

# Future demand for general practice services: Effects of population change and trends in service use

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## Abstract

*This study investigated three key determinants of demand for general practice services: population growth, population ageing and trends in service use. Projection of future service use on the basis of the two demographic factors yielded a projected growth in number of general practice services of 5.9% by 2006, with a further 6.5% growth by 2011. When trends in service use were taken into account as well as demographics, a lower rate of growth in services was projected, but an increasing proportion of long consultations and an increasing proportion of services for older adult patients. It is concluded that population ageing and population growth will continue to be major drivers of demand for general practice services in the next decade. Patterns of service use will also be a key contributor, with increased use of long consultations suggesting a greater requirement for the general practice workforce than has previously been proposed.*

## Introduction

Projection of future demand for services is an essential part of health service planning. A range of factors influence demand for health services, and the influence of these factors must be considered in health service planning. One important set of factors is demographic factors. Population size, gender distribution, and age distribution are all key influences on the amount of health services that a population will require (Australian Medical Workforce Advisory Committee [AMWAC] & Australian Institute of Health and Welfare [AIHW] 1998, Cooper et al 2002).

There has been considerable concern expressed about the ageing of the Australian population, and the impact this might have on demand for health services. One possibility is that a larger number of older adults will mean increased morbidity, and hence increased demand for services. Another possibility is that, although the population is ageing, the experience of ill health will continue to be compressed into the last few years rather than extended across a larger number of years of old age. Available research provides some support for the second hypothesis in the Australian population (Commonwealth Department of Health and Aged Care 1999; Commonwealth of Australia 2001; Giles et al. 2003). In addition to changes in level of demand, ageing of the population also has the potential to affect the mix of service types provided. Taking account of any trends in changing use of services is important in developing accurate projections of future service use.

Despite concern about these issues and considerable attention at the national policy level (Commonwealth of Australia, 2001), there has been relatively little systematic analysis of data relating to demographics and use of health services. More specifically, although there has been some analysis of likely future costs for hospital care

and for Medicare costs overall (Commonwealth Department of Health and Aged Care 1999), there has minimal analysis of general practice (GP) services. Given that 80% of Australians aged 70 and over live independently rather than in residential care facilities (Commonwealth Department of Health and Ageing, 2002a), monitoring the use of GP services by different age groups is an important part of planning for the ageing of the population. Furthermore, the proportion of older adults living in the community is expected to increase, due to medical advances and changing expectations of care (Knickman & Snell 2002). In Australia there is a rich source of data on utilisation of GP services, in the form of data from the Medicare scheme. While not without limitations (as reviewed in the Discussion section), Medicare data does provide information on medical services claimed as well as demographic information describing the patients claiming for those services. The relationship between service utilisation patterns and demographic variables can thus be investigated using this data.

The aim of the present study was to provide a brief review of projected trends in the structure of the Australian population, to investigate current utilisation profiles for GP services, and to project the effects of expected population changes on utilisation of GP services.

## Methods

Data were obtained from the Health Insurance Commission on GP services claimed in two defined time periods: financial years 1995–96 and 2000–01. The Medicare items included in the data set were those services that can be claimed only by recognised GPs (see Figure 1 for definition of recognised GPs). These items are a subset of items in Category 1 (Professional Attendances) of the Medicare Benefit Schedule (Commonwealth Department of Health and Aged Care 2001). They include all Group A1 items (General Practitioner – Item numbers 1-4, 13, 14, 19, 20, 23, 24-26, 33, 35-40, 43, 47-51, 601 and 602) and all Group A7 (Acupuncture – Item numbers 193 & 195). They do not include Enhanced Primary Care items (Groups A14 and A15) or GP Practice Incentive Program items (Group A18, which were introduced in November 2001). They do not include items that can be claimed by other providers as well as recognised GPs, such as those in Categories 2 and 3 (Diagnostic Services and Therapeutic Procedures respectively).

Historical population data as well as population projections by age and gender were obtained from the Australian Bureau of Statistics (ABS 2000, 2001, 2002). Population data by age and gender were used in calculation of per capita service utilisation rates.

### Figure 1: Health Insurance Commission definition of recognised GPs

Recognised general practitioners are “Medical Practitioners who are either:

- listed on the Vocational Register of General Practitioners maintained by the Health Insurance Commission;
- holders of the Fellowship of the Royal Australian College of General Practitioners (FRACGP) and who participate in, and meet the requirements for, quality assurance and continuing medical education as defined in the RACGP Quality Assurance and Continuing Education Programme; or
- undertaking an approved placement in general practice as part of a training program for general practice leading to the award of the FRACGP or recognised by the RACGP as being at an equivalent standard”.

Source: DHAC 2001.

The methods used for calculating projected utilisation values were based on methods used in Canada (Denton et al. 2000) and involved separately calculated projections by age-gender groups. The rate of service use in 2001 was used as the baseline. Rates were calculated separately for males and females, and for nine age groups (0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+). Projected service use rates were calculated by applying the 2001 rates to the expected population in 2006 and 2011. This was done separately for each age-gender group ( $n=18$  – two genders by nine age groups). For the second projection series (the Trend Series), calculations were completed separately for different types of Medicare items in the data set within each age-gender group. Three categories of items were used. Two categories were made up of a single item each (Items 23 and 36), while the third category included all remaining items.

## Review of demographic trends: Past and projected

Table 1 shows the population of Australia from 1980 to 2020. While population size overall has been increasing and is projected to increase further, the rate of growth is slowing. The proportion of the population aged less than 15 has fallen from one in four to one in five during the last twenty years, and is projected to fall further, to almost one in six by 2020. At the same time, the combined total of those aged 65 and over, which has increased from 9.6% in 1980 to 12.3% in 2000, is projected to reach 18% by 2020. Those aged 80 and over represent 2.9% of the population in 2000 and 4.3% by 2020 (ABS 2000, 2001, 2002).

Population projection data presented in Table 1 are from the middle series (Series II) in the ABS population projections (ABS 2000). The ABS routinely prepares different projection series, based on different assumptions about fertility, mortality and immigration levels. The middle series projections presented here are based on the following assumptions:

- total fertility rate falling to 1.60 babies per woman from 2008 onward;
- net overseas migration of 90,000 per year; and
- life expectancy rising to 83.3 (males) and 86.6 (females) (ABS 2000).

**Table 1: Population of Australia: Totals and age distribution, actual and projected 1980–2020**

	Population		Age distribution (%)		
	Number (millions)	5-year growth (%)	Under 15	65-79	80+
Actual *					
1980	14.695		25.2	7.9	1.7
1985	15.788	7.4	23.6	8.4	1.9
1990	17.065	8.1	22.0	8.9	2.1
1995	18.072	5.9	21.5	9.3	2.6
2000	19.225	6.4	20.5	9.5	2.9
Projected †					
2005	20.206	5.1	19.3	9.5	3.4
2010	21.115	4.5	17.9	10.2	3.8
2015	21.967	4.0	16.9	12.0	3.9
2020	22.772	3.7	16.2	13.7	4.3

\* Source: ABS 2001, 2002

† Source: ABS 2000 (Series II)

## Current GP service utilisation profiles

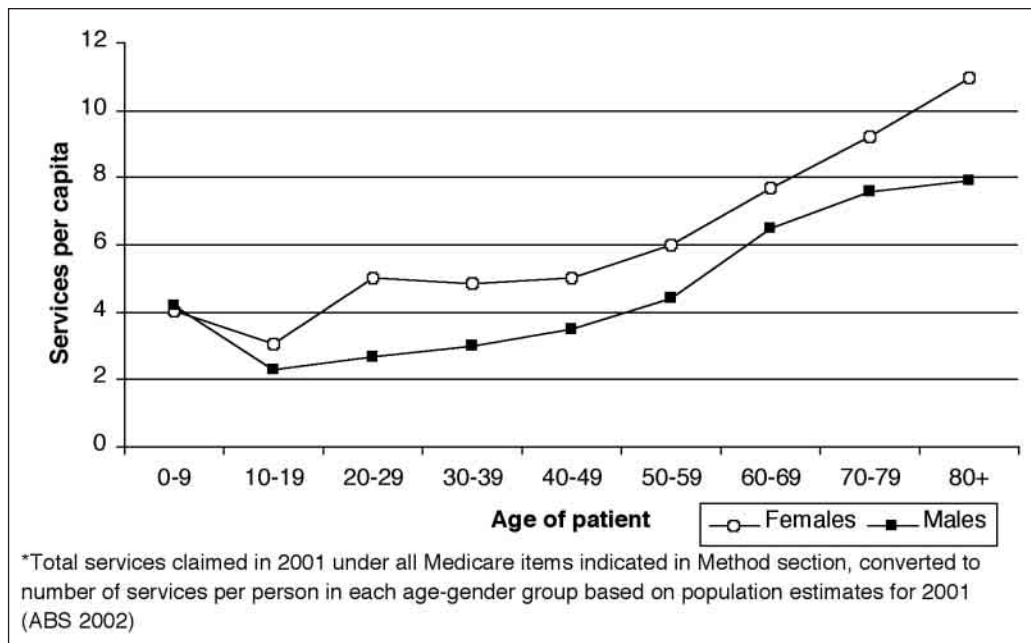
The total number of GP services claimed in the 1995–1996 financial year (henceforth referred to as 1996) was 4.86 services per person, or a total of just over 89 million services. Five years later (financial year 2000–2001, which is henceforth referred to as 2001), the total number of services had increased to 91 million. This 2.1% increase in the number of services translates to a decrease in the number of services per capita, to 4.66, because growth in the population during this period outstripped growth in number of services.

While the overall trend in service use was therefore in a downward direction, there were different variations in change observed in separate age-gender groups and item types. A decrease in per capita rates was observed in all age-gender groups except 70-79-year-old males, which increased 13%. Decreases in other age groups varied in magnitude. Most were 5% or less, but larger decreases were evident for those aged less than 19, and for those aged 80 and over. The number of Item 23 (standard) services per capita decreased by 5.9%, while the number of Item 36 (long) services per capita increased 28.7%.

In 2001, services for patients aged 60 and over comprised 29% of services claimed, while this age group represented 17% of the population. A single Medicare item, the standard Level B consultation (Item 23), accounted for the vast majority (81.7%) of services claimed. A further 10.3% of claims were for the longer Level C consultation (Item 36), with all other items making up the remaining 8%.

Descriptive patterns of use of services by age and gender of the population can be referred to as 'utilisation profiles' (Denton et al. 2000). Figure 2 shows utilisation profiles for GP services in 2001, which is used as the baseline year for projections in this study. Figure 2 indicates that service utilisation rates vary with both gender and age. Females generally have higher rates of utilisation than males. During adulthood, utilisation rates increase with age for both genders.

**Figure 2: Medicare services per capita 2001 by age and gender\***



## Projection of utilisation rates

ABS projections of future population size and structure are combined with current service utilisation profiles to generate projected utilisation in five and ten years' time from 2001. Two projections of future utilisation of GP services were made in this study. In the first projection series, which is referred to as the 'Status Quo' projection, per capita utilisation rates (by age and gender) are held constant at 2001 levels. The Status Quo projections are presented in Table 2. These indicate that, if current utilisation profiles remain stable, the total number of services will increase by 5.9% in the five years to 2006, and by a further 6.5% to 2011. In this scenario, proportions of item types (Item 23; Item 36; all others) remain stable across the projection period. Services for patients aged 60 and over increase to 30.5% in 2006 and 33.5% by 2011 (data not shown in table). Furthermore, the overall per capita service utilisation rate increases slightly over the next decade. This increase is due to the fact that older adults are greater users of services than younger adults are, and older populations are increasing at a relatively faster rate. In other words, the increase in the overall per capita rate of utilisation is entirely attributable to population ageing.

**Table 2: Status quo projection of GP service utilisation**

	Services per capita *		Number of services	
	Rate	5-year change (%)	Total (millions)	5-year change (%)
1996	4.86		89.004	
2001 (baseline)	4.66	-4.0	90.878	2.1
Projected				
2006	4.72	1.3	96.240	5.9
2011	4.81	1.9	102.463	6.5

\* Per capita rates indicate number of services per person, based on population estimates for 2001 (ABS 2002) and projections for 2006 and 2011 (ABS 2000).

The figures highlight the separate contributions made by the ageing of the population and growth in the population to changes in utilisation of services. To illustrate this more clearly, consider a theoretical exercise in which the current composition of the population (by age and gender) is held constant while the overall population size is increased as projected by the ABS. The net result of this is a projected number of services in 2006 of 95.118 million – an increase of 4.7% on the 2001 figure. This illustrates that, of the 5.9% increase to 2006, approximately four fifths (4.7% out of 5.9%) is accounted for by population growth, with the remaining one fifth attributable to population ageing. Extending to 2011, a different pattern emerges. Population ageing accounts for just over half of the 6.5% increase in number of services (3.3% out of 6.5%). Applying the same methodology to the data from 1996 and 2001, it can be seen that, of the 2.1% increase in number of services during that period, population growth accounts for only one quarter, with population ageing accounting for three quarters (1.5% out of 2.1%) of this increase.

The second projection series takes into account the observed recent trends in service utilisation. In this 'Trend projection series', future utilisation is adjusted for the observed changes between 1996 and 2001 (separately for each age-gender group and item type). In other words, it is assumed that the rate of change in per capita utilisation rates that occurred between 1996 and 2001 will continue. Trend projections are presented in Table 3. The increase in the number of services expected under this projection is smaller than in the Status Quo projection, particularly from 2001 to 2006. Continuation of the trend toward fewer services per capita would still result in an overall increase in the number of services, because of population growth, but the upward trend created by population growth is offset by the downward trend in utilisation rates.

In this scenario, the proportion of services provided to persons aged 60 and over increases more rapidly, reaching 36% by 2011. This scenario also projects that Item 36 (long consultations) comprise 17.8% of the total number of services by 2011.

**Table 3: Trend projection of GP service utilisation**

	Services per capita *		Number of services		Type of services			Services for persons aged 60+ (%)
	Rate	5-year change (%)	Total (millions)	5-year change (%)	Item 23 – Standard cons. (%)	Item 36 – Long cons. (%)	All other items † (%)	
1996	4.86		89.004		83.6	7.7	8.7	27
2001	4.66	-4.1	90.878	2.1	81.7	10.3	8.0	29
Projected								
2006	4.53	-2.8	92.459	1.7	79.1	13.6	7.3	32
2011	4.54	0.2	96.571	4.4	75.7	17.8	6.5	36

\*Per capita rates indicate number of services per person, based on population estimates for 2001 (ABS 2002) and projections for 2006 and 2011 (ABS 2000).

† All other items in data set: All items in Group A1 except 23 and 36 (1-4, 13, 14, 19, 20, 24-26, 33, 35, 37-40, 43, 47-51, 601 & 602) and all Group A7 (Acupuncture - Item numbers 193 & 195).

## Discussion

The projections indicate that population growth is a major driver of growth in utilisation of services. In the second half of the coming decade, both population growth and ageing will contribute to demand for services. The projections also suggest that the nature of service provision by GPs is likely to change. In both projection scenarios, the proportion of services provided to persons aged 60 and over is expected to increase. Older patients, whose care needs tend to be more complex, will constitute an increasing proportion of the GP's caseload.

How likely is it that either of the two projection scenarios will eventuate? Given that the Status Quo projections take into account demographic changes but no other factors, these can be regarded as an upper estimate of the likely impact of demographic factors. Conversely, the Trend Series projections assume continuation of the recent downward trend in per capita service utilisation. As such, these may be regarded as representing a minimum estimate of growth. Recent data suggest that the overall trend is levelling out rather than continuing downward at the same rate (Commonwealth Department of Health and Ageing 2002c).

The projected growth rates in utilisation may be translated into workforce requirements using the methodology presented by AMWAC (Australian Medical Workforce Advisory Committee 2000). AMWAC calculated that 20,916 equivalent full-time (EFT) GPs were required in 2001, and estimated that this would climb to 22,754 by 2010. The workforce requirements indicated by the projections in the present study are shown in Table 4. It is important to note, however, these figures are based on number of services only and thus do not take into account the greater workload implications of longer consultations. This means the values (and in particular that for the Trend Series), are likely to be underestimates. A study by Access Economics also noted that AMWAC projections do not take account of longer consultations. Their projections for future requirements were higher than those of AMWAC, as indicated in Table 4 (Access Economics 2002).

**Table 4: General practice workforce requirements**

	Estimated number of required Equivalent Full Time GPs
2001 (baseline)*	20,916
2011 – Status Quo Projection	23,582
2011 – Trend Projection	22,226
2010 – AMWAC Estimate*	22,754
2010 – Access Economics Estimate †	24,000

\* Source: AMWAC 2000.

† Source: Access Economics 2002. Mid-case estimate from Figure 11 on page 18.

In order to take account of proportions of different service types in calculations of the required workforce, the relative workload value of each type of service must be estimated. At present there is little data available to inform such calculations. For example, the average length of time actually spent by GPs in the provision of standard consultations and long consultations is not known. Furthermore, it is not clear whether changes in the number of claims for longer consultations, such as was observed between 1996 and 2001, represents changes in actual clinical service delivery or changes in billing practices (Martin et al. 1997). The workload implications of these two possibilities are distinctly different. Further research is required to address these issues, but there is a clear implication that projections of workforce requirements must take into account not just number of services but also types of services provided.

In determining future demand for services, a range of factors other than demographic factors and trends in current utilisation must also be considered. Some of the important variables include economic conditions generally, pricing and availability of services, consumer expectations, and technological change (AMWAC & AHIW 1998, Cooper et al 2002). The effects of these factors on future demand, both individually and in combination, is difficult to predict. However, whatever the impact of such factors may turn out to be, understanding the likely effects of expected demographic changes is an important part of planning for future needs (Denton et al. 2000).

One of the limitations of the study is that the data set does not represent a comprehensive profile of Australian GP services, for three reasons. First, the data set represents the majority, but not the totality, of the workload of the GPs included. General practitioners' clinical workloads also include services claimable under Medicare item numbers that are not exclusive to recognised GPs, as discussed in the Method section. The items in the data set used in this study represent approximately 95% of total Medicare claims for recognised GPs (Commonwealth Department of Health and Ageing 2002c). Second, clinical services not claimed under Medicare are also excluded from this data set. It has been estimated that MBS-claimable services account for approximately 90% of GPs' clinical workload. The remaining 10% is comprised of services which are paid for by a third party (e.g., State health departments, workers compensation), are indirect (e.g. by telephone), or are provided at no charge (Britt & Miller 2000). Third, the data set does not include primary care medical practitioners who are not recognised as GPs for the purposes of Medicare claims. This group comprises approximately 10% of non-specialist medical practitioners (Commonwealth Department of Health and Ageing 2002b). It is unknown to what extent the patterns described in this study differ to those for this group of practitioners.

Finally, it is important to note that projections are not predictions. The process of projection requires making a range of assumptions about the patterns and context of service delivery. If significant factors in the health system or those affecting population projections change, projections must be re-calculated.

The results of this study contribute to the development of an understanding of future demand for GP services. In combination with analysis of other important influences on demand, the results can be used in workforce planning, financial planning and service planning for future GP services.

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