psychology, University of Queensland) |
| **Funding Source:** | University of Queensland Joint Research Scholarship |
| **Expected Completion:** | July 2008 |

This project aims to combine quantitative and qualitative methods to investigate:
1. The correlates and outcomes of miscarriage among young women and
2. The lived experiences of women who have recently reported having had a miscarriage to determine who copes well after miscarriage.

**Stage 1**
A series of quantitative analyses examining, both cross-sectionally and longitudinally, the correlates and outcomes of miscarriage among young women was conducted. Secondary analyses using existing data from Surveys 1, 2 and 3 of the Younger cohort of the ALSWH examined, cross-sectionally, the demographic, social, gynaecological, and psychological and lifestyles factors associated with miscarriage at each Survey. Subsequent cross-sectional and longitudinal analyses were conducted to further explore the correlates and outcomes of miscarriage. Analyses were completed at the end of 2005, and we have recently submitted a selection of the findings from the analyses for publication. We also have plans to submit further findings from these analyses for publication at the end of 2006, and present these findings at the International Society of Behavioural Medicine conference in Thailand in November this year.

**Stage 2**
The quantitative analyses revealed relatively little about the emotional impact of miscarriage and how this affects coping. The aim of the qualitative study was, therefore, to explore the specific coping strategies that women use after miscarriage. Interviews began in June with women who had experienced a miscarriage in the last two years and interviews have been recently completed. Nine women, the majority of whom were affiliated with the University of Queensland, volunteered to be interviewed. Semi-structured interviews required women to discuss the immediate, and current emotional impact of miscarriage, and those coping strategies that were, and were not effective at maintaining health and wellbeing. Thematic analysis of the interviews using a grounded-theory approach is currently being conducted. It is anticipated that the qualitative analysis will be completed early 2007.
Despite the high prevalence of depression and impact on the morbidity and mortality of the chronically ill population, depression is poorly recognised and treated in cardiac patients and cancer patients. Furthermore, women experience depression at almost twice the rate of men.

The prevalence and course of depression in women with cancer and heart disease will be investigated longitudinally. Additionally, this study will examine those women with cancer and heart disease who do not develop depression or experience remission from depression longitudinally. This study will also include a cross sectional analysis of the contribution of four psychosocial areas including life events, social support, hardiness and optimism in the development of or resilience against depression in this population of women.

Thesis Progress:
This project received ethics approval from The University of Melbourne in June 2006. The data has been transformed from SAS into an SPSS format. This study will be utilising the Young, Middle and Older Age Cohorts, Surveys 2 & 3. Survey 1 has been excluded from the analysis to ensure all participants received a diagnosis of cancer or heart disease within the preceding 3 years. Preliminary analysis has been initiated. This study received approval for an extension and expected date of completion is now June 30th 2007.
Project: Children's Structured Leisure Activities: Three Generations of Change

PhD Candidate: Ms Leanne Fray (School of Humanities and Social Sciences, University of Newcastle)

Supervisors: Dr Penny Warner-Smith (School of Humanities and Social Sciences, University of Newcastle) and Dr Kevin Lyons (School of Economics, Politics and Tourism, University of Newcastle)

Funding Source: Australian Research Council (ARC) Grant via the Work Life Tensions Project

Expected Completion: March 2007

Objectives: The aim of this project is to explore how children’s structured leisure activities have changed and evolved over the past 50 years. The research aims to investigate the underlying influences which underpin children’s involvement in structured leisure activities. The study aims examine how social and cultural influences have shaped participation in structured leisure activities for children and their parents.

Study design/setting:
Phase One
The first phase of the study involved ten focus groups which were conducted in both urban and rural regions of NSW and QLD. The focus groups were transcribed and thematically coded using the qualitative software package Nvivo. Themes identified in the focus groups were used to inform phase two of the study which involved semi-structured telephone interviews.

Phase Two
Participants from both the younger cohort (N=88) and the mid age cohort (N=82) from The Australian Longitudinal Study on Women’s Health were recruited to participate in phase two of the study. Participants from the younger cohort and their partners were interviewed in 2004, while participants from the mid age cohort were interviewed in 2005. All interviews have been transcribed and coded thematically utilising the qualitative software package Nvivo.

Results:
Preliminary findings suggest that contemporary children not only have the opportunity to participate in a greater range of activities, but are doing so at a much younger age than their parents or grandparents. Modern-day children are also highly influenced by their parents and their peers and structured leisure activities are seen to be an arena where children are taught to be successful. Children participating in structured leisure activities during the 1950s and 1960s were more likely to be involved via their own volition. Leisure for children during this time seemed to be characterised by a distinct lack of parental involvement, compared to contemporary children whose parents appear to be much more involved. These preliminary themes and others including but not limited to the cultural context of each time period, social movements, gender, parental involvement,
family car ownership, location (i.e. urban, regional, rural) will be explored when examining the underlying social and cultural influences that have changed the context and meaning of children’s structured leisure activities over the past fifty years.

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<th>Project:</th>
<th>Are cardiac conditions managed appropriately in older women?</th>
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<tr>
<td>PhD Candidate:</td>
<td>Ms Lindy Humphreyes-Reid (School of Population Health, University of Queensland)</td>
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<tr>
<td>Supervisors:</td>
<td>Professor Annette Dobson (School of Population Health, University of Queensland) and Professor Simon Stewart (Baker Institute, Melbourne)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>NHMRC Project Grant</td>
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<td>Expected Completion:</td>
<td>December 2006</td>
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The purpose of this substudy is to investigate the appropriateness of treatment of older women with Acute Coronary Syndrome (ACS) and chronic heart failure (CHF). The project is based primarily on data collected from the Older cohort (i.e. women aged 76-81). Using a self-report instrument, this study aims to determine the extent to which management of women with cardiac conditions departs from the best practice guidelines as set out by Heart Foundation Australia and the NHMRC. Hence the project will identify opportunities for improvement of health services in terms of responsiveness and appropriateness of treatment.

Review of the relevant research indicates that there is a significant disparity between males and females with cardiovascular disease in diagnosis, management and clinical outcomes. While this discrepancy is due, in part, to the way in which women perceive and present with cardiac anomalies, there is also evidence that women are not consistently managed according to best practice guidelines.

**Publications in progress:**
*Gaps in pharmacological and nonpharmacological management of women with CHF.*
This article has been submitted.

*Development and validation of a diagnostic algorithm for CHF*
This article is in progress.

*Systematic review of the literature: Gaps in management of CHF*
This article is in progress.

**Validation Study:**
An algorithm, using self-reported data, was developed to determine which women in the study had CHF. Currently an audit of medical charts is being conducted to test the accuracy of the algorithm.
Objectives: The overall aim of the project is to identify factors that impact women’s adjustment to breast cancer (BC) diagnosis or treatment using ALSWH data, in order to develop an intervention workbook that addresses these issues.

The project plans:
1. To explore group differences in quality of life, as measured by the eight SF-36 domains, between women who developed breast cancer at each Survey and those who did not.
2. To determine if perceived stress mediates the relationship between initial life events and change in quality of life over time, using a subsample of women who did not have breast cancer at Survey 1, but who subsequently developed breast cancer at either Survey 2 or 3.

The results from Study 1 influence the direction taken in subsequent studies (which do not use ALSWH data).

Study design/setting: All data analysis has been completed. This study involved examining three waves of ALSWH data from the mid-aged women. Four non-overlapping groups of women were derived, with a final sample size of 10,543 women.

Results: First, No-BC participants included women who reported never having had breast cancer at all time points (97.2%). Second, BC-T1 consisted of women who reported having breast cancer at T1 (1.5%). BC-T2 consisted of women who developed breast cancer between T1 and T2 (0.5%), and BC-T3 were women who developed breast cancer between T2 and T3 (0.9%).

The four groups of women were statistically compared over time for the eight quality of life outcomes using a multivariate analysis of variance (MANOVA). Significant interactions were found for bodily pain, general health, role physical, physical functioning and social functioning, suggesting that changes in functioning over time differ between groups. Further examination suggested that each BC group experienced significantly worse QOL functioning at the respective time points they had been through.
diagnosed with BC compared to women who had never been diagnosed. The only exception to this was physical functioning, for which no differences were found.

In order to prospectively test the hypothesis that perceived stress mediates the relationship between initial life events and change in QOL over time, the two groups of women who did not have breast cancer in Survey 1 but developed breast cancer subsequently by Surveys 2 and 3 (BC-T2 and BC-T3) were combined for prospective analyses (n=140). Longitudinal modelling was then used to test the relationship between life events, stress and change over time in the eight SF-36 QOL domains. Initial life events and perceived stress predicted change in four QOL domains. There was prospective evidence for the predicted mediational relationship for the domains of role emotional and social functioning. Pre-BC life events and, particularly, stress have therefore been identified as important predictive factors for poorer outcomes in certain areas of functioning following diagnosis of BC. Future research can build upon current findings by implementing and systematically evaluating a stress-management intervention for women at risk of poorer outcomes.

We submitted the findings of this study for publication and have recently received reviewers’ comments. Further analyses will be conducted before the manuscript is submitted elsewhere. From this research, have developed an intervention workbook to assist women in dealing with these (and other psychological) issues following BC diagnosis and treatment.

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<th>Project:</th>
<th>Cigarette smoking among young women</th>
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<tr>
<td><strong>PhD Candidate:</strong></td>
<td>Ms Liane McDermott (School of Population Health, University of Queensland)</td>
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<tr>
<td><strong>Supervisors:</strong></td>
<td>Professors Neville Owen and Annette Dobson (School of Population Health, University of Queensland)</td>
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<tr>
<td><strong>Funding source:</strong></td>
<td>NHMRC Public Health Postgraduate Research Scholarship and Core Infrastructure Grant to the Cancer Prevention Research Centre from Queensland Health</td>
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<td><strong>Expected completion:</strong></td>
<td>December 2006</td>
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**Objectives:** The broad aim of the research program is to identify patterns and predictors of smoking behaviour among young women aged 18 to 30 years.

**Study design/setting:**
The two main phases of the study include:
1. Cross-sectional and prospective analyses of ALSWH data from the 1996, 2000 and 2003 surveys of the younger cohort; and
2. Exploratory qualitative research to examine the influence of life-stage transitions on the adoption of cigarette smoking, maintenance of smoking and smoking cessation.

**Results:**

*Descriptive analysis of patterns of smoking adoption, maintenance of smoking and smoking cessation among women aged 18 to 30 years*

Findings show that the percentage of current smokers across the three surveys appears to remain relatively stable: 24% in 1996; 25% in 2000 and 23% in 2003. While the number of young women who had never smoked decreased from 66% in 1996 to 59% in 2003, the number of ex-smokers increased from 9% in 1996 to 18% in 2003. However, more in-depth analysis tracking the changes in smoking status from Survey 1 to 3 shows greater instability in smoking behaviour for approximately 21% (n=1574) of participants, who moved in and out of smoking over the seven year period between the surveys.

*Factors associated with the progression to regular smoking among young women*

This analysis explored prospective transitions in smoking among young adult women who were occasional smokers, and the factors associated with these transitions, by comparing sociodemographic, lifestyle and psychosocial characteristics of those who: progressed from occasional to daily smoking; who continued occasional smoking; and, who stopped smoking. The findings revealed that among the smokers, 39% (n=829) were occasional smokers. Of these occasional smokers, 18% progressed to daily smoking at Survey 2 and remained daily smokers at Survey 3; 12% continued occasional smoking; 36% stopped smoking and remained non-smokers; and, 33% moved between daily, occasional and non-smoking over Surveys 2 and 3. Over the whole seven-year period, approximately half quit smoking, one-quarter progressed to daily smoking and the remainder continued occasional smoking. Multivariable analysis identified being single, a higher-risk drinker and using illicit drugs with progression to daily smoking and with continuing occasional smoking. Compared to stopping smoking, progression to daily smoking was significantly associated with having lower educational attainment. There were no significant associations with depression and perceived stress in the multivariable analysis.

*Analyses currently being completed*

Data analyses currently being completed include an analysis of: a) factors associated with the maintenance of regular, heavy smoking among young women; and, b) factors associated with smoking adoption, maintenance of smoking and smoking cessation as young women experience major life-stage transitions.

*Qualitative study – the role of life transition events in smoking behaviour*

Exploratory qualitative research, which aimed to identify life-stage transition events relevant to young women and how they related to smoking behaviour, has been completed. The ALSWH sub-study examined the influence of life-stage transitions on the adoption of cigarette smoking, maintenance of smoking and smoking cessation.

Eighty young women, aged between 24 and 29 years in 2002, were recruited from the younger cohort. Based on data from the 1996 baseline survey of these young women and the first follow-up survey in 2000, the women were identified by four smoking behaviour
categories: 1) never smoked; 2) new adopter; 3) continuing smoker; and 4) quitter. Standardised open-ended telephone interviews were conducted with participants. The telephone interviews explored the participant’s experiences of the influence of each of the major life transitions on their smoking behaviour. The interviews were audio-taped, and transcribed and analysed using qualitative data analysis procedures. The results identified the social context of smoking (socialising with other smokers, drinking alcohol and going to pubs and clubs) as the predominant influence on smoking from the time young women left home until they settled into a committed relationship or started their own family. Stress was identified as an important factor as young women experienced lifestyle changes. An increased sensitivity to the negative aspects of smoking after turning 21 was reported, and around the mid 20’s they became concerned about the addictive nature of cigarettes and future plans of having children. Motherhood was seen to carry increased responsibilities to ensure children were not exposed to passive smoking and there was a perceived importance of positive role modelling to protect children from becoming smokers themselves.

A paper on this study has been published

<table>
<thead>
<tr>
<th>Project:</th>
<th>The aspirations and life goals of young women during the period of Emerging Adulthood.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD Candidate:</td>
<td>Miss Melissa Johnstone (School of Psychology, University of Queensland)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Professor Christina Lee and Dr Nancy Pachana (School of Psychology, University of Queensland)</td>
</tr>
<tr>
<td>Funding source:</td>
<td>APA Scholarship</td>
</tr>
<tr>
<td>Expected completion:</td>
<td>December 2008</td>
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</table>

**Objectives:** To identify and understand young Australian women’s aspirations/goals/life plans and uncertainties, regarding motherhood, marriage, residence, finance and work, and their actual life circumstances, with reference to the theory of Emerging Adulthood as well as Hakim’s Lifestyle Preference Theory.

**Results:**

*Phase one*

Phase one involved the quantitative analysis of data gathered from Surveys 1, 2 and 3 of the Younger cohort (n = 14,247) of the ALSWH. Analyses were conducted, both cross-sectionally and longitudinally, focusing on responses to the questions regarding young women’s aspirations for employment, motherhood and relationship status at age 35.
At each of the three surveys, women were classified into groups according to Hakim’s Preference Theory, based on their aspirations for work and family. The results showed that most young women cannot be readily classified as "home-centred", "work-centred" or "adaptive". Of the women who were classified into one of the three groups, differences were found between the groups on certain demographic variables, such as marital and motherhood status, as well as level of education and area of residence. There were few differences in health behaviour or psychological well-being. It was also found that aspirations of young women were not particularly stable over the three surveys and were not matching women’s actual behaviour at Survey 3. The instability of young women’s aspirations across the three surveys has raised questions regarding how women’s life goals are formed, pursued and modified during the period of Emerging Adulthood.

The next stage of the project will involve examining the available evidence on young women’s experiences during this period of Emerging Adulthood. While research has been conducted on historical changes in the timing and sequencing of life transitions such as marriage, parenthood and employment, less research has been conducted on the subjective experiences during this period.

Phase two:
Phase two will involve analysing qualitative responses from Surveys 1, 2 and 3 of the Younger Cohort. This second phase will involve matching the same women across the three surveys and analysing responses that focus on their life circumstances and aspirations regarding motherhood, marriage, residence, finance and work. The consistency (or inconsistency) of the responses will also be analysed within the framework of Emerging Adulthood.
Poor mental health is one of the largest contributors to non-fatal morbidity in Australia.

Levels of mental health are not static and fluctuate over extended periods of time. Poor mental health interferes with work and family roles, leisure and quality of life. The cost of poor mental health is high in personal, social, healthcare and economic terms.

**Objectives:** The aim of this thesis was to determine the nature of the relationships between mental health, physical health and social disadvantage including cross-sectional associates and longitudinal predictors. This was done partly by looking at the outcomes and partly by looking at methodological concerns.

**Study design/settings:** This research analysed data collected for the Australian Longitudinal Study on Women’s Health (ALSWH) from Surveys 1 and 2 of the Younger cohort and Surveys 1, 2 and 3 of the Mid-age and Older cohorts.

**Results:** The importance of investigating the psychometric issues related to the measurement of mental health, life events and more generally any self-report items was highlighted.

Firstly, the multiple indicators of mental health used in the ALSWH had approximately equivalent abilities for detecting depression and anxiety outcomes. Secondly, mental health and errors of recall impacted on the reporting of life events. Considerable change in depression across time was found within subgroups based on demographic, health behaviours and physical health. The cross-sectional and longitudinal analyses were consistent in showing that depressed women were more likely than others not to be partnered, to have difficulty managing on their income, be inactive, smoke and reported more symptoms of physical illness and GP visits. Furthermore, declining mental health was also associated with going from being physically active to inactive, from being partnered to not partnered, and from having few to many physical symptoms.

**Conclusions:** The findings of this thesis drew attention to the complex pattern of interaction between mental health status, social disadvantage, physical ill-health and unhealthy lifestyles. This study also highlighted the methodological issues related to the
measurement and analysis of self-reported data, particularly for research on mental health.

| **Project:** | Declining fertility rates and the normalisation of technological control of reproduction among young Australian women |
| **PhD Candidate:** | Ms Rosie Mooney (School of Humanities and Social Science, University of Newcastle) |
| **Supervisors:** | Dr Penny Warner-Smith and Dr Ann Taylor (School of Humanities and Social Science, University of Newcastle) |
| **Funding Source:** | University of Newcastle Research Scholarship (External) & University of Newcastle Project Grant |
| **Expected Completion:** | December 2007 |

**Objectives:** This project explores the planned and expected timing of childbearing for young Australian women, through an investigation of the relationship between their perceptions and experiences of fertility, technology and motherhood. The research topic stems from government and societal concerns surrounding Australia’s ageing population, and changes in fertility patterns, including delayed childbearing, increased childlessness and smaller family size.

**Study design/settings:** A three stage research design has been developed and implemented, combining both qualitative and quantitative data collection and analysis. Findings from each research stage informed the following phase of research. All data collection is now complete.

**Stage one**
Stage one involved the analysis of existing qualitative data gathered from the Younger cohort (n = 14,247) of the Australian Longitudinal Study on Women’s Health (ALSWH) in response to the open question “Have we missed anything?” asked at the end of Younger Surveys 1 (1996), 2 (2000), and 3 (2003). Analysis has found that over 1500 of the 6637 participants who wrote comments chose to discuss their reproductive decisions, plans and experiences (Younger Survey 1 (aged 18-23) n= 416; Younger Survey 2 (aged 22-27) n=432; Younger Survey 3 (aged 25-30) n= 669). The representativeness of those who wrote comments about their reproductive experiences and specific subgroups of these comments, such as those who wrote about their reproductive decision-making, are being assessed using quantitative data from the corresponding surveys.

**Stage two**
Young women, aged 18 to 30 years, were recruited to participate in focus group discussions and to complete a written survey about their reproductive decision-making. Themes from stage one of the research informed the focus group schedule. Twenty-four
women participated in six focus groups and one interview in several urban areas around NSW. The discussions were audio taped and transcribed.

Stage three
Stage three of the research was informed by preliminary findings from stages one and two which emphasised the complexity women experience in finding the perceived ‘right time’ to have children and the consequent delaying of childbearing. A sample of 50 participants from the Younger ALSWH cohort, then aged 27-32 years, participated in a substudy about their reproductive decision-making, which involved the completion of a written survey and a semi-structured telephone interview. Eligibility criteria included living in a marriage or a de facto relationship, having no children, and not being currently pregnant. The interview data have been transcribed and the survey data entered and verified.

The ALSWH data, focus group transcripts and interview transcripts have and are being descriptively and thematically coded and analysed with the assistance of the qualitative software package N6 (NUD*DT version 6).

Results:
Stage three preliminary results
Analyses of the interview transcripts are ongoing. Statistical analyses of the representation of the interview sample suggest the sample are more likely to have a tertiary education, to feel able to manage on their available income, to be in paid employment, and to aspire to have fewer children than the Younger cohort as a whole. This is in keeping with the literature which finds that the more education a woman has the later she will have children and the fewer children she will have.

The majority of the interview participants (94% n=47) stated that they wanted to have children. However, the timing of their reproductive plans, from currently trying to become pregnant to starting to think about having children in five years time, and the surety with which they spoke of these plans varied considerably. Twenty-four percent (n=12) were currently trying to become pregnant, all of whom were married and most of whom (n=10) were aged 30 years or older. Two-thirds of those currently trying had a tertiary education. These demographics are characteristic of the perceived ideal time to have children as articulated by the majority of the participants. Thirty was a significant age, with few planning children before this time. Beliefs about age related fertility problems and being a young energetic parent meant participants generally wanted to complete their family by 35 or 40 years. However, the responsibilities, costs and limitations associated with having a child resulted in a list of pre-motherhood goals, including educational attainment and career establishment, which often threatened the perceived ideal age. Security and stability, usually symbolised by marriage and home ownership, were viewed as central to the timing of motherhood. Analyses comparing the qualitative interview data and quantitative survey data highlight interlinking relationships between the length of time the participant had been with their partner and the intended timing of children, the longer the relationship the more definite participants were about having children and the sooner they were planned.
Seminar presentations 2006
Mooney R. The right time to have children: young women's perceptions of older motherhood. Hunter Postgraduate Medical Institute’s Hunter IVF Babies and Beyond Series 2 – Pre Pregnancy Counselling. Newcastle, 19th October 2006.
Mooney R. Issues of breadth, depth and generalisability: The benefits of combining qualitative and quantitative methodology in a study of women’s reproductive plans. School of Humanities and Social Science 2006 research higher degree student seminar series. University of Newcastle, Newcastle, 2nd November 2006

<table>
<thead>
<tr>
<th>Project:</th>
<th>Adjusting for death in Longitudinal Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD Candidate:</td>
<td>Mr Steven Bowe (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Dr Anne Young (ALSWH, University of Newcastle), Dr David Sibbritt (Centre for Clinical Epidemiology and Biostatistics, University of Newcastle)</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>None</td>
</tr>
<tr>
<td>Expected Completion:</td>
<td>December 2008</td>
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</tbody>
</table>

Objectives:
1. To investigate the statistical methods used to account for death in longitudinal studies.
2. To apply the current statistical methods to ALSWH data for the older cohort and evaluate the advantages and disadvantages of the methods.
3. To determine whether there is a need to improve current statistical methods and apply and assess new strategies if applicable.
4. To examine the impact of diabetes on quality of life among older women - adjusting for deaths by applying the methods developed.

Study design/setting: A literature review was conducted to examine the statistical methods that are currently used to account for dropout due to death. A method proposed by Diehr and colleagues has been applied to ALSWH data. The method transforms the physical component score (PCS) of the SF-36 to a new score which estimates the probability of being healthy at the next time point. A value of zero is assigned to participants at time points when they have missing data due to death.

The transformation derived from the ALSWH data provides evidence that the methodology for transforming the PCS to account for deaths is sound. The three-year equation provided good estimates of the probability of being healthy in three years and the method allowed deaths to be included in an analysis of changes in health over time. Our ALSWH transformation equation has recently been published.
Currently, the impact of imputing values for PCS that are missing for reasons other than death is being examined. It has been acknowledged that the previous work transforming the PCS and using a value of zero after death may bias results, as those who die may be given too much weight in the calculations compared to people who have data missing for other reasons. This would be particularly applicable when studying the impact of chronic disease such as diabetes where there is a relatively high death rate and also higher rates of missing data. Imputation methods are currently being applied to produce complete datasets from which to estimate the true change in HR-QOL over time.

**Results:** At this point in the analysis, we have found that:

1. Observed longitudinal changes in physical health for women with diabetes may be poorly estimated due to loss of data through deaths and other reasons.
2. Analysis of changes in physical health, after including scores for participants who die, indicate poorer and worsening physical health for women with diabetes.
3. Longitudinal analysis including values for death, as well as imputing value missing for other reasons, may provide better estimates.

Further research will be conducted to determine whether the use of Generalised Estimating Equations (GEEs) or Mixed models are more appropriate approaches to analysing longitudinal data to account for participants who have died.

<table>
<thead>
<tr>
<th>Project:</th>
<th>The Impact of Trauma on young women’s health behaviours.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters of Health Psychology Candidate:</td>
<td>Ms Toni Lindsay (School of Behavioural Sciences, University of Newcastle)</td>
</tr>
<tr>
<td>Supervisors:</td>
<td>Dr Jenny Bowman (School of Behavioural Sciences, University of Newcastle) and Dr Deborah Loxton (Research Centre for Gender and Health, University of Newcastle)</td>
</tr>
<tr>
<td>Funding source:</td>
<td>None</td>
</tr>
<tr>
<td>Expected completion:</td>
<td>December 2006</td>
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</tbody>
</table>

**Objectives:** This project aims to examine the impact of traumatic life events on young women and their health behaviours including alcohol use, smoking, illicit drug use, as well as sexual practices. In order to examine this, the data from the first three younger cohort surveys are being utilised.

The research questions for the current project include the following:

1. Do women who experience trauma show an increase in the number of negative health behaviours they undertake compared to women who do not experience trauma?
2. Do women who were engaging in positive health behaviours prior to a trauma decrease these behaviours following the onset of trauma?

3. Do women who were already participating in negative health behaviours increase these behaviours following the onset of trauma?

**Results:** Preliminary data analysis indicates that there is a link between the onset of trauma and an increase in negative health behaviours, especially smoking. Further analysis is currently being conducted to further examine the impact of trauma on health behaviours. Results are expected in December 2006.
2. CONDUCT OF SURVEYS

2.1. Younger Survey 4 - Final Stages

The progress of development and piloting of Survey 4 of the Younger cohort was described in Reports 24, 25 and 26. Copies of the survey materials were included in Report 26 (June 2006). The survey and reminders were mailed out and the telephone reminder conducted according to the timetable in Table 2.1. Table 2.2 summarises the response rates as at 12 October 2006. Extra surveys will continue to be mailed as participants are tracked and found.

<table>
<thead>
<tr>
<th>Date</th>
<th>Mailout</th>
<th>Items</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 March 2006</td>
<td>Mailout 1</td>
<td>Package mailed including survey, reply-paid envelope, letter of invitation and change of details card</td>
<td>12,438</td>
</tr>
<tr>
<td>3 April 2006</td>
<td>Mailout 2</td>
<td>Thank you/reminder leaflet mailed to all in Mailout 1, except recent withdrawals and those not wishing to participate in this survey</td>
<td>12,244</td>
</tr>
<tr>
<td>1 May 2006</td>
<td>Mailout 3</td>
<td>Reminder leaflet to all non-responders</td>
<td>6,035</td>
</tr>
<tr>
<td>May - September 2006</td>
<td>Extra mailouts¹</td>
<td>Package mailed (as for Mailout 1)</td>
<td>2,188</td>
</tr>
<tr>
<td>October – November 2006</td>
<td>Extra mailouts</td>
<td>Packages to be mailed (as for Mailout 1)</td>
<td>As required</td>
</tr>
<tr>
<td>June – August 2006</td>
<td>Phone reminder²</td>
<td>Reminder phone calls to all non-respondents carried out</td>
<td>11,714</td>
</tr>
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</table>

¹ Of these extra mailouts 168 were first packages sent to participants who had not yet been mailed to. This gave a total of 12,606 participants who were mailed at least one survey package.

² A total of 3,924 participants were contacted.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Completed Surveys</td>
<td>8,324</td>
<td>66</td>
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<tr>
<td>Deceased</td>
<td>2</td>
<td>0</td>
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<tr>
<td>Withdrawn</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Not This Time</td>
<td>57</td>
<td>0.5</td>
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<tr>
<td>No Response</td>
<td>4,217</td>
<td>33.5</td>
</tr>
<tr>
<td>Total</td>
<td>12,606</td>
<td>100</td>
</tr>
</tbody>
</table>
2.2. Mid-age Survey 5 – Pilot

The fifth survey of the Mid-age cohort is scheduled to take place from March 2007, when the mid-age women will be aged between 56 and 61 years. The development of the pilot version of Survey 5 of the Mid-age cohort is described in Report 26 (June 2006).

A call for tenders for the process of printing, mailing, receiving, entering/scanning and image archiving of the pilot and main survey 5 of the Mid-aged cohort was send out in April 2006. Following an assessment of the quotes for the tender, Datatime was selected as the successful sub-contractor of the pilot and the main survey, with the proviso that the execution of the pilot survey meets with standards set by the ALSWH.

New questions were included in the pilot survey that asked about alternative therapies, sources of information which have resulted in lifestyle changes, dental service use and oral health, waist measurement and weight control strategies, and partner abuse. A number of existing topics were expanded, including those addressing alcohol consumption, physical activity and retirement. Some questions that were no longer relevant or that did not need to be asked again were deleted from the survey. Table 2.3 lists all items that were included in the Pilot version of Mid-age Survey 5, showing their sources and their relationship with previous surveys of the Mid-age cohort while Table 2.4 lists deletions of questions from the Mid-age Survey 4. (Note: some of these items may be changed for the final survey).

Approval for pilot testing of Survey 5 was obtained from the University of Newcastle and the University of Queensland Human Research Ethics Committees. Copies of the survey, the letter sent to participants, the feedback form and the reminder card appear in Appendix 4. Table 2.5 outlines the mailout timetable for the Mid-age Pilot Survey 5. The pilot was mailed to 347 women who comprise the Mid-age Pilot cohort and who have served as pilot test participants for Surveys 1, 2, 3 and 4. Of the Pilot cohort, 286 participants (82%) completed and returned surveys by the end of September. Table 2.6 summarises the response rate as at 12th October 2006. Data were collated and frequency distributions were checked for high rates of missing data, lack of variance or the potential need to re-define categories. Evaluation sheets and open-ended comments were assessed. Initial examination of the raw data frequency distribution showed that some questions had higher rates of missing data so standard recoding rules and methods were applied to the data with good results. The final version of the fifth survey of the Mid-aged cohort will be completed by December 2006 and sent for ethics approval. The sub-contractor will begin work on layout and production in January 2007.
<table>
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<tr>
<th>Item No</th>
<th>Topic</th>
<th>Source</th>
<th>Was item in previous Mid surveys?</th>
<th>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</th>
<th>Is it replacing an item?</th>
<th>Is it an additional item?</th>
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<tr>
<td>12</td>
<td>Doctor Consultations (no. of times professional consulted)</td>
<td>WHA</td>
<td>M1 (similar) M2 (similar) M3 M4</td>
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<tr>
<td>14</td>
<td>Alternative Therapies</td>
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<td>-----------------------------------------------------------</td>
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<tr>
<td>15</td>
<td>GP Continuity of Care</td>
<td>WHA</td>
<td>M2 M3 M4</td>
<td></td>
<td></td>
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<tr>
<td>17</td>
<td>Health care card</td>
<td>WHA</td>
<td>M3 M4</td>
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<td>Item No.</td>
<td>Topic</td>
<td>Source</td>
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<td>----------------------------------------------------------</td>
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<tr>
<td>21</td>
<td>Abnormal Pap Test / Mammogram</td>
<td>WHA – modified from Mid 1</td>
<td>M1 (similar) M3 M4</td>
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<td></td>
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<tr>
<td>22-23</td>
<td>Screening</td>
<td>WHA</td>
<td>M2 (similar) M3 (similar) M4 (similar)</td>
<td>Now two questions. Added blood sugar level, skin, bone density, bowel cancer test, ‘reminder from general practice…’ Change from ‘Doctor’ to ‘Health Professional’ Changed to Yes/No and deleted ‘None of the above’.</td>
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<td>24</td>
<td>Lifestyle Information Sources</td>
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<td>Taking the Pill and HRT</td>
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<td>M1 (similar) M2 (similar) M3 M4</td>
<td>Changed to ‘yes/no’ responses</td>
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<td>Item No</td>
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<td>Is it replacing an item?</td>
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<tr>
<td>26</td>
<td>Hysterectomy</td>
<td>WHA</td>
<td>M1 (similar)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M2 (similar)</td>
<td></td>
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<td></td>
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<td>M3</td>
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<td>M4</td>
<td></td>
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<tr>
<td>27</td>
<td>Menstrual Frequency</td>
<td>Modified from Brambilla, DJ., McKinlay, SM., Johannes, CB. (1994)</td>
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<td></td>
<td></td>
<td>Defining the perimenopause for application in epidemiological investigations. American Journal of Epidemiology, 140(2), 1091-95</td>
<td>M2</td>
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<td>M3</td>
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<td>M4</td>
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<td>Periods ceased</td>
<td>WHA</td>
<td>M2</td>
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<td>Has the item changed from Mid 4 main to Mid 5 pilot?</td>
<td>Why?</td>
<td>Is it replacing an item?</td>
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</tr>
<tr>
<td>31</td>
<td>Dentists</td>
<td>Adapted from Anne Young’s Health Care Access Substudy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Falls</td>
<td>Modified from DVA (Dept of Veterans’ Affairs) trial (1997)</td>
<td>M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot?</td>
<td>Why?</td>
<td>Is it replacing an item?</td>
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<td>--------------------------</td>
</tr>
<tr>
<td>39</td>
<td>Operations/Procedures</td>
<td>WHA</td>
<td>M1 (similar) M2 (similar) M3 (similar) M4 (similar)</td>
<td>Deletion of 'Hysterectomy'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot?</td>
<td>Why?</td>
<td>Is it replacing an item?</td>
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</tr>
<tr>
<td>41-42</td>
<td>Medications/Vitamins/Supplements</td>
<td>WHA</td>
<td>M4 (similar)</td>
<td></td>
<td></td>
<td>Replacing Q29 and Q30 in M4 with qualitative information.</td>
</tr>
<tr>
<td>43</td>
<td>Symptoms &amp; Seeking Help</td>
<td>WHA</td>
<td>M1 (similar) M2 (similar) M3 (similar) M4 (similar)</td>
<td>Combined ‘haemorrhoids (piles)/other bowel problems’, added ‘Mouth, teeth or gum problems’, ‘Leaking urine’, ‘Anxiety’.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44-45</td>
<td>Life isn’t worth living / self harm</td>
<td>WHA</td>
<td>M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Stress</td>
<td>WHA</td>
<td>M1 M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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<td>------------------------------------------------------------</td>
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<td>--------------------------</td>
</tr>
<tr>
<td>49a,b</td>
<td>Postcode</td>
<td>WHA</td>
<td>M1 M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>54a,b</td>
<td>Weight / Height</td>
<td>WHA</td>
<td>M1 M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Waist measurement</td>
<td>WHA</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Weight and Shape</td>
<td>WHA - Modified from Mid Phase 2</td>
<td>M1 (similar) M2 (similar) M3 (similar) M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>62</td>
<td>Eating Habits (non alcohol drinks)</td>
<td>WHA</td>
<td>M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>82</td>
<td>Occupational Activity (Physical activity in main job)</td>
<td>WHA</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>84</td>
<td>Time pressure</td>
<td>Modified from Statistics Canada, Housing Family and Social Statistics Division (1987) General social survey analysis series. Ottawa: Canadian Government Publication Centre. ISSN 0836-043X</td>
<td>M1 M2 M3 M4</td>
<td>From 'paid work (full-time, part-time, casual)' to three items: 'Full time permanent paid work', 'Part-time permanent' and 'Casual'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Time Use</td>
<td>WHA</td>
<td>M1 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>Date of Birth</td>
<td>All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Family &amp; Friends (caring for grandchildren)</td>
<td>WHA</td>
<td>M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was it in previous Mid surveys?</td>
<td>Has it changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>89</td>
<td>Family &amp; Friends (regular care for long-term illness, disability or frailty)</td>
<td>WHA: Developed from survey 1</td>
<td>M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>Family &amp; Friends (Total time spend providing care)</td>
<td>WHA: Developed from survey 1</td>
<td>M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Family &amp; Friends (Time spend on each occasion)</td>
<td>WHA: Developed from survey 1</td>
<td>M2 M3 (similar) M4 (similar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>94</td>
<td>Demographics (Income management)</td>
<td>WHA</td>
<td>M1 M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Demographics (Dependents on household income not living at home)</td>
<td>WHA</td>
<td>M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>96 – 101</td>
<td>Retirement</td>
<td>Modified from the Household, Income and Labour Dynamics in Australia (HILDA) Survey - Continuing Person Questionnaire, Wave 3, question L2a.</td>
<td>M4</td>
<td>Q97. Added 'completely' to question. Q100. Skip changed. Added 'h. A work-related illness or injury', in option 'j' included 'spouse' and 'retired'. Added 'm. The need to care for a grandchild / grandchildren'. Option was split into 'need to car for spouse/partner', 'need to care for a grandchild/grandchildren' and 'need to care for another family member of close friend'. Q101. has reworded question and options added 'i. Spouse / partner's superannuation' and 'j. Inheritance'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot?</td>
<td>Is it replacing an item?</td>
<td>Is it an additional item?</td>
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</tr>
<tr>
<td>102 – 103</td>
<td>Retirement (Rate of income/future plans)</td>
<td>Modified from the Household, Income and Labour Dynamics in Australia (HILDA) Survey - Continuing Person Questionnaire, Wave 3, question L2b.</td>
<td>No</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Item No</td>
<td>Topic</td>
<td>Source</td>
<td>Was item in previous Mid surveys?</td>
<td>Has the item changed from Mid 4 main to Mid 5 pilot?</td>
<td>Why?</td>
<td>Is it replacing an item?</td>
</tr>
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<td>--------------------------</td>
</tr>
<tr>
<td>107</td>
<td>Family &amp; Friends (Number of people living in house)</td>
<td>Modified from ABS (1994) Australian Housing Survey: User Guide. Canberra: ABS. Cat No. 4180.0</td>
<td>M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109</td>
<td>Twin?</td>
<td>WHA</td>
<td></td>
<td>Previous reference to 'twins' was whether you had given birth to twins.</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>110</td>
<td>Satisfaction (Achievements in life)</td>
<td>WHA</td>
<td>M1 M2 M3 M4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Have we missed anything? Comments
<table>
<thead>
<tr>
<th>Item No</th>
<th>Topic</th>
<th>Source</th>
<th>Was item in previous Mid surveys?</th>
<th>Has the item changed from Mid 4 main to Mid 5 pilot? Why?</th>
<th>Is it replacing an item?</th>
<th>Is it an additional item?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consent</td>
<td></td>
<td></td>
<td>Added ‘Maiden Name’ option, and request for ‘Mobile’ and ‘Email’ contact details.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thank You for Completing Survey – back page</td>
<td></td>
<td></td>
<td>Reply Paid Hawthorn VIC address.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M4 Item No.</td>
<td>Topic</td>
<td>Why was it deleted?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
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<td>---------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>In the previous 12 months, has your GP talked to you about making LIFESTYLE changes that might improve your health, such as diet, weight management, exercise, alcohol, smoking, etc?</td>
<td>Replaced with Q24 on sources of information which have changed the participant’s lifestyle.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>If you have ever given birth to a child, please write the year of each birth in the box. (if you had twins, please write the date twice.)</td>
<td>Do not need to ask this question again.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>During the past month, how often have you had trouble staying awake whilst driving, eating meals or engaging in social activity?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Have you EVER had a Caesarean birth?</td>
<td>Do not need to ask this question again.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>In the last month, have you accidentally wet yourself (leaked urine)? How often did you wet yourself (leak urine) in the last month when you: … / If you leaked urine, how much did you leak?</td>
<td>Added as an item to Q43.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>At what age did you start smoking daily?</td>
<td>Do not need to ask this question again.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Are your parents still living?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>What do you think about the neighbourhood that you live in? How much do you agree with the following statements?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2.5 Timetable for Mid-age Pilot Survey 5 (at 12 October 2006)

<table>
<thead>
<tr>
<th>Date</th>
<th>Mailout</th>
<th>Items</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 July 2006</td>
<td>Mailout 1</td>
<td>Package mailed including survey, reply-paid envelope, letter of invitation and change of details card</td>
<td>347</td>
</tr>
<tr>
<td>11 August 2006</td>
<td>Mailout 2</td>
<td>Thank you/reminder leaflet mailed to all in Mailout 1, except recent withdrawals</td>
<td>342</td>
</tr>
<tr>
<td>4 September 2006</td>
<td>Mailout 3</td>
<td>Reminder leaflet to all non-responders</td>
<td>78</td>
</tr>
</tbody>
</table>

Table 2.6 Response Rates for Mid-age Pilot Survey 5 (at 12 October 2006)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Surveys</td>
<td>286</td>
<td>82.4</td>
</tr>
<tr>
<td>Deceased</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Not this time</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>No Response</td>
<td>59</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>347</td>
<td>100</td>
</tr>
</tbody>
</table>
3. METHODOLOGICAL ISSUES: SOURCES AND DEVELOPMENT OF INSTRUMENTS, RELIABILITY AND VALIDITY OF MEASURES

3.1. Anthropometric data

3.1.1 Introduction
At each survey, height is reported in either in centimetres, or in feet and inches and converted to centimetres; values were rounded to the nearest integer. At each survey, weight is reported in either in stones and pounds, or in kilograms; reports in stones and pounds are converted to kilograms. Weight in kilogram is rounded to the nearest 0.1 of a kilogram.

3.1.2 Data cleaning
In April 2002 the following limits were set for plausible weights and the derived variable body mass index (BMI) in each of the project cohorts; values outside these limits were set to missing. The upper limit for weight among younger and mid-age women was set at the maximum reading (139.9kg) for the digital scales used in Australia’s National Nutrition Survey (NNS) in 1995 (see Table 3.1).

Table 3.1 Limits for weight and Body Mass Index by age cohort

<table>
<thead>
<tr>
<th></th>
<th>Younger</th>
<th>Mid-Age</th>
<th>Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower limit for weight (kg)</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Upper limit for weight (kg)</td>
<td>140</td>
<td>140</td>
<td>120</td>
</tr>
<tr>
<td>Lower limit for body mass index</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Upper limit for body mass index</td>
<td>55</td>
<td>55</td>
<td>50</td>
</tr>
</tbody>
</table>

In July 2006 this decision was reviewed in light of analytic issues arising from it. Specifically, records with missing data are excluded from a statistical analysis. This is undesirable and for some variables such as weight (and consequently BMI) where levels of missing data are high, this has become a major issue. The exclusion of extreme values as a data cleaning strategy exacerbates this problem. Interestingly the technique of data imputation, which is being applied to the problem of missing data, would use responses to other survey items to estimate weight (or BMI), even those which were not missing from surveys but believed to be implausible.

An examination of the patterns of reported weight and BMI across Surveys 1 to 3 for all Mid-age women with an extreme BMI value (<14 or >55) at 1 or more survey showed that the pattern of weight was mostly consistent, suggesting the reports were true though extreme. A sample of readily accessible survey forms was checked to exclude an error in data-entry. Values were mostly correctly entered and in one case the correction of a data-entry error removed the outlying value.

In addition, data published from longitudinal studies of free-living populations of women in which body weight was measured were reviewed to describe the true range of weight changes which women experience. An attempt was made to use these data to develop values for weight change between ALSWH surveys consistent with that observed when weight is measured rather than reported (see Data Dictionary Supplement for further
Details of the literature review. A wide range of values of real changes were reported and so the option of assigning weight (and BMI) to missing when an extreme change is reported was rejected.

Examples of extreme changes reported by members of the Younger cohort (Table 3.2) suggested data entry errors, e.g. the Survey 2 value for Case 1 may have been incorrectly entered as 30kg rather than 50kg.

Table 3.2 Some extreme weight changes in the Younger cohort (kgs)

<table>
<thead>
<tr>
<th>Survey 1</th>
<th>Survey 2</th>
<th>Survey 3</th>
<th>Surveys 1 to 2 (4 years)</th>
<th>Surveys 2 to 3 (3 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported weight at:</td>
<td></td>
<td></td>
<td>Actual</td>
<td>Percent</td>
</tr>
<tr>
<td>case</td>
<td>Actual</td>
<td>Percent</td>
<td>Actual</td>
<td>Percent</td>
</tr>
<tr>
<td>1</td>
<td>58</td>
<td>30</td>
<td>55</td>
<td>-28kg</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>50</td>
<td>115</td>
<td>0kg</td>
</tr>
<tr>
<td>3</td>
<td>64</td>
<td>63</td>
<td>134</td>
<td>-1kg</td>
</tr>
<tr>
<td>4</td>
<td>Missing</td>
<td>33.6</td>
<td>100</td>
<td>+66kg</td>
</tr>
</tbody>
</table>

So, in 2006 it was decided that:

- Extreme values should no longer be deleted.
- Extreme values for weight, BMI, height and change in weight should be audited and unless a data-entry error is identified, the value should stand. Extremes are defined as:
  - Weight < 30kg (all cohorts)
  - Weight > 140kg (Younger and Mid-age) or > 120kg (Older)
  - BMI < 14 (all cohorts)
  - BMI > 55 (Younger and Mid-age) or > 50 (Older)
  - Lose more than 11kg in 3 years (3.7kg in 1 year)
  - Gain more than 20kg in 3 years (6.6kg in 1 year)

The latter two rules were based on the most extreme values observed in the literature.

3.1.3 Weight and pregnancy

For the first 3 surveys of the Younger cohort and the first survey of the Mid-age cohort, the value of weight is set to missing for women who reported being pregnant at the time of the survey. Current pregnancy was not asked of the Mid-age women after Survey 1. Starting with Survey 4, pregnant Younger women were asked to record their pre-pregnancy weight.

3.1.4 Derived Variables

Estimated height

An examination of reported heights at the first 3 surveys showed implausible inconsistencies for all 3 age cohorts, with only 10.6% (n=1 439), 29.3% (n=4 005) and 16.4% (n=2 031) of Younger, Mid-age and Older women respectively reporting the same height at all 3 surveys. While a reduction in height may be expected among the older women this is not true for the other two age cohorts and so a single estimate for height was
developed for these women, making use of all the available data. Heights for the older cohort remain as reported.

**Defining consistency in reported heights for Younger and Mid-age Women**

Rules for consistency were based on differences in the height reported at each of the 3 surveys (Table 3.3) and a difference of up to 5cm was considered to be sufficiently consistent as to represent a report of the same height. For example, reported heights of 175cm at Survey 1 and 180cm at Survey 2, a difference of 5, were considered consistent; however a height of 175cm at Survey 1 was considered inconsistent with a height of 183cm at Survey 2, a difference of 8cm.

**Table 3.3 Descriptive statistics for differences in reported height (cms)**

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Mean</th>
<th>std dev</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Younger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveys 1 &amp; 2</td>
<td>8 139</td>
<td>-0.111</td>
<td>4.49</td>
<td>0</td>
<td>-45</td>
<td>51</td>
</tr>
<tr>
<td>Surveys 3 &amp; 2</td>
<td>6 280</td>
<td>-0.038</td>
<td>4.39</td>
<td>0</td>
<td>-39</td>
<td>43</td>
</tr>
<tr>
<td>Surveys 3 &amp; 1</td>
<td>7 247</td>
<td>-0.236</td>
<td>4.27</td>
<td>0</td>
<td>-32</td>
<td>33</td>
</tr>
<tr>
<td><strong>Mid-age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveys 1 &amp; 2</td>
<td>10 660</td>
<td>-0.112</td>
<td>3.24</td>
<td>0</td>
<td>-41</td>
<td>43</td>
</tr>
<tr>
<td>Surveys 3 &amp; 2</td>
<td>9 310</td>
<td>-0.161</td>
<td>3.60</td>
<td>0</td>
<td>-33</td>
<td>43</td>
</tr>
<tr>
<td>Surveys 3 &amp; 1</td>
<td>10 297</td>
<td>-0.252</td>
<td>3.62</td>
<td>0</td>
<td>-33</td>
<td>50</td>
</tr>
<tr>
<td><strong>Older</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveys 1 &amp; 2</td>
<td>9 354</td>
<td>-0.753</td>
<td>4.95</td>
<td>0</td>
<td>-41</td>
<td>33</td>
</tr>
<tr>
<td>Surveys 3 &amp; 2</td>
<td>7 314</td>
<td>-0.872</td>
<td>5.90</td>
<td>0</td>
<td>-43</td>
<td>51</td>
</tr>
<tr>
<td>Surveys 3 &amp; 1</td>
<td>7 732</td>
<td>-1.680</td>
<td>5.44</td>
<td>0</td>
<td>-41</td>
<td>53</td>
</tr>
</tbody>
</table>

*Calculation of Height for Younger and Mid-age Women*

Rules for the estimation of Height were based on the patterns of responses at 3 surveys (Table 3.4). A value for height could not be assigned to the following three response patterns:

1. Height not reported at any of the first three surveys.

2. Height reported at only two of the first three surveys, and the two reports differ by more than 5 cm.

3. Height reported at Surveys 1, 2 and 3; no two heights are equal and the range in reported height exceeds 10 cm.
Table 3.4 Number and percent for each unique data-pattern and the method used to estimate height for 14,247 Younger and 13,716 Mid-age women providing contact details for longitudinal follow-up

<table>
<thead>
<tr>
<th>Method for estimating height applied</th>
<th>Younger</th>
<th>Mid-age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td><strong>Height is the single height reported</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height reported at Survey 1 only</td>
<td>3,486</td>
<td>24.5</td>
</tr>
<tr>
<td>Height reported at Survey 2 only</td>
<td>215</td>
<td>1.5</td>
</tr>
<tr>
<td>Height reported at Survey 3 only</td>
<td>130</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Height is the mean of 3 reported heights</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heights reported at 3 surveys are equal.</td>
<td>1,439</td>
<td>10.1</td>
</tr>
<tr>
<td>Height is reported at all 3 surveys and no differences between them exceeds 5cm</td>
<td>925</td>
<td>6.5</td>
</tr>
<tr>
<td>Height is reported at all 3 surveys; none of the data patterns shown below are appropriate and no differences between these heights exceeds 10cm</td>
<td>295</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Height is the mean of two equal heights</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heights reported at Surveys 1 &amp; 2 are equal; height reported at Survey 3 does not equal this value</td>
<td>769</td>
<td>5.4</td>
</tr>
<tr>
<td>Heights reported at Surveys 1 &amp; 3 are equal; height reported at Survey 2 does not equal this value</td>
<td>680</td>
<td>4.8</td>
</tr>
<tr>
<td>Heights reported at Surveys 2 &amp; 3 are equal; height reported at Survey 1 does not equal this value</td>
<td>1,269</td>
<td>8.9</td>
</tr>
<tr>
<td><strong>Height is the mean of the 2 heights reported</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey 1 height is missing Heights reported at Surveys 2 &amp; 3 are equal</td>
<td>120</td>
<td>0.8</td>
</tr>
<tr>
<td>Heights reported at Surveys 2 &amp; 3 are within 5cm of one another</td>
<td>196</td>
<td>1.4</td>
</tr>
<tr>
<td>Survey 2 height is missing Heights reported at Surveys 1 &amp; 3 are equal</td>
<td>489</td>
<td>3.4</td>
</tr>
<tr>
<td>Heights reported at Surveys 1 &amp; 3 are within 5cm of one another</td>
<td>733</td>
<td>5.1</td>
</tr>
<tr>
<td>Survey 3 height is missing Heights reported at Surveys 1 &amp; 2</td>
<td>796</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Method for estimating height applied to various data-patterns

- Heights reported at Surveys 1 & 2 are equal
- Heights reported at Surveys 1 & 2 are within 5cm of one another

**Height is the mean of 2 heights with a difference not exceeding 5cm**
- Difference between Surveys 1 & 2 does not exceed 5 cm
- Difference between Surveys 2 & 3 does not exceed 5 cm
- Difference between Surveys 1 & 3 does not exceed 5 cm

**Height is not estimated (Set to missing)**
- Inconsistencies – not matching any of the above patterns
- All three heights are missing.

The reported and estimated heights for the Younger and Mid-age Women are shown in Table 3.5.

### Table 3.5 Descriptive statistics for reported and estimated height in cms (rounded)

<table>
<thead>
<tr>
<th>Height Cm</th>
<th>Number</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Younger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey 1</td>
<td>13494</td>
<td>165.97</td>
<td>7.63</td>
<td>165</td>
<td>120</td>
<td>198</td>
</tr>
<tr>
<td>Survey 2</td>
<td>8779</td>
<td>165.80</td>
<td>7.58</td>
<td>165</td>
<td>120</td>
<td>198</td>
</tr>
<tr>
<td>Survey 3</td>
<td>7802</td>
<td>165.89</td>
<td>7.48</td>
<td>165</td>
<td>126</td>
<td>196</td>
</tr>
<tr>
<td>Estimated</td>
<td>13600</td>
<td>165.89</td>
<td>7.45</td>
<td>165</td>
<td>120</td>
<td>198</td>
</tr>
<tr>
<td><strong>Mid-age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey 1</td>
<td>13655</td>
<td>163.07</td>
<td>6.89</td>
<td>163</td>
<td>122</td>
<td>190</td>
</tr>
<tr>
<td>Survey 2</td>
<td>10905</td>
<td>163.03</td>
<td>6.91</td>
<td>163</td>
<td>122</td>
<td>188</td>
</tr>
<tr>
<td>Survey 3</td>
<td>10550</td>
<td>162.92</td>
<td>7.06</td>
<td>163</td>
<td>122</td>
<td>188</td>
</tr>
<tr>
<td>Estimated</td>
<td>13764</td>
<td>163.03</td>
<td>6.75</td>
<td>163</td>
<td>122</td>
<td>188</td>
</tr>
<tr>
<td><strong>Older</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey 1</td>
<td>12362</td>
<td>161.18</td>
<td>6.91</td>
<td>160</td>
<td>120</td>
<td>188</td>
</tr>
<tr>
<td>Survey 2</td>
<td>9704</td>
<td>160.51</td>
<td>7.34</td>
<td>160</td>
<td>120</td>
<td>188</td>
</tr>
<tr>
<td>Survey 3</td>
<td>7987</td>
<td>159.67</td>
<td>7.56</td>
<td>160</td>
<td>122</td>
<td>188</td>
</tr>
</tbody>
</table>

The SAS code for estimated height in the Mid-age cohort is:

```sas
data middata.m123AvHt;
  merge middata.wha1midb(in=inS1)
    middata.wha2midb(in=inS2)
    middata.wha3midb(in=inS3);
by IDalias;
```

93
m1htr = round(m1htcm, 1);
m2htr = round(m2htcm, 1);
m3htr = round(m3htcm, 1);

array hts{3} m1htr m2htr m3htr;

/* Calculate difference between maximum and minimum height */
maxdiff = max(of hts{*}) - min(of hts{*});

/* Calculate differences in heights */
diff1 = abs(m1htr - m2htr);
diff2 = abs(m1htr - m3htr);
diff3 = abs(m2htr - m3htr);

/* Calculate the 'average' height */
if nmiss(of hts{*}) = 3 then ht = .;
else if nmiss(of hts{*}) = 1 and maxdiff > 5 then ht = .;
else if diff3 = 0 or (diff1 > 5 and diff2 > 5) and diff3 <= 5 then
   ht = mean(m2htr, m3htr);
else if diff2 = 0 or (diff1 > 5 and diff3 > 5) and diff2 <= 5 then
   ht = mean(m1htr, m3htr);
else if diff1 = 0 or (diff2 > 5 and diff3 > 5) and diff1 <= 5 then
   ht = mean(m1htr, m2htr);
else if maxdiff > 10 then ht = .;
else ht = mean(of hts{*});

m123AvHt = round(ht, 1);

Body mass index

Body mass index (BMI) is calculated as reported weight (kg) divided by the square of reported height (metres). Conventionally BMI is categorised according to risk of morbidity. Prior to 2004 the Australian National Health and Medical Research Council (NHMRC) recommended 4 categories while the World Health Organisation (WHO) recommended 6, although there is some overlap between these classification systems (Table 3.6). Subsequently the NHMRC have adopted WHO classifications.

Table 3.6 BMI categories recommended by the Australian NHMRC and the World Health Organisation

<table>
<thead>
<tr>
<th>Classification</th>
<th>Range for BMI</th>
<th>Risk of co-morbidities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NHMRC prior to 2004</strong>&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>&lt; 20</td>
<td></td>
</tr>
<tr>
<td>Healthy weight</td>
<td>20 to 25</td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>&gt; 25 to 30</td>
<td></td>
</tr>
<tr>
<td>Obese</td>
<td>&gt; 30</td>
<td></td>
</tr>
<tr>
<td><strong>WHO</strong>&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>&lt; 18.5</td>
<td>Low (but the risk of other clinical problems is increased)</td>
</tr>
<tr>
<td>Normal range</td>
<td>18.5 – 24.99</td>
<td>Average</td>
</tr>
<tr>
<td>Overweight:</td>
<td>≥ 25.00</td>
<td></td>
</tr>
<tr>
<td>- Pre-obese</td>
<td>- 25.00 - 29.99</td>
<td>Increased</td>
</tr>
<tr>
<td>- Obese class I</td>
<td>- 30.00 - 34.99</td>
<td>Moderate</td>
</tr>
<tr>
<td>- Obese class II</td>
<td>- 35.00 - 39.99</td>
<td>Severe</td>
</tr>
<tr>
<td>- Obese class III</td>
<td>- ≥ 40.00</td>
<td>Very severe</td>
</tr>
</tbody>
</table>
Analysis of BMI should be informed by the following notes from the WHO.

- Recommendations are based on the relationship between BMI and mortality, are independent of age and apply to both men and women.
- BMI may not be associated with the same level of adiposity in different populations.
- The cut-points reflect a simplistic relationship between BMI and the risk of co-morbidity, which can also be affected by factors such as diet, ethnicity and physical activity.
- The risks associated with BMI begin at 25 and are continuous and graded.
- Interpretation of risk categories may vary between populations.
- Both BMI and a measure of fat distribution (such as waist circumference) are important in calculating the risk of co-morbidities.

Although some publications from the first survey of the Younger ALSWH cohort have used WHO category, the ALSWH data sets distributed prior to October 2005 contained only the NHMRC classification, mainly because of the relatively small number of women meeting the WHO criteria for underweight. At the first survey 10.3%, 1.8% and 3.3% of the Younger, Mid-age and Older women respectively had a BMI of less than 18.5 while 26.9%, 7.1% and 8.6% had BMI less than 20. In October 2005 the decision was taken to include both NHMRC (BMIgroup1) and WHO (BMIgroup2) classifications; both variables are coded so that ‘Acceptable weight’ is the reference category (see Table 3.7).

### Table 3.7 BMI group codes

<table>
<thead>
<tr>
<th>Code</th>
<th>BMIgroup1</th>
<th>BMIgroup2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acceptable weight</td>
<td>Normal range</td>
</tr>
<tr>
<td>2</td>
<td>Underweight</td>
<td>Underweight</td>
</tr>
<tr>
<td>3</td>
<td>Overweight</td>
<td>Pre-obese</td>
</tr>
<tr>
<td>4</td>
<td>Obese</td>
<td>Obese class I</td>
</tr>
<tr>
<td>5</td>
<td>Obese class II</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Obese class III</td>
<td></td>
</tr>
</tbody>
</table>

The generalised SAS code defining BMI groups is:

```sas
if BMI=. then BMIGroup1 = .;
else if bmi<20 then BMIGroup1=2 ;
else if 20<=bmi<=25 then BMIGroup1=1 ;
else if 25<bmi<=30 then BMIGroup1=3 ;
else if bmi>30 then BMIGroup1=4 ;
if BMI=. then BMIGroup2 = .;
else if bmi<18.5 then BMIGroup2=2 ;
else if 18.5<=bmi<25 then BMIGroup2=1 ;
else if 25<=bmi<30 then BMIGroup2=3 ;
else if 30<=bmi<30 then BMIGroup2=4 ;
else if 35<=bmi<30 then BMIGroup2=5 ;
else if bmi>=40 then BMIGroup1 = 6 ;
```

**Weight change**

Variables for weight change are not included in the ALSWH datasets. However it is recommended that weight change (in kilograms) is calculated so that negative values
indicate weight loss and positive values indicate weight gain. The approach to analysis of weight change has varied according to the research question being addressed, some analyses use categories for the observed weight change while others percentage change in BMI.
3.2. Additional information for the derived variable Physical Activity (PA)

3.2.1 Introduction
Physical Activity (PA) is derived from minutes spent walking, minutes spent doing moderate intensity activities and minutes spent doing vigorous activities. Additionally it is asked how often and how much time women spent doing vigorous household and garden activities. However, the activities in this last group are not included in the calculation of minutes of total activity when using the Active Australia algorithms. Therefore they are not included in the definitions of which women are categorised as 'sufficiently active for health benefit' and prevalence of 'active' women. (This is because there is limited research on the validity of the self-reported intensity of these activities, and questions about whether they are conducted at sufficient intensity to have any health benefit). Nevertheless, the question about gardening and housework is included in the surveys to reduce the likelihood that these activities are reported with the other activities, which are likely to have a health benefit\(^3\).

3.2.2 Decisions on the use of physical activity data in longitudinal analysis of data from the Mid-aged cohort (June 2006)
Physical activity was measured from Survey 2 onwards using items from Active Australia’s 1999 National Physical Activity Survey

Questions in Active Australia’s National Physical Activity Survey, 1999
We would like to ask you about the physical activity you did IN THE LAST WEEK:

- IN THE LAST WEEK how many times have you walked continuously, for at least 10 minutes, for recreation/exercise or to get to or from places?
- What do you estimate was the total time that you spent walking in this way IN THE LAST WEEK?
- IN THE LAST WEEK how many times did you do any vigorous gardening or heavy work around the yard which made you breathe harder or puff and pant?
- What do you estimate was the total time that you spent doing vigorous gardening or heavy work around the yard IN THE LAST WEEK?

The next question excludes household chores or gardening or yardwork

- IN THE LAST WEEK, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant? (e.g. jogging, cycling, aerobics, competitive tennis, etc.)
- What do you estimate was the total time that you spent doing this vigorous physical activity IN THE LAST WEEK?

The next question excludes household chores or gardening or yardwork

- IN THE LAST WEEK how many times did you do any other more moderate physical activity that you haven't already mentioned? (e.g. gentle swimming, social tennis, golf, etc.)

What do you estimate was the total time that you spent doing these activities IN THE LAST WEEK?

In 1998, the second survey of the Mid-age cohort included 'gardening' as an example of moderate intensity activity, whereas in all subsequent surveys (of the mid-age cohort and all surveys after Survey 1 for the Younger and Older cohorts) only included vigorous gardening as an example in the question about vigorous house and garden chores.

**Questions used in the Mid-aged cohort Survey 2, 1998**

PA1: How many times did you do each type of activity LAST WEEK? (Only count the number of times when the activity lasted for 10 minutes or more. Please write “0” in the box for each activity you DO NOT do.)

PA2: If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity? (Example: Walking 3 times for 30 minutes each time = 30 x 30 = 90 minutes or 1 hour 30 minutes. Please write “0” in the box for each activity you DO NOT do.)

- Walking (fairly briskly, including walking to and from work)
- Moderate activity (leisure-time activities (like golf, social tennis, moderate exercise classes, recreational swimming or cycling, and gardening)
- Vigorous activity (leisure-time activities (the ones that make you puff and pant, like vigorous aerobics, competitive sport, vigorous cycling, running, swimming etc).

PA3: During the LAST WEEK, how much time did you spend ALTOGETHER in your WORK (paid or unpaid) doing VIGOROUS activity (that is, activity which made you puff or pant such as labouring, farm work, heavy gardening, heavy work around the yard, heavy housework etc)?

TOTAL TIME in vigorous work-related activity last week.

**Questions used in all subsequent surveys for the Mid-aged cohort (and all surveys after Survey 1 for the Younger and Older cohorts)**

PA1: How many times did you do each type of activity LAST WEEK? Only count the number of times when the activity lasted for 10 minutes or more. (If you did not do an activity, please write “0” in the box.)

PA2: If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity? (If you did not do an activity, please write “0” in the box.)

- Walking briskly (for recreation or exercise, or to get from place to place)
- Moderate leisure activity (like social tennis, moderate exercise classes, recreational swimming, dancing)
- Vigorous leisure activity (that makes you breathe harder or puff and pant, like aerobics, competitive sport, vigorous cycling, running, swimming)
- Vigorous household or garden chores (that make you breathe harder of puff and pant)

If we explore the time spent in each of the four types of physical activity over time, (Figure 3.1) it is evident that there is an increase in time spent walking, no change in time spent in vigorous activity, an increase in house and garden work, but a decrease in time spent in moderate activity.
spent in moderate intensity activity, between Survey 2 and Survey 3. We cannot be
certain whether this is a 'real' decrease in time spent in moderate intensity activities, or a
reflection of the removal of 'gardening' as an example of moderate intensity activity in
Survey 3.

Figure 3.2 shows time trends in total physical activity measured in MET.mins in the mid-
aged cohort. (Time spent in house and garden work is not included in these estimates). It
is likely that the decrease in total activity time reflects the change in the question, rather
than a 'real' decrease between Survey 2 and Survey 3.

Figure 3.1 Time trends from Survey 2 to Survey 4 for walking, moderate intensity
activity, vigorous activity and vigorous household and garden activity in the Mid-
aged cohort.
Figure 3.2 Time trend in total physical activity measured in MET.mins at Survey 2, Survey 3 and Survey 4 in the Mid-aged cohort.

As we cannot be certain about this, it is recommended that longitudinal analyses of TOTAL physical activity (MET.mins), in the Mid-age cohort should not include the Survey 2 data. However, as there were no changes to the questions about time spent walking and doing vigorous leisure activities, changes in these activities can be analysed over time from Survey 2 (included) onwards.
Advances in imputation

Implications for ALSWH

Gretchen Carrigan, Adrian Barnett, Annette Dobson, Gita Mishra

Introduction

- Historical background
  - Vast body of literature on imputation methodology has developed in past 15-20 years.
  - Subsequent evolution of software to implement developments
  - Software has varying capabilities

- Aims of this presentation
  - Theoretical approaches to imputation
  - Current software capabilities
  - Introduction to WinBUGS

Imputation approaches

- Inverse probability weights
- Multiple imputation
- Chained regression equations
- Integrated Bayesian modelling
Inverse probability weights

The process of ‘over-weighting’ records with complete data to compensate for missing data

Example: Three variables (N = 100)
- Gender: Male (M)/ Female (F), fully observed
- Smoking status: Smoker (S)/ Non-smoker (NS), fully observed
- Weight: continuous variable with some missing data

The process of ‘over-weighting’ records with complete data to compensate for missing data

<table>
<thead>
<tr>
<th>Gender</th>
<th>Smoking Status</th>
<th>Weight</th>
<th>Number of records (N = 100)</th>
<th>Observed weight (N = 100)</th>
<th>Effective sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>M, NS</td>
<td></td>
<td></td>
<td>15</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>M, S</td>
<td></td>
<td></td>
<td>30</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>F, NS</td>
<td></td>
<td></td>
<td>35</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>F, S</td>
<td></td>
<td></td>
<td>20</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>100</td>
<td>66</td>
<td>100</td>
</tr>
</tbody>
</table>

Effective weight (FW)

Multiple Imputation

The process of ‘filling in’ multiple datasets by randomly drawing missing data from a simulated distribution and combining those multiply imputed datasets in an analysis of interest

Example: Two variables
- Weight $\sim N(\mu_W, \sigma^2_W)$
- Height $\sim N(\mu_H, \sigma^2_H)$

- Fully observed: $L(\mu_W, \mu_H, \sigma^2_W, \sigma^2_H, \rho_{WH} | Y)$
  - Can estimate parameters simply using Maximum Likelihood Estimation
- Missing data: $P(\mu_W, \mu_H, \sigma^2_W, \sigma^2_H, \rho_{WH} | Y_{obs}, Y_{mis})$
  - Need to simulate the distribution of the parameters, conditional upon observed and missing data

Multiple Imputation

- Ability to simulate this distribution relies on the assumption of MAR - use patterns in observed data to predict what the missing data might be.
- Trivial example because only two variables. ie in this example, if weight is missing, would randomly draw from the distribution of weight conditional upon a certain height.
- In practice, model joint distribution of all variables in analysis and any correlated variables
Multiple Imputation

- Multiple variables: \( P(\theta_1, \ldots, \theta_n| Y_{obs}, Y_{mis}) \)

Missing data represented by ●

<table>
<thead>
<tr>
<th>ID</th>
<th>Weight</th>
<th>Height</th>
<th>Age</th>
<th>Income ('000)</th>
<th>Hours spent working</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>165</td>
<td>47</td>
<td>40</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>182</td>
<td>49</td>
<td>35</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>171</td>
<td>48</td>
<td>100</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>150</td>
<td>48</td>
<td>●</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>178</td>
<td>50</td>
<td>120</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>156</td>
<td>45</td>
<td>30</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>148</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>46</td>
<td></td>
<td></td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

- Draw missing values, based on a comprehensive joint distribution of all variables that might contain information about why the data is missing.

Multiple Imputation – Defining features

1. Two-stage approach
   - Fill in missing data multiple times and analyse data
   - Combine the results of multiple analyses

2. Bayesian foundations
   - Important to remember when comparing with an integrated Bayesian modelling approach

3. Follows on intuitively from archaic methods of hot and cold deck imputation in that MI draws missing data from a distribution informed by people with similar characteristics.
   - But unlike these methods, MI accounts for:
     - Appropriate variance in the data itself
     - Error associated with imputation

Chained regression equations

The process of creating imputations through a sequence of multiple regressions, and iteratively cycling through the sequence to update the imputed values

- Relaxes the MI condition that the data be multivariate normal
- Example: 4 variables defined by varying distributions
  
  Income: normal, some missing
  Source of income: categorical, some missing
  Area of residence: categorical, no missing
  Number of years in the same job: continuous, missing
Chained regression equations

- Cycle through each regression in turn, updating imputed values for the outcome at each cycle of the regression sequence.
- Income $\propto$ (Area of residence, source of income, number of years in job)
- Area of residence $\propto$ (Source of income, number of years in job, income)
- Source of income $\propto$ (Number of years in job, income, area of residence)
- Number of years in job $\propto$ (Income, area of residence, source of income)

Integrated Bayesian modelling

An extension of the applied Bayesian methodology used in multiple imputation, that allows the user to ‘solve’ the imputation and analysis simultaneously

- Like multiple imputation, draw missing values from a distribution informed by people with similar structure.
- Like multiple imputation, model-based and incorporates randomness.
- Like multiple imputation, it has its foundations in Bayesian theory

Integrated Bayesian modelling

- Unlike multiple imputation, it is an integrated approach
- Drawing inferences from joint distribution of unknown variables AND unknown parameters from a regression model simultaneously
  $$p(\theta_1, \ldots, \theta_n, \beta_0, \ldots, \beta_j|Y_{obs}, Y_{mis})$$
- In MI, imputation error accounted for by combining results from 5 separate draws
- In integrated Bayesian modelling, imputation error accounted for by taking 100 000+ draws of each of the parameter estimates.
- Allows the user to incorporate longitudinal structure into imputation itself
- Allows the user to incorporate MNAR into imputation model
Software capabilities

- **IPW**
  - User-defined algorithms to correct standard errors
  - No standard software has been developed for this purpose yet

- **Chained Regression equations**
  - SAS – Iveware
  - Stata – Ice
  - Splus – Mice
  - Don’t deal well with longitudinal data and ordinal variables

Software capabilities

- **Multiple imputation**
  - SAS – PROC MI
  - Stata
  - Splus
  - R
  - Assume that the data are multivariate normal or can be approximated by a multivariate normal distribution.
  - Often an unrealistic assumption in the context of categorical survey data.

- **Integrated Bayesian modelling**
  - MLWin
  - WinBUGS
  - These programs both essentially follow similar methodology.
  - For the purpose of this presentation, the focus is on WinBUGS

Example – Diabetes incidence in WinBUGS

\[
\text{Logit(diab)} = \alpha + \beta_1(\text{BMI category2}) + \beta_2(\text{BMI category3}) + \beta_3(\text{BMI category4}) + \psi(\text{annual percentage weight change}) + \phi(\text{age})
\]
Inclusion/exclusion criteria

- Mid-aged women who completed Survey 4 ($N = 10,905$)
- Diabetes status able to be determined S1 – S4 ($N = 10,629$)
- Excluded: existing cases S1, incident cases S1 – S2 ($N = 10,190$)
- Complete case analysis ($N = 7,311$)

Basics of WinBUGS

- Specify the model and load the data
- Based on Bayesian theory
  \[ p(\theta|y) \propto p(\theta).p(y|\theta) \]
- Specify the vague prior distribution of each of the unknown parameters
- Tell the program some initial values from which to start searching
- Run MCMC simulation

Specify the complete case model

```r
model {
  for (i in 1:7311) { # 7,311 women in complete case model
    for (t in 1:nsurvey[i]) { # nsurvey = 1 if incident S2-S3
      # = 2 otherwise
      DIAB model of interest
      diab[i,t] ~ dbern(diab.p[i,t]);
      logit(diab.p[i,t]) <- d.int
      + d.time*(equals(t,2))
      + (d.wtspc * wtspc[i,t])
      + (d.bmi[1] * step(1.9-bmi[i]))
      + (d.bmi[2] * step(2.9 - bmi[i]))
      + (d.bmi[3] * step(3.9 - bmi[i]))
      + d.age*age[i];
    }
  }
}
```

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The step function

\[(d.bmi[1] \times step(1.9-bmi[i])) + (d.bmi[2]\times step(2.9 - bmi[i])) + (d.bmi[3]\times step(3.9-bmi[i]))\]

Step(1.9-bmi): if (1.9-bmi) > 0 then indicator turned on
Step function models bmi parameters cumulatively, rather than as an indicator function.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Overweight</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Obese</td>
<td></td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Very Obese</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify the prior distributions of unknown nodes

#Important: We define node to be any variable or constant mentioned in the model. Here diab, bmi, wtspc and age are ‘known’ nodes entered via the data statement while diab.p, d.int, d.time, d.bmi[1:3], d.wtspc and d.age are ‘unknown’ nodes whose distributions we are trying to estimate

# vague priors for regression parameters in model of interest
\[
d.int \sim dnorm(0.0,1.0E-6);
\]
\[
d.time \sim dnorm(0.0,1.0E-6);
\]
\[
d.wtspc \sim dnorm(0.0,1.0E-6);
\]
\[
\text{for (j in 1:3)}
\{ d.bmi[j] \sim dnorm(0.0,1.0E-6);\}
\]
\[
d.age \sim dnorm(0.0,1.0E-6);
\]

Attractive WinBUGS capability – use of logical functions

# Odds ratios for model of interest – logical function of estimated parameters
#Perform logical function at each iteration of the chain – output posterior means and intervals for the odds ratios
\[
bmi.or.1 \leftarrow 1/(exp(d.bmi[1]));
\]
\[
bmi.or.2 \leftarrow 1/(exp(d.bmi[1] + d.bmi[2]));
\]
\[
bmi.or.3 \leftarrow 1/(exp(d.bmi[1] + d.bmi[2] + d.bmi[3]));
\]
\[
wt.or \leftarrow exp(d.wtspc);
\]
\[
age.or \leftarrow exp(d.age);
\]
\[
time.or \leftarrow exp(d.time);
\]
Specify some initial values

```r
# Initial values
list(
  d.int = 0,
  d.time = 0,
  d.wtspc = 0,
  d.bmi = c(0,0,0),
  d.age = 0)
```

Output

- **History**: Graphical summary of the random values each unknown node has taken at each iteration of the chain. Should progress in a random fashion as shown below.

![Graphical summary of random values](image)

- **Statistics**: mean value for the parameter among all iterations of the chain as well as posterior intervals around the parameter.

  In the complete case analysis women who were ‘very obese’ were almost 14 times more likely to become an incident case of diabetes than ‘healthy’ women.

<table>
<thead>
<tr>
<th>node</th>
<th>mean</th>
<th>sd</th>
<th>2.50%</th>
<th>median</th>
<th>97.50%</th>
<th>97.50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>time.or</td>
<td>1.341</td>
<td>0.1936</td>
<td>1.004</td>
<td>1.326</td>
<td>1.762</td>
<td></td>
</tr>
<tr>
<td>bmi.or.1</td>
<td>3.023</td>
<td>0.6181</td>
<td>2.003</td>
<td>2.956</td>
<td>4.424</td>
<td></td>
</tr>
<tr>
<td>bmi.or.2</td>
<td>7.748</td>
<td>1.6</td>
<td>5.103</td>
<td>7.578</td>
<td>11.34</td>
<td></td>
</tr>
<tr>
<td>bmi.or.3</td>
<td>13.84</td>
<td>3.306</td>
<td>8.44</td>
<td>13.48</td>
<td>21.32</td>
<td></td>
</tr>
<tr>
<td>wt.or</td>
<td>1.03</td>
<td>0.0265</td>
<td>0.9853</td>
<td>1.03</td>
<td>1.074</td>
<td></td>
</tr>
<tr>
<td>age.or</td>
<td>1.106</td>
<td>0.05378</td>
<td>1.004</td>
<td>1.05</td>
<td>1.214</td>
<td></td>
</tr>
<tr>
<td>d.int</td>
<td>-2.781</td>
<td>0.1952</td>
<td>-3.174</td>
<td>-2.777</td>
<td>-2.409</td>
<td></td>
</tr>
<tr>
<td>d.time</td>
<td>0.2829</td>
<td>0.1435</td>
<td>0.004141</td>
<td>0.2825</td>
<td>0.5665</td>
<td></td>
</tr>
<tr>
<td>d.bmi[1]</td>
<td>-1.086</td>
<td>0.2015</td>
<td>-1.487</td>
<td>-1.084</td>
<td>-0.6946</td>
<td>-0.6946</td>
</tr>
<tr>
<td>d.bmi[2]</td>
<td>-0.9408</td>
<td>0.1815</td>
<td>-1.295</td>
<td>-0.9407</td>
<td>-0.5833</td>
<td>-0.5833</td>
</tr>
<tr>
<td>d.bmi[3]</td>
<td>-0.5728</td>
<td>0.2193</td>
<td>-0.9975</td>
<td>-0.5751</td>
<td>-0.136</td>
<td>-0.136</td>
</tr>
<tr>
<td>d.wtspc</td>
<td>0.02911</td>
<td>0.02201</td>
<td>-0.01482</td>
<td>0.0294</td>
<td>0.07148</td>
<td>0.07148</td>
</tr>
<tr>
<td>d.age</td>
<td>0.09955</td>
<td>0.04859</td>
<td>0.004139</td>
<td>0.09955</td>
<td>0.1943</td>
<td>0.1943</td>
</tr>
</tbody>
</table>
• Autocorrelation: Graphical representation of the correlation between adjacent steps in the chain, up to a lag of 40. Should drop away quickly.

• DIC: a measure of the fit of the model: similar concept to AIC

\[ D_{\text{bar}} = \text{post.mean of } -2\log L; \]
\[ D_{\text{hat}} = -2\log L \text{ at post.mean of stochastic nodes} \]

<table>
<thead>
<tr>
<th></th>
<th>Dbar</th>
<th>Dhat</th>
<th>pD</th>
<th>DIC</th>
</tr>
</thead>
</table>

Introducing missingness into the model

<table>
<thead>
<tr>
<th>Missing data</th>
<th>Diabetes</th>
<th>BMI</th>
<th>% wtchg</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>×</td>
<td>✔</td>
<td>✔</td>
<td>×</td>
</tr>
</tbody>
</table>

Assume MAR

“Like to weigh”

- Regression equations:
  - BMI \( \propto \) like to weigh
  - wtpc \( \propto \) like to weigh
Known and unknown nodes

<table>
<thead>
<tr>
<th>Known nodes</th>
<th>Unknown nodes</th>
<th>Known nodes</th>
<th>Unknown nodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>diab</td>
<td>bmi</td>
<td>diab</td>
<td>bmi</td>
</tr>
<tr>
<td>bmi</td>
<td>d.time</td>
<td>age</td>
<td>wtspc</td>
</tr>
<tr>
<td>wtspc</td>
<td>d.bmi[1:3]</td>
<td>d.int</td>
<td></td>
</tr>
<tr>
<td>age</td>
<td>d.wtspc</td>
<td>d.time</td>
<td></td>
</tr>
<tr>
<td>d.age</td>
<td>d.bmi[1:3]</td>
<td>d.wtspc</td>
<td>d.age</td>
</tr>
</tbody>
</table>

- WinBUGS can deal with categorical data
- WinBUGS has the ability to model correlation between consecutive surveys (S3 and S4)
- The simple imputation model shown is a naïve formulation

More advanced formulation

- BMI / wtspc derived variables
- Impute derived variables from imputed source variables
- Why?
- Example:

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>wtkg</td>
<td>100kg</td>
<td>90kg</td>
<td>●</td>
<td>90kg</td>
</tr>
<tr>
<td>wtspc</td>
<td>10%</td>
<td>●</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- We might impute a percentage weight change at survey 2 that is close to 10%, based on S1 and S2 data only.
- Using data from wtkg at all 4 surveys, we might impute something closer to 0%
- Power of inference is much stronger if we impute wtkg using information from all surveys

Advanced imputation model

<table>
<thead>
<tr>
<th>Naive</th>
<th>Advanced imputation model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known nodes</td>
<td>Unknown nodes</td>
</tr>
<tr>
<td>diab</td>
<td>bmi</td>
</tr>
<tr>
<td>age</td>
<td>wtspc</td>
</tr>
<tr>
<td>d.int</td>
<td>height</td>
</tr>
<tr>
<td>d.time</td>
<td>m4wtkg</td>
</tr>
<tr>
<td>d.bmi[1:3]</td>
<td>d.int</td>
</tr>
<tr>
<td>d.wtspc</td>
<td>d.time</td>
</tr>
<tr>
<td>d.age</td>
<td>d.bmi[1:3]</td>
</tr>
<tr>
<td>d.wtspc</td>
<td>d.age</td>
</tr>
</tbody>
</table>

- Exclude women with missing height and like to weigh for the purposes of illustration. N = (10 190 – 633) = 9557

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Imputation regression

- To start, consider a fixed effects model.

\[
\text{wtkg}_i = \alpha + \phi(t) + \beta_1(\text{like}_{2,i}) + \beta_2(\text{like}_{3,i}) + \beta_3(\text{like}_{4,i})
\]

\[i = 1..9557\]
\[t = 1..4\]

- Population mean weight \(\alpha\) that increases over time according to \(\phi(t)\). Influenced by response to 'like to weigh' at survey 1.

Specify the model

```
model {
  for (i in 1:9557) {  #9557 women in full model
    for (t in 3:nsurvey[i]) {  #nsurvey   = 3 if incident S2-S3
      #    = 4 otherwise
      #women who were incident S2-S3 drop out of analysis.
      #DIAB  model of interest
      diab[i,t-2] ~ dbern(diab.prob[i,t-2]);
      # Lag indices so that diab at S3 can be modelled against wtspc at S1
      diab.prob[i,t-2] <- max(0.0001, diab.temp[i,t-2]);
      # Impose limits on predicted probability: WinBUGS has trouble when
      # chain in extreme tails of distribution.
      logit(diab.temp[i,t-2]) <- d.int + (d.time*equals(t,4)) + (d.wtspc * wtspc[i,t]) +
      (d.bmi[1] * step(1.9-bmi[i,t-2])) + (d.bmi[2] * step(2.9 - bmi[i,t-2])) +
      (d.bmi[3] * step(3.9-bmi[i,t-2])) +d.age*(age[i]);
    }
  }
  # WTKG specify distribution of observed and missing weights
  for (s in 1:4) {
    wtkg[i,s] ~ dnorm(wt.mu[i,s], wt.tau);
    wt.mu[i,s] <- w.int + (w.slo*s) + (w.like[1] * equals(like[i],2)) + (w.like[2] *
      equals(like[i],3)) + (w.like[3] * equals(like[i],4));
    # intercept adjusted for Survey
  }
```

Specify the model

```
#Calculate derived variables as logical function of observed and imputed data: to
#feed into model of interest
#WTSPC
wtspc[i,t] <- ((wtkg[i, t-2] - wtkg[i, t-1])/wtkg[i, t-1])*100;

#BMI
bmic[i,t-2] <- wtkg[i,1]/((height[i])*(height[i]));
bmi[i,t-2] <- 1 + step(bmic[i,t-2]-25) + step(bmic[i,t-2]-30) + step(bmic[i,t-2]-35);

# WTKG specify distribution of observed and missing weights
for (s in 1:4) {
  wtkg[i,s] ~ dnorm(wt.mu[i,s], wt.tau);
  wt.mu[i,s] <- w.int + (w.slo*s) + (w.like[1] * equals(like[i],2)) + (w.like[2] *
    equals(like[i],3)) + (w.like[3] * equals(like[i],4));
  # intercept adjusted for Survey
}
Specify the priors

```r
# priors for regression parameters in model of interest
d.int ~ dnorm(0.0,1.0E-6);
d.time ~ dnorm(0.0,1.0E-6);
d.wtspc ~ dnorm(0.0,1.0E-6);
for (k in 1:3) {d.bmi[k] ~ dnorm(0.0,1.0E-6);} 
# priors for regression parameters in imputation model
w.int ~ dnorm(0.0,1.0E-6);
w.slo ~ dnorm(0.0,1.0E-6);
for (x in 1:3){w.like[x] ~ dnorm(0.0,1.0E-6);} 
# precision
wt.tau ~ dgamma(0.01, 0.01);
# Variance = 1/precision
wt.var <- 1/wt.tau
wt.sig <- sqrt(1/wt.tau);
# Odds ratios for model of interest
bmi.or.1 <- 1/(exp(d.bmi[1]));
bmi.or.2 <- 1/(exp(d.bmi[1] + d.bmi[2]));
bmi.or.3 <- 1/(exp(d.bmi[1] + d.bmi[2] + d.bmi[3]));
wt.or <- exp(d.wtspc);
age.or <- exp(d.age);
time.or <- exp(d.time); }
```

Specify initial values

```r
# Initial values
list(
  d.int = 0,
  d.time = 0,
  d.wtspc = 0,
  d.bmi = c(0,0,0),
  d.age = 0,
  w.int = 0,
  w.slo = c(0,0,0),
  w.like = c(0,0,0),
  wt.tau = 3)
```

Incorporate longitudinal structure into imputation

- Multi-level random effects model: random intercept
  for (s in 1:4)
  {
    wtkg[i,s] ~ dnorm(wt.mu[i,s], wt.tau);
    wt.mu[i,s] <- w.int[i] + (w.slo*i) + (w.like[1] * equals(like[i],2)) +
      (w.like[2] * equals(like[i],3)) + (w.like[3] *equals(like[i],4));
  # Random intercept incorporates longitudinal structure of data
  # Intercept adjusted for Survey
  }
  w.int[i] ~ dnorm(wt.mu, wt.tau);
```
Results

- 75% of women had given their weights at all surveys.

<table>
<thead>
<tr>
<th></th>
<th>m1wtkg</th>
<th>m2wtkg</th>
<th>m3wtkg</th>
<th>m4wtkg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing</td>
<td>3%</td>
<td>13%</td>
<td>12%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Table 1a: Odds ratios in model of interest, mean (posterior interval)

<table>
<thead>
<tr>
<th></th>
<th>Completecase (N = 7311)</th>
<th>Imputed model (N = 9557)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SAS</td>
<td>WinBUGS</td>
</tr>
<tr>
<td>Time</td>
<td>NA</td>
<td>1.34 (1.00, 1.76)</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy</td>
<td>ref.</td>
<td>ref.</td>
</tr>
<tr>
<td>Overweight</td>
<td>2.95 (2.00, 4.36)</td>
<td>3.02 (2.00, 4.42)</td>
</tr>
<tr>
<td>Obese</td>
<td>7.56 (5.10, 11.21)</td>
<td>7.75 (5.10, 11.34)</td>
</tr>
<tr>
<td>Percentage weight change</td>
<td>1.03 (0.99, 1.07)</td>
<td>1.03 (0.99, 1.07)</td>
</tr>
<tr>
<td>Age</td>
<td>1.10 (1.00, 1.22)</td>
<td>1.11 (1.00, 1.21)</td>
</tr>
</tbody>
</table>

Table 1b: Parameter estimates in regression equation, mean (posterior interval)

<table>
<thead>
<tr>
<th></th>
<th>Imputed model (N = 9557)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-longitudinal</td>
</tr>
<tr>
<td>Intercept (Popn mean weight)</td>
<td>57.01 (56.67, 57.34)</td>
</tr>
<tr>
<td>Slope (Weight per survey)</td>
<td>1.19 (1.10, 1.29)</td>
</tr>
<tr>
<td>Like to weigh...</td>
<td>ref.</td>
</tr>
<tr>
<td>Happy/More</td>
<td></td>
</tr>
<tr>
<td>0-5 kg less</td>
<td>5.01 (4.72, 5.31)</td>
</tr>
<tr>
<td>5-10 kg less</td>
<td>13.31 (12.98, 13.63)</td>
</tr>
<tr>
<td>&gt;10 kg less</td>
<td>27.28 (26.95, 27.61)</td>
</tr>
</tbody>
</table>
Components of variance

for (s in 1:4)
{
    wtkg[i,s] ~ dnorm(wt.mu[i,s], wt.tau);
    wt.mu[i,s] <- w.int[i] + (w.slo*s) + (w.like[1] *
        equals(like[i],2)) + (w.like[2] *equals(like[i],3)) + (w.like[3]
        *equals(like[i],4));
}

Define wt.var = 1/wt.tau, w.var = 1/w.tau

\[ \hat{\rho} = \frac{w \cdot \text{var}}{w \cdot \text{var} + \text{wt.var}} \approx 85\% \]

is a measure of within subject correlation

DIC comparisons

<table>
<thead>
<tr>
<th></th>
<th>Dbar</th>
<th>Dhat</th>
<th>pD</th>
<th>DIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>diab</td>
<td>2558.69</td>
<td>2552.19</td>
<td>6.495</td>
<td>2565.18</td>
</tr>
<tr>
<td>wtkg</td>
<td>264199</td>
<td>264192</td>
<td>6.009</td>
<td>264205</td>
</tr>
<tr>
<td>total</td>
<td>266757</td>
<td>266745</td>
<td>12.504</td>
<td>266770</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Dbar</th>
<th>Dhat</th>
<th>pD</th>
<th>DIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>diab</td>
<td>2558.06</td>
<td>2550.51</td>
<td>7.551</td>
<td>2565.61</td>
</tr>
<tr>
<td>wtkg</td>
<td>202404</td>
<td>193387</td>
<td>9017.27</td>
<td>211421</td>
</tr>
<tr>
<td>total</td>
<td>204962</td>
<td>195937</td>
<td>9024.82</td>
<td>213987</td>
</tr>
</tbody>
</table>

The longitudinal model is a better fit of the data because it has a lower DIC

Graphical representation of the imputations

Imputed data for a sample of women under the longitudinal and non-longitudinal model.

Solid black dots indicate known weights.

Where data is missing at a particular survey, two posterior means and corresponding intervals are shown: that of the longitudinal model (wider intervals, more accurate) and the non-longitudinal model (more precise intervals, less accurate).
Discussion and further analysis

- No difference in diabetes parameter estimates because:
  1) Not enough missing data in the sample
  2) Most of the missing data is in wtspc, not BMI which drives the analysis

- One option
  - Take a subsample of 9557 women
  - Oversample women with missing weight at S1

- I ran this model and got different results in the diabetes regression, but it is difficult to tell whether my sampling biased the structure of the data and thus the results, or whether the change was brought about through the imputation itself.

Future research directions

- MNAR
  - Add another line to the model:
    \[ \text{logit(weight.p)} = -1 + 0.5\text{wtkg} \]
  - Introduce idea of MNAR by telling the model extra information about why we believe the weight to be missing.
  - Designed to be a sensitivity analysis only
General Linear Latent Variable Growth Modeling with Mplus

Richard Gibson
09/09/06

Overview

• Theory
  – Definition of latent variable and some latent variable models
    • Measurement model
    • Factor analysis model
    • Structural equation model (SEM)
    • Latent class model
  – Classification of latent variable models
  – The general latent variable modeling framework
  – Modeling with time
    • The mixed model, SEM over time and the latent variable growth model

• Practice
  – A simple growth model
  – Growth model with time invariant covariates
  – Growth model with latent classes
  – EFA and CFA (Not done)
  – Growth model with time varying covariates (Not done)
  – A general linear latent variable growth model (Not done)
The Measurement Model

\[ x_{ij} = \eta_j + \varepsilon_{ij} \quad \text{where:} \quad \eta_j \equiv E(x_{ij}) \]
\[ \varepsilon_{ij} \sim N(0, \theta); \quad \text{Cov}(\varepsilon_i, \varepsilon_i) = 0, \ i \neq i' \]

For unit \( j \), \( x \) measures are taken to represent the true score \( \eta_j \)

*(this is the expected value definition of a latent variable)*

---

**The Latent Variable: informal definitions**

- Hypothetical constructs, e.g. self-esteem
- Unmeasurable, e.g. self-esteem
- Data reduction device, eg of correlated variables to fewer latent variables
- Combinations, e.g. hypothetical constructs that cannot be measured directly
The latent variable: Formal definitions 1

- Local independence: conditioning on the latent variable removes correlation among the measured variables:
  \[ P(X_1, X_2, \ldots, X_k) = \prod_k P(X_k | \eta) \]

- Expected value (discussed)

- Nondeterministic function of observed variables “… the equations cannot be manipulated so as to express the latent variable as a function of manifest (measured) variables only”:
  \[ x_{ij} = \eta_j + \epsilon_{ij} \]


The latent variable: Formal definitions 2

- Sample realisation “A latent random (or nonrandom) variable is a random (or nonrandom) variable for which there is no sample realisation for at least some observations in a given sample” (Bollen, 2002).

i.e. A variable in the model that is not completely present in the data set.
(I would add but is estimated from information contained in the dataset)
Factor analysis model

The one-dimensional common factor model

\[ y_{ij} = \beta_i + \lambda_j \eta_j + \epsilon_{ij} \]

For items \( i = 1, \ldots, I \) and subjects \( j = 1, \ldots, J \)

Or generally in matrix form

\[ Y_j = \beta + \Lambda \eta_j + \epsilon_j \]

\( \beta \) is a vector of constants

\( \Lambda \) is a matrix of factor loadings

\( \eta \) is a vector of \( M \) common factors

---

Structural Equation Model

The *measurement part* of the model

where \( K \) is a \( q \)-dimensional vector of covariates

\[ Y_j = \beta + \Lambda \eta_j + Kx + \epsilon_j \]

And the *structural part* representing the regressions of the latent variables on each other and the vector \( x \) of independent covariates:

\[ \eta_i = \alpha + \beta \eta_i + \Gamma x_i + \zeta_i \]

Measurement part

Structural part

The \( q \) covariates \( x \)
The Latent Class Analysis Model

\[
\Pr(y_{ij} = a_s | c) = \frac{\exp(v_{ijc}^s)}{\sum_{t=1}^{S_i} \exp(v_{ijc}^t)}
\]

The conditional probability that item \(i\) takes on the value \(a_s, s=1, \ldots, S_i\) if subject \(j\) is in class \(c\)

Classification of some latent variable methods

<table>
<thead>
<tr>
<th>Manifest (measured) Variables</th>
<th>Continuous</th>
<th>Categorical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latent Variables</td>
<td>Factor analysis</td>
<td>Latent trait analysis</td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Categorical</td>
<td>Latent profile analysis</td>
<td>Latent class analysis</td>
</tr>
</tbody>
</table>

The general latent variable modeling framework

Taken from the MPLUS web site
http://www.ats.ucla.edu/stat/mplus/seminars/salv/default.htm
(Added for Tech Report: The diagram is fully explained on the website)

The multilevel model
Modeling with time

Multilevel model with time

\[ y_{it} = \beta_0i + \beta_1i a_i + \epsilon_i \] \hspace{1cm} Level 1
\[ \beta_0i = \gamma_{00} + \zeta_{00} \] \hspace{1cm} Level 2a
\[ \beta_1i = \gamma_{10} + \zeta_{10} \] \hspace{1cm} Level 2b

SEM model with time as a Parameter \((a_i - a)\)

\[ y_{it} = \eta_0i + \eta_1(a_i - a) + \eta_{2i}(a_i - a)^2 + \kappa_i x_{it} + \epsilon_{it} \] \hspace{1cm} Level 1
\[ \eta_0i = \alpha_0 + \gamma_{0x0} + \zeta_{0i} \] \hspace{1cm} Level 2a
\[ \eta_{1i} = \alpha_1 + \gamma_1 x_{0i} + \zeta_{1i} \] \hspace{1cm} Level 2b
\[ \eta_{2i} = \alpha_2 + \gamma_2 x_{1i} + \zeta_{2i} \] \hspace{1cm} Level 2c

More general form with Time as data \((a_i - a)\)

\[ y_{it} = \eta_0 + \eta_1(a_i - a) + \eta_{2i}(a_i - a)^2 + \kappa_i x_{it} + \epsilon_{it} \] \hspace{1cm} Level 1

Growth model in latent variable context

\[ y_{it} = \nu_{it} + \lambda_{it} \eta_{it} + \epsilon_{it} \] \hspace{1cm} Level 1a (measurement part)
\[ \eta_{it} = \eta_{0i} + \eta_{1i} a_i + \zeta_{it} \] \hspace{1cm} Level 1b
Levels 2a and b as before

Growth model in latent variable context

\[ y_{it} = \nu_{it} + \lambda_{it} \eta_{it} + \epsilon_{it} \] \hspace{1cm} Level 1a (measurement part)
\[ \eta_{it} = \eta_{0i} + \eta_{1i} a_i + \zeta_{it} \] \hspace{1cm} Level 1b
Levels 2a and b as before

**Time invariant indicator intercepts and slopes**

**I** = Intercept (Level 2a)
**S** = Slope (Level2b)
\( a_i \) is time measure at time \( t \)
Practice

- Practice
  - A simple growth model
  - Growth model with time invariant covariates
  - Growth model with latent classes
  - EFA and CFA
  - Growth model with time varying covariates
  - A general linear latent variable growth model

The research question

What is the relationship in the aged cohort between asthma and the SF36 score of general health accounting for the association between general health and the other covariates of age, education, ability to manage on income, marital status, residential location, country of birth, comorbidities, smoking behavior and BMI

SF36 component of general health in the aged cohort modeled over time
General health in the old cohort modeled over time

Analysis:
Type = missing;
Estimator = MLR;
Model: i.s | o1gh@0 o2gh@3 o3gh@6 o4gh@9;
Chi-Square Test of Model Fit
Value                            183.019*
Degrees of Freedom                     5
P-Value                           0.0000  (>0.05 good)

CFI/TLI
CFI                                0.981 (> 0.9 good)
TLI                                0.977 (> 0.9 good)
RMSEA (Root Mean Square Error Of Approximation)
Estimate                           0.071 (<0.05 good)

Model with quadratic term
Model: i.s q | o1gh@0 o2gh@3 o3gh@6 o4gh@9;
Chi-Square Test of Model Fit
Value                              0.002*
Degrees of Freedom                     1
P-Value                           0.9658

CFI/TLI
CFI                                1.000
TLI                                1.001
RMSEA (Root Mean Square Error Of Approximation)
Estimate                           0.000

Quadratic model is better fit but only one degree of freedom remains
Growth model for general health with quadratic term

Use observations are s4 == 1;

ID variable is IDalias;

Use variables are o1gh o2gh o3gh o4gh asthp asthi ss m2 m3 m4 co2 co3 co4 o1age Yo4 COB ;
(Asthma prevalence (asthp), asthma incidence (asthi), smoking status (ss), marital status (m2-m4)
Comorbidities (co2 – co4), age (o1age), income at survey 4 (Yo4) and country of birth (COB)
Missing are all (-9999);

Analysis:
  Type = missing;
  Estimator = MLR; (Robust maximum likelihood using sandwich estimator for robust standard errors)

Model: i s q| o1gh@0 o2gh@3 o3gh@6 o4gh@9; !Fit the growth model
i s q on asthp asthi ss m2 m3 m4 co2 co3 co4 o1age Yo4 COB; !Fit the regression

**Growth model for general health with quadratic term and covariates**

**MODEL RESULTS**

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Std</th>
<th>StdYX</th>
</tr>
</thead>
<tbody>
<tr>
<td>I ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTHP</td>
<td>-6.839</td>
<td>0.765</td>
<td>-8.945</td>
<td>-0.410</td>
<td>-0.133</td>
</tr>
<tr>
<td>ASTHI</td>
<td>-4.775</td>
<td>1.170</td>
<td>-4.081</td>
<td>-0.286</td>
<td>-0.061</td>
</tr>
<tr>
<td>SS</td>
<td>-1.154</td>
<td>1.154</td>
<td>-1.000</td>
<td>-0.069</td>
<td>-0.014</td>
</tr>
<tr>
<td>M2</td>
<td>-0.716</td>
<td>1.040</td>
<td>-0.688</td>
<td>-0.043</td>
<td>-0.010</td>
</tr>
<tr>
<td>M3</td>
<td>-0.418</td>
<td>0.490</td>
<td>-0.853</td>
<td>-0.025</td>
<td>-0.012</td>
</tr>
<tr>
<td>M4</td>
<td>0.057</td>
<td>1.237</td>
<td>0.046</td>
<td>0.003</td>
<td>0.001</td>
</tr>
<tr>
<td>CO2</td>
<td>-2.857</td>
<td>0.820</td>
<td>-3.486</td>
<td>-0.171</td>
<td>-0.070</td>
</tr>
<tr>
<td>CO3</td>
<td>-7.352</td>
<td>0.805</td>
<td>-9.134</td>
<td>-0.441</td>
<td>-0.192</td>
</tr>
<tr>
<td>CO4</td>
<td>-14.462</td>
<td>0.785</td>
<td>-18.418</td>
<td>-0.867</td>
<td>-0.431</td>
</tr>
<tr>
<td>O1AGE</td>
<td>0.161</td>
<td>0.150</td>
<td>1.074</td>
<td>0.010</td>
<td>0.014</td>
</tr>
<tr>
<td>YO4</td>
<td>5.371</td>
<td>0.591</td>
<td>9.094</td>
<td>0.322</td>
<td>0.131</td>
</tr>
<tr>
<td>COB</td>
<td>-0.403</td>
<td>0.576</td>
<td>-0.701</td>
<td>-0.024</td>
<td>-0.010</td>
</tr>
</tbody>
</table>
### MODEL RESULTS

<table>
<thead>
<tr>
<th>S ON</th>
<th>Estimates</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Std</th>
<th>StdYX</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTHP</td>
<td>-0.072</td>
<td>0.248</td>
<td>-0.290</td>
<td>-0.029</td>
<td>-0.009</td>
</tr>
<tr>
<td>ASTHI</td>
<td>0.134</td>
<td>0.372</td>
<td>0.361</td>
<td>0.054</td>
<td>0.011</td>
</tr>
<tr>
<td>SS</td>
<td>-0.756</td>
<td>0.415</td>
<td>-1.822</td>
<td>-0.304</td>
<td>-0.060</td>
</tr>
<tr>
<td>M2</td>
<td>0.226</td>
<td>0.337</td>
<td>0.671</td>
<td>0.091</td>
<td>0.020</td>
</tr>
<tr>
<td>M3</td>
<td>0.169</td>
<td>0.164</td>
<td>1.030</td>
<td>0.068</td>
<td>0.032</td>
</tr>
<tr>
<td>M4</td>
<td>-0.378</td>
<td>0.422</td>
<td>-0.894</td>
<td>-0.152</td>
<td>-0.025</td>
</tr>
<tr>
<td>CO2</td>
<td>-0.213</td>
<td>0.288</td>
<td>-0.741</td>
<td>-0.086</td>
<td>-0.035</td>
</tr>
<tr>
<td>CO3</td>
<td>-0.106</td>
<td>0.287</td>
<td>-0.369</td>
<td>-0.042</td>
<td>-0.018</td>
</tr>
<tr>
<td>CO4</td>
<td>-0.033</td>
<td>0.276</td>
<td>-0.121</td>
<td>-0.013</td>
<td>-0.007</td>
</tr>
<tr>
<td>O1AGE</td>
<td>-0.058</td>
<td>0.051</td>
<td>-1.153</td>
<td>-0.023</td>
<td>-0.035</td>
</tr>
<tr>
<td>YO4</td>
<td>-0.347</td>
<td>0.188</td>
<td>-1.851</td>
<td>-0.139</td>
<td>-0.057</td>
</tr>
<tr>
<td>COB</td>
<td>-0.114</td>
<td>0.193</td>
<td>-0.591</td>
<td>-0.046</td>
<td>-0.018</td>
</tr>
</tbody>
</table>

(NB if Est/S.E > 1.96 then significant at 5% level)

- Comorbidities, income and asthma associated with intercept
- Nothing associated with slope
- Possible comorbidity association with quadratic term
Use observations are s4 == 1;
ID variable is IDalias;
Use variables are o1gh o2gh o3gh o4gh asthp asthi co2 co3 co4 Yo4;
Missing are all (-9999);
Classes = c (3); ! Sets up the number of classes to fit. Uses all variables listed in usevariables except those regressed on class.

Analysis:
Type = mixture missing; (Missing must be declared to prevent listwise deletion; missing data handled by full information maximum likelihood)
Estimator = MLR; (Robust maximum likelihood using sandwich estimator for robust standard errors)
starts = 100 10; (You can control the number of random starts: 100 random sets of starting values with 10 optimisations, default is 10 and 2)
Algorithm = integration;

Model: %overall%
   i s q| o1gh@0 o2gh@3 o3gh@6 o4gh@9; (The growth model)
   i s q on asthp asthi co2 co3 co4 Yo4; (The regression)
   c#1 c#2 on asthp asthi co2 co3 co4 Yo4; (Multinomial logistic regression of classes on covariates)
Latent class growth model for general health

CLASSIFICATION OF INDIVIDUALS BASED ON THEIR MOST LIKELY LATENT CLASS MEMBERSHIP

Class Counts and Proportions:

<table>
<thead>
<tr>
<th>Latent Classes</th>
<th>Count</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1206</td>
<td>0.17300</td>
</tr>
<tr>
<td>2</td>
<td>5201</td>
<td>0.74609</td>
</tr>
<tr>
<td>3</td>
<td>564</td>
<td>0.08091</td>
</tr>
</tbody>
</table>

Average Latent Class Probabilities for Most Likely Latent Class Membership (Row) by Latent Class (Column)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.829</td>
<td>0.122</td>
<td>0.049</td>
</tr>
<tr>
<td>2</td>
<td>0.042</td>
<td>0.920</td>
<td>0.038</td>
</tr>
<tr>
<td>3</td>
<td>0.066</td>
<td>0.145</td>
<td>0.789</td>
</tr>
</tbody>
</table>

TECHNICAL 11 OUTPUT

VUONG-LO-MENDELL-RUBIN LIKELIHOOD RATIO TEST FOR 2 (H0) VERSUS 3 CLASSES

• H0 Loglikelihood Value                      -108170.088
• 2 Times the Loglikelihood Difference            797.241
• Difference in the Number of Parameters               10
• Mean                                            -23.086
• Standard Deviation                              124.366
• P-Value                                          0.0000

LO-MENDELL-RUBIN ADJUSTED LRT TEST

• Value                                           788.332
• P-Value                                          0.0000

A p value < 0.05 supports rejection of the hypothesis that two classes are better than three.
Three latent classes, but still with a large amount of variability associated with each class
Latent class growth model for general health

Parameterization using Reference Class 2

<table>
<thead>
<tr>
<th>C#1 ON</th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTHP</td>
<td>0.561</td>
<td>0.132</td>
<td>4.235</td>
</tr>
<tr>
<td>ASTHI</td>
<td>0.634</td>
<td>0.306</td>
<td>2.070</td>
</tr>
<tr>
<td>CO2</td>
<td>0.292</td>
<td>0.245</td>
<td>1.194</td>
</tr>
<tr>
<td>CO3</td>
<td>0.414</td>
<td>0.236</td>
<td>1.755</td>
</tr>
<tr>
<td>CO4</td>
<td>1.426</td>
<td>0.226</td>
<td>6.295</td>
</tr>
<tr>
<td>YO4</td>
<td>-0.715</td>
<td>0.115</td>
<td>-6.213</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C#3 ON</th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTHP</td>
<td>0.317</td>
<td>0.182</td>
<td>1.738</td>
</tr>
<tr>
<td>ASTHI</td>
<td>0.165</td>
<td>0.598</td>
<td>0.277</td>
</tr>
<tr>
<td>CO2</td>
<td>-0.320</td>
<td>0.267</td>
<td>-1.195</td>
</tr>
<tr>
<td>CO3</td>
<td>-0.063</td>
<td>0.272</td>
<td>-0.234</td>
</tr>
<tr>
<td>CO4</td>
<td>0.876</td>
<td>0.249</td>
<td>3.515</td>
</tr>
<tr>
<td>YO4</td>
<td>-0.256</td>
<td>0.164</td>
<td>-1.556</td>
</tr>
</tbody>
</table>

Intercepts

<table>
<thead>
<tr>
<th>C#1</th>
<th>Intercept</th>
<th>S.E.</th>
<th>Est./S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C#1</td>
<td>-1.844</td>
<td>0.238</td>
<td>-7.749</td>
</tr>
<tr>
<td>C#3</td>
<td>-2.170</td>
<td>0.264</td>
<td>-8.228</td>
</tr>
</tbody>
</table>

Interpretation eg:
The odds of having prevalent asthma (asthp) and being in class 1 are $e^{0.561} = 1.8$ times those of being in class 2; and this is significant at $p < 0.01$
Summary

• It was my intention to continue by exploring the tenuous relationship between exploratory and confirmatory factor analysis and to complete the model by including time varying covariates. This was overly ambitious and not practical in the time, and as it turns out not required as a broad exploration of the theory and application using Mplus was possible.

• The GLLVM framework provides a powerful set of tools to test theory through statistical modeling. Of course just because the data fit the model does not mean the model is true; in fact it is more so the case that the model that does not fit the data is more instructive. Many competing models may fit the data at hand and it is often not possible to discriminate among them, however a model that fails to fit the data clearly demonstrates a false theory.

• Mplus is a rapidly evolving software that allows the fitting of a great variety of latent variable models. The Mplus website (statmodel.com) contains a diversity of information not only about the software but also in relation to the modeling framework. The site provides a solid introduction in considerable detail through making available an extensive selection of publications as well as movies of workshops, seminars and even a semester long graduate course.

• The syntax driven software has a simple and easy to follow language that reflects the modeling framework, however it is not always easy to import data and getting started can initially be frustrating; there is no data viewer and missing data must be manually declared for the analysis to prevent listwise deletion during importation. Additionally, a separate file is required for each model fitted (producing output files and graphic files for each analysis). Careful organisation is required to manage the proliferating analysis and output files as an analysis proceeds.

• The types of models fitted here can also be fitted in stata, however, the computing algorithms in the stata ado are not as efficient as those in Mplus (as conceded by the authors of the GLLVM ado files who prefer to use Mplus for complex algorithms). Other structural equation modeling software such as Amos or Lisrell do not handle categorical data. This may change in the future as the modeling framework becomes more widely used.
Incidence and Prevalence of Chronic Conditions

Richard Hockey, UQ
Newcastle, 9 October 2006

Introduction

“A discussion of our current definitions of incidence and prevalence - in particular how deaths and missing cases are coded for these rules and how we might want other coding systems “

Current Definitions

• Developed for Major Report ‘A’
• ‘Best’ estimate of prevalence and incidence of enduring chronic conditions
• Based on self report of conditions
• Described in Technical Report #26
Response tree
Diabetes, Old Cohort

S1
- Yes 471
- No 298
- Missing 31
- Non-participant 195
- Dead 86

S2
- Yes 250
- No 9810
- Missing 202
- Non-participant 1125
- Dead 401

S3
- Yes 505
- No 304
- Missing 22
- Non-participant 172
- Dead 44

- Yes 38
- No 3
- Missing 1
- Non-participant 34
- Dead 0

- Yes 40
- No 2
- Missing 1
- Non-participant 32
- Dead 0

- Yes 104
- No 78
- Missing 2
- Non-participant 128
- Dead 29

- Yes 231
- No 7004
- Missing 128
- Non-participant 380
- Dead 10

- Yes 4
- No 134
- Missing 14
- Non-participant 14
- Dead 0

- Yes 6
- No 2
- Missing 1
- Non-participant 25
- Dead 0

- Yes 3
- No 57
- Missing 4
- Non-participant 3
- Dead 5
Prevalence & Incidence

Current method:

- Prevalence takes deaths and non-response/withdrawal into account.
- Incidence – 2 measures
  - Incidence Rate – as per prevalence
  - Incidence groups – ‘Existing’, ‘New’ and ‘Never’ (at final survey).

Incidence Groups

- In current method ‘incident’ or ‘existing’ cases not allowed to die or be lost to follow-up.
- However, ‘never’ cases **must** respond to final survey to be counted.

<table>
<thead>
<tr>
<th>Classification</th>
<th>At Survey 1</th>
<th>At Survey 2</th>
<th>At Survey 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>Yes</td>
<td>Yes/No/Missing/Dead</td>
<td>Yes/No/Missing/Dead</td>
</tr>
<tr>
<td>Incident S1 to S2</td>
<td>No</td>
<td>Yes</td>
<td>Yes/No/Missing/Dead</td>
</tr>
<tr>
<td>Incident S2 to S3</td>
<td>No/Missing</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Incident - unknown time</td>
<td>No</td>
<td>Missing</td>
<td>Yes</td>
</tr>
<tr>
<td>Never</td>
<td>No/Missing</td>
<td>No/Missing</td>
<td>No</td>
</tr>
<tr>
<td>Missing</td>
<td>No/Missing</td>
<td>No/Missing/Dead</td>
<td>Missing/Dead</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>Yes</td>
<td>Yes/No/Missing/Dead</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>Missing</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Alternative method

<table>
<thead>
<tr>
<th>Classification</th>
<th>At Survey 1</th>
<th>At Survey 2</th>
<th>At Survey 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>Yes</td>
<td>Yes/No/Missing</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Incident S1 to S2</td>
<td>No</td>
<td>Yes</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Incident S2 to S3</td>
<td>No/Missing</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Incident - unknown time</td>
<td>No</td>
<td>Missing</td>
<td>Yes</td>
</tr>
<tr>
<td>Never</td>
<td>No/Missing</td>
<td>No/Missing</td>
<td>No</td>
</tr>
<tr>
<td>Dead</td>
<td>Yes/No/Missing</td>
<td>Dead</td>
<td>Dead</td>
</tr>
<tr>
<td>Missing</td>
<td>No/Missing</td>
<td>Missing</td>
<td>Missing</td>
</tr>
</tbody>
</table>

### Illustration

**Diabetes, Old Cohort**  
(from response tree above)

Existing case  
= 1081 - 294 - 209

Incident cases S1-S2  = 250 - 46 - 14

Incident cases S2-S3  = 231 + 3

Incident cases unknown when  
= 4 + 19

Never a case  
= 7004 + 134 + 225 + 57 + 3

(changes from current method in grey)
Risk Factors

• What affect does this change have on the relationship between incidence of chronic conditions and risk factors?
Summary

• Alternative method treats deaths and missing consistently.
• It results in a reduction in the number of existing and new cases, particularly in the existing group and in the older cohort (~60%).
• When death or missing is associated with risk factor then relationship with incidence groups changes.

Conclusion

• New definitions for ‘incidence groups’ to be adopted.
• Incident groups to be expanded to include ‘deaths’, ‘missing’, and ‘non-participant’
• Create datasets of prevalence, incidence and incidence groups of chronic conditions for each cohort.
3.6 Generalised estimating equations (GEE) and correlated binary data: David Sibbritt

3.6.1 Introduction
Two large families of statistical models that account for the correlation between repeated observations on individuals are:

- Marginal models (ie. population-averaged models) – SAS PROC GENMOD
- Random effects (or mixed models or random coefficient analysis (RCA)) (ie. subject specific models) – SAS PROC NLMIXED

If you are performing a population study and you are interested in the relationship between a binary outcome and several predictors, GEE (generalized estimating equations) analysis is appropriate. It produces the average of individual regression lines.

eg. if we wish to compare use of Complementary and Alternative Medicine (CAM) for people with back pain and people without back pain, we can use a population-averaged model \( \Rightarrow \) GEE.

If you are interested in the individual development over time of a binary outcome variable, then random effects is appropriate. eg. if we wish to estimate how a higher SF36-Physical functioning score might decrease the likelihood of someone using CAM, we want a subject-specific model \( \Rightarrow \) RCA. Note that Twisk (2003) warns that random effects analysis have not been fully developed (ie. different software produce different results)

3.6.2 Mixed Models in SAS
For a binary outcome, use PROC NLMIXED. Note that PROC NLMIXED is best suited for models with a single random effect (although two or three can be done) ie. at the very least, the time taken for the program to run will increase dramatically with the more random effects a model has - at worst the risk of ‘failure to converge’ increases dramatically with more random effects. The NLMIXED procedure requires writing out regression equations, declaring parameter names, and providing initial parameter estimates. To get accurate initial parameter estimates for NLMIXED models it has been suggested to first fit a GEE model with the GENMOD procedure.

Example of SAS code: PROC NLMIXED

```sas
proc nlmixed data=store.combined qpoints=20;
  parms beta0=-1.35 beta1=1 beta2=0.27 beta3=0.18 beta4=0.43 beta5=0.13
  beta6=0.12 beta7=0.01 s2b0=1 s2b1=1 cb01=1;
  c1 = beta0 + b0;
  c2 = beta1 + b1;
  eta = c1 + (c2*time) + (beta2*area) + (beta3*bowel) + (beta4*back) +
  (beta5*allergies) + (beta6*memory) + (beta7*sf_bp);
  expeta = exp(eta);
  p = expeta / (1 + expeta);
  model CAM ~ binary(p);
  random b0 b1 ~ normal([0,0], [s2b0, cb01, s2b1]) subject=IDalias;
run;
```

There are a few notes based on experience using PROC NLMIXED:

- If the initial parameter estimates are not close to what they should be, then you will have problems with convergence (so use GEE first to obtain the initial estimate)
• There may be problems when including continuous variables into the previous model but am not sure why

3.6.3 GEEs in SAS
For binary outcomes, use PROC GENMOD. To fit a GEE using PROC GENMOD, we need to use the REPEATED option within the PROC GENMOD procedure.

Example of SAS code: PROC GENMOD

```sas
PROC GENMOD <options>;
    ASSESS | ASSESSMENT keyword < / options >;
    BY variables ;
    CLASS variables ;
    CONTRAST 'label' effect values < ...effect values > < /options >;
    DEVIANCE variable = expression ;
    ESTIMATE 'label' effect values < ...effect values > < /options >;
    FREQ | FREQUENCY variable ;
    INVLINK variable = expression ;
    LSMEANS effects < / options > ;
    MODEL response = < effects > < /options > ;
    OUTPUT < OUT=SAS-data-set >
        < keyword=name...keyword=name > ;
    REPEATED SUBJECT = subject-effect < / options > ;
    WEIGHT | SCWGT variable ;
    VARIANCE variable = expression ;
```

Details of some of the statements within PROC GENMOD follow:

PROC GENMOD <options>;

• This statement can include an option for specifying the level of the response variable that is modelled
  - by default, the lower level is modelled (ie. probability that Y=0, for binary response coded [0,1])
  - use DESCENDING option to reverse ordering (ie. probability that Y=1)
    CLASS variables;
• used to define all variables that are to be regarded as categorical

MODEL response = <effects>/<options>;

• This statement specifies the response variable and the covariate effects.
• The DIST=keyword option is used to specify the distribution (eg. binomial)
• The LINK=keyword option is used to specify the link function (eg. logit)

REPEATED SUBJECT = subject-effect / <options>;

• The SUBJECT=subject-effect option defines a variable that determines the clustering of observations within an individual (eg. IDalias)
• Another option is the WITHINSUBJECT=within-subject effect
  - a variable denoting the “repeated effect” (ie. the measurement occasion) (eg. time)
• Another option is TYPE= which specifies working correlation structure (eg. EXCH, IND, MDEP, AR(x), UNSTR)
Working Correlation Structures
The repeated observations within one subject are not independent of each other. A correction must be made for these within-subject correlations. We assume *a priori* a certain ‘working’ correlation structure for the repeated measurements of the outcome variable Y.

**Independent**
- The correlations between subsequent measurements are assumed to be zero ie. assumes independence of the observations

**Exchangeable**
- The correlations between subsequent measurements are assumed to be the same, irrespective of length of the time intervals

**M-Dependent**
- The correlations t measurements apart are equal, the correlations t+1 measurements apart are equal, etc. (t = 1 to m)

**Autoregressive**
- The correlations one measurement apart are assumed to be r
- correlations 2 measurement apart are assumed to be r²
- correlations t measurement apart are assumed to be rᵗ

**Unstructured**
- The least restrictive of all correlation structures, all correlation structures are assumed different

For dichotomous (binary) outcome variables, the GEE approach also requires the choice of a ‘working correlation structure’. It is not possible to use the correlation structure of the observed data as a guide for choice of ‘working correlation structure’. The unstructured structure cannot be wrong, only somewhat inefficient. However, with the volume of data we have, and only a few time points, the efficiency of the estimator of the working correlation should not be a concern.

EXAMPLE: consultation with a CAM therapist

Previous analysis has highlighted several factors that were associated with CAM use. Used univariate GEE to eliminate some of these, leaving:
- SF-36 Bodily Pain (SF_BP)
- SF-36 General Health (SF_GH)
- area of residence (area)
- back pain in previous 12 months (back)
- allergies in previous 12 months (allergies)
- bowel problems in previous 12 months (bowel)
- memory problems in previous 12 months (memory)

The figures below illustrate the relationship between use of CAM and some of the predictor variables.
Below is the SAS code used to model CAM use using GEE

```sas
proc genmod data=store.combined desc;
  class IDalias area back allergies bowel memory time;
  model CAM = sf_bp sf_gh area back allergies bowel memory time /
    link=logit dist=binomial;
  repeated subject=IDalias/ withinsubject=time type=unstr;
run;
```

Following is the output from this model, plus the output from this model with different working correlation structures.
The parameter estimates and their SEs do not vary much between models using different correlation structures. Based on experience using PROC GENMOD, points to note are:

- PROC GENMOD only outputs the parameter estimates (i.e. no odds ratios).
- The initial output produced by PROC GENMOD is the standard output from a GLM assuming that all observations are independent.
- The resulting estimates of the regression coefficients are used as initial values for the GEE algorithm.
- This initial output should be ignored. In particular, the reported value of the log-likelihood should not be considered part of the GEE output because GEEs provide an alternative to MLE.
- Therefore, to build models with PROC GENMOD, you can’t use the LR statistic, so forced to use Wald statistic only.
- QIC (a comparative statistic similar to AIC) will be available in next version of SAS.

### 3.6.4 GEEs using STATA

STATA may be preferable to SAS for GEE analysis because the Odds Ratios can be easily obtained. Following is an example of how to use STATA for the same model used in the SAS example. Note that the correlation structure is unstructured, the variance-covariance estimation is robust.
• robust option – sandwich estimator, which takes the dependence into account.
  vce = variance-covariance estimation  
  - vce(robust), vce(boot), vce(jack)
• NB. robust takes a lot less time than bootstrap which takes considerably less time than jackknife

To obtain the odds ratios, simply add “eform” to the end of the stata command

```stata
.xi: xtgee cam sf_bp sf_gh area back allergies bowel memory i.time, i(idalias) link(logit) family(binom) corr(uns) t(time) vce(robust) eform
```

```
GEE population-averaged model Number of obs = 26692
Group and time vars: idalias time Number of groups = 12131
Link: logit Obs per group: min = 1
Family: binomial avg = 2.2
Correlation: unstructured max = 3
Wald chi2(9) = 435.09
Scale parameter: 1 Prob > chi2 = 0.0000

(Std. Err. adjusted for clustering on idalias)

| cam | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|-----|-------|-----------|-------|-----|---------------------|
| sf_bp | -.0086577 | .0008968 | -9.65 | 0.000 | -.0104154 | -.0068999 |
| sf_gh | .0056702 | .0011244 | 5.04 | 0.000 | .0034665 | .0078739 |
| area | .2602343 | .0459223 | 5.67 | 0.000 | .1702281 | .3502404 |
| back | .4275419 | .0420903 | 10.16 | 0.000 | .3450464 | .5100375 |
| allergies | .1315758 | .041953 | 3.16 | 0.002 | .0500551 | .2130966 |
| bowel | .1815354 | .0569959 | 3.19 | 0.001 | .0698255 | .2932454 |
| memory | .1169938 | .0459223 | 2.56 | 0.000 | .0394539 | .1945338 |
| _Itime_2 | -.1487356 | .035481 | -4.19 | 0.000 | -.2182771 | -.0791941 |
| _Itime_3 | -.3424092 | .0404002 | -8.48 | 0.000 | -.4215921 | -.2632263 |
| _cons | -2.387357 | .1164923 | -20.49 | 0.000 | -2.615678 | -2.159036 |
```

• Could have also used xtlogit command (pa = population averaged)
• The “xt” series of commands provide tools for analysing cross-sectional time-series (longitudinal) datasets:
  xi: xtlogit cam i.time sf_bp sf_gh area back allergies bowel memory, i(idalias)
  pa corr(uns) vce(robust) or
3.7. Publication Quality Graphs using SAS/Graph by Ian Robinson

3.7.1 Basics behind SAS/Graph
Instances arise where we want to display the results of our analysis in a graphical format. SAS/Graph (add on to SAS/Base) is a package which caters for the need to produce graphics of publication quality. SAS/Graph is a graphics system for displaying data in the form of colour plots, charts, maps and slides on either graphic terminals or hard copy printing devices. A SAS/Graph program, such as PROC GPATH, is like any other SAS procedure. To produce a graph, put your data into a SAS dataset and program the graphic procedure to produce the plot. The SAS code used here for illustrative purposes is taken from a study looking at the changes in health-related quality of life over time among older women in the ALSWH according to their asthma status (Prevalent case at Survey 1, Incident case Survey 2 – Survey 4, Never a case).

3.7.2 Setting the graphics environment
Before any plotting takes place, the graphics environment needs to be defined. SAS divides the graphics environment into two parts – graphics that apply to all applications (global) and graphics that apply to specific applications (local). The global graphics environment is controlled using GOPTIONS. GOPTIONS allows you to set the colour of the background, the text type, fill patterns and symbols.

The local graphics environment covers axes and legends, allowing you to set these according to your preference. The commands to control both settings can be placed anywhere in the SAS program, provided they come before the SAS graphic command. These settings remain in effect until overridden.

Example of SAS code for setting global and local graphics environment:

```sas
GOPTIONS
reset = all ftext = swiss cback = white;
GOPTIONS global setting
symbol1 interpol = hilocj color = red line = 1 value = square ;
symbol2 interpol = hilocj color = green line = 2 value = diamond ;
symbol3 interpol = hilocj color = blue line = 3 value = circle ;

axis1 offset = (10, 10)
label = (height = 1.8 'Year of Survey')
value = (height = 1.4)
minor = none;

axis2 order = (25 to 95 by 5)
value = (height = 1.4)
minor = none
label = (angle = 90 height = 1.8 'SF36 Value');

legend1
Label = (height = 1.8 position = (top center) 'Asthma category')
value = (height = 1.4)
order = ('Never' 'Incident' 'Prevalent')
aver = 1
```

}$

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Example of SAS code to create a graph using SAS GPLOT

```sas
proc gplot data = pfmeans2;
  plot pl*time = incasth / 
    haxis = axis1 
    vaxis = axis2 
    legend = legend1;
run;
```

where  PLOT – plotting variables of interest

HAXIS – horizontal axis statement

VAXIS – vertical axis statement

LEGEND – legend statement

3.7.3 Exporting graphs

In order to make use of SAS/Graph graphics for publication, we need to be able to output the graphics into a form that can readily be included in a Word document. The Output Delivery System (ODS) allows this to be done, by exporting the graphic to a specific location in Rich Text Format (RTF). RTF files can be added to any document. To employ ODS, the output location must first be assigned. Next, open the ODS RTF (including the output location and name of the output) and then include the SAS code for the procedure and close the output file.
SAS code for ODS rtf

```sas
%let path = D:\Example\;
ods rtf file = "&path.GPLOT.rtf";

proc gplot data = pfmeans2;
plot pl*time = incasth /
   haxis = axis1
   vaxis = axis2
   legend = legend1;
run;
ods rtf close;
```

3.7.4 Displaying Multiple Graphs in a single file

Often we create multiple graphics from an analysis. In some instances, it is helpful to display more than one graphic at the same time. PROC GREPLAY allows you to accomplish this by putting the graphs in a single file. To use PROC GREPLAY, there are a few things to note about the way SAS stores graphics created during a session. All graphics created in the current SAS window are stored in a graphic catalogue, gseg, located within the WORK directory. Each graphic has a name, i.e. gchart, gchart1 since created by PROC GCHART. Note the names of the graphics of that are to be displayed together. To arrange graphics, we employ a layout template, located within sashelp folder and titled templt. (Review these templates and note the name of the template of interest).

Below is an example where four GPLOT’s are displayed together using the l2r2s template (two cells on the left, two cells on the right with a space between cells).

**SAS code for PROC GREPLAY:**

```sas
proc greplay igout=work.gseg tc=sashelp.templt template=l2r2s nofs;
treplay 1:gpplot 2:gpplot1 3:gpplot2 4:gpplot3;
run;
```

where
- **IGOUT** - location of the graphics
- **TC** - location of the layout template
- **TEMPLATE** - name of the template to be used
- **NOFS** - tells SAS to use the line mode, allowing the graphics to be displayed properly
- **TREPLAY** - indicate into which cell of the template we want each graphic to appear.
Output for PROC GREPLAY

- Physical Function
- Pain Index
- Role Physical
- General Health
4. MAINTENANCE OF COHORTS, RESPONSE RATES, AND REPRESENTATIVENESS

4.1. Maintenance Strategies

Cohort maintenance and tracking of “return-to-sender” mail continues according to the strategies outlined in previous reports. The office team continues to track all women who responded to Survey 1 in 1996, and who are not known to have died or withdrawn from the project since then. This includes women who did not respond to Survey 2, Survey 3 or Survey 4. Participants for whom we have no current contact details remain in the tracking system unless they are positively identified as deceased, withdrawn, permanently emigrated, or otherwise ineligible or unwilling to participate. Secondary contacts, electoral rolls, and electronic white pages continue to be the main sources of information. Increasingly we are finding email addresses to be useful, especially among the younger women. While in previous years, email addresses seemed to be fairly short-lived and unstable, it now appears that individuals are likely to keep the same email address for some years.
4.2. National Death Index

The National Death Index is used on an annual basis to identify women who are recorded as being deceased. This not only adds to information provided to us by family members, but also provides administrative data on causes of death. A list of 35,717 participants, including unconfirmed deceased participants, and additionally 3,793 participants who have withdrawn from the project was sent to Australian Institute of Health and Welfare (AIHW) in November 2005 for matching against the National Death Index (NDI). In previous years the clerical review of matches was done by AIHW. To cut costs and potentially obtain a more thorough review, this year it was decided that we would do this ourselves. A list of 6,779 matches for 4,249 participants was returned by AIHW in January 2006. There were 2,530 duplicate matches.

The records were coded according to the closeness of the match of our date of birth with the NDI date of birth and the closeness of the match of our surname, first name and middle name with those recorded on the NDI. Those with exactly matching dates of birth and all names were taken as deceased (550 records) while combinations of close date of birth matches and close name matches were selected for checking (1888 records). A strategy for selecting correct matches was used and in cases where there was any doubt that the deceased person was one of our participants the match was rejected. Each match accepted was checked to see if they were a WHA known deceased participant or a new deceased participant. The summary of results is shown in the table below.

<table>
<thead>
<tr>
<th>Confirmed deceased</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td>New deceased</td>
<td>132</td>
</tr>
<tr>
<td>Withdrawn deceased</td>
<td>415</td>
</tr>
<tr>
<td>Doubtful match</td>
<td>1717</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2438</td>
</tr>
</tbody>
</table>

The 415 who have withdrawn, and then died, represent 11% of the total number of 3,793 who have withdrawn. Data on deaths of all the original participants in ALSWH are required for survival analysis of women with chronic diseases such as diabetes and heart disease.

The new deceased details were added to the table of deceased participants in our database and a new table recording the details of withdrawn and subsequently deceased participants added to the database. We now have a total number of 2304 deceased participants and 57 (2.5%) of these have never been confirmed with the NDI.

4.2.1 Cause of Death Codes

A list of 2664 participant details was sent to AIHW to obtain cause of death codes (COD codes). Codes were returned for 1901 deaths. There can be up to 19 causes of death. The first cause of death is the underlying cause of death. All others are additional causes of death. Multiple cause of death coding was used from 1997 onwards. In some instances the cause of death cannot be coded from the death certificate.
The codes for causes of death depend on when the person died and when their record was placed on the NDI. Those deaths that were registered in or before 1996 are recorded in ICD9, those registered in 1997 and 1998 are a combination of ICD9 and ICD10 and those registered from 1999 onwards are recorded in ICD10.

Of the 763 deaths without COD codes, 22 had dates of death before Jan 2004. As the NDI COD codes lag behind the registration of deaths by up to 2 years the cause of death codes for the remaining 741 will be obtained from AIHW over the course of the next two years.

The next round of matching of the women in our project to the NDI will take place in November 2006 and will be described in the June 2007 Technical Report.
4.3. Update of Sample and Response rates

4.3.1 Survey 1 1996

Information provided in early reports has been repeated and updated here for completeness. The numbers provided in the Tables are up to date as at September 2006.

More than 40,000 women responded to Survey 1 of the main cohorts in 1996. Because of uncertainties about the accuracy of the Medicare database (which was used as the sampling frame for the stratified random samples), response rates cannot be exactly specified. We have estimated that 41%-42%, 53-56%, and 37-40% of the Younger, Mid-age, and Older women, respectively, responded to the initial invitation to participate. Confidentiality restrictions meant that the names of the selected women were unknown to researchers. Usual methods of encouraging participation such as by telephone could not be used. The response rates were pleasing given that the invitation included a request for women to participate in the longitudinal study for up to 20 years.

In light of these response rates, it is important to assess any response bias so that the generalisability of the study findings can be determined. A comparison of the demographic characteristics of respondents and non-respondents was not possible because privacy guidelines prevented the researchers from having any information about women who were selected to receive an invitation but did not respond. We were able, however, to obtain aggregate data for non-respondents’ use of health services (from the Australian Medicare database). These data suggest that there are small differences in use of health services among respondents and non-respondents, with non-respondents less likely, for example, to have visited a medical specialist in the last 2 years (Mid-age, 49% versus 54%; Older, 65% versus 72%). There was not a significant difference in health service use between respondents and non-respondents from the younger age group.

A proportion of this difference may be explained by the fact that some women who were selected may no longer be living in Australia or may have died, as the Medicare database is not routinely linked to emigration records or the National Death Index in Australia.

Although we were not able to ascertain reasons for non-response (because we were not allowed to know any details about the selected women), we were able, through comparison with the 1996 census data, to confirm that the participants in each of the cohorts are reasonably representative of the general population of women of the same age in Australia (see Table 4.2). There is some response bias in terms of overrepresentation of women with tertiary education and under-representation of some groups of immigrant women.

This information and Table 4.2 are taken from Brown, W. J., Dobson, A. J., Bryson, L., & Byles, J. E. Women's Health Australia: on the progress of the main cohort studies. Journal of Women's Health & Gender-Based Medicine, 1999; 8(5): 681-688.

4.3.2 Sample for the longitudinal study

Retention and representativeness of the sample

Some women only completed Survey 1 in 1996 and did not provide any contact details (532 Younger women, 383 Mid-age women and 508 Older women). Hence, the numbers of women actually enrolled in the ALSWH were 14,247 Younger women, 13,716 Mid-age women and 12,432 Older women.
Table 4.2  Socio-demographic characteristics of the Younger, Mid-age and Older respondents and for women of the same age in the general population (ABS Census, 1996).

<table>
<thead>
<tr>
<th></th>
<th>Young (18 - 23 years)</th>
<th>Mid-age (45 - 50 years)</th>
<th>Older (70-75 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WHA</td>
<td>ABS</td>
<td>WHA</td>
</tr>
<tr>
<td>Number</td>
<td>14,762</td>
<td>759,880</td>
<td>14,072</td>
</tr>
<tr>
<td>Main current employment status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed full-time</td>
<td>31.3</td>
<td>32.4</td>
<td>36.1</td>
</tr>
<tr>
<td>Employed part-time</td>
<td>19.2</td>
<td>26.4</td>
<td>30.1</td>
</tr>
<tr>
<td>Worked (without pay)employed (other)</td>
<td>1.9</td>
<td>1.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>6.4</td>
<td>10.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Total not in labour force</td>
<td>30.4</td>
<td>26.3</td>
<td>21.8</td>
</tr>
<tr>
<td>Not stated</td>
<td>1.8</td>
<td>2.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Highest qualification completed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No post school qualification</td>
<td>69.8</td>
<td>69.3</td>
<td>63.1</td>
</tr>
<tr>
<td>Trade/Apprenticeship</td>
<td>2.4</td>
<td>7.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Certificate/Diploma</td>
<td>15.1</td>
<td>6.0</td>
<td>15.9</td>
</tr>
<tr>
<td>University degree</td>
<td>12.1</td>
<td>7.7</td>
<td>16.3</td>
</tr>
<tr>
<td>Other</td>
<td>0.6</td>
<td>9.1</td>
<td>1.2</td>
</tr>
<tr>
<td>(not stated, inadequately described)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal/Torres Strait Islander</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Indigenous</td>
<td>97.9</td>
<td>94.9</td>
<td>98.1</td>
</tr>
<tr>
<td>Aboriginal or TSI</td>
<td>1.6</td>
<td>2.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Not stated</td>
<td>0.5</td>
<td>2.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>88.6</td>
<td>77.8</td>
<td>69.0</td>
</tr>
<tr>
<td>Other English speaking</td>
<td>3.5</td>
<td>4.1</td>
<td>13.9</td>
</tr>
<tr>
<td>Other Europe</td>
<td>1.3</td>
<td>1.6</td>
<td>8.7</td>
</tr>
<tr>
<td>Asia</td>
<td>3.6</td>
<td>10.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Other/not stated</td>
<td>3.0</td>
<td>6.0</td>
<td>4.2</td>
</tr>
<tr>
<td>Present marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>8.2</td>
<td>9.0</td>
<td>75.1</td>
</tr>
<tr>
<td>Separated/divorced</td>
<td>0.0</td>
<td>1.1</td>
<td>13.2</td>
</tr>
<tr>
<td>Widowed</td>
<td>0.0</td>
<td>0.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Never married</td>
<td>79.0</td>
<td>89.8</td>
<td>3.9</td>
</tr>
<tr>
<td>De Facto (not collected by ABS)</td>
<td>12.0</td>
<td>-</td>
<td>5.7</td>
</tr>
<tr>
<td>Present housing situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House</td>
<td>74.3</td>
<td>79.4</td>
<td>84.7</td>
</tr>
<tr>
<td>Flat/apartment/unit</td>
<td>20.0</td>
<td>14.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Other</td>
<td>5.7</td>
<td>6.6</td>
<td>8.2</td>
</tr>
</tbody>
</table>

Among the Younger women, 69% responded to Survey 2 in 2000 and 65% to Survey 3 in 2003 (Table 4.3). This retention compares well with other surveys of this highly mobile age group. The major reason for non-response among the Younger women was that the research team was unable to contact the women (21% of eligible women at Survey 2 and 28% at Survey 3), despite using all possible methods of maintaining contact. Women in their twenties are characterised by high levels of mobility, change of surnames on marriage, often not having telephone listings and not being registered to vote and making extended trips outside Australia for work, education or recreation.
Table 4.3  Participation and retention of Younger women.

<table>
<thead>
<tr>
<th></th>
<th>Survey 1</th>
<th>Survey 2</th>
<th>Survey 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible at previous survey</td>
<td>14247</td>
<td>14116</td>
<td></td>
</tr>
<tr>
<td>Ineligible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>deceased between surveys</td>
<td>22</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>frailty (e.g. intellectual disability)</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>withdrawn before mailout survey date</td>
<td>106</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>Total ineligible</td>
<td>131</td>
<td>231</td>
<td></td>
</tr>
<tr>
<td>Eligible at current survey</td>
<td>14116</td>
<td>13885</td>
<td></td>
</tr>
<tr>
<td>Non-respondents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>withdrawn from the project</td>
<td>124</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>contacted but did not return survey</td>
<td>1332</td>
<td>653</td>
<td></td>
</tr>
<tr>
<td>unable to contact participant</td>
<td>2972</td>
<td>3951</td>
<td></td>
</tr>
<tr>
<td>Total non-respondents</td>
<td>4428</td>
<td>4804</td>
<td></td>
</tr>
<tr>
<td>Respondents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>completed survey</td>
<td>14247</td>
<td>9688</td>
<td>9081</td>
</tr>
<tr>
<td>Retention rate as % eligible</td>
<td></td>
<td>68.6%</td>
<td>65.4%</td>
</tr>
</tbody>
</table>

Demographic characteristics (country of birth, marital status, education, employment and lone person household) of the Younger respondents at Survey 1 (1996) and Survey 2 (2000) were compared with those of women of the same age in the Australian population, using data from the 1996 and 2001 Censuses respectively. The comparisons revealed few differences however there was some under-representation of women from non-English language countries at both surveys, a not unexpected finding given that Medicare routinely excludes overseas students. The disparity in education increased between 1996 and 2001. Whereas at the 1996 Census almost 70% of young women had no post school qualifications (ALSWH and the general population), 31% and 49% had no post school qualifications in the ALSWH sample in 2000 and the 2001 Census respectively. Some of these differences will be due to overseas graduates returning home and Australian graduates working overseas. ALSWH women were less likely to be employed compared to women of the same age in the 1996 Census (52% versus 60%) but more likely to be employed than women of the same age in the 2001 Census (85% versus 67%).
### Table 4.4. Participation and retention of Mid-age women.

<table>
<thead>
<tr>
<th></th>
<th>Survey 1</th>
<th>Survey 2</th>
<th>Survey 3</th>
<th>Survey 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible at previous survey</td>
<td>13716</td>
<td>13605</td>
<td>13309</td>
<td></td>
</tr>
<tr>
<td>Ineligible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deceased between surveys</td>
<td>50</td>
<td>66</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Frailty (e.g. dementia, stroke)</td>
<td>7</td>
<td>14</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Withdrawn before mailout survey date</td>
<td>54</td>
<td>216</td>
<td>230</td>
<td></td>
</tr>
<tr>
<td>Total ineligible</td>
<td>111</td>
<td>296</td>
<td>331</td>
<td></td>
</tr>
<tr>
<td>Eligible at current survey</td>
<td>13605</td>
<td>13309</td>
<td>12978</td>
<td></td>
</tr>
<tr>
<td>Non-respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withdrawn from the project</td>
<td>156</td>
<td>155</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Contacted but did not return survey</td>
<td>253</td>
<td>999</td>
<td>886</td>
<td></td>
</tr>
<tr>
<td>Unable to contact participant</td>
<td>858</td>
<td>926</td>
<td>1050</td>
<td></td>
</tr>
<tr>
<td>Total non-respondents</td>
<td>1267</td>
<td>2080</td>
<td>2072</td>
<td></td>
</tr>
<tr>
<td>Respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed survey</td>
<td>13716</td>
<td>12338</td>
<td>11229</td>
<td>10906</td>
</tr>
<tr>
<td>Retention rate as % eligible</td>
<td>90.7%</td>
<td>84.4%</td>
<td>84.0%</td>
<td></td>
</tr>
</tbody>
</table>

Retention has been much higher among the Mid-age women; 91% responded to Survey 2 in 1998 and 84% responded to Survey 3 in 2001 and Survey 4 in 2004 (Table 4.4). The major reasons for non-response among Mid-age women was that the research team was unable to contact the women (6%, 7% and 8% of eligible women at Survey 2, Survey 3 and Survey 4 respectively) and non-return of questionnaires by women who could be contacted (2%, 8% and 7% of eligible women at the second, third and fourth surveys). Mid-age women typically lead busy lives often working, as well as caring for parents and their children. The women who could not be contacted were more likely to be separated, divorced or widowed.

Data from the 1996 and 2001 Censuses were used to compare demographic characteristics (country of birth, marital status, education, employment and lone person household) of women of the same age in the Australian population with Mid-age respondents at Survey 1 (1996) and Survey 3 (2001). There were few differences, however there was some under-representation of women from non-English language countries and women who were separated or divorced at both surveys.
### Table 4.5 Participation and retention of Older women.

<table>
<thead>
<tr>
<th></th>
<th>Survey 1</th>
<th>Survey 2</th>
<th>Survey 3</th>
<th>Survey 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible at previous survey</td>
<td>12432</td>
<td>11538</td>
<td>10187</td>
<td></td>
</tr>
<tr>
<td>Ineligible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>deceased between surveys</td>
<td>529</td>
<td>569</td>
<td>766</td>
<td></td>
</tr>
<tr>
<td>frailty (e.g. dementia, stroke)</td>
<td>101</td>
<td>262</td>
<td>380</td>
<td></td>
</tr>
<tr>
<td>withdrawn before mailout survey date</td>
<td>264</td>
<td>520</td>
<td>509</td>
<td></td>
</tr>
<tr>
<td><strong>Total ineligible</strong></td>
<td><strong>894</strong></td>
<td><strong>1351</strong></td>
<td><strong>1655</strong></td>
<td></td>
</tr>
<tr>
<td>Eligible at current survey</td>
<td>11538</td>
<td>10187</td>
<td>8532</td>
<td></td>
</tr>
<tr>
<td>Non-respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>withdrawn from the project</td>
<td>314</td>
<td>385</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>contacted but did not return survey</td>
<td>481</td>
<td>860</td>
<td>592</td>
<td></td>
</tr>
<tr>
<td>unable to contact participant</td>
<td>309</td>
<td>295</td>
<td>516</td>
<td></td>
</tr>
<tr>
<td><strong>Total non-respondents</strong></td>
<td><strong>1104</strong></td>
<td><strong>1540</strong></td>
<td><strong>1374</strong></td>
<td></td>
</tr>
<tr>
<td>Respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>completed survey</td>
<td>12432</td>
<td>10434</td>
<td>8647</td>
<td>7158</td>
</tr>
<tr>
<td><strong>Retention rate as % eligible</strong></td>
<td><strong>90.4%</strong></td>
<td><strong>84.9%</strong></td>
<td><strong>83.9%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Of the Older women, 90% responded to Survey 2 in 1999, 85% to Survey 3 in 2002 and 84% to Survey 4 in 2005 (Table 4.5). Among Older women the major reason for non-response was non-return of the questionnaire (4%, 8% and 7% of eligible women at Surveys 2, 3 and 4 respectively) although increasingly the participant can not be contacted (3% at Surveys 2 and 3 and 6% at Survey 4). Non-respondent women tended to report poorer self-rated health at Survey 1 than respondents.

Demographic characteristics (country of birth, marital status, education and lone person household) of the Older respondents at Survey 1 (1996) and Survey 3 (2002) were compared with those of women of the same age in the Australian population, using data from the 1996 and 2001 Censuses respectively. Comparisons showed few differences. There was some under-representation of women from non-English speaking countries in the ALSHW sample at both surveys. Comparisons are difficult for marital status and educational qualifications due to the high level of missing data in the Census.
5. DATA LINKAGE

5.1. Progress on Medicare/PBS Linkage for all ALSWH participants

A summary of progress on developing ethically appropriate strategies for linking all participants’ survey data with Medicare and PBS unit records prospectively from 2005 onwards was presented to the Project Advisory Committee (PAC) meetings on 9 February 2006 and 3 August 2006. The Department of Health and Ageing has sought and received legal advice that under the best practice protocol for record linkage, the ALSWH participants do not need to provide consent for the provision of de-identified data. In this case, the women of the ALSWH will be given the option to 'opt-out'. The annual newsletters will continue to inform the women that this linkage is being negotiated and offer the participants the opportunity to opt-out of the MBS/PBS data linkage.

A draft proposal by the Department to establish an ALSWH Data Linkage Unit to facilitate the provision of the MBS and PBS data for ALSWH participants is still under review. The Legal section within DoHA is actively involved in the establishment of the Unit to ensure that all regulations are being adhered to in the provision of data. A meeting between the ALSWH Research Team and the Department was held following the PAC meeting in August to further discuss some of the technical aspects of the steps required to provide the de-identified MBS/PBS data. These discussions are ongoing.

As explained to the ALSWH participants in the 2004, 2005 and 2006 newsletters, the research based on the linked data will be conducted in accordance with relevant privacy requirements and other legislation protecting this information and is subject to final approval being granted by government and university ethics committees. The mechanisms to link to the Aged Care dataset and other sources of health service utilisation data will be explored once the MBS/PBS linkage has been established.
5.2 Medicare/PBS data received for consenting ALSWH participants

In this six-month period, Medicare/DVA and PBS/RPBS claims data for 2005 have been received from Medicare Australia, and the data files have been cleaned, checked and readied for analysis. To date, 4,887,806 records have been received and a summary of the number of consenting women and the number of records received each year since 1995 is shown in Tables 5.2.1 to 5.2.3.

Table 5.1 Number of consenting ALSWH women 1995-2005 (new consent period began in 2002)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger</td>
<td>5,260</td>
<td>6,219</td>
<td>6,203</td>
<td>4,356</td>
<td>4,357</td>
<td>4,349</td>
</tr>
<tr>
<td>Mid-age</td>
<td>7,898</td>
<td>8,883</td>
<td>8,825</td>
<td>7,276</td>
<td>7,276</td>
<td>7,275</td>
</tr>
<tr>
<td>Older</td>
<td>6,542</td>
<td>7,531</td>
<td>7,395</td>
<td>5,594</td>
<td>5,522</td>
<td>5,494</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19,700</td>
<td>22,633</td>
<td>22,423</td>
<td>17,226</td>
<td>17,15</td>
<td>17,11</td>
</tr>
</tbody>
</table>

Table 5.2 Number of Medicare claims received 1995-2001 (first consent period)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger</td>
<td>48,790</td>
<td>53,217</td>
<td>62,554</td>
<td>63,375</td>
<td>64,989</td>
<td>64,706</td>
<td>65,628</td>
</tr>
<tr>
<td>Mid-age</td>
<td>85,955</td>
<td>87,733</td>
<td>100,963</td>
<td>103,924</td>
<td>107,687</td>
<td>110,963</td>
<td>117,994</td>
</tr>
<tr>
<td>Older</td>
<td>115,272</td>
<td>118,314</td>
<td>147,765</td>
<td>156,396</td>
<td>161,948</td>
<td>171,689</td>
<td>177,270</td>
</tr>
<tr>
<td>TOTAL</td>
<td>250,017</td>
<td>259,264</td>
<td>311,282</td>
<td>323,695</td>
<td>334,624</td>
<td>347,358</td>
<td>360,892</td>
</tr>
</tbody>
</table>

Table 5.3 Number of Medicare claims received 2002-2005 (new consent period)

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger</td>
<td>49,480</td>
<td>49,957</td>
<td>57,005</td>
<td>62,685</td>
</tr>
<tr>
<td>Mid-age</td>
<td>99,430</td>
<td>102,356</td>
<td>124,053</td>
<td>131,396</td>
</tr>
<tr>
<td>Older</td>
<td>150,853</td>
<td>156,553</td>
<td>217,584</td>
<td>218,192</td>
</tr>
<tr>
<td>TOTAL</td>
<td>299,763</td>
<td>308,866</td>
<td>398,642</td>
<td>412,273</td>
</tr>
</tbody>
</table>

Table 5.4 Number of PBS claims received for analysis 2002-2005 (new consent period)

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger</td>
<td>9,964</td>
<td>9,587</td>
<td>10,128</td>
<td>9,849</td>
</tr>
<tr>
<td>Mid-age</td>
<td>69,687</td>
<td>77,609</td>
<td>84,587</td>
<td>82,996</td>
</tr>
<tr>
<td>Older</td>
<td>219,862</td>
<td>230,817</td>
<td>239,902</td>
<td>236,142</td>
</tr>
<tr>
<td>TOTAL</td>
<td>299,513</td>
<td>318,013</td>
<td>334,617</td>
<td>328,987</td>
</tr>
</tbody>
</table>
5.2.1 Summarising the Medicare claims data
A large number of new variables are created for each woman for each year from the Medicare/DVA records. These new variables for each woman include:

- the number of GP attendances;
- total GP charges;
- total number of bulk-billed attendances;
- total out of pocket costs for GP visits;
- total number of GPs visited;
- number of female GP attendances;
- average out of pocket cost per GP attendance
- use of particular services such as annual health assessments.

5.2.2 Summarising the PBS claims data
The WHO uses the Anatomical Therapeutic Chemical (ATC) classification system and this system is internationally recognized as the standard classification system for drug consumption studies. The PBS/RPBS claims data have been matched to a file of ATC codes and PBS items numbers have been recoded, where possible. In the ATC classification system, the drugs are divided into different groups according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties.

Several projects have been using the linked data (see below), resulting in several conference presentations during 2006 and submitted papers.

A166  Comparison of self-reported medications and PBS records
A158  Use of the polypill among older women
A150  Adequacy and equity of treatment for depression among older Australian women
A134  Health care for women with diabetes living in rural areas
A133  Women and arthritis: the burden of suffering for older Australian women.
A115  Characteristics of frequent attenders at general practice
A104  Health costs of inactivity and overweight
A077  Use of Enhanced Primary Care services by older Australian women

For example, in Project A134, the use of particular types of medications for women with diabetes and without diabetes have been studied. To illustrate the types of analyses being undertaken, Figure 5.1 and Figure 5.2 show the percent of older women with and without diabetes (determined by their survey responses) taking commonly prescribed medications (determined from their PBS records).
Figure 5.1  Percent of older ALSWH women with diabetes (broken line) and without diabetes (solid line) taking ACE Inhibitors.

Figure 5.2  Percent of older ALSWH women with diabetes (broken line) and without diabetes (solid line) taking lipid modifying agents.

These projects are continuing and will be considerably enhanced when data for all ALSWH participants become available under the new protocol that is currently being negotiated.
6. REPORTS

6.1. Trends in women’s health: Results from the Australian Longitudinal Study on Women’s Health: chronic conditions, risk factors and health behaviours - Summary of findings.

Authors: Wendy Brown, Julie Byles, Gretchen Carrigan, Annette Dobson, Xenia Dolja-Gore, Richard Gibson, Richard Hockey, Jennifer Powers, Anne Russell, Melanie Spallek & Anne Young

Report prepared for the Department of Health and Ageing

The Australian Longitudinal Study on Women’s Health (ALSWH) is a longitudinal population-based survey funded by the Australian Government Department of Health and Ageing. The project began in 1996 and involves 3 large cohorts of Australian women representing three generations:
- Younger women, aged 18 to 23 years when recruited in 1996 (n=14247)
- Mid-aged women, aged 45 to 50 years in 1996 (n=13716)
- Older women, aged 70 to 75 years in 1996 (n=12432).

The women have been surveyed four times over the past 10 years providing a large amount of data on lifestyles and health outcomes (see Table 6.1).

This report addresses the following questions:
- What are the prevalence and incidence rates of selected chronic conditions among the three age groups of participants in the ALSWH, and how have these changed over the first 9 years of the study?
- What are the characteristics of women with different chronic conditions?
- What long-term effects do risk factors have on women’s health?

The following conditions were selected for this report:
- heart disease
- hypertension
- osteoporosis
- diabetes
- asthma
- arthritis.

In addition trends are presented for summary measures of
- mental and physical health
- use of health services
- activities aimed at disease prevention
- some behavioural risk factors
Table 6.1 Schedule of Surveys for the Australia Longitudinal Study on Women’s Health

<table>
<thead>
<tr>
<th>Stage</th>
<th>Survey 1</th>
<th>Survey 2</th>
<th>Survey 3</th>
<th>Survey 4</th>
<th>Survey 5</th>
<th>Survey 6</th>
<th>Survey 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>yrs</td>
<td>18-23</td>
<td>22-27</td>
<td>25-30</td>
<td>28-33</td>
<td>31-36</td>
<td>34-39</td>
<td>37-42</td>
</tr>
<tr>
<td>yrs</td>
<td>45-50</td>
<td>47-52</td>
<td>50-55</td>
<td>53-58</td>
<td>56-61</td>
<td>59-64yrs</td>
<td>62-67</td>
</tr>
<tr>
<td>yrs</td>
<td>70-75</td>
<td>73-78</td>
<td>76-81</td>
<td>79-84</td>
<td>82-87</td>
<td>85-90</td>
<td>88-93</td>
</tr>
</tbody>
</table>

6.1.1 Trends in women’s health: time and life stage

Current models of health promotion emphasise that health promotion needs to start at conception and continue across the life course.

At different stages of life the focus for prevention changes as summarised in Table 6.2. Our results are reported using this framework.

Table 6.2 A life course model of health promotion

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early life and adult capacity</td>
<td>Reducing health risks and maintaining capacity</td>
<td>Minimising the impact of chronic conditions</td>
</tr>
<tr>
<td>• Building resources (nutrition, physical activity, healthy weight and education)</td>
<td>• Avoiding damage (from smoking and alcohol, hypertension or high cholesterol) • Reducing loss of health (good nutrition and maintaining physical and mental activity)</td>
<td>• Good management of chronic conditions • Protection against injury and other stress • Physical and social support</td>
</tr>
</tbody>
</table>

6.1.2 STAGE 1: Early life and adult capacity:

Weight and Body Mass Index (Figure 6.1)
- In Survey 1, Younger women had the lowest average weight and BMI.
- Younger women’s weight increased over time. At Survey 1, 1 in 10 was underweight and this halved to 1 in 20 by Survey 3.
- At Survey 1, 20% of Younger women were classified as overweight or obese. This increased to more than 30% during the first 9 years of the study.

Physical Activity
- Just over 1 in 2 women in the Younger cohort (55%) were classified as 'active' according to the National Physical Activity Guidelines for Australians.
Education

Education mainly obtained in early life is strongly associated with health in later life. Examples include:

- Mid-aged and Older women with lower levels of education were more likely to report having hypertension at Survey 1.
- The prevalence and incidence of diabetes were significantly higher for Mid-aged and Older women with lower levels of education.
- There was significantly higher prevalence and incidence of asthma among Younger women with lower levels of education.
- Mid-aged women with lower levels of education had statistically higher prevalence and incidence of osteoporosis than more educated women in this age cohort.

Figure 6.1 Percentages of women in each BMI category (based on self-reported height and weight) for each age cohort for Surveys 1, 2, 3 & 4 (Mid-aged only), from 1996 to 2004.

6.1.3 STAGE 2: Reducing health risks and maintaining capacity

Physical Activity (Figure 6.2)

- While the population prevalence of physical activity appeared to be constant over time in the young women, (55% 'active' in 2000 and 2003), about 1 in 4 young women (22.3%) changed their activity status from 'inactive' to 'active', and the same proportion (22.4%) moved from being 'active' to 'inactive'. Only one third (36.4%) were classified as 'active' at Surveys 2 and 3.
- While the proportion of Mid-aged women classified as 'active' at Survey 3 (2001:46%) was lower than the proportion of Younger women classified as 'active' at Survey 2 (2000: 55%), at the subsequent surveys the proportion of Mid-aged and Younger women classified as 'active' was almost the same (Mid-aged 2004: 54%; Younger 2003: 55%).
- The Mid-aged women have become more active over time. The increasing levels of physical activity in this group can be largely attributed to an increase in time spent walking.
- Population levels of physical activity decreased in the Older cohort. This was driven by an increasing number of women who were in the 'none' category, rather than a decrease in activity time in those women who remained active.

**Figure 6.2** Percentages of women in each physical activity category for all age cohorts over time.

**Fruit and Vegetable consumption**
- Mid-aged women ate more fruit and vegetables than Younger women.
- Less than 2 in 5 Younger women ate 2 or more pieces of fresh fruit per day, the amount recommended by the Australian Government Department of Health and Ageing’s Go for 2&5™ campaign.
- More than half of the Mid-aged women ate 2 or more pieces of fresh fruit per day.
- Only 9% of Younger women and 11% of Mid-aged women ate the recommended 5 or more different vegetables per day.

**Smoking (Figure 6.3)**
- The proportion of smokers in the Younger cohort decreased over time. At Survey 3, fewer than 1 in 4 Younger women were classified as smokers. 1 in 4 Younger women changed their smoking habits over time.
- The smoking habits of Mid-aged women were fairly consistent over time.
Figure 6.3 Percentages of women in each cigarette smoking category for each age cohort over time.

Alcohol

- A clear majority of respondents to the surveys were non-drinkers or drank at low levels of long-term risk, although some of these women reported short-term risk drinking (having 5 or more drinks on one occasion).
- Among Younger and Mid-aged women, half were low risk drinkers, one third occasionally drank and only 5% drank at levels that were risky to their long-term health.
- Among Older women, one third were low risk drinkers, one quarter occasionally drank, and almost one third were non-drinkers. Only 3% drank at risky levels.
- Consuming alcohol at levels of risk to short-term health (5 or more drinks on one occasion) at least weekly was more common among Younger women (18%) than Mid-aged (6%) or Older women (2%). Younger women were more likely than Mid-aged or Older women to decrease their alcohol consumption from levels that were risky to their health.
- Non-drinkers were more likely to be non-smokers and from a non-English speaking background, and among Younger women, to be pregnant or mothers.
- Low risk drinkers (up to 2 drinks a day) had more education, exercised more often and had better self-rated health than non-drinkers.
Table 6.3 Relationships between prevalence (existing cases) and incidence (new cases) of chronic conditions and risk factors for Younger women in the Study, Surveys 1 to 3.

<table>
<thead>
<tr>
<th>Condition</th>
<th>BMI</th>
<th>Physical activity</th>
<th>Smoking</th>
<th>Alcohol</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypertension</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing</td>
<td>↑↑↑↑#</td>
<td>↑↑↑↑</td>
<td>↑↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>↑↑</td>
<td>↑</td>
<td>↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heart disease</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing</td>
<td>↑↑↑↑</td>
<td>↑↑↑↑</td>
<td>↑↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>↑↑↑↑</td>
<td>↑↑↑↑</td>
<td>↑↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asthma</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing</td>
<td>↑↑↑↑</td>
<td>↑↑↑↑</td>
<td>↑↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>↑↑↑↑</td>
<td>↑↑↑↑</td>
<td>↑↑</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Arrows represent the strength and direction of association between chronic conditions and risk factors. Empty cells indicate that there is no relationship between the condition and risk factor.

Illicit drug use

- 2 in 5 women in the Younger cohort had never used illicit drugs of any kind.
- Of those Younger women who had used drugs, a majority exclusively used marijuana.
- There was an overall trend of decreased drug use in the Younger cohort with the percentage of past (but not present) users increasing from 29% to 41%.
- The prevalence of multiple drug use was relatively consistent over time at around 15%. Around 2 in 3 women who were recent multiple drug users at Survey 2 reported being a recent user at Survey 3 also.
- Women in rural areas were less likely to have ever used drugs or to have been multiple drug users than their urban counterparts.
## Table 6.4 Relationships between prevalence (existing cases) and incidence (new cases) of chronic conditions and risk factors for Mid-aged women in the Study, Surveys 1 to 4.

<table>
<thead>
<tr>
<th>Chronic conditions</th>
<th>BMI</th>
<th>Physical activity</th>
<th>Smoking</th>
<th>Alcohol</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>Existing</td>
<td>↑↑↑↑#</td>
<td>↓</td>
<td>U##</td>
<td>↓</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>↑↑</td>
<td></td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Heart disease</td>
<td>Existing</td>
<td>↑↑↑</td>
<td>↓↓</td>
<td>↑↑</td>
<td>↓</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>↑↑↑</td>
<td>↓↓</td>
<td>↑↑</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>Existing</td>
<td>↑↑↑</td>
<td></td>
<td>↓↓↓↓</td>
<td>↓↓</td>
</tr>
<tr>
<td></td>
<td>New</td>
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<td></td>
<td>U</td>
<td>↓↓</td>
</tr>
<tr>
<td>Asthma</td>
<td>Existing</td>
<td>↑↑↑</td>
<td>↓↓</td>
<td>↑</td>
<td>U</td>
</tr>
<tr>
<td></td>
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<td>↓↓</td>
<td></td>
<td>U</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>Existing</td>
<td>↑</td>
<td></td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>↑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>Existing</td>
<td>↑↑↑</td>
<td>↑</td>
<td></td>
<td>↓↓</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>↑↑</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Arrows represent the strength and direction of association between chronic conditions and risk factors. 
## U's represent the strength of a U-shaped relationship, indicating that risk of disease was higher for non-drinker and risky drinkers, but lower for moderate drinkers. Empty cells indicate that there is no relationship between the condition and risk factor.

### Chronic conditions

- Common risk factors are strongly associated with the prevalence and incidence of chronic conditions, which are shown in Tables 6.3, 6.4 and 6.5 for the Younger, Mid-aged and Older cohorts respectively.
- Overweight and obesity were significantly associated with increased prevalence and incidence rates of hypertension, heart disease, diabetes, asthma and arthritis in all cohorts.
- For women in the Mid-aged cohort, there was a moderate association between tobacco smoking and heart disease.
Table 6.5 Relationships between prevalence (existing cases) and incidence (new cases) of chronic conditions and risk factors for Older women in the Study, from Surveys 1 to 3.

<table>
<thead>
<tr>
<th></th>
<th>BMI</th>
<th>Physical activity</th>
<th>Smoking</th>
<th>Alcohol</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypertension</strong></td>
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<td></td>
<td></td>
<td>U##</td>
<td>↓</td>
</tr>
<tr>
<td>Existing</td>
<td>➧➡➡#</td>
<td>➪</td>
<td>U</td>
<td></td>
<td>↓</td>
</tr>
<tr>
<td>New</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Heart disease</strong></td>
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<td></td>
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<td>↓</td>
</tr>
<tr>
<td>Existing</td>
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<td>➪</td>
<td></td>
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</tr>
<tr>
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</tr>
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<td></td>
<td></td>
<td>U</td>
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</tr>
<tr>
<td><strong>Asthma</strong></td>
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<td>➪</td>
</tr>
<tr>
<td>Existing</td>
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<td>➪</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td><strong>Osteoporosis</strong></td>
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</tr>
<tr>
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<td>➪</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<td></td>
</tr>
<tr>
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</tr>
<tr>
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<td>➪</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Arrows represent the strength of association between chronic conditions and risk factors.
## U’s represent the strength of a U-shaped relationship, indicating that risk of disease was higher for non-drinkers and risky drinkers, but lower for moderate drinkers. Empty cells indicate that there is no relationship between the condition and risk factor.

- There was a U-shaped association between hypertension and alcohol consumption for Mid-aged women.
- Highest prevalence and incidence rates for the Mid-aged and Older cohorts were found for hypertension and arthritis, whereas for the Younger cohort the highest rates were for asthma.

**Physical and mental health**

Higher mental and physical health scores reflect better health.

- Mental Health scores increased over time for the Younger and Mid-aged women and tended to be higher in those who were partnered.
- In the Older cohort mental health scores were highest in women who had never married.
- Women who drank three or more drinks a day tended to be smokers, and had poorer mental health and among Younger women, were more likely to have used illicit drugs.
- Mid-aged and Older women were more likely to experience declining measures of physical health than Younger women.
- Marriage is associated with better physical and mental health of Mid-aged women.
- Physical health scores for Younger women did not change over time, whereas physical health scores declined for Mid-aged and Older women.
- The associations between chronic conditions and physical and mental health scores are shown in Table 6.6.
Table 6.6 Reduction in physical and mental health associated with chronic conditions.

<table>
<thead>
<tr>
<th></th>
<th>Younger</th>
<th>Mid-aged</th>
<th>Older</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical</td>
<td>Mental</td>
<td>Physical</td>
</tr>
<tr>
<td>Hypertension</td>
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</tr>
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</tr>
<tr>
<td>Diabetes</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Existing</td>
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<td>↓↓</td>
<td>↓</td>
</tr>
<tr>
<td>Asthma</td>
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*Questions on osteoporosis were not included in the surveys for the Younger cohort
**Questions on arthritis were not included in the surveys for the Younger cohort

Trends in women’s health: urban, rural and remote areas
There were very few differences in health across urban, rural and remote areas.

- There was a higher prevalence of osteoporosis among the Mid-aged and Older women from urban areas. However this association is likely to be affected by higher rates of bone density assessment in urban areas.
- The only other condition for which the prevalence varied by area of residence was diabetes in the Younger women, where there was a much higher prevalence in small rural centres.
- Younger women living outside urban and large rural areas were more likely to be current smokers or ex-smokers than their urban counterparts.
- On the other hand, women living in urban areas were more likely than rural women to have tried illicit drugs at some time in their lives, and had the highest level of recent multiple drug use.

6.1.4 STAGE 3: Minimising the impact of chronic conditions

- In the Older and Younger cohorts women with hypertension, heart disease or diabetes (existing and new cases) were more likely to:
  - Consult a GP more than 4 times in the previous year.
  - Visit a specialist at least once during the previous year.
  - Be admitted to hospital during the previous year.
- These differences were not found in the Mid-aged cohort.
Early detection of chronic conditions

Early detection is one step in minimising chronic conditions progression and impact. Figure 6.4 shows the length of time since young and mid-aged women had a Pap test at each survey.

- There was an increasing uptake of Pap testing in the Younger cohort although at Survey 3 (2003) 1 in 10 women had never had the test.
- 9 out of 10 Mid-aged women eligible for a Pap test had had one within the last 2 years. The proportion of women who had never had a Pap test or were overdue for testing was highest among Younger women in small rural areas.
- Around 1 in 4 Younger and Mid-aged women reported ever having had an abnormal Pap result.
- An increasing percentage of Younger and Mid-aged women were becoming less satisfied with their ease of access to Pap testing over time. Ease of access was poorer in small rural and remote areas.

![Chart showing Pap test results over time for Younger and Mid-aged women](chart.png)

**Figure 6.4 Time since last Pap test: data from Surveys 1, 2 and 3 for the Younger women and Surveys 1, 3 and 4 for the Mid-aged women.**

- Almost 1 in 3 Mid-aged women had never had a mammogram at Survey 1 (1996) but this decreased to 1 in 20 by Survey 4 (2004). Mid-aged women in small rural areas reported poor ease of access to mammographic services compared with other geographic locations.
- 9 out of 10 Mid-aged women reported having had their blood pressure measured in the past 3 years at both Survey 3 (2001) and Survey 4 (2004). Prevalence of blood pressure checking was consistent across geographic areas.
- 6 out of 10 Mid-aged women in Survey 3 (2001) and 7 out of 10 Mid-aged women in Survey 4 (2004) reported having had their cholesterol checked by a doctor.
**Health Service Use**

- Findings about use of health services by women is based on self-reported data from 2000-2004. Use of services generally increased over time in all 3 age cohorts.
- Increasing use of health care services by Younger women was probably related to need for pregnancy-related health care.
- Mid-aged women were the lowest users of health care services and the Older women were the highest users.
- Almost half the Mid-aged women visited the same GP and the same GP practice ‘always’ or ‘most of the time’.
- Only one quarter of Younger women visited the same GP and the same place ‘always’ or ‘most of the time’.
- Younger women tended to be the most dissatisfied with health care services, followed by Mid-aged women and Older women.
- Access to a GP who bulk billed became worse over time, particularly for Younger and Mid-aged women.
- Levels of dissatisfaction with access to a GP who bulk billed doubled among Younger women (from 25% to 50%) and Mid-aged women (from 20% to 40%) over the time period studied.
- Being able to see the GP of choice became more difficult over time for women in all age groups.
- 1 in 3 of the Younger women found it difficult to see the GP of their choice.
- Among the Mid-aged and Older cohorts, consultations with medical practitioners were more frequent in urban areas than in non-urban areas, and women in urban areas were more likely to be satisfied with their ease of access to bulk billing medical services.

**Summary**

The most striking feature of the results presented in this Report is the adverse effect of overweight and obesity on the prevalence and incidence of vascular disease (hypertension, heart disease and diabetes) as well as asthma. In comparison none of the other risk factors examined showed such consistent and strong associations with chronic conditions. In light of the increasing weight in all age groups, weight gain clearly poses a major threat to the health of Australian women.

Authors: Penny Warner-Smith, Jennifer Powers and Andrew Hampson.

Report prepared for the Office for Women, Department of Family and Community Services.

The “greying” of the Australian population is raising many issues for health and social policy, including future service provision for older people and the need to maintain a critical mass in the workforce. As the retirement age is pushed further back, and those who are ageing are encouraged to remain in their homes and in good health for as long as possible, there is a need to know more about the working lives of women, their expectations and plans for retirement, and their continuing participation in paid and unpaid work including caring. While each main ALSWH survey has asked questions about women’s work experiences, the fourth survey for mid-age women in 2004 (then aged 53-58) also included a series of questions about retirement.

Comments in response to the open-ended question at the end of the survey, or in the pilot survey evaluation section, indicate that women find retirement a problematic concept, and that it is not the ‘gateway’ which men pass through at the mandatory age. For example, one participant wrote:

*I gave up paid work at age 25 when I had my first child. Retired seems to mean old people. I gave up work to become a mother, I did not 'retire'.*

(M4 respondent, 2004)

This report included information about paid and unpaid work; mid-age women’s retirement status; their intentions and expectations about age of retirement; retirement income; motivations for retirement; and patterns and predictors of labour market attachment.

6.2.1 Paid and unpaid work

- Almost thirty per cent of participants in the mid-age cohort increased their hours of work over the eight years between Survey 1 in 1996 and Survey 4 in 2004.
- More women moved into paid work than moved out of paid work during the period 1996-2004.
- There is a clear association between employment and women’s health. Women who were always in paid work between 1996 and 2004 had both higher mental and physical health scores than women who were never in paid work or had moved into or out of work, or ‘retired’, during that period.
- Better health is associated with working the number of hours one prefers. It seems to be immaterial just how many hours this is. This applies generally to physical health but is more marked for mental health.
- In 2004, approximately one quarter of all women in the mid-age cohort were providing care or assistance to someone because of their long-term illness, disability or frailty.
- Women who are providing care for someone who is ill, frail or disabled, are less likely to be consistently in the workforce.
6.2.2 Retirement status
- In 2004, 56% of mid-age respondents said they were not retired. Just over 10% said they were ‘partially’ retired, and about 26% had already ‘completely’ retired.
- Women who had not retired were more likely to be separated or divorced than married or widowed and have more educational and occupational qualifications.
- Women who had not retired were less likely to be providing care to someone who was ill, disabled or frail, and/or providing unpaid child care. Area of residence was not significantly associated with retirement status.

6.2.3 Intentions and expectations about retirement age
- Almost half of the women who were not retired in 2004 did not know when they expected to retire, and about a third were not sure when they would like to retire.
- Although only 10% expected to retire before they were 60, almost 30 per cent would like to retire before 60.
- Some forms of non-standard work, particularly casual work and self-employment, were more likely to be associated with uncertainty about retirement age.
- The less education a woman had, the more uncertain she was about when she might expect to retire. Women who would like to work beyond age 60 were more likely to have a tertiary education.
- Women who were not in paid work at M4, as well as those in lower status occupations, were less likely than other women to have a definite idea about when they expected to retire.

6.2.4 Sources of retirement income
- A greater percentage of women who have not yet retired compared to those who are already retired indicate that they will be looking to some form of government support, i.e. an age pension, in their retirement.
- Women who are separated, divorced or widowed will be more likely to be reliant on the government than those who are currently partnered, or those who have never had a partner. These data reflect the disadvantage which women face when a relationship breaks down.
- Women in lower status occupations appear more likely to be reliant on a government pension to fund their retirement, while the majority of those in the higher status professional and managerial occupations are likely to have other sources of retirement income.
- Women who expect to be reliant on government funding report poorer mental health and also poorer physical health than those who have access to other resources. The mean mental health score of women expecting to be, or currently, dependent on government funding was 51.1, compared to 52.6 for those who expect to be reliant on other sources. The physical health scores were 45.3 for women dependent on government funding compared to 49 for women with other sources of income.

6.2.5 Motivations for retirement
- The two factors which were equally of most importance in women’s decision to retire were their own health and their financial security.
- Being able to access superannuation was only slightly ahead of the desire for a lifestyle change as a motivating factor for retiring.
• The need to provide care was also important for over 60% of women.
• Longitudinal ALSWH data show that the retirement of spouse or partner, whether recent or more long-standing, is significantly associated with women’s retirement. The same significance does not apply to a spouse or partner being made redundant, or to the death of spouse or partner. However, a partner’s poor health is linked to retirement, as is the birth of a grandchild.
• Although some women retire when their partner is made redundant, or when the partner dies, others move into work, presumably driven by the need to bring in replacement income.

6.2.6 Patterns and predictors of women’s labour market attachment

On the assumption that there is particular policy interest in understanding why some women ‘prematurely’ leave the workforce and, conversely, why others remain in paid work in their mid-age years, factors associated with changes in labour force attachment and retirement status over the four surveys between 1996 and 2004 were investigated. The data were analysed using logistic regression models for three groups: women who retired “early” (ie, were in paid work at Survey 1 but left the workforce thereafter); those consistently in paid work over the course of the ALSWH; and those who moved into and out of employment during this period. These models may be characterised as ‘profiles’: they include factors which may be either a cause or an effect of a particular work pattern.

After adjusting for area of residence, the following factors were associated with increased odds of being an early retiree compared with women who were always in paid work:

- having difficulty managing on available income
- providing care for someone
- partner having retired in the previous year
- rarely feeling rushed
- seeing a general practitioner more often

In contrast, the following factors were associated with decreased odds of being an early retiree, again compared to women always in paid work

- finding it easy to manage on available income
- being single, divorced or separated rather than married or widowed
- having dependent children
- being satisfied with work achievements
- feeling rushed most days of the week
- having more education

The profile of women with an erratic pattern of paid work (compared to women always in work) included the following:

- having difficulty managing on their available income
- providing care for someone
- rarely feeling rushed
- having more general practitioner visits
- living in a rural or - in particular - a remote area
In contrast, decreased odds of working intermittently were associated with:

- having more education
- being married
- feeling satisfied with work achievements

Further information on women’s experiences of paid work and retirement will be available as more data are collected in the longitudinal study. An expanded version of the retirement questions asked at Survey 4 for the Mid-age group is included in Survey 5 which will be conducted in 2007. The opportunity also exists to look more closely at women’s experiences of work and retirement as they are associated with their health and use of health services.
6.3. Employed Carers in Mid-Life: Findings from the Australian Longitudinal Study on Women’s Health - Report summary.

Authors: Dr Jayne Lucke, Dr Leigh Tooth, Mr Richard Hockey, Professor Annette Dobson
Preliminary Report for the Department of Health and Ageing

6.3.1 Introduction
The Australian Longitudinal Study on Women’s Health (ALSWH) provides a unique opportunity to monitor changes over time in the health and well-being of a large nationally representative sample of Australian women, their social circumstances, and their health behaviours. This report examines paid employment and responsibilities for caring for another person with a long-term illness, disability or frailty among 10,905 women aged 53 to 58 who participated in the fourth ALSWH survey for Mid-aged women.

In this survey 864 (8.0%) of the women reported being a live-in carer and 2253 (20.7%) reported caring for someone who lives somewhere else. Also, 3964 (36.6%) were working part-time (up to 34 hours per week), 3799 (35.1%) were working full-time (over 35 hours per week) and 3058 (28.3%) were not involved in the labour force. These women were either unemployed, involved in home duties, retired, voluntarily inactive, unable to work, living in an institution, or involved in unpaid voluntary work.

The report shows that live-in carers and women with high levels of caring responsibility were less likely to be in the labour force. Carers were more likely to speak a European language, and to find it difficult to manage on their income. However, in examining numerous lifestyle and health characteristics there were many cases where there were clear differences between carers who lived with the person they care for and those who lived elsewhere. Carers who cared for someone who lived elsewhere were usually more similar to non-carers than they were to live-in carers. The specific findings related to carers are outlined below.

6.3.2 Lifestyle characteristics
- Live-in carers were more likely to be retired.
- Live-in carers were more likely to rate the ability to access government pensions or benefits as an important factor in the decision to retire.
- Carers were more likely to rate the number of people dependent on financial support and the need to care for a spouse or other family member as important factors in the decision to retire.
- Carers were more likely to also provide occasional child care to their grandchildren or other people’s children.
- Live-in carers reported lower emotional or informational support.
- Carers appeared to have less tangible support than non-carers.
- Live-in carers were more likely to feel rushed, pressured or too busy.
- Caring for someone who lived elsewhere was related to more participation in active leisure activities.
- Among women who cared for someone living elsewhere, greater participation in the labour force was associated with less active leisure activities.
6.3.3 Health characteristics

- Live-in carers had the worst mental health, followed by carers who lived elsewhere. Non-carers had the best mental health according to scores on the SF-36.
- Live-in carers had the lowest optimism scores and the highest stress scores compared with carers who lived elsewhere and non-carers.
- Live-in carers were more likely to have been diagnosed or treated for arthritis or rheumatism in the last three years.
- Carers were more likely to experience many of the physical symptoms examined, including headaches and migraines, severe tiredness, stiff or painful joints, back pain, eyesight problems and depression.
- Live-in carers who were not in the labour force were more likely to suffer from arthritis or rheumatism.
- Carers who were not in the labour force were more likely to have had indigestion or heartburn.
- Depression was more likely among those who cared for someone who lived elsewhere and were not in the labour force.
- Live-in carers had the most sleep problems, followed by carers who lived elsewhere. Non-carers had the least sleep problems.
- Live-in carers were more likely to have made more than four visits to a GP in the last 12 months and were more likely to rate their access to a GP who bulk bills as ‘excellent’ or ‘good’.
- Live-in carers who were not in the labour force were more likely to have seen a specialist.
- Live-in carers who were not in the labour force were more likely to rate their access to a GP who bulk bills and to a GP of their choice as ‘excellent’ or ‘good’.

6.3.4 Conclusion

These findings paint a picture of carers, particularly live-in carers, as having less involvement in the workforce, more involvement with caring for children, less social support, and more negative outcomes in terms of mental health, optimism, stress, sleep problems and physical symptoms. Live-in carers are consequently heavy users of health services.

Further work is required to examine the history of patterns of caring and employment among carers. It is important to examine the histories of women who were carers at age 53 to 58 to examine their employment and caring histories over the previous ten years and the way that different factors may contribute to this pattern.
7. DISSEMINATION OF STUDY FINDINGS

7.1. Website

The ALSWH study web site, maintained at the University of Newcastle, can now be viewed at www.alswh.org.au. At present this URL links to the University of Newcastle server, however in the coming months the web site will be moved to an external domain server. Each month the website content is updated with current lists of collaborators, ongoing and completed analyses, reports, and all accepted and published papers. The password protected sections of the website for ‘Collaborators’ and ‘Investigators and Staff’ are also routinely revised with minutes of meetings, project notes and other internal documents.
7.2. Publications

7.2.1. Papers published


**Objectives:** This study explored the biological, psychological, social and environmental correlates of young women’s current weight and retrospective 2-year weight change.

**Method:** A total of 790 young women (mean age 26.8 years), sampled from the Australian Longitudinal Study on Women’s Health, provided self-reported data on their height and weight, sociodemographics and a range of biological, psychological, social and environmental variables.

**Results:** Several variables from all domains (biological, psychological, social support and environmental) were correlated with higher body mass index, and less strongly greater 2-year weight change. Key correlates included the tendency to never put on weight, no matter what; self-efficacy for avoiding weight gain, and for healthy eating; attention paid to weight; family support and friends’ support/sabotage of physical activity/healthy eating; and perceived difficulty of taking the stairs rather than the elevator as part of the daily routine.

**Conclusions:** Intervention strategies aimed at reducing weight gain and obesity may need to focus on social and environmental, as well as psychological factors; however, further research is necessary to confirm these findings given that a number of hypothesized associations were not observed.

**Bowe S, Young A, Sibbritt D & Furuya H.** Transforming the SF-36 to account for death in longitudinal studies with three year follow-up. *Medical Care, 2006; 44(10): 956-959.*

**Background:** Analyses of longitudinal health-related quality of life data often exclude participants who die, which limits the generalisability of the results. Methods to incorporate death as a valid score in the Medical Outcomes Study Short-Form (SF-36) have been suggested but need to be evaluated in other populations.

**Objectives:** We sought to apply a method of transforming the SF-36 Physical Component Score (PCS) to include death. A transformation to estimate the probability of being ‘healthy’ in 3 years, based on the current PCS value, will be developed and validated.

**Subjects:** Women in the Australian Longitudinal Study on Women’s Health (ALSWH), aged 70-75 years at Survey 1 in 1996 (n=12432), followed-up at 3 yearly intervals for 6 years.

**Results:** The transformation derived from the ALSWH data provides evidence that the methodology for transforming the PCS to account for deaths is sound. The 3-year
equation provided good estimates of the probability of being healthy in 3 years and the method allowed deaths to be included in an analysis of changes in health over time.

**Conclusions:** For longitudinal studies involving the SF-36 in which subjects have died, we support the recommendation that both the PCS and its transformed value which includes deaths should be analysed to examine the influence of deaths on the study conclusions. Using study data to derive empirical parameters for the transformations may be appropriate for studies with follow-up intervals of other lengths.

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**Background:** Although many studies support an inverse association between physical activity (PA) and depressive symptoms, prospective relationships between these variables have been confounded by pre-existing psychological and physical health problems.

**Methods:** This study examined the dose-response relationships between self-reported PA and depressive symptoms using cross-sectional and prospective data from a population-based cohort of mid-age women who participated in the Australian Longitudinal Study on Women's Health (ALSWH) between 1996 and 2001. Participants completed three mailed surveys (S1: 1996, S2: 1998, S3: 2001) which included questions about time spent in walking, moderate- and vigorous-intensity PA, and measures of psychological health (Center for Epidemiologic Studies Depression scale, CESD-10; Mental Health (MH) subscale of the Short Form 36 survey). Relationships between previous (S1, S2), current (S3) and habitual (S1, S2, S3) PA and ‘depressive symptoms’ were examined, adjusting for sociodemographic and health-related variables. (N=9207).

**Results:** Mean CESD-10 scores decreased, and MH scores increased with increasing levels of previous, current and habitual activity. Odds ratios for CESD-10 scores ≥10 or MH scores ≤52 at S3 were 30-40% lower among women who reported the equivalent of 60 minutes or more of moderate-intensity PA per week, compared with those who reported less PA than this. Women who were in the lowest PA category at S1, but who subsequently reported at least 240 MET.mins per week had lower odds of CESD-10 scores ≥10 or MH scores ≤52 at S3 than those who remained in the very low PA category.

**Conclusions:** These data suggest that there is a clear relationship between increasing PA and decreasing depressive symptoms in mid-age women, independent of pre-existing physical and psychological health.
What we need to know:

- How do social, physical and psychological factors affect asthma and asthma management in older people?
- How can we minimise their impact and enhance quality of life for older people with asthma?
- Does inequality based on age, sex, socioeconomic status and/or area of residence affect accessibility, quality and effectiveness of care for older people with asthma?
- What is the extent of undiagnosed and undertreated asthma among older people, and what are the barriers to symptom reporting, diagnosis and treatment?

What we need to do:

- Promote equity of access to diagnosis, investigation and treatment across age, sociodemographic and geographic groups.
- Encourage older people to seek help for symptoms and exacerbations.
- Encourage quality use of medicines among older people with asthma and comorbid conditions and disabilities.
- Promote healthy behaviours for older people with asthma (e.g., smoking cessation, exercise, vaccination, better nutrition).
- Develop guidelines that account for complexities of older age and that are framed to achieve optimal quality of life for people with asthma.

Objective: To explore differences in quality of life and health service use for older women living in urban, rural and remote areas of Australia.

Methods: 8387 women aged 70–75 years when enrolled in the Australian Longitudinal Study on Women’s Health completed mailed surveys in 1996, 1999 and 2002.

Results: Women living in urban, rural and remote areas reported few differences in health and had similar changes in health-related quality of life (SF-36) over time. Most SF-36 subscale scores declined over time, with steeper drops between the ages of 73–78 years and 76–81 years. The use of health services, need for informal care and provision of care to others increased over time. Urban participants used more general practitioner, specialist and allied health services, whereas non-urban women used more community services and alternative health practitioners.

Conclusion: Despite similar health problems, health service use differs significantly across urban, rural and remote areas of Australia.

A growing proportion of women reach older age without having married or having children. Assumptions that these older women are lonely, impoverished, and high users of social and health services are based on little evidence. This paper uses data from the Older cohort of the Australian Longitudinal Study on Women’s Health to describe self-reported demographics, physical and emotional health, and use of services among 10,108 women aged 73-78, of whom 2.7% are never-married and childless. The most striking characteristic of this group is their high levels of education, which are associated with fewer reported financial difficulties and higher rates of private health insurance. There are few differences in self-reported physical or emotional health or use of health services between these and other groups of older women. Compared with older married women with children, they make higher use of formal services such as home maintenance and meal services, and are also more likely to provide volunteer services and belong to social groups. Overall, there is no evidence to suggest that these women are a “problem” group. Rather, it seems that their life experiences and opportunities prepare them for a successful and productive older age.


This study examines the psychological health correlates of domestic violence in a large random sample of mid-aged Australian women (N = 11,310; age 47 to 52 years). Logistic regressions were used to investigate the associations between domestic violence and depression, anxiety, and psychological well-being, after adjusting for demographic variables (marital status, income management, area). Results indicated increased odds of having experienced domestic violence for those who had: ever experienced a diagnosis of depression, anxiety, or an ‘other’ psychiatric disorder; recent symptoms of depression and anxiety; used psychoactive medication for depression or anxiety in the 4 weeks prior to the survey; and who reported current depression. Current psychological well-being had an inverse association with a history of domestic violence: As psychological well-being decreased, the odds of having ever experienced domestic violence increased. The results indicate that a history of domestic violence is associated with decreased psychological well-being in mid-aged Australian women.


The association between domestic violence and physical health in middle-aged Australian women is investigated via a cross-sectional survey of 14,100 women (45 to 50 years old) who responded to the first Australian Longitudinal Study on Women’s Health survey. After adjustment for demographic and health behaviour characteristics and menopause...
status in multivariate analyses, various physical conditions (allergies or breathing problems, pain or fatigue, bowel problems, vaginal discharge, eyesight and hearing problems, low iron, asthma, bronchitis or emphysema, cervical cancer) were associated with domestic violence. The results highlight the link between health and domestic violence in middle-aged women and underscore the need for health professionals to take a full social history from women presenting with physical symptoms.


This study explored influences on adoption, maintenance and cessation of smoking among young women as they experienced life transitions: leaving home, gaining employment or attending college/university, marriage and parenthood. Standardized, open-ended telephone interviews were conducted with 80 women (including never smokers, continuing smokers, recent adopters and quitters) aged 24-29 years, recruited from participants in the Australian Longitudinal Study on Women’s Health. The social context of smoking (socializing with other smokers, drinking alcohol and going to pubs and clubs) was perceived to be a predominant influence on smoking from the time young women left home until they settled into a committed relationship or started their own family. Stress was identified as an important factor as they experienced lifestyle changes. An increased sensitivity to the negative aspects of smoking after turning 21 was reported, and around the mid-20s the women became concerned about addictive nature of cigarettes. Motherhood was seen to carry increased responsibilities to protect children from passive smoking and there was a perceived importance of positive role modelling to protect children from becoming smokers themselves. This study highlights the need for public health campaigns to address the social role that smoking plays in young women’s lives, and the perceived use of cigarettes for stress relief. Life changes such as settling down with a partner and the contemplations of motherhood provide opportunities for targeted interventions to promote quitting.


This study represents the first longitudinal investigation of distal psychosocial predictors of pregnancy risk-taking in young Australian women. Participants were from the Australian Longitudinal Study on Women’s Health. Two mail-out surveys assessing sociodemographic, education/competence, psychosocial wellbeing, and aspiration/identity factors, were completed at ages 18 and 22 by 1647 young women in emerging adulthood, and a third survey assessing pregnancy risk-taking behaviour was completed by a subsample of 90 young women at age 24. Higher psychosocial distress at age 22 was a risk factor for pregnancy risk-taking at age 24 (b = 0.29 – 0.38). Post hoc analyses suggested that the strongest component of psychosocial distress when predicting pregnancy risk-taking was higher depressive symptoms (b =0.44 – 0.68). Demographic,
education, unemployment, and future aspirations factors at age 18 and 22 were unrelated to pregnancy risk-taking at age 24.


The broad aim of this paper is to investigate what work and retirement mean for middle-aged women and to consider the implications of their experiences for government policy, especially given current concerns about workforce maintenance in the face of population ageing.

The data used in the paper are drawn from the Australian Longitudinal Study on Women’s Health (ALSWH – also known as Women’s Health Australia). This large longitudinal study includes three age cohorts of women, and it is information from four surveys of the mid-age cohort who were aged 45-50 when they were first surveyed in 1996 which is discussed here.

We find that many women in their fifties are maintaining, if not increasing, their hours of paid work, and that employment is generally associated with better health for this age group, particularly when they are working the hours they prefer. Retirement appears to be a problematic concept for these women, even as they head towards their sixties, and many do not have a clear picture of when they might want to retire. However, it seems that health, both their own and that of family members, is likely to be a major influence in their decision to retire, and may be even stronger than financial factors.


**Objective:** To describe the risk factors for various types of attrition in three age cohorts of women in a longitudinal study and to discuss strategies to minimise attrition.

**Methods:** Analysis of survey data from the Australian Longitudinal Study on Women’s Health, collected by mailed questionnaire. In 1996 the study recruited and surveyed a national random sample of ‘younger’ (18-23 years, n=14247), ‘mid-age’ (45-50 years, n=13716), and ‘older’ women (70-75 years, n=12432), and began a staggered cycle of mailed follow-up questionnaires: 1998 (mid-age), 1999 (older), 2000 (younger) and so on. Demographic, health and social risk factors for attrition were examined using multivariate analysis.

**Results:** Attrition at Survey 2 was highest among younger women (32%), mainly due to participants not being contactable (21%), and lower among the older (16%) and mid-age women (10%). At Survey 1, the Survey 2 non-respondents were more likely to report having less education, being born in a non-English speaking country and being a current smoker, in all cohorts, and had poorer health (mid-age and older cohort) and more difficulty managing on their income (younger and mid-age).
Conclusion: Although the magnitude of different types of attrition was found to differ by age, there were several risk factors for attrition that remained consistent. These findings are important to inform future studies on ways to lessen or prevent systematic loss of participants.

Implications: Recruitment and follow-up methods in longitudinal studies should be tailored to maximise retention of participants at higher risk of dropout.

7.2.2. Papers accepted

Adamson L & Parker G. ‘There’s more to life than just walking’: Older women’s ways of staying healthy and happy. *Journal of Aging and Physical Activity*.

This study assessed a range of activities reported by older women in Australia. 3,955 women aged between 75 and 81 years from the older cohort of the Australian Longitudinal Study on Women’s Health, responded to a request in a self-report survey for additional information concerning their health. Of these 3,955 women, 509 reported taking part in a variety of activities. Qualitative analysis of responses from these women identified fifty-five coded categories of activities that were subsequently classified into four major themes: physical activities, creative pursuits, lifestyle, and social interaction. The data show that these older women are taking part in a wide range of activities.

Duke J, Sibbritt D & Young A. Is there an association between the use of oral contraception and depressive symptoms in young Australian women? *Contraception*.

Much controversy exists regarding the relationship between oral contraceptive pill (OCP) use and the experience of depression and mood changes. The aim of this study was to explore the relationship between OCP use and the experience of depressive symptoms amongst a representative sample of young Australian women. The study sample comes from the Australian Longitudinal Study on Women’s Health. Analysis was confined to women in the youngest cohort who responded to Survey 2 conducted in 2000 (n=9,688), when they were aged between 22 and 27 years, and Survey 3 conducted in 2003 (n=9,081), when they were aged between 25 and 30 years. After adjusting for potential confounders, the odds of a woman who does not use OCP having depressive symptoms is not significantly different from that of a woman who does not use OCP (OR=1.05; 95% CI: 0.90, 1.21). Women who used OCP for reasons other than contraception were 1.32 (95% CI: 1.07, 1.62) times as likely to be depressed than women who used OCP for contraception. The percentage of women who report experiencing depressive symptoms declined as the number of years of OCP use increased (p=0.009). The results of this study suggests that after adjusting for confounders there is no independent effect of OCP use on depressive symptoms in younger Australian women.
Everingham C, Stevenon D & Warner-Smith P. Things are getting better all the time? Challenging the narrative of women’s progress from a generational perspective. *British Journal of Sociology.*

There is an implicit assumption in the social policy literature that since women are becoming better educated and out of the workforce for much less time over their lifecourse, their work situation will eventually come to duplicate that of men. A gender analysis of women’s position in the workplace will no longer be relevant, particularly since the new economic conditions are shaping similar working lives for men. This paper calls into question this ‘progress narrative’, using material drawn from in-depth interviews from an Australian generational study. Drawing on the theoretical framework of Karl Mannheim, the paper argues that the progress narrative, with its assumption of the gender neutral worker of the future, belongs to the older generation of women who came of age prior to the women’s movement. At that time, the identity of women coming into adulthood was merged with that of motherhood and the normative constraints on mothers arising from a clear, structural division between the public and private spheres of life. The progress narrative no longer resonates with the experience of younger women, who manage their work and family commitments as a ‘lifestyle choice’. This shift in the identity of ‘woman’ does not make a gender analysis of social policy irrelevant. It does mean, however, that the conceptual frameworks used by social policy analysts to understand what it means to be a woman in Western societies today need to be re-considered from a generational perspective.

Sibbritt D, Adams J & Young A. The characteristics of mid-aged Australian women who consult acupuncturists. *Acupuncture in Medicine.*

Despite the identification of increasing acupuncture use in recent years, there are few studies that focus attention upon the characteristics of acupuncture users. This paper, examining the characteristics of acupuncture users among mid-age Australian women, provides a first step towards addressing this significant research gap. This study was conducted as part of the Australian Longitudinal Study on Women’s Health. The paper reports on 11202 mid-aged women, surveyed in 2001. We estimate that 4.5% of mid-age women consult with an acupuncturist. Women who consult with an acupuncturist are less likely to be married or living in a de-facto relationship, are more likely to have had a major personal illness in the previous year, to have suffered from a variety of symptoms or have significantly lower scores (ie. poorer health) on all eight dimensions of the SF-36 health-related quality of life scale. Women who use acupuncture are also higher users of ‘conventional’ health services. While the development of a research base and clinical applications for acupuncture are ongoing, health professionals should be aware that acupuncture is currently being used by large numbers of mid-aged women. In addition, given the relatively higher prevalence of acupuncture use reported in our study, it is important that further research explore acupuncture use in more detail and the relationship between women’s health issues and their use and experience of acupuncture.
Objectives: Determine psychosocial variables associated with the new diagnosis of diabetes in elderly women. Examine whether variables remained significant predictors after controlling for non-psychosocial risk factors and the frequency of doctor visits.

Research design and methods: A longitudinal cohort study was conducted using data from 10,300 women who completed a survey in 1996 and 1999. The women were aged between 70 and 74 years of age in 1996. They were asked to provide self-reports on a number of psychosocial and non-psychosocial variables in 1996 and on whether they had been diagnosed for the first time with diabetes in the 3-year period. The relationships between the potential risk factors and new diagnosis of diabetes were examined using binary logistic regression analysis.

Results: Univariate results showed that not having a current partner, having a low social support and having a mental health index score in the clinical range were all associated with higher risks of being diagnosed with diabetes for the first time. However, the multivariate results showed that only a mental health index score in the clinical range and not having a current partner provided unique prediction of being newly diagnosed with diabetes. Of the non-psychosocial variables measured, only having a high BMI and hypertension were associated with increased risks of new diagnosis, while there was also evidence of a U-shaped relationship between alcohol consumption and new diagnosis. Even after adjusting for frequency of doctor visits and non-psychosocial risk factors, a mental health index in the clinical range proved to still be a significant risk factor.

Conclusion: A score on the mental health index that is within the clinical range is an independent risk factor for the new diagnosis of diabetes in elderly women.

Objective: To examine women’s weight control practices and their effectiveness in preventing weight gain.

Design: Retrospective cohort study of weight control practices and two year weight change among mid-age women participating in the Australian Longitudinal Study on Women’s Health (ALSWH).

Subjects: 11,589 Australian women (aged 47-52).

Measurements: The prevalence and types of self-reported weight control practices used were assessed by a nine item instrument. Two-year weight change was self-reported and adjusted for baseline body mass index (BMI) and other potential confounders.

Results: Seventy-five percent of the cohort (N=8556) reported actively trying to control their weight. Dietary modification was used more frequently than exercise. Two-thirds of the weight-controlling women used a combination of practices, the two most common
being ‘decreased food quantity, cut down on fats/sugars and exercise’ (32%, baseline BMI 25.87(0.10)), and ‘decreased food quantity and cut down on fats/sugars without exercise’ (15.6%, baseline BMI 27.04(0.14)). Potentially health-damaging practices (smoking, laxatives, fasting) were relatively uncommon, at 8%. Only one combination of practices (decreased food quantity, cut down on fats/sugars, use of a commercial weight loss program, and exercise) prevented mean weight gain (-0.03 kg), while the mean (SD) weight of the cohort increased (+1.19(4.78)) over the two-year period.

Conclusions: The majority of mid-age women attempting weight control used practices consistent with public health messages. Despite their efforts, the group was mostly unsuccessful in preventing weight gain. Public health authorities and health practitioners may need to make more quantitative recommendations and emphasise the importance of balancing physical activity with dietary intake to achieve successful weight control for women at this life stage.

7.2.3. Conference Presentations


**Background:** Many longitudinal studies that measure changes in health-related quality of life over time use the Medical Outcomes Study Short-Form 36 (SF-36). The SF-36 covers the major aspects of health, has been validated with adults of all ages and has been used extensively in clinical trials. A limitation of the SF-36 is that it only considers morbidity and not mortality.

**Aim:** To apply a method of transforming the SF-36 to incorporate death; to impute data missing for other reasons, and to assess the impact on study findings using these methods. Methods available to impute data for longitudinal studies will also be discussed.

**Methods:** The focus of this paper is the older cohort of women in the Australian Longitudinal Study on Women’s Health. Survey 1 was conducted in 1996 (aged 70-75 years, n=12432), with three yearly follow-up. Women were classified as having diabetes based on their self-report of the diagnosis by a doctor. Deaths were ascertained by linkage to the National Death Index. Changes in the Physical Health Component Summary score (PCS) of the SF-36 were measured for women with and without diabetes. The PCS was then transformed to the probability of being healthy at the next survey, taking the value of zero after death. Multiple imputation was used to replace other missing data.

**Results:** Our findings suggest that the SF-36 transformation was valid. The transformation enabled us to detect changes in health in the cohort which were not apparent when only analysing survivors who had complete follow-up data. After then imputing values which were missing for other reasons, women with diabetes were shown to have a greater decline in health over time than other women their age.

**Conclusion:** This study has shown the importance of accounting for death and missing data when studying longitudinal changes in health.

The question that initiated this paper was, ‘what are the implications of contemporary patterns of international mobility for undertaking longitudinal research?’ The issue emerged from problems faced in tracking a cohort of women who were aged 18-23 years when the Australian Longitudinal Study on Women's Health (ALSWH) began in 1996. Exploration of the relevant national data confirms that the rate of international, and local, mobility is highest for those in their twenties and thirties. However the analysis has raised wider and more fundamental issues. These involve how best to understand the nature of ‘national populations’ in a globalising context in which much migration is best conceptualised as a continuing, rather than a one-off, process, as it has been in the past. This requires research approaches that can encompass such developments as transmigration, long distance marital relationships, diasporas, dual citizenship, expatriate national parliamentary representatives and global censuses. The discussion raises some implications of these developments, not only for understanding issues for longitudinal research, but also for how we can ‘make the most of our Census’, given that the centrality of the bordered national population may be reaching its use-by date.

Collins C, Young A & Hodge A. Associations between diet quality, quality of life and Medicare costs in mid-aged women from the Australian Longitudinal Study on Women’s Health. Nutrition Society of Australia Annual Scientific Meeting, Sydney, 29 November - 2 December 2006.

Background: Epidemiological studies suggest that adhering more closely to National Dietary Guidelines is associated with improved diet-related health outcomes, with a reduction in morbidity and mortality. A number of methods have been used to generate dietary scores to measure diet quality and variety.

Objectives: To evaluate whether an association exists between diet quality and indices of quality of life, health service use and Medicare costs in the Australian Longitudinal Study on Women’s Health (ALSWH).

Design: Cross-sectional measurement of association between an Australian Recommended Food Score (ARFS), self-reported variables and Medicare costs in women (n = 11,194, 50-55 yr) participating in the 2001 survey of the mid-aged cohort of ALSWH. ARFS was derived from responses to the Dietary Questionnaire for Epidemiological Studies FFQ and increases as the number of foods consistent with Australian Dietary Guidelines consumed at least once a week, increases. ARFS was divided into quintiles with higher scores having more favourable macro and micronutrient profiles.

Outcomes: More women in the lowest quintile of the ARFS reported their general health as fair or poor compared to those in the highest quintile (18 vs 10%, P<0.0001). The mean SF36 general health perception domain score was higher for those in the top ARFS quintile compared to the bottom (mean (95%CI): 75.3 (74.3, 76.2) vs 67.1 (66.2, 68.0) P<0.0001). Fewer women in the highest ARFS quintile reported four or more GP consultations in the previous year compared to the lowest (13% vs 17%, P=0.0024) but
there was no difference in Medicare costs across the quintiles, P>0.05.

**Conclusion:** Higher ARFS is associated with improved self-reported indices of quality of life, but not reduced Medicare costs. Longitudinal evaluation will determine whether a higher ARFS is protective in terms of predicting health outcomes or reducing long-term health costs.


This presentation focused on issues for prevention of chronic diseases relating to particular risk factors.

**Objectives:** To examine the social, psychological, physical and environmental factors which determine good health, and those which cause ill-health, in women throughout adult life. To contribute to the development of policy and practice in key areas for women’s health.

**Outcomes:** Weight gain was found to be a major health threat for women, which is potentially taking over from tobacco as the main preventable cause of illness, burden of disease and death.

**Conclusion:** Weight control is a major public health issue for women (and men) which is going to require a long multi-sector, multi-faceted campaign. The Australian Longitudinal Study on Women’s Health has the capability to monitor this progression.


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**Background:** Many small studies of pregnancy include a dietary assessment component, yet we are lacking nationally representative data describing diet quality during this lifestage.

**Objectives:** To investigate the overall diet quality of young women in Australia, and to compare this according to pregnancy status, defined as: pregnant, actively trying to conceive, given birth in the previous 12 months, or otherwise not pregnant.

**Design:** Cross-sectional study of a nationally representative sample of 9,118 women aged 25 to 30 years, who completed survey three of the Australian Longitudinal Study on Women’s Health (March 2003). The Dietary Questionnaire for Epidemiological Studies was used to calculate diet quality, consistent with the Australian Recommended Food Score (ARFS) methodology (1). This is summative estimation of food variety and frequency, in line with the Australian Dietary Guidelines.

**Outcomes:** Pregnancy status was significantly predictive of diet quality in logistic regression analysis after accounting for education, marital status, and area of residence (P=0.004). Pregnant women and those who had given birth in the previous 12 months had significantly higher mean ARFS than those who were otherwise not pregnant (respective mean (95% CI):  29.4 (28.7-30.1); 29.5 (28.9-30.1); 28.4 (28.2-28.7), although these scores were only marginally improved.

**Conclusion:** Opportunities exist for enhancing the diet quality of young Australian women. Pregnancy status appears to be associated with higher diet quality and variety. Further examination of the composition and correlates of maternal diet may help identify where further improvements may be achieved in line with Australian Dietary Guidelines, using the drivers for particular behaviours.


The Symposium addresses such important issues as the continued growth of Australia’s largest cities, the depopulation of inland Australia, the rapid growth of coastal settlements, the movements of Indigenous people, the movements of the young and the old, of women and men, of international immigrants to Australia. New forms of movement are discussed as well as the implications of population mobility for labour supply, housing, social development and the environment. The Symposium will provide important information
for all those engaged directly in planning at the local and regional level and, more generally, for those interested in the changing nature of Australian society. Ann Larson will present on the implications of population mobility for social development in Australia.


This presentation was given at the ARACY ARC/NHMRC Research Network/Murdoch Children’s Research Institute Workshop and outlined the role of collaboration within the Australian Longitudinal Study on Women’s Health. It examined the rationale and administrative processes associated with the Publications, Substudies and Analyses Committee and discussed the benefits of collaboration in increasing the dissemination of findings from a dataset as large as ALSWH.


This presentation reports on medication use and uptake of Medicare ‘medication management review' and ‘diabetes annual cycle of care' among older women. The Australian Longitudinal Study on Women's Health is a 20-year study of the health and well being of a national random sample of women, including more than 10,000 women aged over 70 years. Longitudinal self-reported survey data about doctor diagnosed medical conditions, linked with Medicare and Pharmaceutical Benefits Scheme claims data, were used to classify women as having diabetes. Linked data were analysed to examine the types of medications prescribed during 2002-2004, and to count the number of women receiving a medication review and diabetes annual cycle of care.

The prevalence of diabetes among these older women rose from 8% in 1996 when they were aged 70-75 years to 12% in 2004 when they were 78-83 years. The five most common classes of medications used to treat these older women with diabetes in 2004 were: oral blood glucose lowering drugs (68%, half taking Biguanides), cholesterol and triglyceride reducers (64%), antithrombotic agents (58%), drugs for peptic ulcer and gastro-oesophageal reflux disease (51%), anti-inflammatory and antirheumatic products, non-steroids (50%), and 13% were taking insulins and analogues. The median number of medications prescribed for these women with diabetes during 2004 was 11, compared with 8 for women their age without diabetes. In 2004, 2.4% of women with diabetes and 1.1% of women without diabetes had a medication management review. The uptake of the diabetes annual cycle of care rose from 18% in 2002 to 22% in 2004.

Longitudinal survey data linked with Medicare and PBS data has enabled the changing patterns of care for women with diabetes and the uptake of new medications and treatment incentives to be studied. The health outcomes associated with different patterns of care will be investigated.
Objective: The aims of this study were to investigate the relative impact of childbearing patterns and behavioural and demographic variables on weight gain among young women over a seven year period, and to estimate the relative rate of weight gain associated with each significant determinant of weight gain.

Methods: Participants were 14,779 women in the Australian Longitudinal Study of Women’s Health, aged 18-23 years when recruited from the national Medicare database in 1996. Consenting women completed surveys about demographics, health behaviours, and health outcomes in 1996 (S1), 2000 (S2) and 2003 (S3). A random effects model was used to estimate average annual percentage weight change (kgs) in women who did and did not have their first child between S1 and S2, and between S2 and S3, after adjustment for other statistically significant determinants of weight change (education, physical activity, sitting time, and energy intake).

Results: Patterns of childbirth and physical activity were significantly associated with average annual percentage weight change between S1 and S2, and between S2 and S3. Sitting time, energy intake and education were significantly associated with average annual percentage weight change between S1 and S3. After adjustment for all other variables associated with rate of weight gain, women who had their first baby between S1 and S2 had higher mean annual weight gain (1.78%, 95% CI 1.51-2.05; approximately 1.2 kgs) than those who had never given birth (0.79%, 95% CI 0.70-0.88; approximately 0.5 kgs). Those who had their first baby between S2 and S3 had higher annual weight gain in that period (1.89%, 95% CI 1.62-2.16; approximately 1.4 kgs) than those who had never given birth (1.0%, 95% CI 0.91-1.09; approximately 0.7 kgs) or had their first child between S1 and S2 (0.39%, 95% CI 0.11-0.68; approximately 0.3 kgs), and higher weight gain compared with their previous nulliparous period (0.95%; 95% CI 0.69-1.21; approximately 0.6 kgs).

Discussion: Having a first baby resulted in an increased rate of weight gain compared with ageing-related weight gain among women who do not have children or had their first child previously. Weight gain prevention for young women should concentrate on promoting increased physical activity, reduced sitting time and reduced energy intake during and immediately after first pregnancy.


The evidence of a beneficial effect of moderate alcohol consumption on health is substantial. More recently, researchers have argued that the misclassification of ex-drinkers as non-drinkers has influenced the extent to which protective effects were found. Others have argued that non-drinkers have given up drinking after developing a serious illness.

This paper aims to investigate the effect of alcohol consumption on the self-rated health of
13,716 women who were aged 45-50 years at Survey 1 in 1996. The women were resurveyed in 1998 (n=12,338), 2001 (n=11,200) and 2004 (n=10905). Based on the self-reported usual frequency and quantity of alcohol consumed, women were categorised as non-drinkers, occasional drinkers, moderate drinkers (up to 14 drinks per week) and heavy drinkers (15 or more drinks per week) at Survey 1. Data from all four surveys were then used to identify women who were non-drinkers at all surveys and to determine changes in alcohol consumption over the eight years. Random coefficient models were used to examine changes in self-reported health by alcohol consumption, adjusted for socio-demographic and health factors and changes in comorbidity.

Compared with being a moderate drinker, women who were non-drinkers or occasional drinkers at Survey 1 had significantly poorer health at all surveys. Women who were non-drinkers at all four surveys had slightly better health than the group of women who reported being non-drinkers at Survey 1. However using this model, non-drinkers and occasional drinkers still had poorer health than moderate drinkers. Exclusion of women with an existing comorbid condition at Survey 1 did not alter these findings.

The analyses in this study have attempted to address some of the methodological limitations of previous studies. After eight years of follow-up for these mid-age Australian women the results still supported previous findings of the beneficial effects of moderate alcohol consumption on health.


**Objective:** To determine the pregnancy and contraceptive experiences of a cohort of Australian women born between 1946 and 1951.

**Materials and methods:** A random sample of 1,000 women enrolled in the mid life cohort of the Australian Longitudinal Study on Women’s Health were asked to complete an additional questionnaire specifically relating to pregnancy and contraceptive use covering their first four pregnancies.

**Results:** Responses were obtained for 808 women. The mean age of reported first intercourse was 18.9 years (range 6-37) with 41% using a method of contraception at sexual debut. The reported ever use of contraception was 92.2% for the pill, 48.5% for condoms, 35.3% for IUDs and 26.5% for withdrawal. The mean number of pregnancies was 3 (range 1 –11). The rate of live births showed a decrease from first pregnancy (84.6%) to fourth pregnancy (77.2%); the miscarriage rate increased from 9.2% to 13.9%. Termination rates were low for the overall sample: the highest rate was for the fourth pregnancy (6.5%). Responses indicated that the second pregnancy was most wanted. First pregnancies appeared to be less wanted than the second and third and of the 222 women who did not want a pregnancy at the time of first conception 160(72.7%) were not using contraception at the time. Ninety (11.4%) first pregnancies resulted from failed contraception.

**Conclusion:** The women in this cohort were the first to have access to a full range of contraceptive and family planning services but despite this there were many unplanned
pregnancies. The paper highlights the continuing need for a better understanding of the factors involved in the control of human fertility.


**Background:** Very frequent or very infrequent attendance to general practice may reflect appropriate care or it may represent poor use of resources.

**Aim:** To describe the health and social characteristics of frequent attenders so that their consulting behaviour over time can be better understood.

**Methods:** The sample for analysis was women who consented to record linkage in the Australian Longitudinal Study on Women’s Health (n=21427). Medicare data for the five-year period 1997-2001 was used to count GP consultations, with the highest 5% of attenders each year being defined as frequent attenders. Patterns of attendance and correlates of being a frequent attender were then examined.

**Results:** Fourteen percent of women were frequent attenders in at least one of the 5 years but only one percent were long-term frequent attenders (ie. in all 5 years 1997-2001). A higher percentage of mid-age women were long-term frequent attenders, and long-term frequent attendance was lowest among the younger women. Younger women were more likely to have been a frequent attender in at least one year, with pregnancy related visits partly explaining this result. Women who reported symptoms of depression at Survey 1 or Survey 2 were more likely to have been a frequent attender. Those who reported symptoms of depression at both surveys were 3 times more likely to be a long-term frequent attender than other women. Medicare data for 2002-2005, deaths, measures of continuity of care, length of consultation and out of pocket costs are also being analysed. The sociodemographic and health characteristics of women by their frequency attendance to GPs will then be described.

**Conclusion:** Longitudinal survey data linked with Medicare data has enabled the patterns of GP attendance for women to be studied. The health outcomes associated with different patterns of care will be investigated.


**Background:** Australia collects large amounts of health-related information but this information remains largely unlinked. Linkage of health-related databases has been identified as a priority in the recently released National Collaborative Research Infrastructure Strategy. In particular, the Medicare and the Pharmaceutical Benefits Scheme (PBS) databases provide a rich source of data for linkage to longitudinal survey data.
**Aim:** To link health-related databases to evaluate changes over time in the availability and equity of uptake of medicines and to track health care expenditure, particularly for chronic conditions such as diabetes.

**Methods:** The first source of data for this study is self-reported survey data collected since 1996 for 40,000 women in the Australian Longitudinal Study on Women’s Health (ALSWH). The second is the Medicare Australia records of health services funded by Medicare and the Department of Veterans’ Affairs for women in the ALSWH (1997-2004). The third is the Medicare Australia records of prescriptions submitted for payment of a subsidy under the PBS and Repatriation PBS (2002-2004). Longitudinal self-reported survey data about doctor diagnosed medical conditions, linked with Medicare and Pharmaceutical Benefits Scheme claims data, were used to classify women as having chronic disease, in particular diabetes.

**Results:** The prevalence of diabetes among women in the older cohort rose from 8% in 1996 when they were aged 70-75 years to 12% in 2004 when they were 78-83 years. The median number of medications prescribed for these women with diabetes during 2004 was 11, compared with 8 for women their age without diabetes. The costs over time for these medications and for health services funded by Medicare for women with and without diabetes will be discussed.

**Conclusion:** Longitudinal survey data linked with Medicare and PBS data is an efficient way to study trends in the costs of health care for people with chronic disease.
### 7.3. Media

#### 7.3.1. Press

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<td>Is it a Man’s World?</td>
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#### 7.3.2. Television & Radio

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The project team has a policy of archiving with the Australian Social Sciences Data Archive (ASSDA) at the Australian National University on an annual basis. Each year we archive the most recently completed data set, and may re-archive earlier data sets if there have been changes.

To date, data has been archived for Surveys 1, 2, and 3 of the Younger, Mid-age and Older age groups. The data set for Survey 4 of the Mid-age group will be archived towards the end of 2006.

As well as being a valuable and reliable off-site backup of all Women's Health Australia data, archiving will make the data available for future use by other researchers, subject to certain conditions.
There have been a number of staffing changes at the University of Queensland. Gretchen Carrigan, a statistician, left ALSWH to pursue travel goals and David Fitzgerald, also a statistician has been appointed and will commence duties at the beginning of December 2006. A new Research Fellow position has also been filled from April 2007. Melanie Spallek has taken maternity leave following the birth of her first child but will return in January 2007. Leigh Tooth has also taken maternity leave for the birth of her second child and will return in 2007. The staff at the University of Newcastle remains the same as previously reported.

### Research Centre for Gender, Health and Ageing, University of Newcastle

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<td>Co-Director ALSWH/RCGHA Director</td>
<td>Professor Julie Byles</td>
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<td>Project Manager</td>
<td>Dr Deborah Loxton</td>
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<td>Project Statistician</td>
<td>Dr Anne Young</td>
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<td>Statistician</td>
<td>Ms Jenny Powers</td>
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<td>Mrs Anna Graves</td>
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<td>Research Assistants</td>
<td>Mrs Catherine Chojenta</td>
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<td>Ms Jenny Helman</td>
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<td>Publicity Officer/Executive Assistant</td>
<td>Mrs Lyn Adamson</td>
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<td>Administrative Assistants</td>
<td>Ms Melanie Moonen</td>
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<td>Casual Project Assistants</td>
<td>Ms Liz Knock, Ms Ingrid O'Neill, Ms Amy Sales, Ms Jackie Sales, Ms Monica O'Neill</td>
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### School of Population Health, University of Queensland

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<tr>
<td>Project Director</td>
<td>Professor Annette Dobson</td>
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<td>Senior Research Fellows/Project Coordinators</td>
<td>Dr Leigh Tooth, Dr Jayne Lucke</td>
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<td>Senior Project Officer</td>
<td>Ms Anne Russell</td>
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<td>Research Project Officer/Administration</td>
<td>Ms Bree Waters</td>
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<td>Administrative Assistant</td>
<td>Ms Leonie Gemmell</td>
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<tr>
<td>Research Officers/ Statisticians</td>
<td>Ms Eliza Fraser, Mr Richard Hockey, Ms Melanie Spallek, Ms Gretchen Carrigan, Mr David Fitzgerald, Ms Nadine Smith</td>
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10. APPENDICES
Minutes– Steering Committee Teleconference  
Thursday 19 January 2006  
9.00 QLD time, 10.00 NSW time  
CHAIR: PROF ANNETTE DOBSON  
Minutes: Maree O’Mullane

1. Welcome and apologies

Attendees: Wendy Brown, Lois Bryson, Julie Byles, Annette Dobson, Christina Lee, Deborah Loxton, Penny Warner-Smith, Anne Young

2. Minutes and matters arising

Minutes from 1st December 2005 were accepted.

3. Steering Committee composition for 2006

Re attachment 1: Draft Terms of Reference for ALSWH Steering Committee

- **Membership**
  - There is a need to change the wording to reflect membership and position titles.
  - A title is needed for Research Fellows, rather than “Co-ordinator”. No decision was made on this.
  - New Committee to consist of six unpaid investigators (AD, JB, WB, LB, CL, PWS) and up to four salaried research fellows (AY, DL, LT, JL).
  - It was agreed that Leigh Tooth and Jayne Lucke should both attend SC Meetings at the start of their appointments to become familiar with the process.

- **Purpose** Retain wording as it stands

- **Functions** Points 4, 5, 6 to be changed (see Attachment 1)

  *ACTION: Revise Terms of Reference and bring to next meeting for ratification (PWS)*

4. Strategic Issues

4.1. Contract revisions

- Annette reported that Tessa is waiting for a response from the legal people at the University of Newcastle before proceeding. Penny has also tried to contact them but has had no response yet.

  *Deed of Variation no 3 arrived 23/01/2006.*
The next Project Advisory Committee meeting is to be held in Canberra 9th February 12.30-4.30pm.

A Departmental workshop will be held 9.00am -12 midday with Kerin O'Dea as facilitator to provide input into the Mid 5 survey and Project Advisory committee. The draft Agenda for the meeting will be sent to us shortly.

Annette, Julie, Deb, Lois, Anne Y, and Wendy will attend the Project Advisory Meeting.

Tessa P has said that Ross Saunders will come along to the Project advisory Committee to explain how they deal with Medicare data and analysis.

ALSWH presentation at the National Health Priorities - National Public Health Partnership (NPHP), has been removed from the agenda but Tessa P has a letter drafted and will distribute copies of the Achievements Report at the meeting.

ALSWH presentation at the Obesity taskforce meeting (February 9) has also been removed from the agenda. An alternative date for a presentation by Wendy may be 27th July. Wendy will check her availability.

ALSWH presentation is on the agenda for the Intergovernmental Committee on Drugs on 24th February in Adelaide, 12.10-12.30pm. Julie Byles to present on Alcohol, Illicit drugs and Tobacco. (See ACTION below)

The PowerPoint presentation for Seminar 3 which was given for the Office for Women has been requested.

The section that deals with screening has not responded to our advice regarding content for Major Report A. Annette will discuss this with Gretchen Carrigan.

**ACTIONS:**

- PowerPoint presentations for Intergovernmental Committee on Drugs need to be prepared by 13th February from Major Report A content. (AY and AR)
- AD to send Seminar 3 PowerPoint presentation.
- AD to discuss Major Report A with GC.

**4.2. Staffing Changes at UQ**

- Gretchen Carrigan started 9/1/2006
- Helen Gramotnev will be moving to School of Psychology
- Jayne Lucke starts 29/5/2006

**ACTIONS:**

- LT and JL to be emailed re attendance at Mid 5 planning workshop and face-to-face steering committee meeting on 30th March at Newcastle. (MO'M)
- Trip to Newcastle to be organised for Melanie Spallek and Gretchen Carrigan. (MO'M)

*Emails Sent 19/1/2006.*

*OUTCOME: LT and JL both indicated they can attend 30th March.*

**4.2.1 The UQ Data Manager position**

- Three applications have been received for the position but a fourth application is outstanding. Two applicants have been interviewed but an appointment cannot be made until the ‘lost’ application has been received.
4.2.2 Coordinator responsibilities 2006
- Penny Warner-Smith started as Coordinator (0.4) on 3/1/2006. The contract runs until the end of April by which time both Leigh Tooth and Jayne Lucke will have taken up their job-share Research Fellow position.

4.3 Administrative Changes
- Julie reported that the constitution for the new UN research centre is being drafted. The new Centre, which is provisionally entitled the Research Centre for Gender, Health and Ageing (RCGHA), amalgamates the Research Centre for Gender and Health (RCGH) and the Centre for Research and Education in Ageing (CREA).
- The University of Newcastle is currently conducting a review of research centres. This provides an opportunity to make the new centre a legal entity.
- Julie is interim Director for RCGH.

5. Budgets
- It was agreed that there was a need to focus on actual expenditure against the budget, with a need to know salaries and non-salaried components versus budget to date.
- AD concerned about costs rising with the Young survey.

ACTION: Draft Budget Report proforma to be sent to AD (PWS).

OUTCOME: Budget to become a standing item. Both UQ and UN will report each month to the Steering Committee.

6. Reports and Deliverables

6.1 2005 Annual Report
- Penny reported that the Annual Report was going to the printer that afternoon and that Tim has done a great job on the design. It is due to DoHA on 28th February.

6.2 June Technical Report
- Penny and Maree will begin organising the June Report over the next few weeks. Christina has provided detailed instructions re the writing of report but suggested it was still a little early to begin gathering information.

6.3 Major Report A
Annette reported a positive teleconference on 18/1/2006.
- The working group is close to finalising graphs and content.
- A rough draft with graphs and tables for input to text explaining methodological issues, findings and interpretations will be circulated.
- The title is to be “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health. Priority Conditions, Risk Factors and Health Behaviours”.
- The draft is to be with Tessa by the end of March.
7. **Linkage**

7.1 **Medicare Australia**
- Annette reported that Tessa has sent the documentation to Medicare, who have forwarded it to the Privacy section at DoHA. The climate for approval is favourable. Tessa will follow up and report back to Annette.

7.2 **Aged Care data**
- This item is in abeyance until Medicare is sorted out. Tessa agrees that the aged care data should not be pursued until Medicare linkage procedure has been approved.

8. **Publications**

8.1 **AEA Book**
- Deb reported that the Newcastle committee is in the process of drafting an ‘expression of interest’ letter to publishers. The next meeting is on the 7th February.
- The committee needs to find out about if submitting the separate sections to the ANZJPH as case notes is something that counts as DEST or not and is something worth doing. They will make a decision about this once they have that information.
- Deb said she felt that it was important to submit and publish as many articles as early as possible prior to publishing the book.

9. **PSA Report**

9.1 **Revised EOI form**
- **Amendments to form**
  - Section 13 – Other data sets required – delete text in brackets. Make this explicit on website.
  - Section 14 – Replace ‘contact with’ with ‘have access to’ and delete text in brackets.

*ACTION*: Make changes to EOI form as discussed above. *(PWS, MO’M, CC)*

9.2 **Report**
- Penny reported that most EOIs are approved, with two pending:
  - A149- Anstey: waiting for Kaarin to come back with confirmation of funding.
  - A152- Austen: name of project has changed. A revised application is required to indicate a proposed substudy and datasets requested. Awaiting outcome of AWAP application.
- Christopher Carpenter’s paper was approved.
- Melissa Graham’s papers were approved. Comments were forwarded to her.
- It was requested that all comments on papers submitted for PSA approval be copied to Penny and Maree.
9.3 Request from AIHW re ATSI analysis

- Deb reported on her telephone conversation with Michelle Wallis, who was told that approval for access to data on Indigenous participants was unlikely to be granted but who nevertheless wished to submit a written request. A formal response to this request will advise that the use of ALSWH data for that purpose is inappropriate.
- Members agreed that a definitive policy statement is needed.

ACTION: A standing policy re Indigenous data access to be drafted. Policy to be put on the website. (CL, PWS, MO'M, CC)

10. Surveys

10.1 Survey Progress

- Deb reported that all materials associated with Young 4 have gone to DataTime and the returned early proofs look good.
- Final proofs are due on 24th January
- Surveys will be mailed out 13th March.

10.2 Cohort Maintenance

- Deb reported that tracking is more successful, with more Young participants now on the electoral role, possibly because they are settling down.
- There was a need to have a UK mail drop point, and it was suggested that Gita Mishra be asked if she would agree to be the contact during her coming visit to UQ.
- Suggestions were made to improve response rate as per attachment No 7.

ACTION: Gita to be asked to be a mail drop off contact. (CL)

10.3 Alternative processes and technology for surveys

- At short notice NCS Pearson advised in December 2005, that they were unable to do the Young 4 survey. After carefully canvassing a number of options, the contract was awarded to DataTime.
- Annette reported that she has investigated Security Mail. They are keen to tender, service a number of large organisations including the Australian Electoral Commission, the ATO, Telstra and Commonwealth bank, and are technologically very advanced:
  - Receive the surveys back, log them and enter data directly and daily.
  - Have secure mail box with daily collection.
  - Also have a scan barcode and secure website. This means data are instantly available, as are response rates.
  - Potential for on-screen editing avoids extra shipping costs.
  - There is also a call centre capability.
  - Could also do newsletters.

- DataTime also will perform this automation and write a special program leaving only exceptions to be manually entered.
- Deb reported that she and Anna Graves would be visiting DataTime to see their process at first hand.
• It was agreed that there is a need for ALSWH to access improved technology which offers greater security and cost efficiencies. Further consideration should be given as to which company should be awarded the contract for the next pilot and newsletter.

10.4 Keeping electronic copies of old surveys and consent forms instead of paper copies
• Email from Sue O’Connor, University of Newcastle HREC, confirmed that the Ethics Committee has no problem with electronic storage of surveys. This is more space efficient, more accessible and more secure than paper copies long term.
• It is not clear how much it would cost to have past surveys scanned although NCS Pearson still have Old4 in electronic form. Consent forms are not yet done. Anna Graves is obtaining quotes to get electronic copies of the surveys. NCS Pearson is likely to charge $3000.00, DataTime $650.00.

ACTIONS:
Quotes to be obtained from Security Mail for shredding and scanning. (AD)
Costs of scanning past surveys in electronic form to be investigated (DL, AG)

11. 2006 Schedule of Steering Committee meetings

It has been requested that the regular teleconference time of Thursday morning be changed to possibly a Wednesday morning or Thursday afternoon.

ACTION: Email members to find out best time (MO’M).
OUTCOME: Proposed new schedule of meetings emailed to members 25/01/2006

12. AOB

12.1 Monthly reports: process
• This was deferred until next meeting.

12.2 Cut-off time for incorporation of late survey data
• This item was moved to the Data Meeting Agenda for discussion of a decision on a cut-off time.

12.3 External grants
• Current applications
  o It was reported that Annette, Julie, Penny and Anne Y were all involved in several AWAP grant applications.
  o Anne reported that the Brewers’ Grant application had been successful and the group had been awarded $30,000.
• Potential of linkage data
  o Possibility of applying for external funding if we get the Medicare Data? It was agreed that we need to ensure we have some good target projects.
  o NHMRC Capacity Grants are open again but we already have two – one with Sydney and one with Western Australia.
  o We need to position ourselves to build on the data we already have and need to link data and use the linked data.
If we had definite approval for the Medicare linkage now we could do it. However we could still put in an intention to apply since we have the PBS data as well. Discussion to continue at next meeting.

*ACTION: Make an External Grants agenda item for next meeting (PWS, MO’M)*

### 12.4 Health Outcomes 12th Annual National Conference 2006: Managing Health and Disease in Today’s Society, 9 - 10 August 2006, Canberra

- Annette suggested we need representation at this meeting and suggested that Leigh Tooth may like to attend. If Leigh is unable to attend then definitely someone else will need to represent us.

*OUTCOME: Maree emailed Leigh and she is willing to attend.*

| Next SC teleconference meeting to be held Wednesday 22nd February 2006 9.00am QLD time/ 10.00am NSW/VIC time. |  |  |
Minutes of the Steering Committee Teleconference
Wednesday 22 February 2006
9.00 QLD time, 10.00 NSW time
CHAIR: PROF ANNETTE DOBSON
Minutes: Anne Russell

1. Welcome and apologies
Present: Annette Dobson, Wendy Brown, Lois Brys on, Penny Warner-Smith, Julie Byles, Christina Lee, Anne Young, Deb Loxton

2. Minutes and matters arising
No matters arising that were not on the agenda.

3. Steering Committee composition for 2006
3.1 Terms of Reference
The Terms of Reference (Attachment 1) were ratified. Remove from Agenda

4. Strategic Issues
4.1 Contract revisions
The variation in contract (related to the 50/50 split of funds and new PI responsibilities) has been signed at UQ and sent to UN. PWS is not sure if it has been received.

ACTION: PWS to check on progress of contract at UN
(NOTE: DL found that the contract had been signed at UN and just sent to DoHA)

Obtaining financial statements has been slow and frustrating. PWS estimates that finalisation is still about 3 weeks away at UN; AD has been unable to prompt action at UQ.

ACTION: AD and DL to keep pestering for these and to be completed and sent to DoHA.
(NOTE: UQ completed and sent to DoHA 27/02/2006)
4.2 PAC meeting and Mid5 workshop
Annette, Julie, Lois, Wendy, Anne Y and Deb attended PAC but not the inter-departmental meeting. Notes on suggestions for Mid 5 are recorded in Attachment 2.

The notes are not instructions but suggestions at this stage. WB feels the questions raised by the department are good ones but many need to be addressed by qualitative investigation and that ALSWH are not in a position to pursue them.

ACTION: DL to add suggestions in Attachment 2 to Mid 5 planning documents.

There has been a request from DoHA to do analysis of carer data that we already have; some of CL’s work to date may be used. There is a suggestion of extra funding for this analysis.

ACTION: PWS to organise a teleconference b/w JB, PWS, CL and AD to discuss.
Issues about use of Medicare data raised by Ross Saunders were addressed by AY. Much of the discussion reiterated points made in previous years.

Medicare linkage is being progressed through the Department and we were told that a way forward had been prepared. Information on this issue was expected within 3 days of PAC but nothing has happened yet.

The Medicare data needed for planned work will not have to be obtained until mid-year, so there is still time to wait for the new protocol for all participants (not just consenters) to be approved.

It was helpful to have Helen Moyle (representative from the FACS Research Committee) there as she is interested in retirement funding issues and ways to fund the analysis.

There was enthusiasm for analysis of PBS data.

Internal FACS processes have resulted in a delay of about a year with regard to the retirement report, and this is now a serious issue.

Fiona Lynch (Assistant Secretary/Office for an Ageing Australia) attended for half the meeting. Peter Morris (Head/Strategic Planning Branch/Population Health Division) attended for the whole meeting.

4.3 Staffing Changes at UQ

4.3.1 The UQ Data Manager position

Calvin Wang has verbally accepted a job offer but, as of yesterday, had not yet received a formal letter of offer, so an email offer was arranged.

(NOTE: Offer has been accepted and Calvin takes up his appointment on 13th March.)

4.4 Administrative Changes

4.4.1 RCGH

Julie has circulated the constitution for the new Centre for Gender, Ageing and Health extensively and it is now being progressed to the university Council. RCGH and CREA will be combined and re-badged as of 1 March 2006. Space on the Callaghan campus is to be allocated.

4.5 UN – UQ Collaboration

There is a need to work actively to ensure that things continue to work smoothly despite the many recent changes in staff, roles and responsibilities. For UN, there is also the issue of how staff on the ALSWH project will ‘fit’ into the new centre. For the project, there are also practical issues concerning the roles and responsibilities of the SC and the DMG, particularly the potential for overlap and/or confusion.

So AD has proposed that MOM, AR and AD visit on 20 March to discuss the nuts-and-bolts of these processes.

ACTION: UQ to draft point for discussion.

ACTION: AD to investigate if Leigh Tooth can attend.
5. Budget reports

5.1 Budget proforma
The form (Attachment 3) needs to have 2 extra columns – Projected YTD and Actual YTD.

5.2 UN draft budget report for January 2006
No specific points raised about Attachment 4.
ACTION: PWS to revise form as noted.

5.3 Policy for reimbursement of travel expenses.
DL raised this because of some uncertainty concerning travel for the mid 5 planning day.
Principle Agreed: For anyone other than government employees the ALSWH requests/needs to attend project meetings, both airfares and either airport parking/cab fare will be reimbursed.

6. Reports and Deliverables

6.1. 2005 Annual Report
The report has been completed and distributed. UQ have received a box but the report has not been sighted at UN by some PI’s.

6.2. June Technical Report
This is next in PWS to-do list. She will discuss it with Leigh Tooth.

6.3 Major Report A
Most analyses are complete but the words around them are lacking. There is a teleconference about this tomorrow. A very preliminary draft was tabled at PAC.

7. Linkage

7.1 Medicare Australia
This is being progressed by Tessa and we have to wait for the DoHA process.

7.2 Aged Care data
In abeyance until Medicare is sorted out.

8. Publications

8.1 AEA Book
Feedback from Lois has been very helpful.
ACTION: DL to send letter and materials to potential publishers.

8.2 Other publications
Remove from the Agenda.

9. PSA

9.1 Revised EoI form
Changes need to EOI (Attachment 5) include clarification that ID refers to ALSWH process, ‘Brief outline’ to include a specific aim/hypothesis/research question.
ACTION: All to send suggestions to PWS for collation
9.2 Policy on data regarding Aboriginal and Torres Strait Islander participants
Content of Attachment 6 is generally fine but it needs some final editing. There does need to be clarification that the lack of coverage of Medicare refers to the time of sampling, not now. The policy was ratified subject to editing.

ACTION: All to fax/email suggestions for change to LB

9.3 PSA Report
Regarding EOI 155 (Attachment 7), WB explained that these investigators intended to do a meta-analysis and had never intended to do a primary analysis of ALSWH data. Unfortunately they were caught up in the usual PSA process, which was not appropriate for their request. This highlights the need to adapt the EOI process for non-standard requests.

10. Surveys

10.1 Survey Progress
The Y4 survey takes about 40 minutes to complete, which is pleasing given the number of pages.

Christina noted the suggestion of having Medicare to do a mailout to younger women we no longer have contact details for (Attachment 8) was tried in 2000 with a 1% success rate. However the Medicare database has improved during this time and it may be worth doing again. AY noted that now is not a good time to make such a request to Medicare.

10.2 Cohort Maintenance
Nothing to report.

10.3 UK mail point
Christina has organised for Gita Mishra to act as the UK mail point.
ACTION: DL to arrange for this to happen.

10.4 Alternative processes and technology for surveys
Annette and Deb to report on investigations since last meeting

We know from the visits to Datatime and Security Mail that there are more efficient methods than we currently use that are available. Although the tender for Y4 did not include these methods (such as receiving directly and logging returns), AD was keen to investigate if is too late to change the process this time.

We also know that at least Datatime and Security Mail will be able to tender for a survey run with an upgraded protocol. The Mid 5 tender document will need to be re-written with this in mind.

ACTION: DL to find out the cost of a “system upgrade” for Y4.

ACTION: DL, JB and AD to decide if the upgrade is appropriate.

10.5 Keeping electronic copies of old surveys and consent forms instead of paper copies
Deb has been investigating costs of obtaining electronic images of previous surveys and consent forms so the paper copies do not need to be retained.
Deb corrected the amount in the following para of Attachment 10
- NCS Pearson has the Older 4 surveys in both hard copy and scanned images. They have quoted approx. $3600 to supply the scanned versions of O4 on an external hard drive.

NCS Pearson is not interested in quoting for conversion of Mid 4 to images. Datatime quoted $99,966 to scan Survey 1, 2 and 3 for Young, Mid and Old.

We need to keep in mind the ongoing costs and risks of storing and moving the paper surveys.

ACTION: DL to investigate other options, and costs, for obtaining images for all previous surveys.

11. **External grants**

   It may be a useful resource to have a record of all grant applications based on ALSWH. The SC should receive at least: Title, Investigators, Funding Source and the Lay Summary.

   **ACTION:** All investigators to send the above information for all applications since 1st January 2006 to PWS to compile for the next SC meeting.

12. **AOB**

   12.1 SF 36 Norms - *See Attachment 11*
   12.2 Cut off dates for Surveys - *See Attachment 12*

   Hold both items over until next meeting.

   **Next meeting:** Face to Face meeting 30\(^{th}\) March 2006 in Newcastle after meeting on Mid 5 survey.
Minutes of the Face to Face Steering Committee Meeting  
Thursday 30 March 2006 - 3pm NSW time  
Chair: Prof Annette Dobson  
Minutes: Anne Russell

1. Welcome and apologies  
Present: Annette Dobson, Wendy Brown, Penny Warner-Smith, Julie Byles, Christina Lee, Anne Young, Deb Loxton, Leigh Tooth, Jayne Lucke  
Apologies: Lois Bryson

2. Minutes and matters arising  
No matters arising that were not on the agenda.

3. Strategic Issues  
3.1 Administrative Changes  

3.1.1 UQ Staffing  
Calvin Wang has commenced as Data Manager (Surveys). Maree O’Mullane has resigned and the position is being advertised; Cherie Harris will fill-in for 6 weeks from mid-April.

3.1.2 RCGHA  
RCGHA is now officially constituted and the PVC (Research) is campaigning for space at Callaghan.

3.1.3 Collaborative meeting at UN  
The meeting focussed on administration and communication issues. Anna Graves will visit UQ in about 2 weeks; future visits are planned for other UN staff.

4. Budget reports  
4.1 UN budget report for March 2006  
DL tabled a UN budget; wages costs are up due to intensive tracking.

4.2 UQ budget report  
There will be no UQ budget until Jayne Lucke officially commences work (29 May).

5. Reports and Deliverables  
5.1 Audited financial reports  
Audited financial statements for UN continue to be sought; a mechanism is now believed to be in place and the statements should be available to collect on Monday.  
Postscript: The UN audited statement was completed 4/4/06, and an e-copy was forwarded to DoHA with the original to follow by Express Post  
The report for UQ has been completed (in 2 parts).
5.2. June Technical Report (due 1 June)
In progress; Cath Chojenta and Cherie Harris will assist.

5.3 Major Report A
The draft was submitted yesterday. All comments/correction are to be sent to Annette.

ACTION: LT to call for comments

ACTION: AD to remind Tessa of the closing date for replies from DoHA and for advice on process.

5.4 Carers Report
A teleconference today established that $40,000 is available this financial year for a brief report to be supplied before 15 June, with a full report in September/ October. A sub-study of Mid-age carers could be piloted late in 2007 with a view to a final survey in 2007-08. A proposal is due before Easter. The issue of a sub-study of Mids in 2007 will need ethics approval.

5.5. Retirement Report
Helen is 70% sure FACS will go ahead with this. They are checking whether tenders need to be called.

6. Linkage

6.1 Medicare Australia
DoHA has established an ALSWH Data Linkage Unit to handle the logistics and to prevent future criticism of process and ethics. The process should take at least another 6 months.

ACTION: AY to order 2005 data for consenters.

6.2 Aged Care data
In abeyance until Medicare is sorted out.

7. Publications

7.1 AEA Book
ACTION: DL to re-draft by next week

8. PSA

8.1 Revised EoI form
Attachment 2 noted.

8.2 Policy on data regarding Aboriginal and Torres Strait Islander participants
Lois is revising; hold over until next meeting.

8.3 PSA Report
Attachment 3 noted.

9. Surveys and data management

9.1 Survey Progress
1,600 Y4 surveys (from ~12,000) have been logged during the first 2 weeks. 

*Items 9.2, 9.3, 9.4 & 10 Deferred*

**9.2 Cut-off dates for surveys** - *See Attachment 4*

**9.3 Alternative processes and technology for surveys**

**9.4 SF 36 Norms** - *See Attachment 5*

10 **External grants**

Next teleconference 19 April at 9am. Apologies from Wendy
No Steering Committee meeting during April 2006
1. Welcome and apologies

- Present: Annette Dobson, Leigh Tooth, Deb Loxton, Anne Young, Julie Byles, Penny Warner-Smith, Christina Lee, Wendy Brown, Lois Bryson
- Cherie Harris re-welcomed and Bree Waters welcomed to the new position of Project Officer – Research/Administration at UQ.
- No apologies.

2. Minutes and matters arising

- One matter arising – Jayne Lucke starts at UQ on May 29th 2006, not May 9th 2006 as originally stated. Due to Jayne Lucke’s amended starting date, there is no UQ budget report for this meeting.

  
  **ACTION:** Bree to update minutes of previous meeting and distribute.

3. Strategic Issues

3.1 RCGHA

- Julie Byles reported on her ongoing salary discussions with UN hopefully to result in UN covering 100% of her salary.
- The November 2005 correspondence between Julie and Nick Saunders has not progressed beyond Nick Saunders expressing full support.

  
  **ACTION:** Julie Byles and Annette Dobson will be discussing this on Monday 22nd May 2006. Following this discussion Annette Dobson will correspond with Nick Saunders regarding further progress.

- Julie Byles reported that Barny Glover had a positive visit to the research centre; however the talks regarding more space resulted in no planned relocation of the centre for at least five years. The research centre desperately needs space and in the interim the existing space will have some renovations to modernise it and there is potential for the centre to obtain space in the area of DMB once used for the library.

3.2 Medicare linkage

- Tessa has asked that the statement about data linkage used in the newsletters be included with the survey materials – so we need to decide if this should be on the survey, consent form or cover letter.
• Additionally, the AEC has provided a statement regarding confidentiality that it wants included with the survey materials sent to all ALSWH participants. Annette Dobson and other Steering Committee members want to view AEC letter before deciding whether to put the statement on the survey, consent form or cover letter.

• **ACTION:** DL to forward SC members the AEC statement for consideration of where on the MID 5 survey materials it should be placed.

**3.3 Carers report**

• Annette Dobson reported that she had received a draft contract from Wendy Walsh, from the Carer Support Section, Community Care Branch Ageing and Aged Care at DoHA. The contract is long and detailed and there is insufficient time to get the contract legally checked and to get the preliminary data analysis conducted and summarized by the due date of 15th June. The contract had also brought forward the final deadline from June 2008 to September 2007, which would make it impossible to fulfil due to the timing requirements of the substudy. AD relayed these concerns to Tessa Pascoe and Wendy Walsh. A revised version was then sent to AD by Wendy Walsh with the dates open.

• **ACTION:** AD and LT to go through the revised version before sending it for legal opinion.

**4. Investigators and website**

• Decision to abandon the term “Investigators” and just use ALSWH “Steering Committee” and “Collaborators” instead.
• Important to use the word current to identify collaborator and student status.
• Instead of separate UN and UQ pages on the website it was suggested a joint page with University affiliations after each name.

• **ACTION:** The front page of the website will be amended to incorporate the above decisions. There will be hyperlinks to individual bios. DL to coordinate.

**5. Budget reports**

**5.1 Budget report**

• Deb Loxton tabled a UN budget.
• Annette Dobson thought the NDI linkage had been possibly paid more than once.
• NCS Pearson bill still to come from UN.

• **ACTION:** Melanie Moonen at UN to look into NDI payments and also to sort out invoicing issues from last year regarding UQ.

**6. Reports & Deliverables**

**6.1 June Technical report**

• June technical report completed and printed. Only one hiccup, the figure on page 90 did not print properly.
• AY asked that an electronic copy be forwarded to UN.
• ACTION: BW/CH to re-print page 90 and add it separately to each copy. An electronic copy of the report has been saved as a PDF and will be sent on disc to UN.

6.2 Major Report A
• DoHA provided considerable feedback necessitating major changes to formatting and inclusion of a Nutrition section. Melanie Spallek responsible for formatting of report. JB indicated she wanted to see the draft report before it was finalised.
• Consensus is to stand behind ALSWH findings but report in a non-confrontational manner.
• Kuldeep Bhatia (AIHW) was very positive. Tessa Pascoe indicated she thought Major Report A might be suitable for a Ministerial launch.
• ACTION: MS to continue formatting the report. Once complete to be sent to JB for comments/additions.

6.3 Obesity task force
• Wendy Brown asked Annette Dobson to follow up with Tessa Pascoe on presenting to the Obesity task force in August.
• ACTION: AD to talk to Tessa Pascoe

6.4 Retirement report
• PWS indicated she was not sure where the retirement report was up to, and whether ALSWH would be successful or not in tendering for the report.
• ACTION: JB to contact Helen McDermott regarding retirement report.

7. PSA

7.1 PSA process, payment of $50 for data
• LT reported on the decision to re-establish the fee to obtain the ALSWH data. This was set at $100 (but with a provision to allow for student exemptions), an increase of $50. Need to investigate how easy it will be to send invoices from UQ. Information needs to be put onto website.

• ACTION: LT to investigate invoicing options and report to the next meeting.

7.2 Data management form
• LT tabled a data management form compiled by AG. This form is to indicate exactly what data sets are required for each EOI. This is to be filled out by the ALSWH liaison person/collaborators and once the EOI is approved, this will be given to Calvin Wang. Some additional content/changes to the form were suggested by the Steering Committee.

• ACTION: LT to update form and circulate for next Steering Committee meeting.

7.3 PSA follow-up process
• LT questioned the PSA follow-up process. JB mentioned that previous minutes may have Steering Committee decisions re this from the past.
• ACTION: BW and LT to look into any existing processes and previous Steering Committee minutes – will report back in next meeting.

8. Other business

8.1 Servier pharmaceuticals

• Annette Dobson received letter from Servier representative Andrew Weekes regarding possible funding support for ALSWH. One possibility might be to cover coding of medication data.

• ACTION: AD to phone Andrew Weekes to discuss further. PWS to talk to Professor David Henry about Servier as a company.

9. Next meeting

Wednesday 14th June 2006 at 9.00 am – teleconference

Christina Lee excused from meeting at 9:50am.

Meeting closed 10:05am.
MINUTES
Steering Committee Teleconference
Wednesday 14th June 2006, 9:00 – 10:18 am
CHAIR: PROF ANNETTE DOBSON
Minutes: Bree Waters

1. Welcome and apologies
   - Present: Annette Dobson, Leigh Tooth, Jayne Lucke, Deb Loxton, Anne Young, Julie Byles, Penny Warner-Smith, Christina Lee, Wendy Brown, Lois Bryson.
   - No apologies.

2. Minutes and matters arising
   2.1 Actions from previous meeting
   - Annette Dobson’s draft letter to Nick Saunders was discussed. Julie Byles felt that Nick Saunders was sorting out her salary, with 50% coming from the University and 50% from the School of Medical and Population Health. However, space requirements have not been satisfied. The Steering committee decided that the letter was overly harsh for the present situation, although it may be useful in the future if no progress is made.
     
     ACTION: JB is to follow up on salary issue.
     
     ACTION: AD’s letter is to be re-worked and distributed to Steering Committee members before sending it on to Nick Saunders.
     
   - Deb Loxton distributed AEC letter to committee members and AEC requirement and the Medicare statement were placed at the bottom of the letter to participants. This positioning was approved for the Mid 5 pilot.
     
   - Cath Chojenta is finishing up website updates, and waiting on final staff biographies to come in.
     
     ACTION: DL and CC to add Media contact person to the website (Lyn).
     
     ACTION: DL to write a paragraph about ALSWH containing keywords to improve the homepage being identified by Goggle searches. CC to put this paragraph on the website.
     
   - Annette Dobson’s communication with Tessa Pascoe regarding the Obesity task force eventuated in assurance that Wendy Brown would be involved in making a presentation on ALSWH data to the new equivalent committee on obesity once it is established. The date of the revised Obesity task force meeting is not yet known.
     
   - Andrew Weekes (Servier) told Annette Dobson that Servier’s interest in WHA data is to support a PBAC application for an alternative drug to bisphosphonate for the
secondary prevention of osteoporosis. PBS restrictions apply to bisphosphonate and there is an ALSWH draft paper being prepared for submission to Med Aust on this topic. Therefore any connection with Servier would compromise WHA at this time. Consequently, access to WHA data will be denied to Servier.

3. Strategic Issues

3.1 RCGHA

- The centre is putting in a full application for ‘centre status’ which will include offers for scholarships, fellowships, IGS and RIBG. Accordingly Julie Byles indicated the worthwhile membership to this.

  - **ACTION:** Julie Byles to write to all Steering Committee members offering an invitation to join the centre as external members.

3.2 Medicare Linkage

- Letter received from Tessa Pascoe was discussed.

  - **ACTION:** Annette Dobson, Anne Young, Anne Russell and one other person from Newcastle will meet and discuss Tessa Pascoe’s correspondence.

- The Steering Committee alerted to the possibility that Ross Saunders will want to look at the quality of Medicare data for WHA linkage for each project. The committee suggested the necessity of time frame to be established for this process.

  - **ACTION:** Meeting this afternoon with AD, AY and AR, to discuss the questions and proposals from DoHA correspond with them regarding logistics and timelines for data quality checking.

3.3 Carers contract

- The Carers contract is expected back at the end of June 2006.

  - **ACTION:** Annette Dobson to chase up the Carers contract with Tessa Pascoe.

3.4 Staffing Issues

- Annette Dobson reported that Calvin Wang’s probation was not confirmed. The Data Manager position is now being re-advertised.

- Anne Russell has distributed OLD 4 data and is awaiting feedback.

  - **ACTION:** AD to tell AR that data sent out to Wendy’s group were not accessible to them as they don’t use SAS.

  - **ACTION:** AD to negotiate who will create the OLD 4 data book.

- Annette Dobson mentioned that Melanie Spallek will be taking maternity leave from the middle of July 2006.

- In addition, Annette Dobson indicated that a new research fellow position for ALSWH at UQ for a 2 year period will be advertised, provided budget can support it.
3.5 Strategic research directions

- Initial discussions prior to in-depth review at the next Steering committee face-to-face meeting on 30th August 2006.
- Need to learn from other longitudinal research, particularly focus on data linkage.
- ‘Data linkage Australia’ team are based in WA and are working to set up links in other Australian states. The Steering support links to this group to be at the forefront of this development.
- Need to assess current status of approved EoI projects in order to better inform strategic direction.

- ACTION: BW & LT to review status of all EoI’s and revise the theme report.

4. PSA

4.1 Report

The current EoI’s attachment was noted.

4.2 PSA Follow-Up process

- The issue of re-organising the Expressions of Interest (EoI) database was raised, along with setting a time frame for researchers’ progress. Leigh Tooth drew the Steering Committee’s attention to PSA policy stating: “Approval is current for 6 months and will be renewed following interim review if work is progressing reasonably”. It was decided that this requirement for progress reports would remain as bi-annual with updates for the Technical report. If no progress is made the EoI will be cancelled at the discretion of the Steering Committee.

- ACTION: LT and BW to correspond with approved EOI researchers who are non-responsive in their progress reporting after 12 months, explaining that if no response is giving within a further 2 weeks the EOI will be cancelled.

4.3 Data Management Form

- Leigh Tooth reported the Data Management form is ready for distribution.

4.4 Invoicing for Data

- Data Invoicing options are either invoicing with or before sending data. The decision was made to invoice when the data is sent out.

4.5 EoI Form

- Leigh Tooth identified problems with the current EoI forms as not including enough fields for substudies.

- ACTION: LT and DL to review PSA document C and create a separate form for substudies.

5. Budget reports

5.1 UN Budget report for 2006

- Reporting of University overheads was discussed for the UN budget report. Decision was to include overheads in the monthly reports even if not yet billed.
- Postage and printing should remain as separate items based on auditor preferences.
5.3 UQ Budget report for 2006

- Jayne Lucke indicated UQ account re-organisations, leading to the need for future budget projections up until June 2008.

- **ACTION**: JB and DL to estimate the prospective UN bills to UQ until June 2008, and communicate this with JL.

6. Reports and Deliverables

6.1 Annual Report

- The Annual report has been approved for distribution.

6.2 Major Report A

- Major Report A is complete and has been sent to the Department of Health and Ageing. Tessa Pascoe advised some minor changes might be needed. WHA UQ should receive notification of this next week. The final report is not to be printed until Tessa Pascoe has organised the Ministerial Foreword.

6.2 Retirement Report Contract

- Changes to the Retirement report contract have been reviewed, and it is waiting for signing.

7. Participant Newsletter

7.1 Planning newsletter 2006

7.1.1 Past topics covered

- Past newsletter topics attachment was noted.

7.1.2 Planning newsletter 2006

- The reader audience is mainly participants, and also politicians and bureaucrats.
- Emphasis is to be placed on weight gain in the young and mid age groups.
- Major Report A will not be included in this year's newsletter due to possibility of newsletter being distributed before launch of report.
- Rosie Mooney's work on fertility and motherhood is to be included.
- For the young age group, suggestions were: decision making around pregnancy; growing out of binge drinking, smoking and illicit drug use; and weight.
- For the Mid age group, retirement. Retirement was last covered in the 2003 newsletter and needs to be included this time with reporting of proportions of retirement from Mid 4 survey.
- For the Older age group, the carers substudy will be included. Leigh Tooth will be involved. Falls will also be included, although the CVD research won't make the deadline.
- Qualitative data should be an important inclusion in the newsletter.

8. AOB

No other Business was brought forward.
9. Next Meeting

Teleconference - Wednesday 19th July, 10:00 am.
The following Meeting on 30th August will be a face-to-face meeting at UQ

Wendy Brown left meeting at 9:56 am
Christina Lee left meeting at 10:01 am

Meeting closed 10:18 am
1. Welcome and apologies
   - Present: Annette Dobson, Leigh Tooth, Jayne Lucke, Deb Loxton, Anne Young, Julie Byles, Penny Warner-Smith, and Wendy Brown.
   - Apologies were given from Christina Lee and Lois Bryson.

2. Minutes and matters arising
   2.1 Actions from previous meeting
   - Julie Byles gave an update on the progress of her salary negotiations at UN, commenting that much progress had been made with no outcome yet.
   - Julie also commented about the submission under the priority research scheme, which would offer fellowships and money for equipment and refurbishments. The outcome of this application should be known by the end of July.
   - Annette Dobson’s letter to Nick Saunders regarding space requirements at Newcastle has been modified and sent to Nick. Currently no reply has been received.
   - Deb Loxton indicated that the website updates are almost ready, and will be up within a fortnight.
   - Correspondence occurred with Tessa Pascoe on a number of issues:
     - The Department of Health and Aging advisory meeting on Wednesday 2nd August between 10am-1pm in Canberra. The Steering Committee members that are available to go are Annette Dobson, Deb Loxton, Anne Young, Jayne Lucke, Leigh Tooth and if necessary Penny Warner Smith.
     - Major Report A is waiting approval of a forward by the Minister (and there may be some minor changes requested on the alcohol section).
     - \textit{ACTION}: Data Linkage email needs to be sent to Tessa Pascoe
     - Tessa Pascoe will talk to the relevant section of the department once this email is received and will get back to WHA.
     - \textit{ACTION}: Bree Waters to complete a one page report on possible Major Report B & C categories to be sent to Tessa Pascoe by Friday, replacing physical activity with weight change.
     - \textit{ACTION}: 2007 Achievement report to be developed. This will involve a four page advertorial of WHA
Review to occur in 2007 will be different to previous reviews in that the focus will be on how WHA research is benefiting policy. To be discussed more at PAC on 2nd August 2006. review will be conducted internally by DoHA.

• Richard Hockey has begun the analysis for the carers contract which is due in 15 weeks.

• **ACTION:** Meeting regarding carers contract to occur in coming weeks.

• Data is now accessible to Wendy’s group.
• OLD 4 data book will be created by the new data manager
• Database updates/linkage is over half way completed.

• **ACTION:** Bree Waters to complete a theme report for the face to face Steering Committee meeting in August.

### 3. Strategic Issues

3.1 Successful AWAP grants (Anstey and Dobson)
Two NHMRC Ageing Well, Ageing Productively grant applications have been successful:

- Annette Dobson’s (UQ) project: “Predictors of Ageing Well in the Australian Longitudinal Study on Women's Health and the Perth Health in Men Study” has been granted $1.8 million over five years.

- Kaarin Anstey’s (ANU) project: “Using health outcome data from pooled Longitudinal Studies of Ageing to develop statistical and microsimulation models to determine how to best compress morbidity and optimize healthy and productive ageing” has been granted $2 million over 5 years.

3.2 Medicare data linkage update

- The latest Medicare data have been ordered, and should arrive within the next six weeks. A lot of work has been done on the data linkage protocol which will be sent to the Department of Health and Aging.

### 4. Budget reports

4.1 Budget pro forma

- Budget reports from UQ and UN are now in the same format

4.2 UN Budget report for 2006

- UN is in the final stages of developing a new budget report for maximum efficiency, currently being developed by an accountant.

  • **ACTION:** Once complete, the UN budget report is to be sent to Jayne Lucke to produce harmonised budget reports between UQ & UN.

UQ Budget report for 2006

- The Steering committee noted the attached UQ budget report.
5. Reports and Deliverables

• There were no comments made on Reports and Deliverables

6. Publications

6.1 Report

• EoI A149 will be extended due to the grant received.
• The grant application for EoI A152 was unsuccessful. Therefore a decision has been made to break up the proposal and re-submit it to ARC for funding.

7. PSA

7.1 EoIs for substudies – designing a new S-EOI form and revisiting the approval process

• New documents for substudies created by Deb Loxton and Leigh Tooth were presented to the Steering committee and discussed. These documents include changes to Document C guidelines and a new substudies EoI form.
• The Steering Committee decided that at step one substudy researchers need to discuss with the Newcastle group to estimate timelines and budgets which will help to produce realistic deadlines, and benefit funding research and EoI applications.
• Substudies will include a six month review whereby updates on grant applications will be requested.
• The ID numbers of previous work requested on the new Substudies EoI form refers to collaborators only.
• The Steering committee decided that the collaborators should describe arrangements for statistics on a EoI. The cost should be worked into a projects budget. Who does the statistics will be determined by project.

• ACTION: Deb Loxton and Leigh Tooth to finalise changes to these forms in light of Steering committee discussions.

8. AOB

• ACTION: Plan face to face meeting over the next month.
• ACTION: Work on strategic issues.

• One agenda issue has been raised regarding the NSW data linkage unit for linkage with hospital records.
• Retirement grant contract due September 1st.

9. Next Meeting

• Face to face at UQ 30th August 2006 from 9:30 am. Apologies have been received from Julie Byles and Christina Lee
1. Welcome and apologies
- Present: Annette Dobson, Wendy Brown, Penny Warner-Smith, Lois Bryson, Anne Young, Deb Loxton, Jayne Lucke and Leigh Tooth.
- Apologies received by Julie Byles and Christina Lee

2. Minutes and matters arising
2.1 Actions from previous meeting
- Annette Dobson gave an update on her discussion with Tessa Pascoe (DoHA) regarding the Major Reports
  - Major Report A is almost ready to be given back to WHA. The Alcohol section has been expanded from three key findings to ten, and is now probably ok. Hurdles still remain with the Screening section, as the existence of false positives are being ignored by the department.
  - Suggestions for Major Report B: There are no problems so far with Obesity as a topic. Tessa Pascoe is looking at additional perspectives for the young and old cohorts
- 2007 achievement report development to be discussed at Section 5.3
- Bree Waters has completed a themed report of all Women’s Health Australia research which was used to discuss future WHA research directions after this initial Steering Committee meeting.
- Progress on UN budget report development to be discussed at Section 4
- Leigh Tooth and Deb Loxton reported that the changes to the EoI substudies form and instructions are now complete.
- Strategic issues were discussed following this initial SC meeting.

3. Strategic Issues
3.1 Staffing
3.1.1 UQ
- Michael Howard began his term of employment as the new Data Manager.
- Leigh Tooth will be going on maternity leave at the end of 2006 for a currently undecided length.
- Melanie Spallek is expected back from maternity leave in January 2007.
- UQ group has started the process to appoint a new Research fellow. An advertisement for this position is in progress.
3.1.2 UN
- There were no staffing matters at UN.
- Deb Loxton reported that the Research Centre for Gender, Health and Ageing at UN has received priority research status, bringing more funding into the Centre and hence indirect support for the WHA project.

3.2 ARACY ARC/NHMRC Research Network/Murdoch Children's Research Institute Workshop – “Mature Australasian Longitudinal Studies of Children and Youth: Celebrating achievements, making connections, planning for the future”.
- Deb Loxton and Jayne Lucke reported on their presentation at the ARACY workshop last week in Melbourne.
- This workshop was also attended by representatives from Mater UQ Pregnancy Study, Tasmanian Infant Health Study, Christchurch Health an development Study, LSAC, LSAY, Raine Study, Australian Temperament Study, Victoria Adolescent Health Cohort Study, Life Chances Study and PATH through life study, Epigenetics research, AIHW, NHMRC, Molecular Medicine Informatics Model (MIMM), ABS, and ARACY.
- Deb Loxton reported that MMIM and ABS are working on data linkage methods.
- Potentials of data linkage at the minimum can involve a live data link between UN and UQ, with possible access by collaborators with the appropriate security measures.
- Criticism was received at this workshop regarding response rates for the original WHA sample. The Steering Committee agreed this was based on misinformation about the study and misinterpretation of a cited paper by Darcy Holman.

- ACTION: To contact the critic with high lightings from the Darcy Holman paper, informing the critic of the inaccuracies in their interpretation of the Holman paper.

3.3 Additional Strategic Issues
- Jen Lindon - who has taken over from Helen McDermott at the Office for Women – spoke with Tessa Pascoe regarding interest in providing additional funding to WHA research.
- Jen Lindon has a background in childcare and is interested in the prevention of childhood obesity.
- Annette Dobson has suggested the topic of women’s strategies to manage weight to Jen Lindon as a possibility for additional analyses and a substudy.

4. Budget reports

4.1 Budget pro forma
- The Audited statement is due in at the end of September 2006.
- Jayne Lucke reported this is a priority at UQ Research Accounting, and is in progress. Deb Loxton is currently closing up audited UN statement.

4.2 UN Budget report for July 2006
- Deb Loxton presented the new budget report maximising efficiency, with less time needed for its completion than the previous report format.
- Deb Loxton presented the new balance sheet which includes the total budget for the current financial year, comparing budget allocations with actual spending for
each month which a cumulative running total of account balances for the financial year.

- The Steering Committee were happy with this format, with the amendment to format the salaries data to be presented in the same way as the non-salaries budgets.
- The committee decided the updated balance sheet would be used each month for both UN and UQ.

- **ACTION:** Deb Loxton to adjust the balance sheet to format the salaries budgets in the same way as the non-salaries budgeting.
- **ACTION:** Once the balance sheet is adjusted, Deb Loxton to send it to Jayne Lucke.

### 4.4 UQ Budget report for July 2006

- Jayne Lucke presented the UQ budget report for July 2006.

- **ACTION:** UQ to now use the newly formatted budget report and balance sheet developed by UN.

## 5. Reports and Deliverables

### 5.1 Update on physical activity report for FACSIA

- Wendy Brown outlines the content of this report for FACSIA, involving all WHA mid and old cohorts. The report is set out in the following format:
  1) Literature review on physical activity and women. This has been drafted and presented to FACSIA, with a simpler version requested by the department.
  2) How much physical Activity should women be doing?
  3) Who is doing this amount of activity?
  4) Changes in physical activity over time.
  5) Physical activity and health.
- The initial report is due in to receive comments from FACSIA in December 2006.

### 5.2 Retirement Report

- Penny Warner-Smith said that the Retirement report is close to a preliminary draft which is due this Friday 1st September 2006. The final draft is due in mid November 2006.

- **ACTION:** Penny Warner-Smith to complete her work on the Retirement report.

### 5.3 Carers Report

- Annette Dobson described problems with the Carers questions in the mid 1 and 2 surveys.
  - In mid 1 survey, a different question was asked and therefore cannot be used for comparisons.
  - The website version of the mid 2 survey is wrong, and is being updated by Cath Chojenta.
• **ACTION:** Cath to put the correct mid 2 survey on the internet, and ensure all other surveys on the website are correct.

• There are still problems with the data quality from the mid 2 survey for questions regarding caring; probably related to problems with data entry.
• Richard Hockey is continuing to look into the problem with the carers questions in the mid 2 survey.

• **ACTION:** Ensure the data book is updated and only one version is used.

• **ACTION:** Annette Dobson to talk to Christina Lee about these problems with data quality, which relates to Christina's in-press carers paper.

## 5.2 Major Reports

• The agenda attachment summarising the future Major reports was noted. Additions to this document were given by Anne Young for the summary of Major Report C (see attachment 1).

## 5.3 Achievement Report 2007

• Deb Loxton demonstrated a new idea for the 2007 Achievement Report of desk calendars instead of the previously proposed 4 page glossy report.
• The calendars were proposed include a summary about a particular research area each month, and will direct people to the WHA website, offering further information of the WHA research findings in this area.
• The Steering Committee supported this idea, deeming it original and effective.

• **ACTION:** Deb Loxton to present the calendar idea to Tessa Pascoe and discuss costs.

## 6. Surveys

### 6.1 Old 5 survey methods

• Deb Loxton emphasised keeping the Old 5 survey at its current length, with no more additions.

## 8. PSA

### 8.1 Report

• The list of current EoI’s was noted by the Steering Committee.

## 9. AOB

### 9.1 WHA Newsletter

• Deb Loxton distributed a hard copy September 2006 WHA newsletter drafted by Tim and Cath.

• **ACTION:** Comments from Steering Committee members on the current newsletter are due within the next fortnight – by Wednesday 13th September 2006.
10. **Next Meeting**

- Next Steering committee teleconference on Wednesday 20\(^{th}\) September at 9:00 am
- Apologies were given by Wendy Brown for this next teleconference.
Proposal for Major Report C: Use of medications

First draft of possible content, August 2006

Current projects that may contribute to Report C (due for completion in June 2008):

UN Strategic Pilot Research grant 2006
Establishing a linked record system to optimise the use of longitudinal health-related datasets: illustrated by two studies of medication use
Anne Young, Julie Byles, David Henry, Lynne Parkinson
The aims of this project are:

1. To develop and describe key summary measures from the large datasets, to support grant applications for more substantial research projects, such as:
   • number of medications used by individual women (range, median, variance etc.),
   • common medications and combinations of medications,
   • characteristics of women using multiple medications and particular combinations of medications (age, area of residence, SES, morbidity, health insurance status etc.)
   • the costs (both to Government and patient out-of-pocket costs) of health services and medications
   • the time series patterns of use of services (over several years) by individuals and groups of women defined by factors such as age or medical conditions
   • patterns of use of services before and after government policy changes (such as changes to the Safety Net scheme);
2. To use the linked data to assess the accuracy of self-report medications from the survey datasets and to assess the coverage of the pharmaceutical database (See A166 below);
3. To investigate how many older women in ALSWH are taking drug combinations that comprise the virtual 'polypill', the correlates of use and the health outcomes for these groups of women (see A158 below);
4. To submit a series of NHMRC grant applications and papers in 2007 within an integrated set of research themes that draw strength from longitudinal survey data linked with administrative health data;
5. To further develop collaborations within the research community and to contribute to the NCRIS discussions on how best to progress work on the ‘population health and data linkage’ capability.

A166
Comparison of self-reported medications and PBS records
Anne Young, Julie Byles, David Henry, Lynne Parkinson
University of Newcastle
The data for this study is being drawn from two sources. The first is the Medicare Australia records of prescriptions submitted for payment of a subsidy under the Pharmaceutical Benefits and Repatriation Pharmaceutical Benefits Schemes (PBS/RPBS). The second is the self-reported medications collected during 2005 for Old 4. A comparison of the PBS data and self-report medications will provide an estimate of the non-subsidised use of medicines among older women as well as the accuracy of self-reported medications (which are eligible for subsidy) defining the PBS data as the gold standard. PBS data can assist the evaluation of quality use of medicines, and changes to the availability and uptake of medicines. It can also be used to track drug expenditure, particularly for chronic conditions. Hence it is important to know how closely the PBS data
comparers to self-report and which medications are not covered in the PBS records. This work will be the first stage of other projects that can then use the PBS data.

A158
Use of the ‘polypill’ among older women
Anne Young, Julie Byles, David Henry, Lynne Parkinson
The rapidly increasing cost and complexity of drug treatment is likely to escalate as the population ages. Recent papers have debated the efficacy of the ‘polypill’ (a combination of six individual ingredients: thiazide diuretic, angiotensin converting enzyme inhibitor, beta blocker, statin, aspirin, and folic acid) with the assumption being that when combined together, the drugs have a synergistic treatment effect. This study will investigate how many older women in ALSWH are taking drug combinations that comprise the virtual polypill (or subsets of the drugs); the uptake of drugs in this combination over time; factors associated with adoption of these drugs; the health and sociodemographic characteristics of these groups of women and whether there are differences in health outcomes.

A150
Adequacy and Equity of Treatment for Depression among Older Australian Women
Julie Byles, Deb Loxton, Lynne Parkinson, Anne Young
University of Newcastle
This project aims to examine the types and adequacy of health services used by older women with depression and the longer term outcomes for those who do and do not get treatment. Linkage of ALSWH longitudinal survey data and Medicare and Pharmaceutical Benefits Scheme data, will be used within a Quality Use of Medicines framework to determine the uptake of appropriate medications among women with depression, the risk and outcomes of inadequate and inappropriate medication among this group and the risk of potential medication interactions and adverse events.

A157
Use and quality use of medicines for cardiovascular disease
Christopher Stevenson, Lynelle Moon, Susana Senes, Sharon Leigh, Sushma Mathur, Elizabeth Penm, Annette Dobson (ALSWH)
Australian Institute of Health and Welfare
Use ALSWH Older cohort, self-report surveys 1, 2, 3, 4 and the substudy ‘You and your heart’ to:
1. Describe medications used by women with cardiovascular conditions, hypertension, high cholesterol or heart procedures.
2. Compare medications used to those recommended in relevant clinical guidelines.
3. Assess how long cardiovascular disease has been present in this sample and whether this is associated with medications used.
4. Assess whether type of service used (general practitioner, specialist, nurse, etc) is associated with medications used.
5. Assess whether income is associated with number and type of medications used.

A133
Women and arthritis: The burden of suffering for older Australian women.
Lynne Parkinson, Richard Gibson, David Sibbritt, Julie Byles
Numerous cost-effective treatments are available for arthritis, including surgical and pharmaceutical interventions as well as psychosocial and public health interventions such as weight loss and education programs. The broad aim of the proposed research is to explore the burden of suffering (physical, mental and social) associated with arthritis and musculoskeletal symptoms in older women, and management of these conditions over time, from a secondary analysis of ALSWH data.
Health care for women with diabetes living in rural areas: a longitudinal study of access to care and health outcomes

The aims of this project include:
1. assessing the geographic equity in the health, health service use and costs of Medicare and PBS services for these women over time;
2. describing medications used by women with and without diabetes;
3. comparing medications and combinations of medications used by women with diabetes to those recommended;
4. describing the health and sociodemographic profile of women with diabetes who do and do not receive the Medicare medication review.

Oral contraception use and symptoms of depression among young women.
David Sibbritt, Janine Duke, Anne Young
University of Newcastle
This set of analyses addressed the question of whether there is an association between oral contraception use and symptoms of depression among the ALSWH younger cohort, considering both cross-sectional analysis (S3) and longitudinal analysis (using S2 and S3). (Paper in press)

Factors associated with sleeping difficulty and sleep drug use
Julie Byles, Syed Hassan
Publications to date:


Use of Complementary and Alternative Medicines (CAM)
Jon Adams, David Sibbritt, Anne Young
Self-report data from Old 4, Young 4 (new survey items), Mid 5 (new survey items and self reported meds).
MINUTES
Steering Committee Teleconference
Wednesday 20th September 2006
9:00 am – 9:35 pm
CHAIR: DR JAYNE LUCKE
Minutes: Bree Waters

1. Welcome and apologies
   - Present: Annette Dobson, Jayne Lucke, Leigh Tooth, Deb Loxton, Anne Young, Lois Bryson, Christina Lee and Penny Warner-Smith.
   - Apologies received by Wendy Brown and Julie Byles

2. Minutes and matters arising
   2.1 Actions from previous meeting
   - Annette had a discussion with Jake Najman who had criticised the WHA presentation at the Melbourne ARACY workshop. No further action required
   - Updates to the balance sheet were reported at item 4.
   - UQ’s utilisation of the new budget report was commented on at item 4.
   - The Retirement report was commented on at item 5.
   - Cath is in the process of changing the mid 2 survey form on the internet, and checking the other surveys on the WHA website to ensure accuracy.
   - Data book updating is ongoing.
   - There are two problems that have been identified with caring variables in work on the carer’s contract:
     1. Mid 2: There are multiple files, with varying codes, which have caused corrupt and missing data
     2. Mid 3: There was a typo in the SAS code.
   - Annette and Christina discussed the problems in relation to Christina’s paper which has now been published. It is not clear whether the conclusions of the paper would be changed by the data problems. Any Mid 2 data should be used with caution. The carers report will focus on Mid 4 data.
   - Deb spoke with Tessa Pascoe regarding the calendar option for the Achievement Report. Tessa liked the calendar idea. The creation of this report is in progress.

   • ACTION: Deb Loxton to send an email out requesting potential themes for the Achievement Report.

   • Comments were received by Deb Loxton from the Steering Committee members regarding the WHA September 2006 newsletter. The updates are in progress.
3. Strategic Issues

3.1 Website address
- The Steering Committee members agreed to register the WHA website as an independent website address without the name of either Newcastle or Queensland Universities.

- ACTION: Look into creating an external website.

3.2 Staffing Issues

3.2.1 UQ
- Michael Howard resigned from his position as Data Manager.
- The position of Data Manager is currently being advertised along with a Statistician to fill Gretchen Carrigan’s role.
- Application for these two positions close on 9th October 2006.
- Advertisements for the new 2 year Research fellow position are currently in process.

3.2.2 UN
- There are no staffing issues at UN

4. Budget reports

4.1 UN Budget reports for August 2006
- The UN budgeting report attachments were acknowledged by the Steering Committee.
- The salaries section of the budget report includes erroneous additions that will be removed once corrected with the finance department.

4.2 UQ Budget reports for August 2006
- The UQ budgeting report attachments which are now compatible with UN were acknowledged by the Steering Committee.
- Salaries are budgeted to include all possible positions at UQ, even though these aren’t all filled to date. Therefore significant salary savings are expected this year.
- The budgeted amount was calculated on the previous years spending plus 5% and the projected UN reimbursements.

5. Reports and Deliverables

5.1 2005/2006 Audited Financial Statement

5.1.1 UN
- Deb Loxton reported problems re-scheduling a meeting with the UN financial department regarding the progress of the financial statement, and commented that the Financial Report may not be completed by the deadline of 28th September (next Thursday).
- Further meetings with senior administrative staff are planned in an effort to meet the deadline.
- It was suggested that Tessa Pascoe write the UN financial department a letter requesting this report to speed up the process. This mode of action has proved helpful in the past.
• **ACTION:** DL to contact TP about a letter requesting the UN Financial Statement if problems persist.

5.1.2 UQ
• Jayne Lucke reported that the accounting department have said the UQ Financial Statement is complete but awaiting final approval by the auditors. It is expected to be finalised by the end of this week (22nd September 2006).

5.2 Physical Activity Report
• No updates were given on this report.

5.3 Draft Retirement Report
• The Retirement Report was sent to OFW on 1st September, with the final report due on 15th November 2006. Work for this report is in progress.

5.4 Carers Report
• The Carers Report is in progress, with the first deliverable due 30 October 2006.

5.5 Major Report A
• Major Report A has been adjusted in light of DoHA requests, and sent back to Tessa Pascoe. The Executive Summary for this report is in progress, awaiting comments from WHA UQ and UN staff.

• **ACTION:** Once all comments have been received, BW to update and send the Executive Summary to Tessa.

5.6 Technical Report 27
• Work on the December 2006 Technical Report has commenced with Leigh Tooth sending out emails on Tuesday requesting contributions.

5.7 2006 Annual Report
• The Annual Report is due on 28th February 2007.
• The Steering Committee needs to decide on a feature for the Report. It was agreed that one option could be to base the feature on Major Report A.

• **ACTION:** BW to send a list of the previous features out to the Steering Committee members for suggestions on the next feature.

6. Publications

• **ACTION:** BW to send out the publications/EoI’s document to Steering Committee members for their updates.

• **ACTION:** Once all updates are received, BW to amend the document and distribute to all WHA staff.
7. **PSA**

7.1 **Report**
- The EoI report attachment was noted by the Steering Committee and no outstanding issues were reported.

8. **Research**

8.1 **Future Research Directions**
- The Future Research Directions attachment was acknowledged and is now finalised.
- The idea is that core project resources will be directed towards priority research areas.

- **ACTION:** BW to widely circulate the Future Research Directions document.
- **ACTION:** CC to add this document to the website.

9. **AOB**
- Annette Dobson highlighted the importance of the Steering Committee members giving feedback on Angela Taft and Lyn Watson’s domestic violence and abortions paper due to the likelihood of media interest.

- **ACTION:** Steering Committee members to comment on this paper. DL to circulate the paper to SC members.

10. **Next Meeting**

Next Steering committee teleconference on Wednesday 18<sup>th</sup> October 2006 at 9am

Annette Dobson joined the meeting at 9:12 am.
Minutes
Steering Committee Teleconference
Wednesday 18th October 2006
9:00 am – 10:00 am
CHAIR: PROF ANNETTE DOBSON
Minutes: Bree Waters

1. Welcome and apologies
   • Present: Annette Dobson, Leigh Tooth, Deb Loxton, Anne Young, Lois Bryson, Christina Lee, Julie Byles and Penny Warner-Smith.
   • Apologies received by Jayne Lucke and Wendy Brown.

2. Minutes and matters arising
   2.1 Actions from previous meeting
   • The Achievement Report proposition involving a calendar was sent to Tessa Pascoe at DoHA after receiving theme ideas from Steering Committee members. This proposal is currently awaiting comments from DoHA.
   • The UN and UQ 2005/2006 Financial Statements were sent in to DoHA by the due date (28th September 2006).
   • The initial Executive Summary for Major Report A was sent to Tessa Pascoe, and changes have been made in response to feedback from Tessa. The final version of the executive summary has been sent to the Steering Committee members, with comments due in today.

   • \textit{ACTION: BW to send the executive summary to CC for formatting once feedback has been received and acted upon. Once formatted send to Tessa Pascoe.}

   • A list of previous features from the last four Annual Reports was distributed to Steering Committee members for suggestions on the next Annual Report features. The Steering Committee members came to a consensus that the theme for the 2006 Report should be: Retirement, Work and Caring.
   • The Publications/EoI’s linkage document was updated and distributed to all WHA staff.
   • The WHA Future Research Directions document was circulated to all WHA members.
   • The WHA Future Research Directions document has been uploaded onto the password protected section of the WHA website.

   • \textit{ACTION: CC to move the Future Direction document into a public domain of the website.}

   • Angela Taft and Lyn Watson received some feedback from the Steering Committee members on their domestic violence and abortion paper.
3. Strategic Issues

3.1 Website address

- An external website URL for ALSWH has been created. The new address is www.alswh.org.au and will be included on the Major Report A Executive Summary.

3.2 Staffing

3.2.1 UQ

- Applications for the positions of Data Manager and Research Assistant (Statistician) closed on Monday 9th October 2006.
- No applications were received for the Data Manager position.
- The Research Assistant (Statistician) position has been offered to David Fitzgerald who is available to begin from December 4th 2006.
- Re-designing of the Data Manager position will be considered. It was suggested that the Data Manager’s role be broken up into roles for more than one person to undertake, and shared among those who are also involved in other tasks.
- Nadine Smith has been employed on a casual basis to complete the Old 4 Data book.

3.2.2 UN

- With regards to data management tasks required immediately, the committee suggested that a new part time/casual assistant be employed in Newcastle to assist Anna Graves.
- A subgroup was formed with the Steering Committee members Annette Dobson, Julie Byles, Anne Russell, Anne Young and Deb Loxton together with Anne Russell and Anna Graves in order to discuss further staffing actions, with a meeting scheduled for today at 12 noon.

- \textit{ACTION: AD, JB, AY, DL, and others to discuss data management issues (see note at end of these minutes).}

4. Budget reports

4.1 UN Budget reports for September 2006

- The UN budgeting report attachments were acknowledged by the Steering Committee.

4.2 UQ Budget reports for September 2006

- The UQ budgeting report attachments were acknowledged by the Steering Committee.

5. Reports and Deliverables

5.1 Mid 5 pilot

- The Steering Committee discussed problems highlighted in the Mid 5 pilot survey.
- It was decided that the Mid 5 survey will not be re-piloted as the committee is hopeful adjustments made as they are not major changes to the concepts. This avoids the cost ($10,000), time lag, and potential ethical issues related to re-piloting. Instead extensive work will be undertaken to substantially improve the survey.
- Annette Dobson expressed concern with re-coding data in order to improve the issue of missing data. Re-coding can be prone to relying on pre-conceived notions
which can create errors in the data. An example of this was highlighted with work and retirement. A potential pre-conceived notion is that work and retirement are mutually exclusive, when in fact they may not be. Therefore any re-coding will need to be checked thoroughly.

- **ACTION:** Penny Warner-Smith & Andrew Hampson to check over the re-coding done.

- The timeframe for making adjustments to the Mid 5 survey is 4 -5 weeks.
- Particular questions to be worked on include:
  - Retirement questions: Consistency with the previous survey (Mid4) is ideal, while taking account of the previous survey errors. Care must be taken here to understand the problems in the previous survey so to learn from the mistakes made.
    - **ACTION:** PWS, LB, AG & AH to work on the Retirement questions.
  - Food questions: The method of questioning needs to be reviewed for consistency. The breakfast cereals questions may need to be moved.
    - **ACTION:** AY to work on Food questions.
  - **ACTION:** Waist measurement: The 28 mid aged women surveyed in the pilot study who didn’t answer this question will be contacted in order to determine why.
  - Dental health: These questions need revision.
    - **ACTION:** JB to consider using questions used effectively for the past 10 years by the University of Adelaide Dental Epidemiology Unit.
  - **ACTION:** Carer question: refine formatting detail.
  - **ACTION:** Work question: remove shading.
  - **ACTION:** DL to edit questions 22, 23, & 24, draft and send out for comments.

### 6. Publications

- No Publications issues were discussed.

### 7. PSA

#### 7.1 Report

- The current EoI attachment was acknowledged by the Steering Committee.
- The PSA are currently reviewing 4 EoIs with an additional EoI to be sent to the PSA committee by Bree today.
• Problems have been identified with the current EoI form where asked to list those who will have access to data. Applicants tend to include all investigators involved on the project rather than just those accessing the raw data.

• ACTION: DL and LT to re-formulate the EoI form to avoid this confusion.

8. AOB

• No other business was discussed.

9. Next Meeting

• The next Steering committee teleconference is on Wednesday 15th November 2006 at 9:00am QLD time / 10:00am NSW time

Note about Data Management

Following the Steering Committee meeting a teleconference was held to discuss Data Management. Those involved were Annette Dobson, Anne Russell, Anne Young, Anna Graves, Julie Byles and Deb Loxton.

It was agreed that the major task of turning the text files from surveys into analysable SAS data sets should be divided into topic-matter sections that would be undertaken by the statistical staff at UQ with Anne Russell taking responsibility for carriage of this work in terms of co-ordination and quality adherence.
1. Welcome and apologies
   - Present: Annette Dobson, Julie Byles, Deb Loxton, Anne Young, Penny Warner-Smith, Christina Lee and Jayne Lucke.
   - Apologies received by Lois Bryson and Wendy Brown.

2. Minutes and matters arising
   2.1 Actions from previous meeting
   - Major Report A is now complete, and arrangements for printing have begun.
     - **ACTION**: Bree to arrange 130 copies of Major Report A to be printed and distributed – 100 copies to DoHA.
   - The Major Report A Executive Summary has been completed and sent to Tessa Pascoe at DoHA.
   - Actions relating to the Mid-5 survey were discussed and are noted at the new Section 6: Surveys.
   - Updates to the data access section of the EoI form are complete. Changes were made in order to avoid evident confusion with regards to what information to include at this section. Only those who will have access to raw data need to be included in the data access section of the EoI form.

3. Strategic Issues
   3.1 Web hosting arrangements
   - The new website is up and running well, costing WHA $140 per year. The URL is [www.alswh.org.au](http://www.alswh.org.au)

3.2 Staffing
   3.2.1 UQ
   - Leigh Tooth is now on maternity leave.
   - A letter of offer has been sent to two potential new staff members: Janneke Gisolf for a Research Fellow position, who has informally accepted the position via email, will begin employment with WHA on 16th April 2007; and Melanie Watson for a statistician position, who still has questions regarding the position.
3.2.2 UN
• A NIPH fellowship has been advertised

3.3 Steering Committee dates for 2007
• The list of possible dates for the 2007 Steering Committee meetings were discussed, with the updated list attached (see attachment 1)

4. Budget reports
4.1 UN Budget reports for October 2006
• The Budgeting reports were noted by the Steering Committee, no issues were raised.

   o ACTION: DL to meet with the accountant to ensure accuracy in accounts

4.2 UQ Budget reports for October 2006
• The Budgeting reports were noted by the Steering Committee, no issues were raised.

5. Reports and Deliverables
5.1 Carers Report
• The Carers report was sent to DoHA on Friday 27th October. Progress is dependent on receiving comments from DoHA.

   o ACTION: JL to follow up with DoHA on Carers Report.

5.2 Technical Report and Old 4 Data Book
• The content and formatting will be completed at the end of next week (by Friday 24th November).

   o ACTION: JL & BW to complete and send to DoHA by 20th December 2006.

5.3 Annual Report
• The Annual Report is on track. Most of the content will be taken from the Technical Report once this is finalised and the Major Report A Executive Summary for the feature article.
• A draft is due to DoHA by Monday 15th January 2007 - 45 days before the final due date of 28th February 2007.

5.4 Retirement Report
• The preliminary final of the Retirement Report has been completed and sent to DoHA on 15th November 2006.

5.5 Physical Activity Report
• Wendy Brown is coordinating the Physical Activity Report for FACSIA.

   o ACTION: Find out progress from Kristi Heersch – or Nicola Burton
5.6 Major Report B

- Work on Major Report B is to begin with most of the work coming from Wendy Brown’s group.

  - ACTION: BW to extract the published articles from the Major Report B outline.

6. Surveys

6.1 Mid 5 survey

6.1.1 Retirement Questions

- The most revision has been done on the Retirement Questions of the Mid-5 pilot.
- The ABS questions are all cross-sectional and needed to be used longitudinally. Some of these questions are difficult to interpret and the re-coding of these data involves a lot of assumptions, therefore it would be beneficial to ask more direct questions.

  - ACTION: Deb Loxton to send an email around to those involved with the Retirement Questions (Penny Warner-Smith, Lois Bryson, Jenny Powers, Anna Graves and Annette Dobson) to arrange a meeting to discuss these questions possibly on Thursday or Friday (23/24 November)

6.1.2 Waist measurement Questions

- 33 of the 112 non-respondents of the waist measurement questions in the pilot survey were interviewed about why they failed to answer this question.
- 23 forgot to answer it, 4 didn’t have a tape measure, 2 missed the page and 4 didn’t want to answer the question.
- The Steering Committee members suggested putting the waist measurement question last, or placing a prompt towards the end of the survey reminding participants to include their waist measurements.

6.1.3 Cereal Questions

- 28 participants of the pilot survey who missed this question were contacted.
- 8 had circled those cereals eaten and left blank those not eaten, and 3 said their cereal was not on the list.
- These Mid-5 pilot questions have comparable proportions of missing data to Mid-3.
- The Steering Committee members decided that WHA data coding of the Cereal questions would remain consistent with the Cancer Council’s methods of coding missing data as a no: I don’t eat this, unless all data is missing in this case the data would be classified as missing.

  - ACTION: Discuss this in the Data Management meeting this afternoon (Wednesday 15th November 2006).

6.1.4 Dental Health Questions

- The question regarding how many teeth participants now have will be included.
• The question of whether participants have been to the dentist in the last 12 months will remain.

• Question 32 will remain the same
• Questions 33, 34 & 35 may require changes.
• Question 22: Health Practitioner will be deleted from the question, leave this in the table format and re-draft.
• Question 24: This question is double-barrelled, asking too much. The Steering Committee decided that this question should be split into two as follows:
  1) Did you receive advice/information about lifestyle change from any of these sources?
  2) Have you made a change?

7. Publications
• Reviewers’ comments from the journal Age and Ageing have been received for Julie Byles’ Functional and Physical decline paper. This paper will be revised and re-submitted.
• The editor of the Journal of Gerontology: Social Sciences’ comments on the paper: Self-rated and healthy lifestyle are the most important predictors of survival in elderly women (Ford J, Spallek, M & Dobson, A) have been received, although the authors are still waiting on the reviewers comments. The comments were positive although the editor questioned the value of the paper and rejected it. It will need to be revised and resubmitted elsewhere (eg JAGS or Age and Ageing)

8. PSA

8.1 Report
• The current EoIs attachment was acknowledged by the Steering Committee.

9. AOB
No other business was raised

10. Next Meeting
This is the final meeting for 2006. The next meeting Steering Committee meeting will be held on Wednesday 17th January 2007 at 9:00 am Qld time / 10:00 am NSW time.
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<td>Wed 17&lt;sup&gt;th&lt;/sup&gt; January</td>
<td>9.00am QLD time / 10.00am NSW time</td>
<td>Teleconference</td>
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<td>Wed 22&lt;sup&gt;nd&lt;/sup&gt; August</td>
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Monthly Progress Notes for Research Team, Associates and Colleagues
January 2006

Dear research team, associates, students, friends et al. –

Happy New Year! We hope that 2006 is a good one for you.

The Women’s Health Australia team is well underway with this year’s work. Survey 4 goes out in mid March to the main Younger cohort. This is a little earlier than our normal mailout in order to give us plenty of time to track down the Younger women, who have tended to be extremely mobile. However, the Newcastle tracking team, who have had the phones running hot and are checking all possible databases and resources to try to maintain contact with our Young cohort, tell us that many participants are re-appearing on the electoral roll after long periods of absence and that recently provided mobile phone numbers are proving stable. Although there are still many young women overseas, and we still have need of a UK ‘post-office’ which collects and forwards surveys from participants currently living in Britain, this is all good news and suggests that this cohort is beginning to ‘settle down’.

Preparation is already underway for Survey 5 of the Mid-age cohort, to be piloted this year and administered to the main cohort in 2007. A survey Planning Meeting will be held in Newcastle in March.

Report on Strategic Issues

Reports and Deliverables

The 2005 Annual Report, which is due in Canberra at the end of February, is at the printer and we expect to have this out in the next couple of weeks. As usual, we will be sending copies to politicians, NGOs and colleagues around Australia and overseas. Included in the Report are excerpts from the Achievements Report which we produced last year and which was launched by the Hon Tony Abbott at a ceremony in Canberra in September, to mark the First Decade of the Project.

Our major deliverable for 2006 is a report on chronic disease in all three age cohorts, titled “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health. Priority Conditions, Risk Factors and Health Behaviours”. ALSWH Reports previously provided to the Government have provided key findings on nutrition, physical
activity, obesity, health and mental conditions, health service use, child bearing and work participation for each of the three age cohorts with some comparisons across cohorts. The Study is now half way through its data collection: it is timely to provide an analysis and synthesis of the collective information from the three age cohorts in relation to modifiable factors that influence disease processes and their relationship to mental, social and economic status. This work, led by Annette Dobson, is well on track for delivery of a draft in March.

Contracts
As you may remember, our main contract was renewed in June 2005. However, a Variation to the contract to reflect a more equal partnership in the ALSWH organization has just been signed. This has involved a 50-50 split in funding between the two universities, departing from the allocation of two thirds to Newcastle and one third to Queensland. Annette Dobson remains the Project Director, located at UQ, and Julie Byles has now become a Co-Director at the University of Newcastle.

One of the factors prompting the changes was some significant staff movement. An important issue of governance for a longitudinal project is the fact that inevitably people will move away and others take their place, and we have recently seen instances of this with key staff. After many years of full-time devotion to the project as Manager 2000-2003, and Coordinator 2003-2005, Christina Lee remains on the ALSWH steering committee but has stepped down from her other ALSWH responsibilities to take on the demanding role of Head of the School of Psychology at the University of Queensland. In the interim, she has been replaced in a part-time capacity by Penny Warner-Smith, who retired from her position as Project Manager and Deputy Director of the Research Centre for Gender and Health (RCGH) at the University of Newcastle in December. Ultimately many of the coordination tasks will be taken on by Dr Leigh Tooth and Dr Jayne Lucke, who will shortly join the UQ team to job-share a Research Fellow role. Penny has been succeeded as Project Manager by Dr Deborah Loxton, who has been a senior Research Officer at RCGH for the last couple of years.

In other changes, Lois Bryson has now retired from her position as Director of RCGH, but remains a member of the ALSWH steering committee. However, to make things just a tad more complicated, in the restructure which has just occurred at Newcastle the RCGH is to amalgamate with the Centre for Research and Education in Ageing (CREA) which was headed by Julie Byles. The UN arm of ALSWH will be housed in the new Research Centre for Gender, Health and Ageing, which will have Julie as Director, and Anne Young as Deputy Director.

At UQ there have been a number of new staff recruited in addition to Leigh Tooth and Jayne Lucke, including two statisticians, Melanie Spallek and Gretchen Carrigan. The appointment of a data manager at UQ is expected very soon. These positions will provide much needed resources for UQ, which has been operating with only a very small staff. The transitions following these changes have been very smooth, and the team is now well used to operating across several campuses, so we feel that the new structure is going to work very well.
**Project News**

*Surveys*

The proofs of Young Survey 4 have been received, checked and returned by the Newcastle team in preparation for printing and everything is on track for the planned mailout date of 13 March 2006. For some years this work has been carried out by NCS Pearson, but the most recent contract was awarded to DataTime.

However, the research team has been giving some thought to using the most up-to-date technology and we are investigating companies which have the capacity to log and enter surveys and to provide scanned images of surveys, data collection, change of address cards etc which could be accessed on the web. If this system is used it would be piloted with Mid 5. There are many obvious advantages to such a system which include tighter security, as paper copies would no longer have to be freighted interstate, and greater cost efficiencies as double handling and freight costs would be reduced. We are also looking into the feasibility of converting all existing paper surveys into electronic form. This would involve scanning and creating images, and hard copies would then be destroyed.

*Substudies and analyses*

If you are interested in carrying out a new analysis of ALSWH data, just a reminder that we do need to approve all new analyses and keep a record of who is doing what. Once you have an idea of the analysis, please use the standard ALSWH template to submit your proposal. This has recently been updated, and is attached.

*Publications*

Congratulations to all staff and colleagues who have had publications accepted using ALSWH data. For your interest, below is a list of all papers published in 2005 and those currently in press for 2006. There are also many which are currently under editorial review. Abstracts of all these papers are available on the Women’s Health Australia website.

If we’ve missed anything of yours, please let Maree O’Mullane know on m.omullane@sph.uq.edu.au so that it can be added to our publications database.

Penny Warner-Smith  
Project Coordinator  
30 January 2006
ALSWH RECENT PUBLICATIONS

Published in 2005:

• Ball K & Mishra GD. Whose socioeconomic status influences a woman’s obesity risk: her mother’s, her father’s or her own? *International Journal of Epidemiology*, 2005.
• Adams J, Sibbritt D & Young AF. Naturopathy / herbalism consultations by mid-aged Australian women who have cancer. *European Journal of Cancer Care*, 2005; 14: 443-447

**In press**

• Loxton D, Schofield M & Hussain R. Psychological health in mid-life among women who have ever lived with a violent partner or spouse. *Journal of Interpersonal Violence*.
• Lee C & Gramotnev H. Motherhood plans among young Australian women: Who wants children these days? *Journal of Health Psychology*.
• Bell S & Lee C. Does timing and sequencing of transitions to adulthood make a difference? Stress, smoking and physical activity among young Australian women. *Social Science and Medicine*.
## Expression of Interest – ALSWH analysis

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<th><strong>Lead person's name</strong></th>
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<td><strong>Other Investigators</strong></td>
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<td><strong>ID numbers of related work, if known</strong></td>
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<td><strong>Age cohorts and surveys involved</strong></td>
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<td><strong>Who will provide the substantive expertise and input?</strong></td>
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<td><strong>Who will provide qualitative analysis expertise if required?</strong></td>
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<td><strong>Name of ALSWH liaison person</strong></td>
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<td><strong>Keywords</strong></td>
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Monthly Progress Notes for Research Team, Associates and Colleagues

February 2006

Dear research team, associates, students, friends et al. –

Just to bring you up-to-date with matters of governance, the new structure for the project administration which was outlined last month is settling in and as part of the process there are some minor changes to the composition of the steering committee. According to the revised terms of reference, which are accessible on the website, the committee will now comprise six unpaid investigators and up to four salaried research fellows.

The 2006 committee currently includes Annette Dobson, Wendy Brown, Lois Bryson, Julie Byles, Christina Lee, Deb Loxton, Penny Warner-Smith, and Anne Young. We expect that Leigh Tooth and Jayne Lucke, who are about to begin a job-share research fellow position at the University of Queensland, will become additional members. This committee holds monthly teleconferences and meets face-to-face twice a year, once in Newcastle and once in Brisbane.

Report on Strategic Issues

Reports and Deliverables
The 2005 Annual Report has been delivered, and we are now embarking on the Technical Report which is due in June 2006.

Our major deliverable for 2006, the report on chronic disease in all three age cohorts, titled “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health. Priority Conditions, Risk Factors and Health Behaviours”, is well underway and on track for delivery of a draft in March.

A meeting of the Project Advisory Committee, which is chaired by Professor Kerin O’Dea and represents the major government stakeholders, was held in Canberra in mid February. Annette, Wendy, Julie, Lois, Anne and Deb attended. As an outcome of this meeting, we will be preparing two further reports: one on issues of carers and their health, and the other on women’s retirement and their health. The meeting followed an inter-departmental workshop, to which we were not privy, where Department of Health and Ageing staff discussed suggestions for issues to be included in the Mid 5 survey. While many of the questions raised by the Department are good ones, some need to be addressed by qualitative investigation which we are not in a position to pursue.
Project News

Surveys
Young Survey 4 is to be mailed out on 13 March 2006. This is earlier than usual, but we want to allow as much time as possible to try to get a survey to the maximum number of participants. Over the last few months we have been doing intensive tracking of participants, and we are preparing for more serious tracking as surveys which have been sent to an address which is no longer current get returned to us. The good news is that the women in the young cohort appear to be becoming more settled as they move into their thirties, and we are hoping that the intensive tracking which has been necessitated by the mobility of this cohort will decrease.

As you know, the Mid 5 Planning Meeting is being held in Newcastle on 30 March. Deb Loxton is leading the survey preparation process and many people will be receiving her weekly email updates. There has been a call for suggestions for deletions and amendments, and these will be circulated for discussion.

As I mentioned last month, for some years the printing and survey mailout work has been carried out by NCS Pearson, but the most recent contract was awarded to DataTime. We are investigating other companies which also utilize state-of-the-art electronic technology with the aim of eliminating costs incurred through double handling of surveys, freight costs and associated insecurities, and the archiving of hard copies.

Substudies and analyses
Given our limited resources and the value of the data being collected, it is extremely useful that we are continually approached by researchers wishing to have access to ALSWH data. This provides a significant resource for supplementary analyses and academic publications. One of the most important issues is making sure that people don’t tread on each others’ toes, and the Publications, Substudies and Analyses (PSA) Committee spends quite a lot of time examining the expressions of interest which are submitted in order to avoid overlap or repetition of specific projects. To give you an idea of some of the work which is currently in the wings, a list of proposals which were approved for the month of January is attached. (This information is also available on the web site).

Publications
Along with all of our more usual tasks of data analyses, reports and publications, a proposal for a book on the workshop which was held preparatory to last year’s Australian Epidemiological Association conference is in preparation. The workshop was on the practicalities of running a longitudinal study, and the book will include topics such as: Getting Started, Personnel, Survey Design/ Pilot Testing, Participant Recruitment, Participant Retention and Relationships, Cohort Management, Data Management, Communication Systems, Record keeping, Ethics, Analysing longitudinal data, and Disseminating results.

Please remember: If we’ve missed any recent publications of yours, please let Maree O’Mullane know on m.omullane@sph.uq.edu.au so that it can be added to our publications database.
People
This month we welcome Calvin Wang, who will start work as Data Manager at UQ within the next couple of weeks.

Penny Warner-Smith
Project Coordinator
28 February 2006
PUBLICATIONS, SUBSTUDIES AND ANALYSES

Expressions of Interest approved in January 2006

<table>
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<th>EoI no.</th>
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<td>A149</td>
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<td>A150</td>
<td>Byles Loxton</td>
<td>Adequacy and equity of treatment for depression among older Australian women</td>
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<td>McNair</td>
<td>Comparison of non-heterosexual women with heterosexual women on a range of health measures</td>
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<td>Austen Byles Currie WarnerSmith</td>
<td>Health and elder care effects on mid-age and older women’s labour force participation</td>
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<td>Sayer Parkinson</td>
<td>The cost of cancer</td>
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Monthly Progress Notes for Research Team, Associates and Colleagues

March 2006

Dear research team, associates, students, friends et al. –

Here’s the latest from Women’s Health Australia. As always the staff and research team are very busy and we would like to thank all those collaborators who are providing updated reports on their research for inclusion in our routine mid-year technical report to the Department of Health and Ageing. Thanks also to those people who have contributed suggestions or information for the planning of the fifth survey to the mid-age cohort.

Report on Strategic Issues

Reports and Deliverables

The report on “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health. Priority Conditions, Risk Factors and Health Behaviours” was delivered on schedule to the Department of Health and Ageing (DoHA) last week. This is “Major Report A” – the first of ALSWH deliverables under the current contract. The terms of the contract require us to produce a major report each year. The topic for Major Report B, which will be a deliverable for 2007, has not yet been finalised but should be determined by August this year.

We are anticipating that work will soon begin on two other reports. The first, which we have been discussing with staff in the Carers’ Support section of DoHA, is on mid-age women caregivers. This will be coordinated by Leigh Tooth, one of our two new Research Fellows at the University of Queensland. Although yet to be confirmed, it is probable that a report on women’s retirement intentions and expectations for the Office for Women will be prepared at the University of Newcastle.

As I have already mentioned, we have begun working on our Technical Report for June. Leigh is also coordinating this. If you have been asked to provide information, and haven’t yet been able to do so, please send it to Cath Chojenta (Catherine.Cchojenta@newcastle.edu.au) or to Leigh (l.tooth@sph.uq.edu.au) as soon as possible.
Project News

Surveys
Younger Survey 4 was mailed in mid March and surveys are beginning to come back in. Already we have received around 1500 and we hope that the intensive work we put into tracking participants in this age cohort over the Christmas and new year period will pay off in maintaining the response rate.

Meanwhile, the Mid Survey 5 planning session was held in Newcastle on Thursday 30 March. (Yes, that is the fifth survey for the mid-age group, and the women in this cohort are now aged 55-60, ten years older than when they filled out their first survey in 1996. This is making many of the research team also feel their age!) Deb Loxton, as Project Manager, is overseeing this process. There are some suggestions for changes and new items, which will need to be balanced against the need to maintain continuity. As usual, we aim to finalise next year’s survey by June or July and run the pilot in the second half of the year.

We were fortunate to have Tessa Pascoe, who is our DoHA liaison person in Canberra, come up to Newcastle for the meeting. Tessa works very hard on our behalf and has been instrumental in spreading the word about the project and disseminating findings to a wide range of government policymakers. Thank you also to everyone else who has been involved in this exercise, and particularly to those people who are members of ‘working parties’ to deliberate on issues that need further consideration and to finalise survey questions. Deb has requested reports from the working parties before Easter.

Web

Just a reminder that the web site has been considerably expanded over the last couple of years and that there are now password protected areas for collaborators and investigators. If you have forgotten your password, you can contact Cath Chojenta.

People

This month we farewelled our hardworking admin assistant at UQ, Maree O’Mullane. We are recruiting a replacement for Maree, but in the meantime are grateful to Cherie Harris who has worked for us before and has agreed to hold the fort for a couple of months.

The Mid5 planning meeting provided an opportunity for new staff members to meet others in the team.

Calvin Wang, the new Data Manager (Surveys) at the University of Queensland, attended the meeting, as did Leigh Tooth and Jayne Lucke. Jayne, who will be job sharing with Leigh, is also a new Research Fellow at the University of Queensland and will officially begin work towards the end of May. We also welcomed the newest member of the stats team at Newcastle, Xenia Dolja-Gore, to her first planning meeting. This coincided with Xenia’s submission of her master’s thesis for examination, and we wish her well.
On further student achievement - congratulations to Lyn Adamson, who is graduating on 6 April with a Bachelor of Communication. Almost everyone who has ever had anything to do with WHA will know Lyn, who has been working on the study at the University of Newcastle since its inception, and whom we are convinced must also have spoken or written to every one of our participants over the years. Not only has Lyn completed her degree part-time while working more than full-time with WHA (even though she is only employed at 0.8), she has achieved almost a distinction grade average in the course!

On a sadder note, we extend our sincere condolences to John Germov, associate investigator at the University of Newcastle, on the sudden death of his father. Our thoughts are with John, his wife Sue, daughter Isabella, and family.

Penny Warner-Smith
Project Coordinator
31 March 2006
Dear research team, associates, students, friends et al. – Here’s the latest from Women’s Health Australia. Despite interruptions with Easter, the Anzac Day holiday, and the school holidays, April has nevertheless been a busy and productive month.

Report on Strategic Issues

Reports and Deliverables
Our Technical Report for June 2006 is almost finished. Leigh Tooth and the UQ admin team are working on final formatting and expect to send the report to the printer early next month. It is well on schedule to be delivered to the Department of Health and Ageing on June 1. Many thanks to all those people who so promptly supplied information for the report.

For those who haven’t seen an example of these regular six-monthly technical reports, typically they contain information about collaborative research activities, which include scientific meetings and teleconferences among the research team, and also new research findings, which include projects completed and in progress by ALSWH investigators and collaborators. This is why we may hassle you every six months or so for information! Any completed RHD theses and student projects in progress are also noted. The reports also contain information about the conduct of surveys, methodological issues, data linkage, and synopses of major reports prepared in the preceding six months. All publications and conference presentations using ALSWH data are included, as well as a record of any media reports, and any changes or updates to the ALSWH website. When you have a paper published, or give a paper at a conference, or give a media interview, it is very helpful if you can send us the details at the time so that they can be recorded on the ALSWH database.

The preliminary version of the major report for this year, “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health. Priority Conditions, Risk Factors and Health Behaviours” was delivered on schedule to the Department of Health and Ageing (DoHA) last month. This is “Major Report A” – the first of ALSWH deliverables under the current contract. Tessa Pascoe, our very hardworking liaison in Canberra, consulted widely and there has been significant feedback on the draft. Under Annette Dobson’s supervision, the team will now consider the Departmental suggestions and prepare the final report. We will soon be commencing work on two other reports which have been under discussion for some time. Both of these focus on mid-age women: one report is on caregivers and the other on retirement intentions and expectations.
Project News

Surveys
Young Survey 4 was mailed in mid March and there have now been 5,795 completed surveys received. A targeted reminder will be sent to 6,035 Younger participants on 1 May.

Work has continued on preparations for the fifth survey for the Mid-age cohort. At the 30 March Planning Meeting for this survey, it was decided to introduce new questions on oral health, gestational diabetes, seeing a general practice nurse, and use of the internet for health information. The reinstatement of items from earlier surveys included the question on hospital admissions. As always, the introduction of new questions means that some existing questions must be deleted, and this must be weighed up against the importance of maintaining continuity in the surveys. In the case of the Mid-5 survey, some deletions were relatively easy, such as the question on ages of birth of children, but others were more difficult! A number of issues required more discussion than there was time for on the day, necessitating the formation of targeted working parties. As a result of much detailed work and careful thought, the content of the pilot survey has been finalized. It is now being formatted and should be mailed out to the group of pilot participants in July.

Calvin Wang, who joined the ALSWH team at UQ last month as Data Manager (Surveys), is immersed in the Older Cohort Survey 4 data. He is busy coding new variables, working on new scales and dealing with missing data.

Substudies
There are only two substudies planned for this year – so far! Nancy Pachana and Natasha Koloski are carrying out a validation of survey measures of depression, anxiety and cognitive impairment in the Older cohort. In June, an in-depth investigation of Mid-age women’s expectations and experiences of retirement will be conducted by Julie Byles, Penny Warner-Smith and Lynne Parkinson.

Other Activities

Meetings and visitors
As you will be aware, there has always been close contact between ALSWH staff and investigators in Brisbane and Newcastle, and people at both sites are accustomed to working closely together. However, the recent structural changes, which have resulted in greater data management and administrative responsibilities at UQ, have seen some additional very useful face-to-face meetings.

Anna Graves, Data Manager (Cohorts), visited UQ just after Easter to meet with Calvin Wang.

Next month Cath Chojenta will travel to Brisbane to discuss administrative issues with the new UQ administrative staff.

The Newcastle team hosted a visit by Dr Moo-Suk Min and Dr Jongsoog Kim from the Korean Women’s Development Institute (KW DI) on 27 April. KWDI is a national research institute established under the auspices of the Korean government in 1983 to carry out research on women's issues and gender equality. The KWDI is working on a national longitudinal survey project entitled ‘Korean Women and Families Panel’ which will trace respondents annually and is aimed at understanding the dynamic aspects of
women's work, family life, and lifestyles in Korean society. Drs Min and Kim contacted us in order - they said - “to obtain information, gather ideas, and learn from your wealth of knowledge and experience”. We wish the Korean team well with their study, and look forward to some international collaboration further down the track.

Publications
Having conducted the Longitudinal Studies Workshop at the 2005 Australasian Epidemiological Association conference, we now have a useful resource in the form of the notes and powerpoint slides that were prepared for the workshop and we were able to supply those to the Korean researchers during their visit. Under Deb Loxton’s leadership and with useful advice from Lois Bryson, we have been working on turning those notes and slides into a book, and will soon be approaching likely publishers with a draft outline and synopsis.

Conferences
At the Inaugural Conference on Disease Mongering which was held in Newcastle 11-13 April, Dr Ann Taylor presented a paper titled, ‘Is this the answer to all my problems? Young women and polycystic ovarian syndrome.’ Ann worked at the Research Centre for Gender and Health during her University of Newcastle equity fellowship for semester 2 2005, and during this time she examined the qualitative comments which ALSWH participants provide in response to the openended question at the end of each survey. Over the last nine years large amounts of open ended data have been collected and during a preliminary analysis of the young cohort data Ann noticed a cluster of more comments than might be expected about polycystic ovarian syndrome. The paper looked at the themes appearing in these comments and documented the range of reactions to the diagnosis and its link to the cultural preoccupations of young women. Ann has suggested directions for using the linked qualitative and quantitative data to investigate this apparent upsurge in a ‘controversial’ diagnosis, and the potential which the ALSWH data offer for further research into associations between medical diagnoses and media coverage.

Grant applications
Annette Dobson and team have just submitted an NHRMC grant to compare the older ALSWH cohort with a cohort of older men in Perth. This required – as always – a great deal of hard work but it would be a particularly useful project, and we will all be keeping our fingers crossed.

People
On 11 May we will welcome Bree Waters, who has been appointed as the new administrative assistant at UQ. We are grateful to Cherie Harris, who has been doing a brilliant job as temporary admin person and who will be staying on for a few weeks to overlap with Bree and help her settle in.

Penny Warner-Smith
Project Coordinator
28th April 2006
Monthly Progress Notes for Research Team, Associates and Colleagues
May 2006

Dear research team, associates, students, friends et al. – Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

Possible contract for research in Mid-aged women carers
Contract negotiations are under way with Wendy Walsh from the Carer Support Section, Community Care Branch, Ageing and Aged Care at the Department of Health and Ageing for WHA researchers to undertake detailed analyses of care-giving by mid-aged women with particular emphasis on the impact on employment and other life roles. The research may also include a substudy directed to the mid-aged women who care for frail or disabled people focusing on the types of support that they require to help them cope with their caring and other roles, including work. We will keep you posted as to the outcome of the negotiations.

Reports and Deliverables
The Technical Report for June 2006 is finished, and on its way to the Department of Health and Ageing. The team at UQ would like to thank everybody who supplied information for the report. The report featured the major project activities between December 2005 and May 2006: the administration of Survey 4 for the Young women, the continued cleaning and checking of Survey 4 responses from the Old women and preparations for Survey 5 for Mid-aged women. The report also described some of the latest analytic work on methods and measurement of longitudinal data. This included work on ensuring comparability of questions across surveys concerning contraception use in Younger women. Another area of activity was on creating standardized scores for the physical and mental health component scores of the MOS Health Survey Short-Form 36 (SF-36), a key measure used in ALSWH since 1996. This work will enable easier comparisons of ALSWH findings over time and between cohorts and with other studies conducted in Australia, the USA and by researchers in other countries who use USA normative scores. In addition to these, the report also had the regular updates on collaborative research activities (including scientific meetings, teleconferences, projects completed and in progress by ALSWH investigators and collaborators), data linkage, publications, conference presentations and media reports.

As mentioned in the April monthly update, the preliminary version of the Major Report for this year, “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health: Priority Conditions, Risk Factors and Health Behaviours” received significant feedback from the Department of Health and Ageing and AIHW. Under Annette Dobson’s supervision, the team is in the latter stages of preparing the final report, due in Canberra on the 1st of June.
Project News

Surveys
Young Survey 4 was mailed in mid March and there have now been 6,562 (52.6%) completed surveys received. A targeted reminder was sent to the remaining 6000+ women in early May. This response is on target to the response rates shown by Young 2 and Young 3. The first batch of surveys is to be sent to the scanning company shortly.
The pilot survey for the Mid-age cohort has been finalized and was sent to the printers on Monday, 22nd May. This year we asked four companies to submit tenders for the Mid 5 pilot and main survey. To fully appreciate the nature of services being offered, Deb and Anna made site visits to each of the companies. Joint discussions between the UN and UQ ALSWH teams determined the choice of company and we also decided to pilot a new process, whereby inbound surveys will now be sent directly to the data company rather than to UN. We are on track for the Mid 5 pilot survey to be mailed to participants in July.

Other Activities

People, meetings and visitors
On 12th May we welcomed Ms Bree Waters, the new administrative assistant at UQ. Dr Cherie Harris, who has been doing a brilliant job as the temporary UQ administrative officer will stay on until the end of May help Bree learn the ropes. Ms Cath Chojenta from UN spent the day in Brisbane on 15th May to assist Bree become familiar with the databases and ALSWH administrative processes. It was a very successful day that included a lovely lunch at a local café.

This month also saw the ‘resignation’ of Dr Penny Warner-Smith. Penny has been filling in as Project Coordinator to cover the gap left by Professor Christina Lee’s move to become Head of Psychology at UQ and the arrival of Drs Leigh Tooth and Jayne Lucke, Senior Research Fellow’s who have joined the WHA team at UQ. Although retiring, Penny will still be involved with WHA, in particular with the steering committee and ongoing relevant projects. We wish Penny all the best!

Publications
This is the latest update on publications by WHA researchers for the first quarter of 2006!

Published


Smith M, Russell A & Hodges PW. Disorders of breathing and continence have a stronger association with back pain than obesity and physical activity. Australian Journal of Physiotherapy, 2006; 52 (1):11-16.

*In press*
Adamson L & Parker G. There's more to life than just walking: Older women's ways of staying healthy and happy. *Journal of Aging and Physical Activity*.


Sibbritt D, Adams J & Young A. A profile of mid-age women who consult a chiropractor or osteopath: Findings from a survey of 11,143 Australian women. *Journal of Manipulative and Physiological Therapeutics*.


That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities.

Our best contact is sph-wha@sph.uq.edu.au.

Leigh Tooth
Senior Research Fellow
25th May 2006
Dear research team, associates, students, friends et al. –
Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

Contract for research in Mid-aged women carers
The contract between the Carer Support Section, Community Care Branch, Ageing and Aged Care at the Department of Health and Ageing and WHA to undertake detailed analyses of care-giving by mid-aged women with particular emphasis on the impact on employment and other life roles is in the process of being signed. The immediate team working on this research will be Annette Dobson, Leigh Tooth, Jayne Lucke and Richard Hockey. The first deliverable is a preliminary report on the associations between caring roles and employment status. The analysis will examine the influence of demographic characteristics; lifestyle issues such as retirement/plans, social support and discretionary time; health-related quality of life; psychosocial factors such as optimism and stress; and the women’s medical histories and use of services.

Retirement report
The Office for Women, Department of Family and Community Services and Indigenous Affairs have signed a contract for services with WHA to examine women’s experiences of paid work and planning for retirement. Penny Warner-Smith, Julie Byles and Andrew Hampson will be analysing the mid-age cohort data to determine women’s expectations about retirement age, expected and actual sources of retirement income, motivations for retiring and the patterns and predictors of women’s labour market attachment.

Reports and Deliverables
We are pleased to announce that the Annual Report has been approved for distribution. For copies please contact Bree Waters at sph-wha@sph.uq.edu.au.

Major Report A, “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health: Priority Conditions, Risk Factors and Health Behaviours” was sent to Canberra on the 1st June. DoHA replied quickly with a few more minor changes suggested. Once these are complete, the report will receive a ministerial foreword and can be distributed.

Preliminary discussions have begun about potential topics for Major report B (for 2007) and Major Report C (for 2008). Suggestions are:
- **Major Report B** – obesity: trends, health consequences and costs – this follows on from Major Report A and builds on substantive work we have done. Other possible options for this Report might be mental health or sexual health

- **Major Report C** – use and costs of medicines and other health care resources – by 2008 we will have very detailed data for the Mid aged and Older cohorts (lists of all medications) and comparisons between self-reported and PBS data

## Project News

### Surveys

Young Survey 4 was mailed in mid March and there have now been 7,053 (56.5%) completed surveys received. Reminder telephone calls are now in process. Datatime, the company doing the scanning, has received 61 boxes (6050) surveys and WHA expects to receive the Young 4 dataset of these surveys very soon.

Mid 5 Pilot: The first proof of the survey has been returned for checking. The current target date for mail out is 17th July.

### WHA website update

We are currently reviewing the WHA website and have made some headway in updating pages to reflect the staffing and other changes that have taken place over recent months. We expect to upload the new pages and information within the next few weeks.

### Other Activities

**People, meetings and visitors**

Jo Ryan, who has been working part time for RCGHA in the ALSWH office, left us this week to take up a fulltime position at the UN Research Office. We congratulate Jo on her new job and wish her all the best!

Melanie Spallek, Statistician in the UQ WHA office, is leaving on the 14th of July to have a baby. She will be on leave for 6 months. We all wish her the very best for this exciting event, and wish her at least a little bit of sleep!

Unfortunately, Dr Calvin Wang has left WHA. The position of Data Manager – Surveys, based at UQ, has been re-advertised.

That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Leigh Tooth  
Senior Research Fellow  
30th June 2006
Monthly Progress Notes for Research Team, Associates and Colleagues

July 2006

Dear research team, associates, students, friends et al. – Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

**NHMRC-ARC Ageing Well, Ageing Productively Research Program (AWAP)**

AWAP grants have recently been released with six projects funded over five years. Congratulations to WHA investigators and collaborators involved in the successful projects.

- Predictors of Ageing Well in the Australian Longitudinal Study on Women’s Health and the Perth Health in Men Study (Chief investigator: Professor Annette Dobson)
- Using health outcome data from pooled Longitudinal Studies of Ageing to develop statistical and microsimulation models to determine how to best compress morbidity and optimize healthy and productive ageing (Chief Investigator: A/Professor Kaarin Anstey)


**Project Advisory Committee**

The Advisory Committee for the project is to be held on Wednesday 2\textsuperscript{nd} August in Canberra. Items on the agenda for discussion include data linkage, Major Report B / 2007 Achievement Report and the Old 5 survey.

**Report on mid-aged women carers (Contract between Carer Support Section, Community Care Branch, Ageing and Aged Care at the Department of Health and Ageing and WHA)**

The contract has been signed and work is underway on analyses of care-giving by mid-aged women with particular emphasis on the impact on employment and other life roles.

**Retirement report (Contract between the Office for Women, Department of Family and Community Services and Indigenous Affairs and WHA)**

Work is underway on analysis of the mid-age cohort data to determine women’s expectations about retirement age, expected and actual sources of retirement income, motivations for retiring and the patterns and predictors of women’s labour market attachment.
Reports and Deliverables

**Major Report A, “Trends in Women’s Health: Results from the Australian Longitudinal Study on Women’s Health: Priority Conditions, Risk Factors and Health Behaviours”**

DoHA has indicated the need for a few more minor changes to the section on alcohol. When these have been completed the report will be finalised for distribution with a ministerial foreword.

**Major Reports B and C**

A summary of our suggestions has been supplied to Tessa Pascoe for discussion at the Project Advisory Committee on 2nd August.

- Major Report B: weight change, mental health, sexual health
- Major Report C: medications

Project News

**Surveys**

Young Survey 4: There have now been 7,310 (58.5%) completed surveys received. An extra mailout was sent to 298 participants on 5th June and reminder telephone calls are still in process. DVDs of images and data for 6100 participants have been received.

Mid 5 Pilot: Surveys were mailed on schedule to 347 participants.

**Other Activities**

**People, meetings and visitors**

Annette Dobson, Jayne Lucke and Bree Waters from UQ spent the day in Newcastle on Wednesday 19th July. It was a productive day covering budget and strategic issues and preparing for the forthcoming face-to-face Steering Committee meeting in Brisbane on 30th August.

Lois Bryson and Jenny Powers attended the ‘Making the most of the census’ conference in Canberra 18-19th July. Lois and Jenny presented their paper, ‘Researching in a mobile world: dealing with populations, mobility and longitudinal research in the twenty-first century.’ Anne Young attended a longitudinal analyses workshop, also in Canberra, and will be passing on her new knowledge to ALSWH staff in the near future.

That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke
Senior Research Fellow
31st July 2006
Dear research team, associates, students, friends et al.– Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

Research Centre for Gender, Health and Ageing

The Research Centre for Gender, Health and Ageing, which houses ALSWH at the University of Newcastle, was successful in its bid to become a Priority Research Centre. The UN PRC Scheme is a new strategy that has been implemented by UN to develop existing and emerging areas of research strength. Congratulations to everyone who was involved, and best wishes for the success of the Centre.

Project Advisory Committee

The Advisory Committee for the project was held on Wednesday 2nd August in Canberra. Items discussed included:

1. Data linkage update: The Department of Health and Ageing has sought and received legal advice that under the best practice protocol for record linkage, the ALSWH participants do not need to provide consent for the provision of de-identified data. In this case, the women of the ALSWH will be given the option to ‘opt-out’. The annual newsletters will continue to inform the women that this linkage is being negotiated and offer the participants the opportunity to opt-out of the MBS/PBS data linkage. A meeting between the ALSWH Research Team and the Department was held following the Committee meeting to iron out some of the technical differences in the steps to providing the de-identified MBS/PBS data. These discussions are ongoing.

2. Major Report A: The draft report was presented to the PAC. Some amendments are outstanding plus a ministerial foreword. There was discussion about dissemination of the report.


4. Major Report C (2008): It was agreed that Report C would be on use and cost of medicines and other health care resources.

5. Major Report D (2009): It was agreed that Report D would focus on maternal and child health.
6. Achievements Report (2007): The format of the Achievements Report was discussed with the possibility of a desk calendar to be explored further.

7. Old 5 Survey: The older cohort will be 82-87 years of age for the fifth survey. WHA advised the PAC about the need to consider issues with surveying such elderly women, e.g. the size of the survey, missing data, increased use of secondary data sources and the need for follow-up substudies. Content areas for Old 5 suggested by the PAC included:
   a. Management of chronic conditions
   b. Aged care
   c. Own caring needs and roles, and
   d. Pharmacotherapy

8. Media and Marketing strategy: This was noted and improvements for dissemination discussed.

9. 2007 evaluation of ALSWH: The 2007 review will be conducted by DoHA and will evaluate investment in the study as a whole, that is, the quality and effectiveness of the study and how the government is using the results.

10. Other issues: These included the possibility of ALSWH replenishing their samples, for example, the young cohort, or recruiting another young cohort. Managing ALSWH methodology in the long term, particularly with the Old cohort was also discussed.

11. The next PAC meeting is planned for February 2007.

**Face-to-face Steering Committee Meeting**

The Steering Committee met at the University of Queensland on Wednesday 30th August. The major agenda was working on future research directions. While this process is still ongoing, the broad areas targeted at this stage are:

- Young cohort: “family formation” (e.g. reproductive health experiences and outcomes), life stage transition and family issues (e.g. family planning, childcare and paid work).
- Mid-aged cohort: families, finances and futures (family transitions, work / retirement, prevention and management of chronic disease).
- Older cohort: caring, aged care and independent living, transport and mobility, impairment
- Common themes across all cohorts were: weight, physical activity, methodology, health service use

**Project News**

**Surveys**

Young Survey 4: We have received 7,796 Young 4 surveys (62%) from the 12,526 participants that were mailed. An extra mailout (818 surveys) was posted during the week commencing Monday, 21st August. The Telephone Reminder to the Young 4 non-respondents has been completed and a total of 11,714 calls were made. The follow up tracking of those not contacted during the telephone reminder is underway.

Mid 5 Pilot: 221 Mid 5 Pilot surveys have been received by the data entry company and a sample of 20 of these has been entered. Checking the data entry accuracy of the initial 20
records and the frequency distribution for each question has been completed and the remaining 200 surveys are now being entered.

**WHA website update**
- The staff and steering committee profiles have been updated: [www.newcastle.edu.au/centre/wha/people.html](http://www.newcastle.edu.au/centre/wha/people.html).
- The PSA data access documents have been updated: [www.newcastle.edu.au/centre/wha/infodata.html](http://www.newcastle.edu.au/centre/wha/infodata.html).
- Two newly accepted papers have been added: [www.newcastle.edu.au/centre/wha/public/accepted.html](http://www.newcastle.edu.au/centre/wha/public/accepted.html).
- The student profiles will be updated in the coming weeks.

**Other Activities**

**People, meetings and visitors**
Leigh Tooth attended the Health Outcomes Conference in Canberra from 8-10 August.

Deb Loxton and Jayne Lucke attended the ARACY ARC/NHMRC Research Network/Murdoch Children’s Research Institute Workshop in Melbourne, 21-22 August.

Congratulations to Melanie Spallek (Statistician at UQ) on the birth of her first child, a boy called Orlando Spallek-Caballero, born on 26th July weighing 3280 grams, and measuring 48 cm long.

That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Leigh Tooth and Jayne Lucke
Senior Research Fellows
4th September 2006
Monthly Progress Notes for Research Team, Associates and Colleagues  

September 2006

Dear research team, associates, students, friends et al. – Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

Research Directions
Research Directions have been set for the project up to 2010 and are attached. These directions will shape the priorities of the research team and reflect the forthcoming major reports.

Reports and Deliverables

2005/2006 Audited Financial Statement: We’re pleased to announce that the financial statements from UQ and UN have been submitted.

Retirement Report: The draft report was sent to the Office for Women on 1st September, with the final report due on 15th November.

Carers’ Report: Work continues on this report with the first deliverable, a preliminary report due on 30th October.


Project News

Surveys
Young Survey 4: As at 26th September we have received 8,220 Young 4 surveys (65.6%) from the 12,526 participants who were invited to participate. An extra mailout of 400 surveys will be posted in the next few weeks. Project Assistants are busy tracking those participants from whom we have received "Return to Sender" mail and those we've been unable to contact in the Telephone Reminder.
Mid 5 Pilot: Mid 4 Pilot raw data frequencies have been prepared on 267 responses (77%). These are currently being examined and will be discussed at meetings in October and finalised in November. An extra 15 responses have been received since the frequencies were prepared which brings the total number of surveys to 282 (81.3%).

Newsletter
The next newsletter for participants is being finalised and will be mailed during October.

Publications
Four new papers have been published


New Projects Approved
It is a while since we mentioned new projects in the newsletter so here is an update. These projects have been approved by the Publications, Substudies and Analyses Subcommittee since March this year:

- A156. Relationship between sexual violence, sleep problems and health. Dr Deborah Loxton, Prof Jill Astbury and Dr Gerard Kennedy
- A157. Use and quality use of medicines for cardiovascular disease. Prof Annette Dobson, Mr Christopher Stevenson, Ms Lynelle Moon, Ms Susana Senes, Ms Sharon Leigh, Ms Sushma Mathur, Ms Elizabeth Penm
- A158. Use of the polypill among older women. Dr Anne Young, Prof Julie Byles, Prof David Henry, Dr Lynne Parkinson, Ms Xenia Dolja-Gore
- A159. Longitudinal analyses of the health effects of violence on young Australian women. Dr Deborah Loxton, Dr Angela Taft, Ms Lyndsey Watson
- A161. Comparison of Australian women's dietary intake during pregnancy and non-pregnancy. Dr Anne Young, Dr Clare Collins, Prof Roger Smith, Ms Alexis Hure
• A162  What drives private health insurance purchases among younger women?  
Possible sub area: The relationship between expected health and insurance  
Prof Denzil Fiebig, Dr Anne Young, Prof Jane Hall

• A163  An analysis of the comorbidity between anxiety and depression.  
Dr Deb Loxton, Elizabeth Knock

• A164  Longitudinal Aspirations of Young Women  
Ms Melissa Johnstone, Prof Christina Lee

• A165  Exploratory analyses of relationships between physical activity and reproductive health and reproductive health symptoms in young and mid-age women  
Prof Wendy Brown, Dr Yvette Miller, Dr Mireille van Poppel

• A166  Comparison of self-reported medications and PBS records  
Dr Anne Young, Prof Julie Byles, Prof David Henry, Dr Lynne Parkinson

• A168  Research on Employed Carers based on the Australian Longitudinal Studies on Women’s Health  
Prof Annette Dobson, Dr Leigh Tooth, Dr Jayne Lucke, Mr Richard Hockey,

• A169  Men, Women and Ageing: Predictors of Ageing Well in the Australian Longitudinal Study on Women’s Health and the Perth Health in Men Study.  
Prof Annette Dobson, Prof Konrad Jamrozik, Assoc Prof Paul Norman, Prof Osvaldo P Almeida, Prof Leon Flicker, Prof Wendy Brown, Dr Nancy Pachana, Prof Graeme Hankey, Prof Julie Byles, Dr Jon Adams

See the website for a list of all approved projects:

WHA website update
As well as the other updates mentioned throughout the newsletter, the Mid 2 survey has been updated as there were some inconsistencies in the previous version. The new survey is available at: www.newcastle.edu.au/centre/wha/surveys.html

Other Activities

People, meetings and visitors
Julie Byles visited the UK earlier this month and met with people working on a number of longitudinal studies including:
• Shah Ebrahim - British Women's Heart & Health Study
• Diana Kuh and Gita Mishra - British Birth Cohorts (1946)
• Valerie Beral - Million Women's Study
• Elizabeth Breeze - English Longitudinal Study on Ageing.
She also met with Jackie Scott who heads the ESRC's Gender Network (GeNet) and Professor Felicia A Huppert, Director of Cambridge Interdisciplinary Research Centre on Ageing, and delivered a paper on ALSWH to members of the Cancer Research UK
Epidemiology Unit, University of Oxford called “The Australian Longitudinal Study on Women’s Health: 1996-2006 and beyond.”

**Wendy Brown** recently joined a select group admitted as an International Fellow of the American Association of Kinesiology and Physical Education. The academy has inducted fewer than 20 international fellows over the last 80 years, with only two other Australians. An invitation to become an Academy fellow is an honour signifying that the individual is a highly regarded scholar who has made a significant contribution to the art and science of human movement and physical activity. Congratulations Wendy! There is a special feature on Wendy in the latest UQ Health Sciences Faculty Bulletin which can be found at: [http://www.uq.edu.au/health/?page=52298#news-top](http://www.uq.edu.au/health/?page=52298#news-top).

The **15th Australasian Epidemiological Association** conference was held in Melbourne on the 18th and 19th of September 2006. There were lots of interesting presentations and an enjoyable debate on the last day of the conference. The ALSWH was represented by several people from the Queensland and Newcastle offices (Annette Dobson, Anne Young and Jenny Powers). Among other activities, Annette chaired a session on epidemiological methods, Anne presented posters on frequent attenders and the costs of health care for chronic disease and Jenny presented an epidemiological methods paper on general health and alcohol consumption. Anne and Jenny also caught up with Susan Clemens, one of our Turning Point collaborators, for a drink at the Irish pub over the road from the conference venue. Various of our other collaborators were also present at the conference (Steve Bowe, Rosemary Korda, Angela Taft and Lyn Watson). Steve presented a poster on how to account for deaths and other missing data and Rosemary presented on socioeconomic inequalities, health care and mortality.

That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke and Leigh Tooth  
Senior Research Fellows  
29th September 2006
## ALSWH Research Directions (up to 2010)

### Future directions across all three age groups

- Weight
- Physical activity
- Methodology for measurement and data analysis (longitudinal analyses)
- Impact of new Medicare items/policy, eg. Mental health items. Medication review
- Health Service use
- Prevention of chronic conditions - Depression and anxiety; - Cardiovascular disease; - Diabetes; - Asthma; - Osteoporosis and arthritis.

#### Young women

**Family Formation Issues:**

- **Current and Future Directions:**
  - **Reproductive health:**
    - Infertility (incidence, risk factors, age, smoking, help seeking, service use).
    - Birth outcomes and breastfeeding
    - Pregnancy – and postnatal
    - Health management
  - **Life stage / social roles:**
    - Changing living conditions – transitions through marriage, divorce, sole and partnered parenthood, blended family scenarios. Partner violence.
    - Difficulty conceiving: delaying pregnancy (have data on IVF or one other technique).
    - Contraception – Reproductive choices to conceive. safe sex and infection – safe sex versus contraception patterns of use, time in relation to life events and reproductive events
    - Unplanned pregnancies
    - Childcare & paid work
    - Fertility for young 5 & 6

**Future data collection** needed on: Service use in Y5 and Y6, Parenting by Y5

#### Mid-age women

**Future Directions:**

- Employability / Retirement, skills.
- Policy issues regarding how to help people remain working.
- Economics (skill level, income, options, structure)
- Financial security
- Family disbursement
- Caring
- Management of chronic conditions

**Future data collection:** on work and retirement

#### Older women

**Future Directions:**

- Carers
- Caring
- Aged care
- Independent living issues – informal / formal care / institutionalisation (high and low care)
- Management of chronic conditions
Monthly Progress Notes for Research Team, Associates and Colleagues

October 2006

Dear research team, associates, students, friends et al. – Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

Reports and Deliverables

Carers’ Report: The preliminary report has been sent to DoHA. This report tabulated data from the Mid-aged women at the 4th survey and focussed on the main patterns of caring and employment by demographic, lifestyle and health related variables. The findings painted a picture of carers as having less involvement in the workforce but more involvement with caring for children. Carers, particularly live-in carers, have more negative outcomes than non-carers in terms of mental and physical health and are consequently heavy users of health services. Work will shortly commence on the next deliverable for this contract, a longitudinal analysis of factors affecting caring and employment in these women.

Technical Report 27: WHA Investigators, collaborators and students have been asked to submit their updates for the next technical report. These updates are now due and we are starting to compile the report, which is due on 20th December 2006.

Old 4 data book: Nadine Smith is currently preparing this data book, which is due in Canberra on the 20th December 2006.

Project News

Surveys

Young Survey 4: As at 2nd November we have received 8,378 Young 4 surveys (66.5%) from the 12,607 participants who were invited to participate. An extra mailout of 300 surveys will be posted on 3rd November. Tracking is progressing well and we anticipate sending an extra mailout to those who have been found before the end of November.
**Mid 5 Pilot:** The Mid 5 Pilot data was recoded using methods and rules used in the Mid 4 main survey. Recoded data frequencies were prepared on 286 responses (82%) and these have been circulated and discussed. UN Ethics have approved the variation to call participants regarding the waist measurement and food frequency questions. Other areas of the survey requiring further attention have been highlighted and groups will work on these to finalize the survey by the end of November.

**Old Validation Substudy:** The final 100 of 300 surveys of the Old Validation Substudy were posted on 6th October. As at 2nd November 238 completed surveys have been returned (79%). The final telephone reminder commenced the week beginning 30th October.

Natasha reports that data entry for surveys received so far has been completed and telephone interviewing is continuing

**Mid Retirement Substudy:** 900 surveys were posted to mid age women on 18th October 2006. As at 2nd November 286 completed surveys have been returned (32%).

**Newsletter:** The newsletter will be mailed to 32,168 participants in the week beginning 6th November.

**Newsletter**
The next participant newsletter is at the printers and will be mailed to participants next week.

**WHA website update**


**Other Activities**

**People, meetings and visitors**
Deborah Loxton celebrated her wedding on the 1st October in the Hunter Valley, NSW. Congratulations to Deb and Reg! All the best for your future happiness.
Sadly, WHA-UQ is farewelling Gretchen Carrigan, one of our statisticians, this month. Gretchen is heading off for some exciting travel around India and possibly China, and then onwards to a new career. We wish Gretchen the very best with her travels and her next career. WHA will miss her.

On a happier note, Leigh Tooth is also heading off this month, but only temporarily, in order to have her second child in early December. Best wishes to Leigh and Phil for a safe delivery and a happy baby, and to Harry for his new job as Big Brother. In Leigh’s absence please contact Jayne Lucke on j.lucke@uq.edu.au or phone (07) 3346 4691.

And congratulations to Zoe Turner, on the birth of her second son, Nathaniel who was born 31\textsuperscript{st} October at 8.00 am, weighed in at a healthy 8lb 4oz (3.79kg) and is 21 inches long (55cm).

That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Jayne Lucke and Leigh Tooth
Senior Research Fellows
3\textsuperscript{rd} November 2006
Monthly Progress Notes for Research Team, Associates and Colleagues
November 2006

Dear research team, associates, students, friends and all,

Here’s the latest from Women’s Health Australia.

Report on Strategic Issues

Reports and Deliverables

Technical Report 27 and Old 4 data book are due in Canberra on the 20th December 2006 and work on these deliverables is nearing completion. We are also working on the Annual Report for 2006 with a draft due to the Department of Health and Ageing by 15th January 2007, and we are starting work on Major Report B which will focus on women’s weight. The first draft of Major Report B is due on 2nd April 2007.

Retirement Report: The final preliminary report has been completed and sent to the Department of Health and Ageing on the 15th November 2006.

Physical Activity Report: The draft report has now been submitted to the Department of Families, Community Services and Indigenous Affairs (FaCSIA) with the final version due in April 2007.

Project News

Surveys
Young Survey 4: We have received 8,494 Young 4 surveys (67%) from the 12,607 participants who were invited to participate. An extra mailout of 839 surveys will be posted in the first week of December.

Mid 5 Pilot: The content of Mid 5 main survey is finalised and formatting of the survey is taking place. The finalised document will be sent to Datatime for preparation in December.
Old Validation Substudy: At 27th November, 256 completed surveys (85.3%) were received. Eleven participants remain in tracking or in the telephone log and 8 have said they will complete a survey. The remainder have withdrawn, are deceased or will not complete a survey this time. Twelve batches of 20 surveys have been sent to the UQ researchers. One final attempt to contact participants will be made before finishing the UN part of the project, then the last of the completed surveys will be sent to UQ.

Mid Retirement Substudy: At 27th November, 666 completed surveys (74%) were received. A thank you/reminder was sent 27th October. The WHA newsletter was posted at the same time as the targeted reminder was due to be sent. Since the newsletter may serve as a reminder for this project, the posting of the targeted reminder was delayed and will be posted within the next two weeks.

Participant Newsletter
The newsletter to participants has gone out in the last couple of weeks, and we've been receiving quite a lot of phone calls and emails from participants. Many women are calling to update their contact details but there have also been lots of calls from participants who wanted to share their gratitude for being part of the project and for the great newsletter!

Other Activities

People, meetings and visitors
During November Professor Annette Dobson presented an overview of prevalence and incidence of chronic diseases in all three cohorts and the associated risk factors at the International Council on Women’s Health Issues Congress in Sydney. Both Annette and Kerin O’Dea were also involved in a presentation to the Australian Government Department of Treasury about the problem of overweight and obesity.

At UQ we have welcomed David Fitzgerald who has joined the team as a statistician and Leonie Gemmell who will be helping out with administrative tasks two days a week.

Michelle Grainger who is a PhD student at Dunedin University visited UN this month and was interested in ALSWH work on asthma and health service use.

We bid a fond farewell to Andrew Hampson who has been working at UN for the past two years. We wish Andrew good luck for the future and thank him for his contribution to the project. Ingrid O’Neill, who has been working as Project Assistant for the last four years will be leaving us now that she has completed her degree and obtained a full time position in Melbourne. Our thanks to Ingrid for her hard work and best wishes for her new career.

Rosie Mooney is also leaving UN before Christmas, to await the arrival of her baby, due in February. Rosie is planning to move to Hobart in January with her husband, James. Rosie will be on maternity leave for 12 months before returning to her PhD studies. We wish Rosie and James the very best of luck and good wishes for the safe and happy arrival of their new baby.

Congratulations to Leigh Tooth, Senior Research Fellow at UQ, on the birth of her second son, Keaton David Baxter at 4.30am on Friday 1st December weighing in at 3.71kg.
That’s all for this month! Don’t forget to keep us posted as to the latest WHA news and activities. Our best contact is sph-wha@sph.uq.edu.au.

Best wishes for the festive season and a very happy 2007.

Jayne Lucke
Senior Research Fellow
Happy anniversary to our participants

In 1996 over 40,000 women responded to an invitation from Medicare Australia to take part in Women’s Health Australia, a longitudinal study of women’s health.

Your commitment to this project has resulted in its outstanding success. Congratulations on your willingness to complete the surveys you receive and your contribution to the development of health policies for Australian women. We are now entering the second decade of the project. We hope you will all continue to contribute to this most valuable Australian resource.

Please enjoy reading this, the tenth edition of our newsletter!

Major survey for women aged 56-61

In March 2007, mid-age women will be invited to complete their fifth major survey for the project. If you are in this age group and have changes to your address details, perhaps you are traveling overseas or making a sea-change within Australia, please let us know. You may email us at whasec@newcastle.edu.au or phone our Freecall number 1800 068 081, or use the change of address card enclosed with this newsletter so that we can adjust our records.

Additional survey for late 2006

Some participants in the mid-age group will soon receive an invitation to complete a survey on retirement planning. We do hope those participants will take the opportunity to contribute to this research.
Weight Gain: A growing problem

Data from the Women's Health Australia project are providing important insights into weight change. In 1996 at survey 1, the young women in the project had an average weight of 62.6kg. By survey 3 in 2003, the average weight was 67.4kg. On average, the younger women gained 550 grams per year, but weight gain was significantly higher in younger women living in rural or remote areas than the younger urban women. Some factors associated with weight gain among younger women were having a BMI (Body Mass Index) outside the healthy weight range at the beginning of the project in 1996, sitting more than 4.5 hours a day, eating take-away food and restrictive eating practices, that is not eating a balanced diet across all food groups. While the health effects of this weight gain are likely to be significant in the long term, the data suggest that only small changes in exercise levels would be required to reverse these trends. For example, if everyone did an additional 15 minutes of brisk walking (or equivalent physical activity like swimming or cycling) every day, and cut out that chocolate biscuit at morning tea time, further weight gain could be prevented in this age group. LOSING weight will (of course!) require a little more effort - an hour of brisk walking every day, and cutting out high fat foods, will shift the average weight back towards the 1996 starting weight by the time of the next survey. As gaining weight is much easier than losing it, focusing on prevention of further weight gain should be a priority for this generation of Australian women.

Children: “Should we? Shouldn’t we? And when is the right time?”

In 2005 a group of younger participants took part in interviews to explore their thoughts and plans about motherhood. Most women said they wanted children, but were ambivalent about when to do so.

Thirty was a significant age, with few planning children before this time. Beliefs about fertility problems at older ages and being a young energetic mother meant participants generally wanted to complete their family by 35 or 40.

The responsibilities, costs and limitations associated with having a child resulted in a list of pre-motherhood goals. Security and stability, usually symbolised by marriage and home ownership, were viewed as central to the timing of motherhood. The majority felt it would be difficult to advance their career after they were mothers.

Some women described wanting children at a younger age than they planned. For some of these women it was not the difficulty of the decision that had affected their plans, but what they viewed as a lack of choice, often due to financial worries. Reconciling timing differences with their partner was also an issue.

Thank you to all who took part in these interviews.

<table>
<thead>
<tr>
<th>YOUNGER WOMEN</th>
<th>1996</th>
<th>2000</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would like to be more educated by age 35</td>
<td>75%</td>
<td>61%</td>
<td>51%</td>
</tr>
<tr>
<td>Regularly use formal or informal childcare</td>
<td>4%</td>
<td>11%</td>
<td>22%</td>
</tr>
<tr>
<td>Provide care for someone who is ill or disabled</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Want to have children by age 35</td>
<td>92%</td>
<td>92%</td>
<td>92%</td>
</tr>
<tr>
<td>Average weight</td>
<td>62kg</td>
<td>65kg</td>
<td>67kg</td>
</tr>
</tbody>
</table>
Health effects of partner violence

The Women's Health Australia project has added significantly to the understanding of the effects of domestic violence. Women who have ever experienced partner violence are more likely than other women to experience physical and mental illness, pain and fatigue in middle age. Mid-age women who have experienced partner violence tend to experience more stressful life events and have higher stress levels than other women.

Partner violence has serious implications for health but recovery is possible. Moving on from the violence, and having social support, both appear to have beneficial effects such as improved mental health. Social support includes having someone to confide in, having help with practical matters such as financial aid and transport, and having people around who can provide information.

We would like to thank all the women who have contributed to the research into this topic. Data from WHA have been used in reports to governments and medical publications.

What do mid-age women do to control weight?

In the survey for mid-aged women in 1998 a nine-item questionnaire asked about weight control practices such as cutting down on fats and sugars, exercise, commercial weight loss programs and others.

The key finding was that 7 out of 10 women reported actively trying to control their weight (either to lose weight or to prevent weight gain). Changes to diet were used more frequently than exercise alone. Two-thirds of those attempting weight control used a combination of strategies, the most common being decreased food quantity plus healthy eating plus exercise (33%), and decreased food quantity plus healthy eating, without exercise (16%). Potentially health-damaging practices (smoking, laxatives, fasting) were used by only 7% of women.

On average, women in the mid-age group gained about one kilogram in the first two years of the study. The questions about strategies to control weight gain will be included again in next year’s survey, to see how these may have changed over time.
Caring for others

In 2004, 306 women took part in a substudy looking at caregiving. The most common health problems of the people being cared for were heart disease, arthritis/rheumatism, lung problems and stroke. Caregivers provided transport (84%), prepared meals (75%), managed households/finances (70%) and assisted with mobility (64%). Between 25% and 33% of caregivers did not know whether services such as meals on wheels, personal/domestic home care or respite care were available to them. Of those who used services, the satisfaction levels were generally high (between 67% and 93% of caregivers rated them as very good or excellent).

Caregivers specified whether the person they cared for had mainly physical problems, cognitive problems or both. Caregivers of persons with both physical and cognitive problems reported the greatest burden and poorer mental and physical health compared to caregivers who cared for persons with only physical problems.

<table>
<thead>
<tr>
<th>OLDER WOMEN</th>
<th>1996</th>
<th>1999</th>
<th>2002</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are living alone</td>
<td>35%</td>
<td>41%</td>
<td>48%</td>
<td>53%</td>
</tr>
<tr>
<td>Have moved house in the last 3 years</td>
<td>6%</td>
<td>10%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Provide care for someone who is ill or disabled</td>
<td>19%</td>
<td>23%</td>
<td>26%</td>
<td>27%</td>
</tr>
<tr>
<td>Mind grandchildren or other people’s children</td>
<td>n/a</td>
<td>49%</td>
<td>40%</td>
<td>33%</td>
</tr>
<tr>
<td>Feel calm and peaceful most or all of the time</td>
<td>56%</td>
<td>56%</td>
<td>52%</td>
<td>53%</td>
</tr>
<tr>
<td>Are volunteers</td>
<td>n/a</td>
<td>50%</td>
<td>46%</td>
<td>41%</td>
</tr>
<tr>
<td>Average weight</td>
<td>66 kg</td>
<td>65 kg</td>
<td>65 kg</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Risk of Falls

In 2004, 568 women in the older age group were invited to complete a survey on the prevention and risks of falling. Falls are the leading cause of injury-related death in people over the age of 65 in Australia, and falls also increase the risk of admission to residential care, reduce activity levels, and can lead to social isolation and frailty.

Understanding of the causes and means of prevention of falls is important. Twenty percent of the participants had experienced a fall in the previous six months. Women who had fallen had more hazards in their homes than women who had not fallen. Women indicated that falling interfered with their daily lives, including home-making, outdoor activities and walking. Women who had not fallen were more confident in carrying out daily activities.

Some of the results from the hazards checklist are reported below:
- 82% reported shiny floors in the kitchen, laundry or bathroom
- 46% do not turn on a light when getting up at night
- 57% have floor mats in their homes without slip resistant backs
- 80% of bath-tub users do not have grab rails
- 60% do not use slip resistant mats in the shower

The data collected will be used to design a self-assessment checklist to investigate ways to prevent falls.
Putting information together to improve health and health care services for Australian women

Background

You may remember that during this project we have asked you for permission to receive details from Medicare Australia about your use of Medicare-funded health services. By putting the Medicare data together with the survey data, we have looked at general patterns of use of health services, particularly general practitioner and specialist consultations. Having these data has helped us to write reports about women’s access to health services and particularly about how much the services cost according to where women live around the country. These reports have been provided to the government to help improve services for women.

What’s New?

Following discussion with Medicare Australia, information held by them may be regularly provided to the research team from 2005 without you needing to consent every time. Other information such as birth and death records, disease registers and hospital discharge records may also be available subject to strict privacy and confidentiality rules. Names and addresses are not included with the information. The project staff analysing these datasets and the survey data have signed confidentiality statements and they have no information in the datasets that could identify an individual person. This research is conducted in accordance with relevant privacy requirements and other legislation protecting this information and is subject to final approval being granted by government and university ethics committees.

What happens next?

You do not need to do anything. However if you have any questions about this process or if you need more information, please call the Freecall number and we will send you a more detailed information sheet. If you have concerns about this new method of data collection, you can opt out of this by phoning the Freecall number 1800 068 081. We will provide updates in future newsletters about our progress and findings and how this research will benefit the health of women now and in the future.

If you have any concerns about this project, and would prefer to discuss these with an independent person, you should feel free to contact the University of Newcastle’s Human Research Ethics Officer, Ms Sue O’Connor, on 02 4921 6333 or write to her at Research Branch, The University of Newcastle, University Drive, Callaghan NSW 2308.

Did you know?

In 1999 Medicare introduced annual, voluntary health assessments for older Australians to provide an opportunity for their GP to undertake an in-depth assessment of their health and functioning. By combining survey data and Medicare data, the study has shown that an increasing proportion of older women are having a health assessment. Women who are taking more medications, who have more consultation with their GP and those caring for another person were more likely to have had at least one assessment since the service became available.
the logistics of a large longitudinal study

The logistics of running a longitudinal project of this size are complex. In the ten years the project has been running, over 215,700 surveys have been mailed out and over 129,800 completed surveys have been returned. We don’t hear back from women for many reasons, the most common is that you have moved. In addition to the main survey that is mailed out every three years, women are occasionally invited to complete smaller surveys on specific topics. Since 1996, 52 smaller studies involving 52,800 surveys have been undertaken. Over 350,000 newsletters have also been sent out since 1996.

On average, the staff in the office at the University of Newcastle answer 50 calls to our Freecall telephone number each week. This number can increase to over 200 a week when newsletters or surveys are mailed out. We enjoy speaking to all our callers. Over the past ten years, more than 60,000 phone calls to remind women to send their surveys back have been made.

More than 110 reports have been provided to a number of federal and state government health departments on a wide range of topics. Over 150 articles have been published in scientific journals, in addition, four book chapters and one book about the project have been produced. The list of titles and subjects may be viewed on our website at the address below.

The Australian national and local media speak with members of the research team relating to women’s health an average of 50 times a year.

None of the study’s achievements would have been possible without the continuing support of all the women who volunteer to take part. Thank you for your support over the past decade.

The project website

The website contains a page for participants and we encourage women to email us with their comments. There are profiles of the current research team on the web as well as information about current and past projects, presentations and information about how to change contact details.

How to contact us

Website: www.newcastle.edu.au/centre/wha
www.sph.uq.edu.au/atwh

Email: whasec@newcastle.edu.au

Freecall: 1800 068 081

Address: Women’s Health Australia
Reply Paid 70
Hunter Region MC NSW 2310
Appendix 4  Materials for Pilot Mid 5 Survey
Fifth survey for mid-age women
July 2006
How to complete this survey

This is the fifth “main” survey for mid-age women. As the purpose of the project is to look at changes over time, some of the questions are the same as those in previous surveys.

INSTRUCTIONS:

- Use a black/blue pen or pencil, preferably 2B
- Erase or correct mistakes
- Do not fold or bend this survey

Please CIRCLE LIKE THIS: 1 2 3 4

Please answer every question you can. If you are unsure about how to answer a question, circle the response for the answer closest to how you feel.

Please write any comments or important information on page 30. We are not able to read comments written elsewhere throughout the survey.

Example 1:
In general, would you say your health is:
(Circle one only)
- Excellent 1
- Very good 2
- Good 3 You would circle this one if you think your health is good
- Fair 4
- Poor 5

Example 2:
What is your postcode?
(PRINT clearly in the boxes)

2 3 0 8

If you need help to answer any questions, please ring 1800 068 081
(This is a FREECALL number)

* If you are concerned about any of your health experiences and would like some help, please contact:
  - Your nearest Women’s Health Centre or Community Health Centre;
  - Your general practitioner for advice about who would be the best person in your community for you to talk to.
* If you feel distressed NOW and would like someone to talk to, you could ring Lifeline on 13 11 14 (local call).
women's health is about how you are feeling

The questions on the first page ask only about NOW - how your health is NOW and about how your health limits certain activities NOW.

1 In general, would you say your health is:
   (Circle one only)
   Excellent 1
   Very good 2
   Good 3
   Fair 4
   Poor 5

2 Compared to one year ago, how would you rate your health in general now?
   (Circle one only)
   Much better now than one year ago 1
   Somewhat better now than one year ago 2
   About the same now as one year ago 3
   Somewhat worse now than one year ago 4
   Much worse now than one year ago 5

3 The following questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much?
   (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes, limited a lot</th>
<th>yes, limited a little</th>
<th>no, not limited at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>VIGOROUS activities, such as running, lifting heavy objects, participating in strenuous sports</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>MODERATE activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>Lifting or carrying groceries</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>Climbing SEVERAL flights of stairs</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>Climbing ONE flight of stairs</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Bending, kneeling or stooping</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Walking MORE THAN ONE kilometre</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>Walking HALF a kilometre</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>i</td>
<td>Walking 100 metres</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>j</td>
<td>Bathing or dressing yourself</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
The questions on this page and the next one ask about your health IN THE LAST FOUR WEEKS.

4 During the PAST FOUR WEEKS, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities AS A RESULT OF YOUR PHYSICAL HEALTH?

(Circle one on each line)  
<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Cut down on the amount of time you spent on work or other activities</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Accomplished less than you would like</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Were limited in the kind of work or other activities</td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Had difficulty performing the work or other activities (eg it took extra effort)</td>
<td>1</td>
</tr>
</tbody>
</table>

5 During the PAST FOUR WEEKS, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?

(Circle one on each line)  
<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Cut down on the amount of time you spent on work or other activities</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Accomplished less than you would like</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Didn’t do work or other activities as carefully as usual</td>
<td>1</td>
</tr>
</tbody>
</table>

6 During the PAST FOUR WEEKS, to what extent have your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your normal social activities with family, friends, neighbours or groups?

(Circle one only)  
<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

7 How much BODILY pain have you had during the PAST FOUR WEEKS?

(Circle one only)  
<table>
<thead>
<tr>
<th></th>
<th>No bodily pain</th>
<th>Very mild</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

8 During the PAST FOUR WEEKS, how much did PAIN interfere with your normal work (including both work outside the home and housework)?

(Circle one only)  
<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
9  For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST FOUR WEEKS:
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>all of the time</th>
<th>most of the time</th>
<th>a good bit of the time</th>
<th>some of the time</th>
<th>a little of the time</th>
<th>none of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Did you feel full of life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>b</td>
<td>Have you been a very nervous person?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>c</td>
<td>Have you felt so down in the dumps that nothing could cheer you up?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>d</td>
<td>Have you felt calm and peaceful?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>e</td>
<td>Did you have a lot of energy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>f</td>
<td>Have you felt down?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>g</td>
<td>Did you feel worn out?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>h</td>
<td>Have you been a happy person?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>i</td>
<td>Did you feel tired?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

10 During the PAST FOUR WEEKS, how much of the time have your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting friends, relatives, etc)?
(Circle one only)

<table>
<thead>
<tr>
<th></th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

11 How TRUE or FALSE is EACH of the following statements for you?
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>definitely true</th>
<th>mostly true</th>
<th>don't know</th>
<th>mostly false</th>
<th>definitely false</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I seem to get sick a little easier than other people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>I am as healthy as anybody I know</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c</td>
<td>I expect my health to get worse</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d</td>
<td>My health is excellent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
women's health is about using health services

12 How many times have you consulted the following people for YOUR OWN HEALTH in the LAST TWELVE MONTHS?  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>none</th>
<th>once or twice</th>
<th>3 or 4 times</th>
<th>5 or 6 times</th>
<th>7-12 times</th>
<th>13-24 times</th>
<th>25 or more times</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>A family doctor or another General Practitioner (GP)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>A hospital doctor (eg in outpatients or casualty)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c</td>
<td>A specialist doctor</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

13 Have you consulted the following people for YOUR OWN HEALTH in the LAST TWELVE MONTHS?  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Physiotherapist</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>Counsellor / Psychologist / Social worker</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>A community nurse, practice nurse, or nurse practitioner</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>Optician / Optometrist</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>Dietitian</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Podiatrist</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Massage therapist</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>Naturopath / Herbalist</td>
<td>2</td>
</tr>
<tr>
<td>i</td>
<td>Chiropractor</td>
<td>2</td>
</tr>
<tr>
<td>j</td>
<td>Osteopath</td>
<td>2</td>
</tr>
<tr>
<td>k</td>
<td>Acupuncturist</td>
<td>2</td>
</tr>
<tr>
<td>l</td>
<td>Other alternative health practitioner (eg aromatherapist, homeopath, reflexologist, iridologist)</td>
<td>2</td>
</tr>
</tbody>
</table>

14 How often have you used the following therapies for YOUR OWN HEALTH in the LAST TWELVE MONTHS?  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>never</th>
<th>rarely</th>
<th>sometimes</th>
<th>often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Vitamins / Minerals</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b</td>
<td>Yoga or meditation</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c</td>
<td>Herbal medicines</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d</td>
<td>Aromatherapy oils</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e</td>
<td>Chinese medicines</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f</td>
<td>Prayer or spiritual healing</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>g</td>
<td>Other alternative therapies</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
15 When you go to a General Practitioner:  
(Circle one on each line)  
<table>
<thead>
<tr>
<th></th>
<th>always</th>
<th>most of the time</th>
<th>sometimes</th>
<th>rarely or never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Do you go to the same place?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b</td>
<td>Do you usually see the same doctor?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

16 How would you rate the cost to you of your LAST visit to a General Practitioner?  
(Circle one only)  
No cost to me 1  
Good 2  
Fair 3  
Poor 4  
Don't know 5

17 Do you have a Health Care Card?  
This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card.  
(Circle one only)  
Yes 1  
No 2

18a Do you have private health insurance for HOSPITAL COVER?  
(Circle one only)  
Yes 1  
No – I am covered by Veterans’ Affairs 2  
No – because I can’t afford the cost 3  
No – because I don’t think you get value for money 4  
No – because I don’t think I need it 5  
No – other reason 6

18b Do you have private health insurance for ANCILLARY services (eg dental, physiotherapy)?  
(Circle one only)  
Yes 1  
No – I am covered by Veterans’ Affairs 2  
No – because I can’t afford the cost 3  
No – because I don’t think you get value for money 4  
No – because I don’t think I need it 5  
No – because the services are not available where I live 6  
No – other reason 7

19 Have you been admitted to hospital in the LAST TWELVE MONTHS?  
(Circle one only)  
No 1  
Yes, day only 2  
Yes, spent at least one night 3
20 When did you last have:
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>in the last 2 years</th>
<th>2-5 years ago</th>
<th>more than 5 years ago</th>
<th>never</th>
<th>don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a A Pap test?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b A mammogram?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

21 Have you EVER had an abnormal result from:
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
<th>don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a A Pap test?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b A mammogram?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

22 In the PAST THREE YEARS, have you: (Circle all that apply on each line)

<table>
<thead>
<tr>
<th></th>
<th>doctor</th>
<th>nurse</th>
<th>other</th>
<th>not checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Had your blood pressure checked by a health professional?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b Had your cholesterol checked by a health professional?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c Had your blood sugar level checked by a health professional?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d Had your skin checked (eg spots, lesions, moles) by a health professional?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

23 In the PAST THREE YEARS, have you: (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Had your breasts examined by a doctor or nurse?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b Carried out regular monthly breast self examination?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c Had a bone density test?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d Had a test for bowel cancer?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e Had a reminder from your general practice to have a screening test (eg blood pressure, cholesterol, blood sugar, skin)?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

24 In the PAST THREE YEARS, has information from any of the following sources encouraged you to change your lifestyle to improve your health:
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a A doctor?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b A nurse?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c Other health professional?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d A self-help group, program or organisation?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e Books / magazines?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f The Internet?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g Television?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h Other, please specify ___________________________________________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
25  Are you CURRENTLY taking: *(Circle one on each line)*

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>The oral contraceptive pill?</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Hormone Replacement Therapy (HRT)?</td>
<td>1</td>
</tr>
</tbody>
</table>

26  Have you: *(Circle one on each line)*

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Had a hysterectomy?</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Had a period or menstrual bleeding in the last 12 months?</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Had a period or menstrual bleeding in the last 3 months?</td>
<td>1</td>
</tr>
</tbody>
</table>

27  Compared with twelve months ago, are your periods: *(Circle one only)*

<table>
<thead>
<tr>
<th></th>
<th>Less frequent</th>
<th>About the same</th>
<th>More frequent</th>
<th>Changeable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

28  If you have reached menopause, at what age did your periods completely stop?

*(Please write the age in the box)*

<table>
<thead>
<tr>
<th></th>
<th>years</th>
<th>1</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

29  Have you ever had Gestational Diabetes (diabetes during pregnancy)? *(Circle one only)*

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

30  Thinking about your own health care, how would you rate the following: *(Circle one on each line)*

<table>
<thead>
<tr>
<th></th>
<th>excellent</th>
<th>very good</th>
<th>good</th>
<th>fair</th>
<th>poor</th>
<th>don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Access to medical specialists if you need them</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>Access to a hospital if you need it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c</td>
<td>Access to medical care in an emergency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d</td>
<td>Access to after-hours medical care</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e</td>
<td>Access to a GP who bulk bills</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f</td>
<td>Access to a female GP</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g</td>
<td>Hours when a GP is available</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>h</td>
<td>Number of GPs you have to choose from</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>i</td>
<td>Ease of seeing the GP of your choice</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>j</td>
<td>How long you wait to get a GP appointment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>k</td>
<td>The outcomes of your medical care <em>(how much you are helped)</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>l</td>
<td>Ease of obtaining a mammogram</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>m</td>
<td>Ease of obtaining a Pap test</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>n</td>
<td>Access to a counselling service if you need it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
31 In the LAST TWELVE MONTHS have you consulted a dentist? (Circle one only)
   No, I did not need to see a dentist  
   No, because there was no dentist available locally  
   No, I could not get there because of travel difficulties  
   No, because there was a long waiting period before I could get an appointment  
   No, because it would cost more than I could afford  
   No, I did not go to the dentist because of another reason  
   Yes, I saw a dentist

32 How would you rate the overall condition of your teeth, dentures or gums? (Circle one only)

   Excellent
   Very good
   Good
   Fair
   Poor

33 How many of your own teeth do you have? (Circle one only)
   All my own teeth
   Most of my own teeth
   Some of my own teeth
   None of my own teeth

34 Have you had any of the following problems in the LAST TWELVE MONTHS? (Circle all that apply)
   a I could not eat properly because of mouth problems
   b I avoided smiling because of the appearance of my teeth
   c I could not speak properly because of mouth problems
   d I did not have any of these problems in the last twelve months

35 In the LAST TWELVE MONTHS have you had any of the following problems? (Circle all that apply)
   a Bleeding gums
   b Decayed tooth or teeth (dental caries)
   c Loose teeth
   d Toothache
   e Painful aching in mouth
   f I did not have any of these problems

36 In the LAST TWELVE MONTHS have you:
   (Circle all that apply)
   a Slipped, tripped or stumbled?
   b Had a fall to the ground?
   c Been injured as a result of a fall?
   d Needed to seek medical attention for an injury from a fall?
   e Had any other injury from an accident at your home?
   f Broken or fractured any bone/s?
   g None of the above
In the PAST THREE YEARS, have you been diagnosed or treated for:  (Circle all that apply)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Diabetes (high blood sugar)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
<td>Impaired glucose tolerance</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td>Osteoarthritis</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td>Rheumatoid arthritis</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td>Other arthritis</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td>Heart disease (including heart attack, angina)</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td></td>
<td>Hypertension (high blood pressure)</td>
<td></td>
</tr>
<tr>
<td>g</td>
<td></td>
<td>Stroke</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td></td>
<td>Low iron level (iron deficiency or anaemia)</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td></td>
<td>Asthma</td>
<td></td>
</tr>
<tr>
<td>j</td>
<td></td>
<td>Bronchitis / emphysema</td>
<td></td>
</tr>
<tr>
<td>k</td>
<td></td>
<td>Osteoporosis</td>
<td></td>
</tr>
<tr>
<td>l</td>
<td></td>
<td>Breast cancer</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td></td>
<td>Cervical cancer</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td></td>
<td>Skin cancer (including melanoma)</td>
<td></td>
</tr>
<tr>
<td>o</td>
<td></td>
<td>Other cancer, please specify</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td></td>
<td>Depression</td>
<td></td>
</tr>
<tr>
<td>q</td>
<td></td>
<td>Anxiety / nervous disorder</td>
<td></td>
</tr>
<tr>
<td>r</td>
<td></td>
<td>Other psychiatric disorder</td>
<td></td>
</tr>
<tr>
<td>s</td>
<td></td>
<td>Chronic Fatigue Syndrome</td>
<td></td>
</tr>
<tr>
<td>t</td>
<td></td>
<td>Sexually transmitted infection (eg genital herpes or warts, chlamydia)</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td></td>
<td>Other major illness or disability, please specify</td>
<td></td>
</tr>
<tr>
<td>w</td>
<td></td>
<td>None of these conditions</td>
<td></td>
</tr>
</tbody>
</table>

Compared with when you were in your twenties, how good are you at:  (Circle one on each line)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
<td>Remembering the name of a person just introduced to you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td>Recalling telephone numbers or other numbers that you use on a daily or weekly basis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td>Recalling where you put objects (such as keys) in your home?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td>Remembering specific facts from a newspaper or magazine article you have just finished reading?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td>Remembering the item(s) you intend to buy when you arrive at the shops?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td></td>
<td>In general, how would you describe your memory compared to when you were in your twenties?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
39 In the PAST THREE YEARS, have you had any of the following operations or procedures? 
(Circle all that apply) 

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Yes in the past 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Both ovaries removed</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Repair of prolapsed vagina, bladder or bowel</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Endometrial ablation (removal of the lining of the uterus)</td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Joint replacement (eg hip, knee)</td>
<td>1</td>
</tr>
<tr>
<td>e</td>
<td>Mastectomy (removal of one or both breasts)</td>
<td>1</td>
</tr>
<tr>
<td>f</td>
<td>Lumpectomy (removal of lump from breast)</td>
<td>1</td>
</tr>
<tr>
<td>g</td>
<td>Removal of skin cancer</td>
<td>1</td>
</tr>
<tr>
<td>h</td>
<td>Any cancer surgery (other than skin or breast)</td>
<td>1</td>
</tr>
<tr>
<td>i</td>
<td>Chemotherapy or radiotherapy for any cancer</td>
<td>1</td>
</tr>
<tr>
<td>j</td>
<td>Breast biopsy (taking a sample of breast tissue)</td>
<td>1</td>
</tr>
<tr>
<td>k</td>
<td>Hysteroscopy (investigative procedure to examine the uterus)</td>
<td>1</td>
</tr>
<tr>
<td>l</td>
<td>Cholecystectomy (gall bladder removed)</td>
<td>1</td>
</tr>
<tr>
<td>m</td>
<td>Gastroscopy / colonoscopy</td>
<td>1</td>
</tr>
<tr>
<td>n</td>
<td>None of these</td>
<td>1</td>
</tr>
</tbody>
</table>

40 Do you have any of these sleeping problems? 
(Circle all that apply) 

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Waking up in the early hours of the morning</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Lying awake for most of the night</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Taking a long time to get to sleep</td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Worry keeping you awake at night</td>
<td>1</td>
</tr>
<tr>
<td>e</td>
<td>Sleeping badly at night</td>
<td>1</td>
</tr>
<tr>
<td>f</td>
<td>None of these problems</td>
<td>1</td>
</tr>
</tbody>
</table>

41 In the PAST FOUR WEEKS, have you taken any: 
(Circle one on each line) 

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Medications prescribed by a doctor?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>Medications / vitamins / supplements or herbal therapies bought without a prescription at the chemist, supermarket or health food shop?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

If ‘No’ to both, go to Q43

42 Please write down the names of all your medications, vitamins, supplements or herbal therapies. Where possible, copy names from the packets. (Please write in block letters)
**43** In the LAST 12 MONTHS, have you had any of the following:
*(Circle one on each line in column A. For all that apply also answer columns B and C.)*

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>never</td>
<td>rarely</td>
<td>sometimes</td>
<td>often</td>
</tr>
<tr>
<td>a</td>
<td>Allergies, hay fever, sinusitis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b</td>
<td>Breathing difficulty</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c</td>
<td>Indigestion / heartburn</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d</td>
<td>Chest pain</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e</td>
<td>Headaches / migraines</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f</td>
<td>Severe tiredness</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g</td>
<td>Stiff or painful joints</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>h</td>
<td>Back pain</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>i</td>
<td>Urine that burns or stings</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>j</td>
<td>Haemorrhoids <em>(piles)</em> / other bowel problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>k</td>
<td>Vaginal discharge or irritation</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>l</td>
<td>Menstrual problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>m</td>
<td>Hot flushes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>n</td>
<td>Night sweats</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>o</td>
<td>Eyesight problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>p</td>
<td>Mouth, teeth or gum problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>q</td>
<td>Leaking urine</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>r</td>
<td>Hearing problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>s</td>
<td>Depression</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>t</td>
<td>Anxiety</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>u</td>
<td>Episodes of intense anxiety <em>(eg panic attacks)</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>v</td>
<td>Palpitations <em>(feeling that your heart is racing or fluttering in your chest)</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**B** For the problems you had, DID you seek help?
circle here if you DID seek help

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

**C** If you did seek help, please mark if you were NOT satisfied with that help.
circle here if you were NOT satisfied

<p>| | | | |</p>
<table>
<thead>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**44** In the PAST WEEK, have you been feeling that life isn't worth living? *(Circle one only)*

- Yes 1
- No 2

**45** In the PAST 6 MONTHS, have you EVER deliberately hurt yourself or done anything that you knew might have harmed or even killed you? *(Circle one only)*

- Yes 1
- No 2

*If you answered YES to either of the last 2 questions, you might like to talk to someone about how you are feeling. You could ring Lifeline on 131114 (local call).*
women's health  is about coping with stress

46 Over the LAST TWELVE MONTHS, how stressed have you felt about the following areas of your life:  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>Own health</th>
<th>Health of family members</th>
<th>Work / Employment</th>
<th>Living arrangements</th>
<th>Study</th>
<th>Money</th>
<th>Relationship with parents</th>
<th>Relationship with partner / spouse</th>
<th>Relationship with children</th>
<th>Relationship with other family members</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
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<td>j</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

47 How much do you agree or disagree with each of the following statements?  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>b</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>c</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>f</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

48 Thinking about your current approach to life, please indicate how much you think each statement describes you:  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
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<tr>
<td>c</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>d</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>e</td>
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<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
49  What is your Postcode?
   a  What is your RESIDENTIAL postcode?  (where you live)
   b  What is the postcode of your POSTAL ADDRESS?  (if different from residential)

50  Which of the following events have you experienced?  
(Circle all that apply)

<table>
<thead>
<tr>
<th>Event</th>
<th>A yes, in the last 12 months</th>
<th>B yes, more than 12 months ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Major personal illness</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>b Major personal injury or involvement in a serious accident</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>c Major personal achievement</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>d Birth of a grandchild</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>e Major surgery (not including dental work)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>f Going through menopause</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>g Major decline in health of spouse or partner</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>h Major decline in health of other close family member or close friend</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>i Starting a new, close personal relationship</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>j Infidelity of spouse or partner</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>k Break-up of a close personal relationship</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>l Divorce</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>m Major conflict with teenage or older children</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>n Child or other family member leaving home (due to marriage, to attend university, etc)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>o Death of spouse or partner</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>p Death of a child</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>q Death of other close family member</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>r Death of close friend</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>s Changing your type of work / hours / conditions / responsibilities at work</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>t Retirement</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>u Your spouse or partner retiring from work</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>v Being made redundant</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>w Your spouse / partner being made redundant</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>x Decreased income</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>y Moving house</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>z Natural disaster (fire, flood, drought, earthquake etc) or house fire</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>aa Major loss or damage to personal property</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>bb Being robbed</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>cc Being pushed, grabbed, shoved, kicked or hit</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>dd Being forced to take part in unwanted sexual activity</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ee Legal troubles or involved in a court case</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ff Family member / close friend being arrested / in gaol</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>gg You or a family member involved in problem gambling</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>hh None of these events</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way DURING THE LAST WEEK.  
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>rarely or none of the time (less than 1 day)</th>
<th>some or a little of the time (1-2 days)</th>
<th>occasionally or a moderate amount of the time (3-4 days)</th>
<th>most or all of the time (5-7 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I was bothered by things that don’t usually bother me</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>I had trouble keeping my mind on what I was doing</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>I felt depressed</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>I felt that everything I did was an effort</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>I felt hopeful about the future</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>I felt fearful</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>My sleep was restless</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>I was happy</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>i</td>
<td>I felt lonely</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>j</td>
<td>I could not “get going”</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>k</td>
<td>I felt terrific</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

In the past month: (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Have you felt keyed up or on edge?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>Have you been worrying a lot?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>Have you been irritable?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>Have you had difficulty relaxing?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>Have you been sleeping poorly?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Have you had headaches or neck aches?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Have you had any of the following: trembling, tingling, dizzy spells, sweating, diarrhoea or needing to pass urine more often than normal?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>Have you been worried about your health?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>i</td>
<td>Have you had difficulty falling asleep?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Do you regularly NEED help with daily tasks because of long-term illness, disability or frailty (eg personal care, getting around, preparing meals, etc)? (Circle one only)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

The following sections are about other health habits, time use and your relationships.

Often, there are no “right” or “wrong” answers – we are interested only in your opinion or feelings.

If you feel uncomfortable about answering a question, just leave it and go on to the next one, but please try to finish the survey if you can.

You may like to take a break now and do the second part later.
Women’s health is about healthy weight and shape

54  a  How much do you weigh? (no clothes or shoes)

[ ] kg  OR  [ ] stones  [ ] pounds

b  How tall are you without shoes?

[ ] cm  OR  [ ] feet  [ ] inches

55  What is your waist measurement?
Please measure your waist while in your underwear. If possible, get someone to help you take the measurement. Find your navel (belly button) and measure at that level. Be careful not to have the tape too tight. You should be able to slip your little finger under it comfortably. Write the measurement to the nearest centimetre.

[ ] cm

56  In the LAST THREE YEARS, have you:
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Lost 5 kg or more on purpose?</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Lost 5 kg or more for any other reason?</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Gained 5 kg or more?</td>
<td>1</td>
</tr>
</tbody>
</table>

57  Have you used any of these methods to lose weight or to control your weight or shape in the LAST TWELVE MONTHS? (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Commercial weight loss programs (eg Weight Watchers, Lite n’ easy, Sureslim, Jenny Craig)</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Meal replacements or slimming products (eg OPTIFAST, Herbalife)</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Exercise</td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Cut down on the size of meals or between meal snacks</td>
<td>1</td>
</tr>
<tr>
<td>e</td>
<td>Cut down on fats (low fat) and / or sugars</td>
<td>1</td>
</tr>
<tr>
<td>f</td>
<td>Low glycaemic index (GI) diet</td>
<td>1</td>
</tr>
<tr>
<td>g</td>
<td>Diet book diets (eg Atkins, Zone, CSIRO diet, Liver Cleansing diet)</td>
<td>1</td>
</tr>
<tr>
<td>h</td>
<td>Laxatives, diuretics or diet pills (eg Xenical, Reductil)</td>
<td>1</td>
</tr>
<tr>
<td>i</td>
<td>Fasting</td>
<td>1</td>
</tr>
<tr>
<td>j</td>
<td>Smoking</td>
<td>1</td>
</tr>
<tr>
<td>k</td>
<td>Other, please specify ________________________________</td>
<td></td>
</tr>
</tbody>
</table>
58 How often do you usually drink alcohol?  
(Circle one only)

- I have never drunk alcohol in my life 0
- I never drink alcohol, but I have in the past 1
- I drink rarely 2
- Less than once a week 3
- On 1 or 2 days a week 4
- On 3 or 4 days a week 5
- On 5 or 6 days a week 6
- Every day 7

59 On a day when you drink alcohol, how many drinks do you usually have?  
(Circle one only)

- 1 or 2 drinks per day 1
- 3 or 4 drinks per day 2
- 5 to 8 drinks per day 3
- 9 or more drinks per day 4

60 How often do you have five or more drinks of alcohol on one occasion?  
(Circle one only)

- Never 1
- Less than once a month 2
- About once a month 3
- About once a week 4
- More than once a week 5

61 The next question is about your alcohol consumption during different stages of your life. On average, how many drinks did you usually drink PER WEEK in your:

(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>no alcohol</th>
<th>1-7 drinks</th>
<th>8-14 drinks</th>
<th>15 or more drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Late teens</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b 20s</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c 30s</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d 40s</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e 50s</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

62 How many glasses / cups of non-alcoholic drinks do you usually have each day?  
(eg juice, tea, coffee, water, milk, etc)?  
(Circle one only)

- 0 – 2 glasses 1
- 3 – 5 glasses 2
- 6 – 8 glasses 3
- 9 or more glasses 4
Questions 63 to 73 are modified from the Cancer Council of Victoria Food Frequency Questionnaire and are used with permission.

This section is about your usual eating habits over the LAST TWELVE MONTHS. Where possible give only one answer per question for the type of food you eat most often (if you can’t decide which type you have most often, answer for the types you usually eat).

63 How many pieces of FRESH fruit do you usually eat per day? (Count ½ cup diced fruit, berries or grapes as one piece)

- I don’t eat fruit: 0
- Less than 1 piece of fruit per day: 1
- 1 piece of fruit per day: 2
- 2 pieces of fruit per day: 3
- 3 pieces of fruit per day: 4
- 4 pieces of fruit per day: 5
- 5 or more pieces of fruit per day: 6

64 How many DIFFERENT vegetables do you usually eat per day? (Count all types fresh, frozen or tinned)

- Less than 1 vegetable per day: 0
- 1 vegetable per day: 1
- 2 vegetables per day: 2
- 3 vegetables per day: 3
- 4 vegetables per day: 4
- 5 vegetables per day: 5
- 6 or more vegetables per day: 6

65 How many SERVES of vegetables do you usually eat each day? (A serve = half a cup of cooked vegetables or a cup of salad vegetables)

- None: 0
- 1 serve: 1
- 2-3 serves: 2
- 4 serves: 3
- 5 serves or more: 4

66 What type of milk do you usually use?

- None: 1
- Full cream milk: 1
- Reduced fat milk: 1
- Skim milk: 1
- Soya milk: 1

67 How much milk do you usually use per day? (Include flavoured milk and milk added to tea, coffee, cereal etc)

- None: 0
- Less than 250ml (1 large cup or mug): 1
- Between 250ml and 500ml (1-2 cups): 2
- Between 500ml and 750ml (2-3 cups): 3
- 750ml (3 cups) or more: 4

68 What type of bread do you usually eat?

- I don’t eat bread: 1
- High fibre white bread: 1
- Wholemeal bread: 1
- Rye bread: 1
- Multi-grain bread: 1

69 How many slices of bread do you usually eat per day? (Include all types, fresh or toasted and count one roll as 2 slices)

- Less than 1 slice per day: 1
- 1 slice per day: 2
- 2 slices per day: 3
- 3 slices per day: 4
- 4 slices per day: 5
- 5-7 slices per day: 6
- 8 or more slices per day: 7

70 Which spread do you usually put on bread?

- I don’t use any fat spread: 1
- Margarine of any kind: 1
- Polyunsaturated margarine: 1
- Monounsaturated margarine: 1
- Butter and margarine blends: 1
- Butter: 1

71 On average, how many eggs do you usually eat per week?

- I don’t eat eggs: 0
- Less than 1 egg per week: 1
- 1 to 2 eggs per week: 2
- 3 to 5 eggs per week: 3
- 6 or more eggs per week: 4

72 What types of cheese do you usually eat?

- I don’t eat cheese: 1
- Hard cheeses eg parmesan, romano: 1
- Firm cheeses eg cheddar, edam: 1
- Soft cheeses eg camembert, brie: 1
- Ricotta or cottage cheese: 1
- Cream cheese: 1
- Low fat cheese: 1
73a Over the LAST 12 MONTHS, on average, how often did you eat the following foods?
(Circle one on each line)

<table>
<thead>
<tr>
<th>Food Description</th>
<th>never</th>
<th>less than once a week</th>
<th>once a week or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>a All Bran</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b Sultana Bran™, Fibre Plus™, Branflakes™</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c Weet Bix™, Vita Brits™, Weeties™</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d Cornflakes, Nutrigrain™, Special K™</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e Porridge</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f Muesli</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g Rice</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>h Pasta or noodles (include lasagne)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>i Nuts</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>j Peanut butter or peanut paste</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>k Vegemite™, Marmite™, Promite™</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>l Tinned or frozen fruit (any kind)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>m Oranges or other citrus fruit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>n Apples</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>o Pears</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>p Bananas</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>q Watermelon, rockmelon, honeydew etc</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>r Pineapple</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>s Strawberries</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>t Apricots</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>u Peaches or nectarines</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>v Mango or paw paw</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>w Avocado</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>x Fruit or vegetable juice</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>y Potatoes cooked without fat</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>z Tomato sauce, tomato paste or dried tomatoes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>aa Fresh or tinned tomatoes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>bb Peppers (capsicum)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>cc Lettuce, endive or other salad greens</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>dd Cucumber</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ee Celery</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ff Beetroot</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>gg Carrots</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>hh Cabbage or brussels sprouts</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ii Cauliflower</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>jj Broccoli</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>kk Silverbeet or spinach</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ll Peas</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>mm Green beans</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>nn Bean sprouts or alfalfa sprouts</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>oo Baked beans</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>pp Soy beans, soy bean curd or tofu</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>qq Other beans (include chick peas, lentils etc)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>rr Pumpkin</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ss Onions or leeks</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>tt Garlic (not garlic tablets)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>uu Mushrooms</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>vv Zucchini</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
### 73b Over the LAST 12 MONTHS, on average, how often did you eat the following foods?

*(Circle one on each line)*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>never</th>
<th>less than once a week</th>
<th>once a week</th>
<th>2-4 times per week</th>
<th>5 or more times per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Cheese</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b</td>
<td>Ice cream</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c</td>
<td>Yoghurt</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d</td>
<td>Beef</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e</td>
<td>Veal</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f</td>
<td>Chicken</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>g</td>
<td>Lamb</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>h</td>
<td>Pork</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>i</td>
<td>Fish, steamed, grilled or baked</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>j</td>
<td>Fish, tinned <em>(salmon, tuna, sardines etc)</em></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### 74 How often do you currently smoke cigarettes or any tobacco products? (Circle one only)

- **Daily** 1 ➔ Go to Q75
- **At least weekly (but not daily)** 2 ➔ Go to Q76
- **Less often than weekly** 3 ➔ Go to Q77
- **Not at all** 4 ➔ Go to Q77

### 75 If you smoke daily, on average how many cigarettes do you smoke EACH DAY?

*PRINT the number in the box*

```
  cigarettes per day ➔ Go to Q79
```

### 76 If you smoke, but not daily, on average how many cigarettes do you smoke PER WEEK?

*PRINT the number in the box*

```
cigarettes per week
```

### 77 Have you ever smoked DAILY? *(Circle one only)*

- **Yes** 1 ➔ If NO, go to Q79
- **No** 2 ➔ If NO, go to Q79

### 78 At what age did you finally stop smoking DAILY?

*PRINT age in the box*

```
years old
```
Think about all of the time you spend sitting during EACH DAY while at home, at work, while getting from place to place or during your spare time.

79 How many hours EACH DAY do you typically spend sitting down while doing things like visiting friends, driving, reading, watching television or working at a desk or computer?

a On a usual WEEK DAY

b On a usual WEEKEND DAY

The next two questions are about the amount of physical activity you did LAST WEEK.

80 How many times did you do each type of activity LAST WEEK?
Only count the number of times when the activity lasted for 10 minutes or more.
(If you did not do an activity, please write “0” in the box)

a Walking briskly (for recreation or exercise, or to get from place to place)

b Moderate leisure activity (like social tennis, moderate exercise classes, recreational swimming, dancing)

c Vigorous leisure activity (that makes you breathe harder or puff and pant like aerobics, competitive sport, vigorous cycling, running, swimming)

d Vigorous household or garden chores (that make you breathe harder or puff and pant)

81 If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity?
(If you did not do an activity, please write “0” in the box)

a Walking briskly (for recreation or exercise, or to get from place to place)

b Moderate leisure activity (like social tennis, moderate exercise classes, recreational swimming, dancing)

c Vigorous leisure activity (that makes you breathe harder or puff and pant like aerobics, competitive sport, vigorous cycling, running, swimming)

d Vigorous household or garden chores (that make you breathe harder or puff and pant)

82 This question asks about your physical activity in your MAIN job (this could be paid work, unpaid work, caring etc – whatever you spend most of your ‘working day’ doing).
On a usual working day, how often do you do each of the following while you are at work?
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>all of the time</th>
<th>most of the time</th>
<th>some of the time</th>
<th>a little of the time</th>
<th>none of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Sitting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b</td>
<td>Standing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c</td>
<td>Walking</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d</td>
<td>Heavy labour or physically demanding work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
### Women's Health: About How You Spend Your Time

#### 83 In a usual week, how much time in total did you spend doing the following things? (Circle one on each line)

<table>
<thead>
<tr>
<th>Activity</th>
<th>I don't do this activity</th>
<th>1-15 hours</th>
<th>16-24 hours</th>
<th>25-34 hours</th>
<th>35-40 hours</th>
<th>41-48 hours</th>
<th>49 hours or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Full time permanent paid work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>b Part-time permanent paid work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>c Casual paid work (no paid holiday or sick leave)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>d Home duties (own / family home)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>e Work without pay (e.g., family business)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>f Looking for work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>g Unpaid voluntary work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>h Active leisure (e.g., walking, exercise, sport)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>i Passive leisure (e.g., TV, music, reading, relaxing)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>j Studying</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

#### 84 Managing time is often difficult. How often do you feel? (Circle one on each line)

<table>
<thead>
<tr>
<th>Feeling</th>
<th>every day</th>
<th>a few times a week</th>
<th>about once a week</th>
<th>about once a month</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a That you are rushed, pressured, too busy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b That you have time on your hands that you don't know what to do with?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 85 Are you happy with your share of the following tasks and activities? (Circle one on each line)

<table>
<thead>
<tr>
<th>Activity</th>
<th>happy the way it is</th>
<th>would like other household members to do more</th>
<th>would prefer another arrangement</th>
<th>not applicable (don't do this)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Domestic work (shopping, cooking, cleaning, etc)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b Childcare</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c Caring for another adult (who is elderly / disabled / sick)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d Other household work (gardening, home / car maintenance)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
86 What is your date of birth?

Day  
Month  
Year  

87 Do you regularly provide (unpaid) care for grandchildren or other people's children? (Circle one only)

Yes, daily 1
Yes, weekly 2
Yes, occasionally 3
No, never 4

88 Do you regularly provide care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty? (Circle one on each line)

a For someone who lives with you yes no 1 2
b For someone who lives elsewhere 1 2

89 How many people with a long-term illness, disability or frailty do you regularly provide care for? (Circle one only)

One person 1
Two people 2
More than two people 3

90 How often in total do you provide this care or assistance? (Circle one only)

Every day 1
Several times a week 2
Once a week 3
Once every few weeks 4
Less often 5

91 How much time do you usually spend providing such care or assistance on each occasion? (Circle one only)

All day and night 1
All day 2
All night 3
Several hours 4
About an hour 5
women's health is about the kinds of work you do and your plans for the future

92 Do you normally do any of the following kinds of paid work?  
(Circle one on each line)  

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I do no paid work</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>Paid shift work</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>Paid work with irregular hours</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>Paid work on short-term contract (less than one year)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>Paid work in more than one job</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Paid work at night</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Paid work from home</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>Self employment</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

93 We would like to know YOUR and YOUR PARTNER'S main occupation NOW:  
(Circle one in each column)  

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager or administrator (eg magistrate, farm manager, media producer, school principal)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Professional (eg registered nurse, allied health professional, teacher, artist)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Associate professional (eg office manager, branch manager, shop manager, retail buyer, youth worker, police officer)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tradesperson or related worker (eg cook, dressmaker, hairdresser, gardener, florist)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Advanced clerical or service worker (eg credit officer, radio despatcher, personal assistant, flight attendant, law clerk)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Intermediate clerical, sales or service worker (eg accounts clerk, checkout supervisor, data entry operator, child care worker, nursing assistant, hospitality worker)</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Intermediate production or transport worker (eg machine operator, bus driver)</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Elementary clerical, sales or service worker (eg filing / mail clerk, parking inspector, sales assistant, telemarketer, housekeeper)</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Labourer or related worker (eg cleaner, factory worker, kitchen hand, fast food cook)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>No paid job</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Don't know or no partner</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

94 How do you manage on the income you have available?  
(Circle one only)  

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>It is impossible</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>It is difficult all the time</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>It is difficult some of the time</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>It is not too bad</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>It is easy</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

95 Are there people who do NOT live with you who are dependent on your household income?  
(Circle one only)  

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Yes, one</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Yes, more than one</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
96. Do you consider yourself to be completely retired from the paid workforce, partly retired, or not retired at all? (Circle one only)
   I am not retired at all (currently working or planning to return to work) 1 → Go to Q98
   I am partially retired (have cut down on hours of work or changed type of job as a way of retiring gradually) 2 → Go to Q98
   I am completely retired from paid work (within the last 20 years) 3 → Go to Q97
   I gave up paid work over 20 years ago (and do not intend to return to work) 4 → Go to Q97
   I have never been in paid work 5 → Go to Q101

97. When did you retire or give up work completely?
   (Print year in the box) → Go to Q100

98. At what age do you expect to retire (completely) from the paid workforce?
   (Print age, in whole years, in the box)
   Do not expect to ever retire 1
   Don’t know 2

99. You have said when you expect to retire, but if you had the choice, at what age would you like to retire (completely) from the paid workforce?
   (Print age, in whole years, in the box)
   Do not want to ever retire 1
   Don’t know 2

100. How important are / were the following factors in your decision about when to retire completely from the workforce?
     Please answer this whether you are retired or not. (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>Reaching the eligibility age for an old age (or service) pension</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>The ability to access other government pensions or benefits</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>The ability to access superannuation funds</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c</td>
<td>Being retrenched or made redundant</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d</td>
<td>The stresses and pressures of your job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e</td>
<td>A declining interest in work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f</td>
<td>Financial security</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g</td>
<td>A work-related illness or injury</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>h</td>
<td>The number of people for whom you need to provide financial support</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>i</td>
<td>When your spouse / partner retires / retired</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>j</td>
<td>Your personal health or physical abilities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>k</td>
<td>The need to care for your spouse / partner</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>l</td>
<td>The need to care for a grandchild / grandchildren</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>m</td>
<td>The need to care for another family member or close friend</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>n</td>
<td>The desire for a different lifestyle</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### 101 If you are retired, what are the sources of your retirement funding? OR If you are not retired, what do you expect to be the sources for funding your retirement? (Circle one on each line)

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Age pension / Service pension / Widow’s pension / War Widow’s pension</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b Other government pension or allowance</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c Lump sum superannuation payout</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d A pension or annuity purchased with superannuation or some other funds</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e Income from savings and investments (such as shares and property)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f Income from a business</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g Income or pension from your spouse / partner</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>h Financial support from family</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>i Spouse / partner’s superannuation</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>j Inheritance</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>k Other sources, please specify</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 102 How would you rate your current income if you are retired, OR your expected retirement income if you have not yet retired (completely)? (Circle one only)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a More than sufficient to maintain your current standard of living</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Just enough to maintain your current standard of living</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Not enough to maintain your current standard of living</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d Don't know</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 103 If you have not yet (completely) retired, have you begun to think about your life in retirement? In particular, have you made any plans for the following aspects of your life? (Circle one on each line)

<table>
<thead>
<tr>
<th>Plan</th>
<th>Not at all</th>
<th>Thought about it</th>
<th>Made some plans</th>
<th>Have firm plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>a To be socially active with friends or family or the community</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b To be mentally active (eg join a group, do word or number puzzles)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c To be physically active</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d To be financially secure</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e To be in some kind of paid, unpaid or voluntary work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f To be in housing that meets your needs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
women’s health is about you and your life

104 These questions are about getting on with other people:
(Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Are you sad or lonely often?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>Do you feel uncomfortable with anyone in your family?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>Can you take your own medication and get around by yourself?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>Do you feel that nobody wants you around?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>Does someone in your family make you stay in bed or tell you you’re sick when you know you are not?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Has anyone forced you to do things you didn’t want to do?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Has anyone taken things that belong to you without your OK?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>Do you trust most of the people in your family?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>i</td>
<td>Do you have enough privacy at home?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>j</td>
<td>Has anyone close to you tried to hurt or harm you recently?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>k</td>
<td>Has anyone close to you called you names or put you down or made you feel bad recently?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>l</td>
<td>Are you afraid of anyone in your family?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>m</td>
<td>Does anyone in your family drink a lot of alcohol?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>n</td>
<td>Have you ever been in a violent relationship with a partner / spouse?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

105 If you have ever lived with a violent partner or spouse, in which years did you experience violence? (Circle all that apply)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Before</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1996</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1996-1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1999-2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2002-2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2005-2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>I have never lived with a violent partner or spouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

106 What is your present marital status? (Circle one only)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Married (registered)</td>
<td>1</td>
</tr>
<tr>
<td>De facto relationship (opposite sex)</td>
<td>2</td>
</tr>
<tr>
<td>De facto relationship (same sex)</td>
<td>3</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
</tr>
<tr>
<td>Divorced</td>
<td>5</td>
</tr>
<tr>
<td>Widowed</td>
<td>6</td>
</tr>
<tr>
<td>Never married</td>
<td>7</td>
</tr>
</tbody>
</table>

107 How many people live with you now? (Circle all that apply)

<table>
<thead>
<tr>
<th></th>
<th>one</th>
<th>two</th>
<th>three or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>No one, I live alone</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Partner or spouse</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>Children under 16 years</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d</td>
<td>Children 16-18 years</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e</td>
<td>Children over 18 years</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f</td>
<td>Your parents or in-laws</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g</td>
<td>Other adult relatives</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h</td>
<td>Other adults (not family members)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it? (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>Support Description</th>
<th>none of the time</th>
<th>a little of the time</th>
<th>some of the time</th>
<th>most of the time</th>
<th>all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Someone to help you if you are confined to bed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>Someone you can count on to listen to you when you need to talk</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c</td>
<td>Someone to give you good advice about a crisis</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d</td>
<td>Someone who shows you love and affection</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e</td>
<td>Someone to have a good time with</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f</td>
<td>Someone to give you information to help you understand a situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g</td>
<td>Someone to confide in or talk to about yourself or your problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>i</td>
<td>Someone who hugs you</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>j</td>
<td>Someone to get together with for relaxation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>k</td>
<td>Someone to prepare your meals if you are unable to do it yourself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>l</td>
<td>Someone whose advice you really want</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>m</td>
<td>Someone to do things with to help you get your mind off things</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>n</td>
<td>Someone to help with daily chores if you are sick</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>o</td>
<td>Someone to share your most private worries and fears with</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>p</td>
<td>Someone to turn to for suggestions about how to deal with a personal problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>q</td>
<td>Someone to do something enjoyable with</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>r</td>
<td>Someone who understands your problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>s</td>
<td>Someone to love and make you feel wanted</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Are you a twin? (Circle one only)
- Yes - identical (Circle one only) 1
- Yes – not identical (fraternal) 2
- No 3

In general, are you satisfied with what you have achieved in your life so far in the areas of: (Circle one on each line)

<table>
<thead>
<tr>
<th></th>
<th>Area</th>
<th>very satisfied</th>
<th>satisfied</th>
<th>dissatisfied</th>
<th>very dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b</td>
<td>Career</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c</td>
<td>Study</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d</td>
<td>Family relationships</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e</td>
<td>Partner/closest personal relationship</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f</td>
<td>Friendships</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>g</td>
<td>Social activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Have we missed anything?

*If there is ANYTHING else you would like to tell us about changes in your health (especially in the last three years) please write on the lines below.*
Consent

I consent to the researchers ‘matching’ the information provided in this survey with that provided in previous surveys so that any changes in my health can be noted.

Signature ______________________________ Date ____________

Maiden Name (if applicable) ______________________________

Help us keep in touch!

Sometimes we lose touch with our participants. It would be helpful if you could give us your mobile phone number and email address.

Mobile ______________________________

Email ______________________________

It would also be helpful if you could give us details of a relative or friend who will be able to help us find you.

Name ______________________________
Address ______________________________ P’Code ______________________________
Phone (home) ( ) __________________ Relationship to you ______________________________

Name ______________________________
Address ______________________________ P’Code ______________________________
Phone (home) ( ) __________________ Relationship to you ______________________________

Please complete this box if you have filled in this survey on someone else’s behalf. This helps us to keep our records as accurate as possible.

Your Name ______________________________
Relationship to participant ______________________________
Reason ______________________________
Thank you for taking the time to complete this survey.

If you have any questions you can contact us by telephoning 1800 068 081 (freecall).

Don't forget to sign the consent and post this back to us!

Women's Health Australia
Reply Paid 84016
HAWTHORN VIC 3122

Australian Longitudinal Study on Women’s Health
The University of Newcastle, Callaghan NSW 2308.
Phone 02 4923 6872 email: whasec@newcastle.edu.au
Web: http://www.newcastle.edu.au/centre/wha
HAVE YOUR DETAILS CHANGED?

If you have changed your name, address or telephone number, please advise us of your new details by calling FREECALL 1800 068 081 or by completing and returning this card.

Full Name______________________________________________________________ New Title____
(_if changed)
Previous Surname________________________________________________________________
(_if changed)
Address____________________________________________________________________________________
________________________________________________State_______________ Postcode_____________
Ph(home) (____) __ __ __ __ __ __ __ ________ Ph(work) (____) __ __ __ __ __ __ __
Ph(mobile) __ __ __ __ __ __ __ __ __ __
Email______________________________________________________________________________________
ID Number __ __ __ - __ __ __ __ __ __ Please keep this card in a safe place until you need to contact us. Please copy your ID number from the survey or letter provided.
Dear Title Surname

Thank you for your continuing participation in the Women's Health Australia project. It is now eleven years since you completed your first 'pilot' survey for this long-term study of the health and health care needs of Australian women. We’ve asked you several times now to help us by completing a draft version of the survey that will be sent to over 13,000 women in your age group. Your responses have been very valuable. We use your answers to the questions, and your comments about the layout or the items to make improvements to the design of the survey before sending it out to the entire group. Your help and feedback have played a major role in the success of the project so far. We would like to take this opportunity to congratulate and thank you for your ongoing commitment to this project.

We invite you to complete the enclosed survey and Evaluation Form and return them to us in the envelope provided. The information you contribute by completing this survey will be linked using your identification number (not your name) to the information you have given us in the past. This will allow us to follow changes in women’s health and their use of health services.

As described in our newsletters to you, following discussion with Medicare Australia, information held by them may be regularly provided to the research team from 2005 without your needing to consent every time. Names and addresses are not included with the information. If you have any questions about this process or need more information, please call the Freecall number. If you have concerns about this process you can opt out of this by phoning the Freecall number. We will provide updates in future newsletters about our progress and findings and how this research will benefit the health of women now and in the future.

Your participation in all aspects of this project is voluntary. If at any time you would like to discontinue your involvement in the project, please telephone, email or write to us. If we do not hear from you, we will continue to include you in the project.

If you have any questions, please ring us on our FREECALL number 1800 068 081. Thank you again for your participation in this important project.

Yours sincerely

Annette Dobson (Project Director)

If you have any complaints about this project and would prefer to discuss these with an independent person, you should feel free to contact the University of Newcastle's Human Research Ethics Officer, Ms Sue O'Connor, on (02) 4921 6333 or write to her at The University of Newcastle, University Drive, Callaghan, NSW 2308. You could also contact the University of Queensland’s Human Research Ethics Officer, Mr Michael Tse, on (07) 3365 3924 or write to him at The University of Queensland, QLD 4072. The proposed research using Medicare information will be conducted in accordance with relevant privacy requirements and other legislation protecting this information and is subject to final approval being granted by government and university ethics committees. The Australian Electoral Commission (AEC) has supplied name, address, gender and age-range information for this medical research study in conformity with Item 2 of subsection 90B(4) of the Commonwealth Electoral Act 1918 and subregulation 9(a) of the Electoral and Referendum Regulations 1940. The information has been provided by the AEC on a confidential basis and may not be forwarded on or sold or otherwise disclosed or used for any purpose other than to contact participants for the medical research study/survey.
As outlined in the letter accompanying this survey, you are one of our pilot group. As well as completing the survey, we would like to know what you think of it. We may make changes before sending it to others in your age group in 2007. Please help by answering the questions below.

1. Were there any questions you found difficult to understand? Yes / No
   If Yes, which questions were they and why?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

2. Were there any questions you didn’t want to answer? Yes / No
   If Yes, which questions were they and why?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

3. Were there any questions you found too personal or not relevant? Yes / No
   If Yes, which questions were they and why?
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

Please turn over ➔
4. Would you be willing to complete the survey online (on the internet) in the future?  
   Yes / No

5. Do you have any other comments about the survey wording, layout or anything else?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Your feedback will help us improve the survey.  
Thank you for taking the time to complete this evaluation sheet.
You are a unique and irreplaceable participant in the Women’s Health Australia project.

We recently sent you a survey but have not heard back from you.

If you have a survey please complete and return it to us
If you don’t have a survey please contact us:

Freecall 1800 068 081
Email whasec@newcastle.edu.au

The Women’s Health Australia project has been running for 10 years and this year marks the halfway point of the project. The research is providing valuable information for the development of future policy and trends in the health care of Australian women.

Congratulations on your ongoing commitment to the project.
Did you know that...

24% of mid-aged women care for someone who is elderly or ill

87% of women your age rate their health as good, very good or excellent

71% of women your age eat 3 or more different vegetables per day

For more information on the project check out our website at www.newcastle.edu.au/centre/wha

Thank you for your continued support

Don’t forget to notify us if you move.

Since 2001 we have received more than 5500 changes of details from women in your age group.

Freecall number 1800 068 081

Email whasec@newcastle.edu.au
We recently sent you a survey and we would like to...

Thank you for sending your survey back

or

Remind you to send your survey back

or

If you don’t have a survey, call us on 1800 068 081 or email us on whasec@newcastle.edu.au

Only with your help can we provide accurate information to the government about the health needs of women across Australia.
Freecall number 1800 068 081

Email whasec@newcastle.edu.au

Website www.newcastle.edu.au/centre/wha