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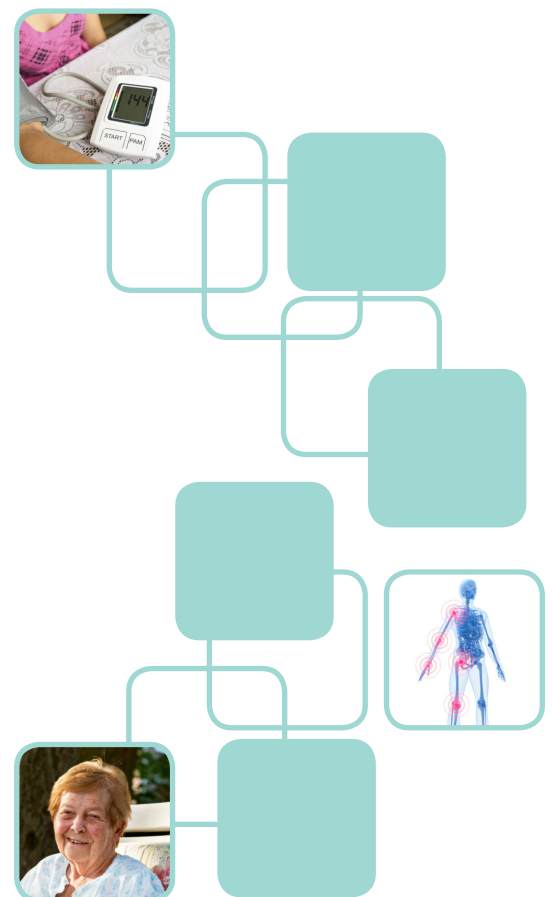
australian longitudinal study on women's health

Use, access to, and impact of Medicare services for Australian women:

Findings from the Australian Longitudinal Study on Women's Health

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Final report prepared for the Australian Government Department of Health

June 2017

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1. EXECUTIVE SUMMARY

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey examining the health of over 58,000 Australian women. The study comprises four cohorts of women: three cohorts (born in 1921-26, 1946-51, 1973-78) have been repeatedly surveyed since 1996, and a new cohort (born in 1989-95) was first surveyed in 2013. The survey data are linked to Medical Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS), and hospital inpatient data, providing information on health care use, aged care data (for women in the oldest cohort), and mortality data.

The ALSWH data have been widely used to assess health status of women in Australia and to investigate the behavioural and socio-demographic characteristics that affect health and the use of health services at different life stages. This major report, the latest in a series for the Department of Health, examines and compares the use of, access to, and impact of Medicare services for women in Australia across the life course. The life course approach adopted in this report focuses on how factors impacting women's health and health service use change across life stages, as captured in the twenty years of surveys and four age cohorts in the study. For instance, a more detailed understanding of the use of health services as a young woman, compared with a working mother, to a woman post menopause, can guide the provision of health services in the future. Where the report identifies a link between the specific characteristics of women and differences in the use or costs of health services, then this relationship is evident after taking into account the effects of other factors, such as their age.

Use and costs of GP Services

Overall, the mean annual number of General Practitioner (GP) services used by women increased with age, from around 5 services per year at age 20, to around 15 services per year by age 90. The most rapid increase in GP service use occurred after the age of 55 years. The increase in use of GP services was reflected in the mean annual Medicare benefit paid with a steeper rate of increase in benefits paid in the 1921-26 cohort (when compared with the increase in the number of services over this life stage). Out-of-pocket costs increased with age more rapidly than the average number of GP services per year and the average cost to the Government. This rise was halted in mid-aged and older women by the introduction of the Medicare Plus initiative in 2004 (which corresponds approximately to after Survey 3 in the ALSWH cohorts). Of note, the number and Medicare benefit costs of GP services used by women aged around 21 was slightly higher in 1996 than 2013, however young women aged 21 in 2012/13 had more out-of-pocket costs from GP visits than similarly aged women in 1996.

Table 1-1 shows an 'At a Glance' summary of the associations between sociodemographic factors and GP service use, MBS cost and out-of-pocket costs for women in each of the three original ALSWH cohorts.

Table 1-1. Associations between sociodemographic factors and GP service use, MBS cost and out-of-pocket costs for women in the 1973-78, 1946-51, and 1921-26 cohorts.

	GP services			MBS cost of GP services			GP out of pocket costs		
	1973-78	1946-51	1921-26	1973-78	1946-51	1921-26	1973-78	1946-51	1921-26
Area of residence:									
Major cities		↑	↑		↑	↑			
Regional									
Remote		↓			↓			↓	
Education:									
Less than Year 12	↑	↑		↑	↑		↓		
Year 12									
Certificate/									
Diploma									
University degree	↓							↑	↑
Manage on income:									
Difficult	↑	↑	↑	↑	↑	↑	↓	↓	↓
Health Care Card:									
Yes	↑	↑	↑	↑	↑	↑	↓	↓	↓

Upward arrows reflect a higher number of GP services and higher MBS and out-of-pocket costs. Downward arrows reflect the opposite.

As is apparent in Table 1-1, there were socioeconomic differences in use and costs of GP services in all cohorts. Women living in remote areas had the least number of GP services and thus the lowest Medicare benefit paid and out-of-pocket costs, and those living in major cities had the most. These differences were most apparent for women in their 40s to 70s. Specifically, metropolitan area of residence was associated with higher GP service use, with a stronger association in the 1921-26 cohort than in the 1973-78 cohort.

For all cohorts, women with a less than Year 12 qualification had the highest number of GP services and Medicare benefit paid while university-educated women had the lowest for both outcomes. Although university-educated women tended to have higher out-of-pocket costs overall, it was observed that the out-of-pocket costs for mid-aged women with a university degree continued to rise. This was in contrast to women with lower qualifications and may be related to the proportion of university-educated women with health care cards.

For all cohorts, women who had difficulty managing on their income visited the GP an average of 1-3 times more each year than women who found it easier to manage on income. This corresponded to a higher Medicare benefit paid, however these women also had lower out-of-pocket costs compared to women who found it easier to manage on their income. This is likely due to the latter group being able to afford to pay for medical services.

For all cohorts, women with a health care card had more GP services each year than women without a health care card. Consequently, these women also had more Medicare benefit paid and less out-of-pocket costs when compared with women without a health care card.

Further associations were identified between personal and health factors and use of GP services. Partnered women in the 1946-51 cohort had less GP service use than partnered women in the 1921-26 cohort. Smokers and ex-smokers had more GP service use in the 1973-78 cohort, but there was a counterintuitive association with less use of GP services for women in the 1946-51 cohort who were still smoking (but with higher GP service use among ex-smokers consistent with women who had developed a smoking related illness quitting smoking). Alcohol use was associated with less GP service use across all cohorts. Body mass index (BMI) was only significantly related to GP service use among women in the 1973-78 cohort, with overweight or obese women having higher service use. GP service use was strongly related to the number of chronic conditions, particularly in the oldest cohort of women (1921-26 cohort). Urinary tract infections, premenstrual tension, and sexually transmitted diseases were linked with GP service use in the 1973-78 cohort, and joint pains were linked with GP service use in the 1946-51 cohort.

For women in the recently recruited 1989-95 cohort, GP service use was higher among those who were married, had a urinary tract infection, a sexually transmitted disease, or depression. GP service use was lower among those who drink rarely.

Use and costs of specialist services

The patterns for the use and costs of specialist services followed some of the patterns seen with GP service use. The number of specialist services used (excluding obstetrics) remained stable until the age of 55 and then increased with age, with the highest number of MBS claims for specialist consultation made in the 1921-26 cohort in 2015 when they were aged around 90 years (4.2 claims per year). As expected, the rise in number of specialist services used led to an increase in Medicare benefit paid and out-of-pocket costs.

When obstetrics was included, there was a distinct peak in the number of specialist services used, the Medicare benefit paid and out-of-pocket costs at around 33 years, which coincided with the median age of mothers giving birth.

Table 1-2 shows an 'At a Glance' summary of the associations between sociodemographic factors and specialist service use, MBS cost and out-of-pocket costs for women in each of the three original ALSWH cohorts.

Table 1-2. Associations between sociodemographic factors and specialist service use, MBS cost and out-of-pocket costs for women in the 1973-78, 1946-51, and 1921-26 cohorts.

	Specialist services			MBS cost of specialist services			Specialist services out-of-pocket costs		
	1973-78	1946-51	1921-26	1973-78	1946-51	1921-26	1973-78	1946-51	1921-26
Area of residence:									
Major cities	↑	↑	↑	↑	↑	↑	↑	↑	↑
Regional									
Remote		↓	↓		↓	↓		↓	
Education:									
Less than Year 12									
Year 12									
Certificate/ Diploma									
University	↑		↑	↑		↑	↑		
Manage on income:									
Difficult							↓		
Health Care Card:									
Yes	↓		↓	↓	↑	↓	↓	↓	↓

Upward arrows reflect a higher number of specialist services and higher MBS and out-of-pocket costs. Downward arrows reflect the opposite.

Specialist services were used more (also reflected by higher Medicare benefit paid and out-of-pocket costs) by women living in major cities than those living in remote areas, likely due to the difference in availability of these services between these areas.

Differences in use by level of education differed by cohort. For older women, those with a university education used more specialist services than those with lower qualifications. Women with a university education had a higher peak in use of specialist services in their 30s compared to other women, which may reflect higher use of specialist obstetric services by women of higher socioeconomic status.

There was little difference in specialist service use between women based on ability to manage on income, which may reflect that many women had private health insurance, even those on low income. Overall, women with a health care card had fewer specialist consultations, lower Medicare benefit paid, and lower out-of-pocket costs. Women in the 1921-26 cohort who did not have a health care card had around one extra specialist visit between the ages of 81 to 87 years when compared with women who had a health care card.

Further associations were identified between personal and health factors and use of specialist services. Partnered women had fewer services, and women with private health insurance had more visits. Compared to non-drinkers, women who drank alcohol (at any level) were less likely to use specialist services, except in the 1921-26 cohort, where rare drinkers were more likely to see a specialist. As previously with GP visits, current smokers were less likely to have specialist visits compared with non-smokers. Women with more comorbid conditions had more visits to a specialist, as did women from the 1973-78 and 1989-95 cohorts who reported a diagnosis of urinary tract infection, incontinence, or sexually transmitted disease.

Use of pathology

The mean number of pathology claims, and the Medicare benefit paid, increased with age with a small peak around the age of 30, presumably for obstetric-related pathology tests. The mean out-of-pocket costs for pathology services also increased across the cohorts, but the increase with age was less apparent in the 1946-51 cohort. In older women, although the number of pathology tests and out-of-pocket costs increased with age, the Medicare benefits paid stabilised at the age of 80. This may be explained by the increasing number of private hospital admissions by women in this age group and the higher fees charged by private hospitals for pathology tests.

Table 1-3 shows an 'At a Glance' summary of the associations between sociodemographic factors and pathology service use, MBS cost and out-of-pocket costs for women in each of the three original ALSWH cohorts.

Table 1-3. Associations between sociodemographic factors and pathology test use, MBS cost, and out-of-pocket costs for women in the 1973-78, 1946-51, and 1921-26 cohorts.

	Pathology services			MBS cost of pathology services			Pathology services out-of-pocket costs		
	1973-78	1946-51	1921-26	1973-78	1946-51	1921-26	1973-78	1946-51	1921-26
Area of residence:									
Major cities	↑	↑	↑	↑	↑	↑	↑	↑	↑
Regional									
Remote		↓	↓		↓	↓			
Education:									
Less than Year 12									
Year 12									
Certificate/Diploma									
University						↑	↑		
Manage on income:									
Difficult					↑		↓	↓	↓
Health Care Card:									
Yes		↑			↑		↓	↓	↓

Upward arrows reflect a higher number of pathology services and higher MBS and out-of-pocket costs. Downward arrows reflect the opposite.

Women living in remote areas of Australia had the least number of pathology services per year and those living in major cities had the most (and consequently, had higher Medicare benefits paid and higher out-of-pocket costs) with this difference in service use increasing with age.

Mid-aged women with difficulty managing on income had slightly more pathology tests than women who found it easier to manage on income, likely due to poorer health. This was also reflected in the amount of Medicare benefit paid, however mid-aged women with difficulty managing on income had lower out-of-pocket costs than those who had no difficulty.

Mid-aged women with a health care card also had more pathology tests than those who did not have a health care card, however they had higher Medicare benefits and lower out-of-pocket costs.

Use of Medicare services before and after key life events

Birth of first child: The patterns of health service use before and after birth reflected the changing health care needs through the first pregnancy and beyond. Women tended to have fewer GP services in the 12 months before and after the birth of their first child than other women, which is likely due to maternity

care being transferred to a private obstetrician or public hospital after the initial GP consultation. However, women who had their first child more than 12 months previously had the most GP services. The number of specialist services used was higher in the 12 months prior to first birth, with the number of services increasing with the age of the woman. Similarly, pathology claims were highest in the 12 months prior to the birth of the first child, and were lowest 12 months following the birth of the first child.

Menopause/hysterectomy: In the 1946-51 cohort, at each age, women who were pre-menopausal (at least 12 months prior to menopause) had the highest mean annual number of GP services, whereas women who were within 12 months of menopause had the lowest. There was little difference in the number of specialist services according to menopause status. For each yearly increase in age after 50, the use of pathology services was highest for postmenopausal women.

Women who had a hysterectomy more than 12 months earlier had the highest annual number of GP services, with the number of services increasing with age. The mean number of GP services was lowest for women who had a recent hysterectomy. There were a higher number of specialist services in the 12 months prior to hysterectomy. There was little difference in the number of pathology services for women in the 1946-51 cohort who had or had not had a hysterectomy.

Falls requiring medical attention: In the 1921-26 cohort women who had a past fall requiring medical attention had the most GP services. However, in the 12 months prior to a fall women had fewer GP services and more specialist services compared to other women of the same age.

Last year of life: Until the age of 80, there was little difference in the number of GP services used by women in the 1921-26 cohort in their last year of life compared with those who were not. From the age of 81, women in their last year of life used far more GP services than other women of the same age (for example, at age 90 women in their last year of life had 12-13 GP visits per year compared to 5 visits for women aged 90 who were not in their last year of life). This difference increased with age, largely due to progressively fewer services being used by surviving women at the oldest ages.

Women in their last year of life had approximately 6-10 specialist services compared with 1-3 services by women who were not in their last year of life. The mean number of specialist services in the last year of life did not vary much by age. Pathology services were also consistently higher for women in their last year of life than for those women who were not.

Use of primary care, condition specific and allied health items

Use of the Better Access Scheme (BAS): Overall, younger women had used the BAS mental health services more than mid-aged or older women. Since its introduction in 2006, the uptake of BAS mental health services by women in the 1973-78 cohort had steadily increased over time - from 5% in 2007 when they were around 30 years, to 11% in 2015 when they were around 39 years. In 2009,

approximately 7% of women from the new young cohort (born 1989-95), who were aged 14-19 years at the time, had used mental health services under the BAS. By 2012, this figure had almost doubled to 13%, which was followed by a slight decline in 2013. Only a low proportion of women in the 1946-51 and the 1921-26 cohorts have accessed the Scheme.

Across all cohorts, women living in inner regional areas accessed more mental health services than those in metropolitan, outer regional, or remote/very remote areas. The percentage of women having a GP mental health plan increased over time, with GP Psychological Strategies and Focussed Psychological Strategies the preferred services. Over time, the mean mental health scores increased for women with poor mental health who used the BAS, likely reflecting the benefit of the BAS.

Use of assisted reproductive technologies (ART): The number of women aged in their late teens and early 20s who claimed ART services was low, with a maximum of 2.7 per 1000 women at age 25. The rate increased to 22 per 1000 women at age 39, before decreasing sharply in the early 40s which may be due to the diminished success rate of ARTs around that age. ART was used more by women living in a major city, who were university-educated, better able to manage on their income and who had private health insurance. ART was predominantly used by women without children until the age of 35 years, from when it was most used by women who already had one child.

Use of chronic disease management (CDM) items by women with complex care needs: Use of CDM services increased with age, with fewer than 1 woman in 1000 claiming CDM items at age 27, to around 700 women per 1000 (or 70%) by age 90. For all cohorts, women in major cities and regional areas, those who found it more difficult to manage on income, and those with a health care card were more likely to use CDM. Women who live in remote areas used CDM the least; this may be due to reduced access to allied health services and thus inability to form the multidisciplinary team which comprises some of the MBS items in this health service.

Use of Diabetes Annual Cycle of Care (DACC) items: Of older and mid-aged women with self-reported diabetes, only between 15-22% had made a DACC claim. Many women who reported having diabetes also had no claim for HbA1c testing. There are women with diabetes who had the HbA1c blood test, however they were not accessing the full DACC health care program. Even fewer were using the Group Allied Health Service for diabetes-related services. It is not known whether or not GPs were offering the DACC service to patients or if the patients were refusing to use the program.

Use of Asthma Annual Cycle of Care (AACC) items: Asthma is most prevalent in young women, however only 10% of young women with asthma used AACC or CDM services. The reason for the low uptake is not known and warrants investigation of possible causes such as systemic barriers, GP incentives and patient concerns about the program. There was better uptake of AACC and CDM items

in mid-aged and older women with asthma; up to 45% of these women made an AACC or CDM claim in 2015.

Use of the 75+ Health Assessments: There was a steady increase in uptake of the 75+ health assessments among the 1921-26 cohort from 1999 to 2003 (i.e., from when they were aged around 73 to 82 years). Around 8% of women had an assessment by the year 2000. In 2001, 4% of women had a subsequent assessment, and another 12% of women had an initial assessment. The uptake of health assessment among surviving women gradually increased until 2003-2004, showing some uptake in first assessments right through to 2013. However, each year, a large proportion of women had either never had an assessment, or did not have a repeat assessment for that year. By December 2013 (when aged 87-92 years), 14% of the original sample were still alive, but had never had a health assessment. Other than survival, few baseline factors distinguished women who had an assessment and those who had not.

Use of, and access to, targeted items

Telehealth: Very few women in ALSWH had used telehealth services since these were introduced in 2011. However their use had increased from 10 participants and 15 claims in 2001 to 127 participants and 336 claims in 2015. Women from the 1946-51 cohort were most likely to use these services, and twice as likely as women from the 1973-78 cohort. The low use may reflect problems with availability in regional/remote areas.

Use of bulk billing services, comparing cohort and age of use: Use of bulk billing, particularly with incentive payments, increased across cohorts, and with age in the 1946-51 and 1921-26 cohorts.

Proportion of women who reached the safety net each year: The number of women who reached the safety net service was initially low in all cohorts, but increased over time. Increases began to reverse after around age 35 in the 1973-78 cohort, and tapered off after around age 80 in the 1921-26 cohort.

Across all cohorts the proportion of women who reached the safety net services was highest in women who live in major cities.

Although patterns vary with age, across all cohorts women with a university degree were more likely to reach the safety net services compared to other women of similar age. Likewise, the proportion of women who reached the safety net services was higher in women who did not have a health care card than those who did have health care cards. The percentage of women who reached the safety net service across all cohorts was slightly higher in those women who found it easier to manage on their income.

2. INTRODUCTION

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey examining the health of over 58,000 Australian women. The Study follows women in four age cohorts: women born 1921-26, 1946-51, 1973-78, and 1989-95. Women in the original three cohorts (1973-28, 1946-51 and 1921-26) were sampled from the Medicare database, with deliberate oversampling of women in rural and remote areas (Brown and Dobson, 2000). These women were first surveyed in 1996 and re-surveyed on a three-yearly rolling basis (starting with the 1946-51 cohort in 1998, 1921-26 in 1999, and 1973-78 in 2000). Since 2011, women in the 1921-26 cohort have been surveyed every six months. Women in the 1989-95 cohort were recruited in 2013 using social networking (Loxton et al. 2015), and have been resurveyed annually.

Survey data are linked to Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme data (PBS), cancer registry, perinatal, aged care, and hospital inpatient datasets. Death data are obtained from the National Death Index. Women also provide detailed qualitative data. This report presents an analysis of MBS data on claims for services under Medicare for women in ALSWH, with ALSWH survey data enabling comparisons according to women's health, health behaviours, and social circumstances, and over time. Combined, these data provide unique and rich information on longitudinal changes in health service use by particular sub-groups of women. We particularly focus on Medicare items that are commonly used by all women, items that are particular to specific life stages or needs, and access to targeted items (e.g., telehealth, bulk billing incentives). We examine how and when women use these Medicare items in relation to their life-stage, socio-demographic circumstances, and health care needs, as well as the costs of these services. We also demonstrate how ALSWH data can be used to evaluate the impact of these items on women's health outcomes.

2.1. The Australian Medical Benefits Scheme

Medicare is the basis of Australia's health care system, with the Medical Benefits Scheme covering many health care costs for all Australian citizens and most permanent Australian residents. The MBS lists more than 5,700 items covering the rebates for out-of-hospital services provided by private practitioners, as well as in-hospital services for private patients. In 2015-16, people across Australia claimed a total of 384,043,993 Medicare items, with 33% of these being for unreferred attendances (General Practitioner/Vocationally Registered GP), 3% for enhanced primary care (for chronic disease management), 8% for specialist attendances, 35% for pathology, and 6% for diagnostic imaging, and 3% for allied health (see Figure 2-1). Most claims (78%) were for services that were bulk billed directly to Medicare with no out-of-pocket costs paid by the patient.
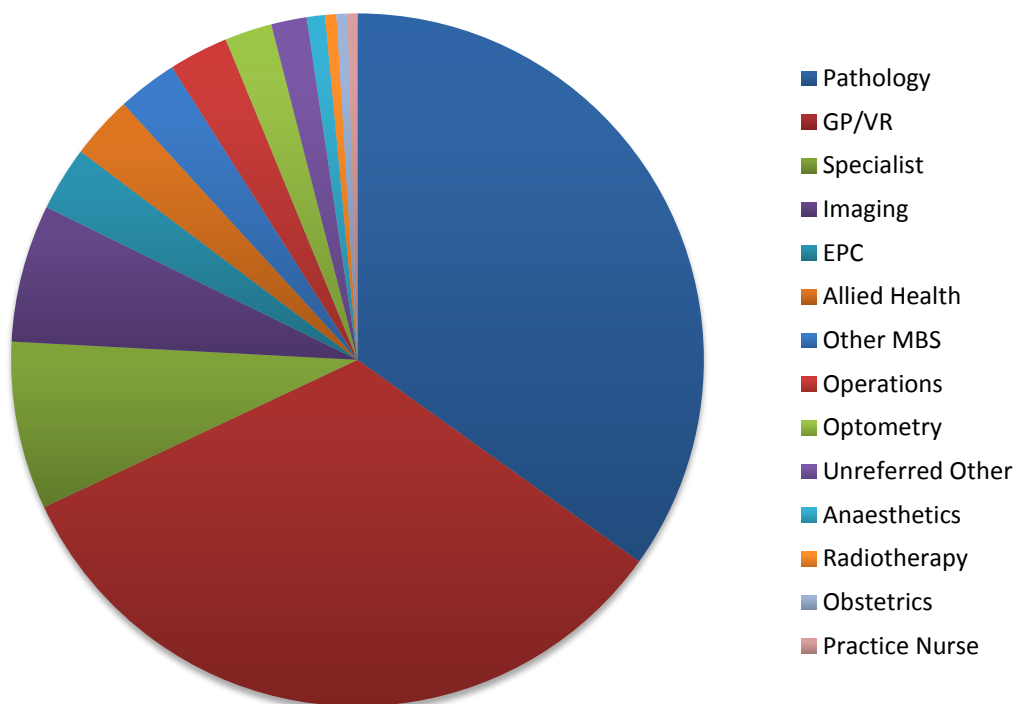
Figure 2-1. Use of Medicare items, Australia 2015-2016.

Source: Medicare Australia Medicare Statistics 2015-2016

2.1.1.   The Australian Medical Benefits Schedule (MBS) data set

The MBS dataset includes unit record data on claims for health services listed in the MBS. Data include the type of health services provided (designated by an MBS item number), the date of service, the amount charged, and the benefit paid (the Medicare reimbursed amount). For this report Medicare items were grouped by Broad Type of Service (BTOS) as defined by Medicare (see Appendix A), or by individual items for specified services.

2.2.   Linking ALSWH survey data to the MBS data set

The Medicare database was used in 1996 as the sampling frame for the ALSWH. Medicare Australia holds a file containing the Study ID number and the Medicare Personal Identification Number (PIN) of all women selected in the ALSWH sample. Linkage of survey and Medicare data is approved by the Department of Health Ethics Committee. For the Study's original three cohorts (women born 1973-78, 1946-51 and 1921-26), the Australian Institute of Health and Welfare (AIHW) is the integrating authority for the creation of the statistical linkage key that allows linkage of de-identified survey data and Medicare data. For the newest cohort (women born 1989-95), linkage is conducted by the Department of Human Services. ALSWH survey data have been linked with Medicare data up to 2015 for all women in the original cohorts (excluding those who specifically refused consent), and to 2013 for the 1989-95 cohort. However, data for services funded through the Department of Veterans' Affairs (DVA) have not been

provided, so women who are DVA gold card recipients have been removed from the analyses in this report. A schematic of the data linkage process is shown in Appendix B.

Unless otherwise stated, Figures and Tables presented in this report include data for the maximum number of eligible women who returned surveys at each time point. Cohort retention in each survey is shown in Table 2-1. From November 2011, women from the 1921-26 cohort have been surveyed every six months with an abbreviated paper survey (known as the '6MF' surveys); the attrition and response rates for these surveys is shown in Table 2-2.

Table 2-1. Participation and retention across surveys between 1996 and 2015 for women from the 1989-95, 1973-78, 1946-51 and 1921-26 cohorts

	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6	Survey 7
1989-95 cohort: 17,012 women aged 18-23 years at Survey 1 (2013)						
Year	2014	2015				
Age (years)	19-24	20-25	-	-	-	-
Deceased*	<5	5	-	-	-	-
Non-respondents	5,667	8,046	-	-	-	-
Respondents	11,344	8,961	-	-	-	-
% response[†]	69.5	54.9	-	-	-	-
1973-78 cohort: 14,247 women aged 18-23 years at Survey 1 (1996)						
Year	2000	2003	2006	2009	2012	2015
Age (years)	22-27	25-30	28-33	31-36	34-39	37-42
Deceased*	22	33	50	58	77	100
Non-respondents	4,537	5,133	5,052	5,989	6,160	6,961
Respondents	9,688	9,081	9,145	8,200	8,010	7,186
% response[†]	69.2	66.3	68.3	62.0	61.6	56.6
1946-51 cohort: 13,715 women aged 45-50 years at Survey 1 (1996)						
Year	1998	2001	2004	2007	2010	2013
Age (years)	47-52	50-55	53-58	56-61	59-64	62-67
Deceased*	50	119	216	328	474	671
Non-respondents	1,327	2,370	2,594	2,749	3,230	3,893
Respondents	12,338	11,226	10,905	10,638	10,011	9,151
% response[†]	91.7	85.4	84.9	85.3	83.0	81.0

	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6	Survey 7
1921-26 cohort: 12,432 women aged 70-75 years at Survey 1 (1996)						
Year	1999	2002	2005	2008	2011	
Age (years)	73-78	76-81	79-84	82-87	85-90	-
Deceased*	551	1,240	2,290	3,622	5,276	-
Non-respondents	1,447	2,545	2,984	3,250	3,101	-
Respondents	10,434	8,647	7,158	5,560	4,055	-
% response[†]	93.0	88.2	86.6	81.3	80.8	

Based on participant status data as at 21st February 2017

*numbers for deceased are cumulative over surveys

Table 2-2. Participation and retention across the 6-month follow-up (6MF) surveys between 2011 to 2015 for women from the 1921-26 cohort

	1 May 2012	1 Nov 2012	1 May 2013	1 Nov 2013	1 May 2014	1 Nov 2014	1 May 2015	1 Nov 2015
Deceased	5,518	5,913	6,213	6,606	6,933	7,273	7,601	7,934
Non-Respondent	1,147	893	962	999	1,086	1,007	994	986
Respondent	3,430	3,260	2,842	2,473	2,118	1,964	1,725	1,524
% response[†]	74.4	78.4	74.4	71.7	65.5	65.2	62.2	60.5

Based on participant status data as at 21st February 2017 and using 6MF questionnaires logged by 17th February 2017

*numbers for deceased are cumulative over surveys

The 1989-95 cohort were recruited using an open recruitment strategy, inviting women to complete an online survey (Loxton, et al., 2015). This recruitment resulted in a sample of women who are broadly representative of women aged 18 to 23 from the Australian population. Compared with women of the same age in the 2011 Australian Census and the Australian Health Survey (2011-12), women in the 1989-95 cohort are representative in terms of age distribution, marital status, and area of residence. There is some indication of over-representation in the cohort of university-educated women. This may be in part due to the distinct ALSWH sample frame, which unlike the Census, excluded women who did not have a valid Medicare number (Mishra, et al., 2014).

The second survey of the 1989-95 cohort was completed by 11,384 women in 2014. Compared with women who completed Survey 1 only, women who completed Survey 2 were older and more educated, and more likely to be studying and to report being able to manage on their available income. Between

Survey 1 and Survey 2, many women in the 1989-95 cohort completed higher educational qualifications (with more than half having a university degree by Survey 2), commenced employment, left the family home, and formed relationships (with almost 40% married or in a de-facto relationship). There was little change in area of residence (around 90% urban or inner regional) and how they managed on their income (about 65% had some difficulty).

The 1973-78 cohort has been a highly mobile age group, with the main reason for non-response being inability to contact the women, despite using all possible methods of maintaining contact. Women in their 20s are characterised by high levels of mobility, change of surnames on marriage, often not having telephone listings, not being registered to vote, and making extended trips outside Australia for work, education, or recreation. Despite this attrition, there is no serious bias in estimates of associations between risk factors and health outcomes in longitudinal models (Powers, and Loxton, 2010).

Retention has been much higher among women in the 1946-51 cohort. The major reasons for non-response among this cohort have been research team inability to contact the women, and non-return of questionnaires by women who could be contacted.

Among the 1921-26 cohort, the main reason for attrition has been death of the participant. The major reason for non-response among survivors was non-return of the questionnaire, although some participants could not be contacted. Non-respondent women in this cohort tended to report poorer self-rated health at Survey 1 than respondents. The effects of these losses have been evaluated in terms of losses due to death and non-death. Non-death losses are potentially a greater source of bias than effects of death, however the effects of this bias are small (Brilleman, et al., 2010).

Summaries of the changes in the cohorts are available at http://www.alswh.org.au/publications-and-reports/cohort-summaries

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2.3. Comparing health service use across area of residence classifications

Women in the ALSWH have been strategically sampled and recruited to provide good representation of the health and health service use of women in regional, rural and remote parts of Australia. The sampling for the original three cohorts (1973-28, 1946-51 and 1921-26) from the Medicare data base included deliberate oversampling of women in rural and remote areas (Brown and Dobson, 2000). Recruitment of the 1989-95 cohort through an array of social networking methods, including social media, involved dynamic targeting of recruitment to ensure representation of women outside of major cities (Loxton, et al., 2015; Mishra, et al., 2014).

For this report we use the Accessibility/Remoteness Index of Australia (ARIA+) to define area of residence categories. ARIA+ scores are obtained for each ALSWH participant at each survey, from estimates of latitude and longitude based on their postal address calculated by the National Centre for Social Applications of Geographic Information Systems (GISCA). ARIA+ measures remoteness in terms of access along the road network to five categories of service centres (with populations of 1000 or more), with larger centres assumed to have more services than smaller centres. For this report, ARIA+ scores are classified into three groups as:

- 0 to less than 0.2 – Major Cities of Australia (e.g., Sydney)

- 0.2 to less than 2.4 - Inner Regional Australia (e.g., Hobart) and 2.4 to less than 5.92 - Outer Regional Australia (e.g., Cairns)

- 5.92 to less than 10.53 - Remote Australia (e.g., Alice Springs) and 10.53 to 15 inclusive - Very Remote Australia (e.g., most of Northern Territory)

Table 2-3. Area of residence classifications for participants across four cohorts (born 1989-95, 1973-78, 1946-51 and 1921-26)

1989-95 Cohort	Area of residence	Survey 1 – 2013 18-23 years (N=17,012) %	Survey 3 – 2015 20-25 years (N=8,961) %
	Major city	75.2	76.5
	Regional	23.6	22.4
	Remote	1.1	1.1
1973-78 Cohort	**Area of residence**	**Survey 1 – 1996** **18-23 years** **(N = 14,247)** **%**	**Survey 7 – 2015** **37-42 years** **(N = 7,186)** **%**
	Major city	69.2	69.0
	Regional	28.5	29.2
	Remote	2.3	1.9
1946-51 Cohort	**Area of residence**	**Survey 1 – 1996** **45-50 years** **(N = 13,715)** **%**	**Survey 7 – 2013** **62-67 years** **(N = 9,151)** **%**
	Major city	67.7	62.3
	Regional	30.2	36.1
	Remote	2.0	1.3
1921-26 Cohort	**Area of residence**	**Survey 1 – 1996** **70-75 years** **(N = 12,432)** **%**	**Survey 6 – 2011** **85-90 years** **(N = 4,055)** **%**
	Major city	68.0	68.0
	Regional	30.6	30.7
	Remote	1.4	1.3

2.4.   Comparing health service use across levels of education

Highest educational attainment differs substantially by cohort. This reflects generational changes in societal perception of the importance, and availability, of education for girls and young women in Australia.

Table 2-4. Levels of education for participants across four cohorts (born 1989-95, 1973-78, 1946-51 and 1921-26)

1989-95 Cohort	Highest qualification	Survey 1 – 2013 18-23 years (N=17,012) %	Survey 3 – 2015 20-25 years (N=8,961) %
	Less than Year 12	7.5	3.6
	Year 12 or equivalent	43.5	27.2
	Certificate/Diploma	26.2	28.3
	University degree	22.8	41.0
1973-78 Cohort	**Highest qualification**	**Survey 1 – 1996 18-23 years (N=14,247) %**	**Survey 7 – 2015 37-42 years (N=7,186) %**
	Less than Year 12	14.7	4.6
	Year 12 or equivalent	55.4	8.9
	Certificate/Diploma	17.5	25.2
	University degree	12.4	61.2
1946-51 Cohort	**Highest qualification**	**Survey 1 – 1996 45-50 years (N=13,715) %**	**Survey 6 – 2010 59-64 years (N=10,011) %**
	Less than Year 12	46.4	36.3
	Year 12 or equivalent	17.5	19.4
	Certificate/Diploma	19.7	21.1
	University degree	16.4	23.2
1921-26 Cohort*	**Highest qualification**	**Survey 1 – 1996 70-75 years (N=12,432) %**	
	Less than Year 12	70.8	
	Year 12 or equivalent	13.3	
	Certificate/Diploma	11.7	
	University degree	4.3	

* Asked at Survey 1 only.

In the 1921-26 cohort highest educational attainment was only asked at Survey 1 when the women were 70-75 years of age. Only 12% reported having attained an educational level of certificate/diploma or higher and 71% had less than year 12 years of schooling. For the 1973-78 cohort, at Survey 1 about half the women had middle level educational attainment (e.g., high school or higher school certificate/ Year 12), and around 30% had higher educational attainment (trade, diploma or university degree). However, over time, a different pattern emerged with regards to highest education attained. In the

1973-78 cohort, around 53% had shown educational mobility (that is, increased education to the highest level) by their sixth survey in 2012 (when they were aged 34-39). In comparison, 12% of women in the 1946-51 cohort showed the same educational mobility by their sixth survey in 2010 (when aged 59-64).

2.5. Comparing health service use according to difficulty managing on income

Income management was measured using an ALSWH–derived variable which assessed the participant's perceived ability to manage on their available income. This item has been assessed at all surveys and across all four cohorts. The question was "How do you manage on the income you have available?" with five response options. For the purposes of this report the original responses have been collapsed into two groups, as outlined in Table 2-5.

Table 2-5. Collapsing original response options for the item measuring participant's perceived ability to manage on their available income

Original response option	New group
It is impossible	
It is difficult all the time	Difficult/impossible
It is difficult some of the time	
It is not too bad	Easy/not too bad
It is easy	

Table 2-6. Difficulty managing on income across four cohorts (born 1989-95, 1973-78, 1945-51 and 1921-26)

1989-95 Cohort	Ability to manage on available income	Survey 1 – 2013 18-23 years (N=17,012) %	Survey 3 – 2015 20-25 years (N=8,961) %
	Difficult/impossible	61.0	53.1
	Easy/not too bad	39.0	46.8
1973-78 Cohort	Ability to manage on available income	Survey 1 – 1996 18-23 years (N=14,247) %	Survey 7 – 2015 37-42 years (N=7,186) %
	Difficult/impossible	50.7	40.7
	Easy/not too bad	49.3	59.3
1946-51 Cohort	Ability to manage on available income	Survey 1 – 1996 45-50 years (N=13,715) %	Survey 7 – 2013 62-67 years (N=9,151) %
	Difficult/impossible	41.9	30.6
	Easy/not too bad	58.1	69.3
1921-26 Cohort	Ability to manage on available income	Survey 1 – 1996 70-75 years (N=12,432) %	Survey 6 – 2011 85-90 years (N=4,055) %
	Difficult/impossible	26.3	14.1
	Easy/not too bad	73.5	85.9

2.6. Comparing health service use according to health care card status

For this report, holding a health care card was used as a proxy for socioeconomic status. Health care card holders are entitled to lower co-payment on PBS subsidised medicines, as well as bulk billing for doctor's appointments (at the discretion of the doctor), more refunds for medical services under the Medicare Safety Net, assistance with hearing services, discounted mail redirection, as well as concessions on energy bills, public transport costs and rates (although these are state specific).

Table 2-7. Health care card status across four cohorts (born 1989-95, 1973-78, 1945-51 and 1921-26)

1989-95 Cohort	Health Care Card	Survey 1 – 2013 18-23 years (N = 17,012) %	Survey 3 – 2015 20-25 years (N = 8,961) %
	Yes	33.1	28.0
	No	66.9	72.0
1973-78 Cohort	**Health Care Card**	**Survey 2 – 2000 22-27 years (N = 9,688) %**	**Survey 7 – 2015 37-42 years (N = 7,186) %**
	Yes	20.7	11.6
	No	79.3	88.4
1946-51 Cohort	**Health Care Card**	**Survey 3 – 2001 50-55 years (N = 11,226) %**	**Survey 7 – 2013 62-67 years (N = 9,151) %**
	Yes	17.9	45.8
	No	82.1	54.2
1921-26 Cohort	**Health Care Card**	**Survey 4 – 2005 79-84 years (N = 7,072) %**	**Survey 6 – 2011 85-90 years` (N = 4,025) %**
	Yes	85.5	87.0
	No	14.5	13.0

2.7. Considerations and limitations

Health service use and cost may be influenced by advancements in treatment and medical technology, changes in pathology test costs (that are determined by private pathology companies) and government policy, and excess health price inflation (the difference between health inflation and the general inflation measured by the consumer price index). It is possible that these factors may affect the trends identified in this report, however their level of influence is unknown.

A limitation of previous reports on health service use and cost is that the total number of health services used and the average Medicare benefit and out-of-pocket costs per service are often reported (Department of Health, 2017). Together, these statistics are not useful for government policy making. Recently, it was proposed that price and quantity indices could be used to provide a clearer picture of health service use; specifically whether or not changes in health service use over time were due to changes in the fee structure or the number of services used (Hua X, et al. 2017). In this report, these indices were not used; rather, the changes in the average number of services, Medicare benefits paid and out-of-pocket costs for women across the life course were described and discussed together. This provides similar information to the quantity indices with the additional advantage of identifying any age- and period-effects on women's health service usage.

Although there are many categories of services used on the MBS, this report focuses on GP, specialist, and pathology service use as well as Enhanced Primary Care programs because they made up the majority of MBS claims for 2015-16.

Finally, changes in total health service use by Australian women based on data from the ALSWH is beyond the scope of this report and has already been described in the report, Future health service use and cost: Insights from the Australian Longitudinal Study on Women's Health (Mishra, et al., 2016).

3. USE AND COSTS OF GP SERVICES (UNREFERRED ATTENDANCES) ACROSS THE LIFE COURSE

This chapter describes the use of unreferred attendances by women at different life stages and with different needs, comparing:

- Mean number of services used by women for each year 1996-2015 for the original three cohorts; and for September 2012 - August 2013 for the 1989-95 cohort.

- Costs of services, comparing costs to government (Medicare Benefit paid) and out-of-pocket costs for each cohort.

- Number and costs of services, according to area of residence, level of education, ability to manage on income, and health care card status.

- Key drivers of service use in each cohort

3.1. Use of GP services (unreferred attendances)

- Broad Type of Service (BTOS) A - unreferred attendance to vocationally registered general practitioner (VRGP)

- Broad Type of Service (BTOS) B - unreferred attendance other

- Broad Type of Service (BTOS) M – unreferred attendance for enhanced primary care/chronic disease management

A majority of Medicare claims are for unreferred attendances to VRGPs, VRGP trainees and other medical practitioners whose Medicare patient billing is mainly for unreferred attendances (BTOS A and B). Some unreferred services such as health assessments and medication reviews are provided under Enhanced Primary Care (BTOS M).

In 2015, these unreferred services accounted for around 26% of all Medicare items used by women in the cohorts. For the purposes of this report, we refer to these attendances as GP services, even though not all will be provided by a VRGP.

The mean annual number of GP services increased steadily with age. The mean number of services was approximately 5 to 7 per year for the 1973-78 and 1946-51 cohorts (Figure 3-1). In contrast, women in the 1921-26 cohort had an average of 9 GP services at age 72 and this increased to 15 services per year by the age of 90.

In comparison, women in the 1989-95 cohort had a mean of 4 services for the year 2012/13, when they were aged around 21. This means women aged 21 years have (on average) one fewer GP visit per year than women around the same age 16 years ago.
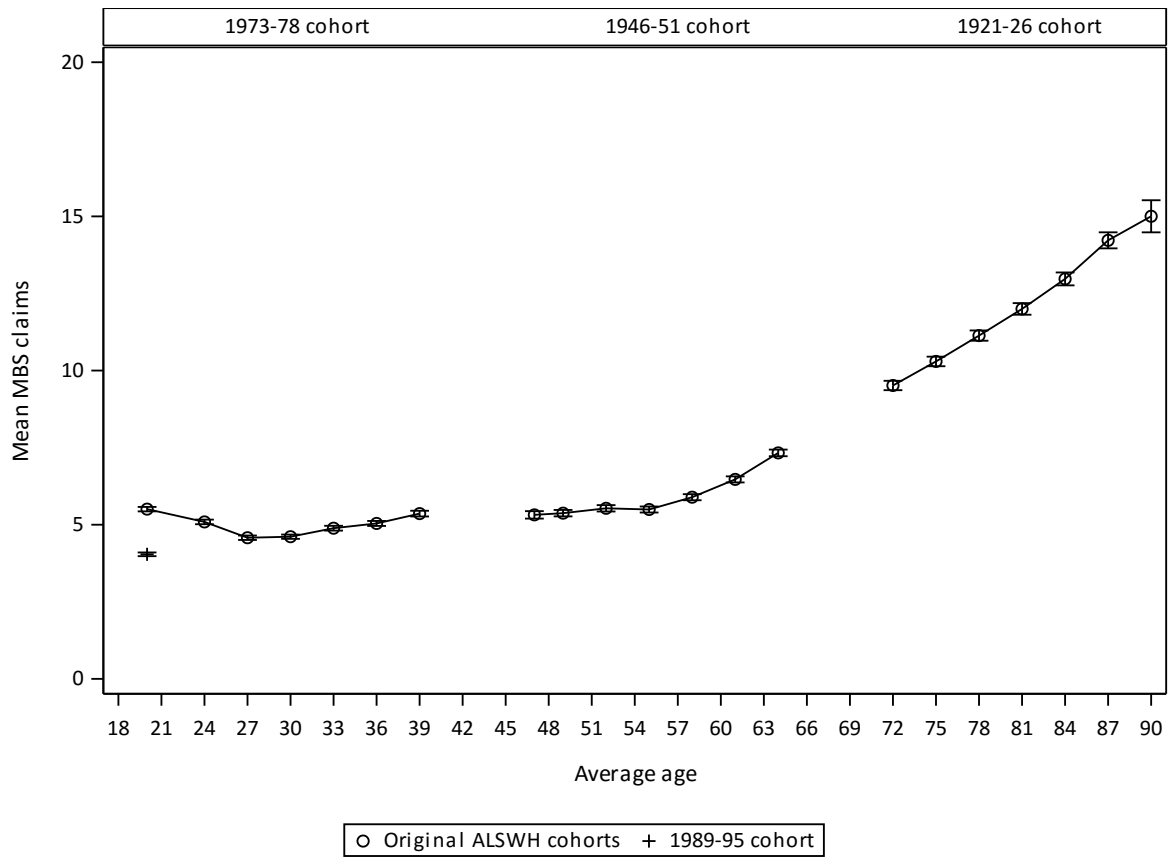
Figure 3-1. Mean annual number of GP services by women across the life course (1989-95, 1973-78, 1946-51, 1921-26 cohorts). [1]

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[1] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes in the use of GP services by the women in the cohort as they age.

When women were categorised by area of residence, women in the 1973-78 and 1946-51 cohorts living in remote areas of Australia had the least number of GP services per year and those living in major cities had the most (Figure 3-2). This is likely due to lower availability and accessibility of health services in rural and remote areas (Young, et al., 2000). Government initiatives, specifically Rural Women's General Practice Service and the Rural Health Strategy, that were introduced in 2003 and 2004 did improve access to health services in rural areas, however the geographical inequality still remains (Young and Dolja-Gore, 2007). From when the 1973-78 cohort were aged around 20 to when they were aged around 39, the mean number of GP services remained stable at approximately 4 or 5 per year, regardless of area of residence. In contrast, in the 1946-51 cohort, the mean number of GP services increased with age for women who lived in regional and remote areas, whereas this increase was only observed from the average age of 58 for women living in major cities. In the 1921-26 cohort, there was a slight difference in the mean number of GP services for women who lived in major cities (approximately 11 to 15 mean services per year) and those who lived in regional or remote areas (9 to 14 mean services per year).
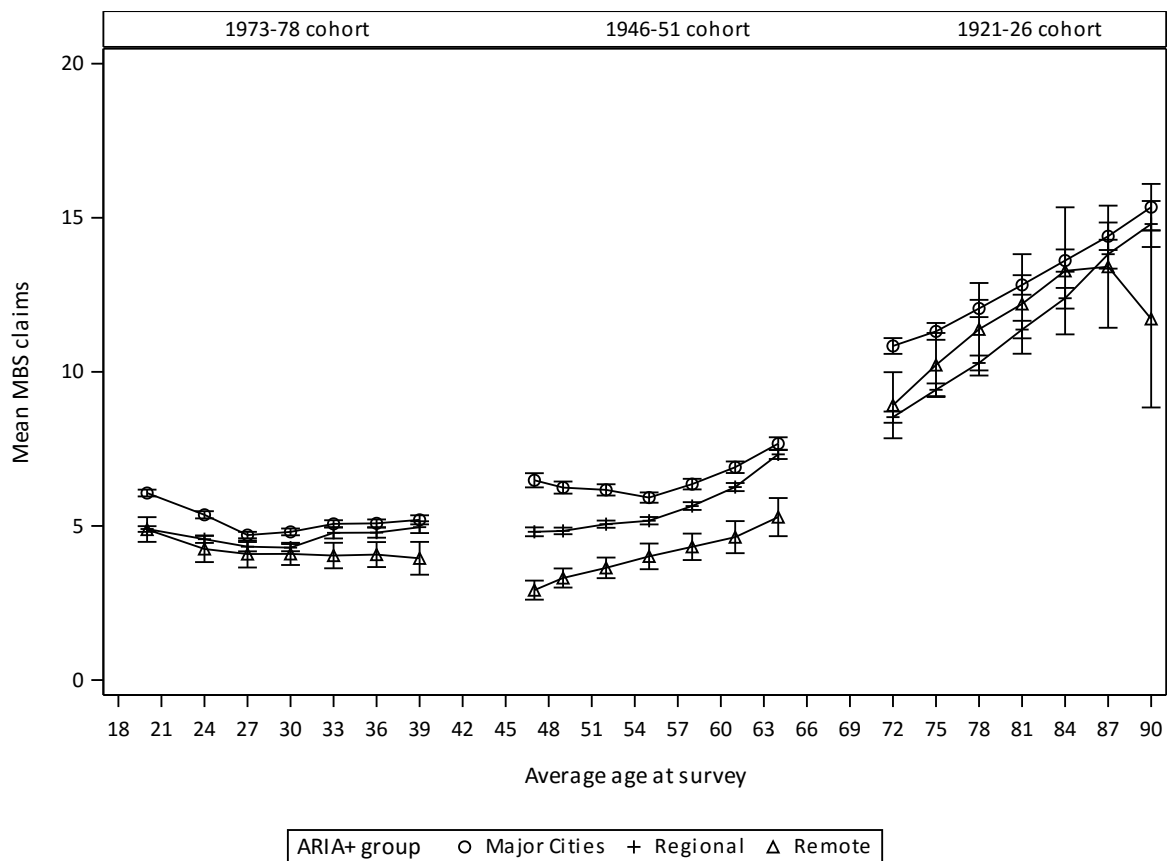
Figure 3-2. Mean annual number of GP services by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [2]

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[2] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g. from a major city to a regional area.

For all cohorts, university-educated women had the lowest number of GP services while those with less than Year 12 qualifications had the highest (Figure 3-3). There was little difference in GP services per year for women who attained Year 12 or equivalent and those with a certificate or diploma.
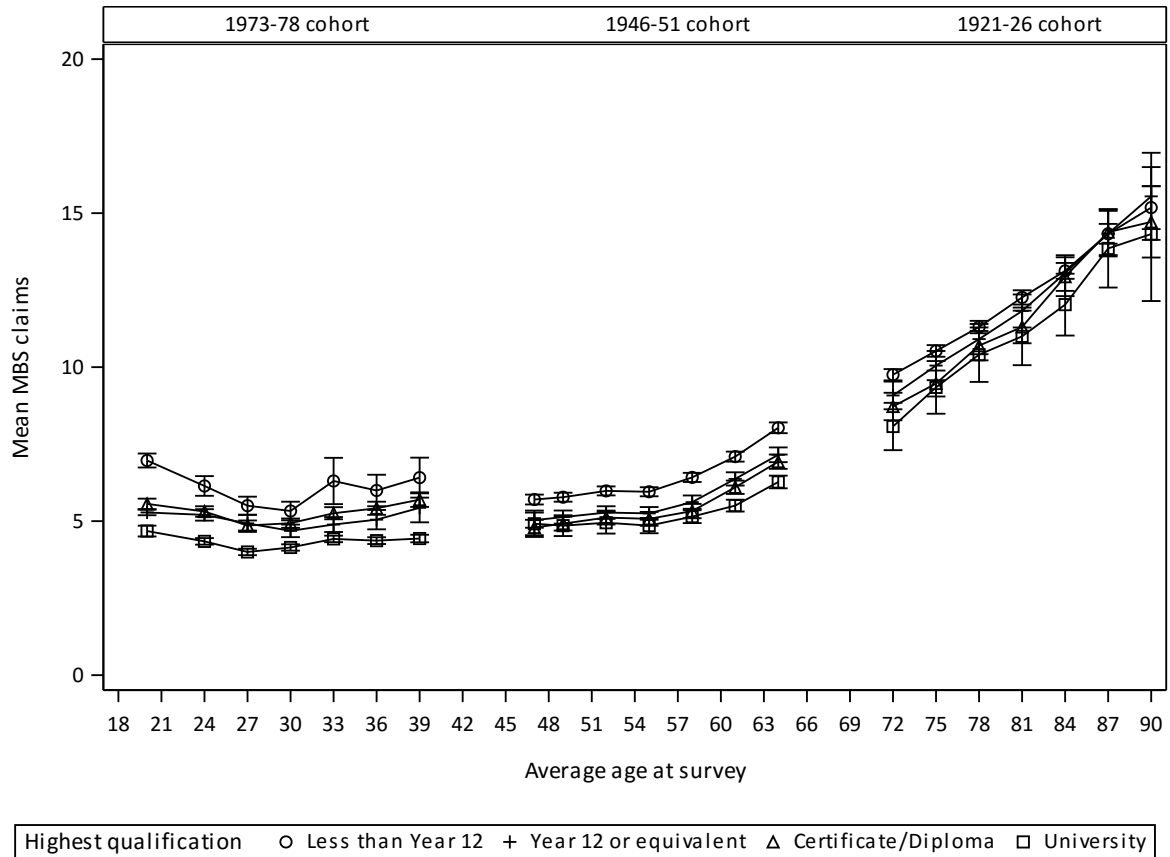
Figure 3-3. Mean annual number of GP services by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [3]

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[3] Women may increase their level of education from one survey to the next.

For all cohorts, women who had difficulty managing on income had around 1 to 3 more GP visits each year than women who found it easier to manage on income (Figure 3-4).
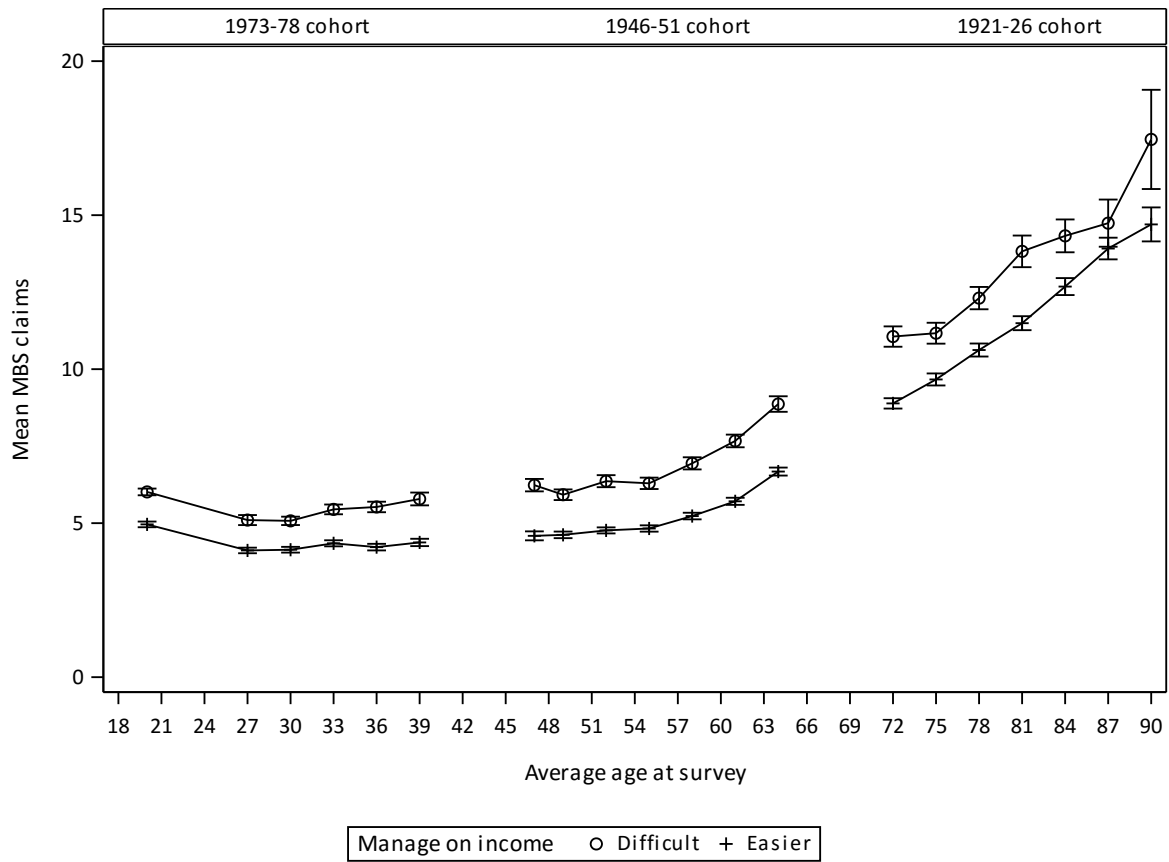
Figure 3-4. Mean annual number of GP services by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [4]

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[4] The level of difficulty managing on income reported by the woman may change from one survey to the next.

Women who had a health care card had around 1 to 3 more GP visits each year than women without a health care card (Figure 3-5).

Figure 3-5. Mean annual number of GP services by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [5]

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[5] Health care card status reported by the woman may change from one survey to the next.

3.2. Costs of GP services (unreferred attendances)

The mean annual Medicare benefit paid (i.e., the cost to the Australian Government) reflects the differences in use of GP services across the cohorts and over time. From early adulthood until approximately 55 years, the mean Medicare benefit paid for GP services was $175 - $255 per year, with costs standardised to 2014 Australian dollars. From the average age of 58, the benefit increased steadily from $268 and more than tripled by the time women were around 90 years old (Figure 3-6).

In comparison, women in the 1989-95 cohort had a mean Medicare benefit cost of $186 for the year 2012/13, when they were aged 21. This is only slightly lower than the cost for women of the same age 16 years ago.

Figure 3-6. Mean annual Medicare benefit paid (in 2014 Australian dollars) for GP services for women across the life course (1989-95, 1973-78, 1946-51, 1921-26 cohorts). [6]

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[6] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes to the average Medicare benefits paid per woman.

The pattern for mean annual out-of-pocket costs for GP services (Figure 3-7) is different to the pattern for the number of services and benefit paid (Figure 3-1 and Figure 3-6). Out-of-pocket costs increased with age within each cohort, but also increased with time across all cohorts, particularly for Surveys 1 to 3. For the 1973-78 cohort, mean out-of-pocket costs were $20 per year at age 20 and increased to $55 per year at age 39, despite the mean number of GP services remaining stable over that time (Figure 3-1) and only slight increases in the mean Medicare benefit (Figure 3-6). These costs compare with a mean out-of-pocket cost of around $27 for women in the 1989-95 cohort. At age 39, mean out-of-pocket costs for the 1973-78 cohort were much higher than they were for women in the 1946-51 cohort when they were in their 40s. Women in the 1946-51 cohort also had increased out-of-pocket costs for GP services over the study period: increasing from $32 per year in 1996 when the women were around 47 years, peaking at around age 55 years, and with a mean of $45 in 2013 when the women were aged around 64. In contrast, women born in 1921-26 had slightly lower out-of-pocket costs overall, increasing as the women aged 72 years to 78 years from $19 to $37, with some reduction in out-of-pocket costs thereafter. The increases in costs steadied for both of the older cohorts over the more recent data points (years 2004, 2007, 2010, 2013 for 1946-51 cohort, and years 2002, 2005, 2008, 2011, 2014 for the 1921-26 cohort) suggesting period effects as well as age effects.

The plateau in out-of-pocket costs in mid-aged and older women may be due to the introduction of Medicare Plus in 2004 (Select Committee on Medicare, 2004). In this package, the Government offered incentives to GPs who bulk-billed concession card holders. Additionally, the proportion of women who held a concession card increased at each survey for these two cohorts.
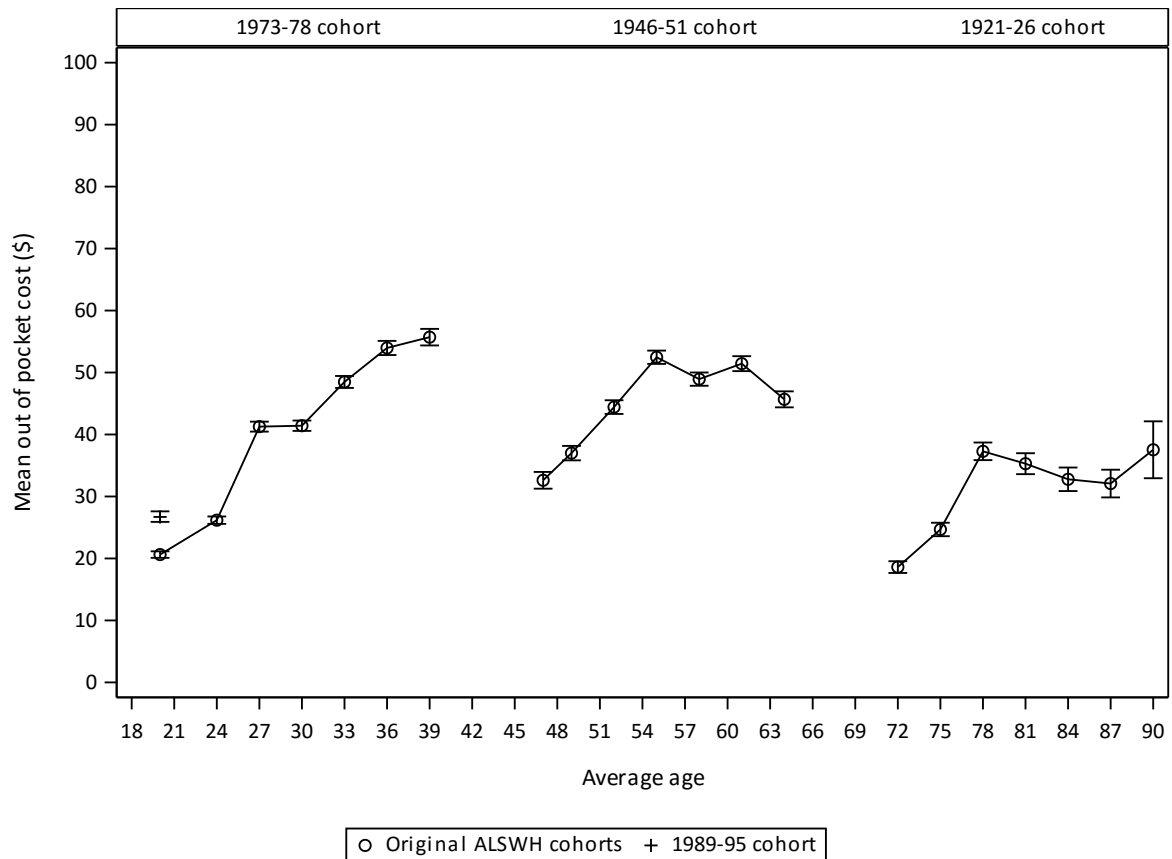
Figure 3-7. Mean annual out-of-pocket cost (in 2014 Australian dollars) for GP services for women across the life course (1989-95, 1973-78, 1946-51, 1921-26 cohorts). [7]

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[7] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes to the average out-of-pocket costs per woman.

The mean annual Medicare benefit paid for GP services for women living in major cities tended to be higher than for women living in remote areas, and was consistent with differences in use of GP services by area. The difference in benefit paid was most apparent in the 1946-51 cohort in their 40s, 50s, and 60s, and for the 1921-26 cohort when they were aged in their early 70s. The difference was less apparent at younger and older ages. The mean difference was around $136 for women in the 1946-51 cohort when aged around 47. A similar difference was also observed for the 1921-26 cohort when aged around 72. The difference was least for the 1973-78 cohort (Figure 3-8).
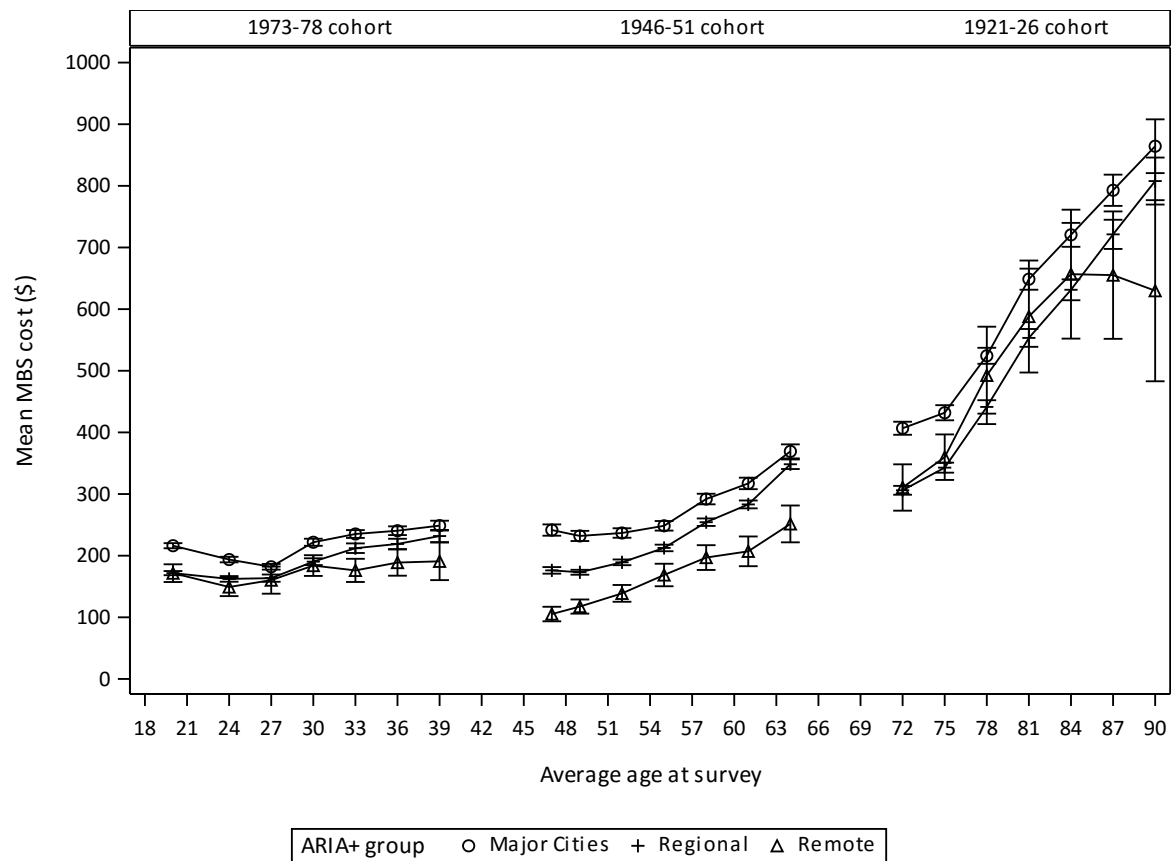
Figure 3-8. Mean annual Medicare benefit paid (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [8]

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[8] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

In the 1973-78 cohort, the mean out-of-pocket costs for GP services were initially lower for women living in a major city compared with those in regional and remote areas. When the cohort reached the mean age of 30, out-of-pocket costs were comparatively higher for women in major cities (Figure 3-9). In the 1946-51 cohort, women living in remote areas consistently had the lowest out-of-pocket costs for GP services. This cohort also saw a rapid increase in out-of-pocket costs for women living in regional areas, with costs increasing more than twofold, from around $26 when women were around 47 years of age (similar to the out-of-pocket costs for women living in remote areas) to around $64 when women were aged in their early 60s.

For the 1921-26 cohort, there was a high degree of variability in the mean out-of-pocket costs of GP services within each area of residence category (particularly for remote) and no significant difference between areas at any time point.
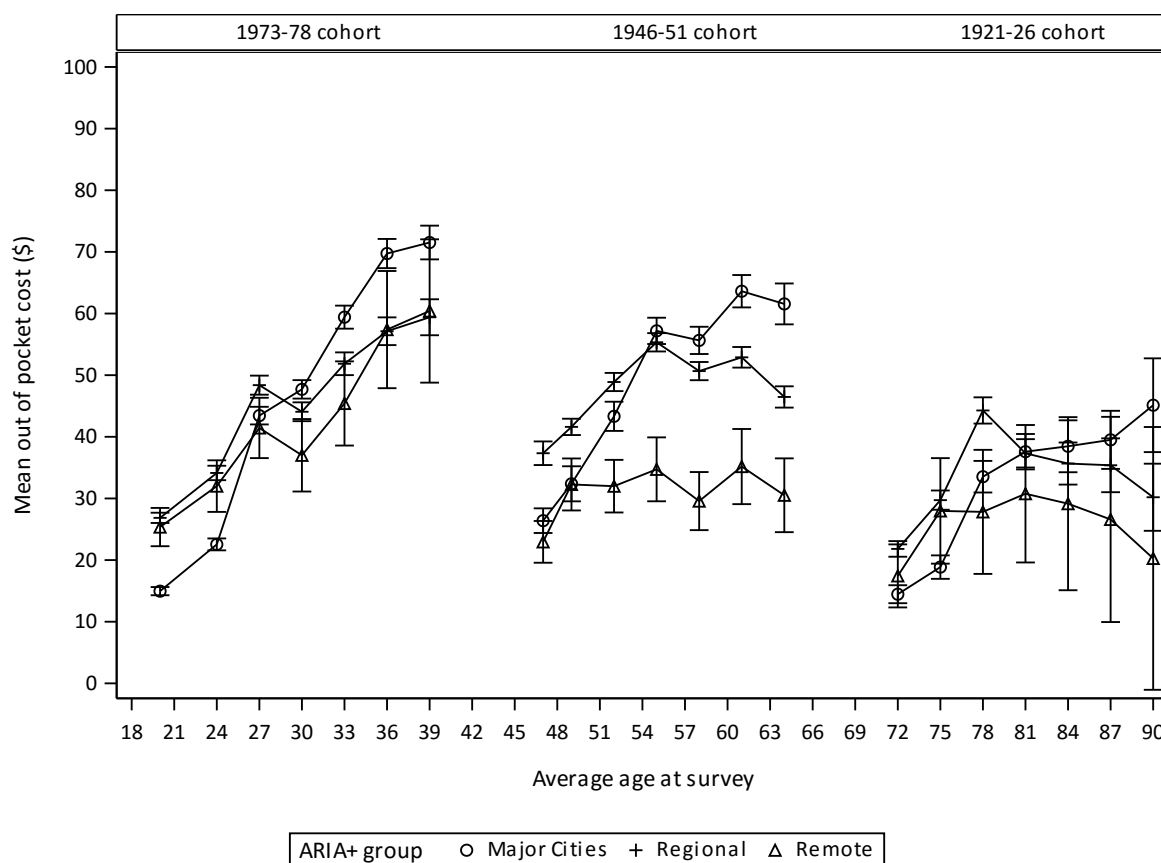
Figure 3-9. Mean annual out-of-pocket cost (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [9]

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[9] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

We have previously reported a decrease in the level of bulk billing for the period 1996 to 2002, with a corresponding increase in out-of-pocket costs for all age cohorts, especially for women in rural areas (Young & Dobson, 2003). There was then an overall improvement in access to bulk-billing and reduction in out-of-pocket costs following the introduction of Medicare bulk billing supplements in 2004, but with a residual disadvantage for women living in inner regional areas not targeted by the subsidies (Dolja-Gore et al., 2011). These more current data suggest that the overall effect has been to protect some women in remote areas from mean increases in out-of-pocket costs affecting other women in the cohorts.

When comparing costs for GP services according to education, differences in Medicare benefit costs for GP services reflect differences in the pattern of GP consultations. In the 1973-78 cohort, women who had a university degree had the least mean Medicare benefit paid for GP services per year, followed by women who had a certificate, diploma or Year 12 qualifications. Women with less than Year 12 education had the highest mean Medicare benefit. The difference in mean Medicare benefit paid for GP services between university-educated women and those with less than Year 12 qualifications ranged from $42 to $86 per year (Figure 3-10).

In the 1946-51 cohort, women who had less than Year 12 qualifications had higher benefit costs, but the absolute difference was small. In the 1921-26 cohort, there was no difference in mean Medicare benefit paid for GP services between women who had achieved different levels of education.
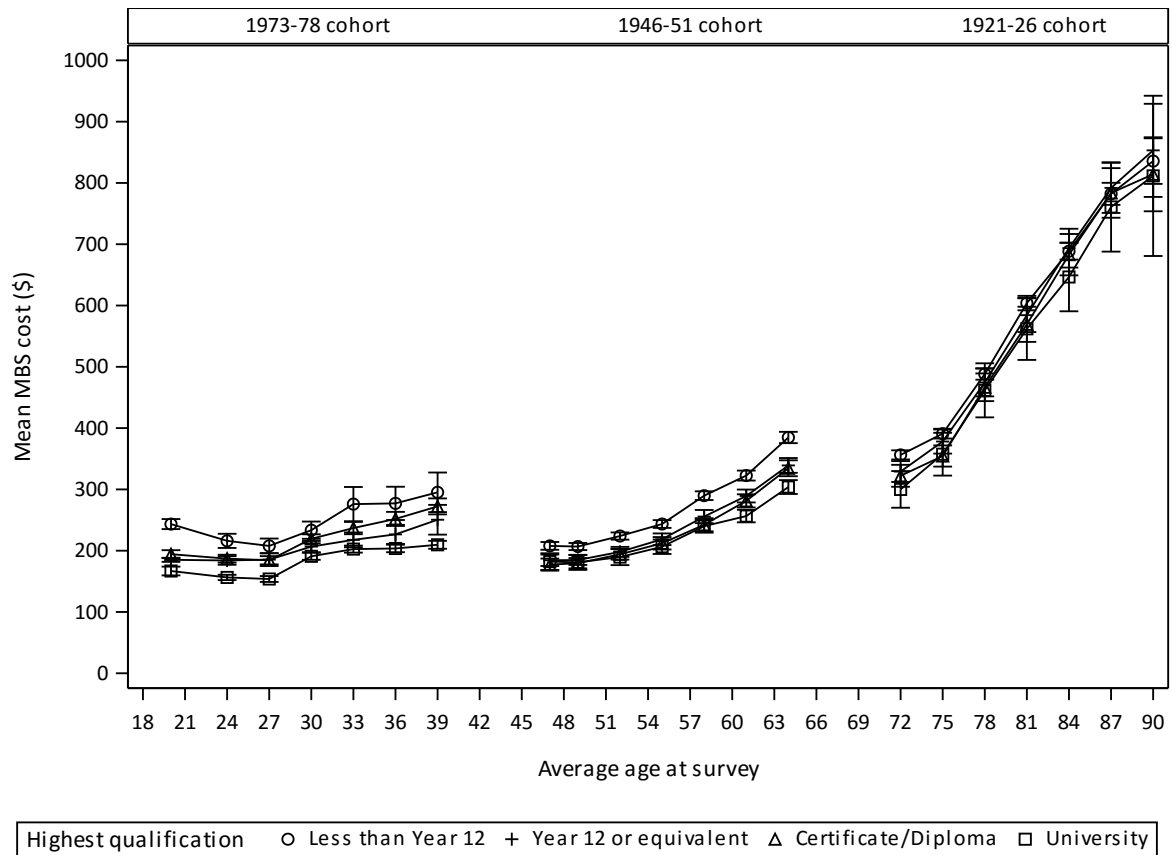
Figure 3-10 Mean annual Medicare benefit paid (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [10]

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[10] Women may increase their level of education from one survey to the next.

Comparing out-of-pocket costs shows a more marked difference according to level of education. In the 1973-78 cohort, there was little difference in mean out-of-pocket costs for GP services for women with different educational qualifications until the women were aged around 30 years (Figure 3-11). For women aged 30 to 39, those with a university degree had the highest mean out-of-pocket costs and those with less than Year 12 qualifications had the lowest. The greatest difference, of $30, was observed at Survey 7, when the women were aged around 39 years.

A similar pattern was found for the 1946-51 cohort, with little difference in mean out-of-pocket costs for GP services for women with different educational qualifications from Survey 1, when the women were aged 40-45, to Survey 4, when they were aged in their mid-50s. From the age of 58 to 64 years, women with a university degree had the highest mean out-of-pocket costs and those who had less than Year 12 qualifications had the lowest. Furthermore, university-educated women in this cohort had increasing out-of-pocket costs whereas those with other qualifications had stable or decreasing costs after the age of 58. This is likely due to the lower proportion of university-educated women holding a health care card compared to those with other qualifications.

In the 1921-26 cohort, women with a university degree had slightly higher mean out-of-pocket costs than women who had lower educational qualifications; the difference ranged from $16 to $40.
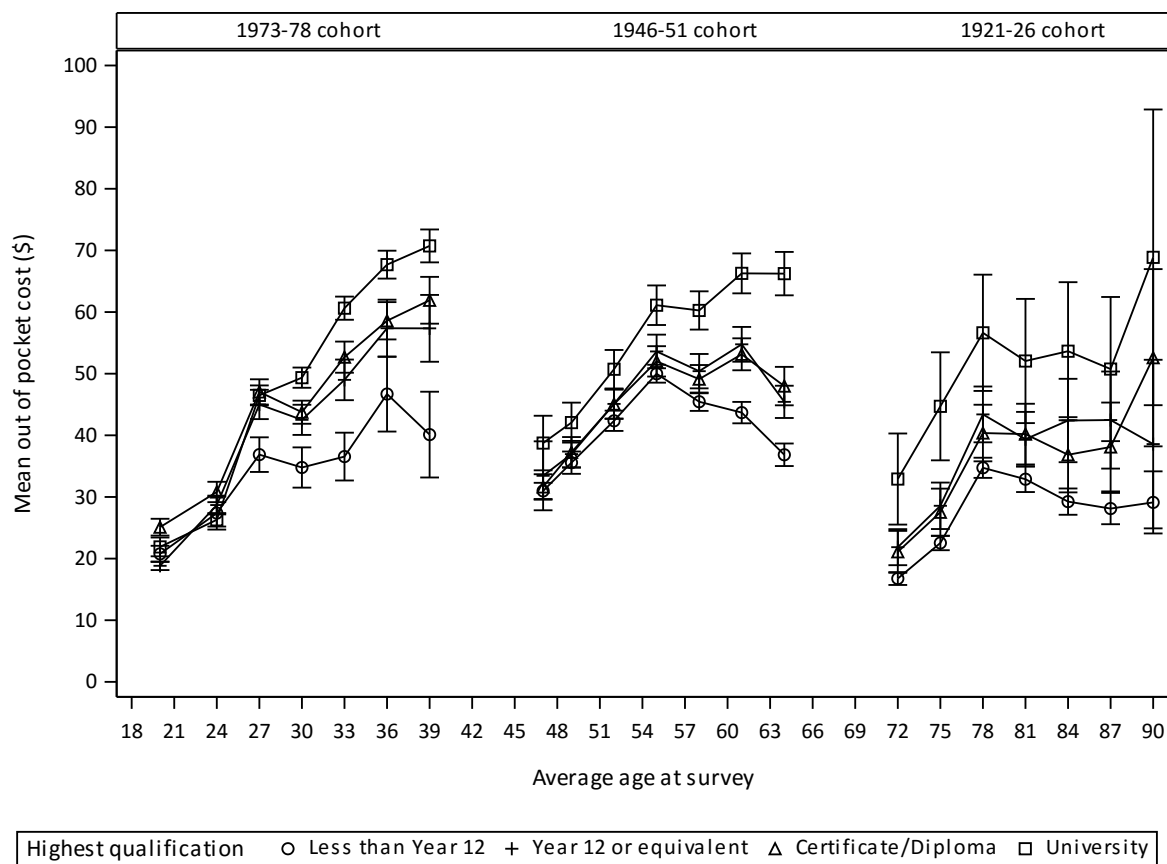
Figure 3-11. Mean annual out-of-pocket cost (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [11]

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[11] Women may increase their level of education from one survey to the next.

Women who had difficulty managing on their income also had higher mean annual Medicare benefits paid for GP services than those who with less difficulty (Figure 3-12), reflecting their higher use of GP services. The difference in mean Medicare benefit paid for GP services between these two groups increased across the cohorts with age, ranging from $40 to $75 for the 1973-78 cohort, $49 to $133 for the 1946-51 cohort, and $40 to $131 for the 1921-26 cohort.
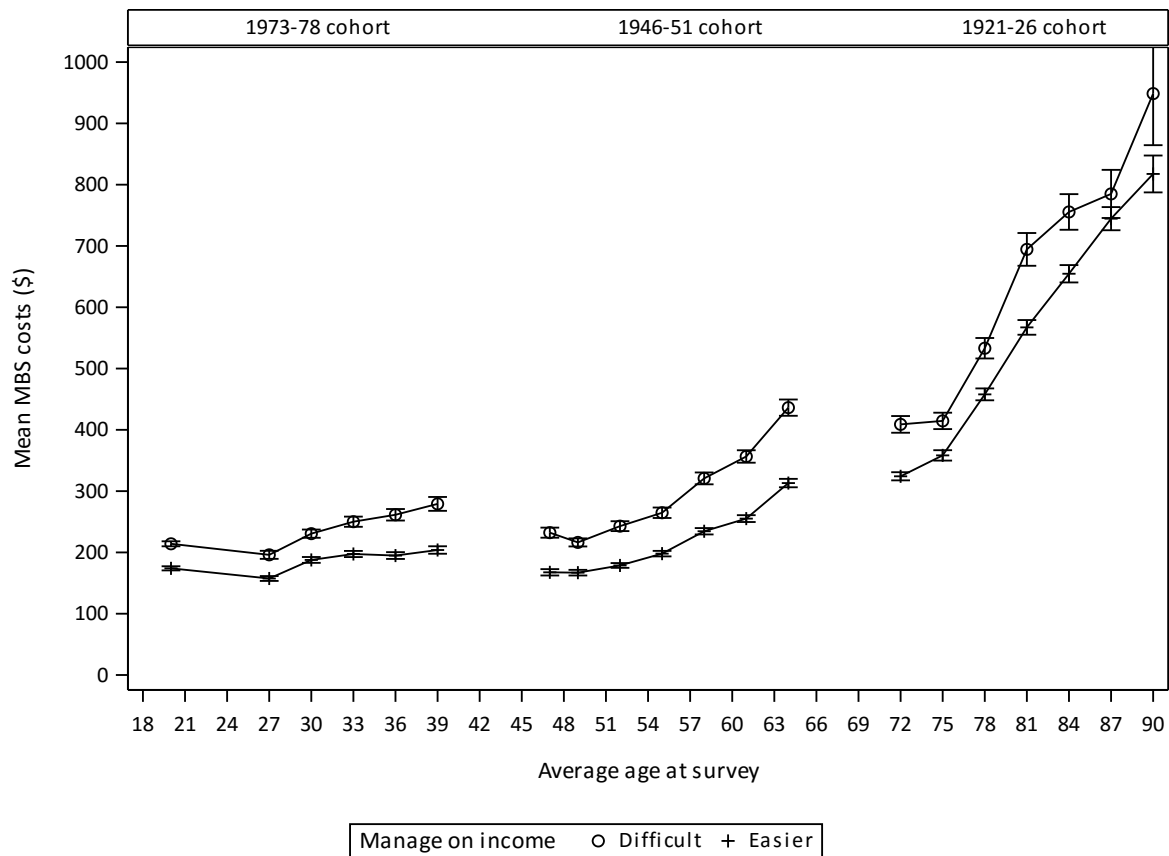
Figure 3-12. Mean annual Medicare benefit paid (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [12]

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[12] The level of difficulty managing on income reported by the woman may change from one survey to the next.

There was also a difference in mean out-of-pocket costs for GP services between women who had difficulty managing on income and those who found it easier (Figure 3-13). The difference increased across the cohorts, with age, and over time (increasing in all cohorts after the third survey). The absolute difference ranged between $3 and $18 per year, with the largest difference seen in the 1921-26 cohort.

It was noted that women who found it easier to manage on income had higher out-of-pocket costs compared to those who found it more difficult, despite having lower GP service use and Medicare benefit paid. It is likely that these women could afford to pay for GP services rather than seeking a bulk bill only practice.
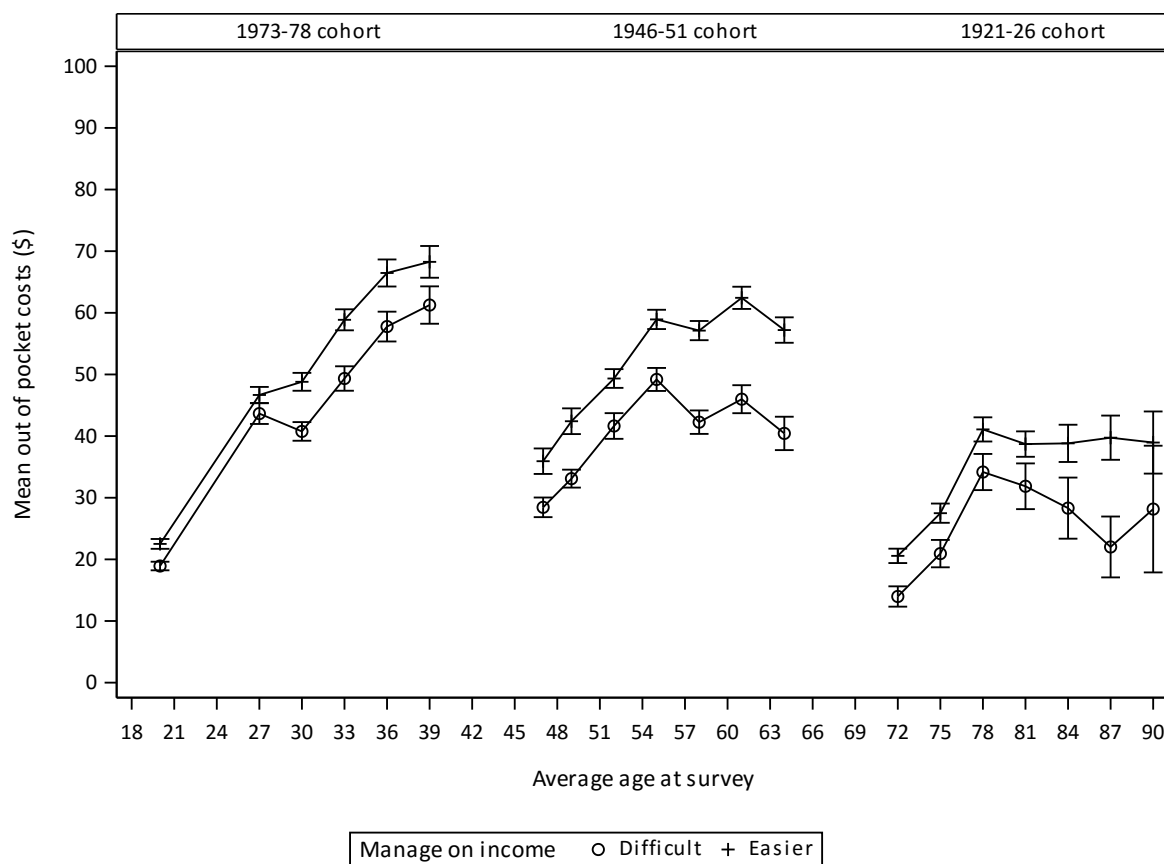
Figure 3-13. Mean annual out-of-pocket cost (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [13]

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[13] The level of difficulty managing on income reported by the woman may change from one survey to the next.

Women who had a health care card also had higher mean annual Medicare benefit paid for GP services than those who did not have a health care card (Figure 3-14), consistent with the higher number of GP services used by these women. For the 1973-78 and 1946-51 cohorts, the difference in cost ranged between $55 and $138, while in the 1921-26 cohort, the difference between the two groups was $68-$77.
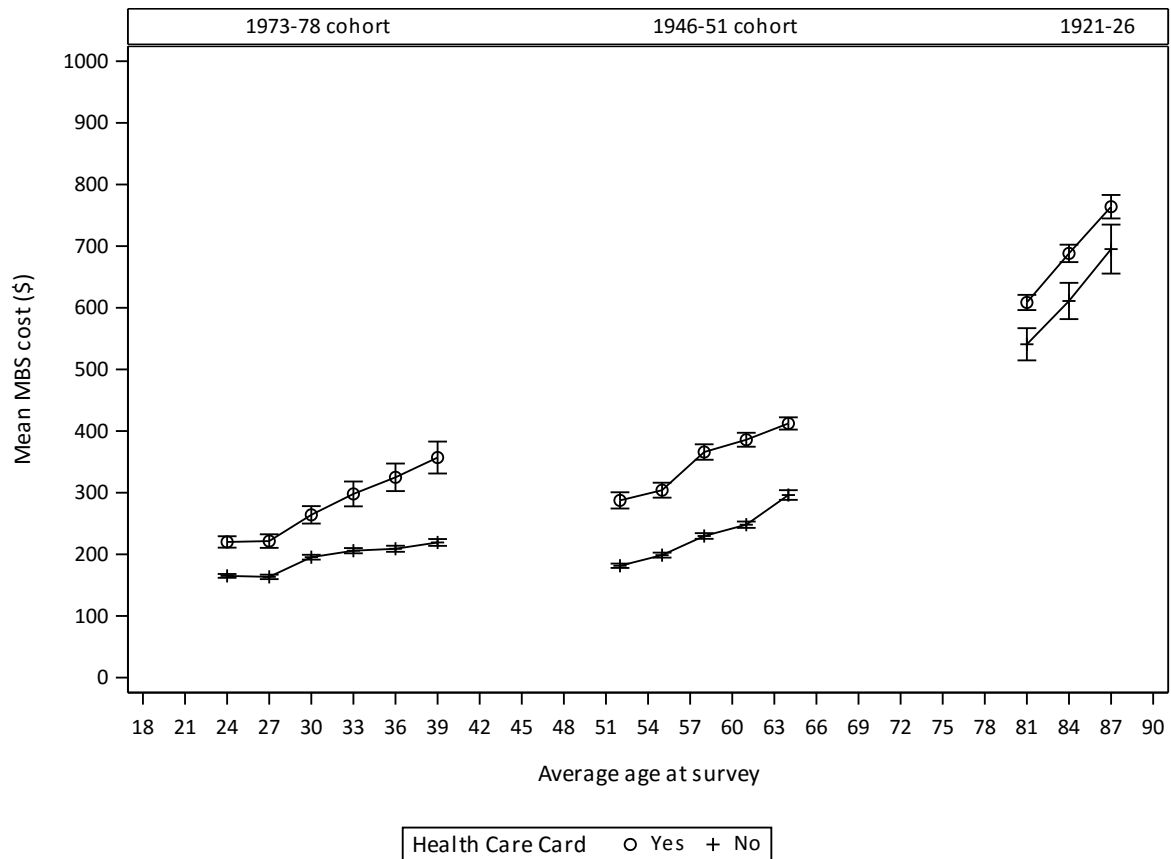
Figure 3-14. Mean annual Medicare benefit paid (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [14]

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[14] Health care card status reported by the woman may change from one survey to the next.

For all cohorts, women who did not have a health care card had disproportionately more out-of-pocket costs than those who did have a health care card (Figure 3-15). Women with a health care card had similar mean out-of-pocket costs for GP services across the life course, ranging from $20 to $32. For women without a health care card in the 1973-78 cohort, their mean out-of-pocket costs for GP services increased with age from $31 to $71. Mean out-of-pocket costs for GP services also increased with age for women without a health care card in the 1946-51 cohort, ranging from $52 (at age 52) to $72 (at age 64). In contrast, costs did not increase with age for women without a health care card in the 1921-26 cohort, with the average annual out-of-pocket cost for GP services for these women being around $65.

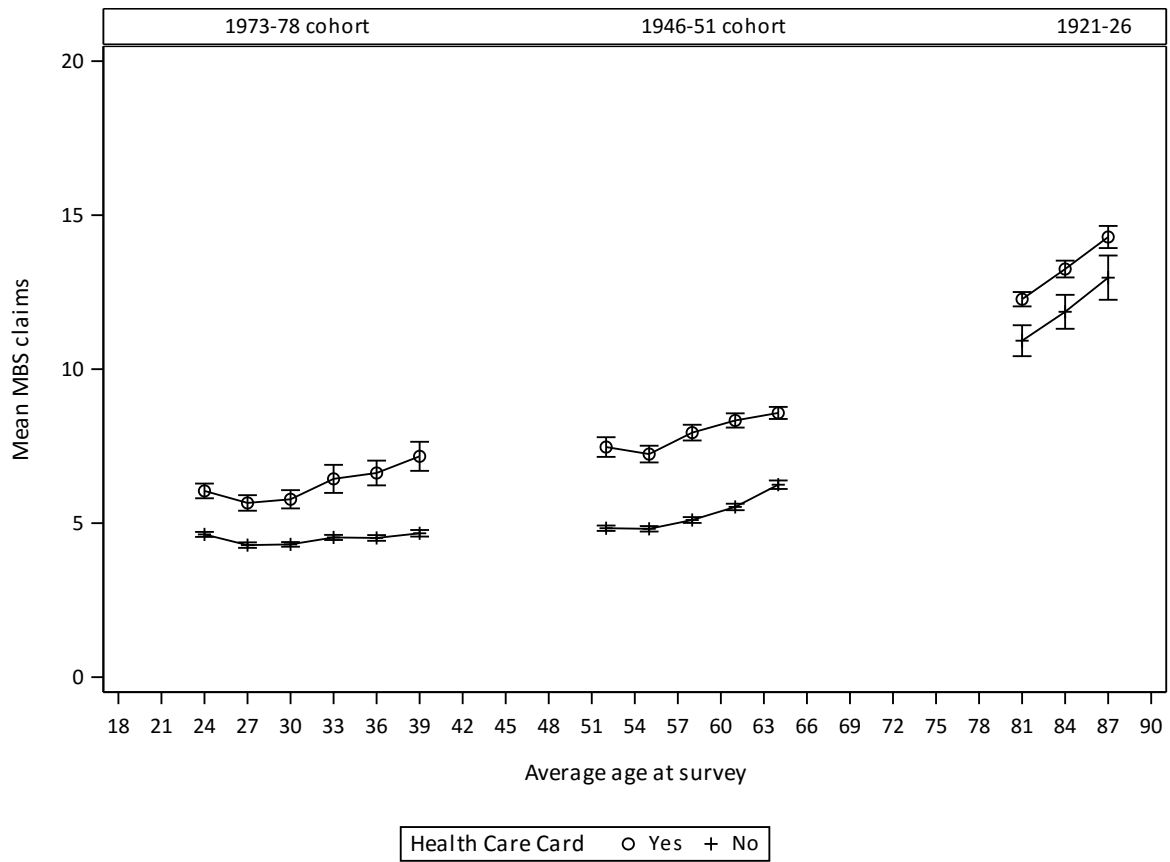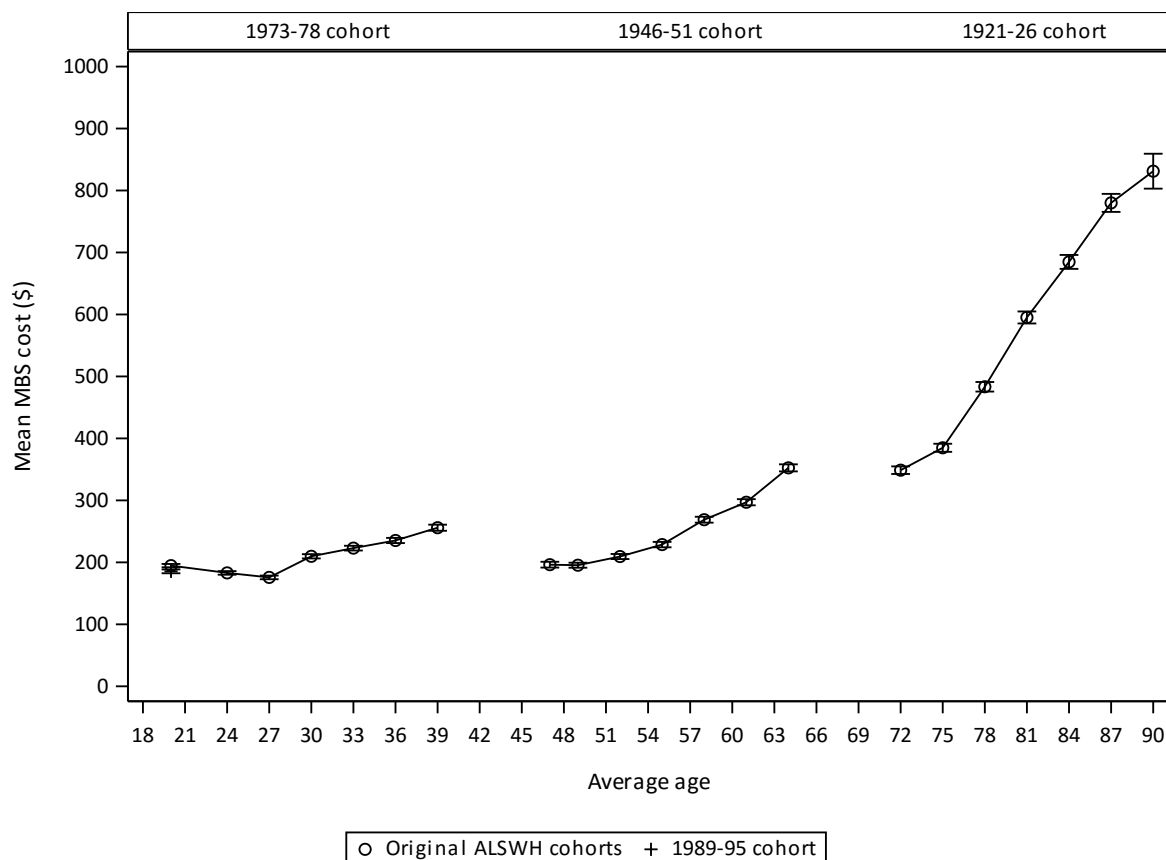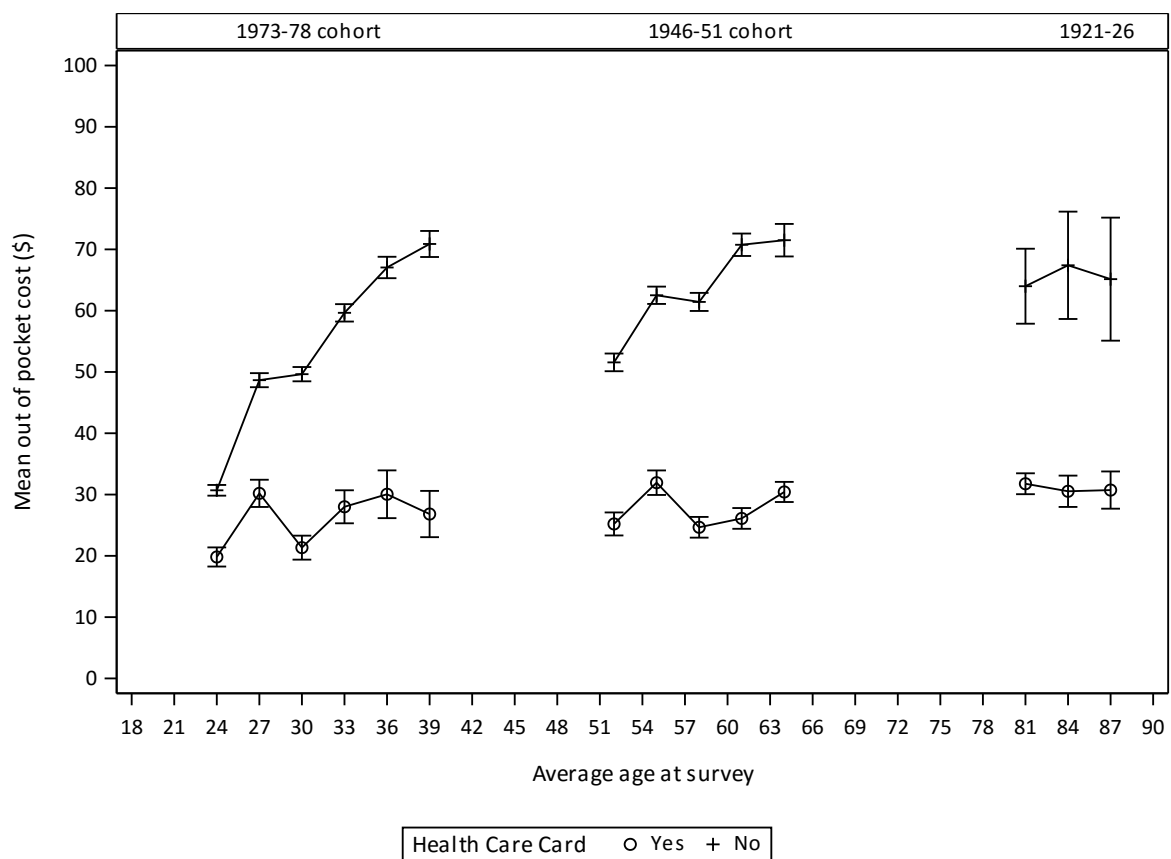**Figure 3-15. Mean annual out-of-pocket cost (in 2014 Australian dollars) for GP services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [15]**

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[15] Health care card status reported by the woman may change from one survey to the next.

3.2.1. Key points

- The annual number of GP services used by women increased more rapidly with age after 55 years and this was reflected in the mean annual Medicare benefit paid.

- However, the out-of-pocket costs increased with age more rapidly than the average number of GP visits per year and the average cost to the Government. This rise was halted in mid-aged and older women by the introduction of the Medicare Plus initiative in 2004.

- The number of and Medicare benefit costs of GP services used by women aged around 21 was slightly higher in 1996 than 2013, however young women have more out-of-pocket costs from GP visits now than in 1996.

- Women living in remote areas had the least number of GP services and thus the least Medicare benefit paid and out-of-pocket costs, and those living in major cities had the most. These differences were most apparent for women in their 40s to 70s.

- For all cohorts, university-educated women had the lowest number of GP services and Medicare benefit paid whereas those with less than Year 12 qualifications had the highest for both outcomes. Although university-educated women tended to have higher out-of-pocket costs overall, it was observed that the out-of-pocket costs for mid-aged women with a university degree continued to rise. This was in contrast to women with lower qualifications and may be related to the lower proportion of university-educated women with health care cards.

- For all cohorts, women who had difficulty managing on income visited the GP an average of 1-3 times more each year than women who found it easier to manage on income. This corresponded to the higher Medicare benefits paid, however these women also had lower out-of-pocket costs compared to women who found it easier to manage on income. This is likely due to the latter group being able to afford to pay for medical services.

- For all cohorts, women with a health care card had more GP services each year, than women without a health care card. Consequently, these women also had more Medicare benefits paid and less out-of-pocket costs when compared with women without a health care card.

3.3. Patterns of service use in each cohort

The following graphs show chronological patterns of GP service use for the original three cohorts, with women having either no claims, 1-4 services, 5-8 services, more than 8 services, or being deceased at any of 60 four-month periods from January 1996 to the end of 2015. There were no discernible changes in patterns of GP service use in young women over time. For each four-month period, approximately one-third of women from the 1973-78 cohort had no GP services and over half of the cohort had 1-4 services. Another tenth of the women had between 5-8 GP services per period and a small percentage of the remaining women had more than 8 unreferred attendances or were deceased (Figure 3-16).
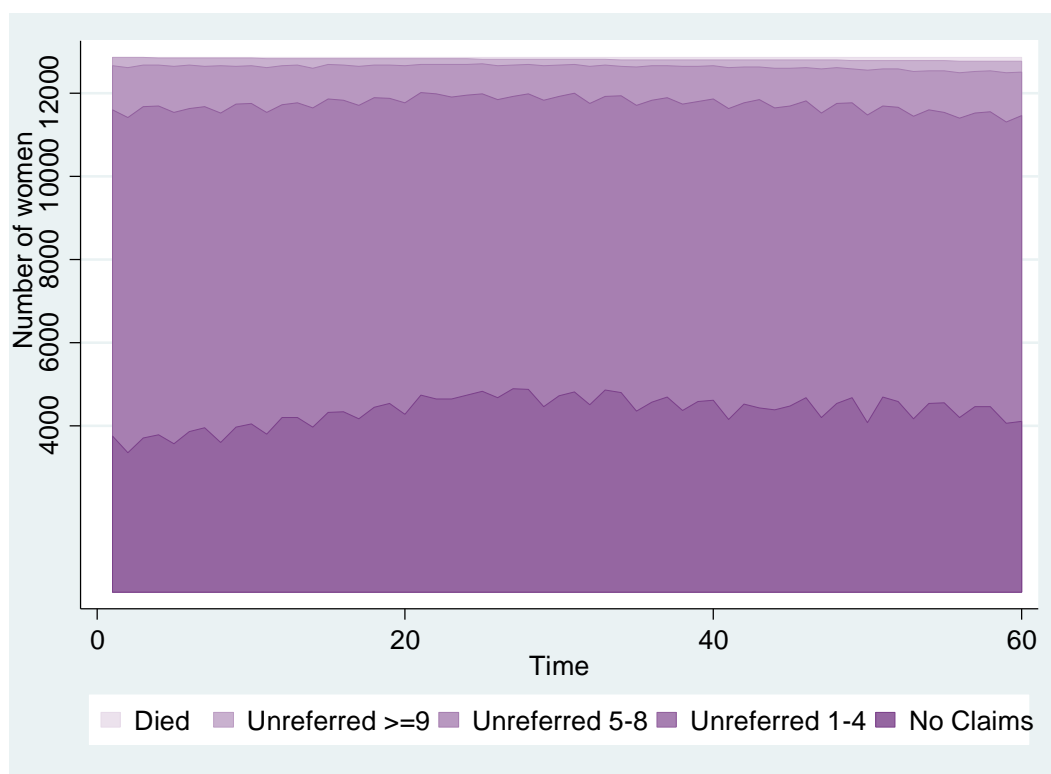
Figure 3-16. Number of women classified by GP visits in four-month periods, for the 60 four-month periods between January 1996 and December 2015 for the 1973-78 cohort. [16]

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[16] All women in the cohort are represented in one or other category at every time point, which means they can change categories at each quarter. Those who died are included in this analysis, however women who had opted out of data linkage and women with DVA gold cards have been excluded.

Using these four-monthly data, women in the 1973-78 cohort were profiled into four groups based on similar service use across time. Around 22% of women were categorised as *Regular GP Service Users* who predominantly had 1-4 GP services in any four-month period. Ten percent of women were categorised as *High GP Service Users* who were likely to have at least one but up to 8 unreferred visits in each four-month period (by December 2015, around 6% of women in this *High GP Service Users* group had died). Women who either did not use GP services or had 1-4 GP services in any four-month period were categorised as *Infrequent GP Service Users* and represented 50% of women in the 1973-78 cohort. And 18% of women were categorised as *Low GP Service Users*, i.e., those who were not likely to use GP services in any four-month period. Patterns of service use remained stable with very little change across time for women in the regular, infrequent and high user groups. Changes were seen for women in the low user group, who had a decreasing number of claims for unreferred visits across time.

At Survey 6 (2012), women from the *High GP Service Users* group were more likely to have less than Year 12 education, live in a major city, and to find it difficult to manage on their income compared to regular users, infrequent users and women in the low use group (Table 3-1).

Table 3-1. Characteristics of women born in 1973-78 in each GP service use profile group at Survey 6 (when aged 34-39)

Characteristics	High GP Service Users 1,341 (10%)	Regular GP Service Users 2,845 (22%)	Infrequent GP Service User 6,407 (50%)	Low GP Service Users 2,267 (18%)
Attrition at Survey 6				
Survey returned	527 (39%)	1,647 (58%)	3,775 (59%)	1,202 (53%)
Death	71 (5.3%)	0 (0.0%)	0 (0.0%)	1 (0.0%)
Area				
Major City	323 (61%)	952 (58%)	2,148 (58%)	531 (53%)
Inner regional	150 (29%)	443 (27%)	977 (26%)	278 (28%)
Outer regional	45 (9%)	199 (12%)	500 (13%)	160 (16%)
Remote/Very Remote	8 (2%)	51 (3.0%)	111 (3.0%)	31 (3%)
Education				
Less than Year 12	141 (27%)	302 (19%)	645 (17%)	198 (17%)
Year 12 and beyond	377 (73%)	1,313 (81%)	3,071 (83%)	985 (83%)
Manage on income				
Impossible/difficult	356 (68%)	801 (49%)	1,588 (42%)	400 (34%)
Not too bad/Easy	165 (32%)	829 (51%)	2,150 (58%)	784 (66%)

Figure 3-17 shows the quarterly sequence of attendances for women in the 1946-51 cohort, with an increasing number of women having more than four claims in the later follow-up periods, and a decreasing number of women with no claims.
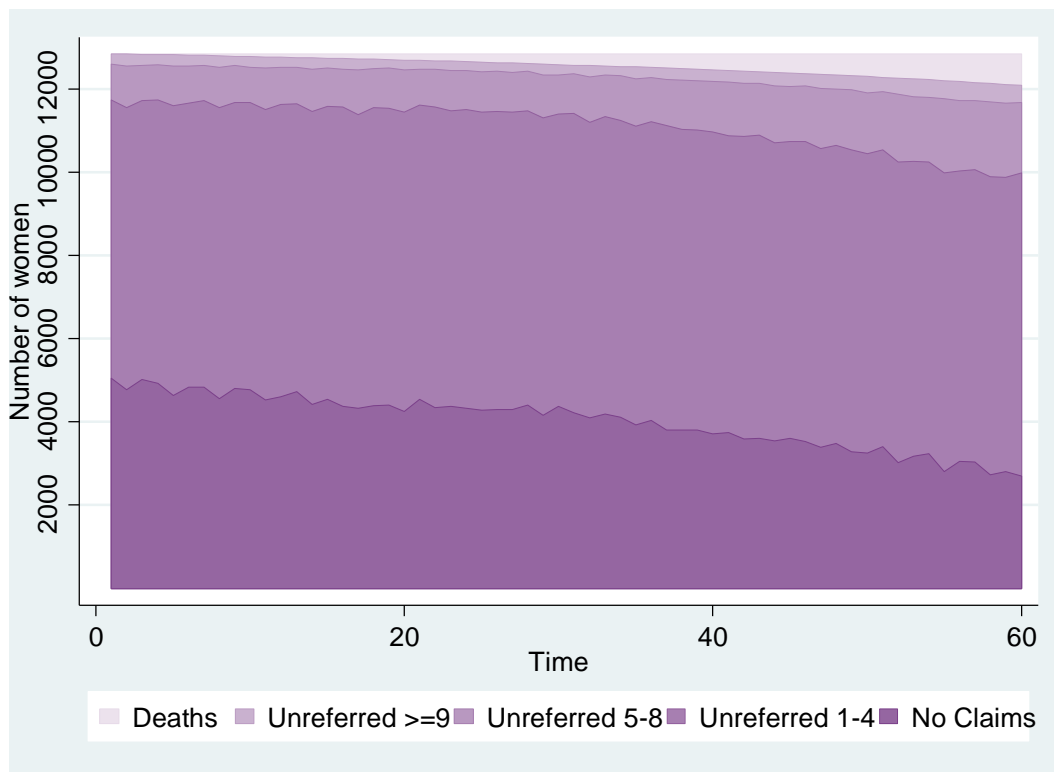
Figure 3-17. Number of women classified by GP visits in four-month periods, for the 60 four-month periods between January 1996 and December 2015 for women from the 1946-51 cohort.

Women from the 1946-51 cohort were profiled into 4 subgroups of health service use. Sixty-seven percent of women were classified as *Increased GP Service User* because they changed from a lower frequency group (1-4 GP services per period) to a higher frequency group (5-8 GP visits per period) over time; 10% of women were in the *High GP Service Users* whereby they were likely to have five or more unreferred GP visits in each four-month period; 15% were categorised as *Infrequent GP Service Users*, i.e. women who did not use GP services or had 1-4 GP services in any four-month period; and 8% were *Low Service Users* who predominantly did not use GP services in any four-month period. Women in the *High GP service user* group had a higher death rate with 26% of these women deceased by 2015.

At Survey 6, women from the 1946-51 cohort who were categorised as *High GP Service Users* were more likely to live in a major city, have less than Year 12 education, and to find it impossible/difficult to manage on their income compared to women in the increased health service use, infrequent user and low use groups (Table 3-2).

Table 3-2. Characteristics of women born in 1946-51 in each GP service use profile group at Survey 6 (when aged 59-64)

Characteristics	Increased GP Service Use 8,610 (67%)	High GP Service User 1,352 (10%)	Infrequent GP Service User 1,875 (15%)	Low GP Service User 1,004 (8%)
Attrition at Survey 6				
Survey returned	6,651 (77%)	644 (48%)	1,366 (73%)	772 (77%)
Death	105 (1.2%)	353 (26%)	4 (0.2%)	0 (0.0%)
Area				
Major City	2,531 (38%)	293 (46%)	460 (34%)	251 (33%)
Inner regional	2,740 (41%)	2,740 (41%)	575 (42%)	227 (30%)
Outer regional	1,205 (18%)	1,205 (18%)	251 (19%)	217 (28%)
Remote/Very Remote	173 (3%)	11 (2%)	69 (5%)	71 (9%)
Education				
Less than Year 12	3,710 (59%)	417 (70%)	651 (50%)	435 (59%)
Year 12 and beyond	2,604 (41%)	177 (30%)	642 (50%)	305 (41%)
Manage on income				
Impossible/difficult	3,429 (52%)	459 (73%)	623 (46%)	376 (49%)
Not too bad/Easy	3,146 (48%)	171 (27%)	727 (54%)	389 (51%)

Figure 3-18 shows the sequence of attendances for women in the 1921-26 cohort, with the number of women in the cohort having more than 9 GP visits remaining steady over time, the number having 5-8 GP visits reducing slightly, and a great reduction in the number having 1-4 GP visits. However, the major change in this cohort is attrition due to death, with an increasing rate of GP visits among the surviving participants.
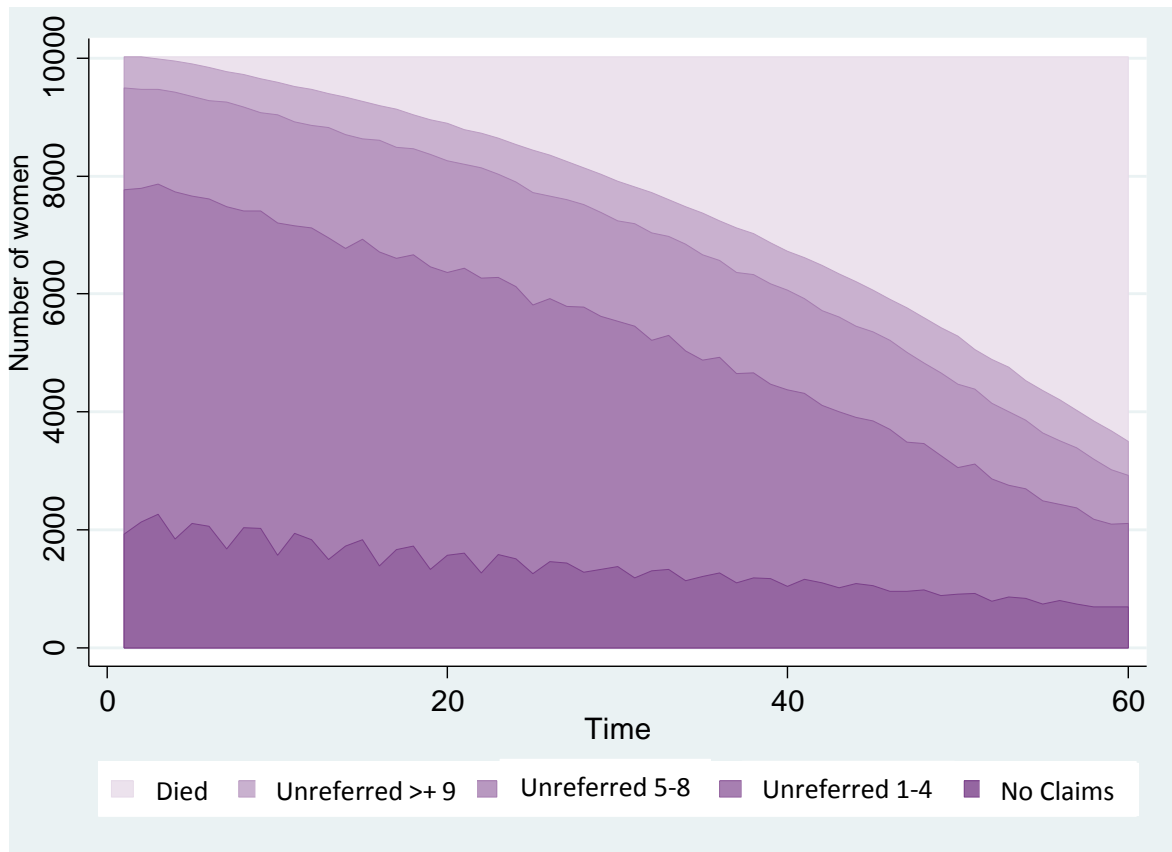
Figure 3-18. Number of women classified by GP visits in four-month periods, for the 60 four-month periods between January 1996 and December 2015 for women from the 1921-26 cohort.

Women in the 1921-26 cohort were profiled into five subgroups of health service use (Table 3-3): 28% of women were categorised into the *Early Mortality* group; 32% into the *Later Mortality* group, and 20% were categorised as the *Frequent GP Service User* class, having a greater proportion of women per period who had five or more unreferred services. Approximately 80% of women classified as *Frequent GP Service Users* were still alive by December 2015. A further 16% of women were classified as *Regular GP Service Users* who were more likely to claim between zero to four services every four months. The remaining 4% of women represented the *Infrequent Users* of general practitioner services.

At Survey 6 (2011), almost all participants from the *Early Mortality* and 54% from the *Later Mortality* group were deceased (Table 3-3). Women from the *Infrequent* and the *Frequent GP Service User* groups were more likely to live in a major city, women from the 1921-26 cohort were more likely to find it not too bad/easy to manage on their income.

Table 3-3. Characteristics of women born in 1921-26 in each GP service use profile group at Survey 6 (when aged 85-90)

Characteristics	Early Mortality 269 (28%)	Infrequent User 385 (4%)	Later Mortality 3,083 (32%)	Frequent GP Service users 1,927 (20%)	Regular GP Service users 1,541 (16%)
Attrition at Survey 6					
Survey returned	7 (0.3%)	55 (14.5%)	598 (20.0%)	1,047 (55.4%)	1,034 (66.5%)
Deaths	2,607 (99.5%)	85 (22.4%)	1,627 (54.3%)	10 (0.5%)	0 (0.0%)
Area					
Major City	3 (43%)	28 (52%)	257 (43%)	549 (52%)	443 (43%)
Inner regional	4 (57%)	18 (33%)	205 (34%)	339 (32%)	397 (38%)
Outer regional	0 (0%)	6 (11%)	115 (19%)	143 (14%)	171 (17%)
Remote/Very Remote	0 (0%)	5 (4%)	21 (4%)	16 (5%)	22 (2%)
Education					
Up to Yr12	4 (67%)	43 (83%)	457 (79%)	831 (83%)	751 (76%)
Post-schooling	2 (33%)	9 (17%)	123 (21%)	175 (17%)	237 (24%)
Manage on income					
Impossible/difficult	0 (0%)	8 (15%)	97 (17%)	208 (20%)	132 (13%)
Not too bad/Easy	7 (100%)	47 (85%)	486 (83%)	829 (80 %)	894 (87%)
Health care card status					
No	4 (57%)	13 (24%)	173 (29%)	249 (24%)	313 (31%)
Yes	3 (43%)	42 (77%)	419 (71%)	783 (76%)	713 (69%)

Note: the *Early Mortality* group cannot be characterised because they were almost all deceased at Survey 6.

Figure 3-19 shows unreferred service use for women of the 1989-95 cohort since January 2008. The graphs represent the number of women who have had an unreferred service for each of 14 four-month periods from 1 January 2008 until 31 December 2013. Women from the 1989-95 cohort were more likely to either not use GP services or have 1-4 GP visits per four-month period. In any given four-month period, approximately 30% of women in this cohort did not claim any GP services, and 60% had 1-4 services. The number of women having 5 or more GP services per four-month period gradually increased across time while the number of women who made no claims decreased.
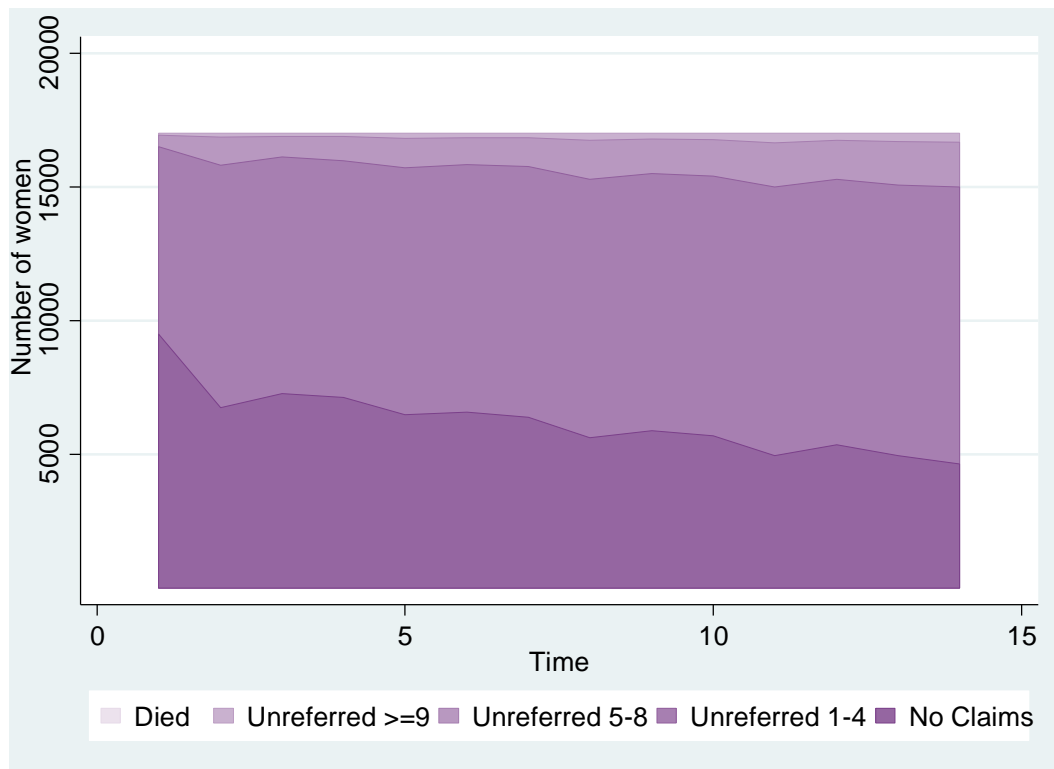
Figure 3-19. Number of women classified by GP visits in four-month periods, for the 15 four-month periods between January 2008 and December 2013 for women from the 1989-95 cohort.

3.3.1. Key points

- 16 years ago, young women did not change patterns of health service use over time whereas young women now use GP services more over time.

- Young women who were high GP service users were more likely to live in a major city, be less educated and find it more difficult to manage on their income compared to low GP service users.

- Mid-aged women use more GP services over time and those who made more GP visits were more likely to live in a major city, be less educated, have more difficulty managing on income and have greater mortality than low GP service users of the same age.

- The proportion of old women who made 1-4 GP visits per quarter decreased as the proportion who died increased over time.

3.4. Key determinants of general practitioner service use

The tables in this section show factors associated with more GP service use, with GP service use categorised as 0-1 services (reference), 2-4 services, 5-6 services, and more than 7 services. Analyses were conducted separately for each age group, and across time. The tables use arrows to indicate the odds of having more GP services for women in each category compared with the reference category of women (indicated as 'reference'). A downward arrow indicates that, across time, the odds of having more GP services for women in a category is statistically significantly lower than for the specified reference group. An upward pointing arrow indicates that the odds of more GP service use for women in this category is statistically significantly higher than for the reference group. The number of arrows indicates the strength of the association, with more arrows signifying a stronger relationship. The term 'not available' indicates where a factor is not collected for all cohorts; and the term 'not comparable' indicates where variables were not collected consistently between the cohorts or across surveys.

Table 3-4 shows the health conditions associated with more GP service use, after adjustment for area of residence. GP service use was higher for women with fair or poor health, for most conditions and symptoms. Service use increased as health-related quality of life scores decreased.

Table 3-4. Health conditions associated with GP service use

Cohort	1973-78	1946-51	1921-26
Area of Residence			
Other areas	Reference	Reference	Reference
Major City	↑	↑	↑↑
Self-rated Health			
Excellent/good	Reference	Reference	Reference
Fair/Poor	↑	↑	↑
Diagnosis of Chronic conditions			
Heart Disease			
No	Reference	Reference	Reference
Yes	-	↑	↑↑
Hypertension			
No	Reference	Reference	Reference
Yes	↑	↑	↑↑
Asthma			
No	Reference	Reference	Reference
Yes	↑	↑	↑↑
Diabetes			
No	Reference	Reference	Reference
Yes	-	↑	↑↑
Stroke			
No	Not available	Reference	Reference
Yes		-	-
Low Iron			
No	Reference	Reference	-

Cohort	1973-78	1946-51	1921-26
Yes	↑	↑	
Osteoarthritis			
No	Not available	Not applicable	Reference
Yes			↑↑
Bronchitis/Emphysema			
No	Not available	Not applicable	Reference
Yes			↑
Dementia			
No	Not available	Not available	Reference
Yes			↓
Breast Cancer			
No	Not available	Reference	Not available
Yes	"	↑	
Urinary Tract Infection			
No	Reference	Not available	Not available
Yes	↑		
STD			
No	Reference	Not available	Not available
Yes	↑		
SF-36 Mental Health Score			
0-100	↓	↓	↓
SF-36 Physical Functioning Score			
0-100	↓	↓	↓
Symptoms			
Incontinence			
No	Not available	Reference	Reference
Yes		-	↑
Joint Pains			
No	Not available	Reference	Reference
Yes		↑	↑
Premenstrual Tension			
No	Reference	Not available	Not available
Yes	↓		

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association; BMI – body mass index; SF-36 – Short-Form 36 Item measure of Health Related Quality of Life

↑ (1.0<1.5)   ↑↑ (1.5<2.5);

↓ (<1.0-0.65)

Table 3-5 and Table 3-6 show the associations between GP service use and socio-demographic and health factors. These analyses include all survey points for each cohort, and have been adjusted to take into account the influence of all other statistically significant factors. The variable 'sum of all comorbidities' was derived as the sum of all measured chronic conditions for each participant. Chronic

conditions measured were different to represent conditions relevant to each age group, but all cohorts included asthma, diabetes, heart disease and hypertension. Additional conditions included for the 1973-78 cohort were having low iron, for the 1946-51 cohort having had a stroke or breast cancer, and for the 1921-26 cohort conditions included having had a stroke, dementia, osteoporosis or bronchitis/emphysema.

Following the adjustment for all socio-demographic and health status variables, living in a major city was associated with higher GP service use, with a stronger association in the 1921-26 cohort than in the 1973-78 cohort. Educational qualifications beyond Year 12 were associated with lower levels of GP service use for all age cohorts, but having difficulty managing on income was associated with increased service use for women of the 1946-51 cohort only. Partner status worked in opposite directions for the 1946-51 cohort (with partnered women having less GP service use) than the 1921-26 cohort (with partnered women having more GP service use).

Table 3-5. Key socio-demographic determinants of GP service use

Cohort	1973-78	1946-51	1921-26
Area of residence			
Other areas	Reference	Reference	Reference
Major city	↑	↑	↑↑
Educational qualifications			
Less than Year 12	Reference	Reference	Reference
Year 12 and beyond	↓	↓	↓
Manage on Income			
Not too bad/Easy	Reference	Reference	Reference
Hard/Difficult	↓	↑	↓
Marital Status			
Not Partnered	Reference	Reference	Reference
Partnered	-	↓	↑

Note: ↑ (1.0<1.5) ↑↑ (1.5<2.5);

↓ (<1.0-0.65)

BMI was only significantly related to GP service use among women in the 1973-78 cohort, with overweight or obese women having higher service use. Smokers and ex-smokers had more GP service use in the 1973-78 cohort, but there was a paradoxical effect in the 1946-51 cohort, with less GP service use for women who are still smoking (consistent with quitting smoking by women who have developed smoking related illness). Alcohol use was associated with less GP service use in all cohorts.

GP service use was strongly related to the number of chronic conditions, particularly in the 1921-26 cohort. Urinary tract infections, premenstrual tension, and sexually transmitted diseases were associated with GP service use in the 1973-78 cohort, and joint pains were associated with GP service use in the 1946-51 cohort.

Table 3-6. Key health status determinants of general practitioner service use

Cohort	1973-78	1946-51	1921-26
Self-rated Health			
Excellent/good	Reference	Reference	Reference
Fair/Poor	↑	↑	↑
BMI			
Healthy weight (18.5≤BMI<25)	Reference	Reference	Reference
Overweight/Obese (BMI 25+)	↑	-	-
Underweight, BMI<18.5	-	-	-
Smoking Status			
Never smoked	Reference	Reference	Not Applicable
Ex-smoker	↑	↑	"
Smoker	↑	↓	"
Alcohol consumption			
Non-drinker	Reference	Reference	Reference
Low/rare drinker	↓	↓	↓
Risky/high drinker	↓	↓	-
Number of Chronic Conditions			
More conditions	↑	↑	↑↑
SF-36 Mental health score			
0-100	↓	↓	↓
SF-36 Physical functioning score			
0-100	↓	↓	↓
Urinary Tract Infection			
No	Reference	Not applicable	Not applicable
Yes	↑		
STD			
No	Reference	Not applicable	Not applicable
Yes	↑		
Symptoms			
Incontinence			
No	Reference	Reference	Reference
Yes	-	-	↑
Joint Pains			
No	Not applicable	Reference	Reference
Yes		↑	↑
Premenstrual tension			
No	Reference	Not applicable	Not applicable
Yes	↓		

Arrows indicate strength of association (probability ratios) significant at the $p<0.05$ level. No arrow indicates there is no statistically significant association. SF-36 – Short-Form 36 Item measure of Health Related Quality of Life
↑ (1.0<1.5) ↑↑ (1.5<2.5);
↓ (<1.0-0.65)

Table 3-7 shows cross sectional analysis for comorbid conditions that are associated with more GP service use for women in the 1989-95 cohort. Approximately 16% of women in this cohort had none or only 1 GP service in the 12 months prior to completing the first survey, 33% had 2-4 visits, 17% had 5-6 visits, and 34% had 7 or more visits to the GP. Women who reported a diagnosis of depression, a sexually transmitted disease, asthma or low iron had increased odds of GP service use compared to women without these diagnoses. In particular, women with a diagnosis of depression were at least 2.5 times more likely to visit the GP 5 or more times in a year.

Table 3-7. Co-morbid factors associated with GP service use for women in the 1989-95 cohort

Factor		0 to 1 service	2 to 4 services	5 to 6 services	7 or greater
Age		Reference	-	-	-
General Health					
Good-Excellent	Fair-Poor	Reference	-	↑	↑↑
Conditions and Symptoms					
UTI					
No	Yes	Reference	-	-	-
Diabetes					
No	Yes	Reference	-	-	-
Leaking					
No	Yes	Reference	-	-	↑
Depression					
No	Yes	Reference	↑↑	↑↑↑	↑↑↑↑↑
STD					
No	Yes	Reference	↑	↑↑	↑↑
Heart Disease					
No	Yes	Reference	-	-	-
Hypertension					
No	Yes	Reference	-	-	↑↑
Asthma					
No	Yes	Reference	↑	↑	↑↑
Low Iron					
No	Yes	Reference	↑	↑	↑↑

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association; BMI – body mass index; SF-36 – Short-Form 36 Item measure of Health Related Quality of Life

↑ (1.0<1.5) ↑↑ (1.5<2.5) ↑↑↑ (2.5<3.5) ↑↑↑↑ (3.5<4.5) ↑↑↑↑↑ (4.5+);
↓ (<1.0-0.65)

After adjusting for socio-demographic factors, and the sum of the number of comorbidities (diabetes, heart disease, hypertension, asthma and low iron), factors associated with more GP service use included reporting a doctor's diagnosis of depression, urinary tract infection, sexually transmitted diseases, and increased number of conditions (Table 3-8). Women who were partnered had increased

odds of GP service use and so did women who were overweight-obese. Compared to non-drinkers, women who rarely drank alcohol had decreased odds of having two to four visits in the last year.

Table 3-8. Health behaviour factors associated with GP service use for women in the 1989-95 cohort

Factor	Category	0 to 1 services	2 to 4 services	5 to 6 services	7 or greater
Age		Reference	-	-	-
Marital Status					
No	Yes	Reference	↑	↑	↑
Alcohol					
Non-drinker	Rare Drinker	Reference	↓	-	-
	Risky-High Drinker	Reference	-	-	-
Number of Conditions	Higher	Reference	↑	↑	↑↑
Smoking Status					
Non-smoker	Ex-smoker	Reference	-	-	-
	Smoker	Reference	-	-	-
BMI					
Healthy Weight	Overweight-Obese	Reference	-	-	↑
	Underweight	Reference	-	-	-
Manage on Income					
No	Yes	Reference	-	-	↓
Self-rated Health					
Good-Excellent	Fair-Poor	Reference	-	↑	↑↑
Conditions & Symptoms					
UTI					
No	Yes	Reference	↑	↑↑	↑↑
STD					
No	Yes	Reference	↑	↑↑	↑↑
Leaking					
No	Yes	Reference	-	-	↑
Depression					
No	Yes	Reference	↑↑	↑↑	↑↑↑

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association.

↑ (1.0<1.5) ↑↑ (1.5<2.5) ↑↑↑ (2.5<3.5);

↓ (<1.0-0.65)

3.4.1. Key points

- Metropolitan area of residence was associated with higher GP service use, with a stronger association in the 1921-26 cohort than in the 1973-78 cohort.

- Having educational qualifications beyond Year 12 was associated with lower levels of GP service use.

- Difficulty managing on income was associated with higher GP service use for women of the 1946-51 cohort after adjustment for all socio-demographic and health status variables.

- Partner status worked in opposite directions for the 1946-51 cohort (with partnered women having less GP service use) and in the 1921-26 cohort (with partnered women having more GP service use).

- Smokers and ex-smokers had more GP service use in the 1973-78 cohort, however there was a paradoxical effect with less GP service use for women in the 1946-51 cohort who were still smoking (consistent with quitting smoking by women who have developed smoking related illness).

- Alcohol use was associated with less GP service use in all cohorts.

- BMI was only significantly related to GP service use among women in the 1973-78 cohort, with overweight or obese women having higher service use. GP service use was strongly related to the number of chronic conditions, particularly in the 1921-26 cohort.

- Urinary tract infections, premenstrual tension, and sexually transmitted diseases were associated with GP service use in the 1973-78 cohort, and joint pains were associated with GP service use in the 1946-51 cohort.

- For women in the 1989-95 cohort, GP service use was higher for women who were married, and among women with urinary tract infection, sexually transmitted disease, and depression. GP service use was lower among those who rarely drink.

4.   USE OF SPECIALIST SERVICES (BROAD TYPE OF SERVICE CATEGORY B AND C)

This chapter presents information on women's use of specialist services. On average, women had fewer specialist consultations (BTOS C) than GP services (per year), with specialist services accounting for around 6% of claims by women in all cohorts. The number of MBS claims for specialist services (BTOS C) increased with age (Figure 4-1), with the highest number of MBS claims for specialist consultations (4.2 claims per year) made by the 1921-26 cohort in 2015 when they were aged around 90 years. Women in the 1973-78 cohort were also likely to use obstetric services (BTOS D) and these services are also presented for this cohort.

When obstetric specialist services (BTOS D) were grouped with specialist services, there was a peak in the mean number of claims when women were aged in their early 30s. This corresponds with the median age (30.8 years) that Australian women gave birth in 2013 (Australian Institute for Health and Welfare, 2015). There were no MBS claims for obstetric services for women in the 1946-51 and 1921-26 cohorts. When women in the 1989-95 cohort were aged 21, they had a mean of 0.57 specialist services and 0.63 services per year when obstetric services were included (not shown in Figure 4-1).
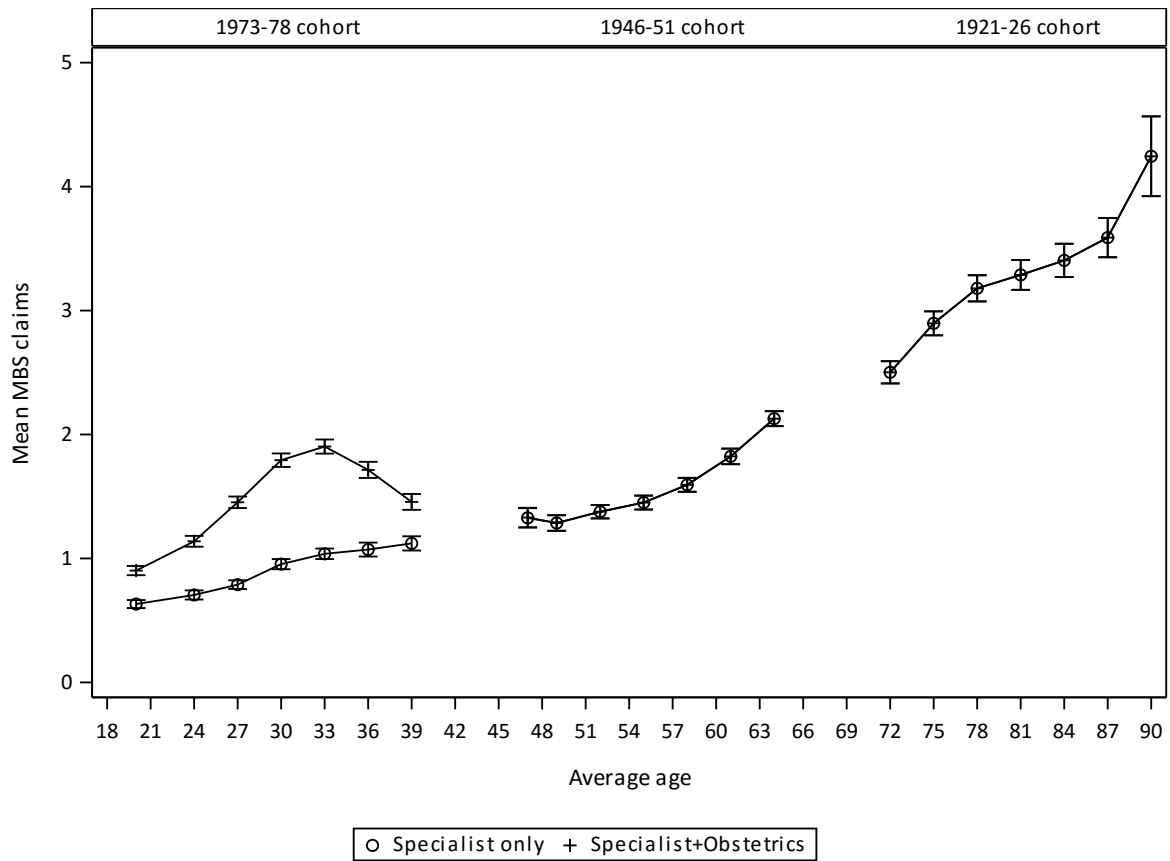
Figure 4-1. Mean annual number of specialist services by women across the life course (1973-78, 1946-51, 1921-26 cohorts). [17]

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[17] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort).

Area of residence differences in mean number and costs for specialist services were apparent across all cohorts. For the 1973-78 cohort, there was no area of residence difference in the number of specialist services between the ages of 20 and 27. However, from age 30, differences were apparent, with a higher peak in specialist services for women in major cities and a lower peak for women in other areas. Women living in major cities also had, on average, one more specialist service per year than women in remote areas (Figure 4-2).

In the 1946-51 cohort, the average number of specialist services was highest for women living in major cities (approximately 2-3 services per year) and lowest for those living in remote areas (approximately 1 service per year). Similarly, in the 1921-26 cohort, the average number of specialist services was highest for women living in major cities (approximately 3-5 services per year) and lowest for those living in remote areas (approximately 1-2 services per year).

Figure 4-2. Mean annual number of specialist services (including obstetrics) by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [18]

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[18] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

Compared to differences in GP services, differences in the number of specialist services were less apparent across different levels of education. In the 1973-78 cohort, women with university education had a higher peak in specialist services in their 30s compared to other women (Figure 4-3).
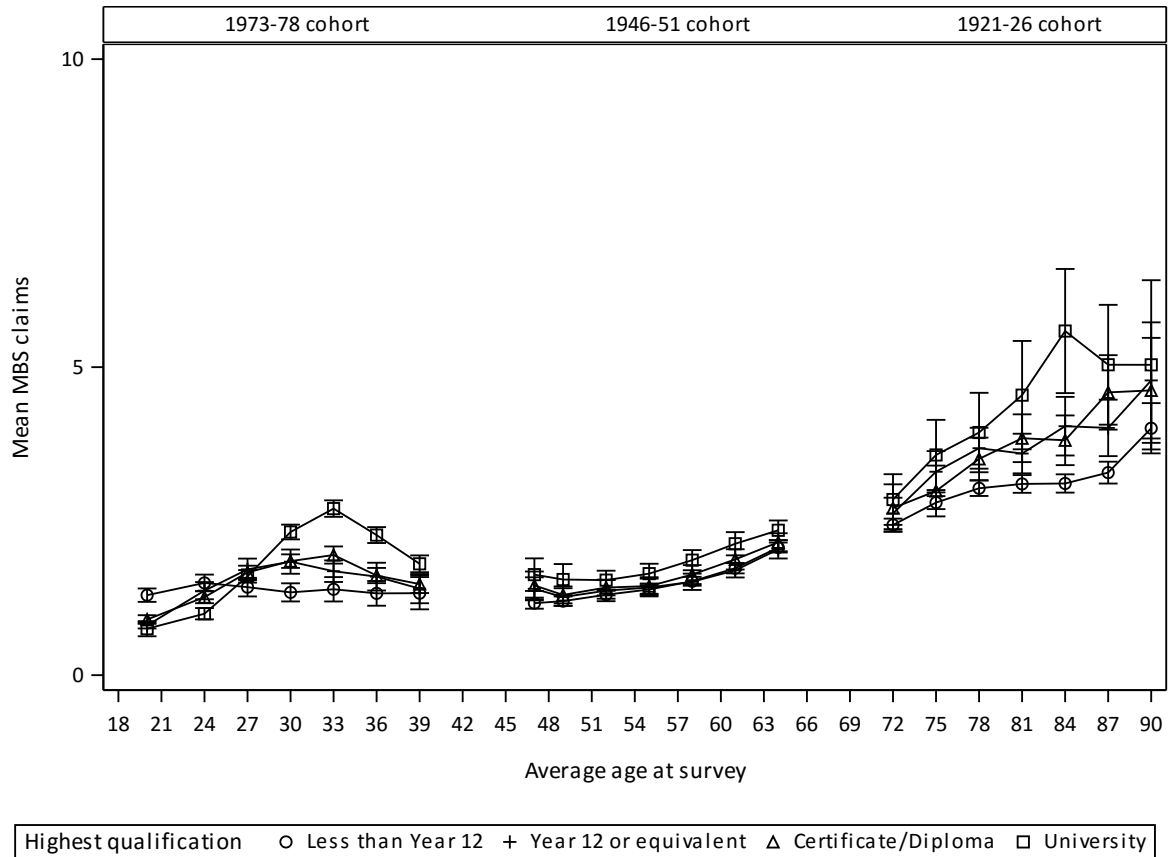
Figure 4-3. Mean annual number of specialist services (including obstetrics) by women (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [19]

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[19] Women may increase their level of education from one survey to the next.

In contrast to GP services, there was little difference in the mean number (Figure 4-4) of specialist services according to whether women had difficulty managing on income, regardless of age.
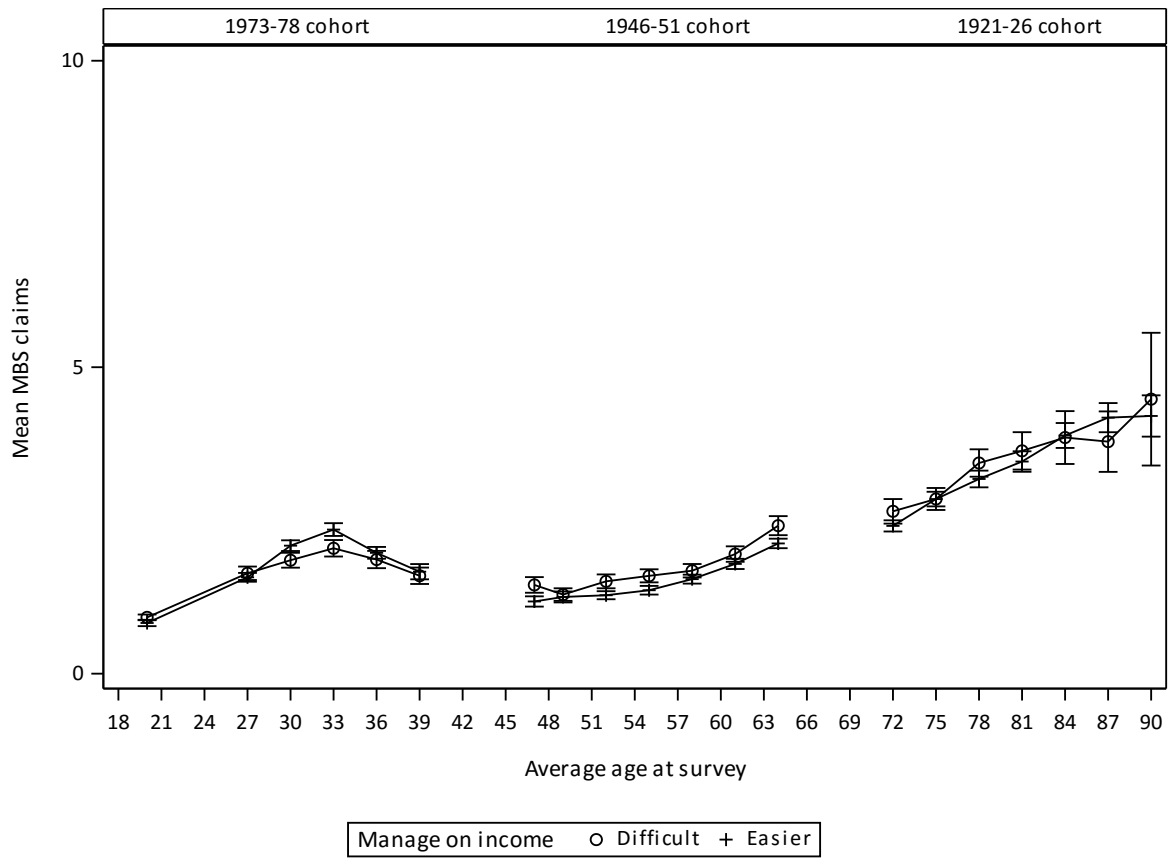
Figure 4-4. Mean annual number of specialist services (including obstetrics) by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [20]

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[20] The level of difficulty managing on income reported by the woman may change from one survey to the next.

For specialist services, there was little difference in the number of services between women in the 1973-78 and 1946-51 cohorts according to health care card status. At around 87 years of age, women in the 1921-26 cohort who did not have a health care card had one extra specialist visit when compared with women of the same age who had a health care card (Figure 4-5).

Figure 4-5. Mean annual number of specialist services (including obstetrics) by women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [21]

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[21] Health care card status reported by the woman may change from one survey to the next.

4.1. Costs of specialist services

For the 1973-78 cohort, the mean Medicare benefit paid for specialist services (including obstetrics) was $59 - $105 per year before peaking at $220 when the 1973-78 cohort were an average age of 33 years (Figure 4-6). This peak in costs coincided with the peak period when women were having children, and was much more apparent than the peak in service use shown in Figure 4-2. For women in the 1946-51 and 1921-26 cohorts the Medicare benefit paid for specialist services started to increase from a mean age of 57 and was almost tripled by the age of 90. For women in the 1989-95 cohort, Medicare benefit costs for specialist services (including obstetrics) were around $58 when the women were around 21 years of age.

Figure 4-6. Mean annual Medicare benefit paid (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts). [22]

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[22] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes to the average Medicare benefits paid and inflation (since dollars are not standardised).

The mean out-of-pocket cost for specialist services for women in the 1973-78 cohort increased from Survey 1 ($17) to 6 ($176), mostly due to obstetric services (Figure 4-8). At Survey 7, the out-of- pocket costs for this cohort (aged 37-42) were lower than at Survey 6, but remained higher than costs for the 1946-51 cohort at any time point, and were similar to the most recent survey time point (Survey 6, age 85-90) for women in the 1921-26 cohort. The mean out-of-pocket cost for specialist services also increased over time for women in the 1946-51 and 1921-26 cohorts, from $29 to $84 and $32 to $150, respectively, even though both cohorts had similar out-of-pocket costs at Survey 1 in 1996 (Figure 4-7). Mean out-of-pocket costs for women in the 1989-95 cohort were around $30 when women were about 21 years of age.

Figure 4-7. Mean annual out-of-pocket cost (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts). [23]

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[23] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes to the out-of-pocket costs and inflation (since dollars are not standardised).

Area of residence differences in specialist service use were amplified when Medicare benefit costs were compared, with the peak in Medicare benefits costs for women in their 30s being around $200 higher for women in major cities than for women in regional or remote areas (Figure 4-8).

Figure 4-8. Mean annual Medicare benefit paid (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [24]

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[24] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

In all cohorts, women in major cities had the highest out-of-pocket costs for specialist services and this difference increased with age (Figure 4-9). Women living in regional areas also had higher mean out-of-pocket costs for specialist services than remote area women, particularly in the 1946-51 and 1921-26 cohorts.
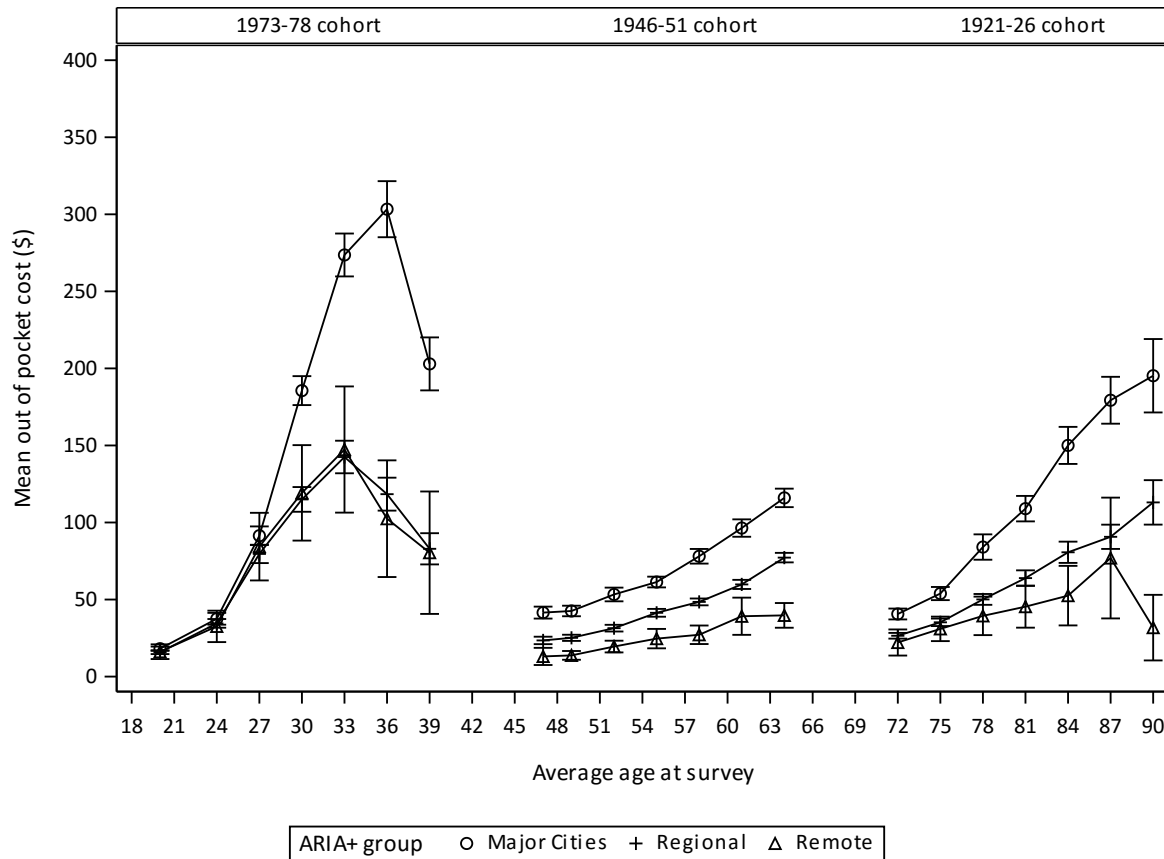
Figure 4-9. Mean annual out-of-pocket cost (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [25]

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[25] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

In the 1973-78 cohort, women with university education had higher benefit costs for specialist services in their 30s compared to other women, amplifying the difference in use of specialist services. At this age, women with Year 12 qualifications had $12 to $69 more Medicare benefits paid for specialist services compared with those with less than Year 12 qualifications. Women with a university education had $67 to $222 more mean Medicare benefits than those with less than Year 12 education from age 30 (Figure 4-10).

In the 1946-51 cohort, there was little difference in mean benefit costs, and mean out-of-pocket costs for specialist services between women of different educational qualifications. The difference in mean benefit costs ranged between $22 and $57.

Women in the 1921-26 cohort with less than Year 12 education had lower mean Medicare benefits paid for specialist services than women with higher education levels. The difference ranged from $14 to $61 when compared with women who had Year 12 qualifications, and from $36 to $157 when compared with women who had a university degree.
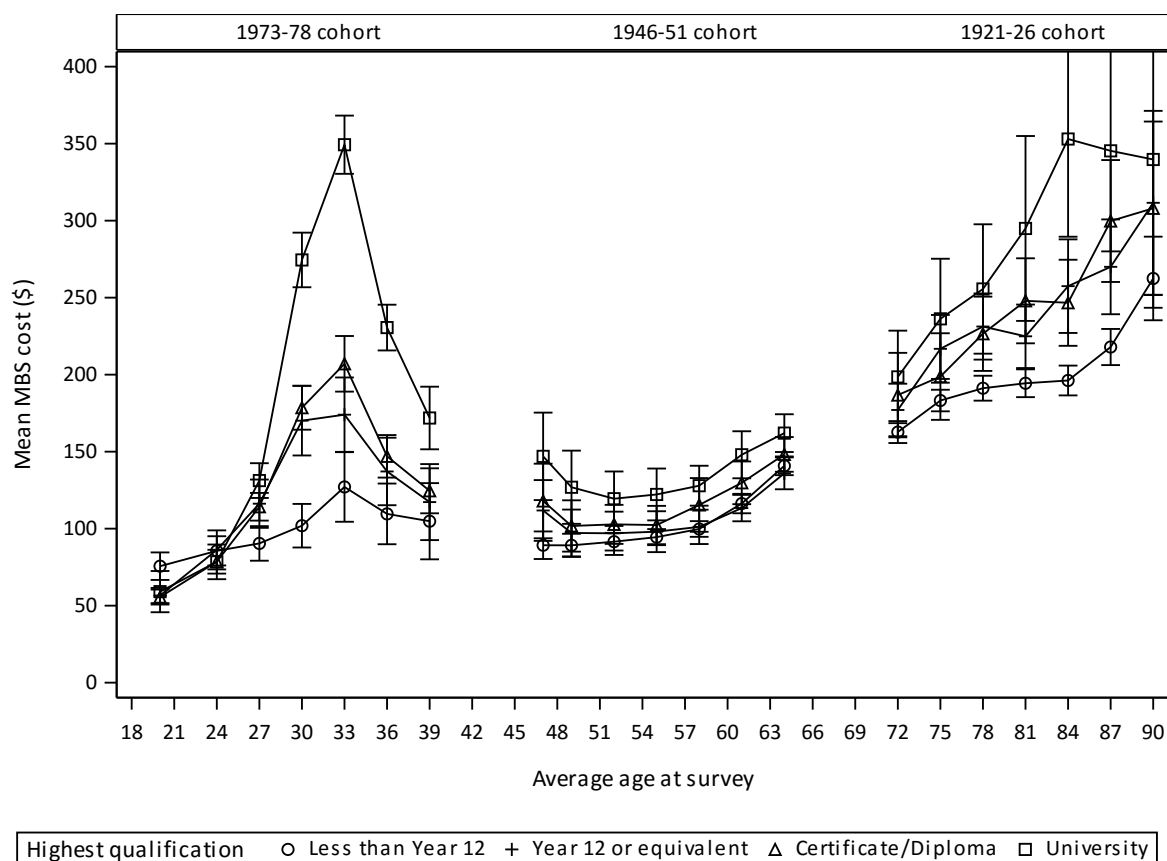
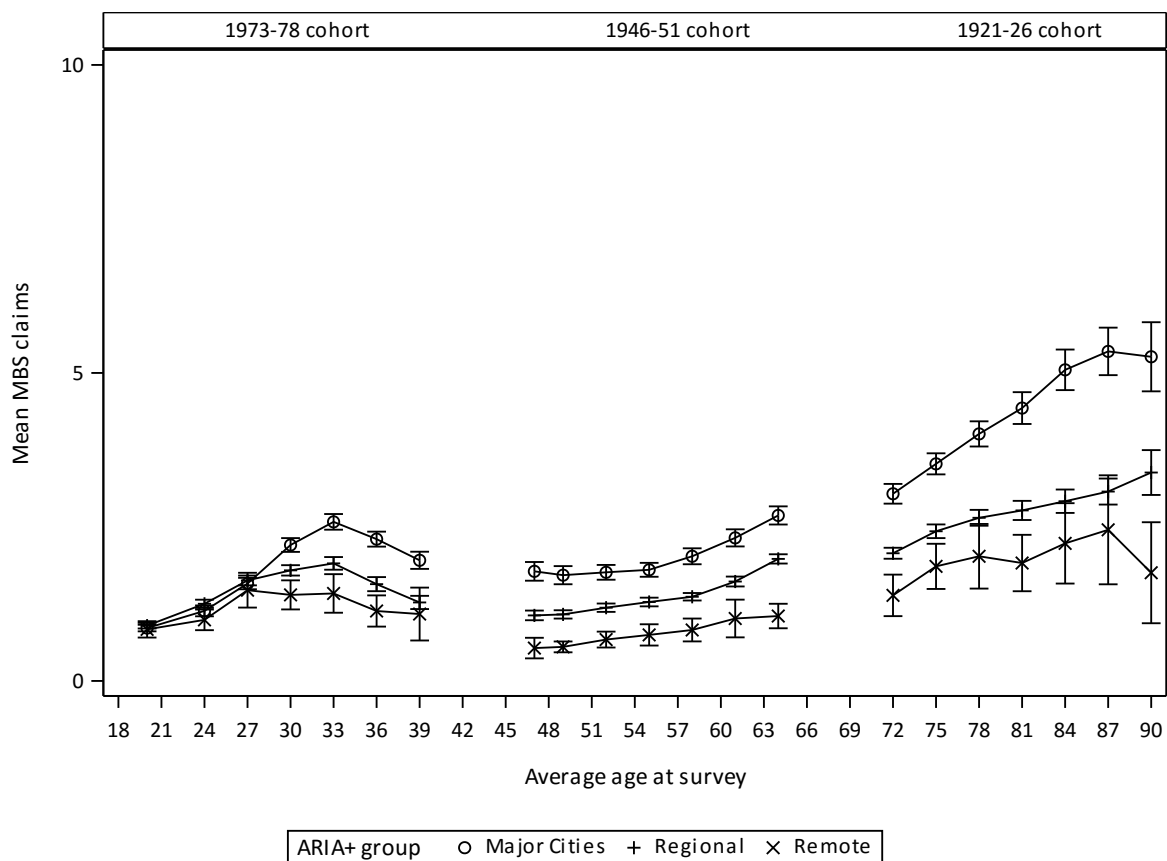**Figure 4-10. Mean annual Medicare benefit paid (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [26]**

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[26] Women may increase their level of education from one survey to the next.

Women in the 1973-78 cohort with a university degree had higher out-of-pocket costs for specialist services than women with a certificate/diploma who had the next highest out-of-pocket costs (Figure 4-11). The out-of-pocket cost difference between women who had a university degree and those with a certificate/diploma varied between $9 and $124, and the difference between women with a university degree and those with less than Year 12 education was as high as $151.

There was little difference in mean out-of-pocket costs between women of different educational qualifications in the 1946-51 cohort. For women in the 1921-26 cohort, the mean out-of-pocket costs for specialist services differed by $22 to $100 between women with a university degree and those with less than Year 12 education.
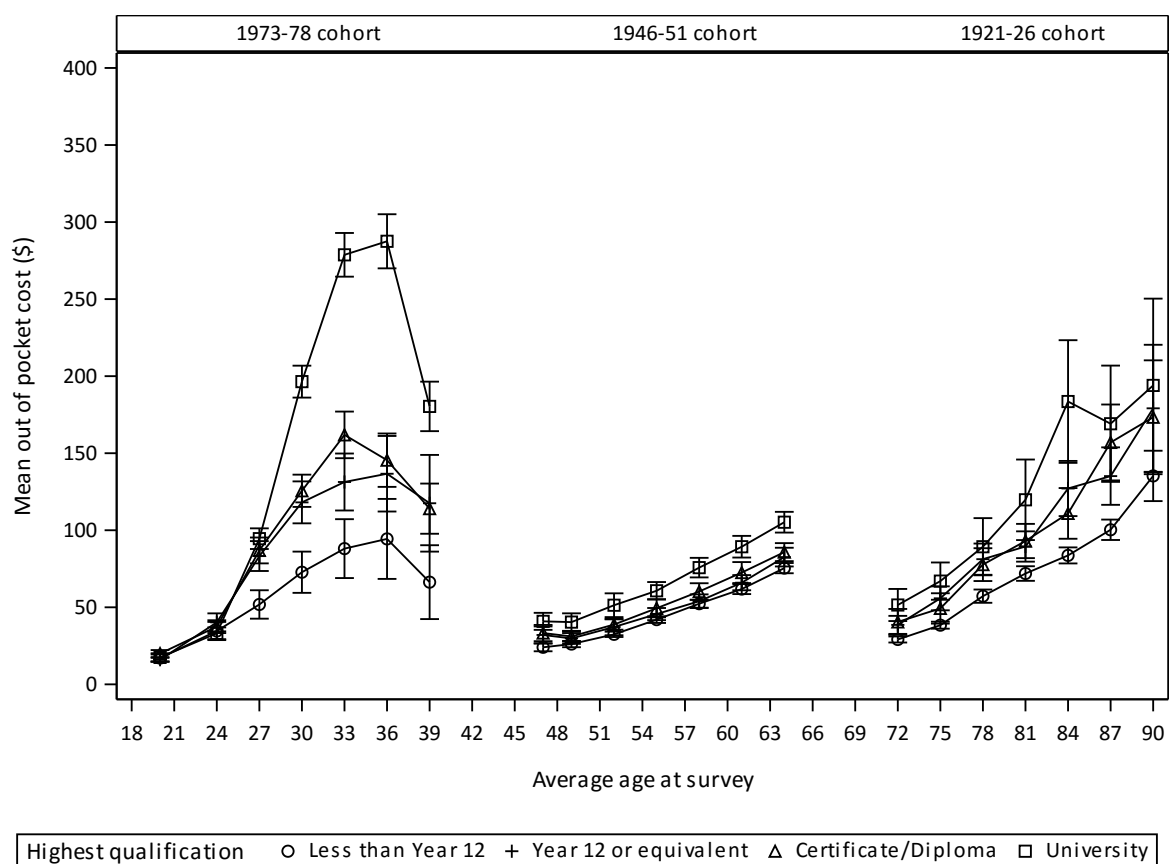
Figure 4-11. Mean out-of-pocket cost (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [27]

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[27] Women may increase their level of education from one survey to the next.

In contrast to GP services, there was little difference in the mean Medicare benefit costs (Figure 4-12) of specialist services according to whether women had difficulty managing on income, regardless of age. The main difference in the mean Medicare benefit paid was during the peak pregnancy years (~30-33 years of age). During this time, women who had less difficulty managing on income had a higher mean Medicare benefit paid ($235-293) compared with women who had difficulty managing on income ($189-235).
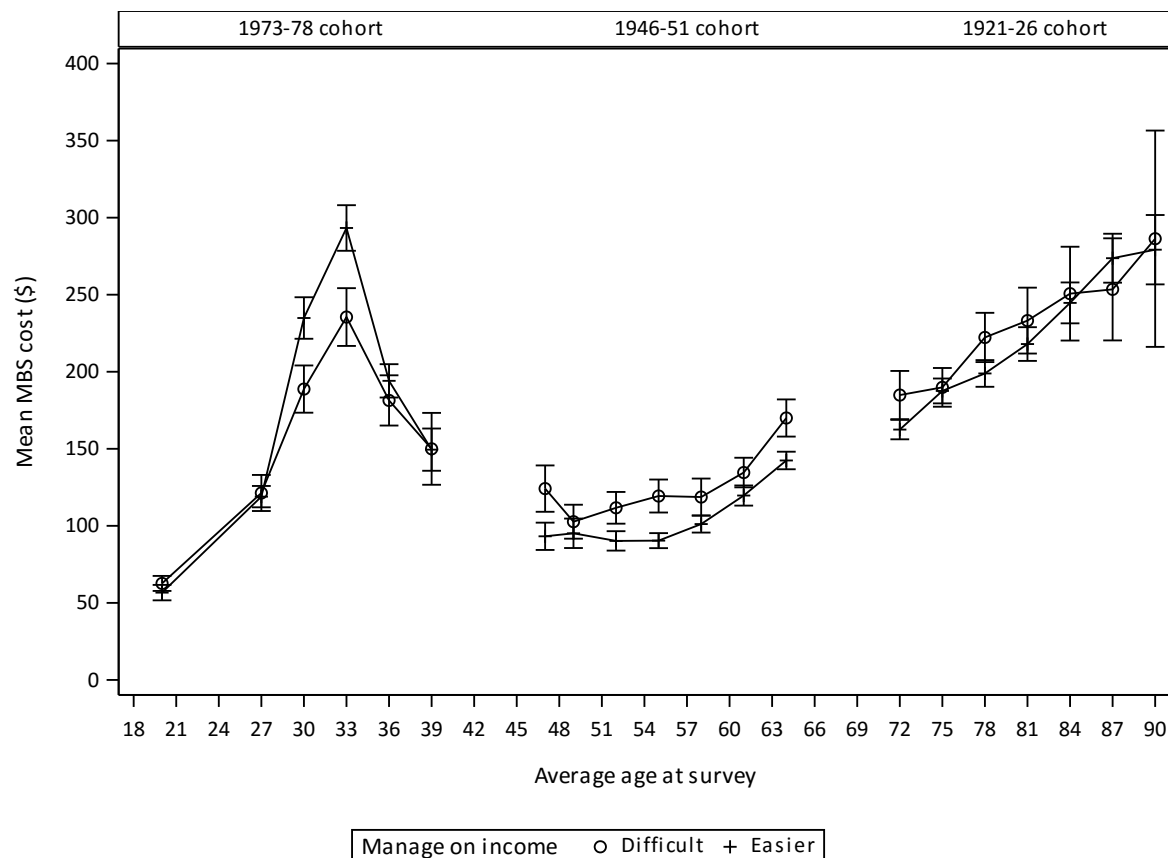
Figure 4-12. Mean annual Medicare benefit paid (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [28]

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[28] The level of difficulty managing on income reported by the woman may change from one survey to the next.

In the 1973-78 cohort women who found it easier to manage on income had $55-82 more in mean out-of-pocket costs for specialist services compared with women who found it difficult to manage on income (Figure 4-13). These out-of-pocket costs remained high in comparison to the 1946-51 and 1921-26 cohorts.

In the 1946-51 and 1921-26 cohorts, there were small differences in mean out-of-pocket costs for specialist services when women were grouped by ability to manage on income.
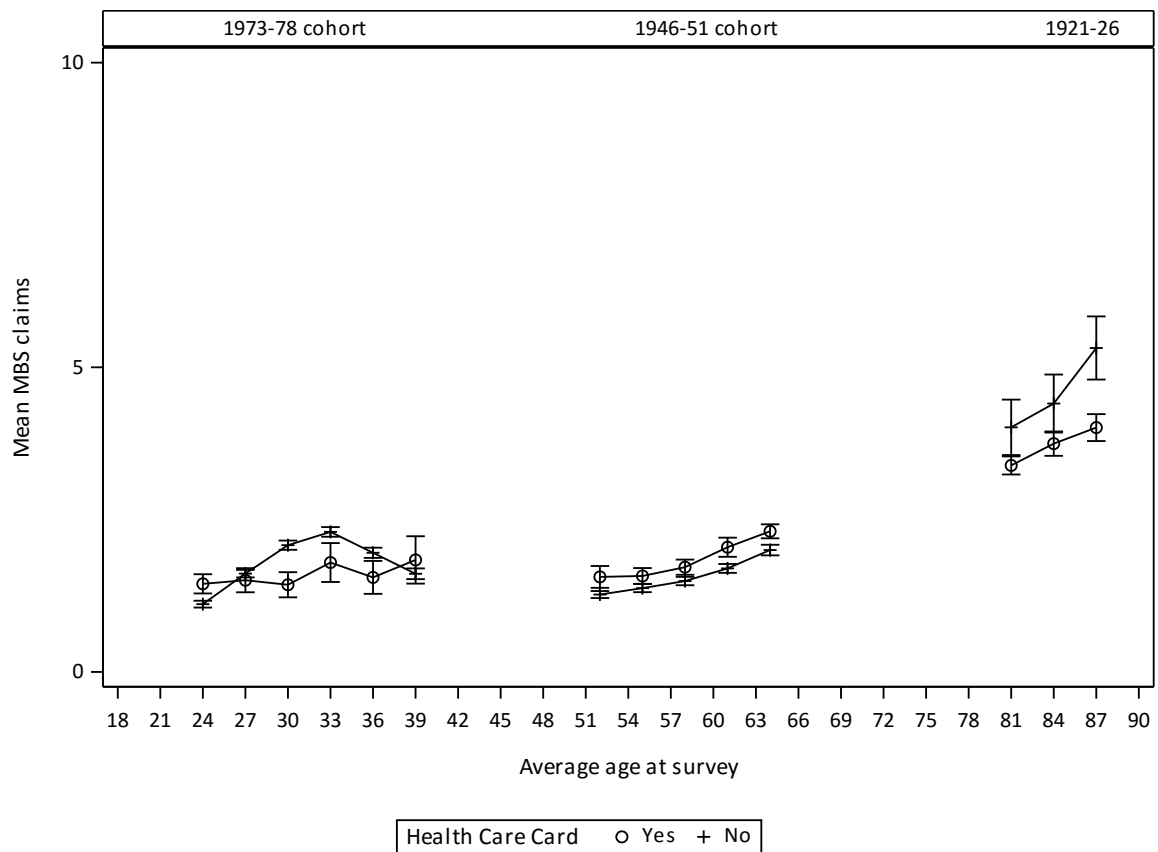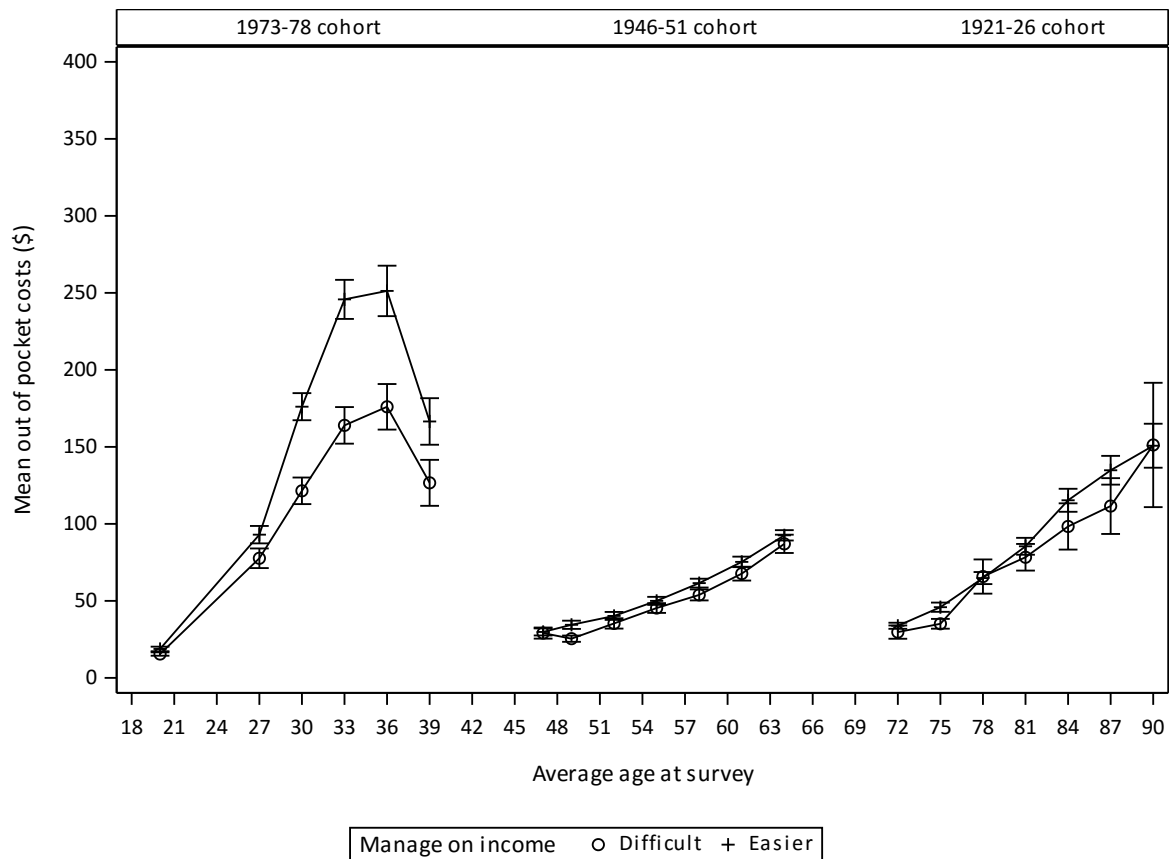

Figure 4-13. Mean annual out-of-pocket cost (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [29]

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[29] The level of difficulty managing on income reported by the woman may change from one survey to the next.

There was little difference in mean Medicare benefit paid for specialist services between women with and without health care cards in the 1973-78 and 1946-51 cohorts, except during the peak pregnancy period around the age of 30 (Figure 4-14). During this time, women without a health care card had $53-$113 more in Medicare benefit paid, most likely for obstetric services. In the 1921-26 cohort, women without a health care card had a $42-87 higher annual mean Medicare benefit paid for specialist services.
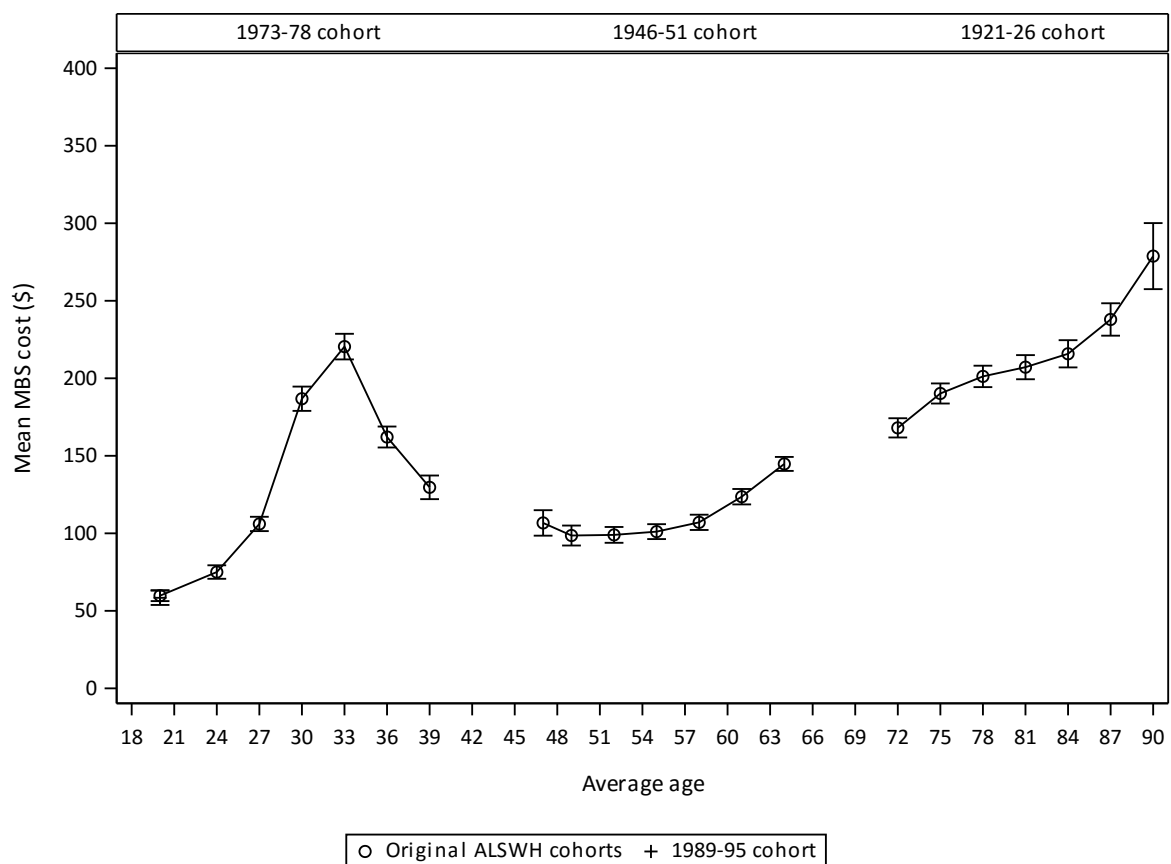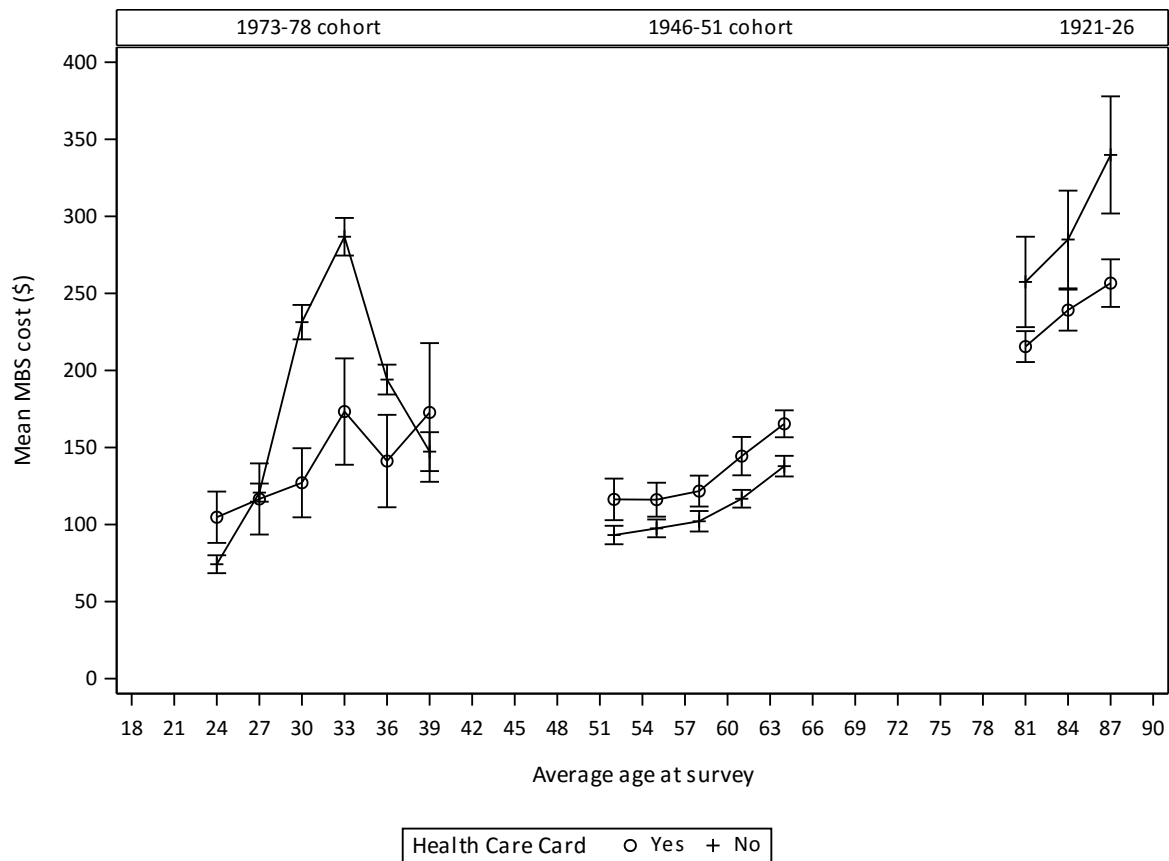

Figure 4-14. Mean annual Medicare benefit paid (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [30]

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[30] Health care card status reported by the woman may change from one survey to the next.

Overall, women who did not have a health care card had higher mean out-of-pocket costs for specialist services than those who did have a health care card. During the peak fertility period, the difference in costs between these two groups was approximately $105 to $146 (Figure 4-15). It is also notable that out-of-pocket costs were large in relation to the mean benefit. The 1946-51 cohort showed the least difference in out-of-pocket costs for specialist services for women with and without health care cards ($10-$15). For the 1921-26 cohort, the difference in out-of-pocket costs for specialist services ranged from $42 to $70. Women with health care cards had the lowest number of services, the lowest Medicare benefit, and the lowest out-of-pocket costs.
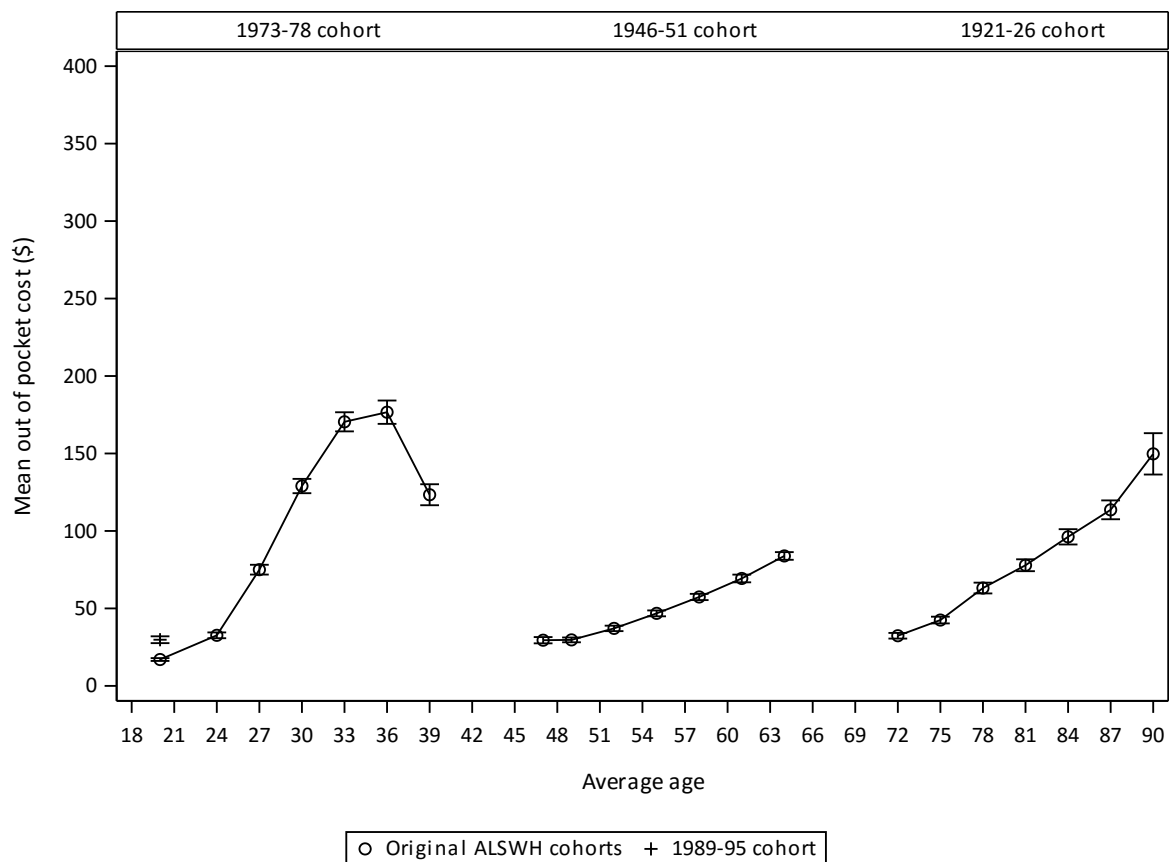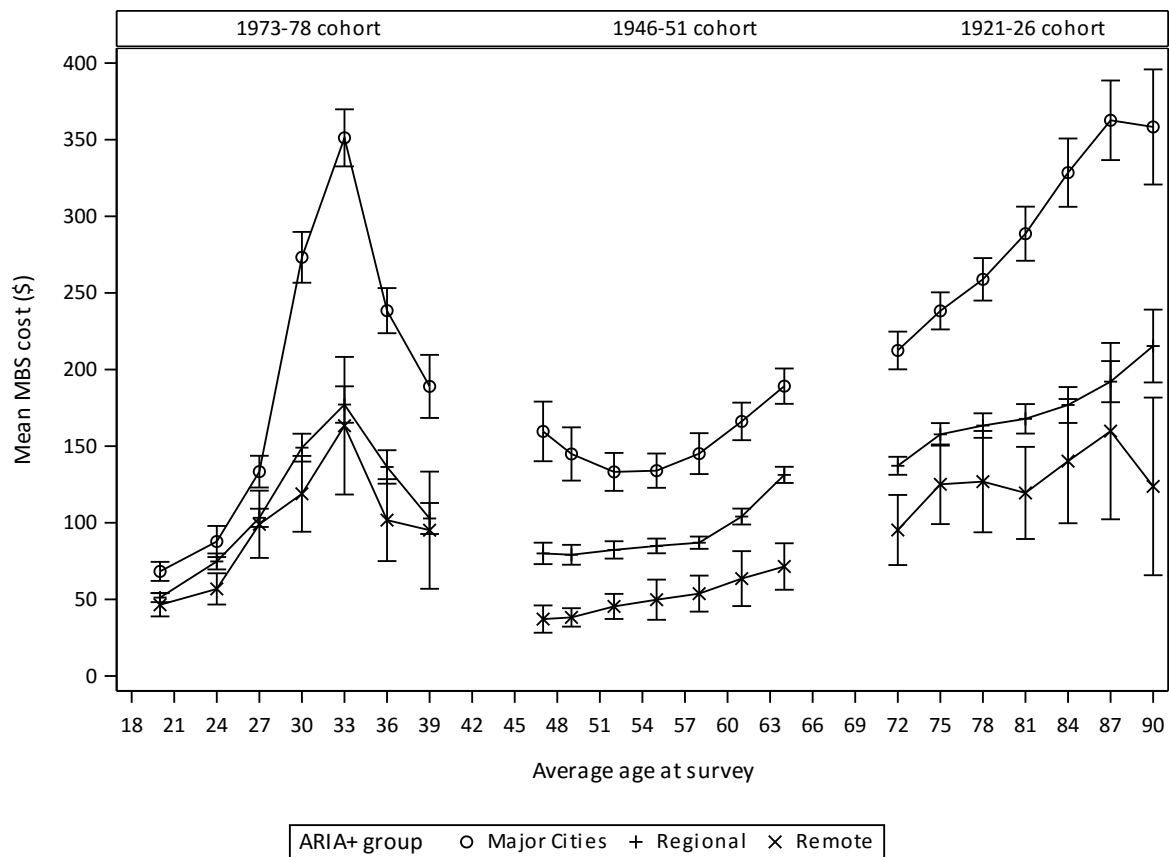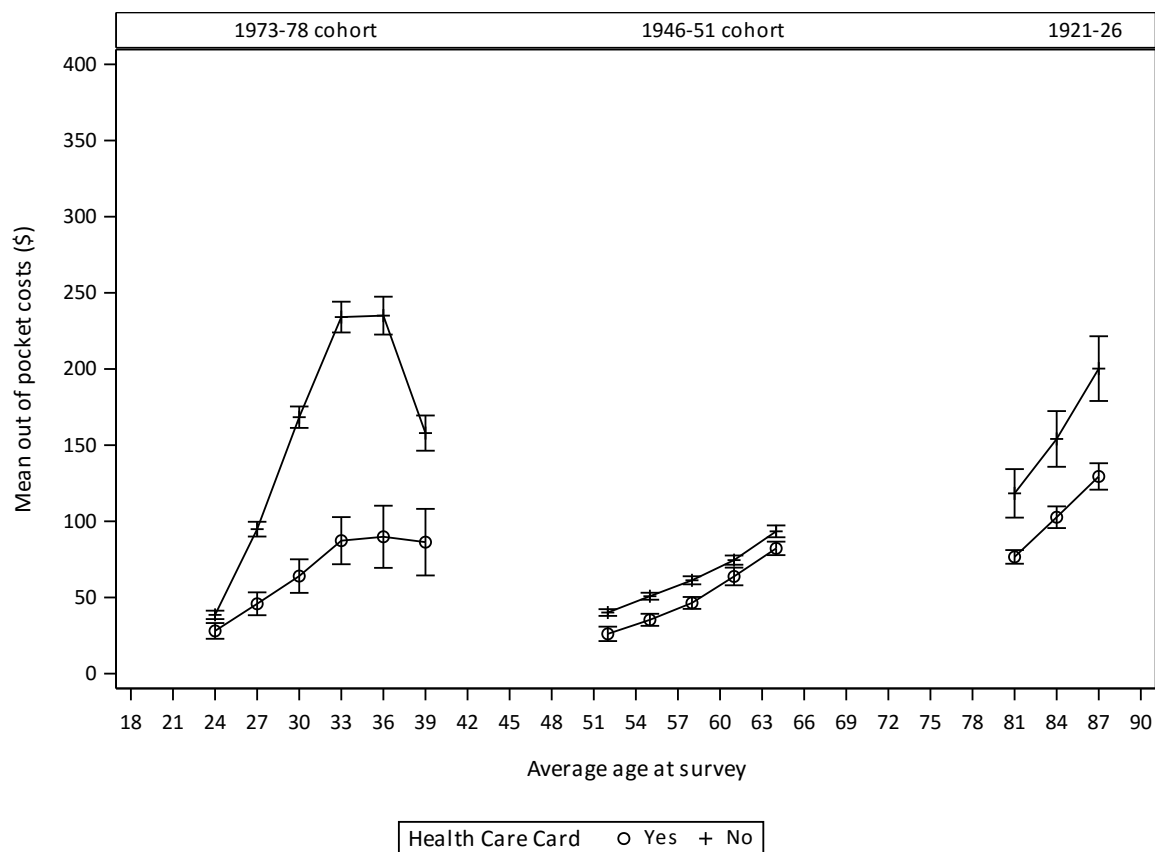

Figure 4-15. Mean annual out-of-pocket cost (in 2014 Australian dollars) for specialist services (including obstetrics) for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by concession status. [31]

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[31] Health care card status reported by the woman may change from one survey to the next.

4.1.1. Key points

- The number of specialist services used (excluding obstetrics) remained stable until the age of 55 and then increased with age.

- As expected, the rise in number of specialist services used led to increased Medicare benefits paid and out-of-pocket costs.

- When obstetrics was included, there was a distinct peak in the number of specialist services used, the Medicare benefits paid, and out-of-pocket costs at around 33 years, coinciding with the median age of mothers giving birth. This is more prominent for women who lived in a major city and who had higher sociodemographic characteristics.

- Specialist services were used more by women living in major cities than those living in remote areas, likely due to the difference in availability of these services between these areas.

- For older women, more university-educated women used specialist services than those with lower qualifications.

- There was little difference in specialist service use (excluding obstetrics) overall between women based on ability to manage on income, which may reflect that many people had private health insurance, even those on a low income.

- Women with a health care card had fewer specialist visits, lower Medicare benefit paid, and lower out-of-pocket costs than women without a health care card.

4.2. Key determinants of specialist service use.

For each survey year, the number of specialist visits was categorised as none, 1-2 visits, 3-4 visits, and more than 4 visits. After adjusting for area of residence, a higher number of specialist visits was associated with most conditions, and with poor or fair self-rated health. Women were likely to have fewer specialist visits if they had better scores on the Short Form 36-item measure of physical and mental health related quality of life (SF-36). Amongst the 1946-51 cohort, reporting a diagnosis of breast cancer was strongly associated with use of specialist services. Breast cancer is the second leading cause of disease burden for mid-aged women and the second leading cause of premature death for women overall (Australian Institute for Health and Welfare, 2016). Among the older cohort, reporting a diagnosis of dementia was associated with decreased odds of specialist service use (Table 4-1). According to the latest Dementia in Australia report produced by the Australian Institute of Health and Welfare, GPs were the first point of contact for patients with symptoms of cognitive impairment and played a key role in the diagnosis of dementia and the provision of information about available support services (Australian Institute for Health and Welfare, 2012). Additionally, a large percentage of dementia patients move into residential aged care facilities, where specialist medical attention is provided on-site. At least 56% of women with dementia in ALSWH were identified through the residential aged care system (data not shown). Therefore, care of dementia patients appears to be primarily managed by the GP or provided through aged care facilities, which explains why dementia was associated with decreased odds of using specialist services.

Table 4-1. Health conditions associated with specialist visits

Cohort	1973-78	1946-51	1921-26
Area of Residence			
Other areas	Reference	Reference	Reference
Major City	↑	↑↑	↑↑
Self-rated Health			
Excellent/good	Reference	Reference	Reference
Fair/Poor	↑	↑	↑
Diagnosis of Chronic conditions			
Heart Disease			
No	Reference	Reference	Reference
Yes	-	↑	↑↑
Hypertension			
No	Reference	Reference	Reference
Yes	↑	↑	↑↑
Asthma			
No	Reference	Reference	Reference
Yes	↑	↑	↑↑
Diabetes			
No	Reference	Reference	Reference
Yes	-	↑	↑↑
Low Iron			

Cohort	1973-78	1946-51	1921-26
No	Reference	Reference	
Yes	↑	↑	-
Dementia			
No	Not available	Not available	Reference
Yes			↓
Osteoporosis			
No	Not available	Not available	Reference
Yes			↑↑
Stroke			
No	Not available	Not available	Reference
Yes			↑
Bronchitis/Emphysema			
No			Reference
Yes			↑
Breast Cancer			
No	Reference	Reference	
Yes	↑	↑↑↑↑	-
Urinary Tract Infection			
No	Reference	n/a	n/a
Yes	-	-	
STD			
No	Reference	Not available	Not available
Yes	↑		
SF-36 Mental health score			
0-100	-	↓	↓
SF-36 Physical functioning score			
0-100	↓	↓	↓
Symptoms			
Incontinence			
No	Reference	Reference	Reference
Yes	-	-	↑
Joint Pains			
No	Not available	Reference	Reference
Yes		↑	↑
Premenstrual tension			
No	Reference	Not available	Not available
Yes	↓		

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association.

↑ (1.0<1.5) ↑↑ (1.5<2.5)   ↑↑↑ (2.5<3.5) ↑↑↑↑ (3.5<4.5);

↓ (<1.0-0.65)

Table 4-2 and Table 4-3 show associations between specialist service use and socio-demographic and health factors. These analyses include data from all surveys for each cohort and have been adjusted to take into account the influence of all other statistically significant factors.

Following the adjustment for all socio-demographic and health status variables, women living in metropolitan areas had higher odds of having a specialist claim than women living in non-metropolitan areas (Table 4-2), which may be due to greater availability of specialist services. In the 1973-78 cohort, women who were partnered were less likely to visit a specialist. As expected, women with private health insurance were more likely to have specialist visits.

Table 4-2. Key socio-demographic determinants of specialist service use

Cohort	1973-78	1946-51	1921-26
Area of residence			
Non-Metropolitan Living	Reference	Reference	Reference
Metropolitan living	↑	↑	↑↑
Educational qualifications			
No Post-school qualifications	Reference	Reference	Reference
Post-school qualifications	-	-	-
Marital Status			
Not Partnered	Reference	Reference	Reference
Partnered	↓↓	-	↑
Manage on Income			
Easy/Not too bad	Reference	Reference	Reference
Impossible/Difficult	↓	-	-
Private Health insurance			
No private health insurance	Reference	Reference	Not Applicable
Having Private Health insurance	↑↑	↑↑	-

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association.
↑ (1.0<1.5) ↑↑ (1.5<2.5);
↓ (<1.0-0.65) ↓↓ (<0.65-0.4)

After adjusting for socio-demographic variables, across all cohorts, women who self-reported having fair/poor general health and those with an increased number of chronic conditions were more likely to visit a specialist. Women with higher physical functioning scores, and women in the 1946-51 cohort with higher mental health scores, were less likely to have a specialist service. Compared to non-drinkers, women who drank alcohol (at any level) and current smokers were less likely to have specialist visits. Women in the 1946-51 and 1921-26 cohorts who were overweight or obese were less likely to have a visit to a specialist. Women from the 1973-78 and 1989-95 cohorts who reported a diagnosis of urinary tract infection or sexually transmitted disease were more likely to have a specialist service (Table 4-3).

Table 4-3. Key health status determinants of specialist service use

Cohort	1973-78	1946-51	1921-26
Self-rated health			
Excellent/good	Reference	Reference	Reference
Fair/poor	↑	↑	↑
BMI			
Healthy weight (18.5≤BMI<25)	Reference	Reference	Reference
Underweight, BMI<18.5	-	-	-
Overweight/Obese (25+≤BMI)	-	↓	↓
Smoking Status	-		
Never smoked	Reference	Reference	Reference
Ex-smoker	-	-	-
Smoker	↓	↓	-
Alcohol consumption			
Non-drinker	Reference	Reference	Reference
Low/rare drinker	↓	-	↑
Risky/high drinker	↓↓	↓	-
Sum of Chronic Conditions			
More conditions	↑	↑	↑
SF-36 Mental health score			
0-100	Not available	↓	-
SF-36 Physical functioning score			
0-100	↓	↓	↓
Urinary Tract Infection			
No	Reference	Not Applicable	Not Applicable
Yes	↑		
STD			
No	Reference	Not Applicable	Not Applicable
Yes	↑		
Symptoms			
Incontinence			
No	Reference	Reference	Reference
Yes	↑	-	↑
Joint Pains			
No	Not available	Reference	Reference
Yes		↑	↑
Premenstrual tension			
No	Reference	Not applicable	Not applicable
Yes	↓		

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association.

↑ (1.0<1.5) ;

↓ (<1.0-0.65)   ↓↓ (<0.65-0.4)

Table 4-4 shows cross sectional analyses for health conditions that are associated with specialist service use by women in the youngest ALSWH cohort, who were born in 1989-95. Women in this cohort who reported a diagnosis of depression, urinary tract infection, sexually transmitted disease, heart disease, hypertension, asthma or low iron had increased odds of having a specialist service compared to women without these diagnoses. In particular, women with a diagnosis of heart disease, hypertension or depression were at least two times more likely to visit a specialist three or more times in a year.

Table 4-4. Health conditions associated with specialist visits for women from the 1989-95 cohort

Factor		No visits	One to two visits	Three or more visits
Age		Reference	-	↑
Self-rated Health				
Good-Excellent	Fair-Poor	Reference	↑	↑↑
Conditions and Symptoms				
UTI				
No	Yes	Reference	↑	↑
Diabetes				
No	Yes	Reference	-	-
Leaking				
No	Yes	Reference	-	↑
Depression				
No	Yes	Reference	↑	↑↑
STD				
No	Yes	Reference	↑	-
Heart Disease				
No	Yes	Reference	↑↑	↑↑↑
Hypertension				
No	Yes	Reference	↑	↑↑
Asthma				
No	Yes	Reference	↑	↑
Low Iron				
No	Yes	Reference	↑	↑

Arrows indicate strength of association (probability ratios) significant at the $p<0.05$ level. No arrow indicates there is no statistically significant association.
↑ (1.0<1.5) ↑↑ (1.5<2.5) ↑↑↑ (2.5<3.5)

After adjusting for socio-demographic factors and the number of comorbidities (diabetes, heart disease, hypertension, asthma and low iron), factors associated with having a specialist service use included having depression, urinary tract infection, sexually transmitted disease and increased number of co-morbid conditions (Table 4-5). Women in the 1989-95 cohort who were partnered and those who were ex-smokers or smokers had decreased odds of specialist service use. In addition, yearly increases in age of women in the 1989-95 cohort were associated with increased odds of having three or more specialist visits in the last year. Women who were partnered, consumed alcohol and were smokers had decreased odds of having three or more specialist visits in a year.

Table 4-5. Socio-demographic and health factors associated with specialist visits for the 1989-95 cohort

Factor		No Service	One to two Services	Three or more Services
Age		Reference	-	↑
Marital Status				
No	Yes	Reference	-	↓
Alcohol				
Non-drinker	Rare Drinker	Reference	-	↓↓
	Risky-High Drinker	Reference	-	↓↓
Smoking Status				
Non-smoker	Ex-smoker		↓	-
	Smoker		↓	↓
BMI				
Acceptable Weight	Overweight-Obese	Reference	-	-
	Underweight	Reference	-	-
Manage on Income				
No	Yes	Reference	-	-
General Health				
Good-Excellent	Fair-Poor	Reference	↑	↑↑
Conditions and Symptoms				
More conditions		Reference	↑	↑
UTI				
No	Yes	Reference	↑	↑
STD				
No	Yes	Reference	↑	-
Leaking urine				
No	Yes	Reference	-	↑
Depression				
No	Yes	Reference	↑	↑↑

Arrows indicate strength of association (probability ratios) significant at the p<0.05 level. No arrow indicates there is no statistically significant association.
↑ (1.0<1.5) ↑↑ (1.5<2.5) ;
↓ (<1.0-0.65) ↓↓ (<0.65-0.4)

4.2.1. Key points

- Women living in metropolitan areas had more specialist services than women living in non-metropolitan areas.

- Partnered women had less services, and women with private health insurance had more visits.

- Compared to non-drinkers, women who drank alcohol (at any level) were less likely to use specialist services, except in the 1921-26 cohort where rare drinkers were more likely to see a specialist when compared with non-drinkers.

- Current smokers were less likely to have specialist visits compared with non-smokers.

- Women with more comorbid conditions had more visits to a specialist, as did women from the 1973-78 and 1989-95 cohorts who reported a diagnosis of urinary tract infection, incontinence, or sexually transmitted disease.

- In the 1989-95 cohort, women had more specialist visits if they were older, had urinary tract infection, incontinence, sexually transmitted disease, or depression.

5.   USE OF PATHOLOGY SERVICES ACROSS THE LIFE COURSE

This chapter describes the use of pathology services funded under Medicare (BTOS F and N) by women at different life stages. In 2015-16 pathology services accounted for over 35% of Medicare services used across Australia (see Figure 2-1). Most common services were multiple chemical analyses (of serum, plasma, urine or other body fluid), blood cell count, TSH/thyroid function test, urinalysis, clotting time, and iron studies.

5.1.   Use of pathology services.

Across all cohorts, the mean number of pathology claims increased with age. For the 1973-78 cohort, mean number of claims increased from around 3 items a year in their early 20s to around 6 items per year in their 30s, with a slight peak at age 33, likely due to pregnancy-related pathology tests. For the 1946-51 cohort, the mean number of pathology claims increased from around 4 items in their mid-to-late 40s to 9 items by their mid 60s. A steady rise in pathology claims was observed after the age of 50, whereas the number of GP visits remained stable until the age of 55 (Figure 3-1). This may be due to factors other than age, however it is not known exactly what these factors are. The mean annual number of pathology items was highest for women in the 1921-26 cohort, ranging from 6 per year (at age 72) to 16 per year (at age 90) (Figure 5-1). In 2012/13, when they were aged 18-23, the 1989-95 cohort had a mean of around 4 pathology items, similar to women in the 1973-78 cohort when they were the same age.

Figure 5-1. Mean annual number of pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts). [32]

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[32] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes in the use of pathology services by the women in the cohort as they age.

Women living in remote areas of Australia had the least number of pathology services per year and those living in major cities had the most (Figure 5-2). The area of residence difference in service use increased with age. For the 1973-78 cohort, the mean number of pathology services was similar across all areas of residence between ages of 20 and 27. Between ages 33 and 39 years, women living in major cities had 1 to 2 more pathology services per year compared to women living in remote areas. For the 1946-51 cohort, women living in major cities had an average of 2 to 3 more pathology services per year than women living in remote areas. Area of residence differences were greatest in the 1921-26 cohort, with the mean number of pathology services per year ranging from 7 to 19 for women living in major cities, 6 to 14 for regional areas, and 4 to 13 for remote areas.
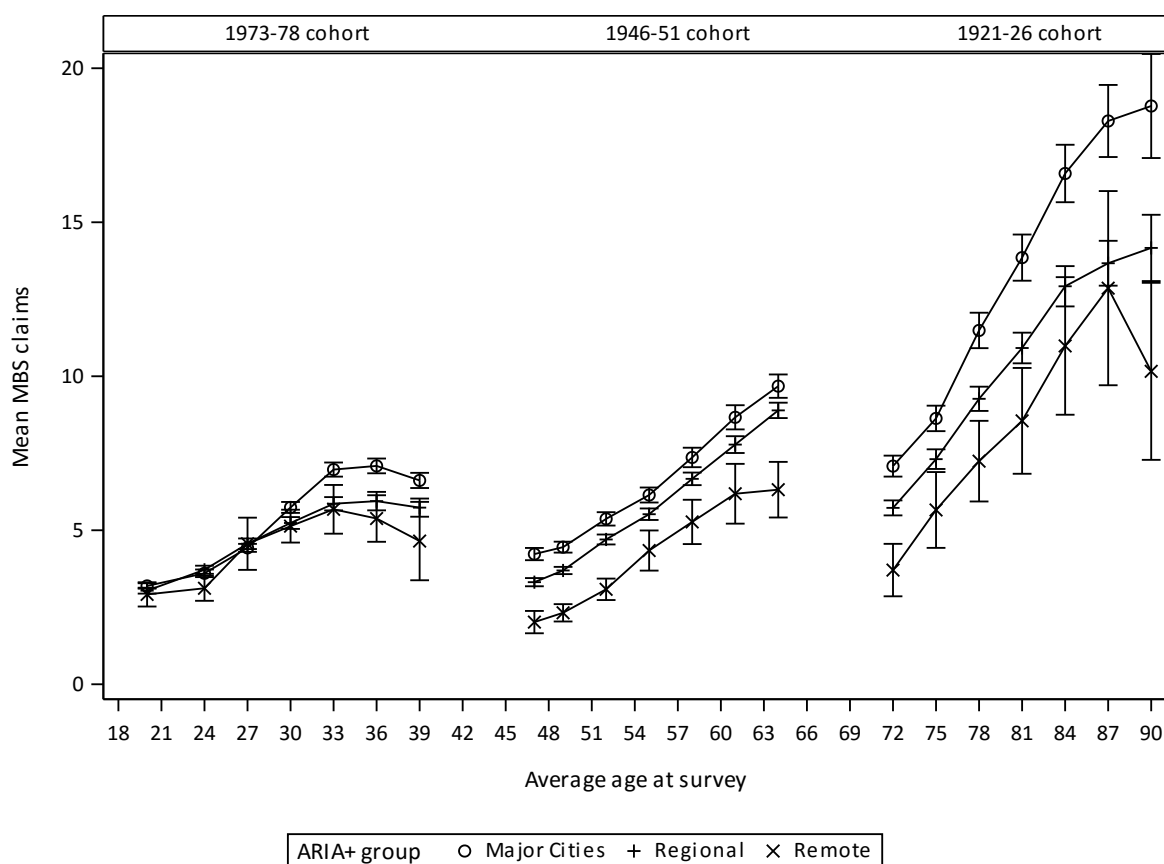
Figure 5-2. Mean annual number of pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [33]

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[33] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

There was very little difference in pathology service use according to education (Figure 5-3). For the 1973-78 cohort, university-educated women had the lowest number of pathology services between ages 20 and 27, whereas women with qualifications less than Year 12 had the highest pathology services. This difference reversed between ages of 30 and 36, although the differences at these ages were small. For the 1921-26 cohort, between the ages of 81 and 87, women who had a university degree had approximately 2 more pathology services per year than women with less than Year 12 education.
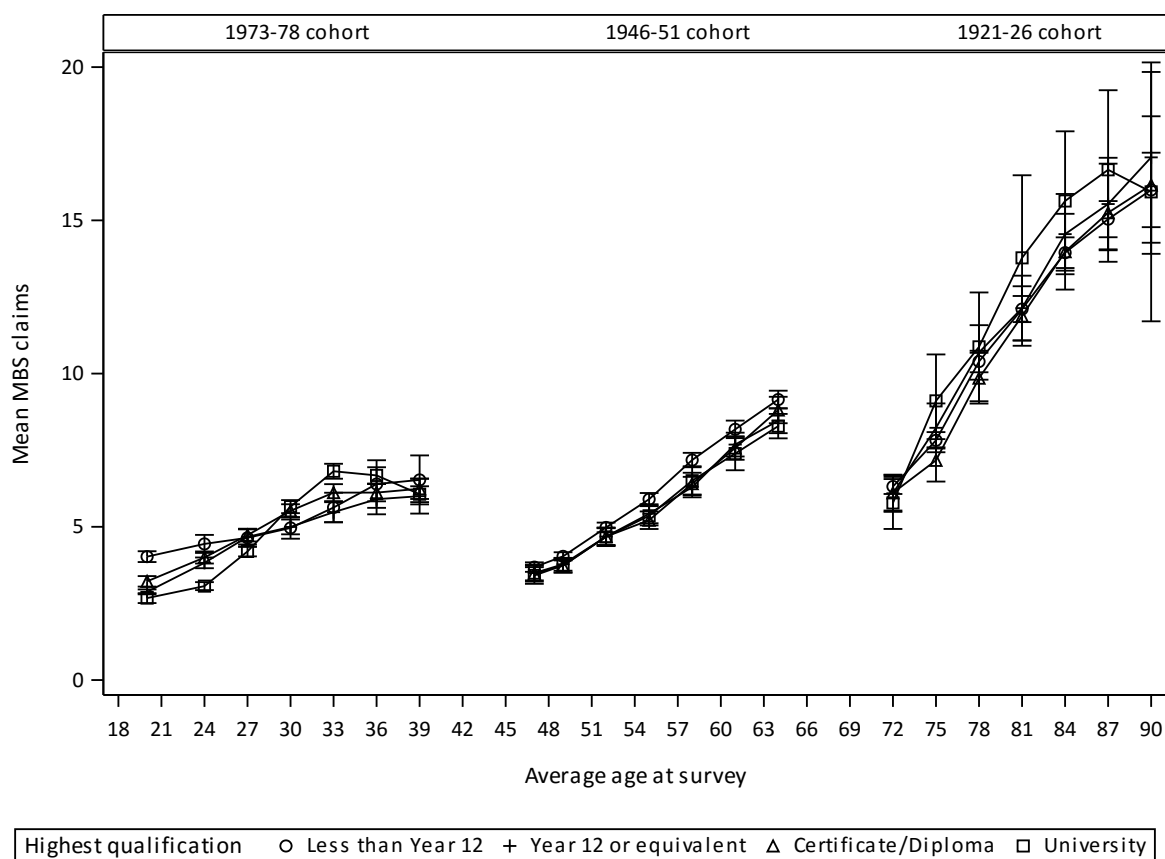
Figure 5-3. Mean annual number of pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [34]

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[34] Women may increase their level of education from one survey to the next.

In all cohorts, there was very little difference in pathology service use by difficulty managing on income (Figure 5-4). For the 1946-51 cohort, women who had difficulty managing on their income had slightly higher use of pathology services. Similarly, between the ages of 78 and 84, women in the 1921-26 cohort who had difficulty managing on their income had higher pathology services (approximately 11-16 mean services per year) than women who found it easier to manage on their income (approximately 10-14 mean services per year). We have shown that women who had difficulty managing on income had poorer physical functioning (Leigh, et al., 2017) and health overall (Jackson, et al., 2015).
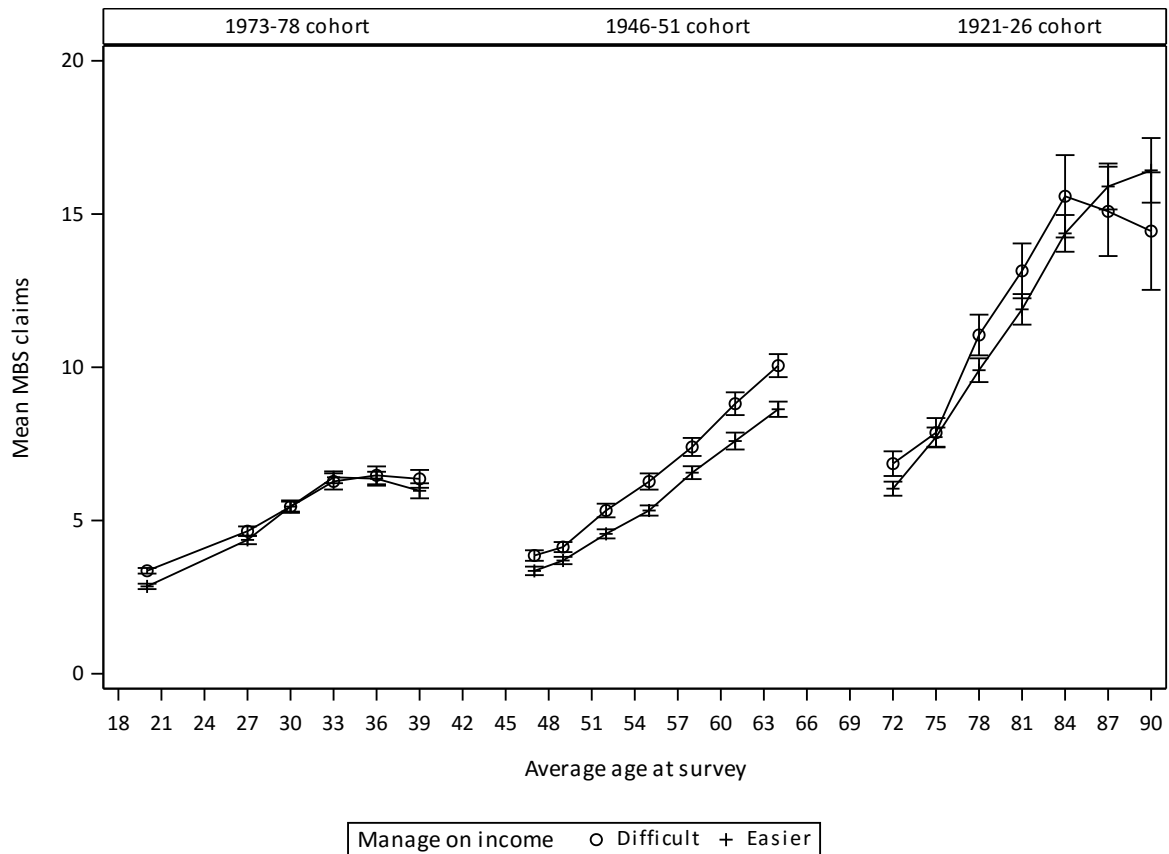
Figure 5-4. Mean annual number of pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [35]

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[35] The level of difficulty managing on income reported by the woman may change from one survey to the next.

Women in the 1946-51 cohort who had a health care card had higher use of pathology services (approximately 1 to 3 extra services per year) than women who did not have a health care card (Figure 5-5). For women in the 1973-78 cohort, those aged 39 years who had a health care card had about one extra pathology service than those of the same age who did not have a health care card. In contrast, there was no difference in use of pathology services by health care card status for women of the 1921-26 cohort.
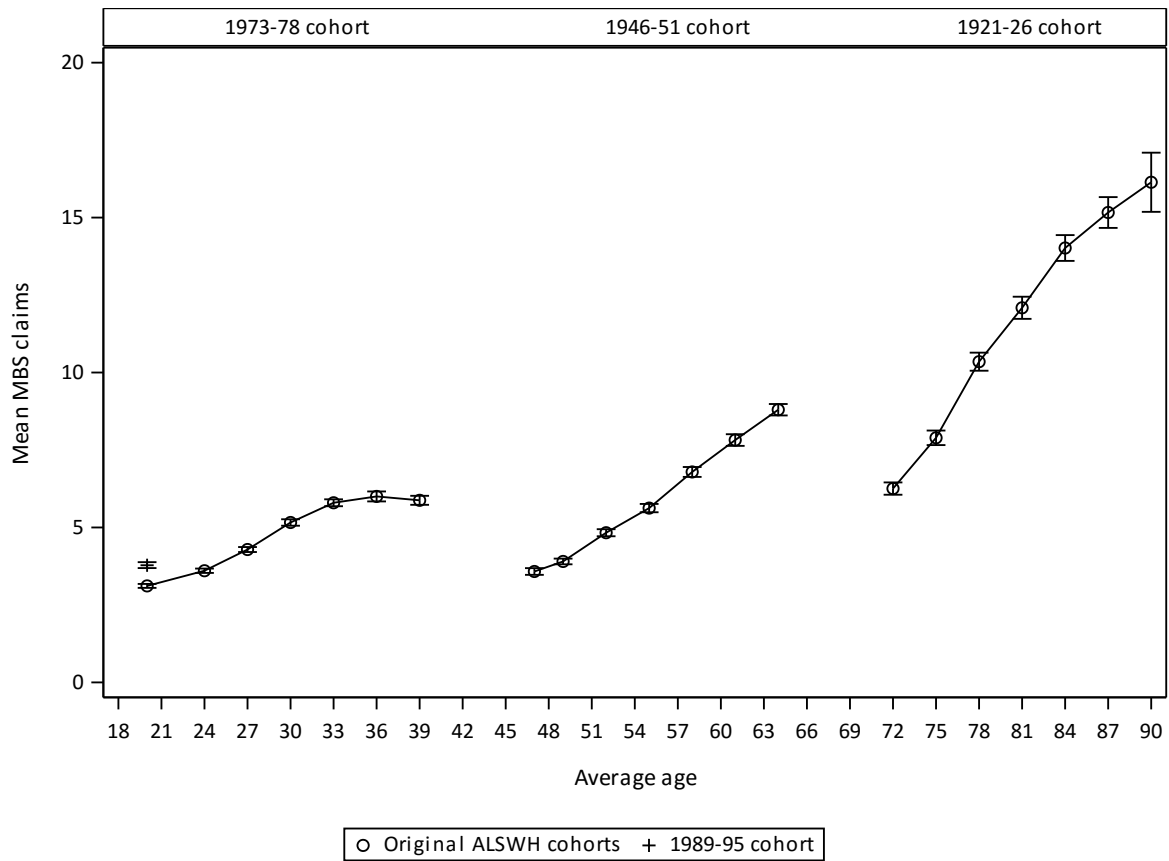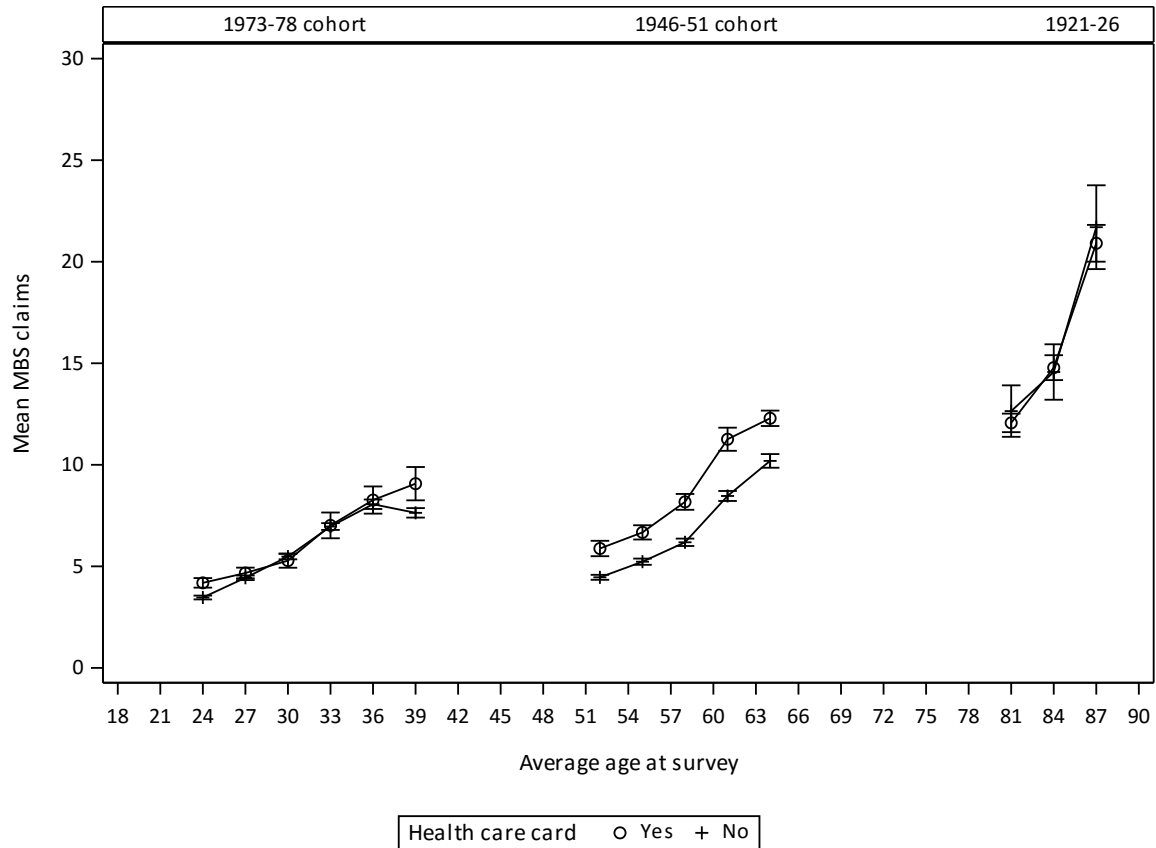

Figure 5-5. Mean annual number of pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [36]

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[36] Health care card status reported by the woman may change from one survey to the next.

5.2. Cost of pathology services

Overall, the mean Medicare benefit paid increased across the cohorts and with age. For the 1989-95 cohort in 2012/13 the mean Medicare benefit paid was $76. For the 1973-78 cohort, the mean Medicare benefit paid was about $84 per year at the age of 20, increasing to $136-$141 between ages 30 to 36. This increase corresponded with the peak age for having children. For the 1946-51 cohort, the mean Medicare benefit paid for pathology services per year increased from $104 at age 48 to $173 at age 63. The greatest increase was observed in the 1921-26 cohort, with the Medicare benefit paid increasing steadily from $163 at age 72 to $276 by the time women were 90 years old (Figure 5-6). However, it plateaued around the age of 80 even though the number of pathology tests continued to increase for this cohort (as shown in Figure 5-1).

Figure 5-6. Mean Medicare benefit paid (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts). [37]

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[37] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes to the average Medicare benefits paid per woman.

The mean out-of-pocket costs for pathology services also increased across the cohorts, but the increase with age was less apparent in the 1946-51 cohort. Out-of-pocket costs for women in the 1989-95 cohort for 2012/13, when they were aged 18 to 23, were around $4. When the 1973-78 cohort were a similar age (20 years) their mean out-of-pocket costs were $6 per year, and this increased with age to peak at $14 per year at age 33 (Figure 5-7). For women in the 1946-51 cohort out-of-pocket costs for pathology services ranged from $13 to $17. The greatest out-of-pocket costs were for women in the 1921-26 cohort, with costs ranging from $13 at age 72 to $35 at age 90. It has been demonstrated that women in their 80s had an increasing number of pathology tests (Figure 5-1) and out-of-pocket costs (Figure 5-7) as they aged, however the Medicare benefits paid plateaued (Figure 5-6). Further analysis has revealed discrepancies in the out-of-pocket costs of commonly-used pathology tests depending on where the test was done. For example, for the most commonly used pathology test claimed by 80-90 year old women in the 1921-26 cohort (Item 65070; full blood examination), we observed that there was almost no out-of-pocket cost to the patient at a community pathology clinic, however a patient in a private hospital was out-of-pocket by over $7. This is because the fee charged by the private hospital pathology clinic was higher than the community clinic, even though there was little difference in the Medicare benefit paid. Additionally, the number of private hospital admissions for women in the 1921-26 cohort steadily increased with age. Together, these results help explain why old women had increasing out-of-pocket costs, but Medicare benefit paid did not similarly increase.

Figure 5-7. Mean out-of-pocket cost (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts). [38]

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[38] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort). Changes within a line reflect changes to the average out-of-pocket costs per woman.

The mean Medicare benefit paid for pathology services for women living in major cities was higher than for women living in regional and remote areas (Figure 5-8). For the 1946-51 cohort, the mean Medicare benefit paid for pathology services for women living in major cities was $122 at around age 47, increasing to $196 at around age 64. In contrast, the mean Medicare benefit paid for pathology services for women living in remote areas was below $100 before the age of 55, and increased to $120 per year by the age of 64. For the 1973-78 cohort, between age 33 and 39, women living in major cities had $43-55 per year and $26-37 per year more Medicare benefit paid for pathology services compared with remote area and regional women, respectively. The largest difference in the mean Medicare benefit paid for pathology services was for women in the 1921-26 cohort. Women living in major cities had $80-$122 and $30-$70 more Medicare benefit compared to women living in remote and regional areas, respectively. This was in agreement with the observation that women living in major cities made more MBS claims for pathology tests than women living in other areas.

Figure 5-8. Mean annual Medicare benefit paid (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [39]

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[39] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories, and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

Overall, across the three cohorts, women living in remote areas had the lowest out-of-pocket costs for pathology services (Figure 5-9), which was likely due to these women having fewer pathology tests than women living in a major city. Differences in out-of-pocket costs for the 1973-78 cohort peaked at around age 33, when costs were highest for women in major cities. In the 1946-51 cohort, women in the major cities had the highest out-of-pocket costs, and women living in remote areas had the lowest out-of-pocket costs. The greatest difference of $13 per year was observed at the age of 61 for this cohort. Larger and increasing differences in out-of-pocket costs were observed for women in the 1921-26 cohort, with women living in major cities having between $7 and $44 more out-of-pocket costs for pathology services than those living in remote areas. Regional women also had slightly higher out-of-pocket costs of pathology services than women living in remote areas, particularly between the age of 81 and 90.
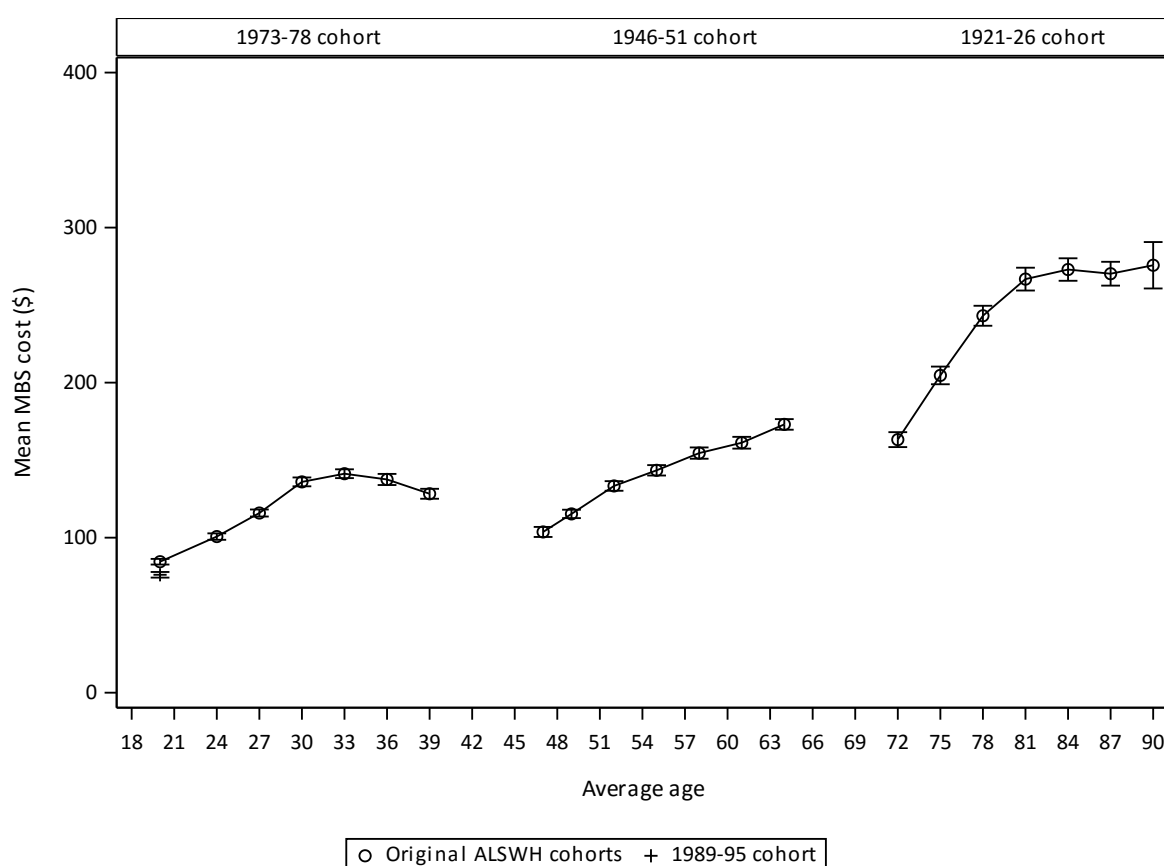

Figure 5-9. Mean annual out-of-pocket cost (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by area of residence. [40]

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[40] Only a small percentage of women moved between area of residence categories between surveys. For all cohorts, 60-70% of women did not move between area of residence categories and 20-25% of women moved to the adjacent area of residence, e.g., from a major city to a regional area.

There was very little difference in pathology service costs according to education (Figure 5-10). In the 1973-78 cohort, the mean Medicare benefit paid for pathology services was highest in women with less than Year 12 qualification until approximately the age of 24. Until the age of 27, women with a university degree had the lowest Medicare benefit paid for pathology services. However, between the ages of 30 and 36, women with a university degree had $16-44, $22-39 and $6-26 more Medicare benefit paid for pathology services compared to those women with qualifications less than Year 12, Year 12 or equivalent and certificate/diploma, respectively. For the 1946-51 cohort, there was little difference in mean Medicare benefit paid for pathology services when women were categorised according to highest educational qualifications.

For the 1921-26 cohort, except at the ages of 72 and 90, women with a university degree had the highest mean Medicare benefit paid for pathology services. The differences in mean Medicare benefit paid for pathology services between women with a university degree and those who had less than Year 12 qualifications ranged from $18 (mean age 78) to $51 (mean age 81) per year .

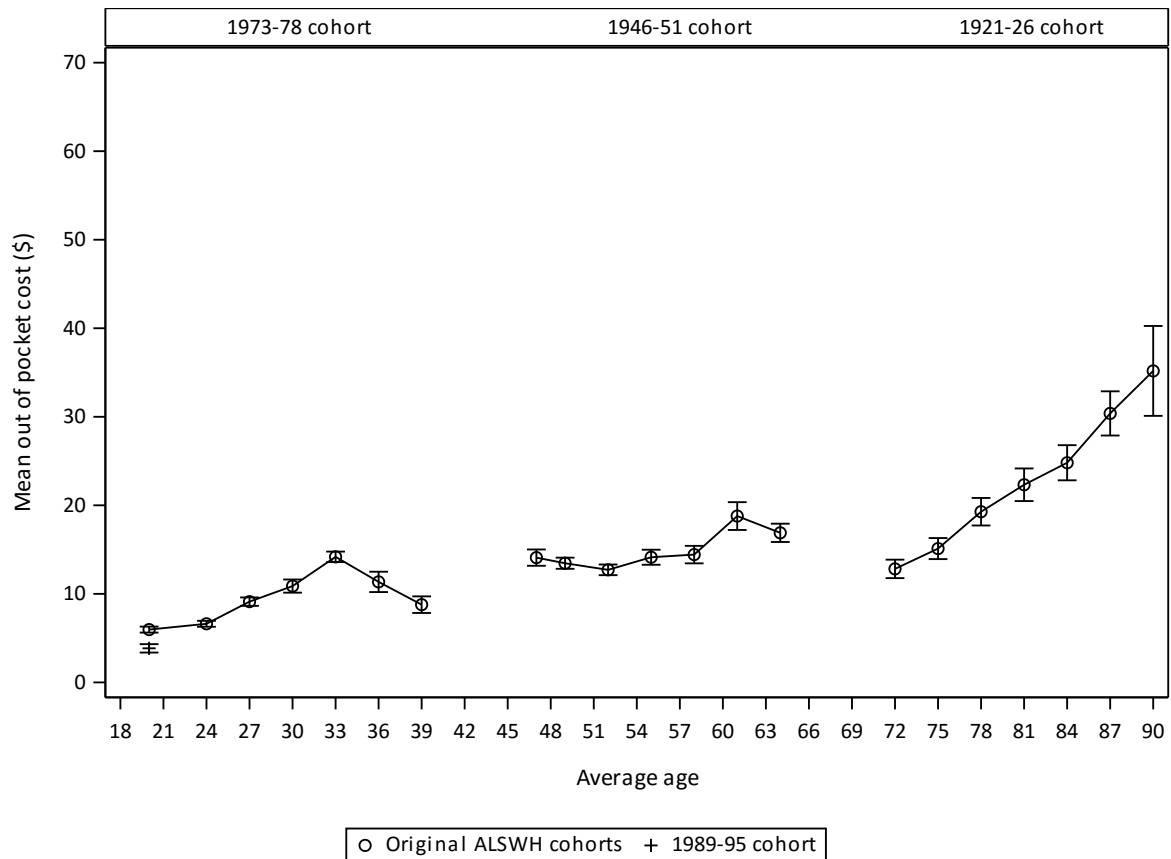**Figure 5-10. Mean annual Medicare benefit paid (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [41]**

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[41] Women may increase their level of education from one survey to the next.

Across all surveys, women with a university degree had the highest mean out-of-pocket costs and those who had less than Year 12 qualifications had the least (Figure 5-11). In the 1973-78 cohort, from the age of 20 to 27 years, there was little difference in mean out-of-pocket costs for pathology services for women with different educational qualifications. For women aged 30 to 36, those with a university degree had the highest out-of-pocket costs whereas those with less than Year 12 qualifications had the lowest. Similarly, for the 1946-51 cohort there was little difference in mean out-of-pocket costs for pathology services for women with different educational qualifications. In the 1921-26 cohort, women in their 80s who had a university degree had about 2 times higher mean out-of-pocket costs than women who had less than Year 12 qualifications.

Figure 5-11. Mean annual out-of-pocket cost (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by highest education level. [42]

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[42] Women may increase their level of education from one survey to the next.

Women in the 1946-51 and 1921-26 cohorts who had difficulty managing on their income had slightly higher mean Medicare benefits paid for pathology services than those who found it easier to manage on their income (Figure 5-12). This corresponds with the higher pathology services used by women who had difficulty managing on their income (Figure 5-5). In the 1973-78 cohort, there was little difference in mean Medicare benefit paid for pathology services by ability to manage on income categories.
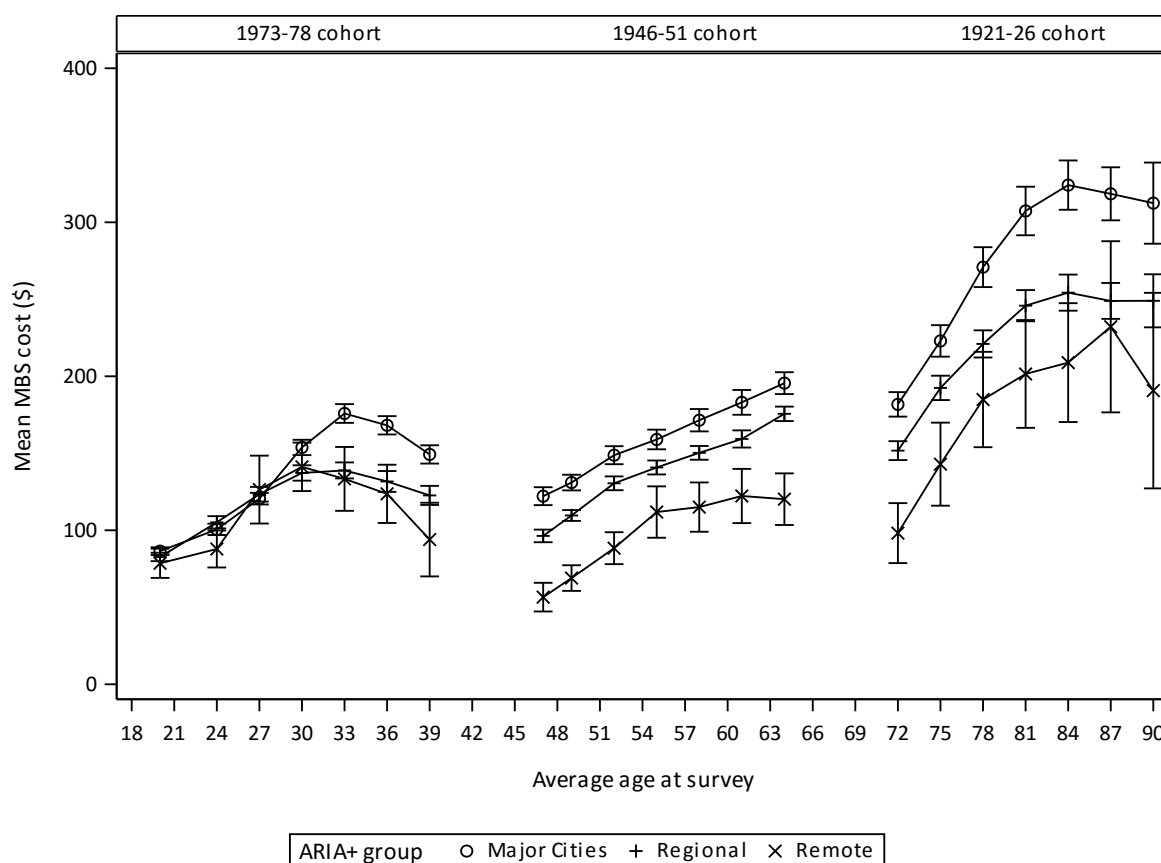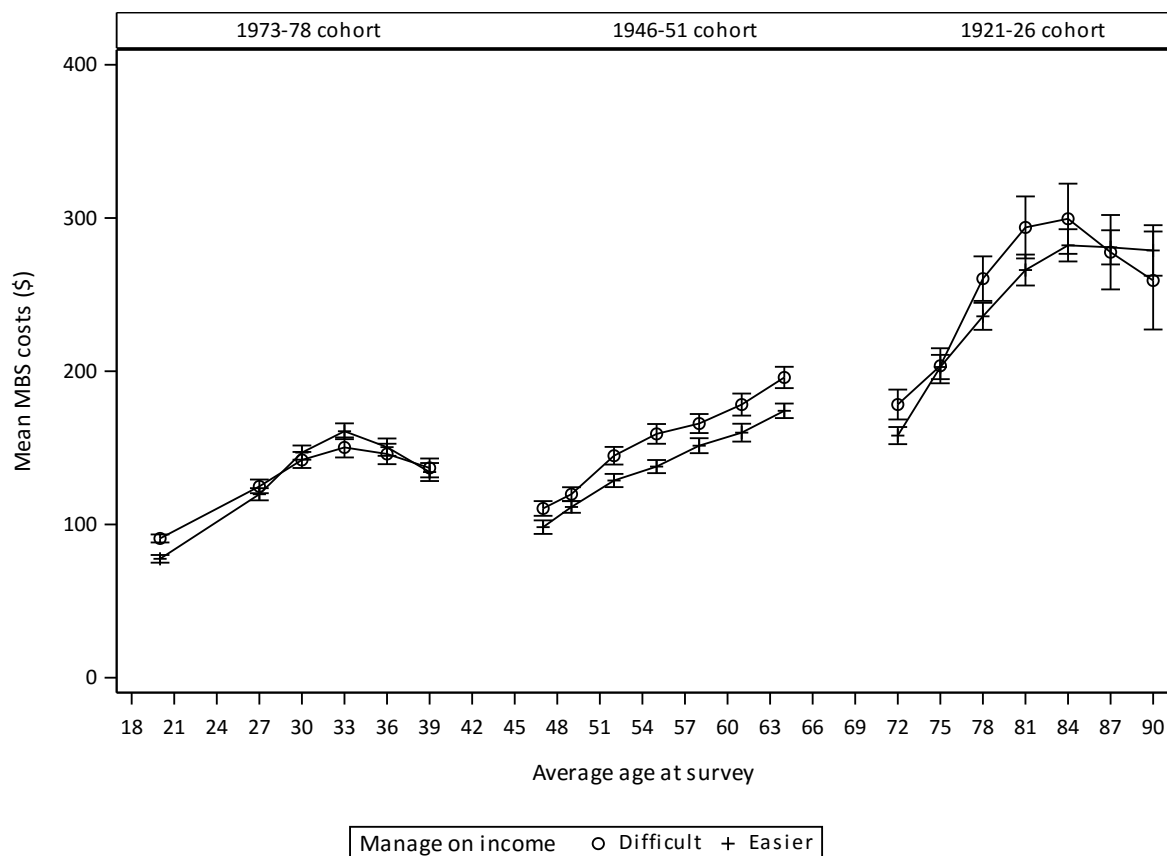

Figure 5-12. Mean annual Medicare benefit paid (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by ability to manage on income. [43]

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[43] The level of difficulty managing on income reported by the woman may change from one survey to the next.

In all cohorts, there was little difference in mean out-of-pocket costs for pathology services between women who had difficulty managing on income and those who found it easier (Figure 5-13). Across the three cohorts, women who had difficulty managing on income had slightly lower mean out-of-pocket costs for pathology services. The highest mean difference ($11 per year) was observed around the age of 87.
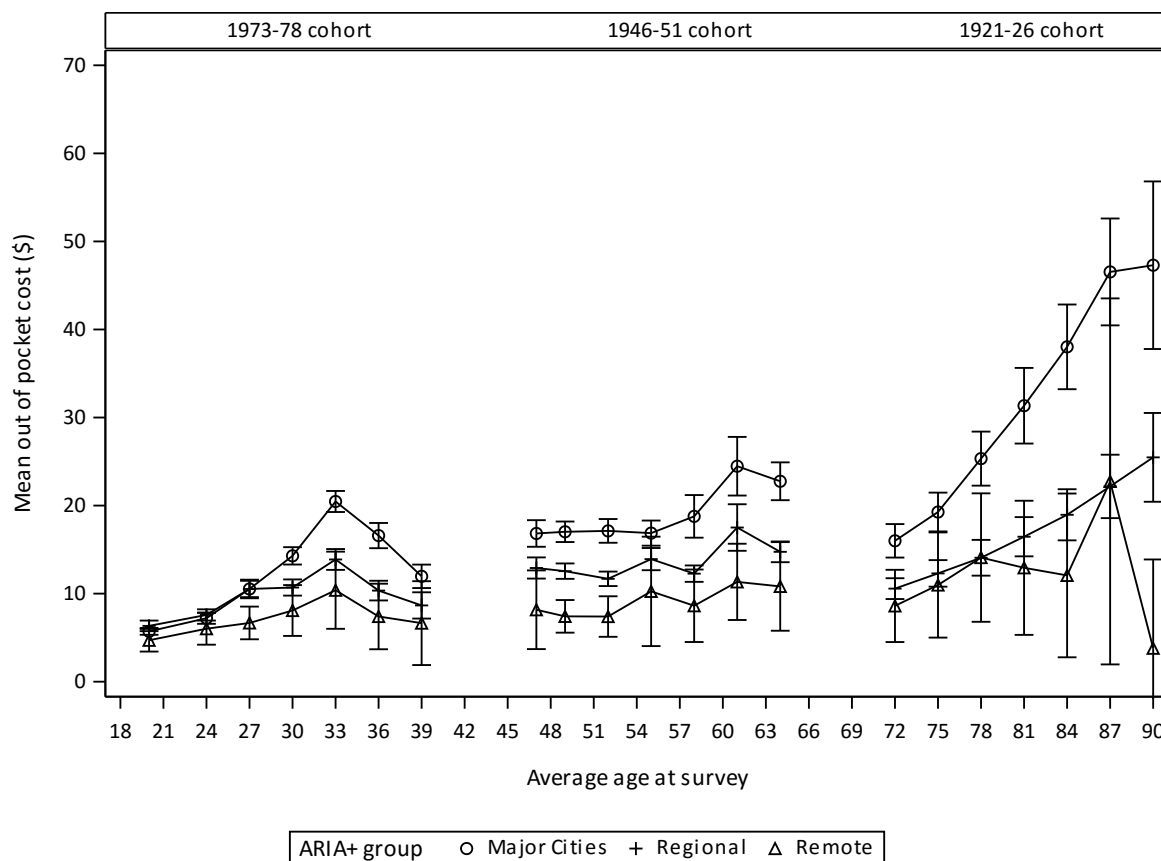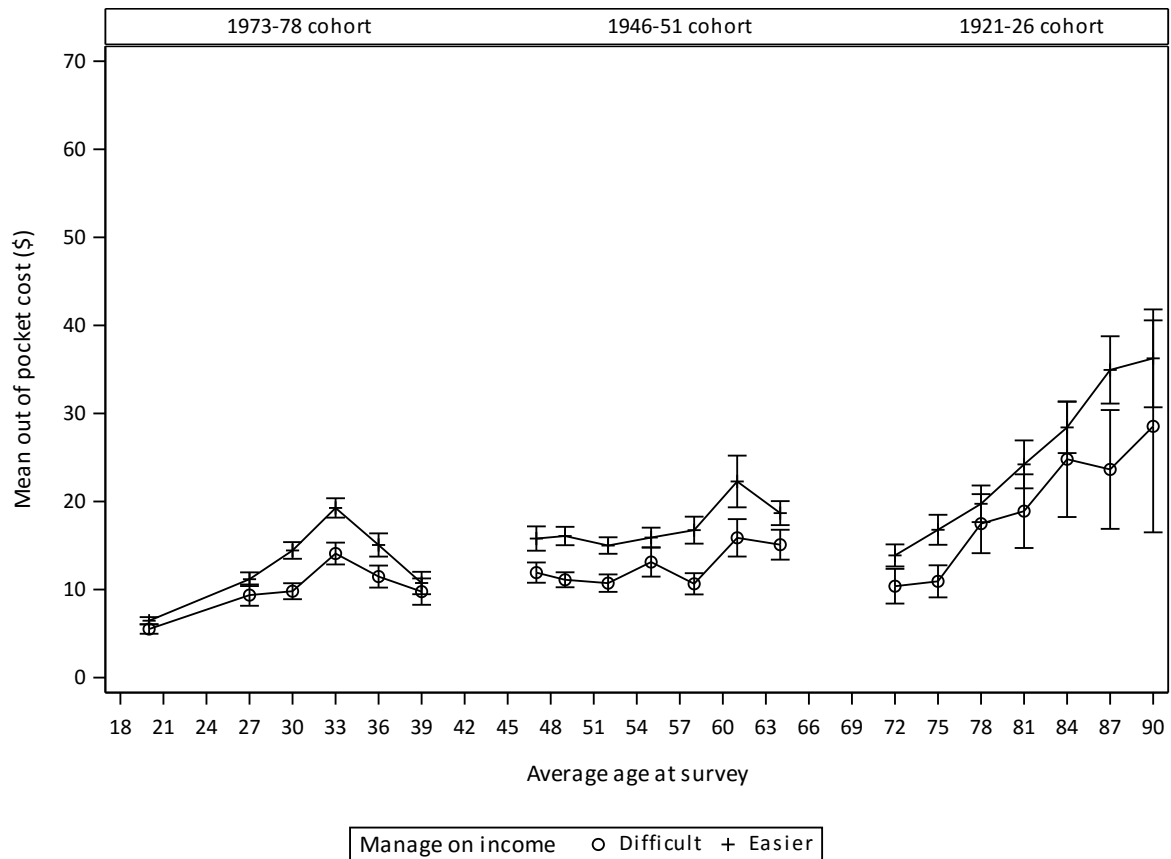

Figure 5-13. Mean annual out-of-pocket cost (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by difficulty managing on income. [44]

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[44] The level of difficulty managing on income reported by the woman may change from one survey to the next.

Women who had a health care card in the 1946-51 cohort had $26-37 more benefits for pathology services than those who did not (Figure 5-14). There were no differences in Medicare benefits according to health card status in other cohorts.
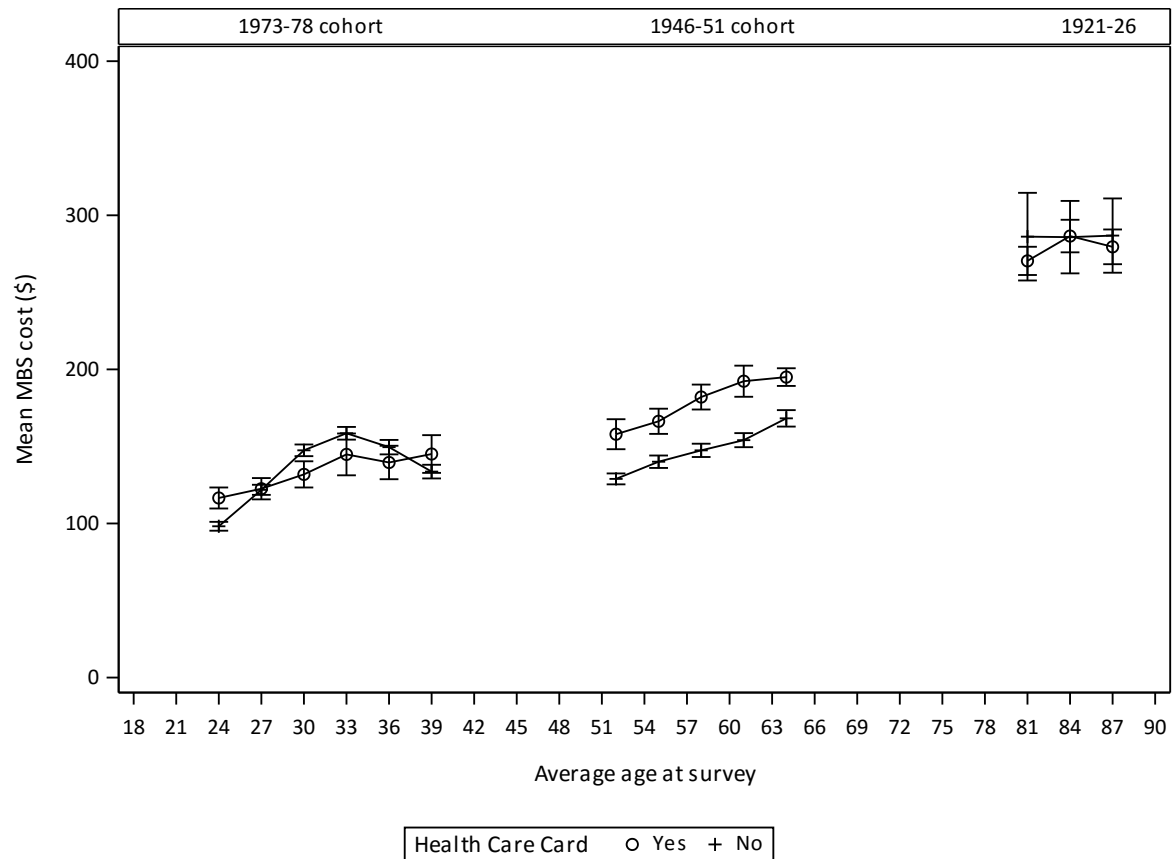
Figure 5-14. Mean annual Medicare benefit paid (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [45]

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[45] Health care card status reported by the woman may change from one survey to the next.

Across the three cohorts, women who did not have a health care card had more out-of-pocket costs for pathology services than women who had a health care card, although the differences were small in the 1973-78 and 1946-51 cohorts (Figure 5-15). In the 1973-78 cohort, women in their early and mid-30s who did not have a health care card had about $10 per year more out-of-pocket costs for pathology services compared to similar age women who had a health care card. Similarly, for the 1946-51 cohort, women between the ages of 52 and 58 years who did not have a health care card had about $8 per year more out-of-pocket costs for pathology services than similar aged women who had a health care card. Out-of-pocket costs were around two times higher for women in the 1921-26 cohort who had no health care card, compared to women with a health care card.

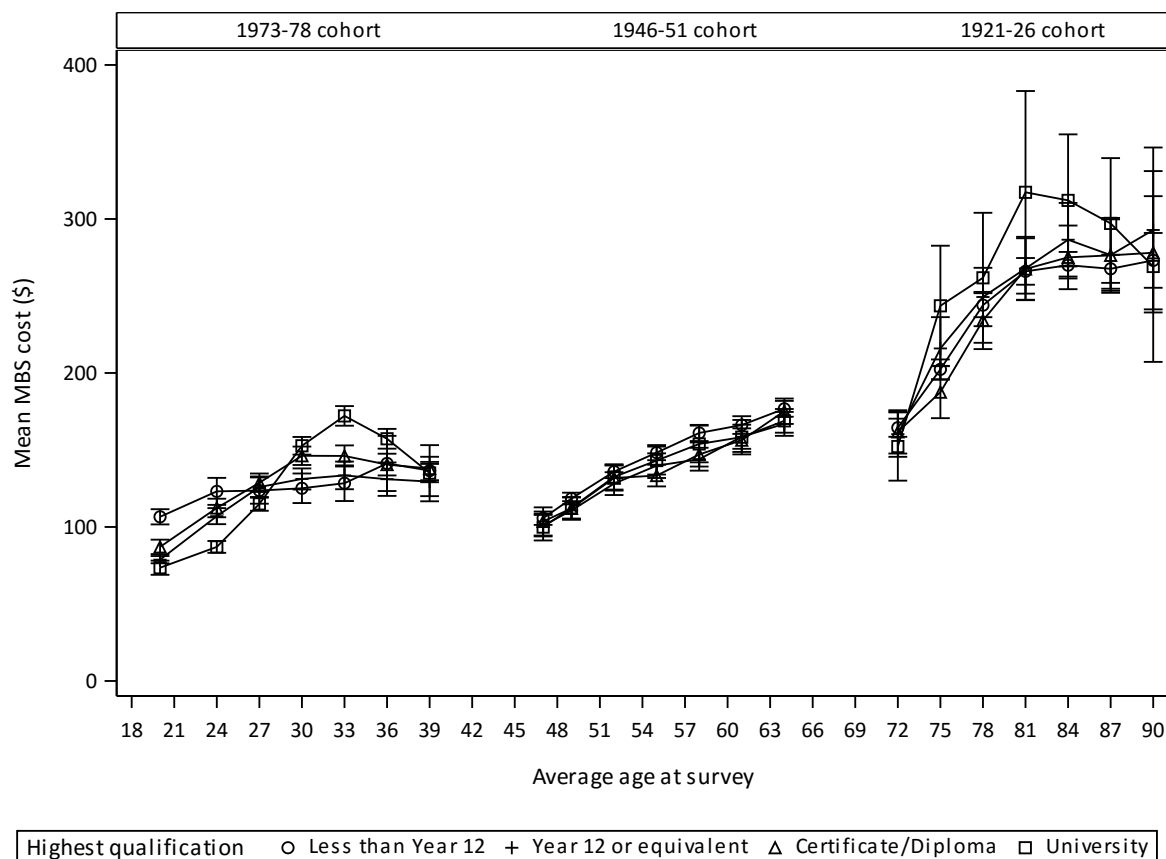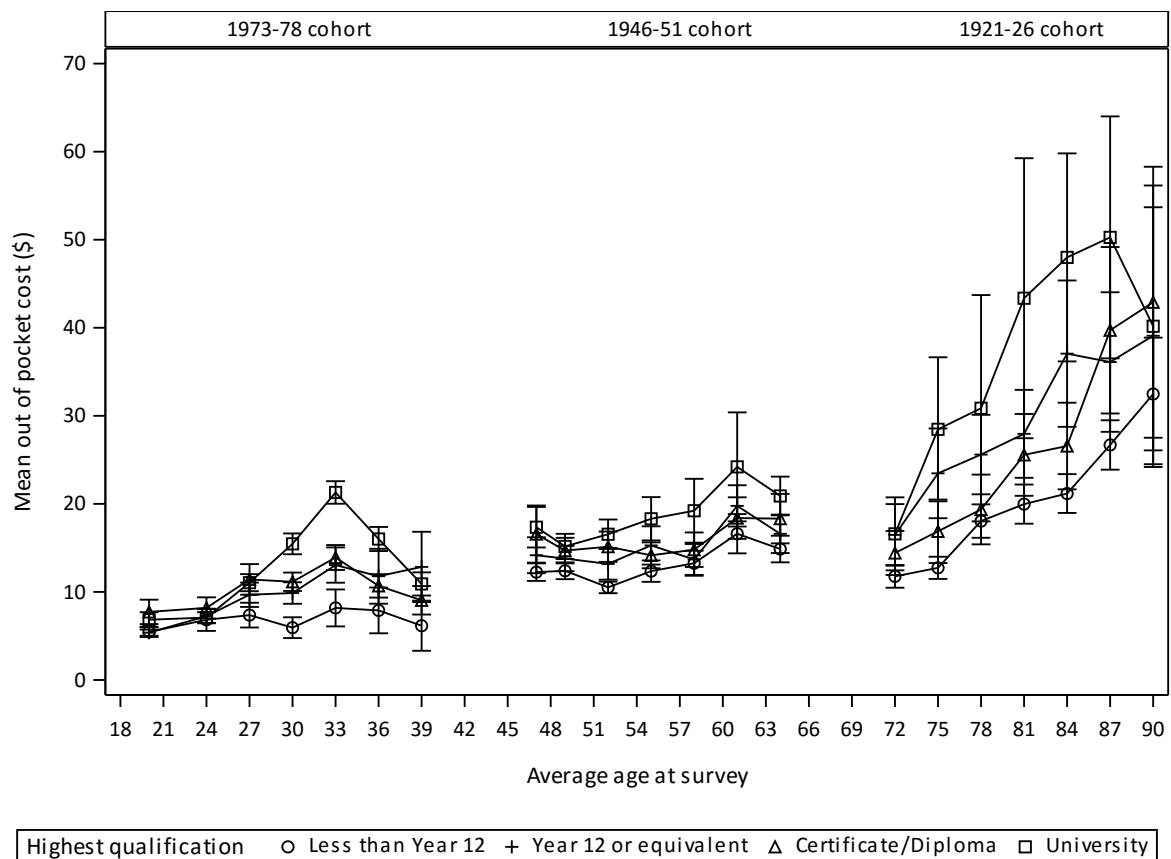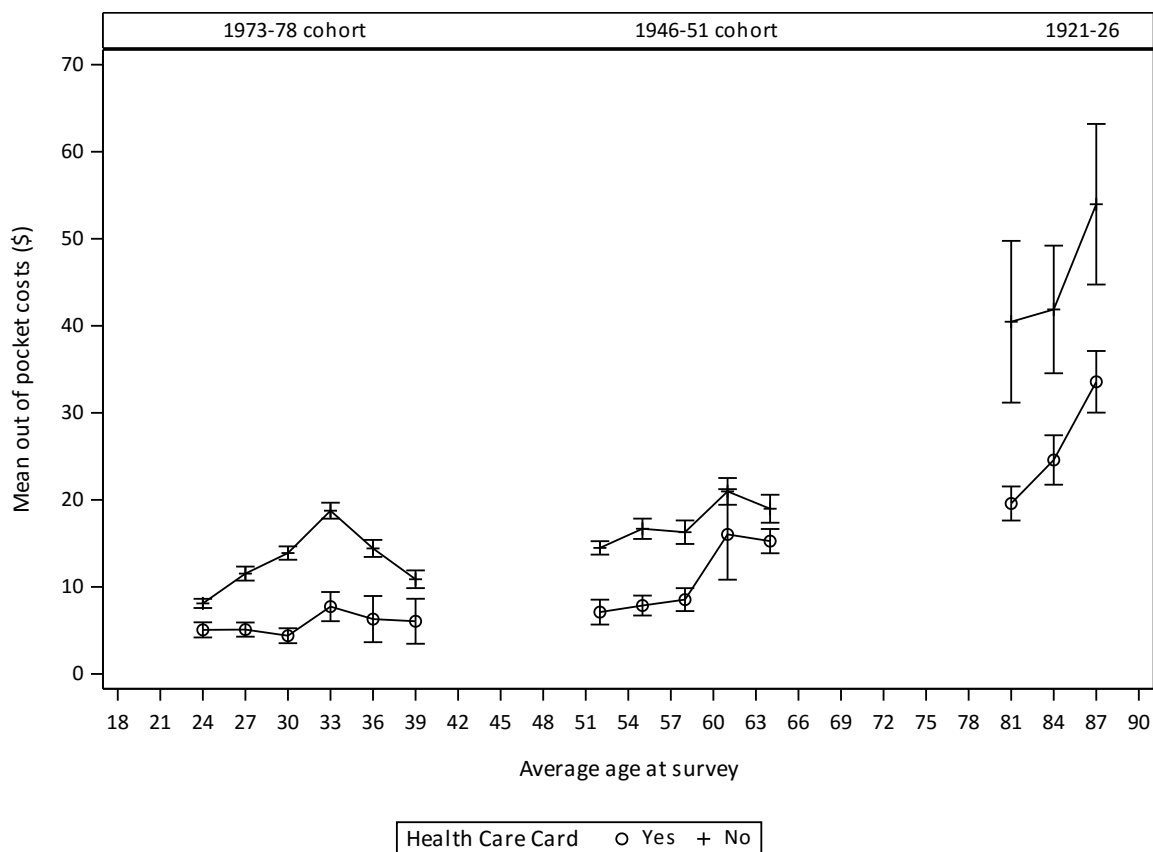**Figure 5-15. Mean annual out-of-pocket cost (in 2014 Australian dollars) for pathology services for women across the life course (1973-78, 1946-51, 1921-26 cohorts), categorised by health care card status. [46]**

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[46] Health care card status reported by the woman may change from one survey to the next.

5.2.1. Key points

- The mean number of pathology claims and the Medicare benefits paid increased with age with a small peak around the age of 30, presumably for obstetric-related pathology tests.

- In older women, although the number of pathology tests and out-of-pocket costs increased with age, the Medicare benefits paid stabilised at the age of 80. This may be explained by the increasing number of private hospital admissions by women in this age group and the higher fees charged by private hospitals for pathology tests.

- Women living in a major city made more MBS claims for pathology tests than women living in remote areas and consequently, had higher Medicare benefits paid and out-of-pocket costs.

- Mid-aged women with difficulty managing on income had slightly more pathology tests than women who found it easier to manage on income, likely due to poorer health. This was also reflected in the amount of Medicare benefit paid, however mid-aged women with difficulty managing on income had lower out-of-pocket costs than those who had no difficulty.

- Mid-aged women with a health care card also had more pathology tests than those without a health care card, however they had higher Medicare benefits and lower out-of-pocket costs.

6. USE OF MEDICARE SERVICES BEFORE AND AFTER KEY LIFE EVENTS

6.1. Birth of first child

Figure 6-1 shows the mean number of GP services for women in the 1973-78 cohort according to age, and according to whether or not they had recently given birth to their first child.[47]

The periods before and after the birth of the first child were associated with lower mean number of GP services compared to other women. Women visited the GP an average of 3-4 times in the 12 months before and after the birth of their first child, with little difference in the number of GP services made before and after birth. Women typically visit the GP first to confirm the pregnancy and to obtain a referral to either a private obstetrician or public hospital. Although one of the models of maternity care available involves check-ups with a GP throughout pregnancy, known as Shared Care, Figure 2-1 suggests that this is not the predominant model of care. In contrast, women who had given birth to their first child more than 12 months ago had the highest mean number of GP services. The next highest rate of services was among those who had never given birth, and at age 35 these women had a similar mean number of services to those who had delivered more than 12 months ago.

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[47] At each age, the mean number of services are shown for 12 months prior to birth for women who had given birth to a first child at that age, and 12 months after the birth for women who had given birth 12 months earlier. For comparison, the mean number of services for the past 12 months for women of the same age who either gave birth more than 12 months ago, or who had not given birth, are also provided.

1973-78 cohort

○ 12 months before birth   + Did not give birth   △ 12 months following birth   □ >12 months following birth
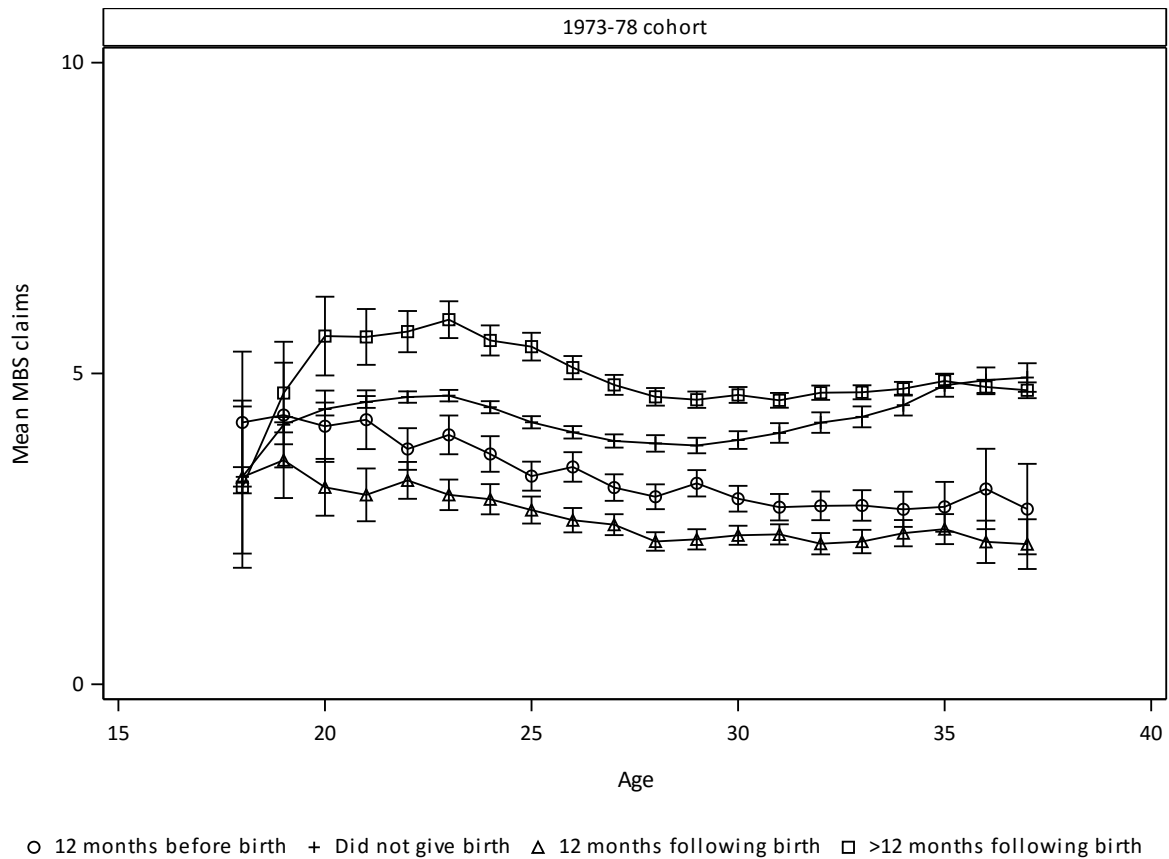
Figure 6-1. Mean annual number of GP services by women in the 1973-78 cohort, classified according to time since birth of first child. [48]

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[48] For all graphs in this section, the denominator at each point is the maximum number of women returning a survey at that time point, excluding women who had opted out of data linkage and women with DVA gold cards. There is some attrition over time due to loss to survey follow-up or death (particularly in the older cohort).

A similar analysis of specialist services shows a higher rate of specialist services in the 12 months prior to first birth, with approximately 4-7 services in the 12 months before the birth, and with the number of services increasing with the age of the woman (Figure 6-2). This in agreement with the previous observation that women used fewer GP services in the 12 months prior to birth because it is likely that they consulted a specialist. Women also used fewer GP services and more specialist services with age, which may be related to the increasing prevalence of pregnancy complications and fertility problems with age. Additionally, the percentage of women who had private health insurance with hospital cover increased from 32.7% when they were aged 22-27 years to 72.1% when they were aged 37-42 years. In contrast, women consulted a specialist only 2-3 times in the 12 months after giving birth. Women who had never given birth had a mean of 1 or 2 specialist consultations each year, with the number of services increasing with age.

○ 12 months before birth   + Did not give birth   × 12 months following birth   △ >12 months following birth
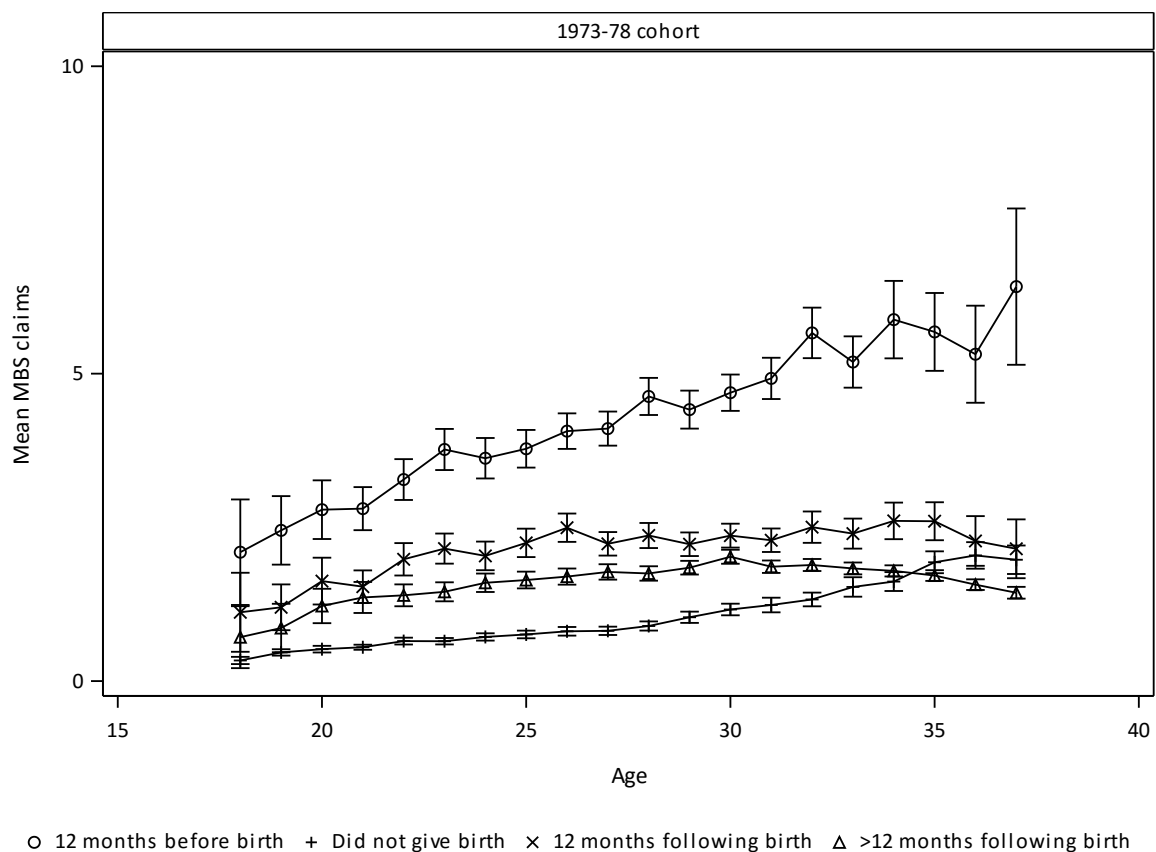
Figure 6-2. Mean annual number of specialist services (including obstetrics) by women in the 1973-78 cohort, classified according to time since birth of first child.

Women in the 1973-78 cohort had about 6 to12 and 1 to 4 pathology services in the 12 months prior to and after the birth of their first child respectively (Figure 6-3). Overall, pathology claims were highest in the 12 months prior to the birth of the first child, which is expected as part of standard maternity care, and were lowest in the 12 months following the birth of the first child. The number of pathology claims were lower in women who had never given birth, particularly before the average age of 34 years.

○ 12 months before birth   + Did not give birth   × 12 months following birth   △ >12 months following birth
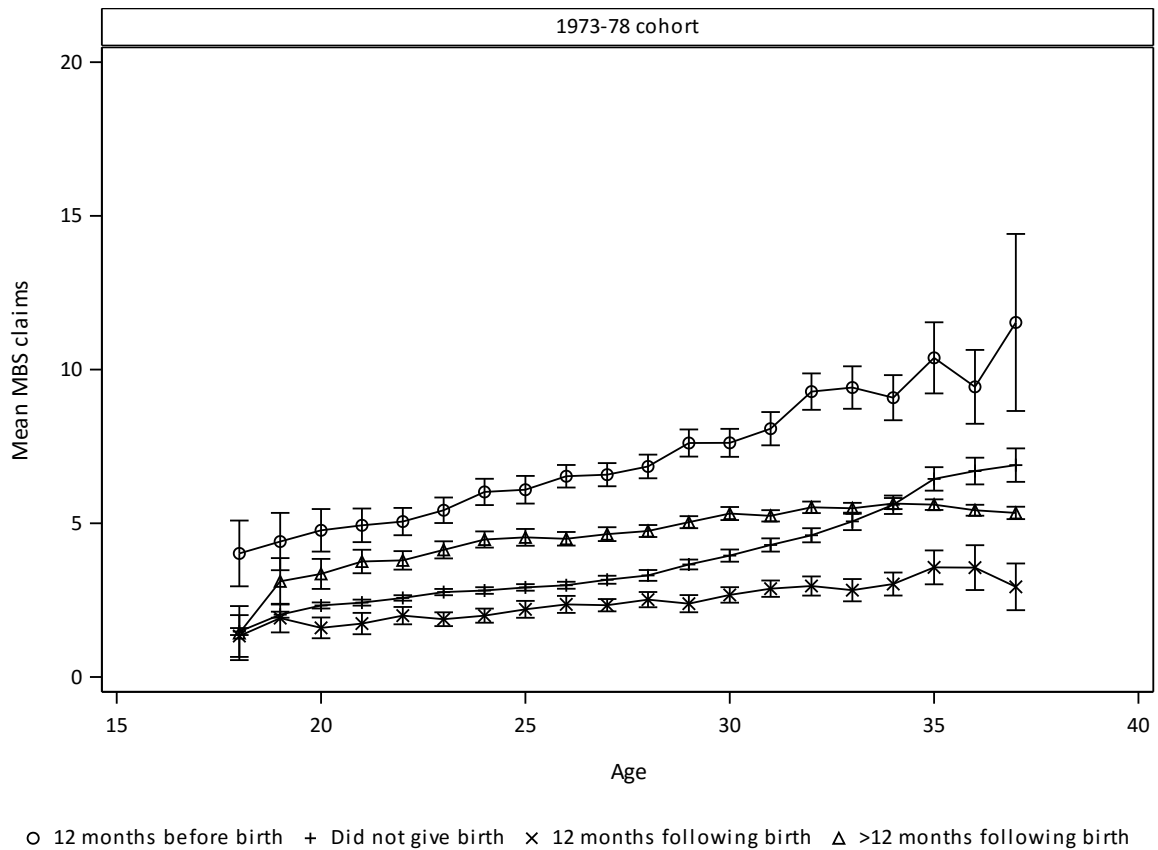
Figure 6-3. Mean annual number of pathology services for women in the 1973-78 cohort, classified according to time since birth of first child.

6.1.1. Key points

- The 12 month period before and after the birth of the first child was associated with a lower mean number of GP services, which is likely due to maternity care being transferred to a private obstetrician or public hospital after the initial GP consultations.

- Women who had given birth to their first child more than 12 months ago had the highest mean number of GP services.

- There was a higher rate of specialist services in the 12 months prior to first birth, with the number of services increasing with the age of the woman.

- Pathology claims were highest in 12 months prior to the birth of the first child, and were lowest 12 months following the birth of the first child.

6.2. Menopause/hysterectomy

In the 1946-51 cohort, at each age, women who were post-menopausal had the highest mean annual number of GP services, whereas women who were within 12 months of menopause had the lowest (Figure 6-4).
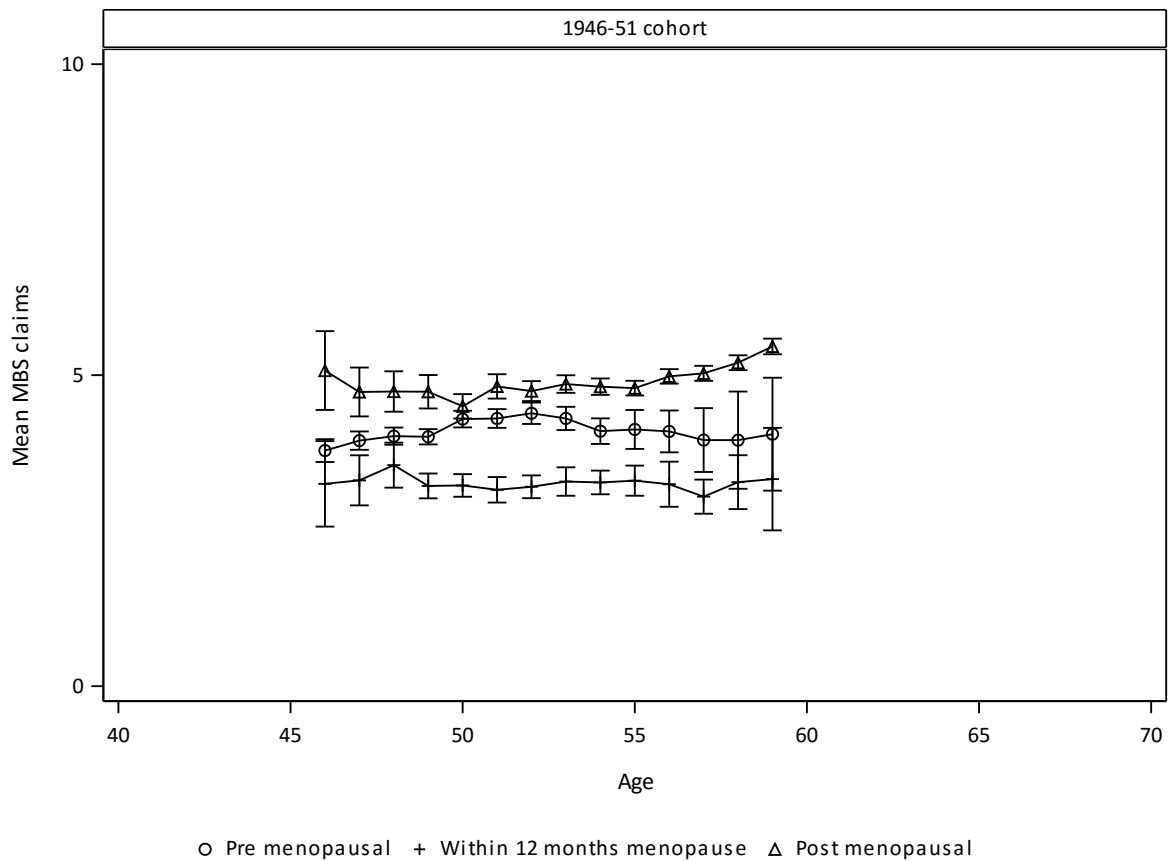
Figure 6-4. Mean annual number of GP services by women in the 1946-51 cohort, classified according to menopause status.

In contrast, there was little difference in the number of specialist services according to menopause status (i.e., pre-menopause, within 12 months of menopause and postmenopausal) (Figure 6-5).
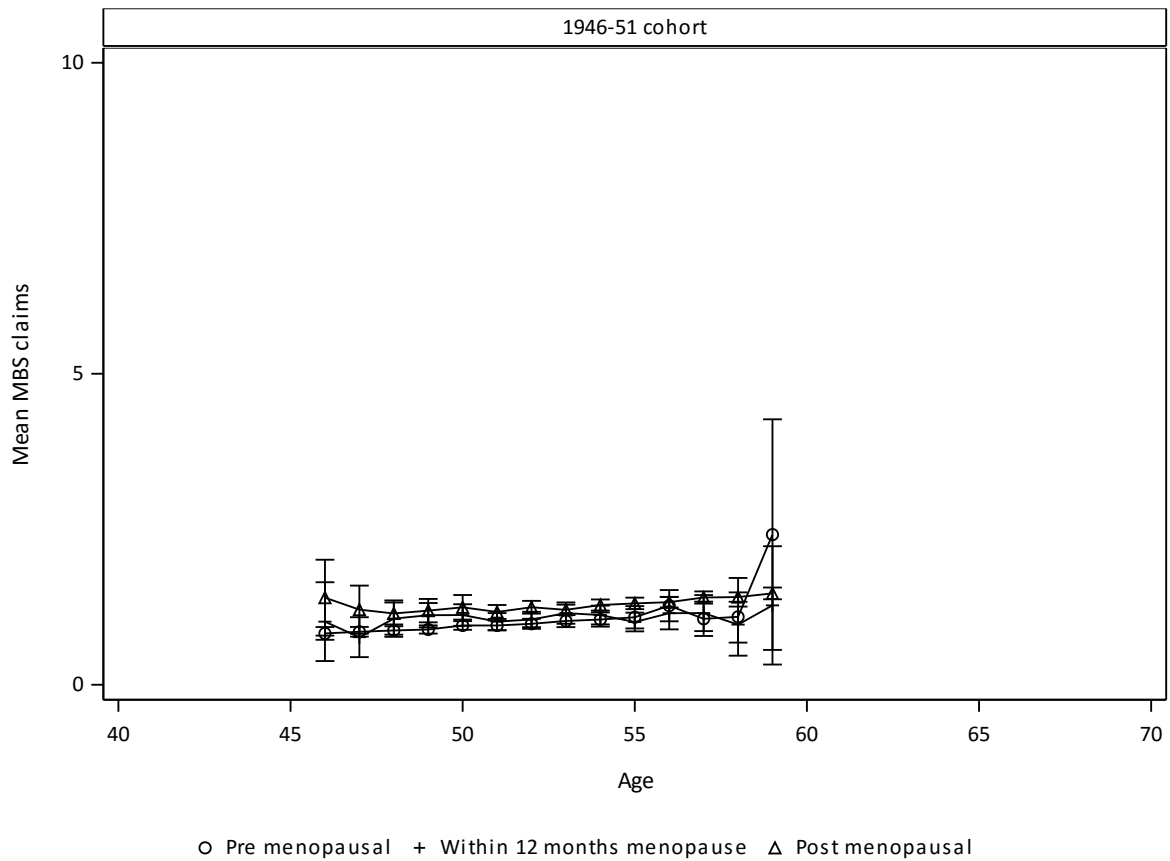
Figure 6-5. Mean annual number of specialist services by women in the 1946-51 cohort, classified according to menopause status.

Up until age 50, there was little difference in the use of pathology services by women in the 1946-51 cohort according to menopausal status. For each age after 50, the use of pathology services was higher for postmenopausal women than women of the same age who were premenopausal or within 12 months of menopause. (Figure 6-6).
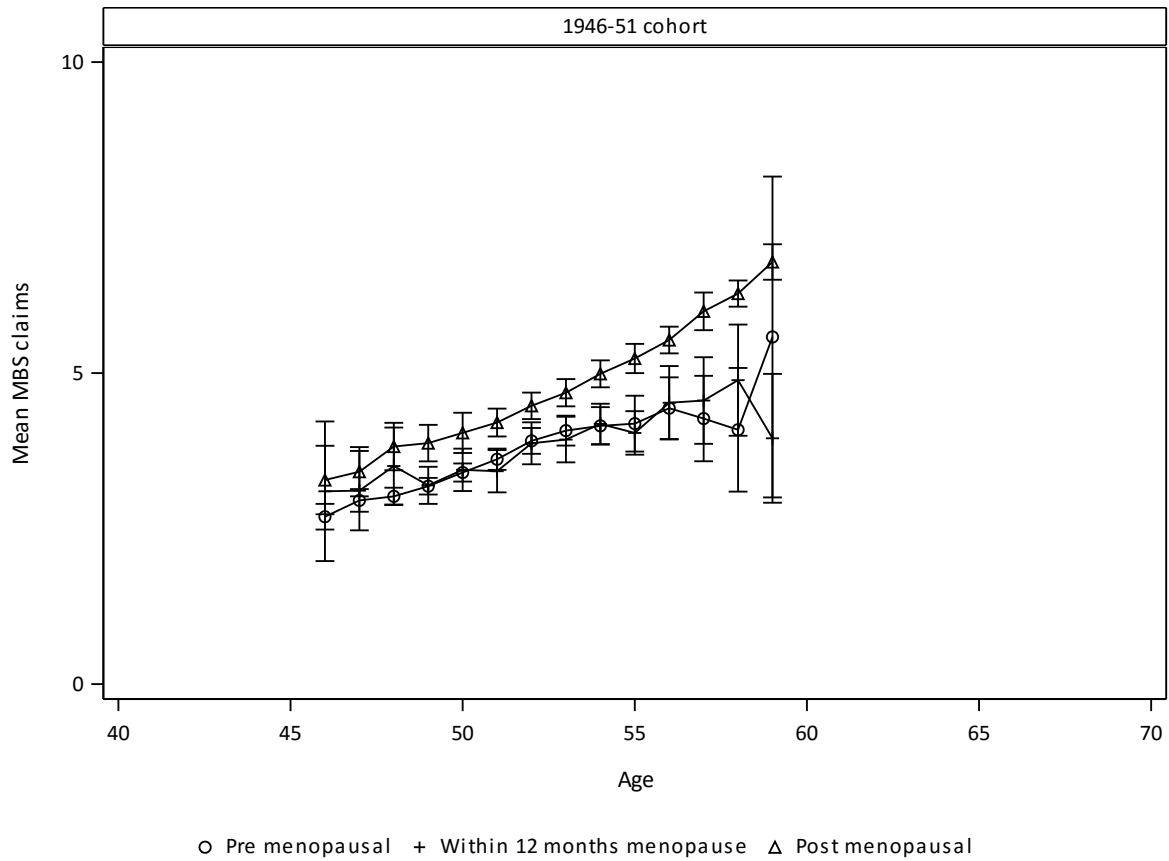
Figure 6-6. Mean annual number of pathology services by women in the 1946-51 cohort, classified according to menopause status.

Figure 6-7 shows the mean annual number of GP services in the 12 months prior to hysterectomy for women in the 1946-51 cohort. The annual number of services for women of the same age who had a hysterectomy more than 12 months ago, or who have never had a hysterectomy, are included for comparison. Women who had a hysterectomy more than 12 months earlier had the highest annual number of GP services, with the number of services increasing with age. The mean number of GP services was lowest for women who had a recent hysterectomy.

Figure 6-7. Mean annual number of GP services by women in the 1946-51 cohort, classified according to whether women have had a recent hysterectomy, a past hysterectomy, or no hysterectomy.

In contrast, the pattern of specialist services shows a higher number of specialist services in the 12 months prior to hysterectomy (Figure 6-8).

Figure 6-8. Mean annual number of specialist services by women in the 1946-51 cohort, classified according to whether women have had a recent hysterectomy, a past hysterectomy, or no hysterectomy.

There is little difference in the number of pathology services for women in the 1946-51 cohort who have or have not had a hysterectomy (Figure 6-9). Overall, women who had a hysterectomy had 1 to 8 more pathology services per year than women who have not had a hysterectomy. The highest difference (i.e., about 8 pathology services per year) was seen at the age of 64 years.

Figure 6-9. Mean annual number of pathology services by women in the 1946-51 cohort, classified according to whether women have had a recent hysterectomy, a past hysterectomy, or no hysterectomy.

6.2.1. Key points

- In the 1946-51 cohort, at each age, women who were postmenopausal had the highest mean annual number of GP services and women who were within 12 months of menopause had the lowest. There was little difference in the number of specialist services according to menopause status.

- For each age after 50, the use of pathology services was highest for postmenopausal women.

- Women who had a hysterectomy more than 12 months earlier had the highest annual number of GP services, with the number of services increasing with age. The mean number of GP services was lowest for women who had a recent hysterectomy.

- There were a higher number of specialist services in the 12 months prior to hysterectomy.

- There was little difference in the number of pathology services for women in the 1946-51 cohort who had or had not had a hysterectomy.

6.3. Falls requiring medical attention

Figure 6-10 shows the use of GP services in the 12 months prior to a reported fall requiring medical attention. Women reporting a fall had fewer GP services in the 12 months prior to the fall than other women, but more specialist services than women who had never reported a fall by the same age (Figure 6-11). Women reporting a fall more than 12 months earlier had the highest mean number of services which could be an indicator for poorer health overall.

O No fall   + Fall within 12 months   × Post fall
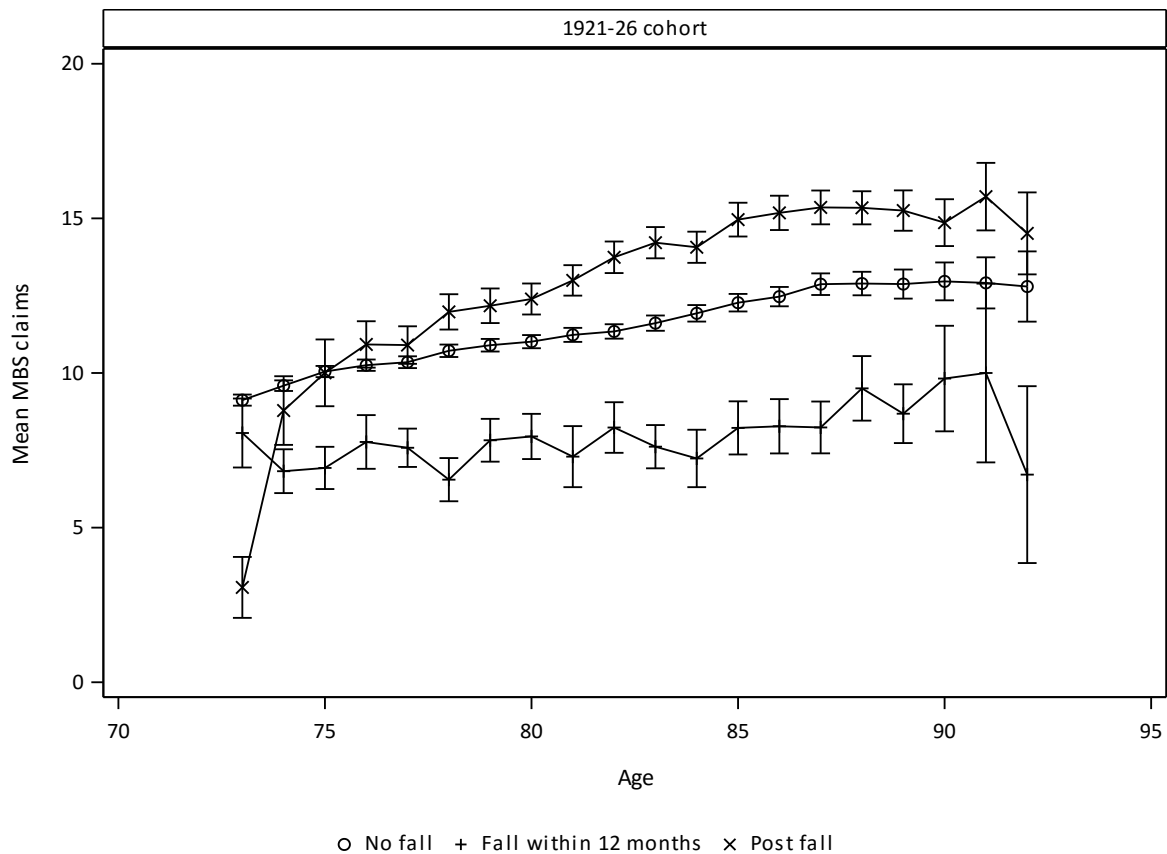
Figure 6-10. Mean annual number of GP services by women in the 1921-26 cohort, classified according to whether women have had a recent fall requiring medical attention.
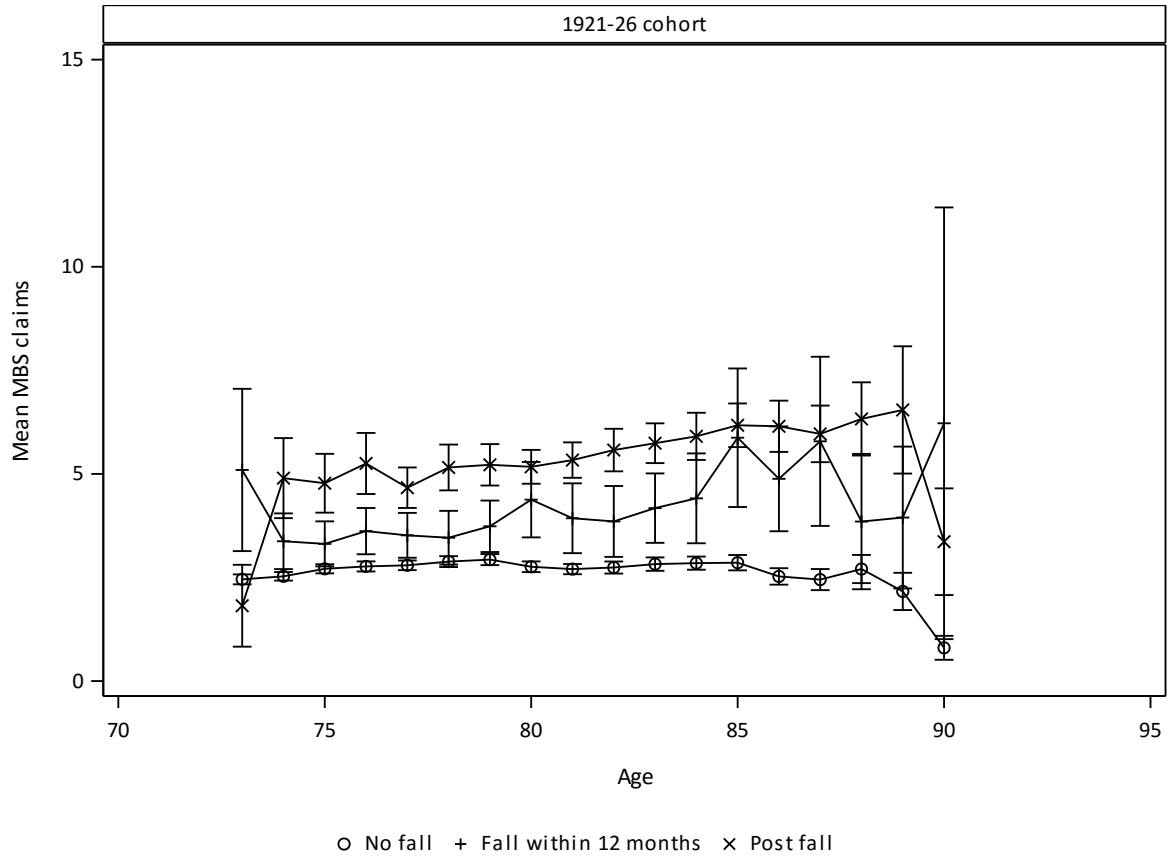
Figure 6-11. Mean annual number of specialist services by women in the 1921-26 cohort, classified according to whether women have had a recent fall requiring medical attention.

For women in the 1921-26 cohort, there was a very small difference in the number of pathology services within the 12 months prior to a fall requiring medical attention compared to women of the same age who had never reported a fall (Figure 6-12). However, women who had a fall more than 12 months ago had the highest mean number of pathology services. At the age of 90, these women had around 4 more pathology services per year than women who did not have a fall.

○ No fall   + Fall within 12 months   ✕ Post fall
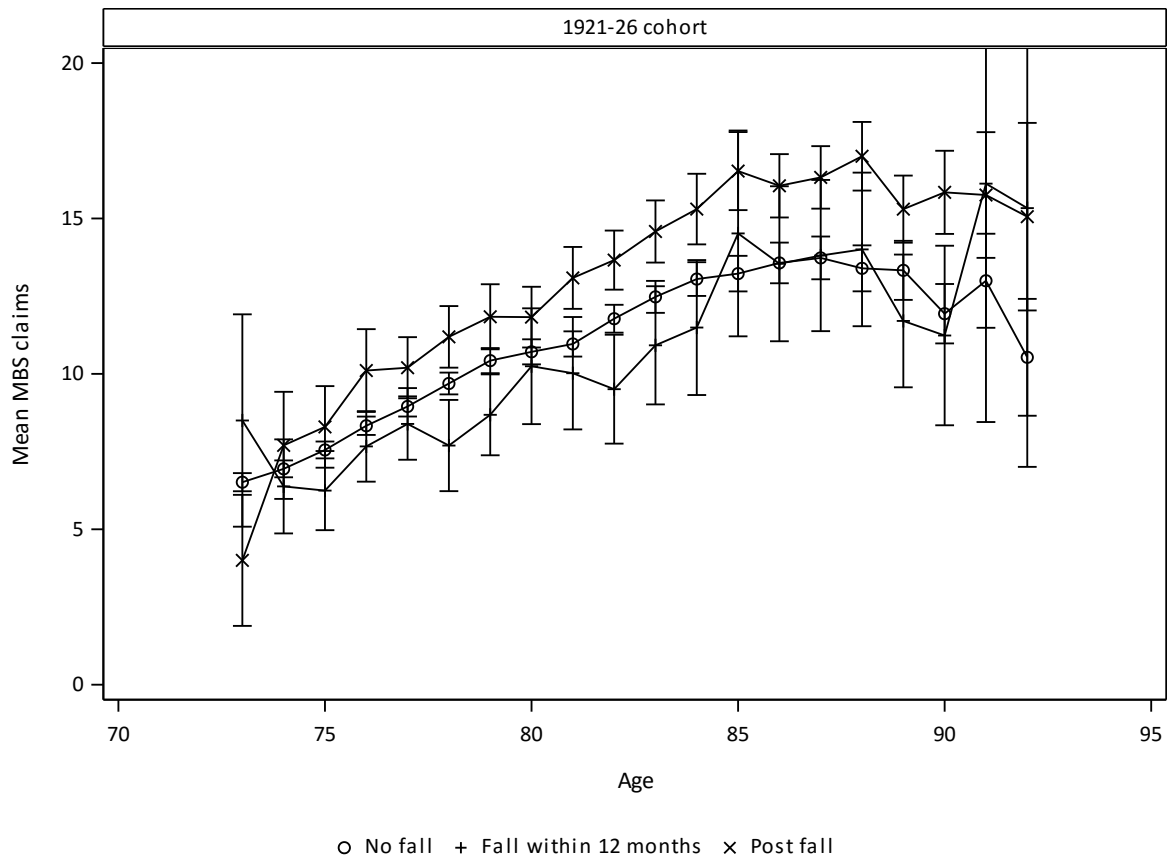
Figure 6-12. Mean annual number of pathology services by women in the 1921-26 cohort, classified according to whether women have had a recent fall requiring medical attention.

6.3.1. Key points

- In the 1921-26 cohort, women who had a past fall requiring medical attention had the highest mean number of GP services. However, in the 12 months prior to a fall, women had fewer GP services and more specialist services compared to other women of the same age.

6.4. Last year of life

Until the age of 80, there was little difference in the number of GP services used by women in the 1921-26 cohort who were in their last 12 months of life and those who were not (Figure 6-13). However, from the age of 81, the number of GP services by women in their last 12 months of life was much higher than for other women of the same age who were not in their last year of life. This difference became greater with increases in age, largely due to progressively fewer services being used by surviving women at the oldest ages.
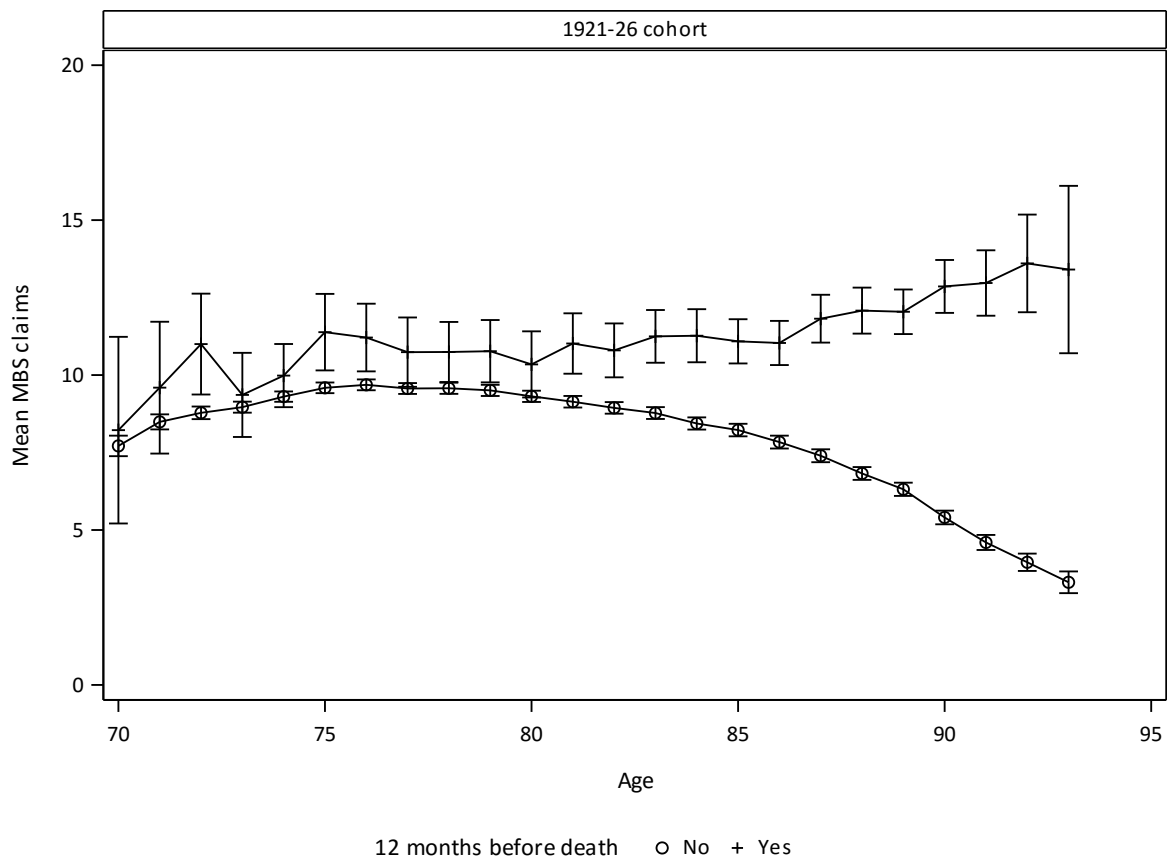
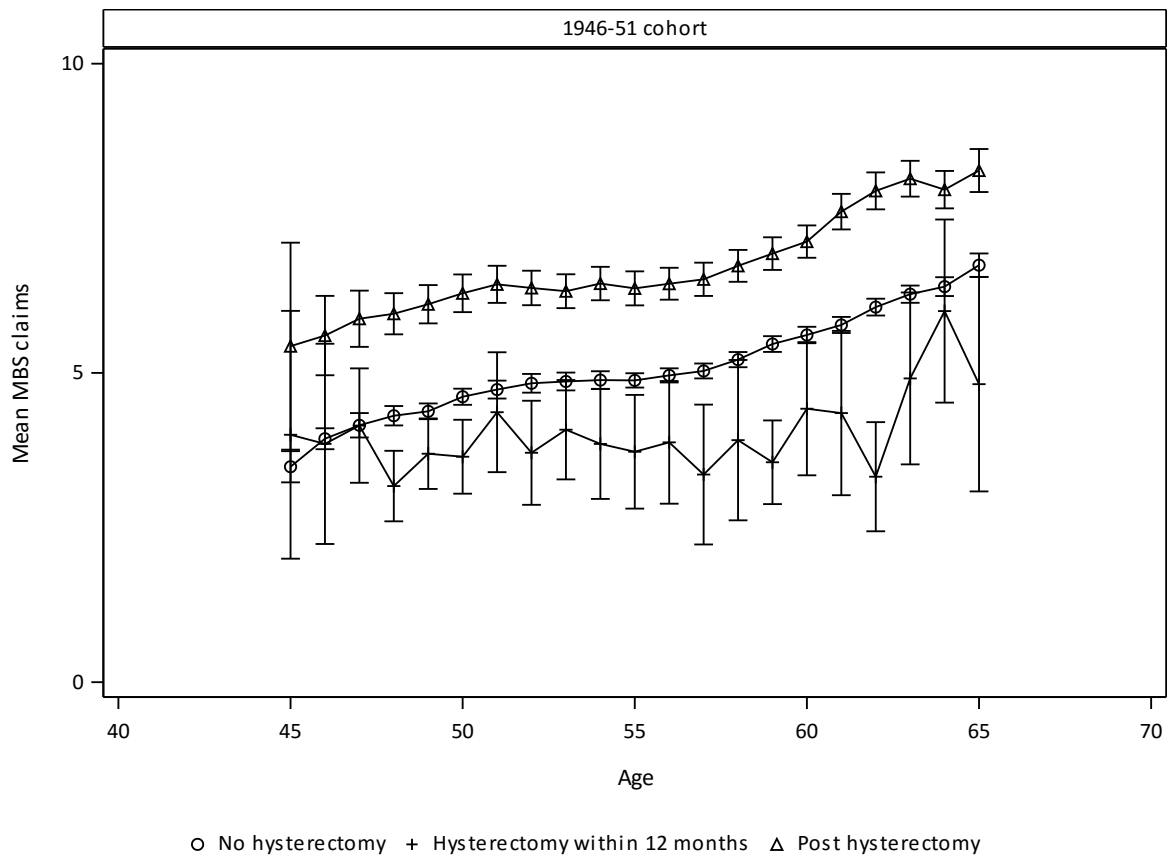**Figure 6-13. Mean annual number of GP services by women in the 1921-26 cohort, classified according to whether women are in the last year of life.**

The mean number of specialist services in the last year of life did not vary much by age. At each age point, women who were in their last 12 months of life had approximately 6 to 10 specialist services compared to 1 to 3 services by women who were not in their last year of life (Figure 6-14).
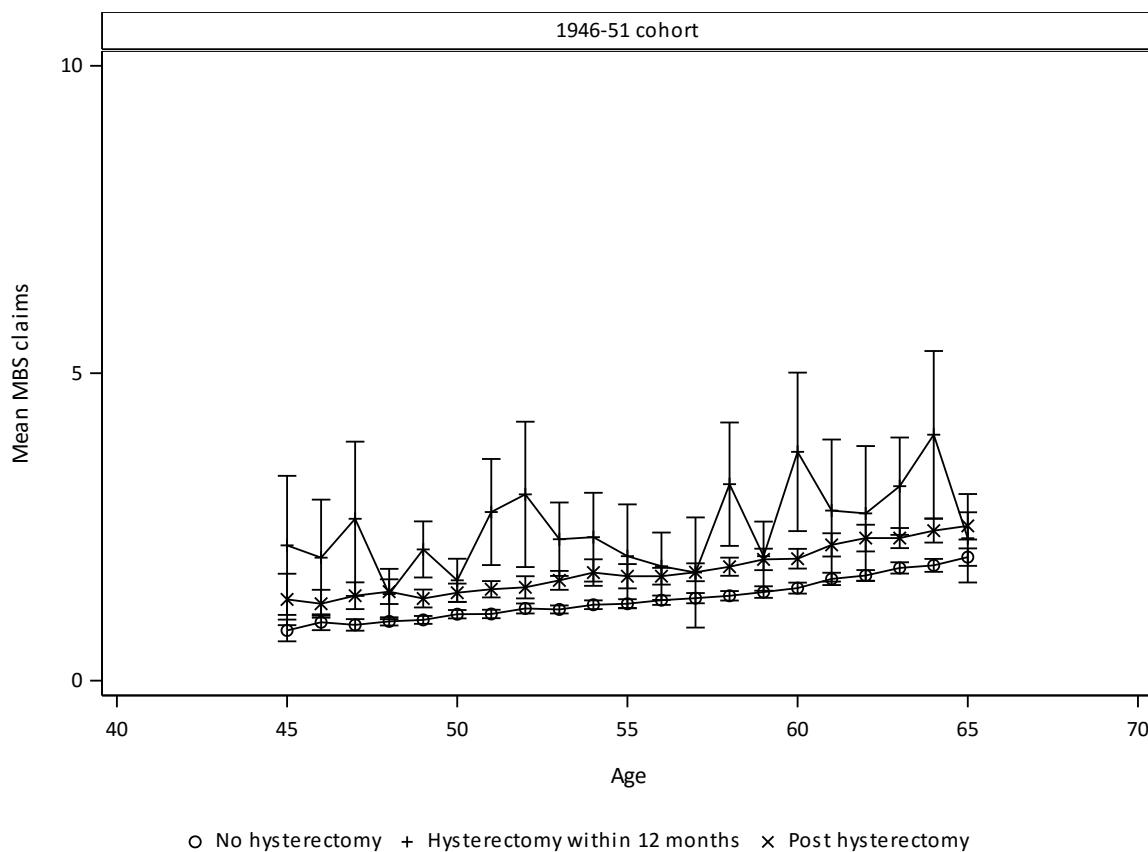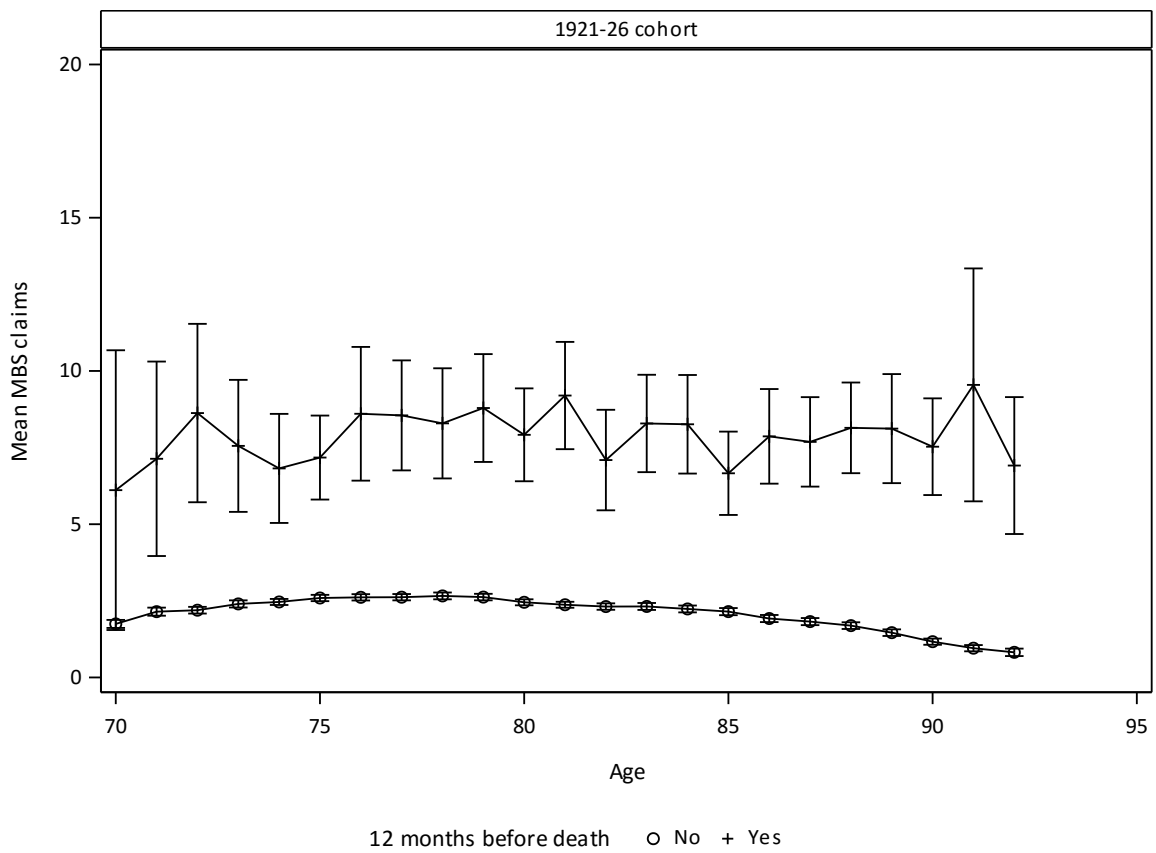

Figure 6-14. Mean annual number of specialist services by women in the 1921-26 cohort, classified according to whether women are in the last year of life.

In the 1921-26 cohort, pathology services were consistently higher for women who were in their last 12 months of life than for women who were not in their last 12 months of life. The mean differences in pathology services ranged from 13 (around 72 years of age) to 17 (92 years) per year (Figure 6-15).
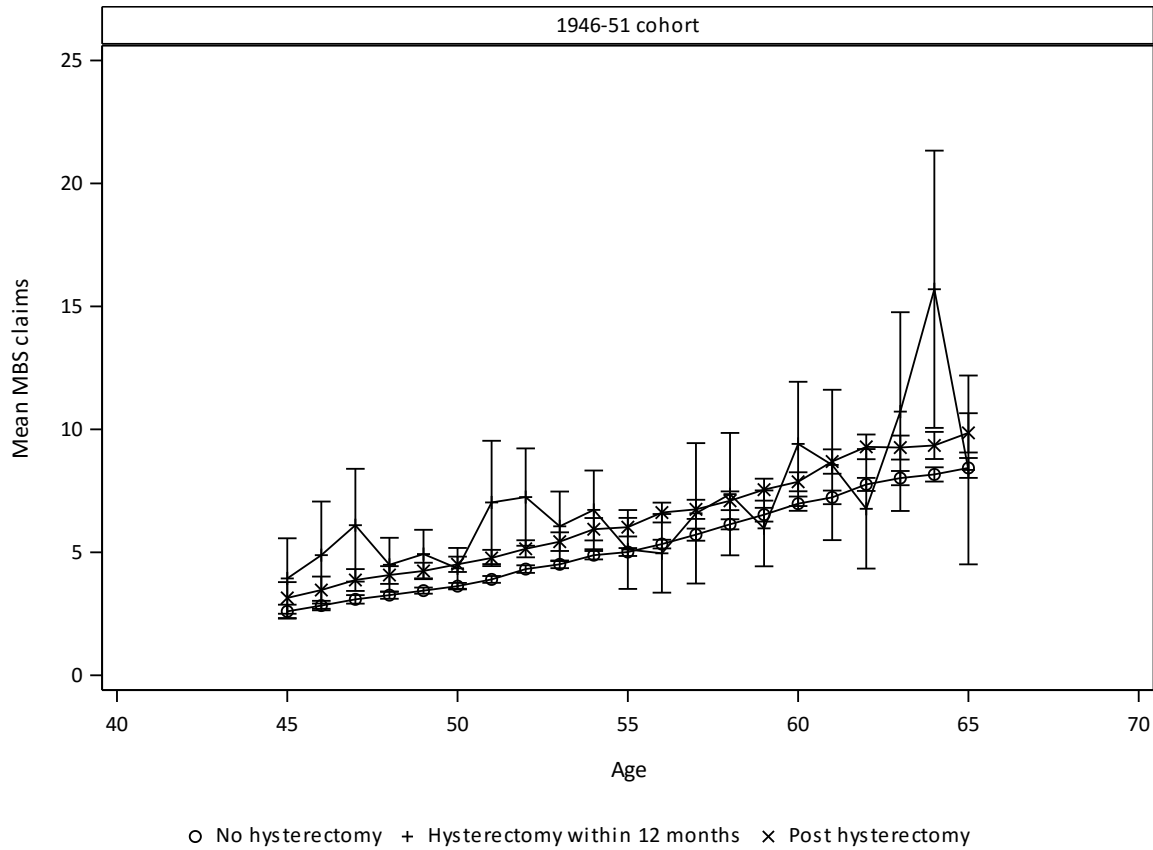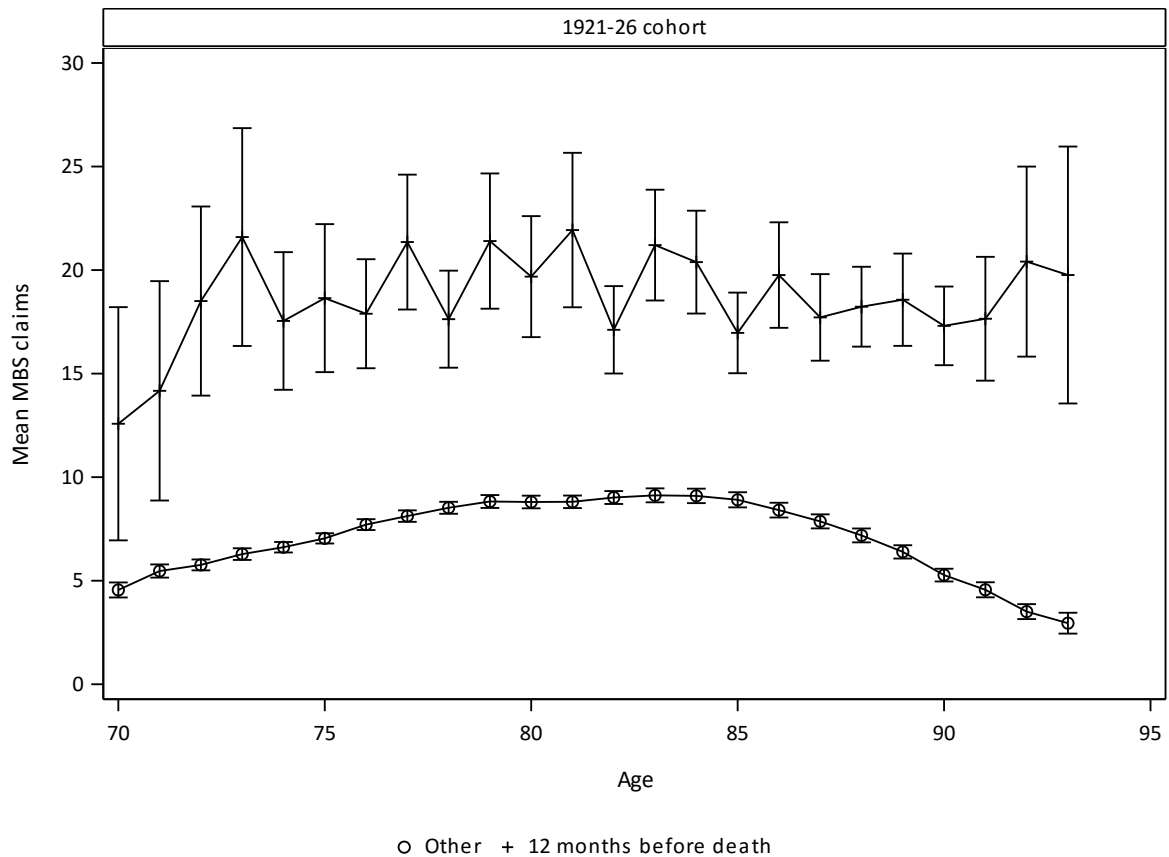

Figure 6-15. Mean annual number of pathology services by women in the 1921-26 cohort, classified according to whether women are in the last year of life.

6.4.1. Key points

- In the 12 months before death, women used more GP and specialist services and had more pathology tests, which indicates that they had poorer health than other women of the same age.

7. USE OF PRIMARY CARE, CONDITION SPECIFIC, AND ALLIED HEALTH ITEMS

Medicare primary care items provide Medicare rebates for a range of services provided by GPs, nurse practitioners, midwives, practice nurses and allied health providers. This chapter describes how some of these items are used by women in the ALSWH cohort.

7.1. Uptake and impact of Focussed Psychological Services under the Better Access Scheme

The Better Access Scheme (BAS) initiative was introduced in 2006 to provide affordable and accessible services for patients diagnosed with mental illness. The BAS provides Medicare subsidies for services from allied mental health care practitioners, clinical psychologists, occupational therapists and psychiatrists, as referred by a GP under a mental health plan, and for specified psychiatric services (see Appendix D for item numbers).

Use of the BAS mental health services are shown in Figure 7-1. In 2006 when the BAS initiative was introduced, there were few differences in the use of mental health services between the cohorts, but since then the proportion of women in the 1973-78 cohort using the services each year has increased to almost double that of women in the 1946-51 cohort. Use of the mental health services by women in the 1921-26 cohort increased slightly in 2007 and 2008 and then remained stable over time. Women in the 1989-95 cohort were 14-18 years of age at the time of the introduction of the BAS initiative.
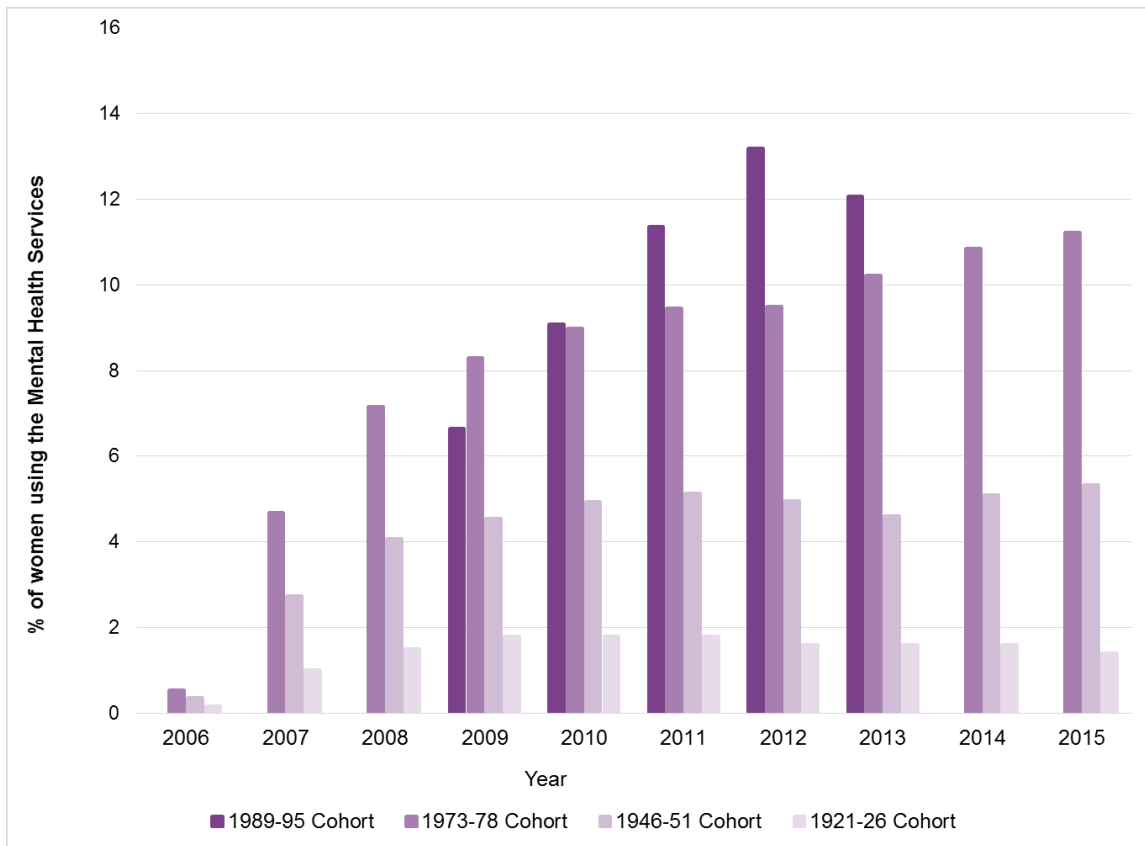
Figure 7-1. Use of mental health services by women since 2006.

Use of the mental health service items is higher among the 1989-95 and 1973-78 cohorts, and lowest for the 1921-26 cohort. Approximately 7% of women from the 1989-95 cohort aged 14-19 years in 2009 had used the mental health services. In 2012 when they were aged 18-23 years, 13% of women from the 1989-95 cohort used a mental health service in that year. The data show a slight decline in mental health service use in 2013 for the 1989-95 cohort.

Figure 7-2 shows the percentage of women who (i) made a claim through Medicare for BAS mental health services, (ii) self-reported a diagnosis of depression/anxiety in the last three years but were not using the mental health services, (iii) were not diagnosed with depression/anxiety, (iv) were missing responses on mental health diagnoses, and (v) had died by the time of each survey. At around age 36, 19% of women from the 1973-78 cohort had used BAS within the past three years, and at around age 61, 10% of women from the 1946-51 cohort had used BAS mental health services. However, a further 5% of women from the 1973-78 cohort and 8% from the 1946-51 cohort reported a diagnosis of anxiety or depression but were not receiving treatment through the BAS. By around age 20, 12% of women in the 1989-95 cohort had used the BAS mental health services. A further 30% of women from this cohort reported a diagnosis of depression/anxiety but had not used the BAS mental health services.
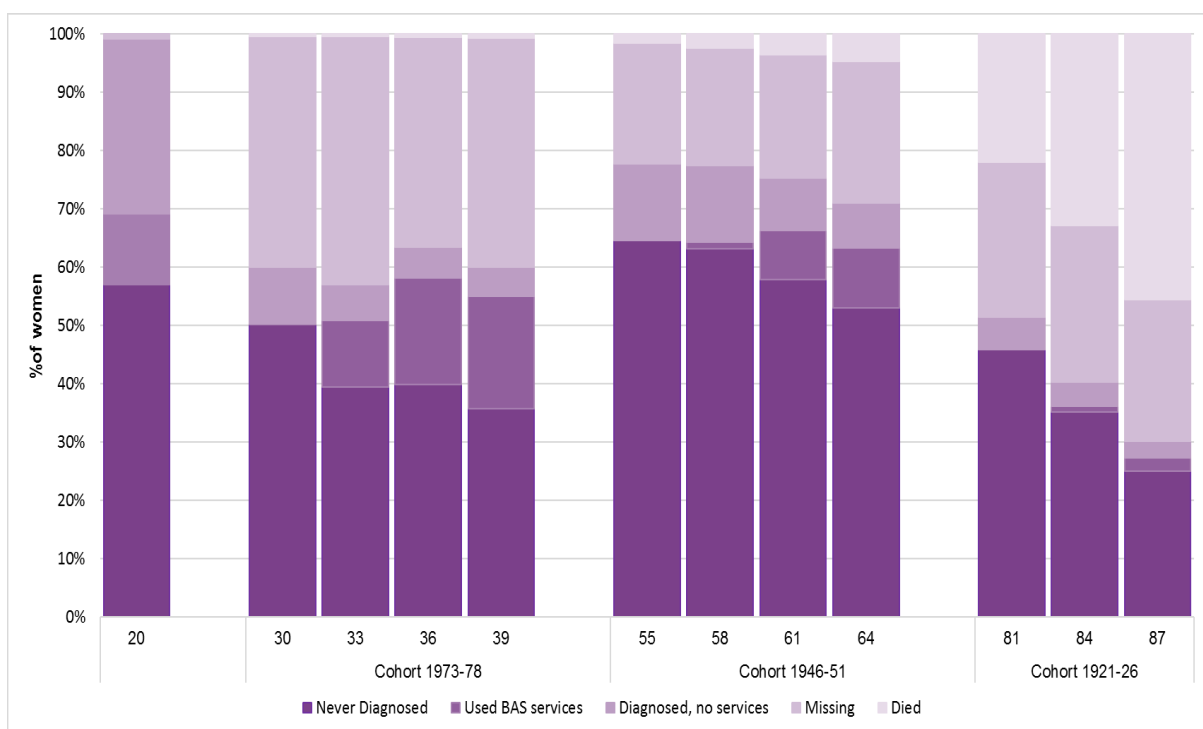
Figure 7-2. Percentage of women each year using the BAS services.

7.1.1. Better access initiative and who uses the services

Across all cohorts, women living in inner regional areas accessed more mental health services than women in metropolitan, outer regional or remote/very remote areas (Figure 7-3, Figure 7-4, Figure 7-5, Figure 7-6). GP psychological strategies and focussed psychological strategies were used more commonly than clinical psychological services. Of the women that had a GP mental health plan, less than a third appeared to have a GP preparation review each year. Use of these mental health services was very low among women in the 1921-26 cohort.
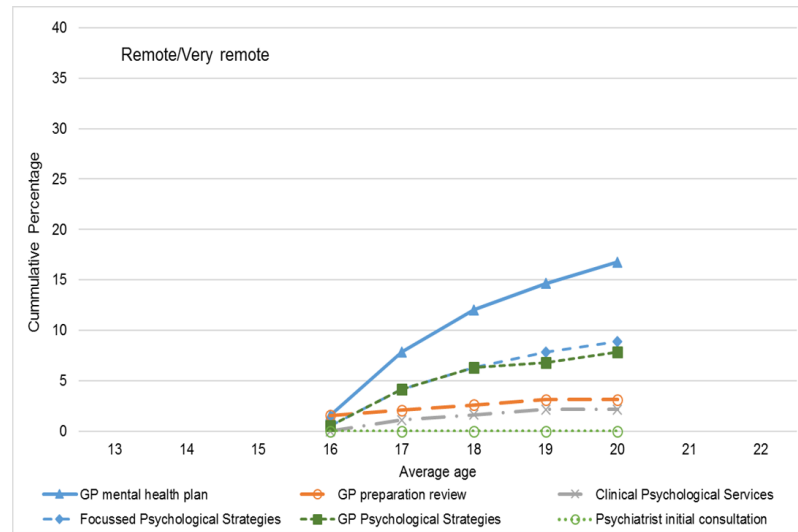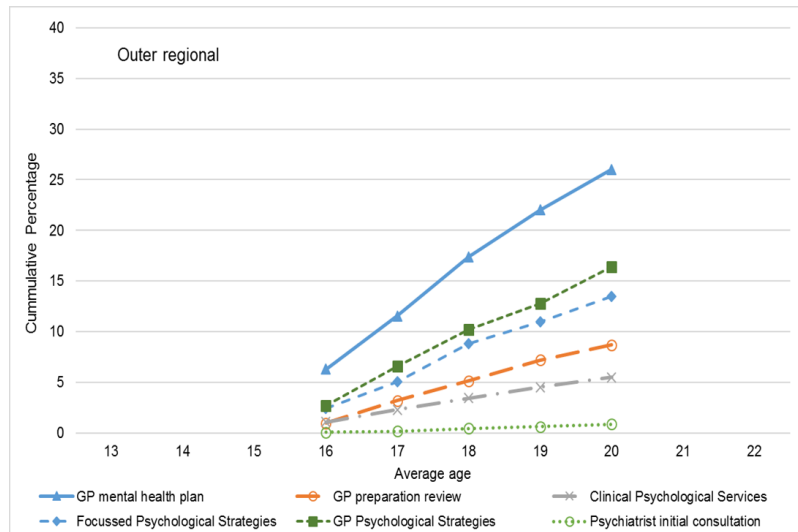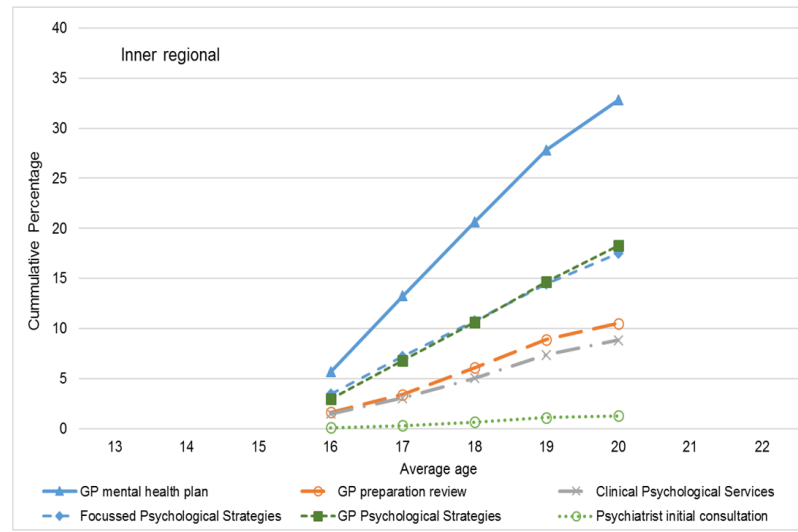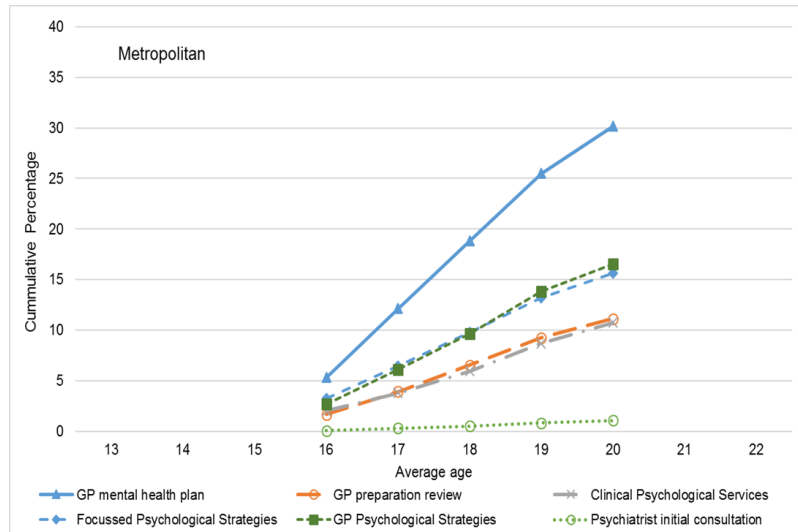
Figure 7-3. Use of the BAS mental health services by women in the 1989-95 cohort from 2009 – 2013.
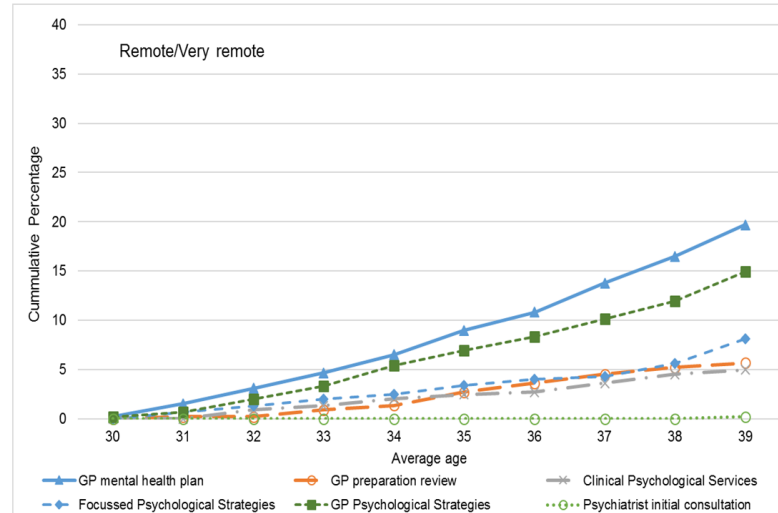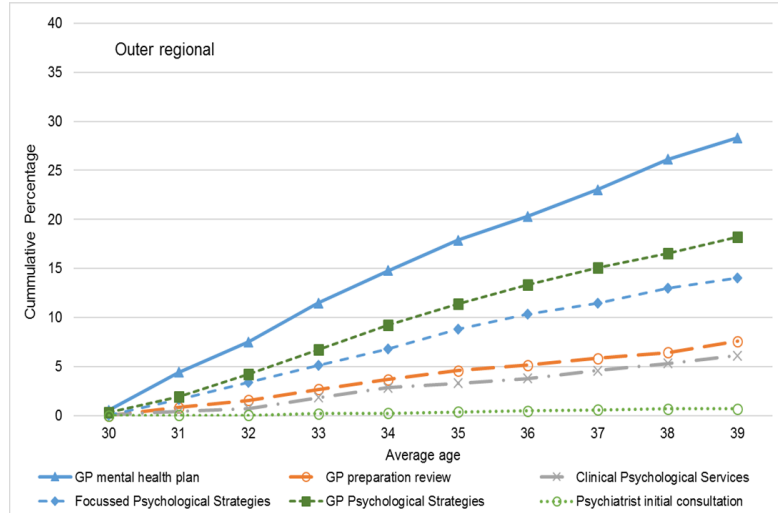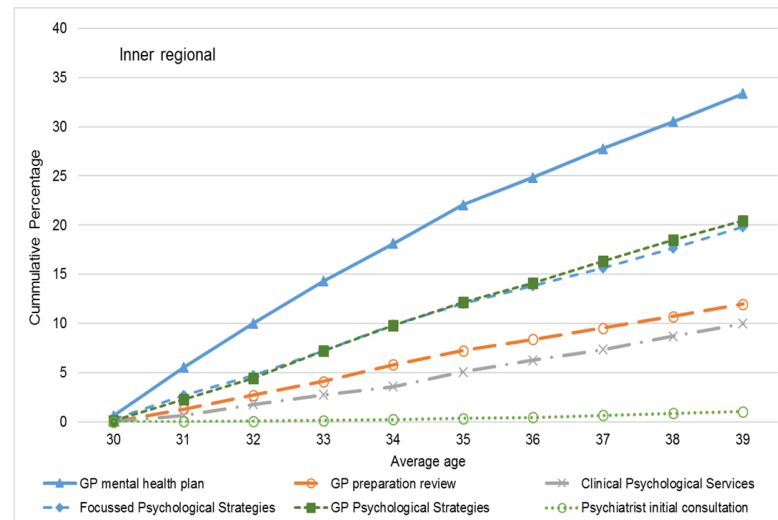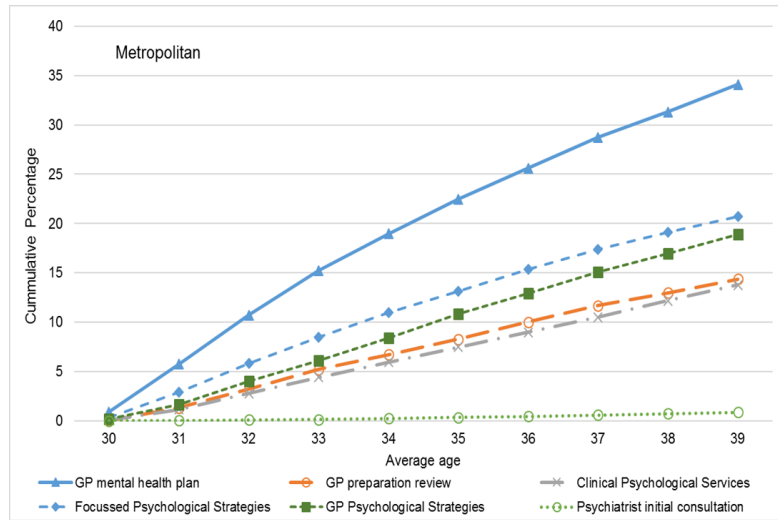
Figure 7-4. Use of the BAS mental health services by women in the 1973-78 cohort from 2009 – 2013.
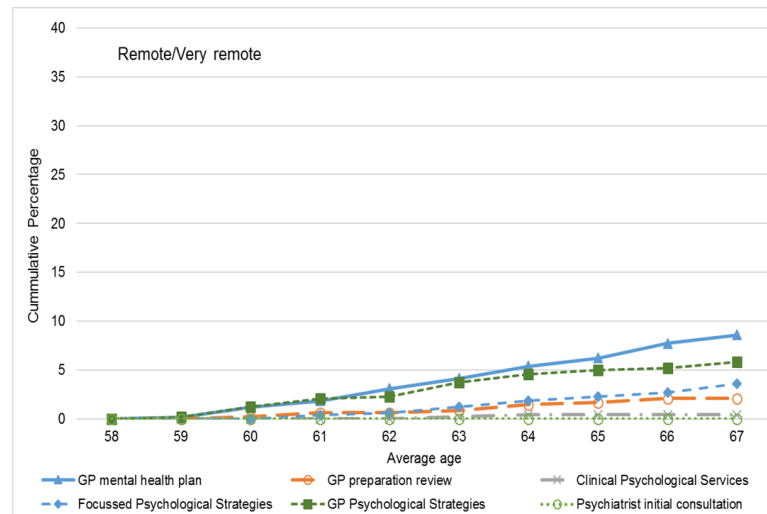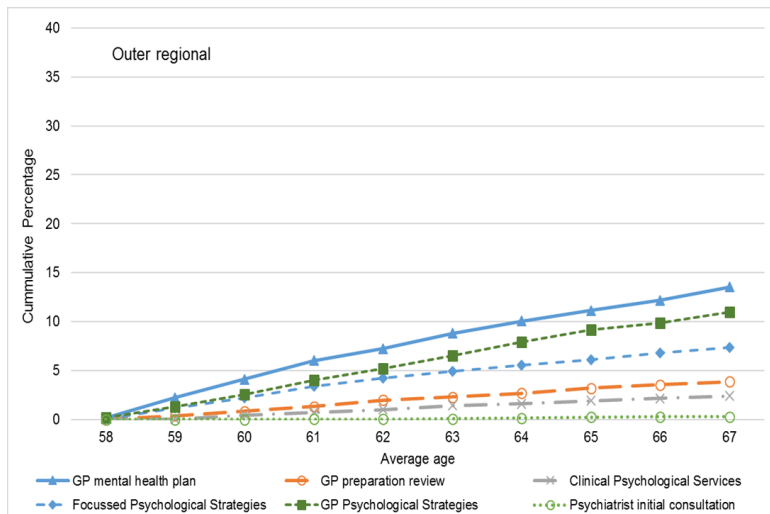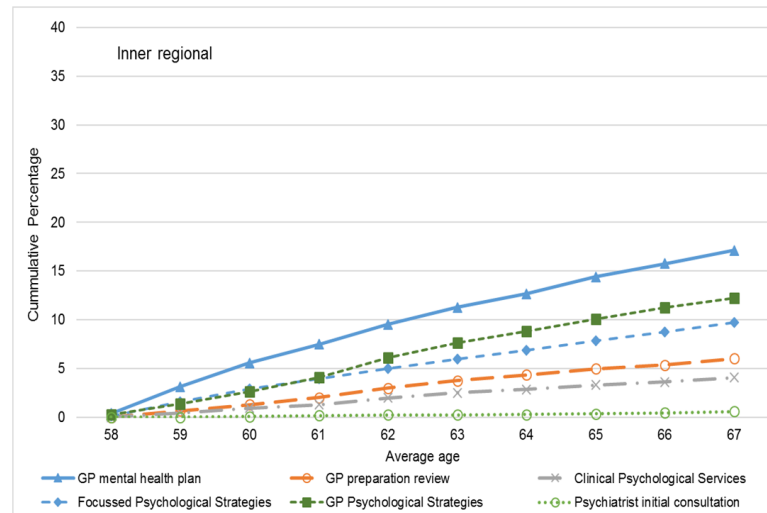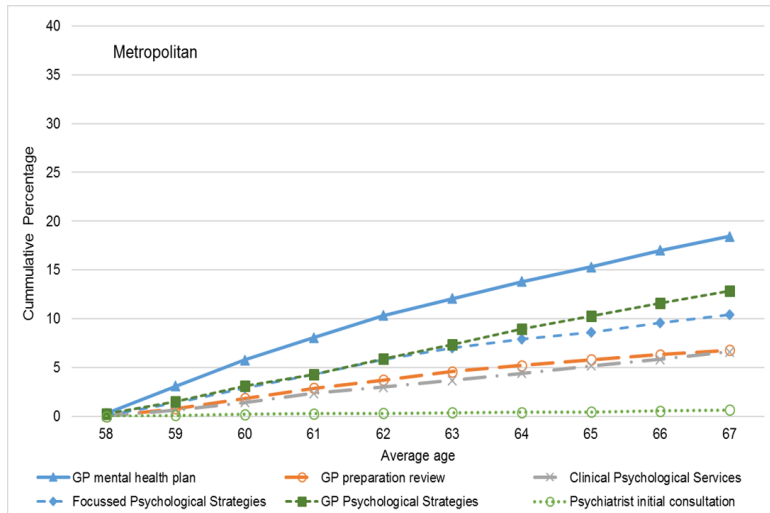
Figure 7-5. Use of the BAS mental health services by women in the 1946-51 cohort from 2006-2015.
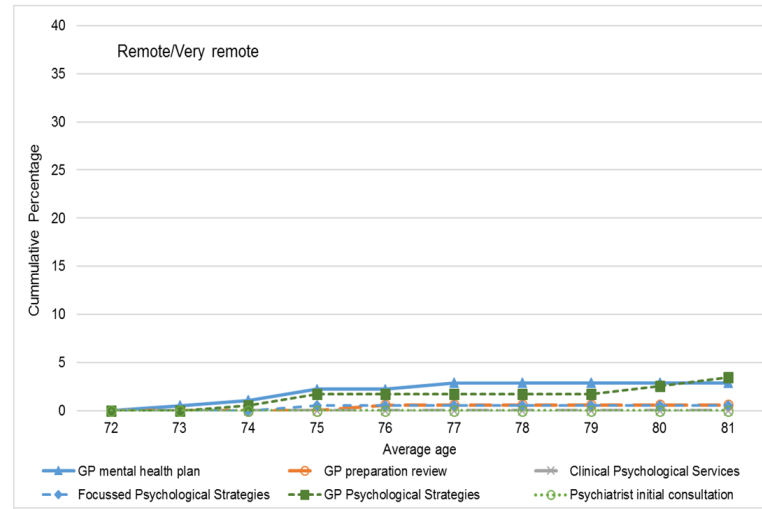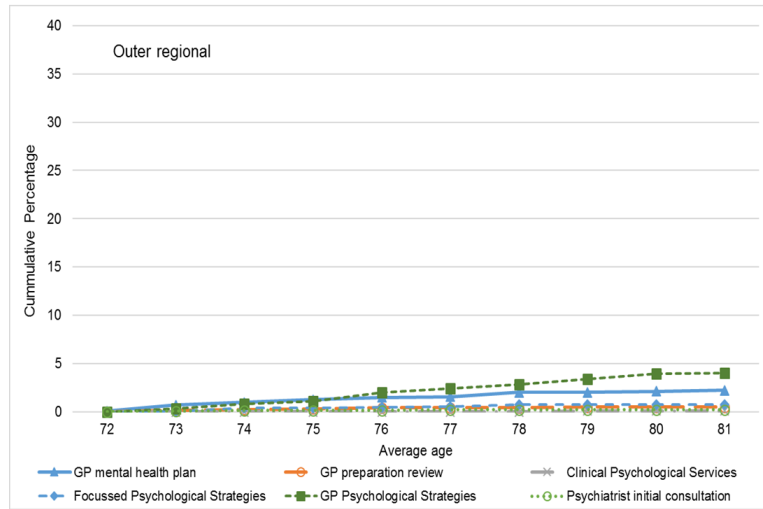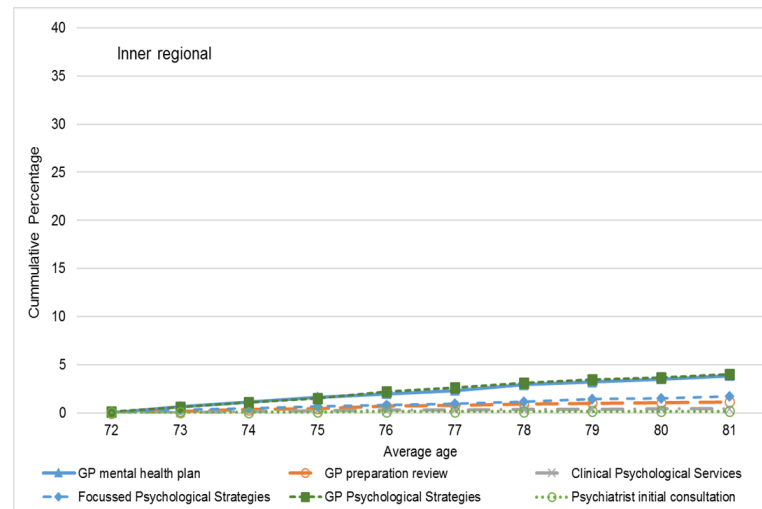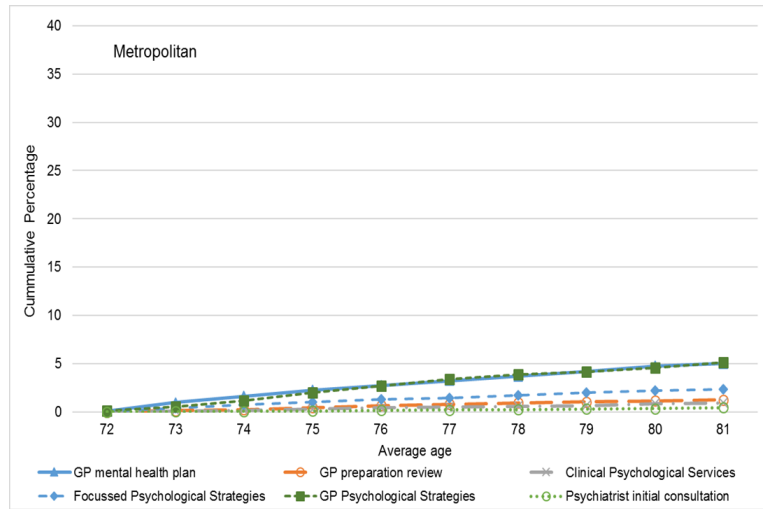
Figure 7-6. Use of the BAS mental health services by women in the 1921-26 cohort from 2006-2015.

The use of propensity score methods (Rosenbaum and Rubin, 1983) in causal analysis for observational studies were used to map women who did and did not use the BAS mental health services into comparable or "balanced" stratum.   This collection of the treated and untreated groups then have the same distribution of baseline characteristics, as if they have been randomised. In Figure 7-7 and Figure 7-8, women with poor mental health (SF-36 mental health score less than 70) and who used the Better Access Scheme mental health services, were stratified according to their predicted probability of need to use the mental health services (using propensity scores). The higher the propensity score, the greater probability of using the mental health services. Strata 1 represents women who are least likely to need mental health services based on their survey characteristics (lowest propensity scores), while Strata 5 represents the women most likely to need the services (highest propensity scores). Figure 7-7 and Figure 7-8 show the mean mental health scores for three survey periods, for each of the five strata for women from the 1973-78 and 1946-51 cohorts. Scores under the dotted line at value 52 on the y-axis indicate possible clinical depression, with baseline mean mental health scores below this line for women in Strata 4 and 5. Over time, the mean mental health scores for these women increased to above this level. Women from the 1973-78 cohort in Strata 1 showed an initial decrease in mental health scores at the first follow-up, but these increased at the second follow-up in 2012. All other scores improved at each follow-up period. These figures indicate that the Better Access Scheme mental health services are successfully improving women's mental health, regardless of their level of mental health at the beginning of the program.
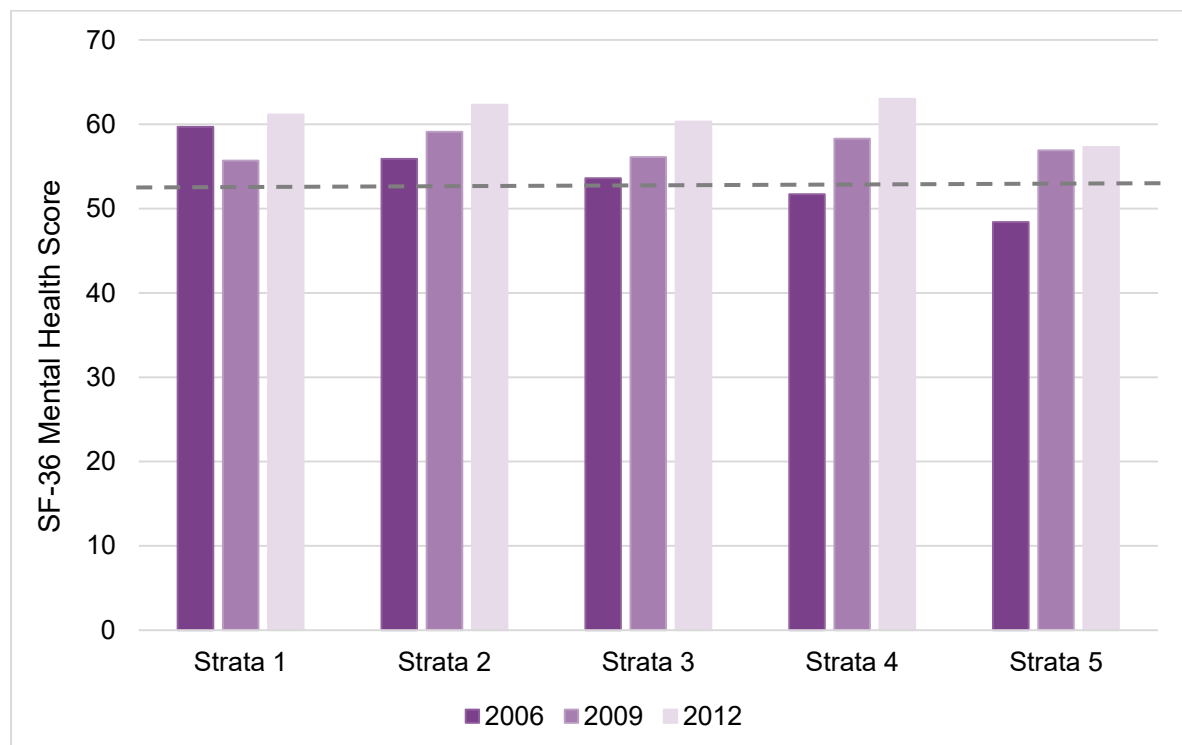
Figure 7-7. Changes in mean mental health scores for women in the 1973-78 cohort who used the BAS from 2006 to 2012 by stratum, ranging from being least likely to need (Strata 1) and most likely to need mental health services (Strata 5).
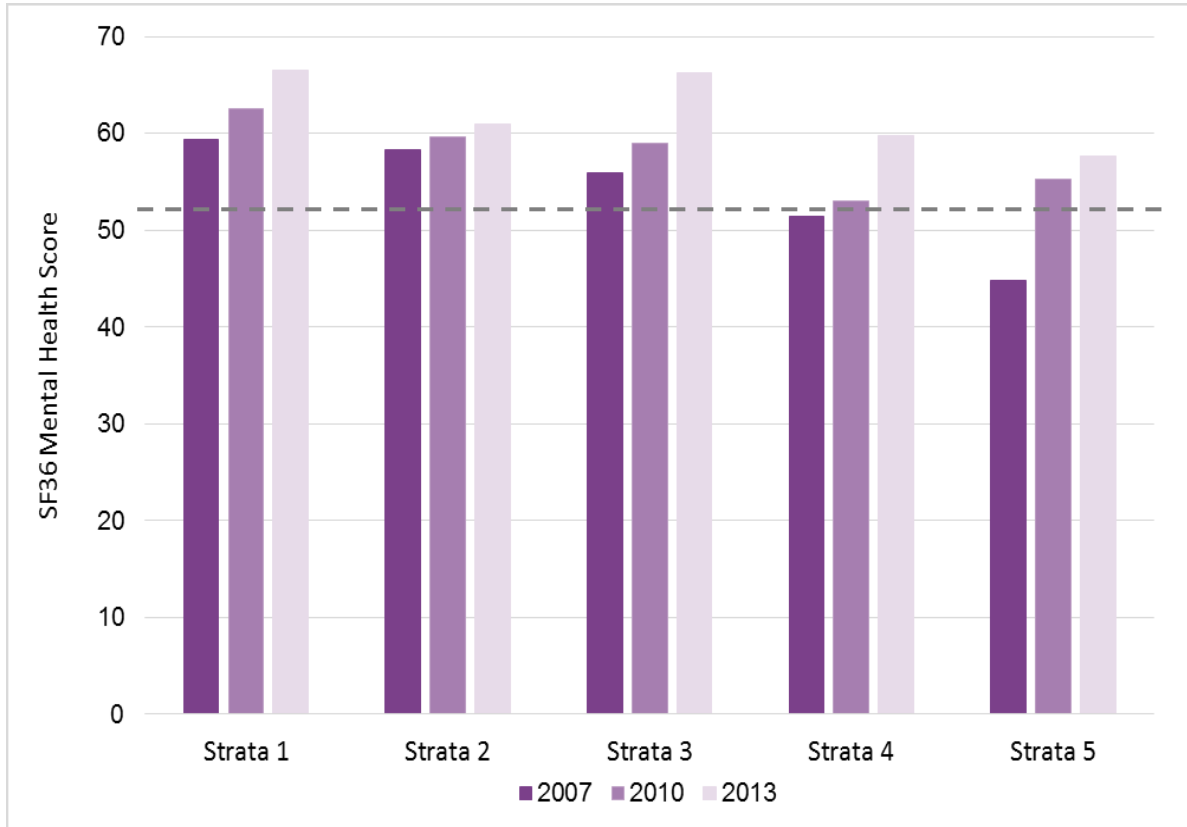
Figure 7-8. Changes in mean mental health scores for women in the 1946-51 cohort who used the BAS from 2006 to 2012 by stratum, ranging from being least likely to need (Strata 1) and most likely to need mental health services (Strata 5).

7.1.2. Key points

- Younger women use the BAS mental health services more than mid-aged or older women.

- The majority of women in the 1973-78 cohort who were diagnosed with depression or anxiety used BAS services, whereas only a low proportion of diagnosed women in the 1989-95 cohort accessed the Scheme.

- The uptake of BAS by women in the 1973-78 cohort continued to increase steadily over time, however for women in the 1989-95 cohort, it started to decline.

- Across the 1989-95, 1973-78, 1946-51 and 1921-26 cohorts, women living in inner regional areas accessed more mental health services than women in metropolitan, outer regional or from remote/very remote areas.

- The GP mental health plan was predominantly used, followed by GP Psychological Strategies and Focussed Psychological Strategies.

- Over time, the mean mental health scores increased for women with poor mental health who used the BAS.

7.2. Use of assisted reproductive technologies

Here we examine use of Medicare items for assisted reproductive technology (ART) by women in the 1973-74 cohort, with specific emphasis on timing and use of these technologies, characteristics of women who use them, and their reproductive histories. There are 14 Medicare items (13200 to 13292) related to ART services, including in vitro fertilisation, gamete intrafallopian transfer, intracytoplasmic sperm injection, and intrauterine insemination. Six of these Medicare items are called 'global items' and cover consultations, pathology, and diagnostic imaging services. The remaining 8 items are specific procedures such as oocyte retrieval, transfer of embryos to the uterus or fallopian tube, and semen collection. Each patient may only claim one of the global Medicare items for each ART cycle.

7.2.1. Rate of ART use over time

Figure 7-9 shows that Medicare claims for ART begin as early as the age of 19 (at 0.6 ART services per 1,000 women) and rise quickly around the age of 30, before peaking in the mid-30s (at 127 ART services per 1,000 women). By the early 40s, the rate of ART service use falls dramatically, and by the age of 43, no participant claimed Medicare items for ART.
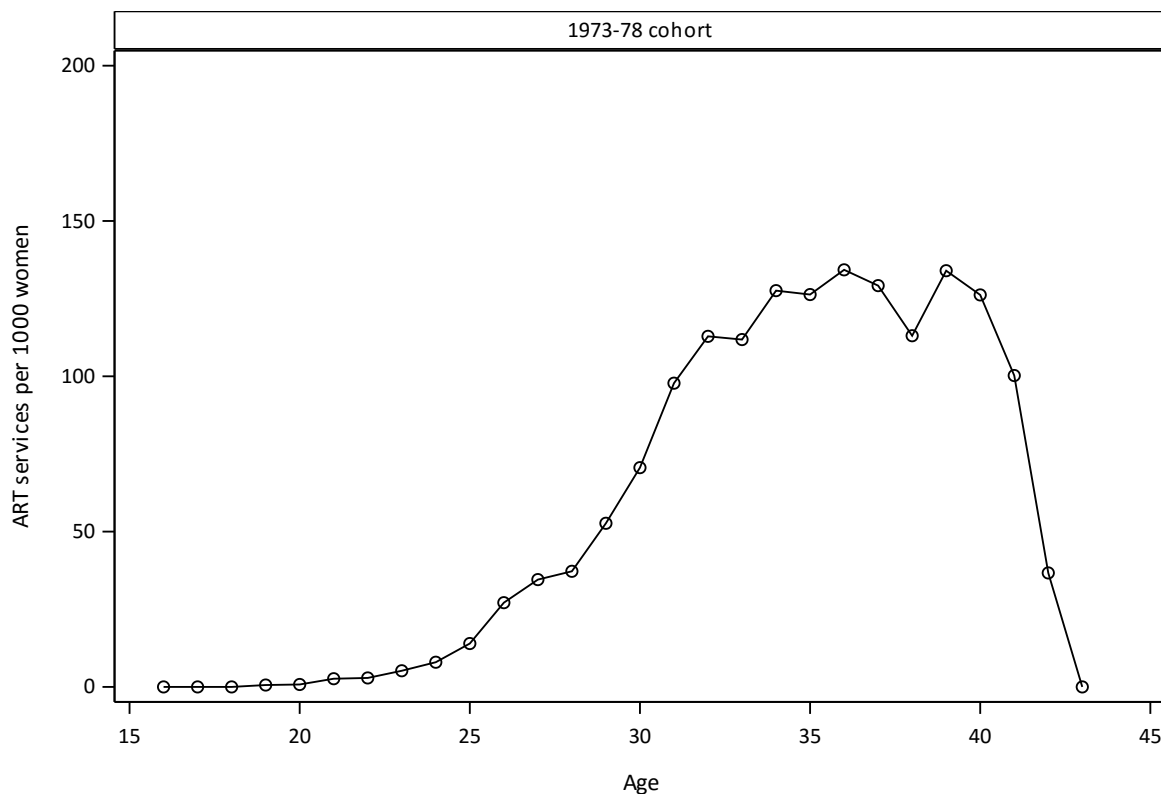
Figure 7-9. The number of ART services used per 1,000 women in the 1973-78 cohort by age.

The number of women who claim ART services is low in the late teens and early 20s, ranging from 0.1 per 1,000 women at age 20 to 2.7 per 1,000 women at age 25 (Figure 7-10). Then it increases to 22

per 1,000 women at age 39 before decreasing sharply in the early 40s. Although there are no MBS limits on the age of women accessing these services and the number of cycles they can have, the decline in the number of ART services used and the number of women who use ART services per 1,000 women around the age of 40 is possibly related to the lower ART success rates at that age (Harris, et al., 2016a).
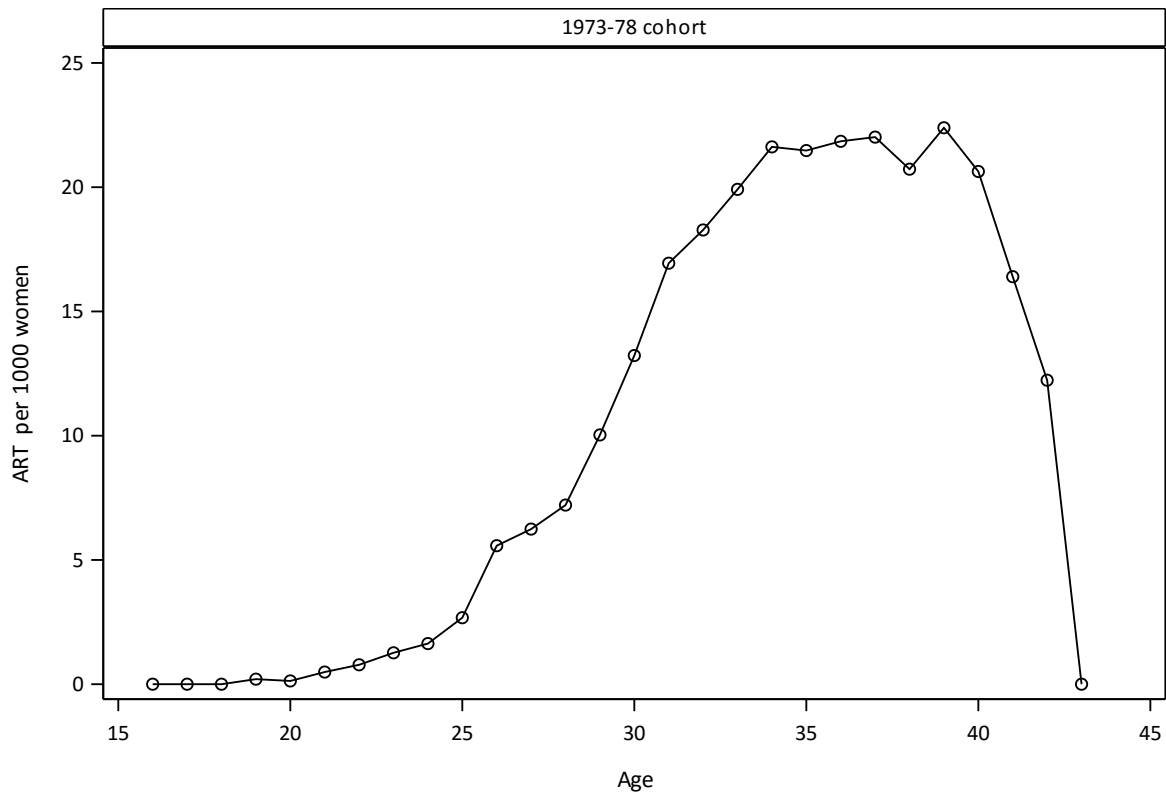
Figure 7-10. The number of women in the 1973-78 cohort who claimed at least one ART service in a year per 1,000 women.

7.2.2. ART use by area of residence

Of women in the 1973-78 cohort who lived in a major city, about 14% used ART, compared with 8% to 11% in regional and remote areas (Figure 7-11).
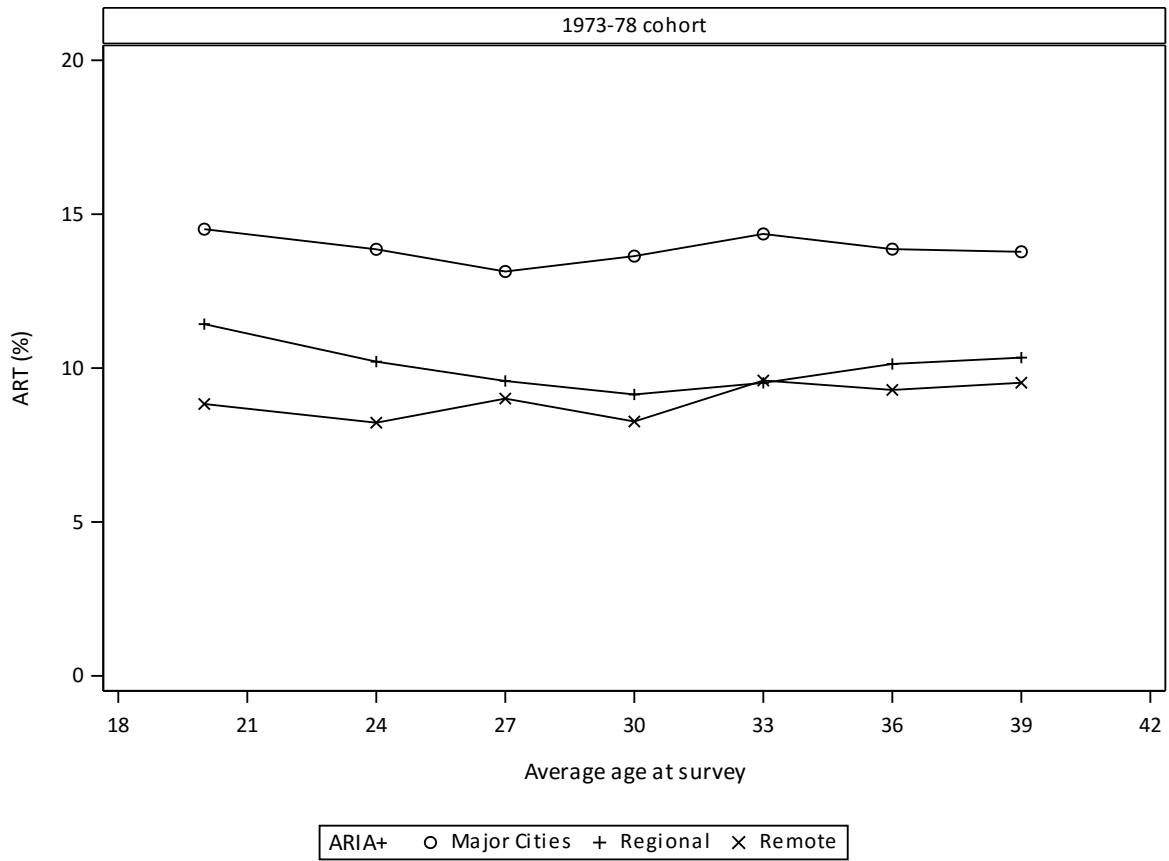
Figure 7-11. Percentage of women in the 1973-78 cohort who had ART by area of residence.

7.2.3. ART use by highest educational attainment

Across all surveys, women who had a higher level of education (Figure 7-12) tend to have higher ART usage. Among university-educated women, ART usage ranges from 13% to 15%, while for women with less than Year 12 education, it ranges from 6% to 9%.
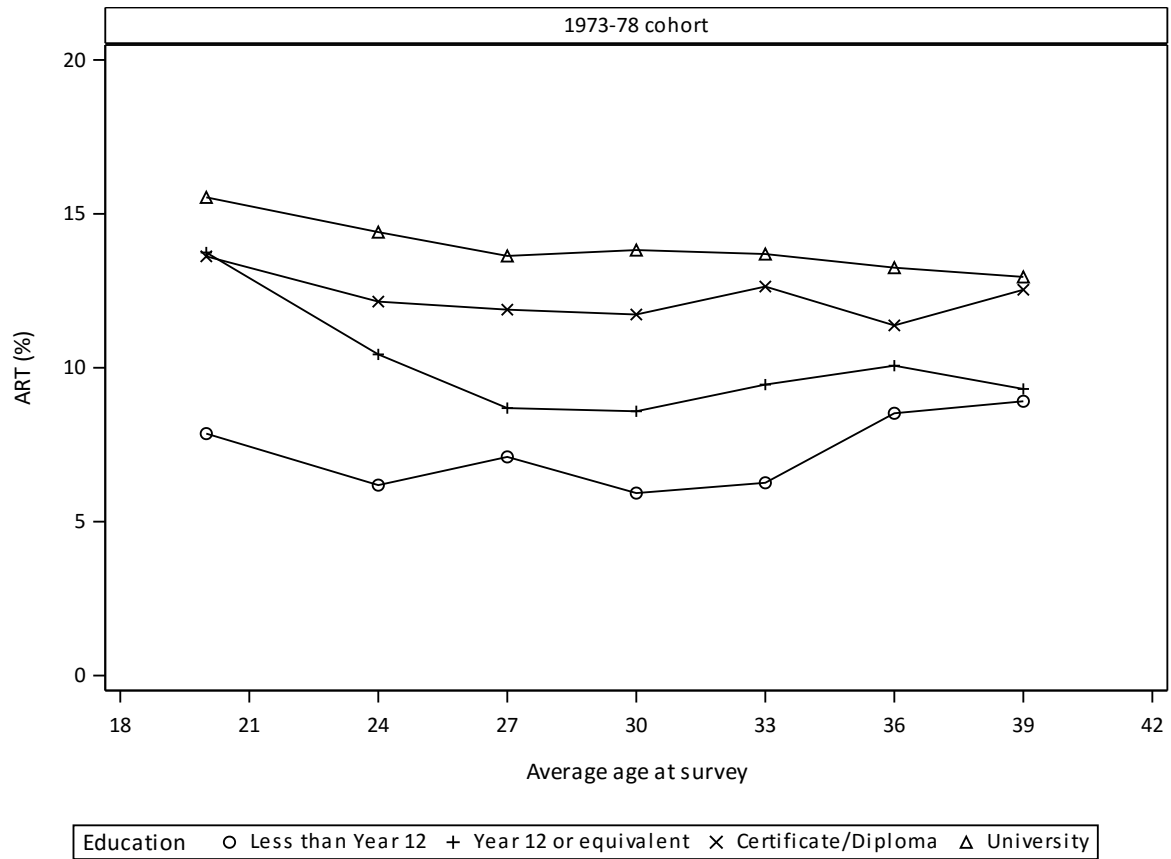
Figure 7-12. Percentage of women in the 1973-78 cohort who had ART by education status.

7.2.4. ART use by ability to manage on income

As expected, women in the 1973-78 cohort who found it easier to manage on income were more likely to use ART (13 to14%) compared with women who found it more difficult (9 to12%) (Figure 7-13).
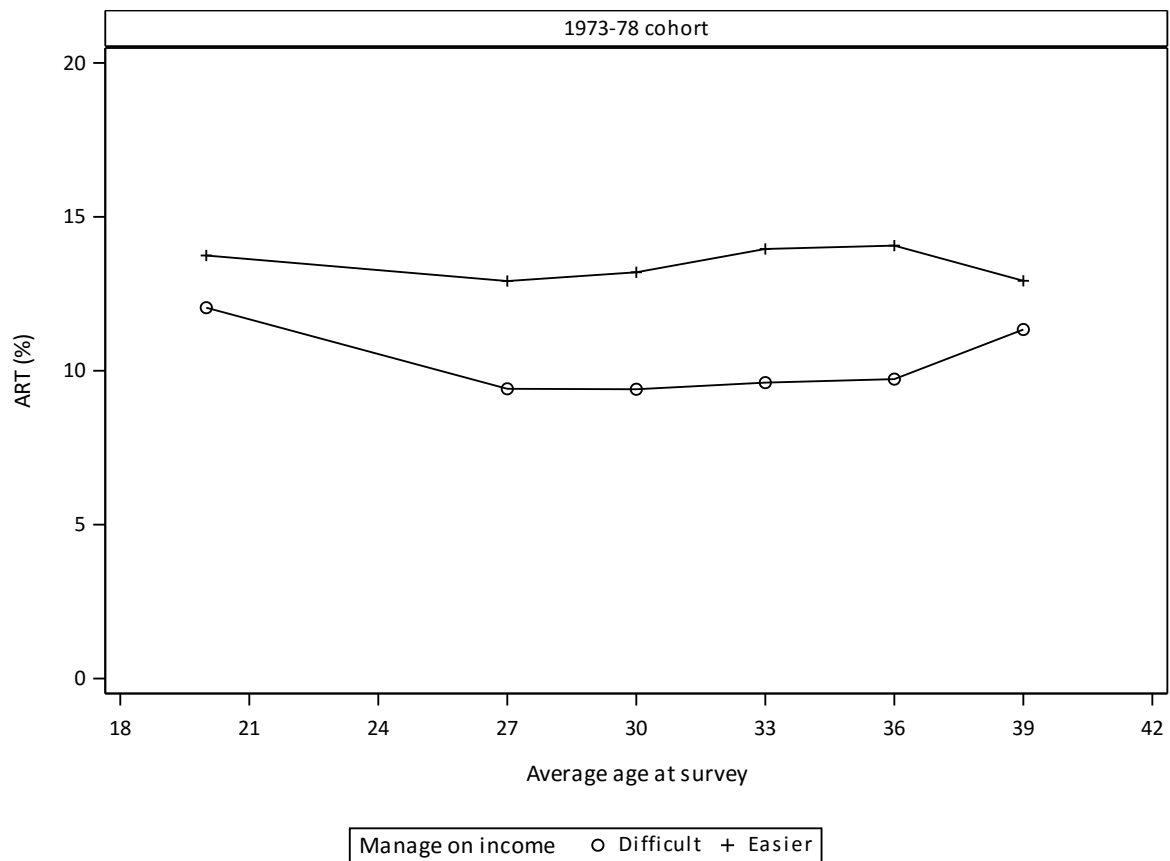
Figure 7-13. Percentage of women in the 1973-78 cohort who had ART by difficulty to manage on income.

7.2.5. ART use by private hospital insurance

Women with private hospital insurance were more likely to use ART compared to women without (15% vs 7-12%) (Figure 7-14). In contrast to women with private hospital insurance, ART usage declined with age in women without private hospital insurance, particularly between the age of 24 and 36 years.
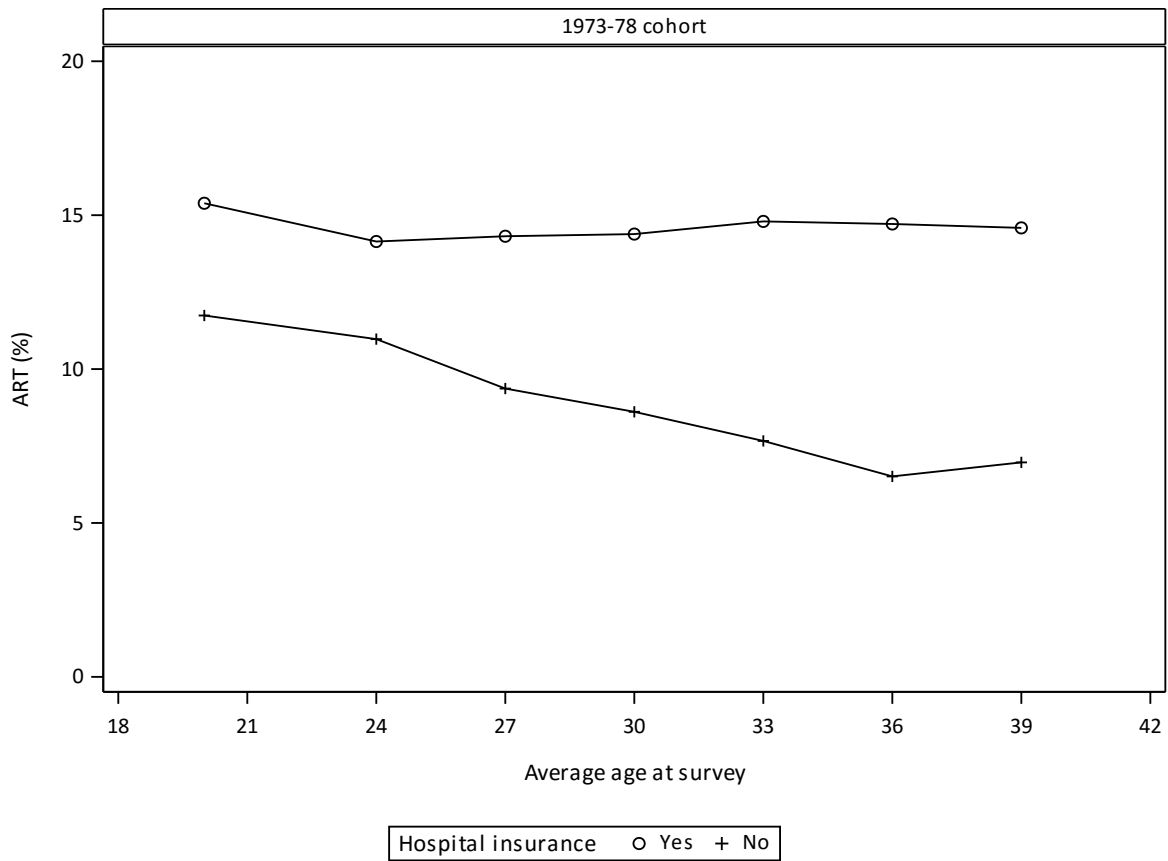
Figure 7-14. Percentage of women in the 1973-78 cohort who had ART by private hospital insurance status.

7.2.6. ART use by the number of children of women

At younger ages (20-33 years) women with no children were most likely to use ART, with usage rates varying from 9% at age 20 to 16% at age 33 (Figure 7-15). From age 36, women with one child were more likely to use ART (17-18%).
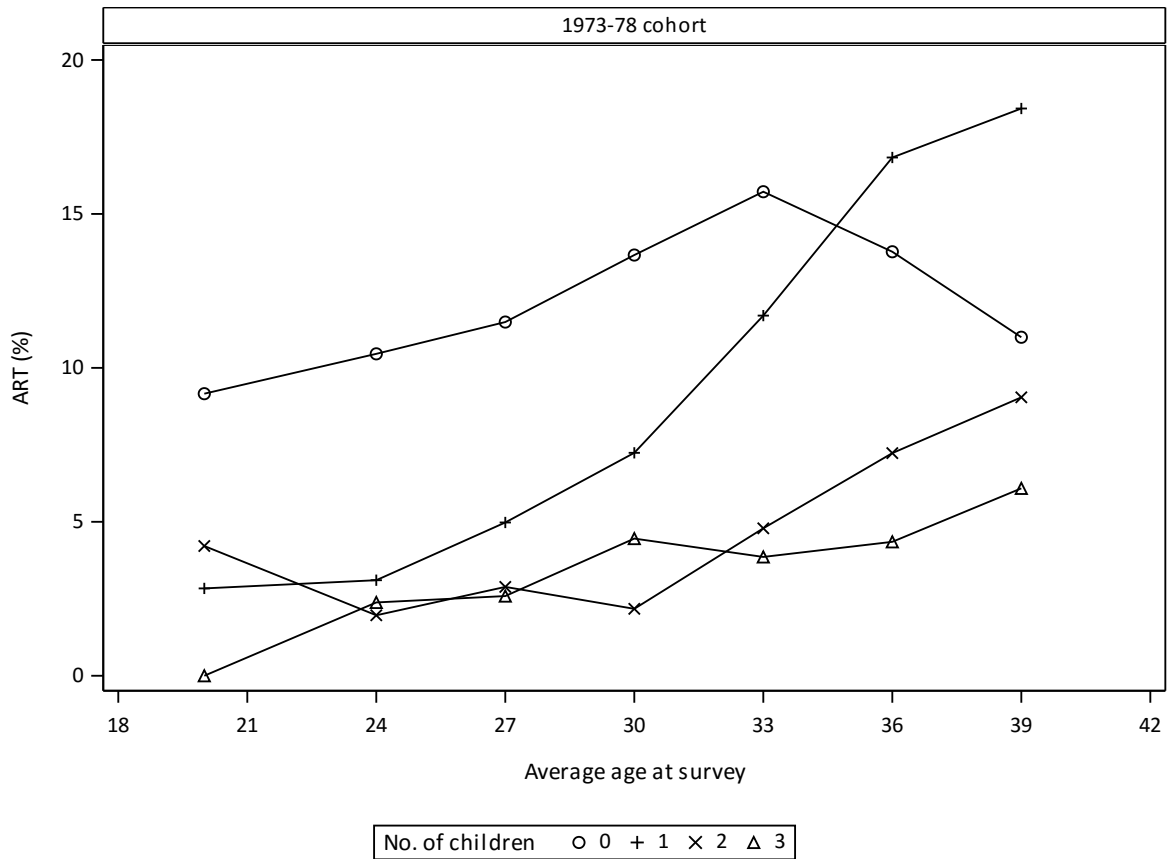
Figure 7-15. Proportion of women in the 1973-78 cohort who had ART by number of children.

At all surveys the mean number of children was always lower for those women using ART (Figure 7-16**).**
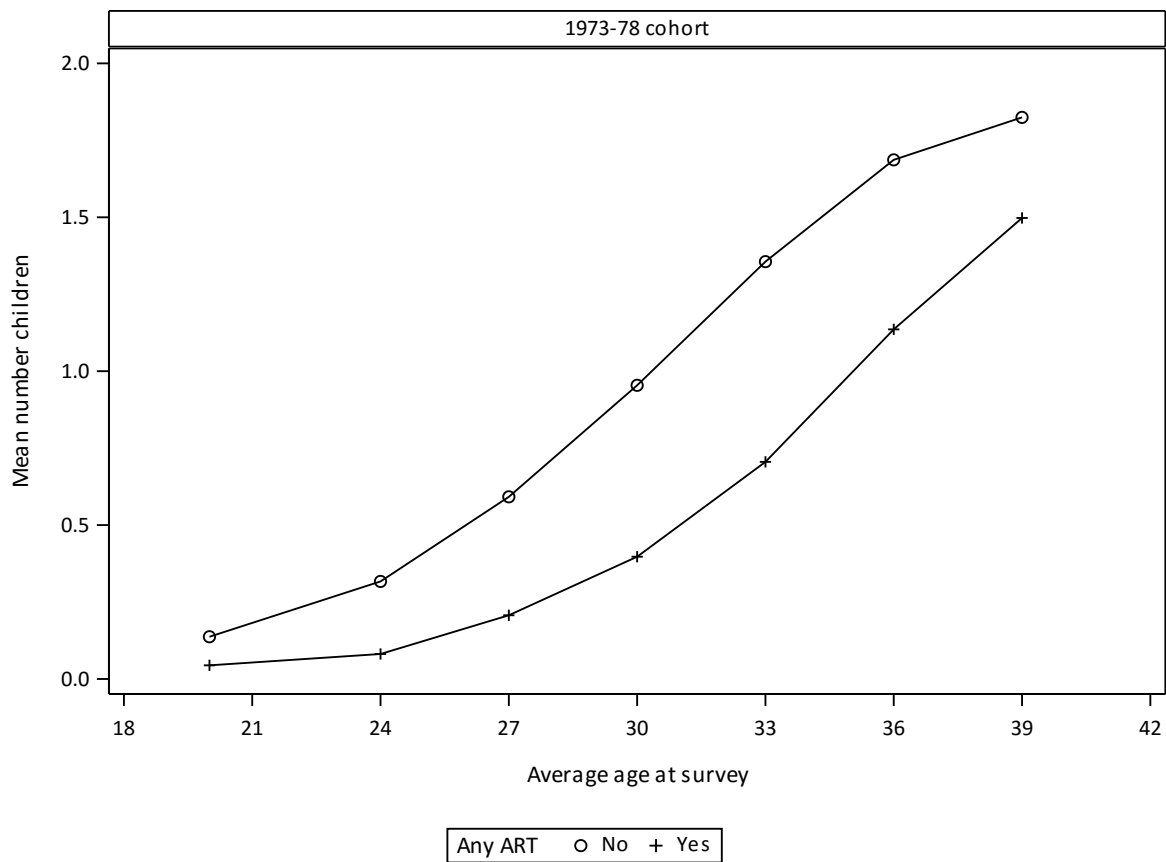
Figure 7-16. Mean number of children by ART status.

7.2.7. Key points

- The number of women who used ART services peaked around 35 years of age and decreased rapidly after the age of 40, which may be due to the diminished success rate of ART around that age.

- ART was used more by women living in a major city and who were university-educated.

- As expected, women who were able to manage on income easily and had private health insurance used ART more than women who had difficulty managing on income and did not have private health insurance given the cost of ART services.

- ART was predominantly used by women without children until the age of 35 years when it was most used by women who already had one child.

7.3. Use of chronic disease management items by women with complex care needs

Chronic Disease Management (CDM) was introduced in 2005, and replaced the Enhanced Primary Care program. CDM services on the Medicare Benefits Schedule (MBS) enable GPs to plan and coordinate the health care of patients with chronic or terminal medical conditions, including patients with those conditions which require multidisciplinary, team-based care from a GP and at least two other health or care providers. CDM Items include: GP Management Plan (item 721), review (item 732) and Team Care Arrangements (item 723), and multidisciplinary care plan (items 729,731). People with a GP Management Plan are also eligible for individual allied health services (MBS items 10950-10970), including: Podiatry services (item 10962), physiotherapy services (10960), dietetics 10954), chiropractic (10964), exercise physiology (10953), and osteopathy (10966).

7.3.1. Use of Chronic Disease Management items across the life course

For all cohorts, the use of CDM services increased with age. Women in the 1973-78 cohort claimed the least number of CDM services, ranging from one CDM service per 1,000 women at age 27 to 177 CDM services per 1,000 women at age 41 (Figure 7-17). For the 1946-51 cohort, the number of CDM services that were claimed increased from 0.16 per 1,000 women at age 53 to 634 per 1000 women at age 69. Women in the 1921-26 cohort claimed 0.12 CDM services per 1,000 women at age 78 and this increased to 1.32 per 1,000 women by age 94.
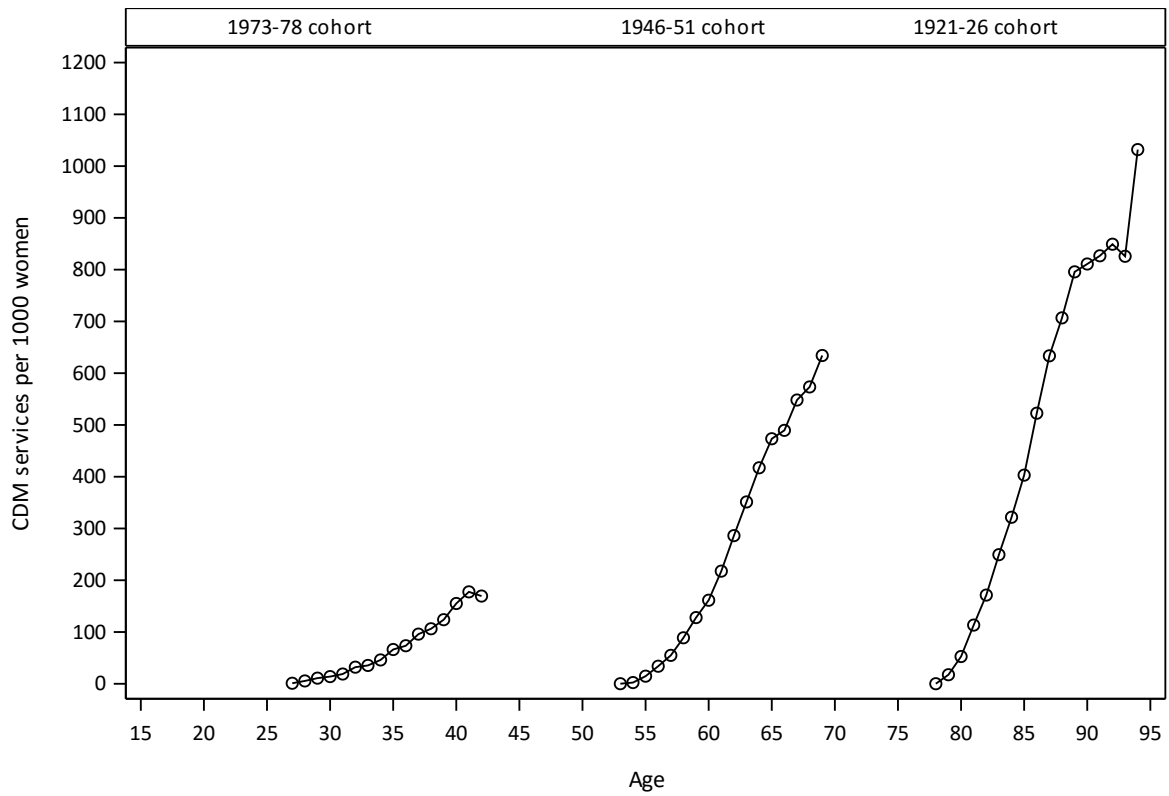
Figure 7-17. Number of Chronic Disease Management services per 1,000 women in all cohorts across the life course (1921-26, 1946-51, 1973-78).

Figure 7-18 shows that in the 1973-78 cohort, fewer than one woman per 1,000 claimed CDM services at age 27, and this rate gradually increased with age, so that 108 women per 1,000 women claimed CDM services by the age of 42. In contrast, the rate of increase was quicker for the 1946-51 and 1921-26 cohorts. In the 1946-51 cohort, 394 women per 1,000 women claimed CDM services by the age of 69 and in the 1921-26 cohort, 687 women per 1,000 women claimed CDM services by the age of 94.
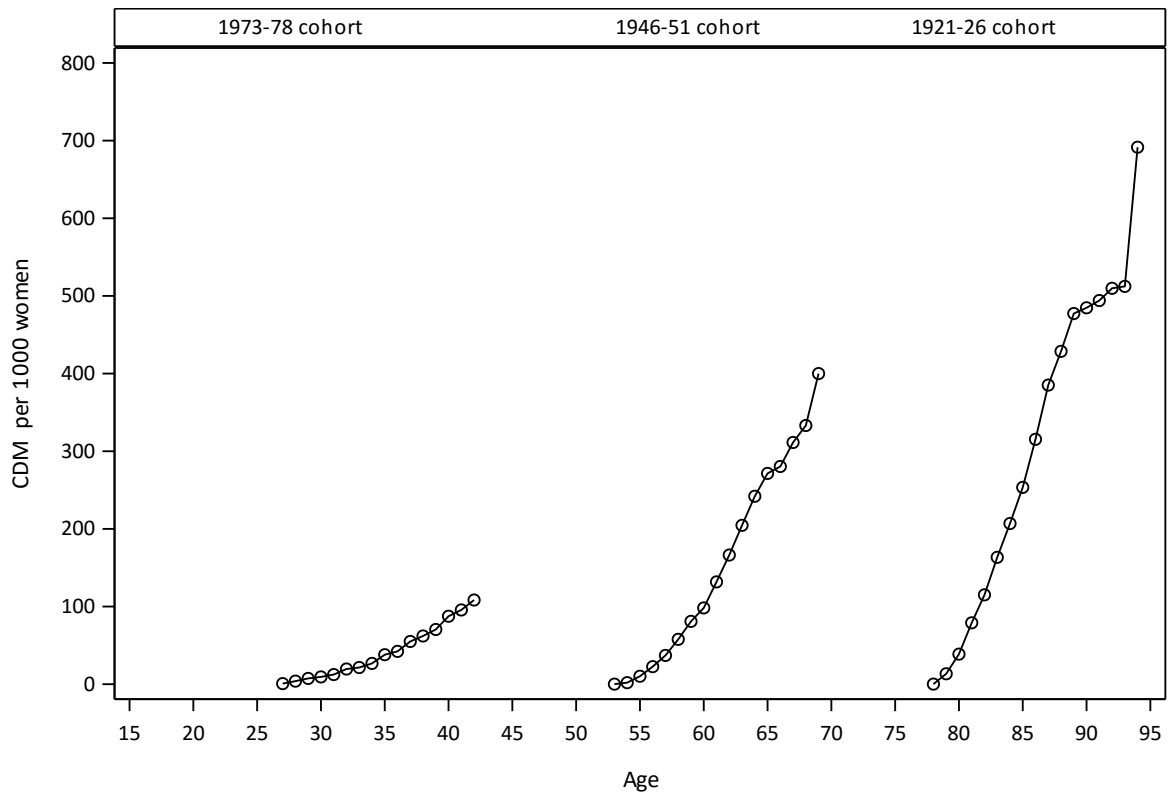
Figure 7-18. Number of women per 1000 who accessed Chronic Disease Management services in all cohorts (1921-26, 1946-51, 1973-78) across the life course.

7.3.2. CDM services by ability to manage on income

For all cohorts, women who found it more difficult to manage on income were more likely to use CDM services (Figure 7-19). This was most evident in the 1946-51 cohort, where the percentage of women using CDM services who found it difficult to manage on income varied from 52% to 55% vs 40% for those who found it easier. Differences by ability to manage on income were least evident in the 1921-26 cohort.
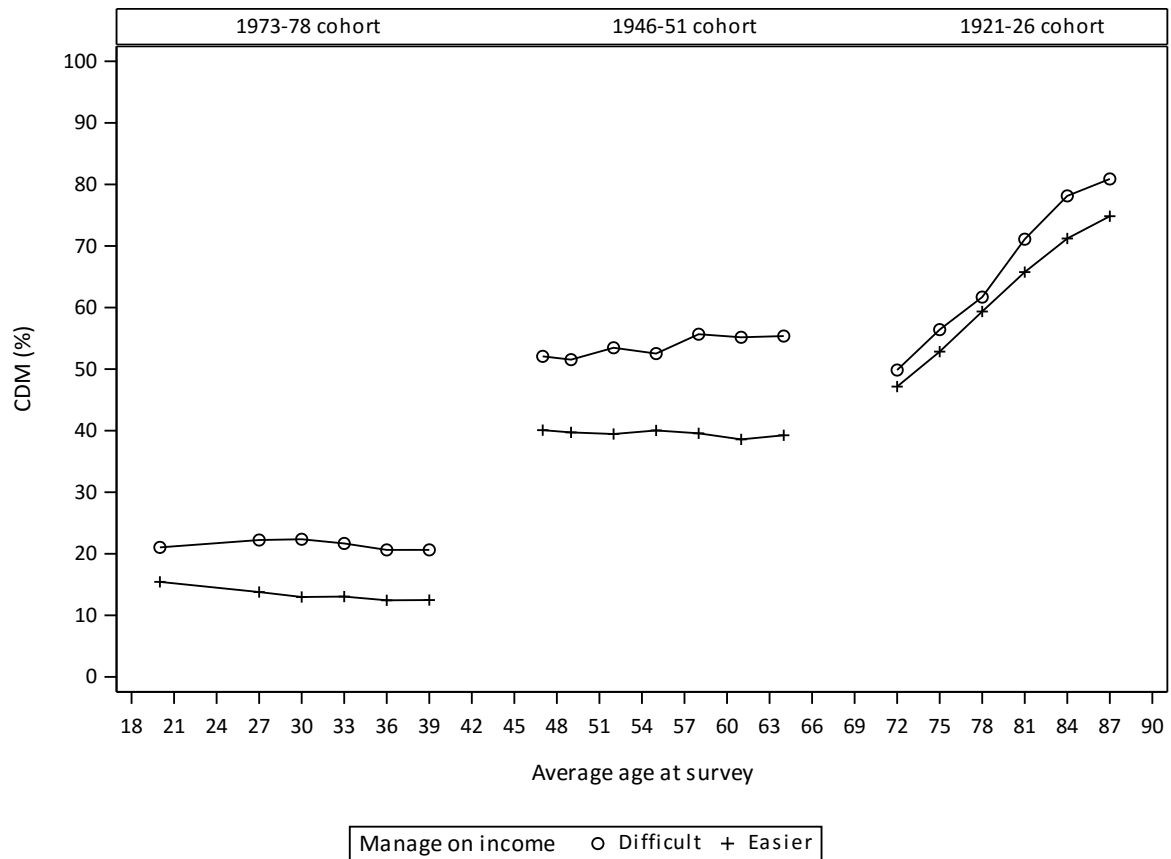
Figure 7-19. Percentage of women who accessed CDM services by ability to manage on income.

7.3.3. CDM services by area of residence

For all cohorts, women living in remote areas were least likely to use CDM services: these women accounted for only 1-3% of women who used CDM services (Figure 7-20). For the 1946-51 cohort, usage in remote areas was consistently 16% lower than that of women in major cities. In the 1921-26 cohort a difference was most apparent only at higher ages, while in the 1973-78 cohort the differences were minimal across all ages.
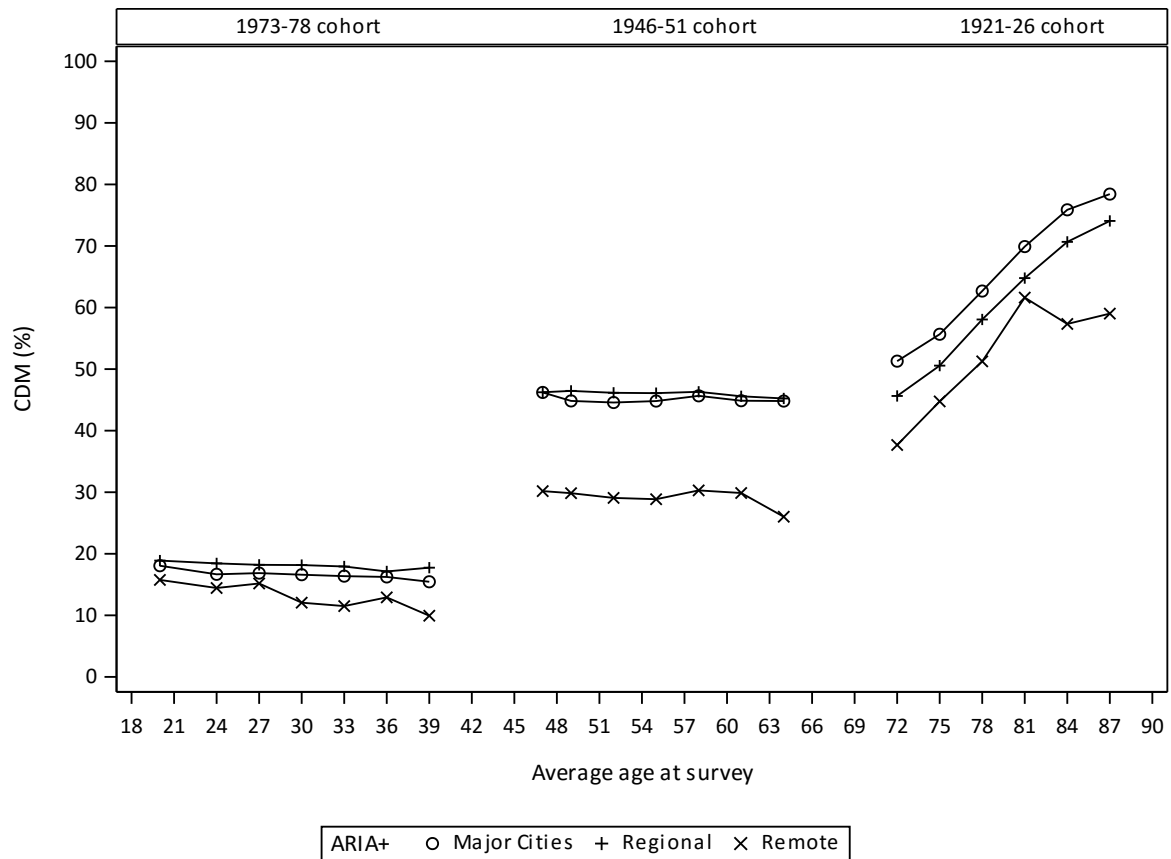
Figure 7-20. Percentage of women who accessed CDM services by area of residence.

7.3.4. CDM services by health care card

Women with a health care card were consistently more likely to use CDM services in all cohorts (Figure 7-21). Increased use of CDM services ranged from 10-15% in the 1973-78 cohort to 8-10% in the 1921-26 cohort.
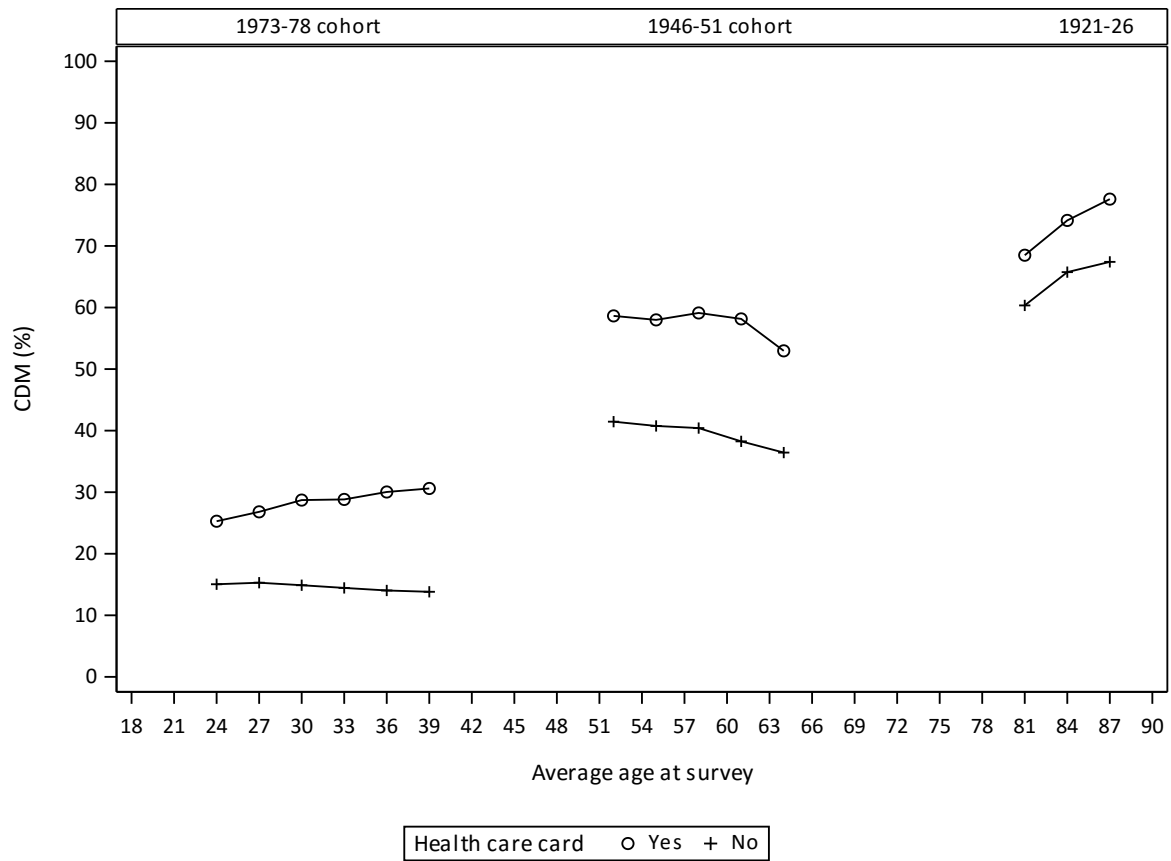
Figure 7-21. Percentage of women who accessed CDM services by health care card.

7.3.5. Key points

- Use of CDM services increased with age for all cohorts, which indicates good uptake of the program by women of all ages.

- CDM service use is associated with difficulty managing on income for young and mid-aged women.

- Women who live in remote areas use CDM the least; this may be due to reduced access to allied health services and inability to form the multidisciplinary teams which comprise some of the MBS items in this health service.

- Women who had a health care card accessed the CDM service more than women who did not have a health care card.

7.4. Use of disease specific items by women with diabetes and asthma

7.4.1. Diabetes

The Diabetes Annual Cycle of Care (DACC) was introduced in 2001, and is considered a key treatment strategy in the prevention of poor outcomes for people with diabetes. Under this scheme, GPs are provided incentives for early diagnosis, monitoring, and effective management of diabetes. The Royal Australian College of General Practitioners guidelines for optimal diabetes management involves pathology testing of glycaemic control (haemoglobin A1c, HbA1c), assessment of cardiovascular and other lifestyle risk factors as well as screening for diabetes-related complications (retinopathy and foot ulceration) (Royal Australian College of General Practitioners and Diabetes Australia, 2014). The DACC clinical requirements are conducted over an 11-13 month period, with a DACC claim lodged at the completion of the cycle, see Table 7-1 for an overview of the minimum requirements.

Table 7-1. Overview of the Diabetes Annual Cycle of Care requirements, as per the Royal Australian College of General Practitioners guidelines for optimal management of diabetes

Clinical requirement	Frequency
Assess diabetes control by measuring HbA1c	At least every year
Ensure that a comprehensive eye examination is carried out*	At least every two years
Measure weight and height and calculate BMI**	At least twice every cycle of care
Measure blood pressure	At least twice every cycle of care
Examine feet***	At least twice every cycle of care
Measure total cholesterol, triglycerides and HDL cholesterol	At least once every year
Test for microalbuminuria	At least once every year
Test for estimated Glomerular Filtration Rate (eGFR)	At least once every year
Provide self-care education	Patient education regarding diabetes management
Review diet	Reinforce information about appropriate dietary choices
Review levels of physical activity	Reinforce information about appropriate levels of physical activity
Check smoking status	Encourage cessation of smoking (if relevant)
Review of medication	Medication review

*Not required if the patient is blind or does not have both eyes
**Initial visit: measure height and weight and calculate BMI as part of the initial assessment
***Not required if the patient does not have both feet

For this report, Medicare item numbers 2517 - 2526 and 2620 – 2635 were used to identify claims relating to the DACC, with Medicare items 66551, 66554 and 66841 used to indicate pathology claims for HbA1c measurement.

Overall, there has been low uptake of the DACC items (Figure 7-22), with less than 4% of women having a DACC claim each year. The rates are very low in the 1989-96 cohort and the 1973-78 cohort, with around 20 women in the youngest cohort having a DACC claim each year, and around 35-40 women from the 1973-78 cohort having DACC claims each year. In contrast, the rate of DACC claims increased over time for women from the 1946-51 cohort, with around 37 women having a DACC claim per 1,000 women (i.e., 3.7%) in 2015. The rate of women with DACC claims in the 1921-26 appears to have plateaued at around 25-30 women per 1,000 women each year (i.e., 2.5 - 3% per year).

Figure 7-22. Number of women with a claim for a Diabetes Annual Cycle of Care (per 1,000 women) between 2002 - 2015, across the four ALSWH cohorts, according to age.

Similar trajectories were observed for HbA1c claims (Figure 7-23) where there appear to be low rates of HbA1c claims over time (less than 10% of women). In recent years, around 83 women had claims for HbA1c testing for every 1,000 women from the 1946-51 cohort (8-8.5%), with the rate of claims increasing as women age towards their 70s. The rate was slightly lower for women from the 1921-26 cohort in recent years, with around 65-70 women having claims for HbA1c testing for every 1,000 women (6.5-7%). There were very few HbA1c claims for women in the 1989-95 cohort and HbA1c testing was also low for women in the 1973-78 cohort, although it looks to be increasing slightly as women age into their 40s.
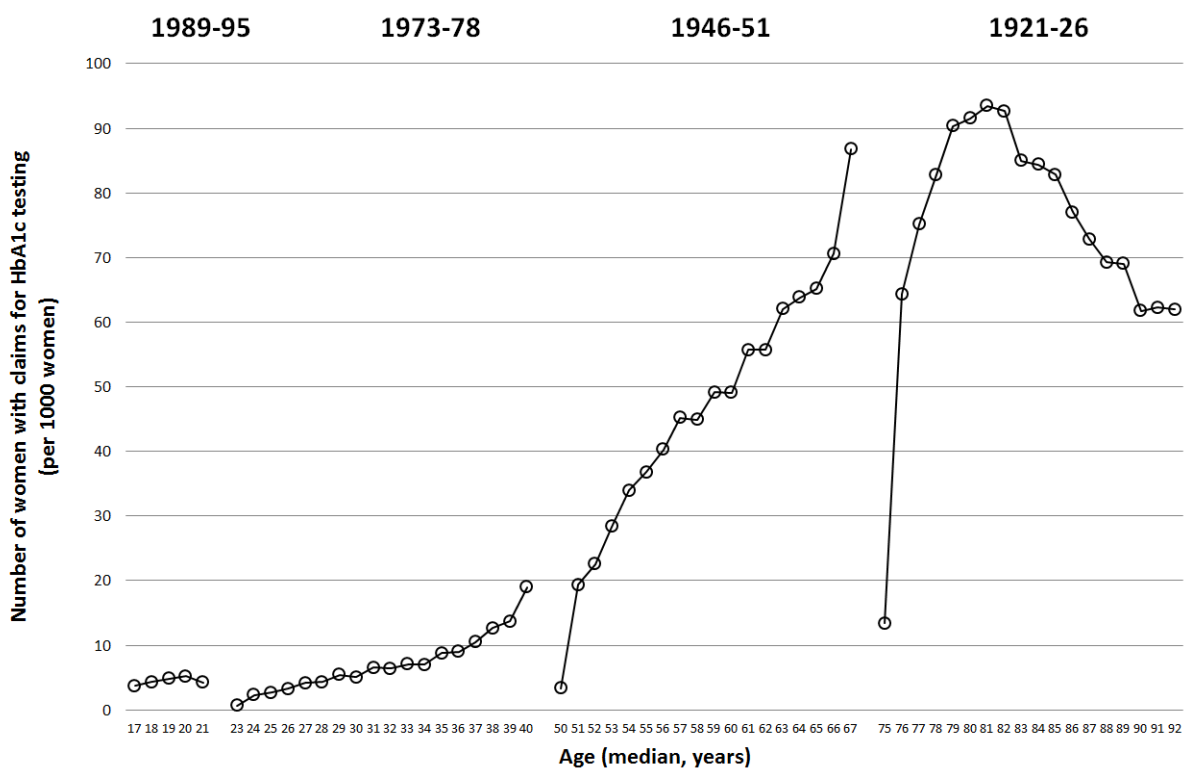
Figure 7-23. Number of women with a claim for HbA1c testing (per 1000 women) between 2002-2015, across the four ALSWH cohorts, according to age.

Among the 1921-26 cohort participants, the prevalence of self-reported diabetes was 12% in 2011 when women were aged 85-90 years old. Around 42% of women who reported having diabetes had no claim for either DACC or HbA1c testing in 2002, increasing to 63% of surviving women with diabetes in 2015 (Figure 7-24). Among women with diabetes, around 15% also had DACC claims over time, while the proportion with HbA1c claims decreased over time.
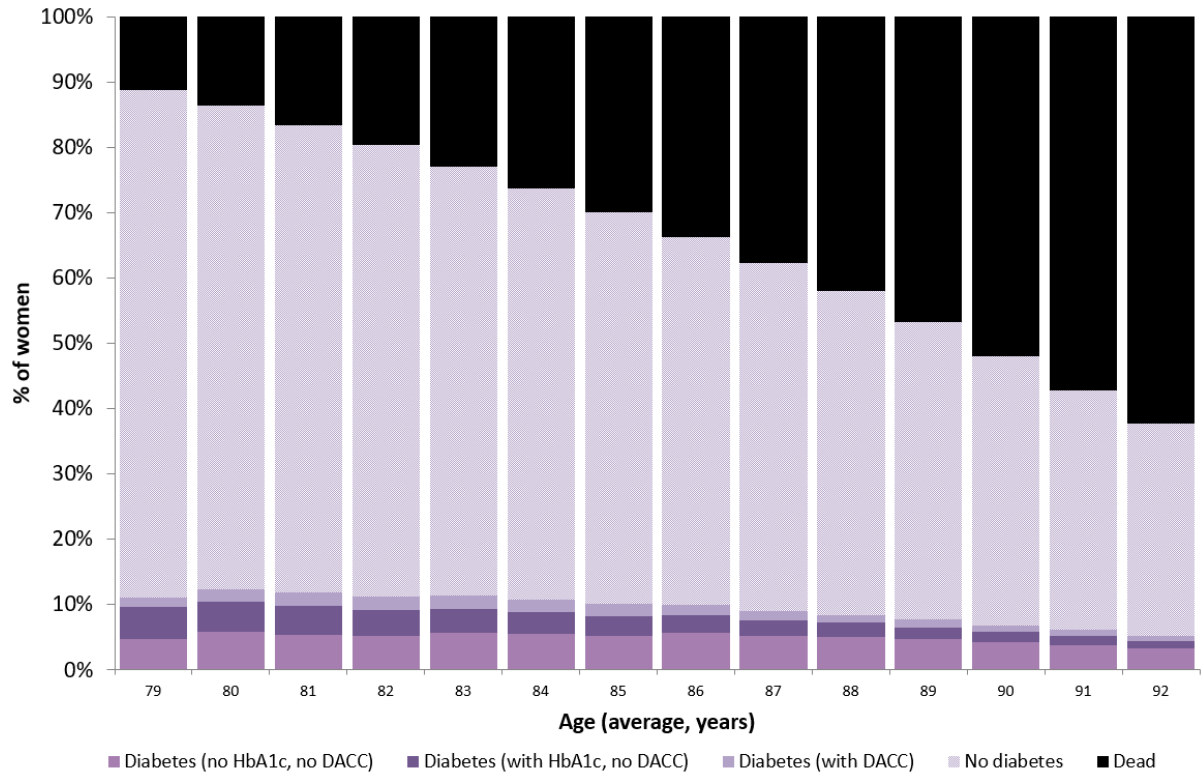
Figure 7-24. Uptake of Diabetes Annual Cycle of Care (DACC) and HbA1c tests for women within the 1921-26 cohort between 2002 and 2015.

In 2002, diabetes was reported by around 6% of women in the 1946-51 cohort, increasing to nearly 12% of women in 2015 (Figure 7-25). Among women who reported diabetes, 59% did not have a DACC or HbA1c test in 2002, which decreased to 52% of women with reported diabetes in 2015. In 2002, around 32% of women with diabetes had a HbA1c test with no DACC claim, while 8% of women with diabetes had a DACC claim. By 2015, 25% of women with diabetes had a HbA1c test with no DACC claim, while 22% of women with diabetes had a DACC claim.
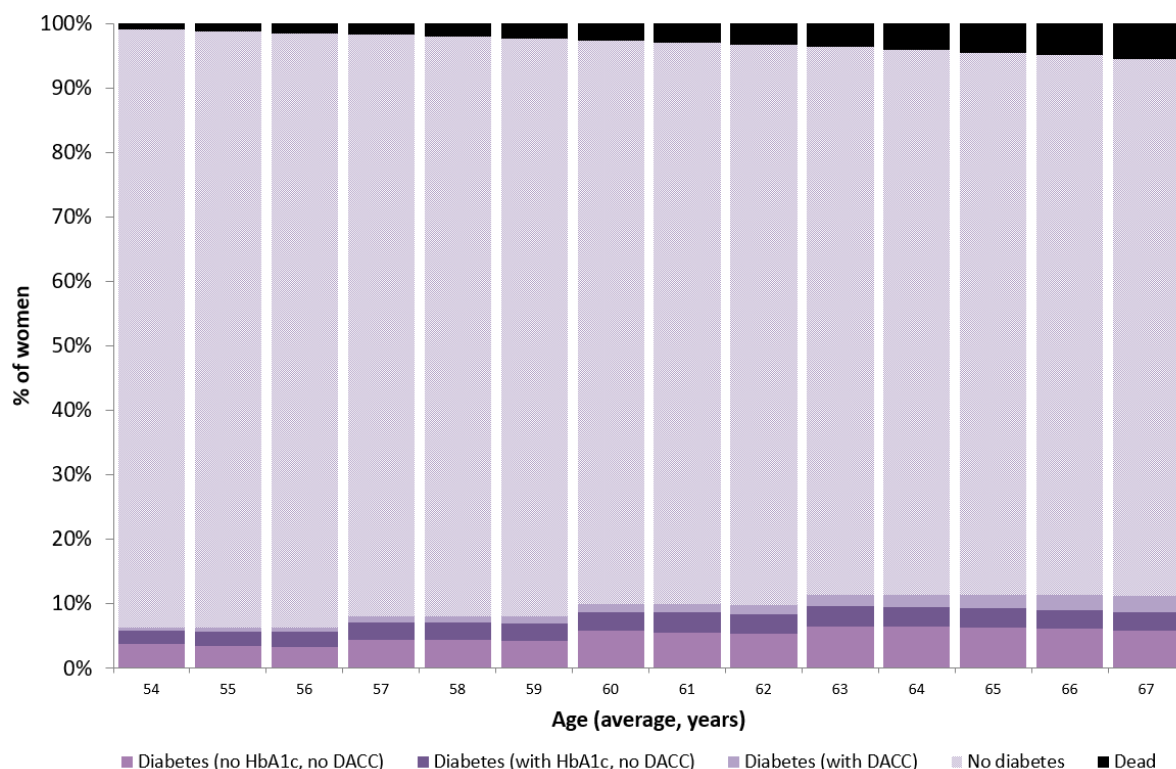
Figure 7-25. Uptake of Diabetes Annual Cycle of Care (DACC) and HbA1c tests for women within the 1946-51 cohort between 2002 and 2015.

Diabetes has a much lower prevalence in the 1973-78 cohort participants, with 1.3% of women reporting diabetes in 2002 and 2.5% in 2015. Consistent with the rates reported in Figure 7-22 and Figure 7-23, very few women had claims for DACC or HbA1c testing without DACC, with approximately 80% of women with self-reported diabetes having no DACC or HbA1c claims.

The analysis presented above for the original three cohorts is not repeated for the 1989-95 cohort due to the very low prevalence of diabetes.

Overall, the uptake of DACC is low amongst women. Our research with women from the 1946-51 cohort with diabetes has shown that women who used this service attended the GP more frequently, took more medications, and had worse physical function than women with diabetes who did not use DACC (Lowe, et al., 2010). The findings indicate, that in its current form, the DACC Medicare items may not provide

the necessary support to achieve optimal health care outcomes for women with diabetes. GPs may require additional incentives to increase the use of these items.

In addition to the DACC, a new set of items were introduced in 2007 to provide patients with type 2 diabetes who are on a GP Management Plan with access to allied health group services (e.g., diabetes educators, exercise physiologists and dietitians), following referral from a GP. These Group Allied Health Service items for people with diabetes (81100-81125) are in addition to the five individual chronic disease management allied health services available to patients each calendar year (items 10950-10970).

Since its introduction in 2007, very few women have had claims for the Group Allied Health Service (GAHS-Diabetes) items for people with diabetes (Figure 7-26). Among the 1973-78 cohort, less than ten women had a GAHS-Diabetes claim between 2007 and 2015. Two women in the 1946-51 cohort had a GAHS-Diabetes claim in 2002, increasing to 32 women in 2015. Around 3-4 women each year made a GAHS-Diabetes claim from within the 1921-26 cohort, with only one woman making a claim in 2015. Only one woman from the 1989-95 cohort made a single GAHS-Diabetes claim in 2010, with another woman making 9 GAHS-Diabetes claims in 2012 (data not shown in Figure 7-26).
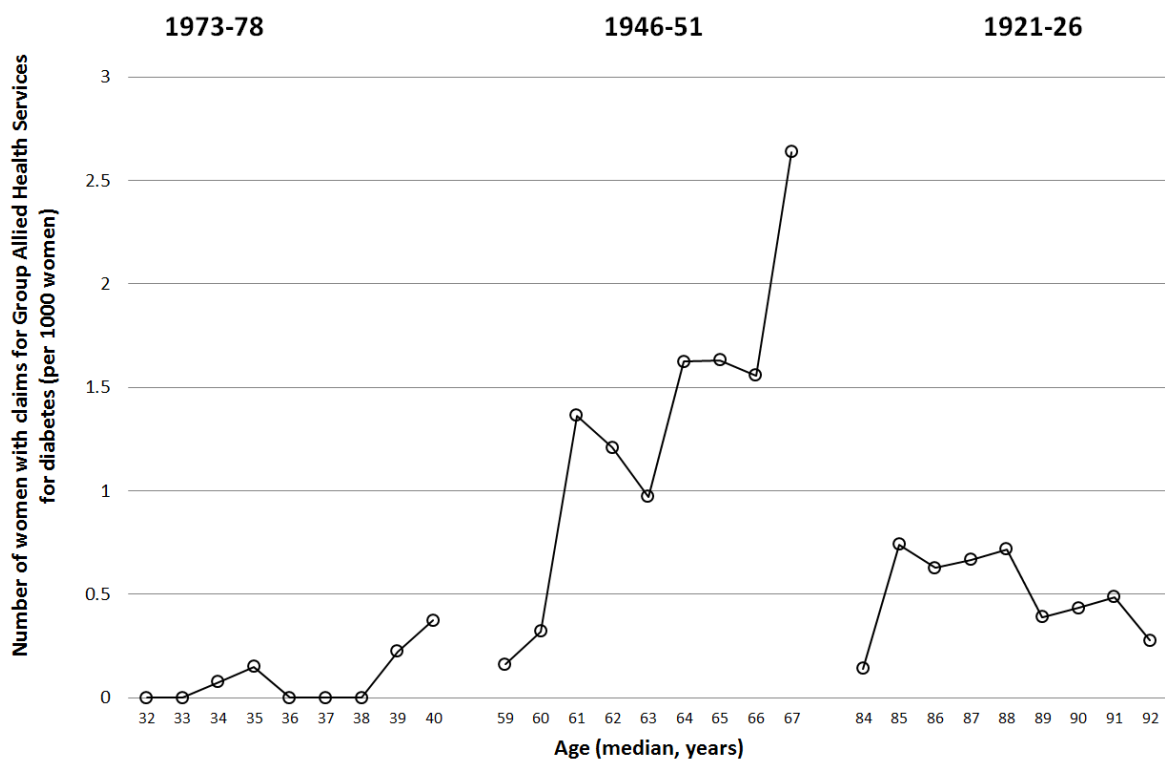
Figure 7-26. Number of women with a claim for Group Allied Health Services for diabetes (per 1,000 women) between 2007-2015, across the older three ALSWH cohorts, according to age.

7.4.2. Key points

- Overall, there has been low uptake of the DACC items with only 15-22% of women with diabetes making a DACC claim each year, despite the increased prevalence of diabetes across cohorts and with age.

- Up to 42% of women with diabetes had HbA1c blood monitoring, however they did not have corresponding claims in the same year for the complete DACC services.

- Even fewer used the Group Allied Health Service for diabetes-related services.

- Many women who reported having diabetes had no claim for either a DACC or HbA1c testing. It is not known whether or not GPs offered the service to patients or whether the patients declined to use the program.

- Given that diabetes is a national health priority area, it is concerning that services specifically directed for diabetes management have low uptake. Increasing understanding of potential systemic blocks to the use of these service items may facilitate greater uptake.

7.4.3. Asthma

Asthma is a common chronic inflammatory disease involving the airways. Symptoms of asthma range from episodic wheezing, breathlessness and chest tightness to widespread narrowing of the airways. Data from the 2014-15 National Health Survey suggests 10.9% of Australians have asthma, a 1.1% increase since 2007-08, with higher prevalence among women (12%) than men (10%) after the age of 14 years (Australian Bureau of Statistics, 2016). Asthma and respiratory problems are becoming increasingly common in older adults, with peak prevalence occurring over the age of 75 years (Gibson, et al., 2010), although this is likely to be an under-representation due to difficulty with diagnosis (including frailty and comorbidity), as well as patient perceptions of breathlessness being a normal part of the ageing process (Andrews and Jones, 2009). ALSWH data have shown that asthma is associated with poor outcomes for older women including decreased quality of life (Byles, et al., 2015) and increased risk of mortality (Eftekhari, et al., 2016a). Asthma has also been found to be associated with increased hospital admissions. In particular, Harris et al. found a 19% relative increase in risk of hospitalisation for women in the 1921-26 ALSWH cohort, when the geographic inequalities associated with hospital admission were accounted for (Harris, et al., 2016b).

In order to effectively manage asthma symptoms and reduce poor outcomes, the National Asthma Council established a six-step Australian Asthma Management Plan in 1999, with the Asthma 3+ visit listed on the MBS in 2001. This was subsequently replaced in 2006 by the Asthma Annual Cycle of Care (AACC) initiative which involves at least two asthma-related consultations within 12 months for patients with moderate to severe asthma (defined as having symptoms on most days or the use of preventive medication or bronchodilator use three times per week, or hospital attendance/admission following an acute exacerbation). These visits are designed to document diagnosis and assessment of severity and control, review the use of, and access to asthma-related medications, provide a written asthma action plan as well as provide self-management education (Australian Centre for Asthma Monitoring 2011). The asthma cycle of care is designed to be administered by one GP (or another GP in the same practice in exceptional circumstances).

Using data from the 1946-51 and 1921-26 cohorts of the ALSWH, Eftekhari and colleagues (Eftekhari, et al., 2016b) found that the uptake of the AACC among older women was very low, with only 5% of women with asthma in these cohorts making AACC claims. In this report, we extend these analyses by examining the uptake of the AACC across all four ALSWH cohorts using currently available MBS data up to 2015 (with the exception of the 1989-95 cohort which has data from 2009 to 2013). The item numbers 2546 – 2559 and 2664 – 2677 were used to identify the AACC claims.

Since its introduction in 2006, the uptake of the AACC items has been low, with around 20-30 women having AACC claims from every 1,000 women (2-3%) (Figure 7-27). The highest uptake was among women from the 1946-51 cohort – in 2015, nearly 4% of these women had an AACC claim. In comparison, women from the 1973-78 and 1921-26 cohorts had similar claim rates, with around 18-20 women with AACC claims per 1,000 women (i.e., 1.8 - 2.0%). The rate of AACC claims was even lower for women from the 1989-95 cohort, with around 10 women having AACC claims for every 1,000 women in 2013 (i.e., around 1%).
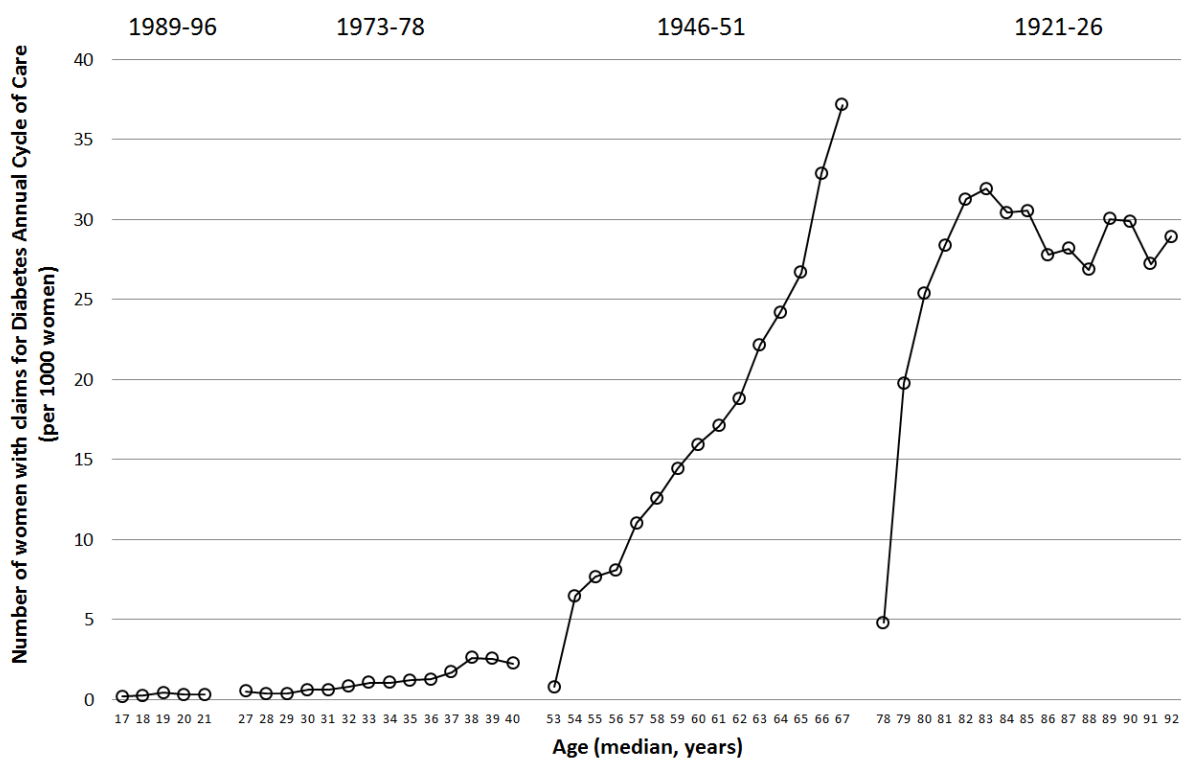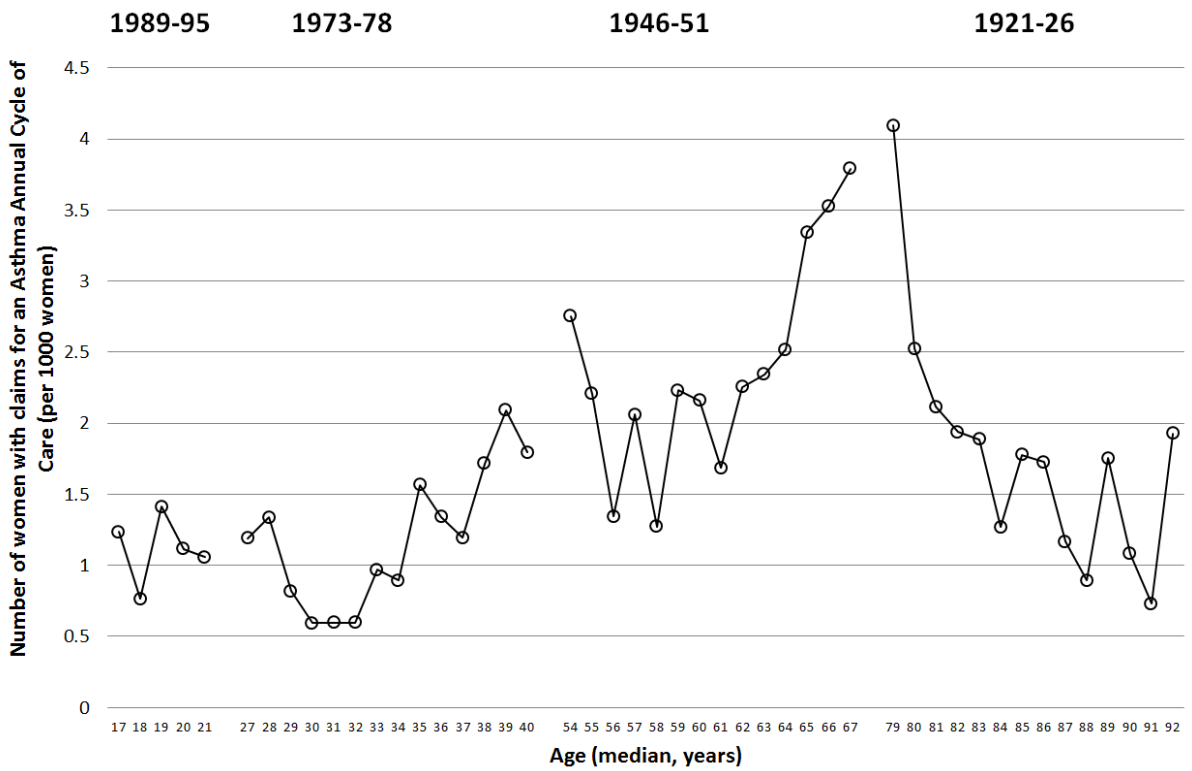
Figure 7-27. Number of women with a claim for an Asthma Annual Cycle of Care (per 1,000 women) between 2007- 2015, across the four ALSWH cohorts, according to age*.

(* for the 1989-95 cohort, MBS claims were assessed between 2009 and 2013 only)

Asthma was reported by around 15% of women from the 1921-26 cohort (Figure 7-28). In 2002, just under 10% of women who had reported asthma had made a claim for AACC or CDM. By 2015, this had increased to nearly 45% of surviving women who had reported asthma.
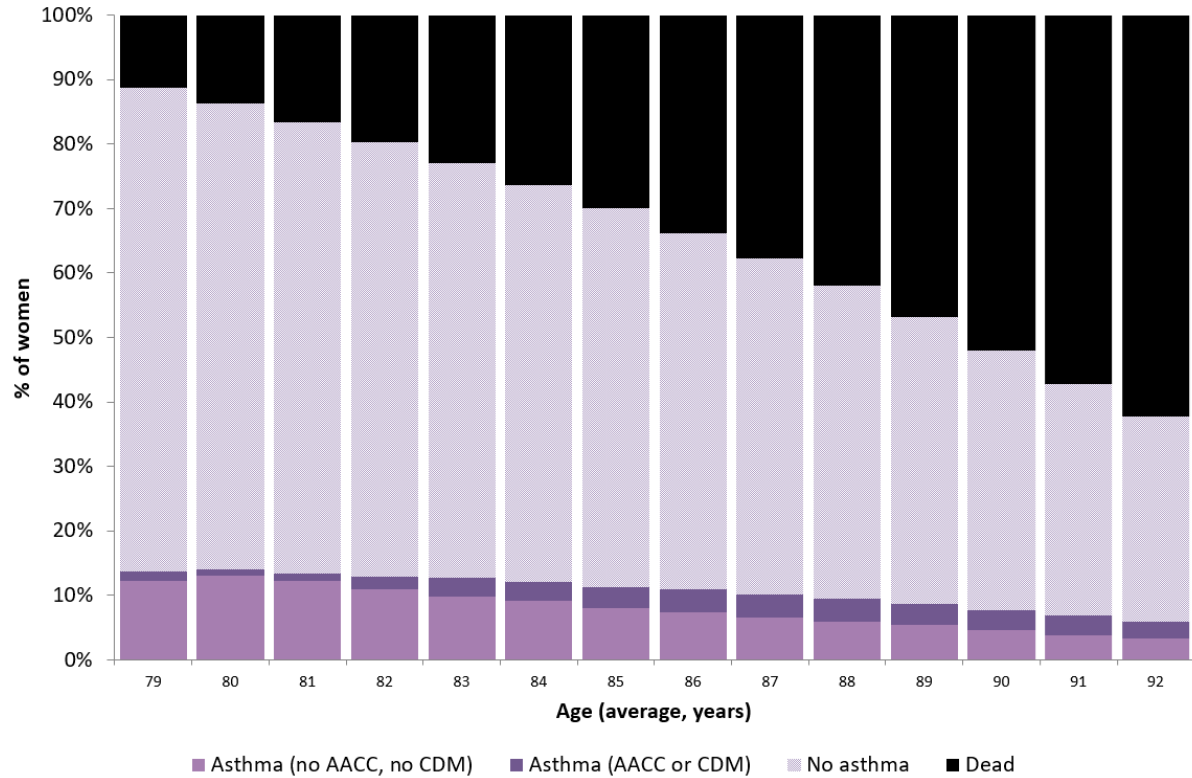
Figure 7-28. Uptake of Asthma Annual Cycle of Care (AACC) and Chronic Disease Management (CDM) items for women who have reported asthma within the 1921-26 cohort between 2002 and 2015.

Among the 1946-51 cohort, the prevalence of self-reported asthma was 21% in 2002, increasing to 24% in 2015 (Figure 7-29). Among women who reported asthma, around 2% had an AACC claim or a CDM claim in 2002, increasing to nearly 35% of surviving women who had reported asthma in 2015.
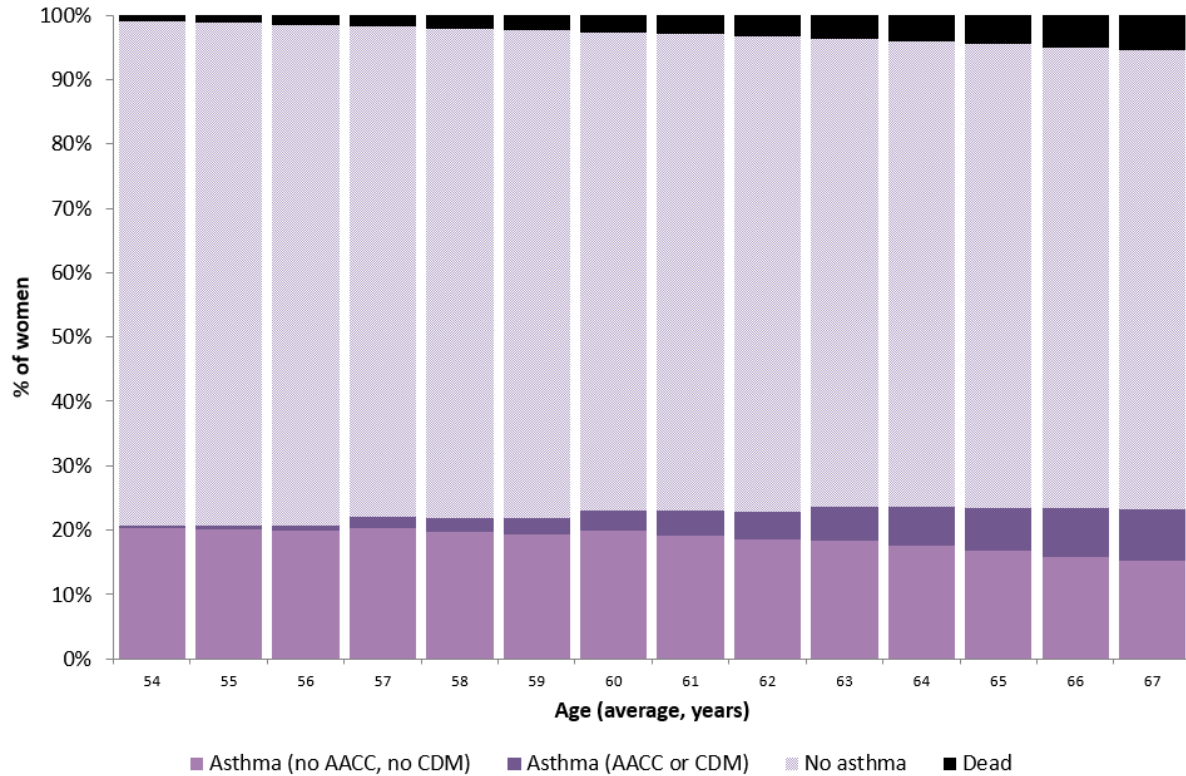
Figure 7-29. Uptake of Asthma Annual Cycle of Care (AACC) and Chronic Disease Management (CDM) items for women who have reported asthma within the 1946-51 cohort between 2002 and 2015.

Asthma was reported more frequently amongst women in the 1973-78 cohort with a prevalence of around 30% between 2002 and 2015 (Figure 7-30). Use of the AACC or CDM items was low, with around 10% of women who reported asthma having an AACC or CDM claim in 2015.
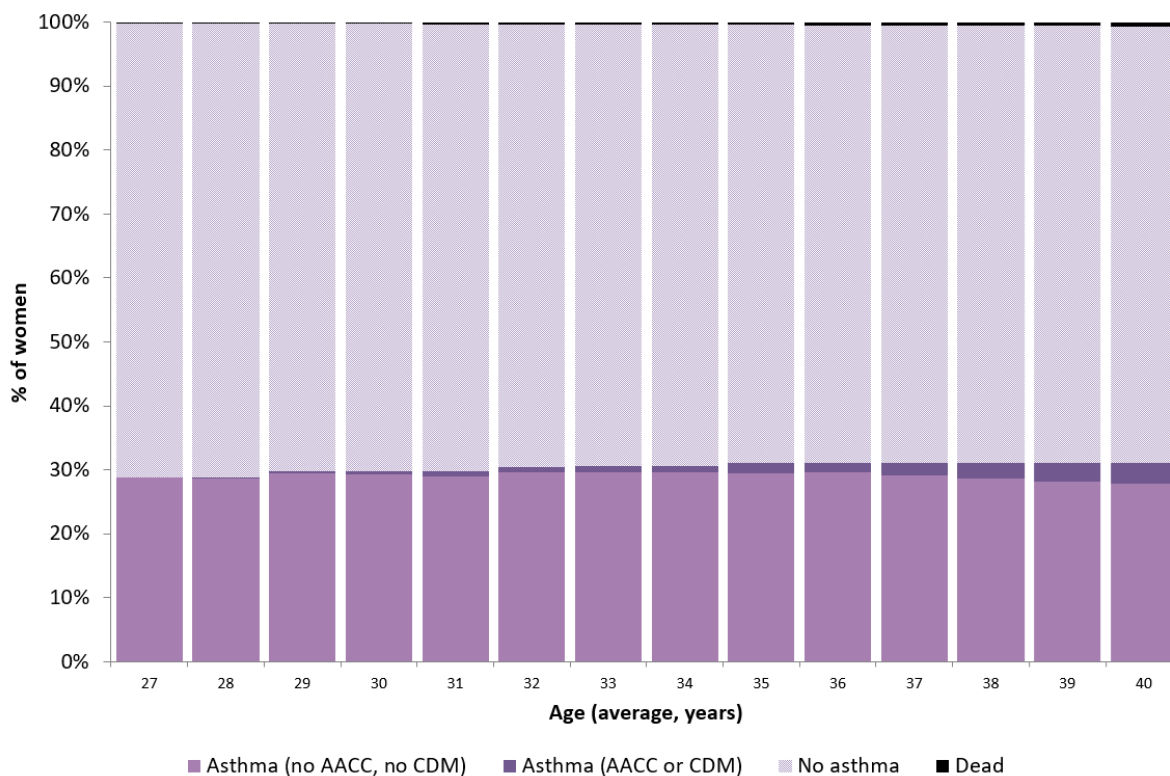
Figure 7-30. Uptake of Asthma Annual Cycle of Care (AACC) and Chronic Disease Management (CDM) items for women who have reported asthma within the 1973-78 cohort between 2002 and 2015.

7.4.4. Key points

- Since the introduction of AACC, there has been a slow but steady uptake of AACC and CDM items by women with self-reported asthma.

- 35-45% of mid-aged and older women with asthma claimed AACC and CDM items in 2015.

- Amongst young women, where asthma is most prevalent, only 10% of those with asthma used AACC and CDM services.

- Given that asthma is a national health priority area, it is concerning that services specifically directed for asthma management have low uptake, particularly in young women. Further investigation into the causes of low uptake including systemic barriers, GP incentives and patient concerns may facilitate greater use of AACC.

7.5.   Use of the 75+ Health Assessments.

The Australian Federal Government introduced the Enhanced Primary Care (EPC) package in 1999 as a set of MBS claim items (Department of Health and Aged Care, 1999). These government supported services were intended to improve the regularity and quality of health care provided by GPs to older Australians. In particular, these annual health assessments were designed to assess the health, identify health issues, plan multidisciplinary care and management options for people with chronic diseases and other complex care needs; with the main objective to reduce the burden of avoidable hospitalisations from chronic diseases in the longer term (Department of Health and Aged Care, 1999).

Item numbers 700 and 702 were initially introduced in 1999 as the annual health assessment items for non-indigenous people aged 75 years and over. Item numbers 704 and 706 were the health assessment items for 55 years and older people of Aboriginal or Torres Strait Islander descent. In 2004, two new health assessment items were introduced: item 710 for Aboriginal or Torres Strait Islander people and item 712 for a comprehensive medical assessment of permanent residents of a residential aged care facility. New Enhanced Primary Care items 714 and 716 were introduced in 2006 for patients who were granted residency in Australia under the Humanitarian Program, and items 718 and 719 were for people with intellectual disability.

As a result of the MBS review of Medicare primary care items in 2010, there were some major reforms in the health assessment items. Items 700, 702, 704, 706, 718, 719, 712, 714 and 716 were replaced by four time-based items: 701 – brief assessment; 703 – standard assessment; 705 – long assessment and 707 – prolonged assessment. The length of the consultation with the GP is determined by the complexity of the patient's presentation.

The annual 75+ health assessment is an in-depth, structured assessment which covers the following areas:

i)   Assessing patient's overall health status

ii)   Any tests undertaken and their results (only applicable if any issues necessitating diagnostic tests are detected)

iii)   Identifying health issues, recommending actions to be taken by patient and / or carer

iv)   Patient history (government provided or funded disability service; previous presentation; family relationships and care arrangements)

v)   Current issues and current risk factors

vi)   Health assessments: blood pressure; pulse rate and rhythm; medication review; assessment of continence, psychological function, physical function and social function; immunization status.

vii)   Optional components assessed (if relevant to patient) are: multisystem review; alcohol consumption; smoking; level of exercise; fitness to drive; foot care; hearing; vision; weight, height and BMI; sleep patterns; need for community services; home safety; mobility; diet; cardiovascular risk factors; postural hypotension and oral health.

Figure 7-31 shows a steady increase in uptake of the 75+ health assessments among the 1921-26 cohort from 1999 to 2003. Around 8% of women had an assessment by the year 2000 (when the cohort were 74 – 79 years of age). In 2001, 4% of women had a subsequent assessment, and another 12% of women had an initial assessment. The uptake of health assessment among surviving women gradually increased up to 2003-2004, showing some uptake in first assessments right through to 2013. However, each year, a large proportion of women had either never had an assessment, or did not have a repeat assessment for that year. By December 2013, when they were 87 – 92 years, 14% of the original sample were still alive, but had never had a health assessment.
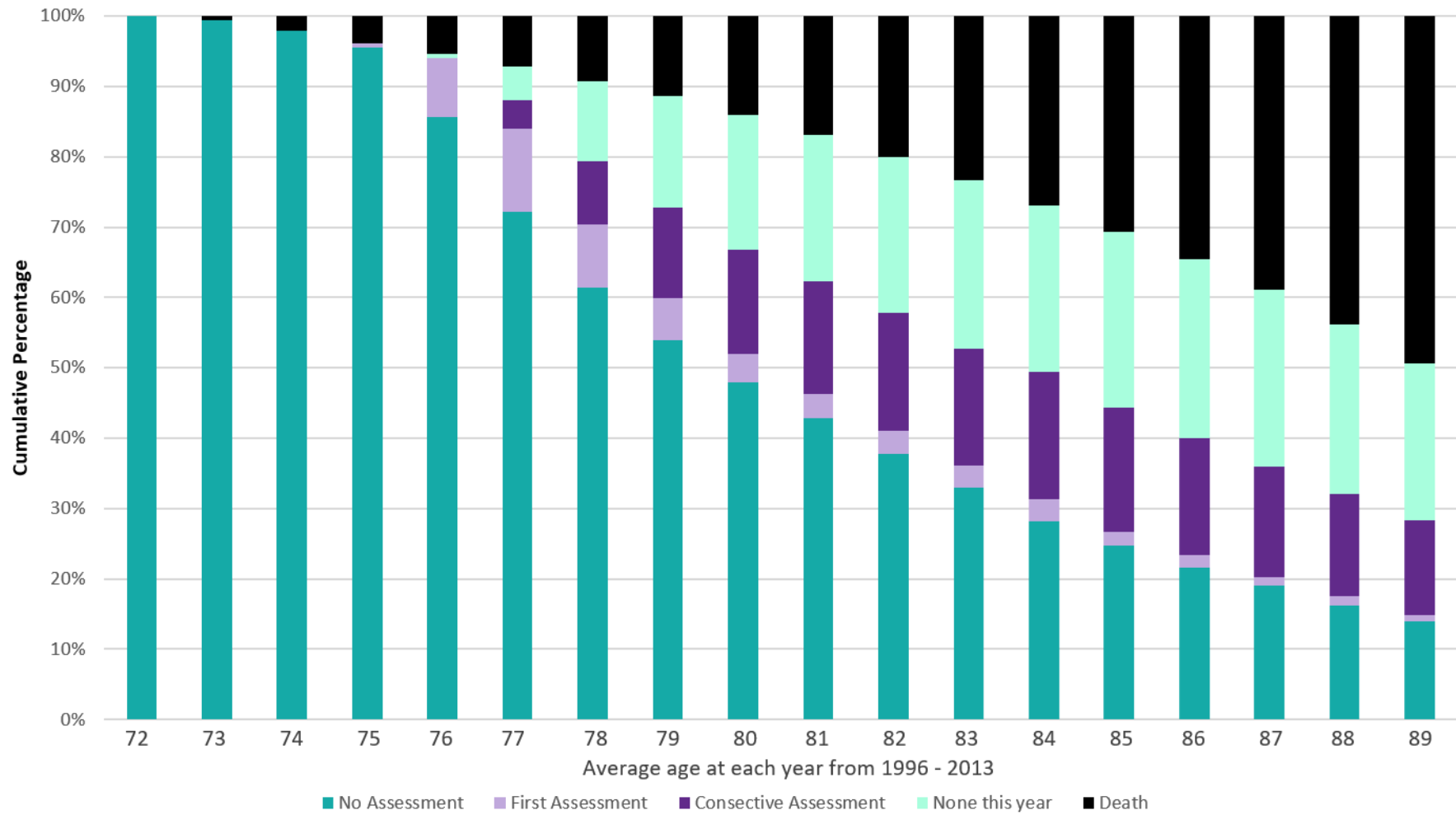
Figure 7-31. 75+ health assessments for women within the 1921-26 cohort from 1996-2013: Cumulative percentages of no assessment, first or consecutive assessment, no follow-up assessments and death.

Latent class analysis revealed four patterns of uptake of 75+ health assessments. The first pattern is shown in Figure 7-32 and represents 22% of the women. These women had a relatively high probability of having a health assessment in each of the years from 1999-2015, when the average age was 75 – 91 years. The peak uptake of health assessments was seen around 2004 – 2009 when around 70% of the women had a health assessment in each of these years.   However, after 2007 a gradual decline in annual assessments can be seen, with around 36% of women having had a health assessment in 2010 (average age of 86 years), and only 20% and 15% having assessments in 2014 and 2015, respectively. Women in this group showed a pattern of later mortality, surviving until 2010, and only 35% of participants were deceased by 2015 (average age of 91 years).

Figure 7-32. Pattern of uptake of 75+ health assessment from 1999 – 2015. 'Higher assessments, late deaths' group (21.7%) of women in the 1921-26 cohort.

Figure 7-33 shows a comparable group of women who had very low, but continuous use of assessments in each of the years from 1999 (aged 75 years on average) to 2015 (aged 91 years on average). For this group, the highest assessment rate in any one year was under 20%. This group also showed a pattern of later mortality, with 30% of the women in this group deceased by 2015.
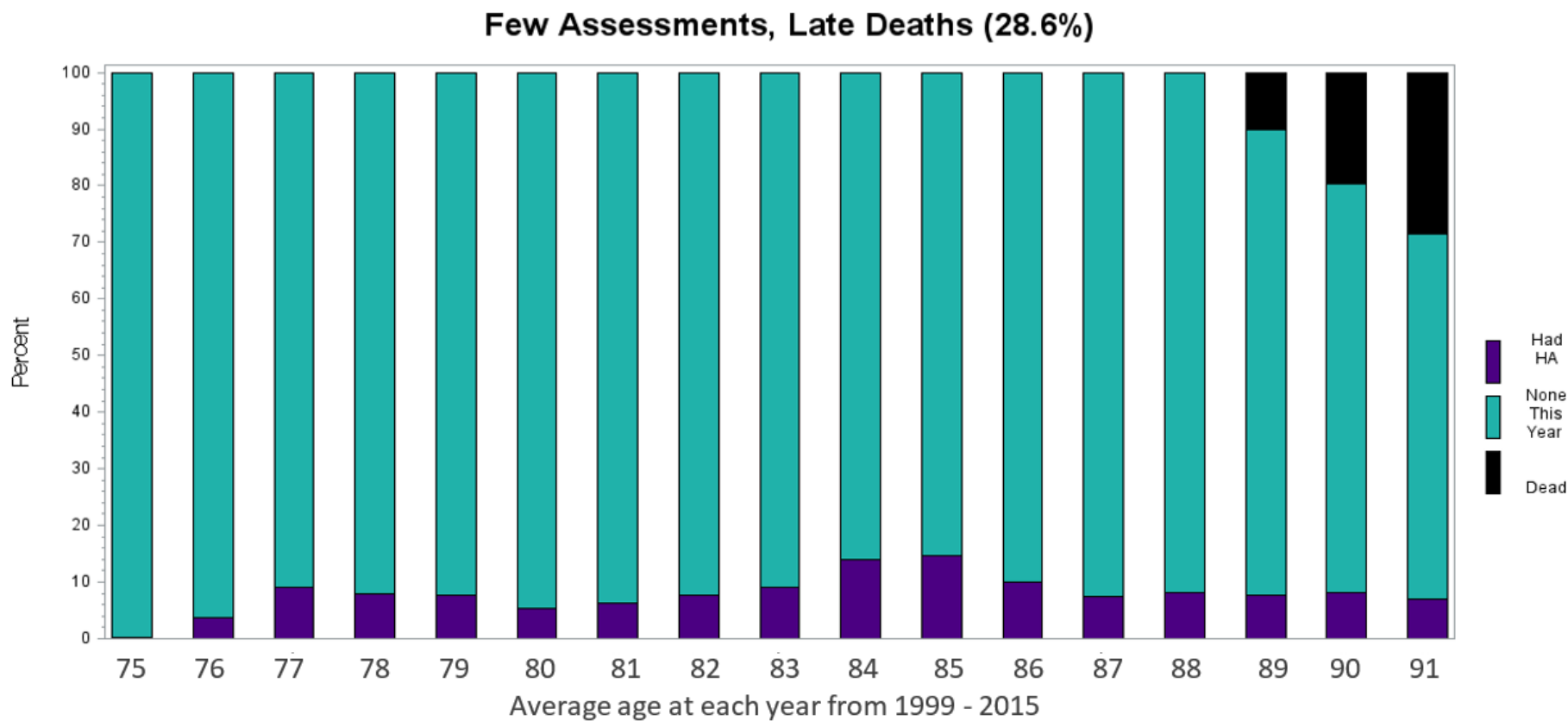
Figure 7-33. Pattern of uptake of 75+ health assessment from 1999 – 2015. 'Few assessments, late deaths' group (28.6%) of women in the 1921-26 cohort.

Figure 7-34 represents the 27% of women classified as having a low probability of having yearly assessments, and a higher mortality rate than the two previous groups. In this group of women, a peak in uptake of health assessment can be seen in 2006 when approximately 22% women had an assessment. By 2011, 80% of women from this "some assessments, intermediate deaths" group had died, and all were deceased by 2012.
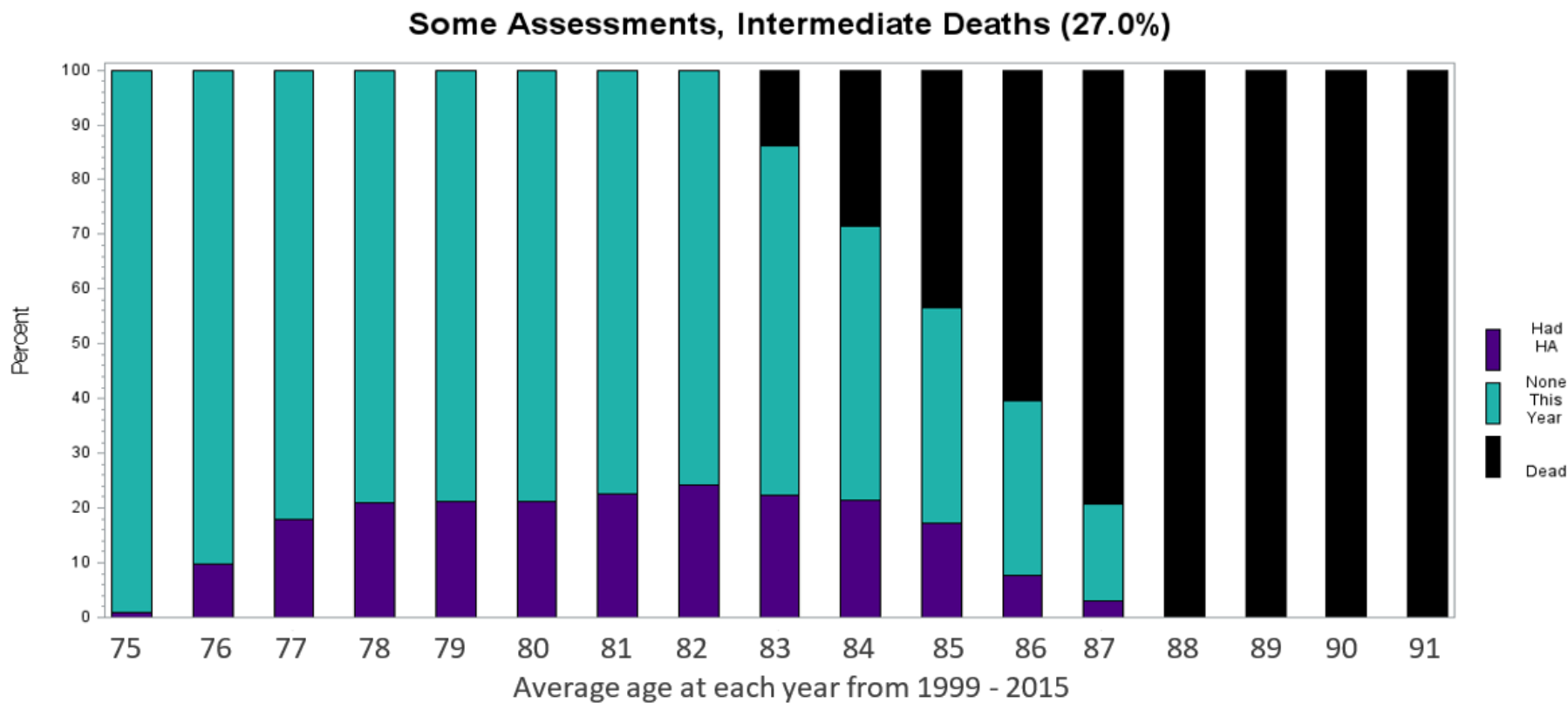
Figure 7-34. Pattern of uptake of 75+ health assessment from 1999 – 2015. 'Some assessments, intermediate deaths' group (27%) of women in the 1921-26 cohort.

Figure 7-35 shows the 22.7% of women who had very few assessments in the initial years of introduction of the 75+ health assessment, and who had a very high mortality rate. Among this group of women, approximately 10% had a health assessment in each of the years 2001 and 2002. However, 50% of women in this group had died by 2003 (average age of 79 years), and by 2006 all women were deceased.
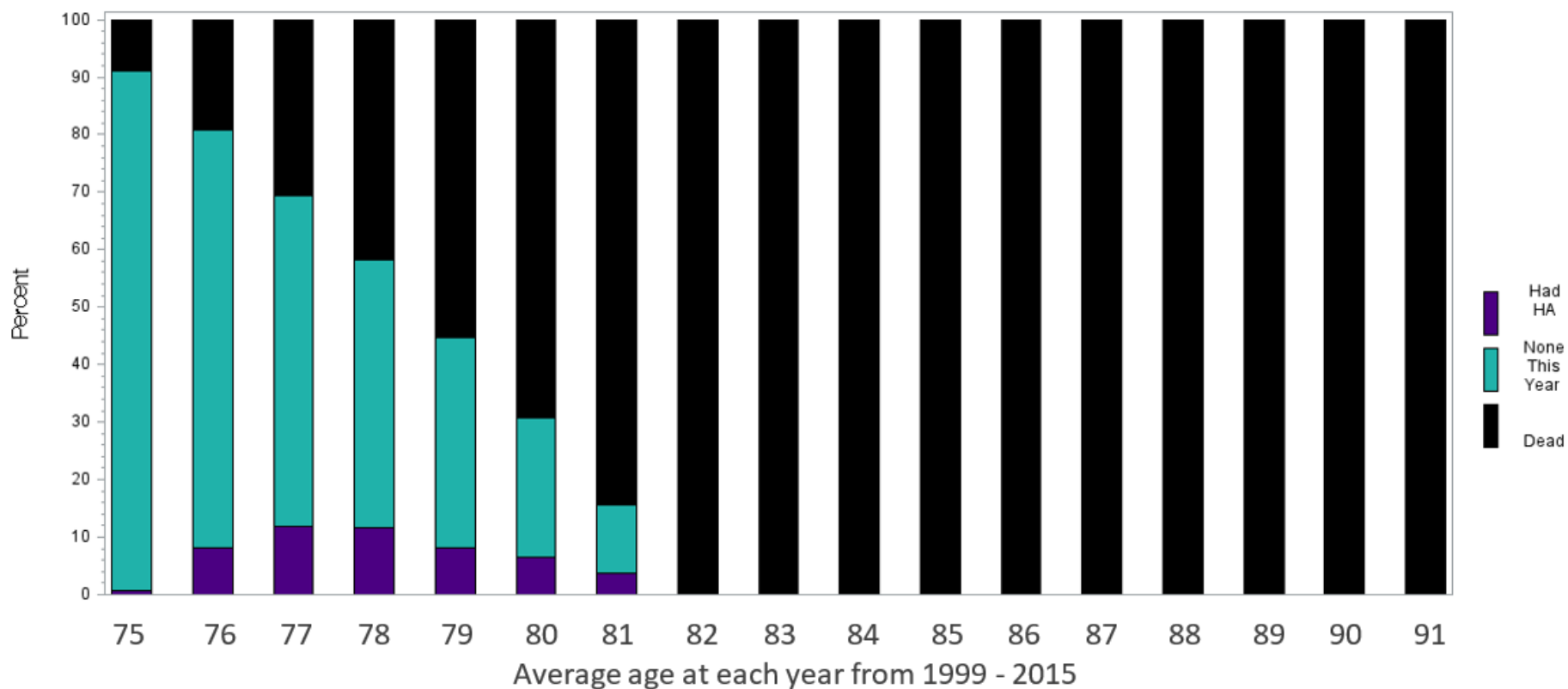
Figure 7-35. Pattern of uptake of 75+ health assessment from 1999 – 2015. 'Few assessments, early deaths' group (22.7%) of women in the 1921-26 cohort.

These four patterns of the uptake of 75+ health assessment were furthered explored to identify whether women in the four latent classes had different characteristics at baseline (Survey 2 in 1999, when the average age of women was 75 years, was considered as the baseline survey) (See Table 7-2). There were a few differences seen among the patterns at the baseline survey. For example, women classified as having 'few assessments and early deaths' were more likely to report having diabetes, heart disease, major illness and needing help in daily tasks.

Table 7-2. Characteristics of women from the 1921 – 26 cohort at Survey 2 (1999) for each 75+ health assessment pattern

Baseline characteristics Survey 2	Patterns of uptake of the 75+ health assessment			
	High assessments, late deaths N = 1,965 %	Some assessments, intermediate deaths N = 2,479 %	Few assessments, early deaths N = 2,085 %	Few assessments, late deaths N = 2,655 %
Health Factors				
Diabetes				
Yes	4.7	7.1	8.5	4.4
Arthritis				
Yes	38.5	33.2	31.9	33.6
Heart diseases				
Yes	9.3	13.4	14.4	7.8
Asthma				
Yes	6.8	7.3	7.8	5.5
Bronchitis				
Yes	4.6	5.8	7.8	3.9
High blood pressure				
Yes	29.5	28.9	26.3	25.5
Stroke				
Yes	1.2	3.3	4.6	1.6
Depression				
Yes	5.0	7.1	7.2	4.3
Anxiety				
Yes	4.2	5.9	5.4	3.7
Osteoporosis				
Yes	9.3	11.7	11.5	8.9
Dementia				

Baseline characteristics Survey 2	Patterns of uptake of the 75+ health assessment			
	High assessments, late deaths N = 1,965 %	Some assessments, intermediate deaths N = 2,479 %	Few assessments, early deaths N = 2,085 %	Few assessments, late deaths N = 2,655 %
Yes	0.2	0.5	1.7	0.1
Major illness				
Yes	7.1	9.9	14.5	5.5
Thrombosis				
Yes	1.4	1.5	1.3	1.3
Low iron				
Yes	3.2	4.7	5.6	2.3
Breathing difficulty				
Yes (rare/sometime/often)	13.3	15.4	19.4	10.7
Pain in joints				
Yes (rare/sometime/often)	42.3	35.9	33.1	28.0
Back pain				
Yes (rare/sometime/often)	39.2	33.8	32.8	35.8
Dizziness				
Yes (rare/sometime/often)	18.2	17.4	18.0	16.7
Hearing difficulties				
Yes	9.6	7.3	7.3	7.7
Falls / Injury				
Yes	37.6	36.7	34.8	34.7
Major surgery				
Yes	37.5	34.0	33.2	33.5
GP consultation				
0 – 4 / year	38.6	32.4	25.1	43.5

Baseline characteristics Survey 2	Patterns of uptake of the 75+ health assessment			
	High assessments, late deaths N = 1,965 %	Some assessments, intermediate deaths N = 2,479 %	Few assessments, early deaths N = 2,085 %	Few assessments, late deaths N = 2,655 %
> = 5 / year	51.0	50.4	52.1	41.2
Ease to access GP of choice				
Poor / Don't know	8.9	8.6	7.6	9.3
Good / Excellent	73.6	62.5	57.0	67.4
Hospital stay				
1–3 days / last 12 months	10.2	8.5	7.8	9.1
4–7 days / last 12 months	4.7	5.5	6.5	4.1
>=8 days / last 12 months	5.4	6.8	10.6	4.4
Using prescribed medications				
Yes	88.7	82.7	76.0	83.4
BMI				
Healthy (18.5<= BMI <25)	40.9	35.3	32.1	39.3
Underweight (BMI <18.5)	1.7	3.4	4.8	1.5
Overweight (25<=BMI<30)	30.3	24.6	16.8	26.5
Obese (30<= BMI)	10.1	9.9	10.6	9.7
Smoking				
Former smoker	25.3	25.3	24.2	22.6
Current smoker	2.1	4.8	5.9	2.4
Alcohol consumption				
Low – high risk drinker	54.9	44.8	38.2	52.5
Quality of Life Factors				
Using community services*				
Yes	27.0	26.3	27.7	22.8

Baseline characteristics Survey 2	Patterns of uptake of the 75+ health assessment			
	High assessments, late deaths N = 1,965 %	Some assessments, intermediate deaths N = 2,479 %	Few assessments, early deaths N = 2,085 %	Few assessments, late deaths N = 2,655 %
Needing help in daily tasks				
Yes	5.2	9.8	19.3	4.2
Informal caring responsibility				
Yes	40.0	29.0	21.5	40.2
Socio-demographic Factors				
Marital status **				
Partnered	50.1	42.0	37.9	46.7
Not Partnered	39.8	42.0	40.1	38.5
Area of residence				
Metropolitan	36.2	32.2	29.2	35.5
Inner regional	36.3	35.3	32.0	33.0
Outer regional	16.1	14.6	14.7	14.8
Remote / very remote	1.6	2.0	2.1	2.2
Housing status				
House / other	64.7	55.4	49.7	62.5
Apartment	13.7	13.7	12.8	13.3
Residential Aged care	5.4	4.8	4.0	3.0
Managing on income				
Difficult / impossible	22.2	19.7	18.7	20.4

7.5.1. Key points

- There was a steady increase in uptake of the 75+ health assessments among the 1921-26 cohort from 1999 (aged 73-78 years) to 2003 (aged 77-82 years).

- Around 8% of women had an assessment by the year 2000. The uptake of health assessment among surviving women gradually increased up to 2003-2004, showing some uptake in first assessments right through to 2013.

- Each year, a large proportion of women had either never had an assessment, or did not have a repeat assessment for that year.

- Other than survival, few baseline factors distinguish women who have had an assessment and those who have not.

8. USE OF AND ACCESS TO TARGETED ITEMS

8.1. Telehealth

Women in telehealth eligible areas of Australia have access to specialist video consultations under Medicare. This provides many patients with easier access to specialists, without the time and expense involved in travelling to major cities. Most geographic areas outside of major cities are eligible for telehealth. At the time of the video consultation, there must be 15 km by road between a patient and a specialist, consultant physician, or consultant psychiatrist.

Telehealth Services include MBS items:

- Unreferred attendances – other: 2100, 2126, 2143, 2195, 2122, 2137, 2147, 2199, 2125, 2138, 2179, 2220

- Unreferred attendances –practice nurse items: 10983, 10984

- Specialist: 99, 112, 113, 114, 149, 288, 384, 389, 2799, 2820, 3003, 3015, 6004, 6016, 17609,

- Obstetrics: 16399,

- Miscellaneous: 13210, 82150, 82151, 82152, 82220, 82221, 82222, 82223, 82224, 82225.

(Additional information about these items is included in Appendix D: Telehealth items)

In July 2011, the Australian Government introduced MBS items for people living in outer metropolitan, regional and remote areas of Australia. These services enabled patients living in more remote areas to have easier access to specialist consultations without having to travel into major cities for services.

From the ALSWH, 332 (0.87%) women have used telehealth services since they were introduced in 2011. Women have claimed between 1 and 44 services, with women from the 1946-51 cohort claiming 52% of the services compared to 32% by the 1973-78 cohort, and 16% by the 1921-26 cohort (see Figure 8.1).

All services were performed out of hospital, with 65% of claims provided by specialist services including obstetrics, 27.6% of services claimed for unreferred attendances, and 7.3% of services by a practice nurse. Only 0.2% were miscellaneous claims. Approximately 99.2% of all claims were bulk billed; telehealth services not bulk billed included some specialist attendances and other unreferred attendances.

Of the 332 women from all cohorts who used the telehealth services, approximately 30% had not completed their sixth survey. For the women who returned Survey 6, a greater proportion lived outside the major cities (89.7%). Of these women, 46.1% were living in inner regional Australia, 37.5% in outer regional areas and 6.0% in remote/very remote areas. These women were more likely to be partnered (70%) and have excellent/good self-reported general health (61%). Women from the 1973-78 cohort had significantly higher mean physical functioning 90.4 (median: 95.0) compared to women from the 1946-51 and 1921-26 cohorts (78.6 (median: 85.0) vs 42.8 median: 40.0, respectively). Mean mental

health scores were relatively consistent across the cohorts for the women using the telehealth services (75.7 (76.0) vs 76.6 (80.0) vs 78.2 (80.0), respectively).

The uptake of telehealth services has grown steadily since its introduction in July 2011 (see Figure Figure 8-2). By the end of December 2015, the number of participants and claims had almost doubled for women from the 1946-51 cohort. In the 1973-78 cohort, the number of participants using telehealth services had remained constant, but access to the services had continued to increase. Use of telehealth services by women in the 1921-26 cohort had remained stable since the initial uptake. This may be an indication of the women lost due to death in this cohort, rather than older women not needing the services.

Only 34 women from the 1989-95 cohort had used telehealth services in 2012 and 2013. The number of participants in this age group using telehealth services remained stable, but the number of claims doubled over the two year time period. Women were more likely to be living in non-urban areas, predominately in inner and outer regional Australia (61.8%), be partnered (55.9%), have fair/poor general health (55.9%), and find it impossible or difficult to manage with their income (60.3%).
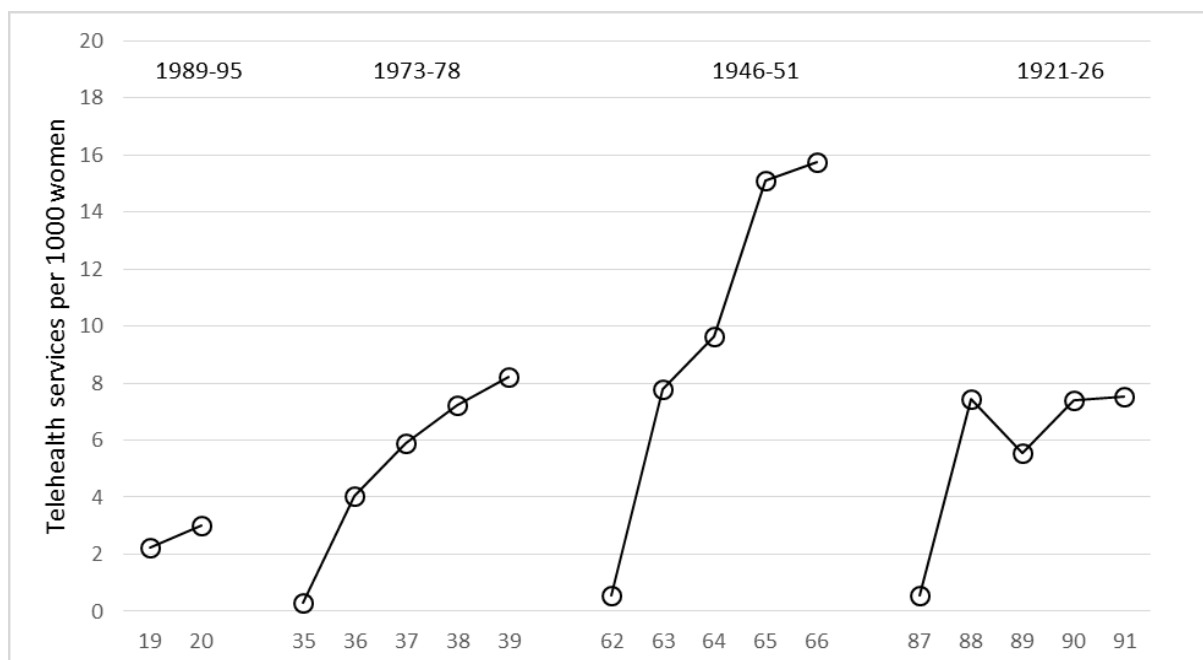
Figure 8-1. Number of telehealth services used per 1,000 women across the four cohorts by age.
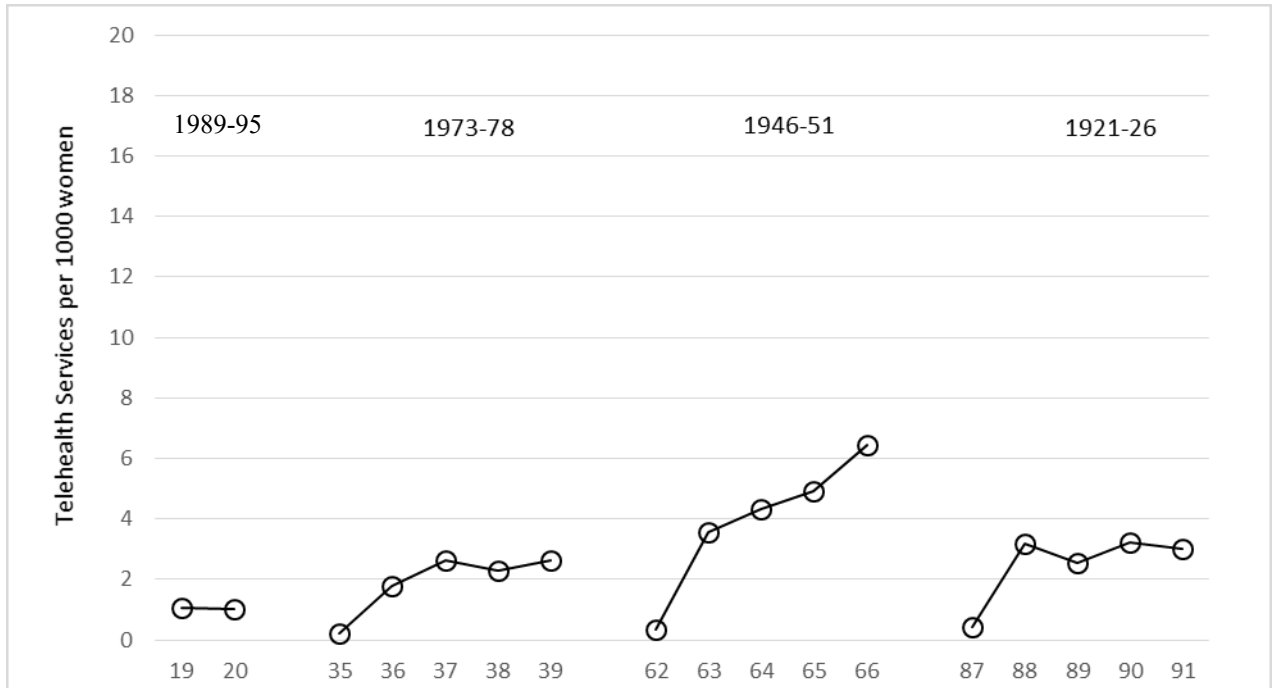
Figure 8-2. Number of women who claimed at least one telehealth service in a year per 1,000 women (average age at year of collection).

8.1.1. Key points

- Very few women in ALSWH (0.87%) have used telehealth services since these were introduced in 2011.

8.2. Bulk billing services and Medicare safety net

8.2.1. Background

The Medicare safety net provides families and singles with an additional rebate for out-of-hospital Medicare services, once certain annual thresholds are reached. There are two safety nets: the original Medicare safety net (introduced in 1984) and the extended Medicare safety net (EMSN). The EMSN was introduced in 2004 with a threshold of $300, which is indexed annually.

8.2.2. Use of bulk billing services, comparing cohort and age of use

For the 1978-73 cohort, the mean number of bulk bill services were initially higher, ranging from 2 to 3 claims per year, but these then decreased to about one bulk bill service per year by the age of 30 (Figure 8-3). Bulk bill incentives were introduced in 2004 when the women were aged around 25 years. A similar pattern was observed for women in the 1946-51 cohort, with bulk bill incentives introduced when the women were around the age of 51 years. In this cohort, the use of bulk billing incentives increased steeply with age. Women in the 1921-26 cohort had the highest mean number of bulk billed services, with steep increases as the women aged.
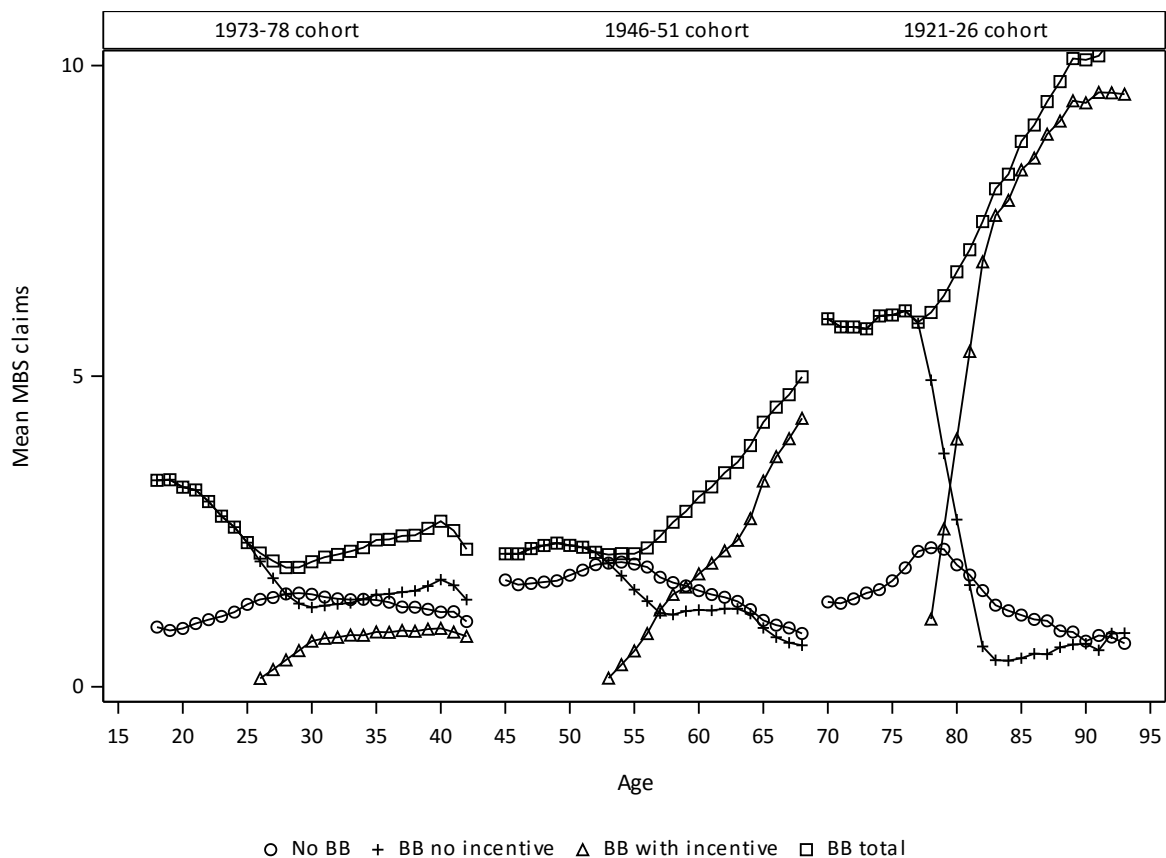
Figure 8-3. Mean number of bulk bill (BB) services used by women per year across the life course (1921-26, 1946-51, 1973-78 cohorts).

8.2.3. Proportion of women who reach the safety net each year

Medicare includes an extended safety net introduced in 2004 that provides Medicare benefits for 100% of the scheduled fee once an annual threshold has been reached. For women in the 1978-73 cohort, at the age of 26 years, about 26 services per 1,000 women were claimed under the safety net. This rate increased to 832 services per 1,000 women when the women were 34 years old. Between the average ages of 36 and 42, the mean number of eligible services per 1,000 women decreased sharply.

In the 1946-51 and 1921-26 cohorts, the mean number of safety net services per 1,000 women were similar. In both cohorts, safety net services increased with age, ranging from 0.3 (at 52 years) to 598 (69 years) services per 1,000 women in the 1946-51 cohort, and 2 (77 years) to 489 (94 years) services per 1,000 women in the 1921-26 cohort (Figure 8-4).
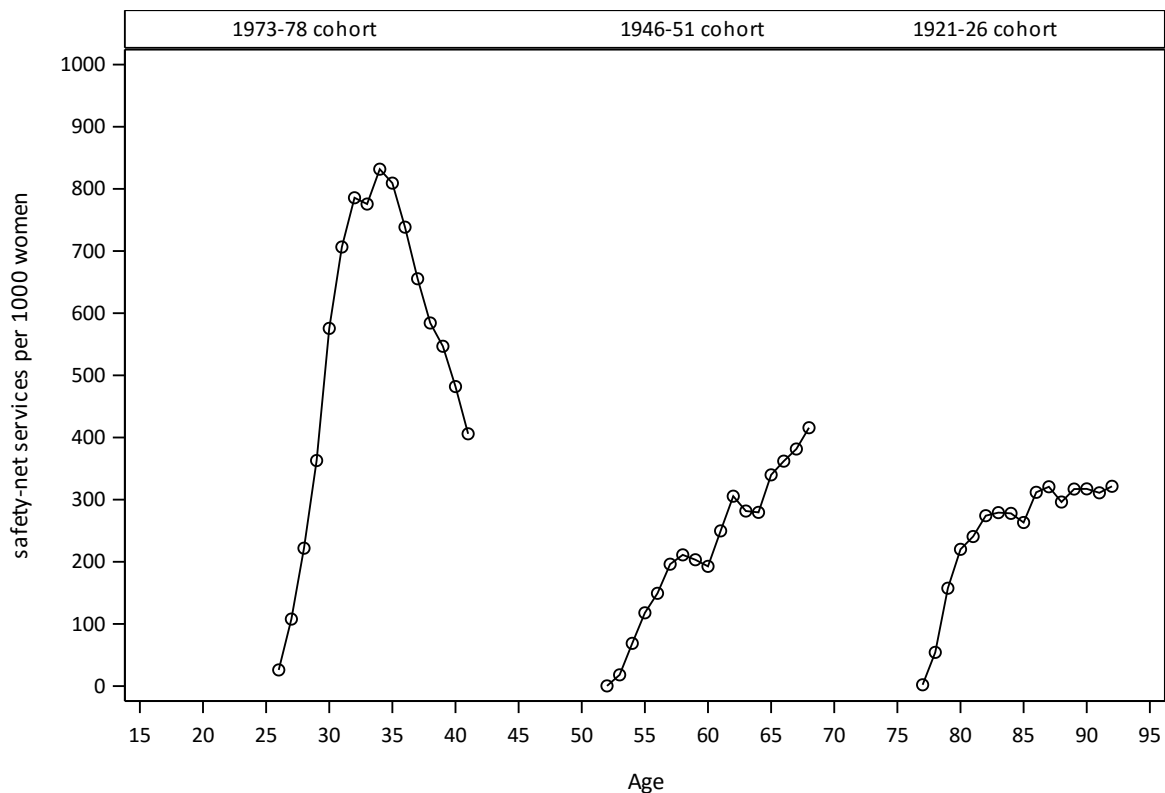
Figure 8-4. The number of safety net services used per 1,000 women (1973-78, 1946-51 and 1921-26 cohorts) by age.

For women in the 1978-73 cohort, the number of women who reached the safety net was relatively low before the age of 30, and no women reached the safety net until the age of 25 years (Figure 8-5). By the age of 26, about 7 per 1,000 women reached the safety net and this increased to 149 per 1,000 women at age 35, before decreasing when women were aged in their late 30s and early 40s. This peak coincides with the childbearing period in this cohort. Similarly, in the 1946-51 and 1921-26 cohorts, the number of women who reached the safety net was initially low, but increased with age.
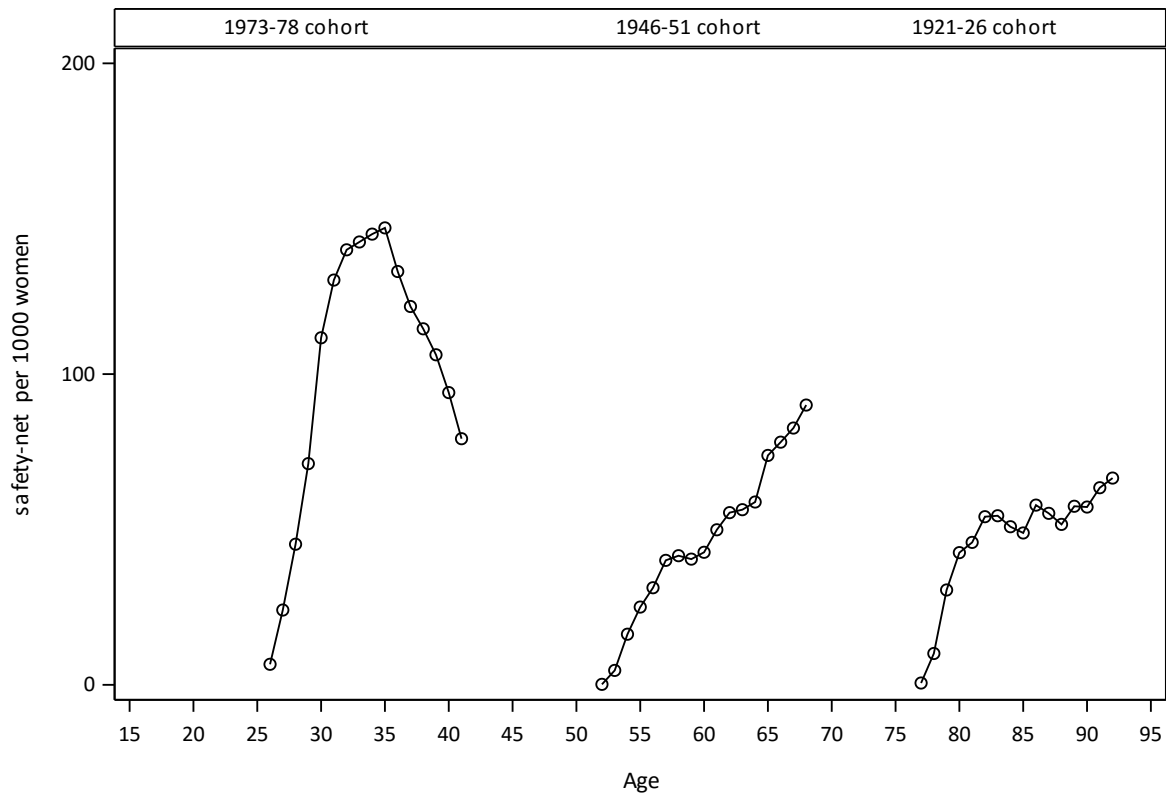
Figure 8-5. The number of women in all cohorts (1921-26, 1946-51, 1973-78) who used at least one safety net service in a year per 1,000 women.

8.2.4. Characteristics of women who reach the safety net

8.2.4.1. The proportion of women who reached the safety net services by area of residence

Across all cohorts, the proportion of women who reached the safety net services was highest for women who live in major cities, and lowest for women who live in remote areas. In the 1973-78 cohort, 3-20% more women in major cities reached the safety net services than women in remote areas. Similarly, in the 1946-51 and 1921-26 cohorts, about 5 - 13% more women in major cities reached the safety net services than women in remote areas of Australia (Figure 8-6).
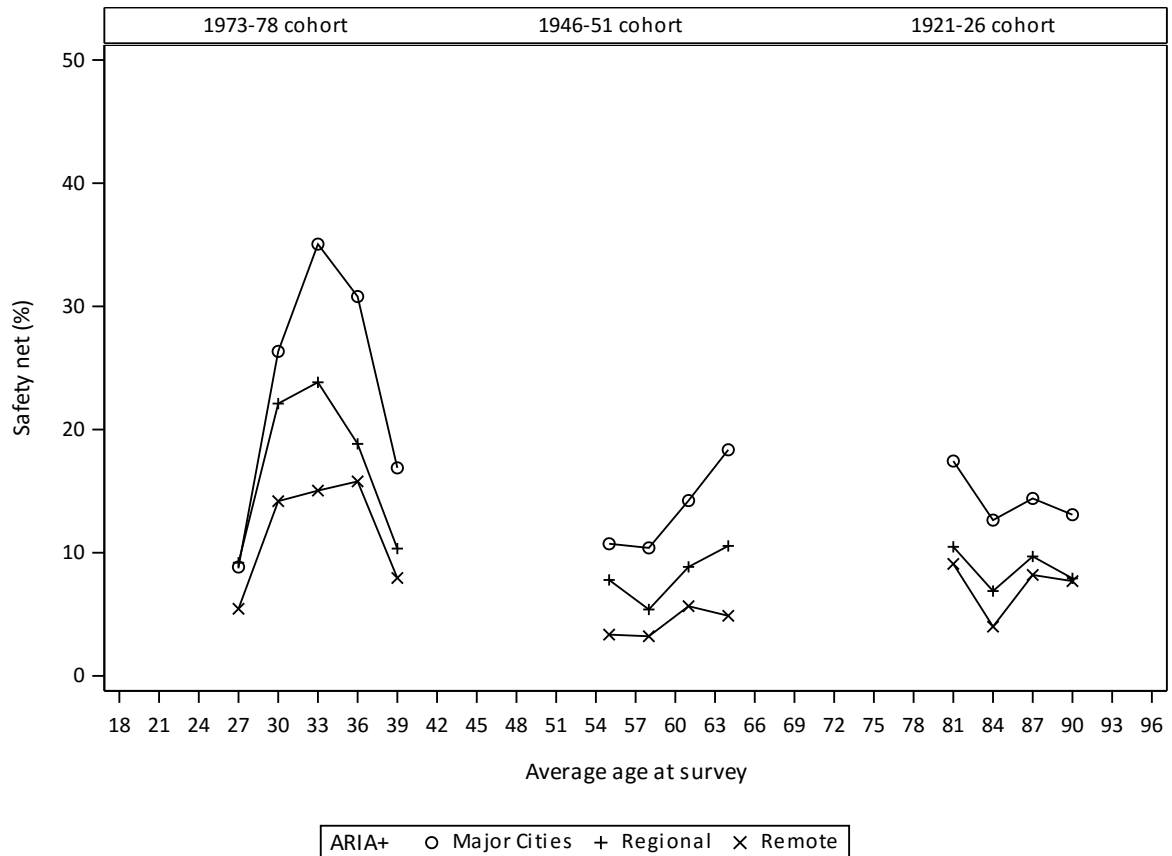
Figure 8-6. The proportion of women who reach the safety net across the life course (1973-78, 1946-51 and 1921-26 cohorts), categorised by area of residence.

8.2.4.2. The proportion of women who reached the safety net services by education status

Although patterns vary with age, women with a university degree across all cohorts were more likely to reach the safety net services compared to other women of similar age (Figure 8-7). In the 1973-78 cohort, 9 - 35% of women with a university degree accessed the safety net services as opposed to 7 - 21% of women with less than Year 12 education. For women in the 1946-51 cohort, differences were minimal. For the 1921-26 cohort, between the ages of 81 and 90, the proportion of women with a university degree who reached the safety net services was 5 - 17%, and the proportion of women with less than Year 12 education who reached it was 4 - 9%.
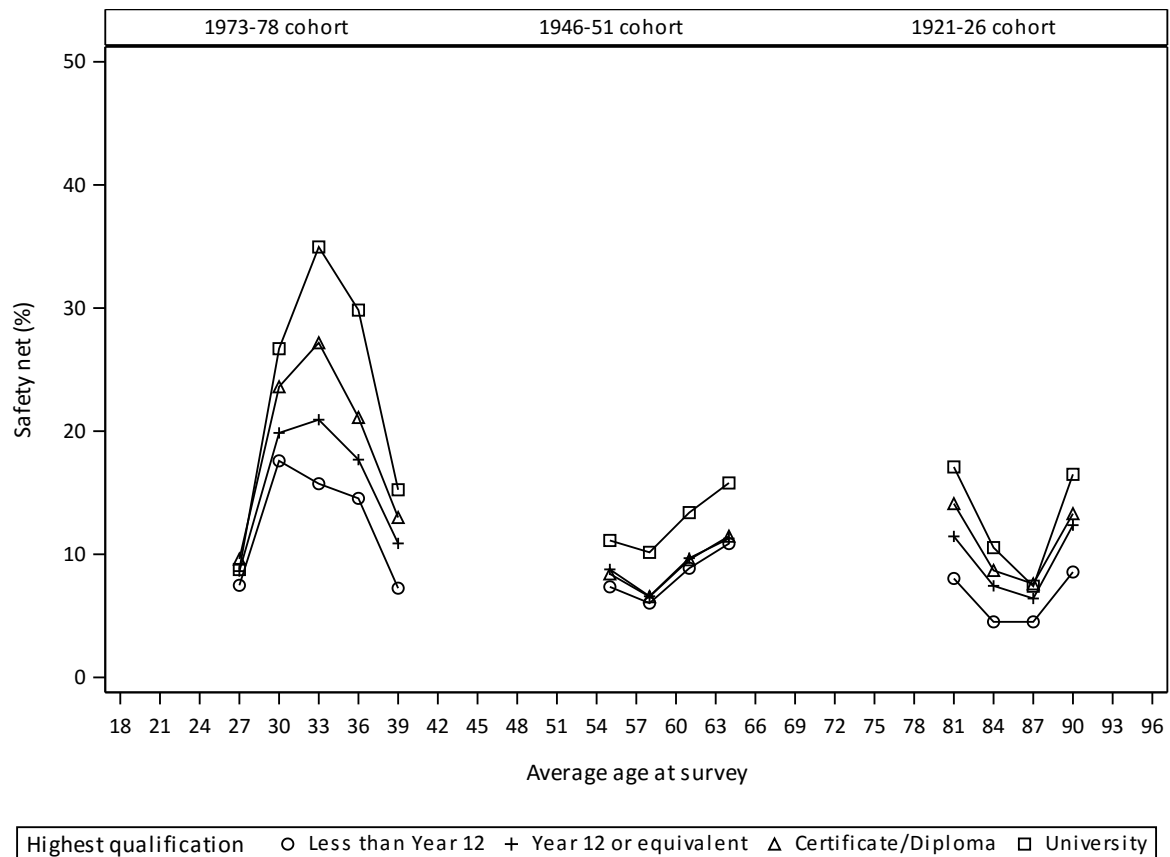
Figure 8-7. The proportion of women who reach the safety net across the life course (1973-78, 1946-51 and 1921-26 cohorts), categorised by education.

8.2.4.3. The proportion of women who reached the safety net services by concession status

Across the three cohorts, the proportion of women without a health care card who reached the safety net services was higher than the women without a health care card. The greatest difference, from 3 to 19%, was observed in women in the 1973-78 cohort, and the least difference was found in the 1946-51 cohort (Figure 8-8).
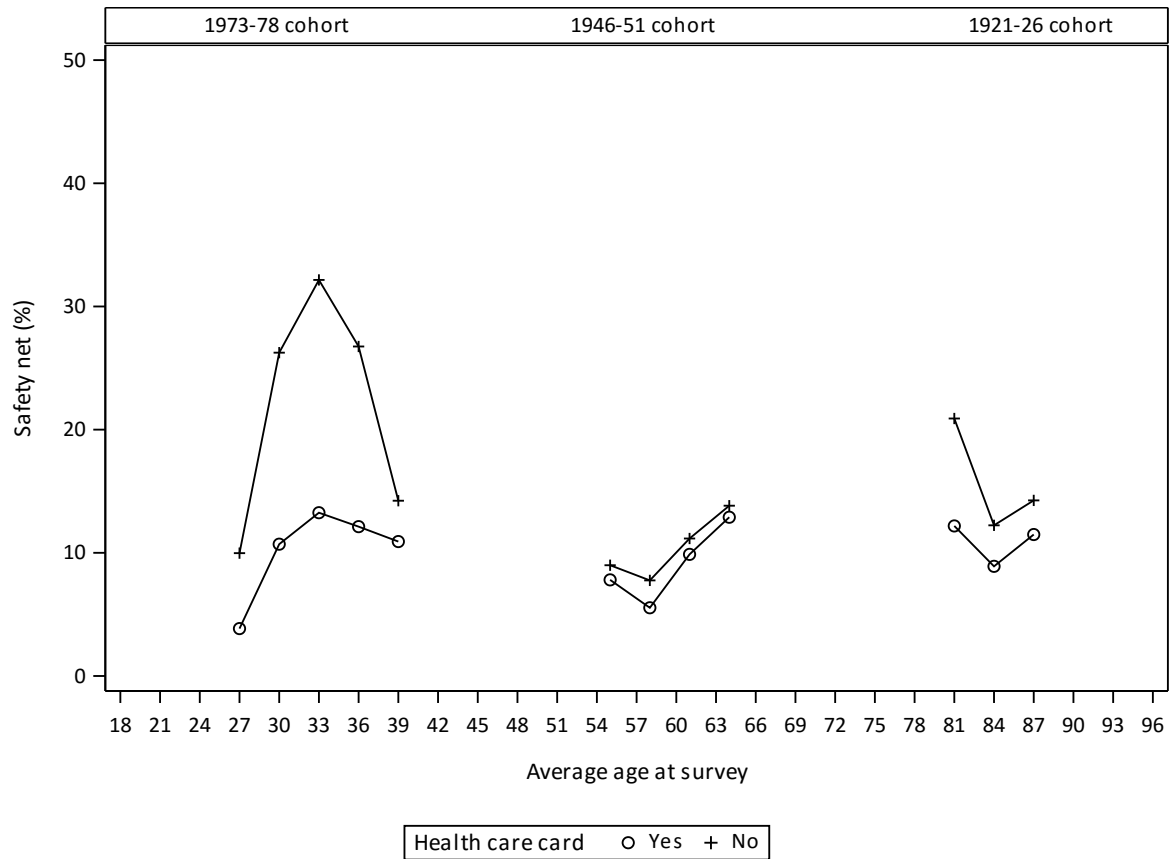
Figure 8-8. The proportion of women who reach the safety net in all cohorts across the life course (1973-78, 1946-51 and 1921-26 cohorts), categorised by concession status.

8.2.4.4. The proportion of women who reached the safety net services by manage on income

Across all cohorts, there was very little difference in the proportion of women who reached the safety net services when women were grouped by ability to manage on income. The percentage of women who reached the safety net service across all cohorts was slightly higher in those women who found it easier to manage on income. For women in the 1978-73 and 1921-26 cohorts, the differences ranged from 1% to 6% (Figure 8-9).
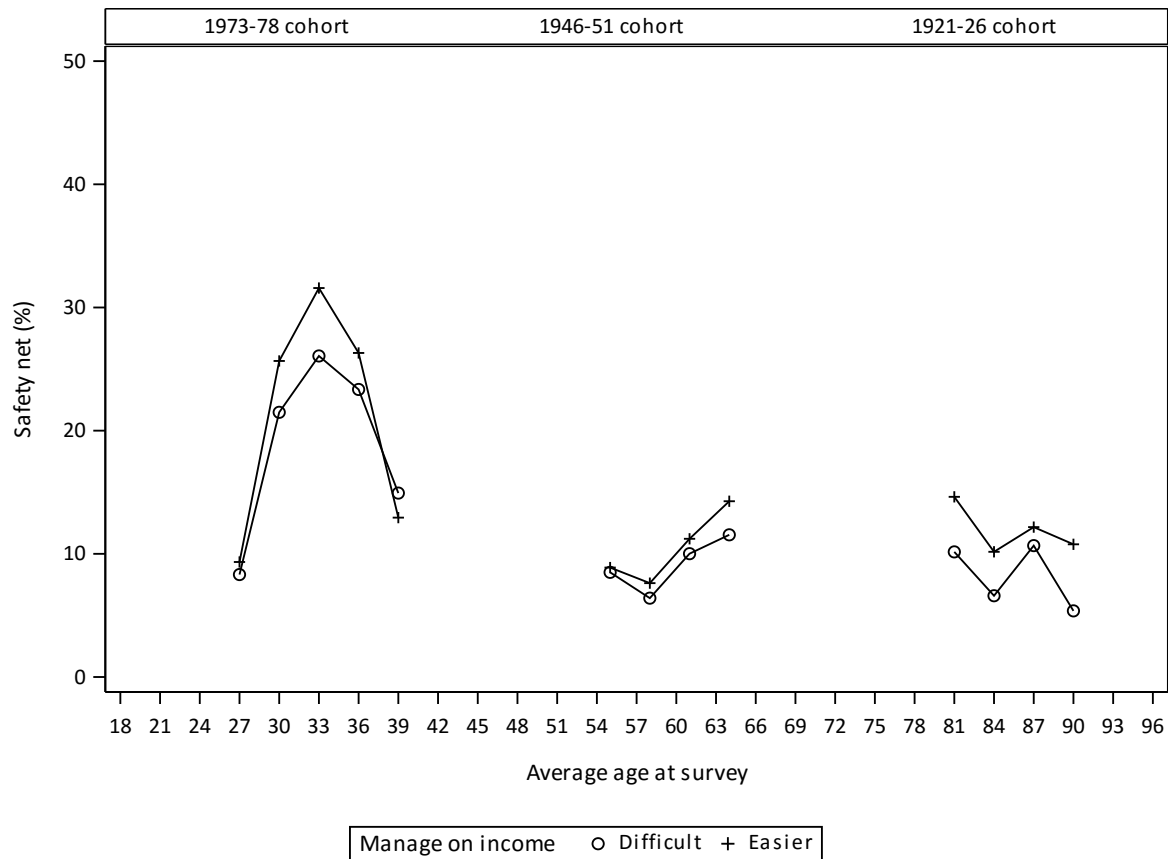
Figure 8-9. The proportion of women who reach the safety net across the life course (1973-78, 1946-51 and 1921-26 cohorts), categorised by manage on income.

8.2.5. Key points

- The numbers of women who reached the safety net for Medicare services were initially low in all cohorts, but have increased over time. Increases began to reverse after around age 35 in the 1973-78 cohort, and tapered off after around age 80 in the 1921-26 cohort.

- Across all cohorts the proportion of women who reached the safety net was highest in women who live in major cities.

- Although patterns vary with age across all cohorts, women with a university degree, who do not have a health care card, and who find it easier to manage on income were more likely to reach the safety net compared to other women of similar age. It is likely that these women reached the safety net because they could afford to pay for health services.

- Use of bulk billing, particularly with incentive payments, increased across cohorts, and with age in the 1946-51 and 1921-26 cohorts.

9. ACKNOWLEDGMENT

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11. APPENDICES

11.1. Appendix A: Medicare item numbers

11.1.1. Unreferred Attendances – Vocationally Registered General Practitioner (VRGP)

1-4, 13-14, 19-20, 23-26, 33, 35-40, 43-44, 47-51, 193, 195, 197, 199, 597, 599, 601-603, 2497, 2501, 2503-2504, 2506-2507, 2509, 2517-2518, 2521-2522, 2525-2526, 2546-2547, 2552-2553, 2558-2559, 2574-2575, 2577-2578, 5000, 5003, 5007, 5010, 5020-5023, 5026-5028, 5040-5043, 5046, 5049, 5060, 5063-5064, 5067,

11.1.2. Unreferred Attendances - Enhanced Primary Care

700-710, 712-747, 749-750, 757-759, 762, 765, 768, 771-773, 775, 778-779, 900, 903, 2700-2702, 2710, 2712-2713, 2715, 2717, 2719,

11.1.3. Unreferred Attendances - Other

5-12, 15-18, 21-22, 27-32, 34, 41-42, 45-46, 52-84, 86-87, 89-93, 95-98, 101, 160-179, 444-449, 598, 600, 696-698, 980, 996-998, 2100, 2122, 2125-2126, 2137-2138, 2143, 2147, 2179, 2195, 2199, 2220, 2598, 2600, 2603, 2606, 2610, 2613, 2616, 2620, 2622-2624, 2631-2633, 2635, 2664, 2666-2668, 2673-2675, 2677, 2704-2705, 2707-2708, 2721, 2723, 2725, 2727, 4001, 5200, 5203, 5207-5208, 5220, 5223, 5227-5228, 5240, 5243, 5247-5248, 5260-5263, 5265-5267, 17600,

11.1.4. Unreferred Attendances - Practice Nurse Items

711, 10983-10984, 10986-10989, 10993-10999,

11.1.5. Other Allied Health

10950-10977, 80000-82035, 82300-87777,

11.1.6. Specialist Attendances

85, 88, 94, 99-100, 102-152, 154-159, 288-289, 291-293, 296-297, 299-338, 342-353, 355-359, 361, 364, 366-367, 369-370, 384-389, 410-417, 501-503, 507, 511, 515, 519-520, 530, 532, 534, 536, 801, 803, 805, 807-809, 811, 813, 815, 820, 822-823, 825-826, 828, 830, 832, 834-835, 837-838, 851-852, 855, 857-858, 861, 864, 866, 871-872, 880, 887-893, 2799, 2801, 2806, 2814, 2820, 2824, 2832, 2840, 2946-2949, 2954, 2958, 2972-2978, 2984-3003, 3005, 3010, 3014-3015, 3018, 3023, 3028-3032, 3040, 3044, 3051-3055, 3062, 3069, 3074-3078, 3083, 3088, 3093, 5906-5912, 6004, 6007-6009, 6011-6016, 6018-6019, 6023-6026, 6028-6029, 6031-6032, 6034-6035, 6037-6038, 6042, 6051-6052, 6057-6060, 6062-6065, 6067-6068, 6071-6072, 6074-6075, 10801-10816, 17603-17690,

11.1.7. Obstetrics

190-192, 194, 196, 198, 200-284, 290, 295, 298, 354, 360, 362-363, 365, 368, 374-383, 9011, 15999, 16399-16636,

11.1.8. Anaesthetics

401-409, 443, 450-500, 505-506, 509-510, 513-514, 517-518, 521-529, 531, 533, 535, 537-577, 748, 751-756, 760, 764, 767, 787-790, 9021-9051, 13006-13009, 17500-17506, 17701-18298, 20100-25205,

11.1.9. Pathology Collection Items

73899-73940, 74992-74999,

11.1.10.   Pathology Tests

1001-2099, 2101-2121, 2123-2124, 2127-2136, 2139-2142, 2144-2146, 2148-2178, 2180-2194, 2196-2198, 2200-2219, 2221-2399, 65001-73844, 74990-74991,

11.1.11.   Diagnostic Imaging

791-794, 910-911, 913-914, 990-993, 995, 999, 2400-2496, 2498-2500, 2502, 2505, 2508, 2512-2516, 2520, 2524, 2528-2545, 2548-2551, 2554-2557, 2560-2573, 2576, 2579-2597, 2599, 2601, 2604, 2607-2609, 2611, 2614, 2617, 2621, 2625-2630, 2634, 2638-2662, 2665, 2672, 2676, 2678-2699, 2703, 2706, 2709, 2711, 2714, 2716, 2718, 2720, 2722, 2724, 2726, 2728-2798, 2800, 2802-2805, 2807-2813, 2815-2819, 2821-2823, 2825-2831, 2833-2839, 2841-2860, 2960-2971, 2980-2981, 5861, 8712-8713, 8716-8717, 8720-8721, 8723-8724, 8727-8849, 8851-8874, 9066, 9341-9344, 55000-55054, 55056-64991,

11.1.12.   Operations

924, 3004, 3006, 3012, 3016, 3022, 3027, 3033-3039, 3041, 3046-3050, 3058, 3063, 3073, 3082, 3087, 3092, 3098-3101, 3104-3113, 3116, 3120-3124, 3130, 3135-3142, 3148-3173, 3178-3183, 3194-3228, 3233-3237, 3247-3253, 3261-3265, 3271-3281, 3289, 3295-3330, 3332-3384, 3391, 3399, 3404-3425, 3431-3455, 3459, 3465, 3468-3472, 3477-3480, 3495-3496, 3505, 3509-3516, 3526-4000, 4009-4838, 4844-4860, 4864-4999, 5002, 5006, 5009, 5015-5018, 5024, 5029-5038, 5045, 5048, 5050-5059, 5062, 5066, 5068-5196, 5201, 5205, 5210-5217, 5221, 5225, 5229-5237, 5241-5242, 5245, 5254, 5264, 5268-5270, 5277-5280, 5284, 5288, 5292-5857, 5864-5905, 5916-6001, 6005-6006, 6010, 6017, 6022, 6027, 6030, 6033, 6036, 6039-6041, 6044-6050, 6053-6056, 6061, 6066, 6069-6070, 6073, 6077-6918, 6922-7126, 7129-7133, 7135-7143, 7147-7397, 7410-7483, 7505-7719, 7721-7722, 7725, 7727-7728, 7739-7743, 7749, 7764-7766, 7774-7803, 7808-7809, 7815-7817, 7821-7823, 7828, 7834, 7839, 7844-7847, 7853-7886, 7898-7902, 7911-8003, 8009-8173, 8179-8458, 8462, 8466-8467, 8470-8478, 8480-8481, 8483-8504, 8508-8512, 8515-8519, 8521-8557, 8560, 8564, 8568-8570, 8574, 8578, 8582-8636, 8640, 8644, 8648, 8652, 8655-8658, 8660, 8662, 8664, 8666, 8668, 8670, 8672, 8674-

8699, 9401-9409, 9415-9435, 9438, 9440-9449, 9458, 9476-9478, 30000-30524, 30526-30632, 30634-41868, 41870-42824, 42833-50952,

11.1.13. Assistance at Operations

2951-2953, 2955-2957, 51300-51318,

11.1.14. Optometry

180-186, 10900-10948,

11.1.15. Radiotherapy and Therapeutic Nuclear Medicine

2861-2945, 2950, 8850, 8875-8886, 9381-9392, 15000-15900, 16000-16018,

11.1.16. Miscellaneous

153, 340, 770, 774, 777, 780-786, 795-800, 802, 804, 806, 810, 812, 814, 816-819, 821, 824, 827, 829, 831, 833, 836, 839-850, 853-854, 856, 859-860, 862-863, 865, 870, 874-879, 882-886, 895-899, 902, 904-909, 912, 915-923, 925-979, 981-989, 994, 3059, 3068, 3095, 3103, 3114, 3117, 3128, 3134, 3147, 3175, 3187-3189, 3229-3230, 3245, 3258, 3268, 3284, 3290, 3331, 3386-3389, 3393-3395, 3400-3401, 3427, 3456, 3462, 3466, 3475, 3483-3493, 3500, 3507, 3521, 4003, 4841, 4862, 5249, 5259, 5274, 5282, 5286, 5291, 6920, 7128, 7134, 7146, 7402-7408, 7485, 7720, 7723-7724, 7726, 7729-7737, 7745, 7753-7761, 7770, 7804, 7812, 7818, 7824, 7831, 7836, 7841, 7849, 7888, 7907, 8006, 8175, 8460, 8464, 8468, 8479, 8482, 8506, 8514, 8520, 8558, 8562, 8566, 8572, 8576, 8580, 8638, 8642, 8646, 8650, 8654, 8659, 8661, 8663, 8665, 8667, 8669, 8671, 8673, 8700-8711, 8714-8715, 8718-8719, 8722, 8725-8726, 8901-9003, 9061-9065, 9067-9310, 9410-9414, 9436-9437, 9439, 9450-9457, 9459-9475, 10985, 10990-10992, 11000-13003, 13012-14245, 18350-18379, 30525, 30633, 41869, 42827-42830, 51700-53706, 55055, 75000-75854, 82100-82225,

11.1.17. Dental Benefits Schedule

88000,

11.1.18. Child Dental Benefit Schedule

88011-88943,

11.2. Appendix B: Data linkage schematic

STATISTICAL LINKAGE KEY CREATION

STAGE	DESCRIPTION	RESEARCHER	ALSWH DATA LINKAGE STEERING COMMITTEE	ALSWH DATA CUSTODIAN	COMMONWEALTH DATASET CUSTODIANS	DATA LINKAGE UNIT
1.	Following DoHA ethics approval, ALSWH applies to nominated datasets for statistical/ probabilistic linkage under the protocol to create a statistical linkage key for all ALSWH participants.		1.			
2.	ALSWH and other data custodians forward demographic data only to Data Linkage Unit: •Name • Alias ID-DL (encrypted from ALSWH Study ID or local data bases ID) •Date of Birth •Sex •Postcode (See workflow diagram Appendix 1)			2.	2.	
3.	DLU undertakes deterministic or probabilistic linkage of nominated datasets (MBS, PBS, RAC, RCS/ACFI, CACP, EACH, EACH-D, HACC, ACAP, NDI) and 'statistical linkage key (SLK)' is created for DLU's use only.					3. SLK created
4.	DLU stores SLK for ALSWH Alias ID and deletes all other demographic data					4. SLK for Alias ID stored. All demographic data destroyed
5.	DLU: •Notifies data custodians that all demographic data, other than Alias ID and SLK, has been destroyed; •Provides data custodians with data encryption file and •Notifies ALSWH DLSC that SLK creation is complete.		5.	5.	5.	

11.3. Appendix C: Methodology for analysing health service usage

Participant data were linked to Medicare Benefit Scheme (MBS) records to determine out-of-pocket costs (the gap between medical cost and Medicare benefit), Medicare benefits (repaid to the patient), and the number of Medicare claims for General Practitioner (GP) and specialist service use. In chapter 3, health service use before and after significant life events was determined. The methodology for this is described below.

11.3.1. Before and after birth of first child

This analysis was conducted for participants in the 1973-78 cohort. 11,117 women responded to at least one survey from Survey 3 to 6 when participants were asked to provide the date of birth for all of their children. The date of birth of their first born child was then extracted from this dataset and included 7819 children. A dataset containing the date of birth of the first born child and that of their mother was then created. The age of the mother at the time of birth was then calculated.

MBS records for the 1973-78 cohort were then merged with this dataset and MBS services claimed in the 12 months before and after birth of the first born child were identified. The mean annual number of

GP, specialist and pathology claims were then calculated for each age and birth category (i.e. in the 12 months before or after birth).

11.3.2. Menopause

This analysis was conducted for participants in the 1946-51 cohort. Participants were asked to provide age of menopause in Survey 6. From these data, the year of menopause was calculated and a dataset comprising the participant's birth date and year of menopause was created. MBS records for the 1946-51 cohort were then merged with this dataset and the MBS services claimed in the same year of menopause were identified. The limitation is that the actual date of menopause may not be midyear so the use and cost of MBS services used before and after menopause may not reflect equal time frames.

The mean annual number of claims were then calculated for each age and menopause category (i.e. before or after menopause).

11.3.3. Hysterectomy

This analysis was conducted for participants in the 1946-51 cohort. Participants were asked to provide age of hysterectomy in Survey 7. From these data, the year of hysterectomy was calculated and a dataset comprising the participant's birth date and year of hysterectomy was created. MBS records for the 1946-51 cohort were then merged with this dataset and the MBS services claimed in the same year of hysterectomy were identified. Similar to the analysis for menopause, the limitation is that the actual date of hysterectomy may not be midyear so the use of MBS services used before and after a hysterectomy not reflect equal time frames. The mean annual number of claims were then calculated for each age and hysterectomy category (i.e. before or after hysterectomy).

11.3.4. Last year of life

This analysis was conducted for participants in the 1921-26 cohort. For participants who have died, their date of death was obtained from the National Death Index. A dataset containing date of death (if available) and date of birth for all participants was created.

MBS records for the 1921-26 cohort were then merged with this dataset and the MBS services claimed in the last 12 months before death was identified. The mean annual number of claims were then calculated for each age and death category (i.e. women in the 12 months before death and women who were not in the last 12 months of life).

11.3.5. Falls

For the 1921-26 cohort in Surveys 2 to 7 the following question on falls was asked:

"In the LAST 12 MONTHS, have you: Needed to seek medical attention (eg doctor, hospital) for an injury from a fall"

Using this question and the year of survey the year associated with a woman's first fall was derived. This is an underestimate as the question only relates to the last 12 months when the surveys are 3 years apart.

11.4. Appendix D: Medicare items included in the Better Access Scheme and Telehealth Services

11.4.1. Medicare Items included in the Better Access Scheme

Medicare Item No	Description	Individual/group
Treatment Therapy		
Psychological Therapy Services - 80000-80020		
80000, 80005, 80010, 80015	Clinical psychologists therapy	Individual
80020	Clinical psychologists	Group Therapy
Focussed Psychological Strategies - 80100-80170		
80100, 80105, 80110, 80115	Allied Mental Health Workers	Psychologist – Individual (time based)
80120	Allied Mental Health Workers	Psychologist - Group Therapy
80125, 80130, 80135, 80140	Allied Mental Health Workers	Occupational therapist - Individual
80145	Allied Mental Health Workers	Occupational therapist - Group Therapy
80150, 80155, 80160, 80165	Allied Mental Health Workers	Social Worker - Individual
80170	Allied Mental Health Workers	Social Worker - Group Therapy

Medicare Item No	Description	Individual/group
GP Psychological Strategies – 2713, 2721-2727		
2713	Treatment Consultation	
2721-2727	GPs - Those having appropriate mental health skills training	2721: Surgery Consultation 2723, 2727: Out-of-surgery Consultation 2725: FPS extended attendance
GP Provided Services		
GP Mental Health Care Plan – 2702, 2710-2714 *(introduced 2006-2010)*		
2710, 2702+	GP items initial consultations	
2712, 2714	GP items for preparation, review	
GP Mental Health Care Plan – 2700-2701, 2715-2717 *(changes 2011)*		
**2700, 2701,	Preparation of a GP Mental Health Treatment Plan effective as of Jan 2011 for GP who has not undertaken mental health skills training	2700: Consultation must be between 20 to 40 minutes in duration 2701: Consultation must be at least 40 minutes in duration
**2715, 2717	Preparation of a GP mental health treatment plan by a GP who has undertaken mental health skills training	2715: Consultation must be between 20 to 40 minutes in duration 2717: Consultation must be at least 40 minutes in duration

Medicare Item No	Description	Individual/group
Psychiatric Provided Services		
Consultant Psychiatrist – 291,293, 296-299		
291	Initial psychiatrist consultation	
293	Psychiatrist - Review of Management Plan	
296-299	Initial consultations/referral to clinical psychiatrist	

+ Item number 2702 was introduced in 2010 to partially subsidised practitioners that had not completed training in Mental Health Assessment.

** Items have been introduced in 2011 to replace items 2702, 2710.

11.4.2. Telehealth items

MBS Group	Telehealth MBS Items
Medical practitioner (including a general practitioner, specialist or consultant physician) telehealth attendances:	
GROUP A30, SUBROUP 1-At consulting rooms in a telehealth eligible area or at an eligible Aboriginal Medical Service	2100, 2126, 2143, 2195
GROUP A30, SUBGROUP 2-At a residential aged care facility	2122, 2137, 2147, 2199
GROUP A30, SUBGROUP 2-At a residential aged care facility	2125, 2138, 2179, 2220
Practice nurse or aboriginal health worker telehealth attendance provided on behalf of a medical practitioner items:	

GROUP M12, SUBGROUP 1-In a telehealth eligible area or at an eligible Aboriginal Medical Service	10983
GROUP M12, SUBGROUP 2-At a residential aged care facility	10984
Specialist items:	
GROUP A3 – specialist attendances	99, 113
GROUP A4 – consultant physician	112, 114
GROUP A28 – geriatric medicine – consultant physician or specialist	149
GROUP A8 – consultant psychiatrist attendances	288
GROUP A12 – consultant occupational physician attendances	384, 389
GROUP A24, SUBGROUP 1 – pain medicine attendances	2799, 2820
GROUP A24, SUBGROUP 3 – palliative medicine attendances	3003, 3015
GROUP A26 – neurosurgery attendances	6004, 6016
GROUP T6 – anaesthesia	17609
Obstetrics:	
GROUP T4 – Obstetrics	16399
Miscellaneous items:	
GROUP T1 – miscellaneous therapeutic procedures SUBGROUP 3 – assisted reproductive services	13210

Participating midwives items:	
GROUP M13, SUBGROUP 2-In a telehealth eligible area or at an eligible Aboriginal Medical Service	82150, 82151, 82152
Participating nurse practitioners items:	
GROUP M14, SUBGROUP 2-In a telehealth eligible area or at an eligible Aboriginal Medical Service	82220, 82221, 82222
GROUP M14, SUBGROUP 3-At a residential aged care facility	82223, 82224, 82225

11.5. Appendix E: Survey questions

This appendix includes the survey questions used in this report.

11.5.1. Area of residence

The Accessibility/Remoteness Index of Australia, 2003 version (ARIA+) was developed by the National Key Centre for Social Applications of Geographic Information Systems (GISCA) to measure the remoteness of a location based on road distances to service centres (Department of Health and Aged Care, 2001). ARIA+ scores range from 0 to 15, from which 5 categories are defined (Table 11-1).

Table 11-1 Remoteness Areas for Australia and corresponding ARIA+ scores

Category	ARIA+ score
Major city	0 – 0.20
Inner regional Australia	>0.20 – 2.40
Outer regional Australia	>2.40 – 5.95
Remote Australia	>5.92 – 10.53
Very remote Australia (other)	>10.53

In ALSWH, participant addresses are coded to ARIA+; the Study's implementation of the earlier version of ARIA+, known as ARIA, is reported in the 2000 ALSWH Technical Report (Australian Longitudinal Study on Women's Health, 2000).

Where only 4 ARIA+ categories are used, Remote refers to Remote Australia and Very remote Australia.

Area of residence was estimated from one question in the Census:

"Where does the person usually live?"

The Place of Usual Residence is defined by the Census as "the place where a person lived or intended to live for a total of six months or more in 2011" (Australian Bureau of Statistics, 2012). The respondent provides their full address, indicates "none" for no usual address, or "Other country".

11.5.2. Highest educational attainment

Highest educational attainment was determined from the following questions in ALSWH.

"What is the highest qualification you have completed?"

This question was asked in Survey 1 for the 1921-26 cohort, Surveys 1 and 6 of the 1946-51 cohort, and all surveys of the 1973-78 cohort. Table 11-2 shows the response options and groupings for analyses for this question.

Table 11-2. Response options for highest educational attainment in the 1973-78, 1946-51, and 1921-26 cohorts

Response options	Analytical groups
No formal qualifications	Less than Year 12
School or Intermediate Certificate (or equivalent)	
Higher School or Leaving Certificate (or equivalent)	Year 12 or equivalent
Trade/apprenticeship	Certificate/diploma
Certificate/diploma	
University degree	University
High University degree	

For the 1989-95 cohort, the following question has been asked at all surveys:

"What is the highest level of education you have completed?"

Table 11-3 shows the response options and groupings for analyses for this question.

Table 11-3. Response options for highest educational attainment in the 1989-95 cohort

Response options	Analytical groups
Year 10 or below	Less than Year 12
Year 11 or equivalent	
Year 12 or equivalent	Year 12 or equivalent
Certificate I/II	Certificate/diploma
Certificate III/IV	
Advanced Diploma/Diploma	
Bachelor degree	University
Graduate diploma/Graduate certificate	
Postgraduate degree	

11.5.3. Ability to manage on income

In ALSWH, the participant's ability to manage on income was determined by a single survey question.

"How do you manage on the income you have available?"

Table 11-4 shows the response options and how they were divided into 2 groups: difficult and easier.

Table 11-4. Response options for ability to manage on income in the 1989-95, 1973-78, 1946-51, and 1921-26 cohorts

Response options	Groupings for analysis
It is impossible	Difficult
It is difficult all the time	
It is difficult some of the time	
It is not too bad	Easier
It is easy	

The question was asked in all surveys for all cohorts except for the 1973-78 cohort at Survey 2.

11.5.4. Concession status

In ALSWH, the participant's concession status was determined by the following question for the 1973-78 and 1946-51 cohorts:

'Do you have a Health Care Card?'

Response options are 'yes' and 'no'.

This question was included in Surveys 2-7 for the 1973-78 cohort and Surveys 3-7 for the 1946-51 cohort.

For the 1921-26 cohort, concession status was determined by the following question:

'Which of the following types of cover do you have for health services (excluding your Medicare card)?'

a Private health insurance for hospital cover

b Private health insurance for ancillary services/extras cover (eg dental, physiotherapy

c Department of Veterans' Affairs Gold Card

d Department of Veterans' Affairs White Card

e Commonwealth Seniors Health Card

f   Pensioner Concession Card

g   None of these

Where participants answered c, d, e, or f, they were considered to have concession status.

11.5.5. Birth of first child

Participants were asked to provide date of birth of their children at Surveys 3 to 6 in the 1973-78 cohort from the following question:

'If you have ever given birth to a child, please write the date of each birth in the box. (If you had twins, please write the date twice.)'

From this dataset, the date of birth of their first child was determined.

11.5.6. Menopause

At Survey 6, the 1946-51 cohort were asked to provide age of menopause.

'If you have reached menopause, at what age did your periods completely stop?'

The participant was asked to write the age in years or tick the Not Applicable box.

11.5.7. Hysterectomy

At Survey 7, the 1946-51 cohort was asked to provide age at hysterectomy.

'If you have had a hysterectomy, how old were you?'

The participant was asked to write the age in years.

11.5.8. Falls

At Survey 1, the 1921-26 cohort was asked to provide whether they had a fall which caused serious injury in the last 12 months and from Survey 2-7 this cohort was asked the following question.

"In the last 12 months, have you needed to seek a medical attention (e.g., doctor, hospital) for an injury from a fall?"
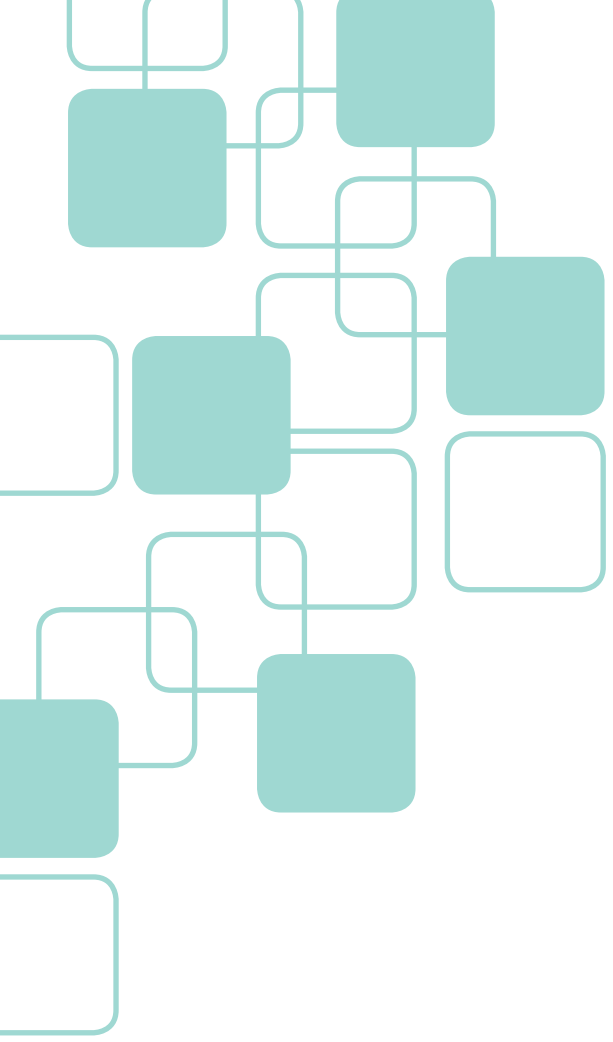
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