

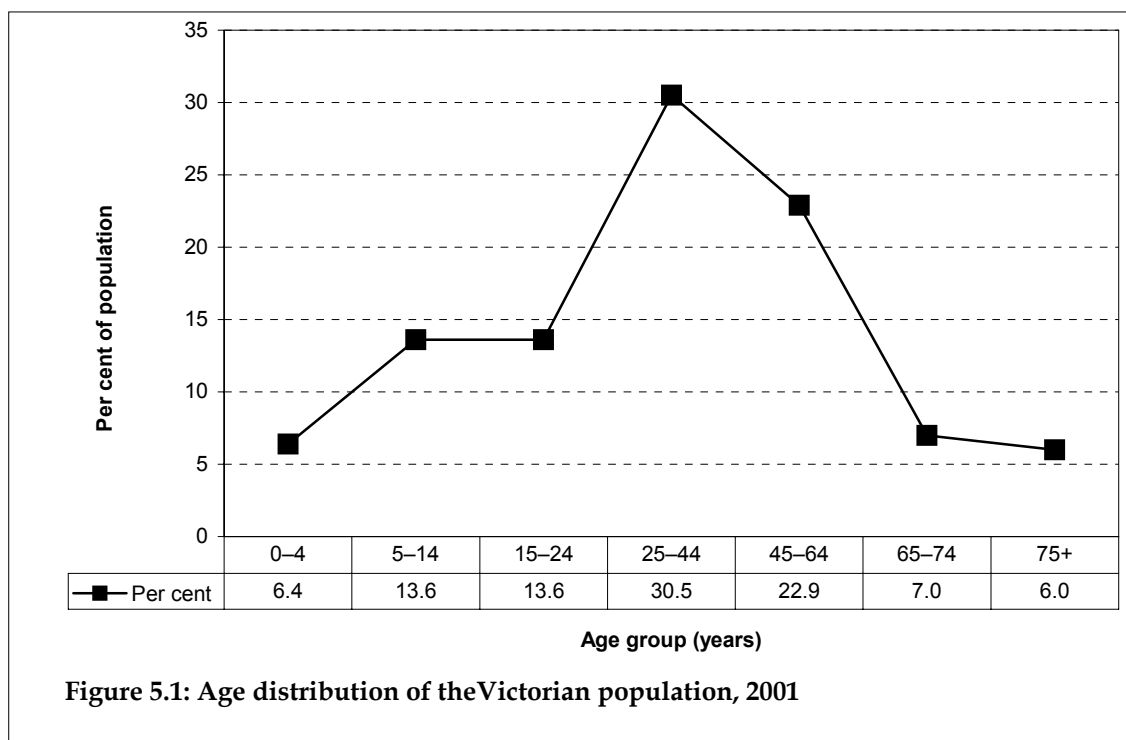
5 Victoria

5.1 Background

In 2001, Victoria had a total population of 4,804,726 people, comprising 24.7% of the total Australian population. Within Victoria, 49.2% of the population were male, and 50.8% were female. The median age was 36.2 years, which was almost identical to the median age for the country (36.1 years).

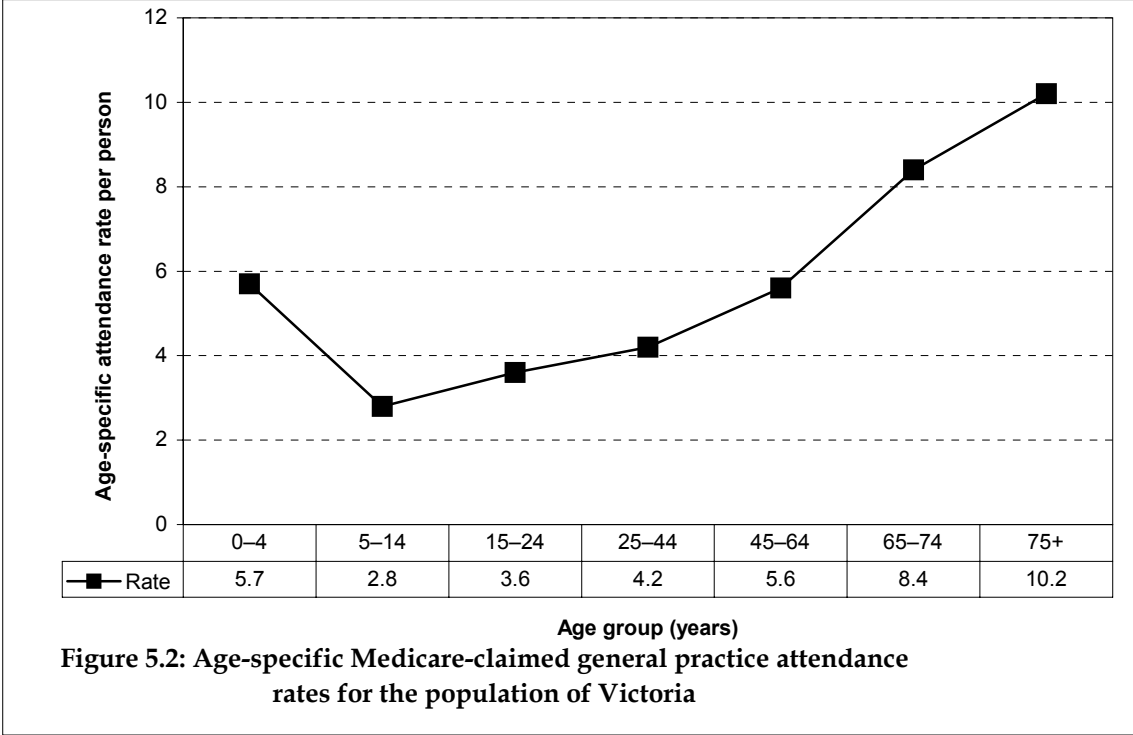
There were a total of 5,349 GPs/OMPs who provided at least one Medicare-claimable service in the last 3 months of 2001, equating with 4,149.5 full-time workload equivalent (FWE) GPs. This meant that there was one FWE GP in Victoria for every 1,157.9 people, which was in line with the national average of one FWE GP per 1,153.9 people. One-fifth of the FWE GPs in Victoria were aged over 55 years, and 24% were female (Table A3.1).

People aged between 25 and 44 years accounted for the greatest proportion of the Victorian population in 2001 (30.5%). Those aged between 45 and 64 years also accounted for a large proportion (22.9%). Few people were aged 75 years and over (6.0%) or between 0 and 4 years (6.4%) (Figure 5.1). The age distribution of people in Victoria was quite similar to the national distribution across all age groups.



Between July 2002 and June 2003, a total of 23,985,308 Medicare A1 and A2 items of service were processed by the HIC for residents of Victoria, accounting for 25.1% of processed services in Australia over this period. On average, Victorians attended general practice 5.0 times between July 2002 and June 2003. As shown in Figure 5.2, the older population had the highest rates of Medicare-claimed general practice attendance, with those aged 75 years or more attending on average 10.2 times, and those aged 65-74 years attending 8.4 times. The

younger age groups had the lowest rates of attendance. Those aged between 5 and 14 years attended only 2.8 times per year on average, followed by those aged between 15 and 24 years, with an average of 3.6 attendances.



5.2 Results

There were 1,140 GPs from Victoria who participated in BEACH between April 1998 and March 2003. They accounted for 22.7% of the total 5-year sample and provided details about 114,000 encounters. The Victoria state results are compared with those for all of Australia in Appendix 4. The differences highlighted below are those identified by non-overlapping 95% confidence intervals. Marginal differences (where the confidence intervals meet but do not overlap) are not noted here but can be identified in the tables in the Appendix.

The general practitioners

The participating Victorian GPs did not differ from all participants in terms of their sex (32.8% female), the number of years they had worked in general practice (23.1% less than 10 years), the number of sessions they worked per week on average (14.9% less than 6 sessions per week, 15.9% more than 10 sessions per week), and their practice location (74.6% in capital and metropolitan areas).

However, there was a greater proportion of Victorian GPs aged less than 45 years (40.6%), compared with the national proportion (37.3%). They were more likely to work in practices of 5 or more GPs (50.9%) than average (44.0%). A greater proportion of these GPs had graduated in Australia (79.8% compared with national 74.3%), and fewer had graduated in Asia (4.7% compared with national 8.3%). A higher proportion of these GPs held FRACGP (35.0%) than the national average (32.2%). Victorian GPs were less likely to provide their

own or cooperative after-hours services for their patients (40.0%) than the average in Australia (43.4%) (Table A4.1).

The encounters

The raw figures showing the number of each variable available in the BEACH data set for Australia and for each state and territory of Australia are provided in Table A4.2.

Content of the encounters

Table A4.3a provides an overview of the content of the encounters recorded by Victorian GPs. At the 114,000 encounters reported by Victorian GPs they recorded patient reasons for encounter at a rate of 150.6 per 100 encounters, almost the same as the national average (150.2 per 100). The number of problems managed at encounters by Victorian GPs (149.8 per 100 encounters) did not differ from the national average (148.1 per 100). New problems arose at a rate of 51.0 per 100 encounters, which equates with the national average of 51.2 per 100. Work-related problems were managed at a similar rate (3.6 per 100 encounters) to the average (3.4 per 100 encounters).

Medications were prescribed, supplied or advised at a rate of 106.8 per 100 encounters, which did not vary from the national average (106.5 per 100).

There was no significant difference between encounters with Victorian GPs and the national average in terms of the number of other (non-pharmacological) treatments provided. Within this measure, clinical treatments were provided at a rate of 38.6 per 100 encounters (compared with 37.1 average) and procedural work at a rate of 13.0 per 100 encounters (compared with 13.8 average).

Victorian GPs did not differ from the average in rates of total referrals generally (11.5 per 100 encounters), or to specialists (7.6 per 100), allied health professionals (3.0 per 100), hospitals (0.6 per 100), emergency departments (0.1 per 100), or other referrals (0.2 per 100). Their ordering rate of pathology tests (34.0 per 100 encounters) and imaging (7.7 per 100) did not vary from the national average (33.8 and 8.2 per 100 respectively).

Age-standardised results

After age-standardisation, two new differences emerged. Victorian GPs did significantly less procedural work and ordered significantly fewer imaging tests than the national average (Table A4.3b).

Type of encounter

The types of encounters undertaken by GPs in Victoria did not differ in many ways from those conducted by all GPs in the national sample. At 97.3% of the 114,000 encounters, the patient was seen by the GP and for 93.1% a Medicare/Department of Veterans' Affairs item of service was claimable. Standard surgery consultations accounted for 74.7% of all encounters and a further 10.4% were long/prolonged surgery consultations. While home visits accounted for only 2.0% of the total, hospital and aged care facility visits were even less common. Fewer aged care facility visits were recorded in Victoria (0.7%) compared with the national average (1.0%). Encounters claimable through workers compensation accounted for 2.1% and indirect consultations (where the patient was not seen) accounted for 2.7% of the total (Table A4.4a).

Age-standardised results

After age-standardisation, the significant difference remained and no new significant results emerged (Table A4.4b).

Characteristics of the patients at encounter

The expected age distribution of patients at encounter in Victoria was calculated from the age distribution of the Victorian population (Figure 5.1) and mean annual GP visits by age group (Figure 5.2). The observed age distribution of BEACH encounters from Victoria (Table A4.5a) did not differ from the expected age distribution (results not shown). Therefore, the Victorian sample of BEACH encounters was representative of the Victorian population in terms of age distribution and GP visit rates.

A significantly greater proportion of encounters with Victorian GPs were with female patients (60.4% compared with 59.1% nationally). The age distribution slightly differed from the national average. The proportions of patients aged less than 1 year and 1–4 years were lower than the average (1.9% compared with 2.1%, 4.5% compared with 4.9% respectively). In each of the other age groups, no significant differences from the national average were found.

The proportion of encounters with patients holding a Repatriation Health Card (3.3%) or a Commonwealth Concession Card (40.3%) did not differ from the national average. There were no differences in the proportion of patients who were new to the practice (8.3%) and the proportion of patients from a non-English-speaking background (9.9%) compared with the average. However, a significantly lower proportion of encounters with Victorian GPs were with Indigenous patients (0.3%) than average (1.1%) (Table A4.5a).

Age-standardised results

After age-standardisation, the other characteristics of patients at encounter were compared, the significant difference identified in the descriptive analysis remained and no new differences emerged (Table A4.5b).

Patient reasons for encounter

The reasons for encounter (RFEs) described by patients attending GPs in Victoria differed in some respects from those given by patients at all encounters.

As shown in Table A4.6a, patients seeing Victorian GPs described relatively more circulatory problems (12.1 per 100 encounters) than in the national data set (11.4 per 100). Problems related to the skin (14.3 per 100 encounters) and the blood/blood-forming organs (1.3 per 100) were described significantly less often than the national average (15.0 and 1.6 respectively).

There was no significant difference in the rate at which they described general and unspecific problems (30.5 per 100 encounters), problems related to the respiratory system (23.3 per 100), the musculoskeletal system (16.6 per 100), the digestive system (10.4 per 100), the female genital system (6.6 per 100), the endocrine/nutritional and metabolic system (6.3 per 100), the neurological system (5.5 per 100), pregnancy and family planning (4.0), the ear (3.9), the eye (2.6), the urinary system (2.6), the male genital system (0.9), nor in the rate of RFEs of a psychological (8.7 per 100 encounters), or social (1.1) nature.

In terms of the most common individual RFEs described by patients at encounters in Victoria, as with the total national data, a request for check-up, either specific or general,

(15.5 per 100 encounters) and requests for prescriptions (9.4 per 100) were most frequent. They were followed by cough (6.1 per 100 encounters), requests for immunisation or vaccination (4.4 per 100), and requests for test results (4.4 per 100).

Skin complaint was the only RFE less frequently described in Victoria than in the national data (1.1 per 100 encounters compared with the average 1.4). There were no other significant differences among the most common individual RFEs (Table A4.7a).

Age-standardised results

After age-standardisation, the RFEs related to the blood/blood-forming organs and skin complaints remained significantly less common than average. However, two significant differences in circulatory and skin RFEs disappeared. No new differences emerged (Tables A4.6b and A4.7b).

Problems managed at encounter

Number of problems managed

As shown in Table A4.8a, the distribution of the number of problems managed at encounter did not differ for Victoria when compared with the national average. At approximately two-thirds of encounters the GP managed only one problem, and at 25.3% they managed two problems. Three problems (8.5%) and four problems (2.5%) were less often managed at a single encounter.

Types of problems managed

Table A4.9a shows that the distribution of the problems managed at encounters with GPs in Victoria paralleled that of the national average, with two exceptions. Circulatory problems (17.7 compared with 16.6 per 100 encounters) and psychological problems (12.4 compared with 11.3 per 100 encounters) were more frequently managed than in the national data set.

As with the national average, the most common problem managed in Victoria was hypertension (9.5 per 100 encounters), followed by upper respiratory tract infection (URTI) (6.2 per 100 encounters), immunisation/vaccination (4.7 per 100), depression (4.1), asthma (3.1), acute bronchitis (3.1), diabetes (3.0) and lipid disorder (2.8). However, acute bronchitis and anxiety were managed at a higher rate in Victoria than average (3.1 compared with 2.8 per 100 encounters and 2.0 compared with 1.7 per 100 encounters respectively). Less often managed than average were oesophageal disease (1.4 compared with 1.7 per 100 encounters) and solar keratosis (0.9 compared with 1.1 per 100 encounters) (Table A4.10a).

There were no other significant differences in the rate of management of other common problems.

Age-standardised results

No significant differences emerged after age-standardisation in terms of numbers of problems managed (Table A4.8b).

After age-standardisation, the significant difference in management of circulatory problems disappeared, but the management rate of psychological problems remained significantly higher in Victoria than average. No new differences emerged (Table A4.9b).

In terms of the most common problems managed, the higher management rate of anxiety disappeared. However, the management rate of acute bronchitis remained significantly

higher than average and the rates for oesophageal disease and solar keratosis remained significantly less frequently managed than national average (Table A4.10b).

New problems managed at encounter

When compared with the national average, there were no significant differences in the rate of management of new problems (Table A4.3a). The most commonly managed new problems in general practice in Victoria paralleled those most frequently managed nationally. URTI was the most frequently managed at a rate of 4.4 per 100 encounters, followed by immunisations/vaccinations (2.3 per 100), acute bronchitis (2.0), sprain/strain (1.0), urinary tract infection (1.0), and unspecified viral diseases (1.0 per 100) (Table A4.11a).

Age-standardised results

Age-standardisation did not change these results. There remained no significant differences between Victoria and the national average in the relative management rates of the most common new problems (Table A4.11b).

Management rates

Earlier in this chapter we reported the rates of each management type provided per 100 encounters. In this section we view management in two other ways. First, we compare the rate of each management variable per 100 problems managed. This removes any bias introduced by differing number of problems managed between states. Second, we look at the likelihood of GPs providing at least one of each management action at the encounter. This provides a simple picture of the chance the patient has of receiving, for example, a prescribed medication or a referral when they attend the GP.

Management rates per 100 problems managed

Table A4.12a shows that GPs in Victoria prescribed, supplied or advised a medication at a rate of 71.3 per 100 problems managed, a similar rate to the national average (71.9). This was reflected in the rates of prescribed medications (60.4 per 100 problems), medications advised for over-the-counter purchase (5.6 per 100), and those GP-supplied (5.4 per 100).

In terms of problems managed, they provided fewer procedural treatments (8.6 compared with 9.3 per 100 problems) but did not differ from the average in use of clinical treatments such as advice and counselling (25.7 compared with 25.1 per 100 problems).

Referral rates to specialists and other services did not differ from the average. The pathology test order rate was similar to the national average (22.7 compared with 22.8 per 100 problems). However, imaging tests were ordered at a significantly lower rate (5.1 per 100 problems) in Victoria than in Australia (5.5 per 100).

Age-standardised results

After age-standardisation, the significant differences identified in the descriptive analysis remained and no new differences emerged (Table A4.12b).

Encounters for which management was recorded

This section considers the relative likelihood of at least one management action of each type at encounter and the results are presented in Table A4.13a.

The likelihood of prescribing, advising or supplying at least one medication by Victorian GPs was similar to the national average (83.4% compared with 83.0%).

There was also no difference in the proportion of encounters with Victorian GPs that involved at least one other treatment at the encounter (39.5% compared with 39.0% nationally). The proportion of encounters involving at least one referral, at least one pathology test, or at least one imaging test did not differ from the average.

Age-standardised results

After age-standardisation, the proportion of encounters resulting in at least one investigation became significantly lower than the national average. This was due to a lesser likelihood of Victorian GPs ordering at least one imaging test at the encounter, a difference that was previously being masked by the age distribution of the population. No other new differences emerged (Table A4.13b).

Medications

As demonstrated in Table A4.14a, there were some significant differences in the prescribing of medication groups and subgroups by Victorian GPs compared with all GP participants.

- Psychological medications were prescribed at a significantly higher rate in Victoria (8.3 per 100 encounters) than in Australia (7.6), mainly due to higher prescribing rates of anti-anxiety agents (2.4 compared with 2.0 per 100 encounters).
- Medications acting on the urogenital system were also prescribed at a significantly higher rate in Victoria, at 2.4 prescriptions per 100 encounters compared with the average (2.1). The only subgroup in which this significant difference was reflected was for diuretics, which were prescribed at a rate of 1.8 per 100 encounters compared with 1.5 per 100 national average.
- Topical ear/nose medications (1.8 per 100 encounters) were prescribed significantly less often by Victorian GPs than all GPs (2.1 per 100). This was reflected in the significantly lower rate of prescribed topical otic medications (0.8 compared with 0.9 per 100).
- While the prescribing rate for hormones generally was not significantly different from the national average (5.9 compared with 6.0 per 100), the rate of prescribed sex hormone/anabolic medications in Victoria (2.0 per 100) was significantly lower than in the national data set (2.2).

There were no significant differences in the prescribing rates of the other drug groups, including antibiotics, cardiovascular system medications, drugs acting on the central nervous system, medications acting on the musculoskeletal system, respiratory medications, allergy and immune system drugs, medications for the skin, drugs acting on the digestive system, and contraceptives.

Age-standardised results

After age-standardisation, one new difference emerged. Topical steroids for skin were prescribed significantly more by Victorian GPs after standardisation. Differences in prescribing rates for psychological medications, sex hormones/anabolic medications, and topical ear medications became marginal. However, the rest of the significant differences remained (Table A4.14b).

Most commonly prescribed medications

Table A4.15a provides comparative results for the prescribing rates of each of the most commonly prescribed medications in the country as a whole. The most common medications

prescribed by Victorian GPs were amoxicillin (3.2 per 100 encounters), paracetamol (3.1 per 100), paracetamol/codeine (2.2 per 100) and salbutamol (2.2 per 100).

There were three significant differences in the prescribing pattern of Victorian GPs when compared with the national average. They had a higher prescribing rate of diazepam (1.3 compared with 1.1 per 100 encounters), and topical betamethasone (1.1 compared with 0.9 per 100), and a lower prescribing rate of cephalexin (1.7 compared with 1.9 per 100 encounters).

Age-standardised results

After age-standardisation, these significant differences remained and no new differences emerged (Table A4.15b).

Other (non-pharmacological) treatments

As previously stated in 'Content of the encounters' (Table A4.3a), Victorian GPs provided other (non-pharmacological) treatments at the same rate as the national average. This was reflected in their provision of clinical treatments such as advice and counselling. However, they did undertake significantly fewer procedural treatments than the national average.

Clinical treatments

There were no significant differences in the rate of provision of any of the most frequent individual clinical treatments when compared with the national average. The most common were general advice and education (6.4 per 100 encounters), advice and education about treatment of the problem (5.0 per 100), counselling/advice pertaining to nutrition/weight (4.9 per 100) and counselling about the problem managed (4.2 per 100). Psychological counselling was also commonly provided (3.6 per 100 encounters) (Table A4.16a).

Age-standardised results

After age-standardisation, a difference emerged in the most frequent individual clinical treatments. There was a higher rate of reassurance/support in Victoria than in Australia (Table A4.16b).

Procedural treatments

The single significant difference in the provision of individual procedures by Victorian GPs was a lower rate of physical function test, being recorded at a rate of 0.3 per 100 encounters compared with 0.4 per 100 nationally (Table A4.17a).

Age-standardised results

After age-standardisation, the difference in providing physical function tests remained and no new differences emerged (Table A4.17b).

Referrals

As earlier stated (see 'Content of the encounters', Table A4.3a), the overall referral rate by Victorian GPs was similar to the national average. Moreover, the referring rates to specialists, allied health professionals, hospitals, emergency departments or for any other referrals did not differ in Victoria when compared with the average.

Referrals to medical specialists

Victorian GPs referred patients to a medical specialist at a rate of 7.6 per 100 encounters (compared with 7.9 average). As with the national results, referrals were most commonly made to surgeons (0.9 per 100 encounter), ophthalmologists and orthopaedic surgeons (each at a rate of 0.7 per 100 encounters) (Table A4.18a).

Referrals to allied health professionals

As shown in Table A4.18a, there were no significant differences in the rate at which Victorian GPs referred patients to allied health services when compared with the national average. The most common referral was to physiotherapists (1.0 per 100 encounters), followed by unspecified health professionals, podiatrists/chiropractors, psychologists, dietitians/nutritionists, dentists and referrals for an electrocardiogram (each at a rate of 0.2 per 100 encounters).

Age-standardised results

After age-standardisation, a significant difference emerged in the rate of referrals for an electrocardiogram. Victorian GPs referred their patient to undertake this test at a significantly higher rate than the national average (Table A4.18b).

Pathology test orders

As earlier shown (see 'Contents of the encounters'), Victorian GPs ordered pathology tests at a similar rate to the national average (34.0 tests compared with 33.8 per 100 encounters). This also applied to the top four groups of pathology tests, the rates for which are provided in Table A4.19a. Pathology tests classed as Chemistry were the most commonly ordered at a rate of 18.9 per 100 encounters. However, there were four significant differences in the ordering of tests classified as Chemistry. Victorian GPs had higher ordering rates of lipid tests (3.9 compared with 3.4 per 100 encounters), electrolytes, urea, and creatinine (EUC) (3.1 compared with 2.2 per 100 encounters), and glucose (2.9 compared with 2.2 per 100 encounters). In contrast, they had a lower ordering rate for multi-biochemical analysis (0.1 compared with 1.2 per 100 encounters). Two groups of pathology tests were ordered at significantly lower rates in Victoria than in Australia as a whole. Other pathology tests (0.6 per 100 encounters) and Tissue pathology (0.3 per 100) were ordered significantly less often by Victorian GPs than average (0.8 and 0.5 respectively) (Table A4.19a).

Age-standardised results

After age-standardisation, differences in ordering rates for lipid tests and Tissue pathology tests became marginal. However, the other significant differences identified remained. One new difference emerged. Liver function tests were ordered significantly more by Victorian GPs after standardisation. This ordering rate had been marginally higher in the descriptive analysis (Table A4.19b).

Imaging orders

The earlier section 'Contents of the encounters' showed that Victorian GPs ordered imaging tests at the same rate as the national average. Table A4.20a shows that this also applied to ordering of ultrasounds and computerised tomography (CT). However, diagnostic radiology tests were ordered significantly less often by Victorian GPs than all Australian GPs (4.6 tests compared with 5.0 per 100 encounters).

Age-standardised results

After age-standardisation, this significant difference remained and no new differences emerged (Table A4.20b).

Patient risk factors

There have been three major ongoing subsample studies of selected patient risk factors: patient body mass index (BMI) calculated from patient self-reported height and weight, self-reported alcohol consumption and current smoking status. The methods applied to these subsample studies are described in Chapter 2 – Methods.

Body mass index

Adults

The adult patients (aged 18 years or more) of Victorian GPs did not differ from the national average in terms of body mass index. Of the 36,712 adult patients (18 years and over) for whom BMI could be calculated, 54.1% were classified as either overweight (33.5%) or obese (20.6%). More than one-third (38.4%) were of normal weight and 7.5% were underweight (Table A4.21).

Children

There were 4,191 children aged between 2 and 17 years for whom a BMI could be calculated. Of these, 33.0% were classified as either overweight (18.7%) or obese (14.3%). Two-thirds were of normal weight or underweight. These results reflected those found in the national data set (Table A4.21).

Alcohol consumption

Responses to the questions on alcohol consumption were recorded for 36,150 adult Victorian patients (aged 18 years or more). There were significantly more responsible drinkers (45.2%) and fewer at-risk drinkers (23.7%) than those from the nation as a whole (43.9% and 25.0% respectively). However, the proportion that reported being non-drinkers did not differ from the national average (Table A4.21).

Smoking status

Of the 36,482 responding adult patients (aged 18 years and over), 18.6% reported smoking daily, 4.9% smoked occasionally, 27.0% were previous smokers, and 49.6% were non-smokers. These results reflected the national average (Table A4.21).

5.3 Discussion

As a data source, the BEACH program is unique in Australia. Its strengths lie in the large size and representativeness of the sample, and the reliability of the research methods.¹⁵ However, as in all analyses of this kind, relying on 95% confidence intervals with a large number of comparisons leads to a possibility that 5% of observed differences may be false (Type 1 error).

The lower proportion of Victorian patients identified as Indigenous people compared with the national average was in line with the 2001 Census data, which showed that Victoria had the lowest proportion of people who identified as being of Indigenous origin (0.5%).³⁰

Victorian GPs provided fewer visits to residential aged care facilities compared with the national average, and they were also younger than average. This finding is consistent with results from a recent study which suggested older GPs provided more services to residential aged care facilities than their younger counterparts.³¹ Victorian GPs were also less likely to provide their own or cooperative after-hours services for their patients than the national GP sample.

Compared with all participating GPs, Victorian GPs ordered fewer imaging tests. After age-standardisation, this rate remained significant. However, the management rate of musculoskeletal problems in Victoria did not differ from the average. The lower ordering rate of imaging tests was not explained by either the age distribution of the population or the management rate of musculoskeletal problems in Victoria.

In terms of medications, clinical treatments, referrals, and pathology tests, Victorian GPs provided similar management actions to the national average.

The higher presentation and management rates of circulatory problems were explained by the age distribution of the population. In contrast, the higher management rate of acute bronchitis and the lower management rate of oesophageal disease were not explained by the age of the patients seen by Victorian GPs.

The higher prescribing rate of psychological medications generally (anti-anxiety agents and diazepam in particular) reflected the higher management rate of psychological problems (particularly anxiety) in Victoria. The prevalence of mental and behavioural problems in Victoria is the same as in Australia.⁵ Higher rates of psychological problems managed and psychological medications prescribed by Victorian GPs might be influenced by the Beyondblue program, introduced by the Commonwealth and Victorian Governments in 2000, which was very much stimulated by Victorian government initiatives. This program focuses mainly on building awareness and understanding about depression, anxiety and related substance misuse disorders.³² As such, it may be having an effect on the diagnosis and management of psychological problems.

The lower management rate of solar keratosis in Victoria may to some degree reflect the lower presentation rate of skin complaints by their patients. Moreover, less solar keratosis may relate to the marginally lower rate of excision/removal tissue/biopsy noted in Victoria than the average.

In terms of individual pathology tests, Victorian GPs ordered more electrolytes, urea, and creatinine (EUC), liver function, and glucose tests, and less multi-biochemical analysis. This probably reflects the local practise style associated with the pathologist from whom these pathology tests are being ordered. All these differences remained significant after age-standardisation.

Patients attending Victorian GPs did not differ from the national average in terms of risk factors such as overweight, obesity, and smoking status. However, they were more likely to be responsible drinkers, and less likely to report at-risk alcohol consumption.

5.4 Conclusion

The clinical activities of Victorian GPs do not differ markedly from the average of all GPs across Australia. State authorities can feel comfortable in relying on the national data reported regularly by the AIHW and the University of Sydney in such publications as *General Practice Activity in Australia 2002–03*¹⁵ to gain a reliable assessment of the current practise style of GPs in Victoria. However, the differences, such as fewer visits to residential aged care facilities and the lower provision of after-hours services, may need some attention from authorities monitoring the GP workforce. The higher management rate of psychological problems and lower ordering rate of imaging tests would be worthy of further investigation using the BEACH data set. Being one of the more populated states, Victoria has sufficient annual sample size (and therefore power) to measure changes in these activities in the future.

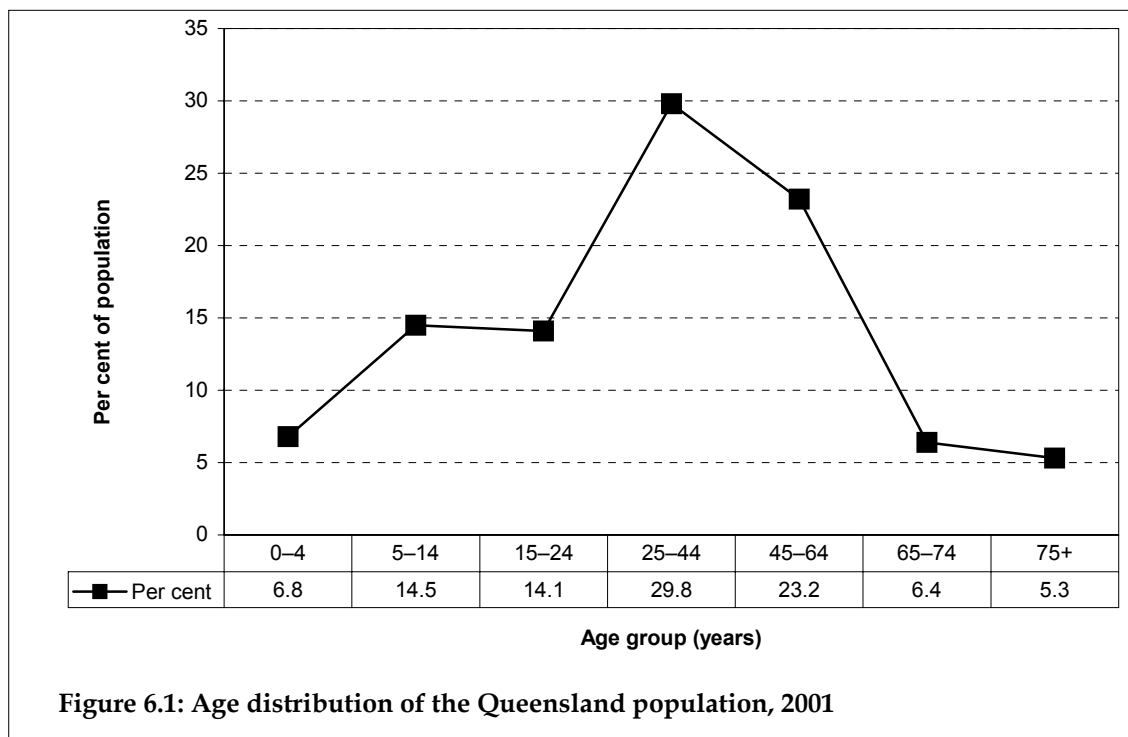
6 Queensland

6.1 Background

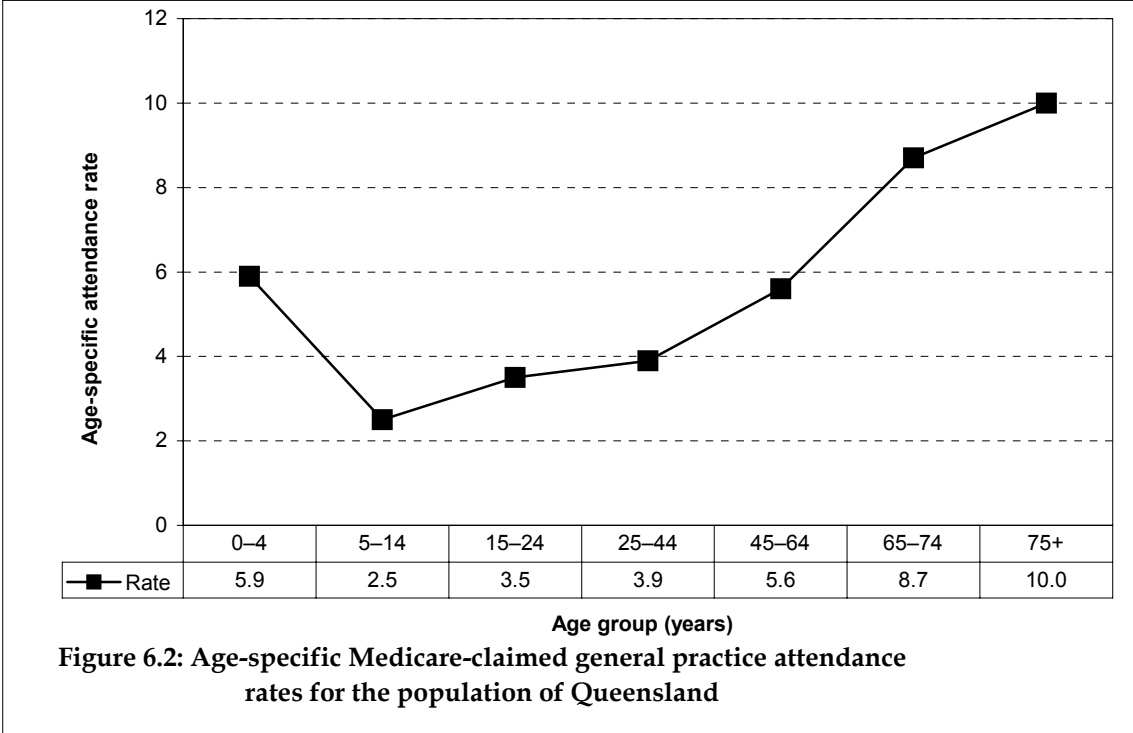
In 2001, the population of Queensland was 3,628,946 people, accounting for 18.7% of the total Australian population. Males accounted for 49.8% of those living in Queensland, and females 50.2%. The median age of Queensland residents was 35.5 years, which was similar to the median age for the nation (36.1 years) (Table A3.1).

There were 3,946 GPs and OMPs working in Queensland during the last 3 months of 2001. This equated with 3,283.1 full-time workload equivalent (FWE) GPs practising in Queensland in 2001. This means there was one FWE GP per 1,105.3 people, the highest GP availability per head of population in Australia. Therefore, Queenslanders have more GPs per person than any other state or territory. There were considerably fewer GPs in Queensland aged 55 years or more compared with the national average (18.0% compared with 22.0%). One-quarter of FWE GPs in Queensland were female (Table A3.1).

The age distribution of the Queensland population in 2001 is shown in Figure 6.1. People aged 25–44 years accounted for the greatest proportion (29.8%), while those aged between 45 and 64 years accounted for 23.2% of the population. Queenslanders had a slightly lower proportion of residents aged 65 years and older (11.7%) compared with Australia as a whole (12.5%). Conversely, Queensland had a slightly higher proportion of its population under the age of 25 years (35.4%) when compared with all of Australia (34.2%).



The HIC processed 17,451,209 Medicare A1 and A2 items of service between July 2002 and June 2003 for Queensland residents, accounting for 18.3% of total services processed throughout Australia over this period. On average, Queenslanders attended general practice 4.8 times in that year, which was similar to the the Australian average of 4.9 times. Those aged 75 years and over attended general practice at the highest rate (10.0 Medicare-claimed attendances), while 65–74 year olds had an average of 8.7 attendances in that year. Children aged between 5 and 14 years had the lowest average rate of attendance (2.5 attendances), while those aged between 15 and 24 years attended an average of 3.5 times (Figure 6.2). These rates were similar to the Australian averages.



6.2 Results

There were 933 GPs from Queensland who participated in BEACH between April 1998 and March 2003. They accounted for 18.6% of the total sample and provided details about 93,300 encounters. Results for Queensland are compared with those throughout Australia in Appendix 4. The differences highlighted below are those identified by non-overlapping 95% confidence intervals. Marginal differences (where the confidence intervals meet but do not overlap) are not noted here but can be identified in the tables in the Appendix.

The general practitioners

Females made up a greater proportion of the GP participants in Queensland than the national average (35.4% compared with 32.6%). Participating GPs from Queensland were less likely to work in the capital city (50.6% compared with 67.1%) or to have graduated in Asia (3.2% compared with 8.3%). There were no significant differences found in the age, experience, size of practice and number of sessions worked per week of participating Queensland GPs when compared with the national average (Table A4.1).

The encounters

The raw figures showing the sample sizes available in the BEACH data set for Queensland, Australia, and for each other state and territory of Australia, are provided in Table A4.2.

Content of encounters

Table A4.3a provides an overview of the content of encounters recorded by Queensland GPs. At the 93,300 encounters, patient reasons for encounter were recorded at a rate of 147.2 per 100 encounters, a significantly lower rate than average for the country (150.2). However, the rate of problems managed per 100 encounters by Queensland GPs (145.9 per 100) did not differ from the average (148.1). The rate of new problems managed (52.6 per 100 encounters) was also similar to the average (51.2). However, the rate of work-related problems managed by Queensland GPs (2.7 per 100 encounters) was significantly lower than reported throughout Australia (3.4).

Queensland GPs prescribed, supplied or advised medications for over-the-counter purchase at a rate of 102.2 per 100 encounters, a significantly lower rate than average (106.5). This was mainly due to a significantly lower prescribing rate amongst Queensland GPs (84.7 per 100 encounters) when compared with the national average (89.4). Queensland GPs advised medications for over-the-counter purchase at a rate of 8.8 per 100 encounters and they supplied medications at a rate of 8.7 per 100 encounters, comparable to the national average.

Queensland GPs provided other (mainly non-pharmacological) treatments to patients at a rate of 53.3 per 100 encounters, no different from the national rate (50.9). Within this group of treatments, there was also no difference found between the rate of clinical treatments given by Queensland GPs (36.1 per 100 encounters) and the national average (37.1). However, procedural treatments were given by Queensland GPs at a significantly higher rate than the national average (17.2 compared with 13.8 per 100 encounters).

Queensland GPs gave referrals at an average rate of 10.7 per 100 encounters, which was significantly lower than the national average (11.8). This applied to both referrals to specialists (7.2 compared with 7.9 per 100 encounters) and to allied health services (2.5 compared with 2.9 per 100 encounters). There were no differences found in the referral rate made to hospitals (0.8 per 100) or to emergency departments (0.1 per 100) by Queensland GPs when compared with the average.

Queensland GPs ordered pathology tests at a rate of 35.9 per 100 encounters, which was similar to the national average of 33.8 per 100 encounters. They ordered imaging tests at an average rate of 8.8 per 100 encounters, in parallel with the Australian average (8.2).

Age-standardised results

After age-standardisation, the significant differences identified in the descriptive analysis remained and no new differences emerged (Table A4.3b).

Type of encounter

The distribution of the types of encounters recorded by Queensland GPs was similar to that recorded by GPs throughout Australia. Patients were seen by the GP at 97.1% of the 93,300 encounters with Queensland GPs, and a Medicare/Department of Veterans' Affairs item of service was claimable at 93.1% of encounters. Standard surgery consultations accounted for 75.1% of all encounters and a further 10.1% were long surgery consultations. Hospital visits were recorded at 0.6% of encounters, and visits to a residential aged care facility at 1.3% of

encounters. However, home visits accounted for only 1.0% of all encounters, a significantly lower proportion than the national average (1.7%). Encounters claimable through workers compensation accounted for only 1.1%, which was also significantly lower than throughout Australia (1.9%). Indirect consultations accounted for 2.9% of encounters, which was identical to the national average (Table A4.4a).

Age-standardised results

After age-standardisation, the significant differences remained and no new significant results emerged (Table A4.4b).

Characteristics of the patients at encounter

The expected age distribution of patients at encounter in Queensland was calculated from the age distribution of the Queensland population (Figure 6.1) and mean annual GP visits by age group (Figure 6.2). The observed age distribution of BEACH encounters from Queensland (Table A4.5a) did not differ from the expected age distribution (results not shown). Therefore, the Queensland sample of BEACH encounters was representative of the Queensland population in terms of age distribution and GP visit rates.

The sex distribution of patients at encounters with GPs in Queensland was similar to the national distribution, with the majority being female (59.4% compared with 59.1% in the national sample). A significantly greater proportion of patients were aged <1 year (2.4% compared with 2.1%) and between 5 and 14 years (7.0% compared with 6.4%). In contrast, there was a significantly lower proportion of patients of 65 to 74 years of age (11.4% compared with 12.1%). Overall Queensland had more patients under the age of 25 (24.8% compared with 23.3%) and fewer patients aged 65 years and older (23.8% compared with 25.1%) than the national average.

The proportion of patients new to the practice was significantly higher in Queensland than the total for Australia (11.1% compared with 9.2%). Repatriation Health Card holders accounted for a significantly greater proportion of encounters in Queensland (3.9% of encounters) than throughout Australia (3.4%). Patients from a non-English-speaking background accounted for only 4.0% of encounters, a significantly lower proportion than the average (8.8%). Patients who were Aboriginal and/or Torres Strait Islander people accounted for 1.6% of encounters and this did not differ from the national average (1.1%) (Table A4.5a).

Age-standardised results

After age-standardisation, all significant results remained and no new differences emerged (Table A4.5b).

Patient reasons for encounter

The distribution of the reasons for encounter (RFEs) described by patients attending GPs in Queensland differed in some respects from those given by patients at all encounters throughout Australia (Table A4.6a).

Patients seeing GPs in Queensland described significantly more RFEs relating to the skin (17.4 compared with 15.0 per 100 encounters) but described fewer relating to the respiratory (21.1 compared with 22.7 per 100 encounters), circulatory (9.5 compared with 11.4 per 100), digestive (9.8 compared with 10.4 per 100), endocrine/nutritional and metabolic (5.3

compared with 6.0 per 100) and neurological systems (5.1 compared with 5.5) and related to the blood and blood-forming organs (1.3 compared with 1.6 per 100).

However, there was no significant difference in the rate at which they described general and unspecified RFEs (31.8 per 100 encounters), RFEs related to the musculoskeletal system (16.2 per 100), RFEs of a psychological nature (7.4 per 100), RFEs related to the female genital system (6.5 per 100), the ear (4.3 per 100), pregnancy and family planning (4.2 per 100), the eye (2.5), the urological (2.4) and male genital systems (1.1 per 100) and RFEs of a social nature (1.2 per 100 encounters).

As in the total Australian data, the most common individual RFEs described by patients at encounters in Queensland were requests for a check-up (15.0 per 100 encounters) and requests for prescriptions (9.7 per 100). No individual RFE occurred more frequently in Queensland than they did in the national average but there were three RFEs that occurred less frequently. These were cough (5.6 compared with 6.1 per 100 encounters), throat complaint (3.1 compared with 3.5) and knee complaint (1.1 compared with 1.4). Requests for immunisation or vaccination (4.9 per 100), requests for test results (4.9 per 100) and back complaints (3.4 per 100) were other commonly described RFEs in both Queensland and the country as a whole (Table A4.7a).

Age-standardised results

After age-standardisation, all significant differences remained and no new differences emerged (Tables A4.6b and A4.7b).

Problems managed at encounter

Number of problems managed

As shown in Table A4.8a, the distribution of the number of problems managed at an encounter did not differ in Queensland when compared with the national average. At around two-thirds of encounters the GP managed only one problem, and at 23.8% of the encounters they managed two problems.

Types of problems managed

Table A4.9a shows the distribution of problems managed at encounters with GPs in Queensland. A number of problems were managed at significantly different rates in Queensland, compared with their management rates throughout Australia as a whole. Problems managed significantly more often were those associated with the skin (19.1 compared with 16.6 per 100 encounters) and problems classified as general and unspecified (15.9 compared with 15.0 per 100 encounters). Problems less often managed were those associated with the respiratory (20.7 compared with 21.7 per 100 encounters), circulatory (14.3 compared with 16.6 per 100 encounters), the endocrine and metabolic (8.8 compared with 9.9 per 100 encounters) systems and those associated with the ear (3.9 compared with 4.3 per 100 encounters).

Similar to the national average, the most frequently managed problem in Queensland was hypertension (7.2 per 100 encounters), followed by upper respiratory tract infections (URTI) (5.6 per 100 encounters), immunisations/vaccinations (5.0 per 100 encounters), depression (3.8 per 100 encounters), and asthma (3.0 per 100 encounters). Although hypertension was the most frequently managed problem, it was managed significantly less often in Queensland than the national average (7.2 compared with 8.8 per 100 encounters). Other problems managed significantly less often were diabetes (2.5 compared with 2.8), lipid

disorders (2.0 compared with 2.8), contact dermatitis (1.6 compared with 1.9), sleep disturbances (1.4 compared with 1.6) and gastroenteritis (0.8 compared with 1.0) (Table A4.10a). Problems managed significantly more often in Queensland were solar keratosis/sunburn (1.8 compared with 1.1) and malignant neoplasms of the skin (1.5 per 100 encounters, 95% CI: 1.3–1.7 compared with 0.9 per 100 encounters 95% CI: 0.8–1.0) (results not tabulated).

Age-standardised results

The number of problems managed at each encounter in Queensland remained representative of the national average after age-standardisation (Table A4.8b).

After age-standardisation, significant differences reported for general and unspecified problems and for ear problems disappeared. No new differences emerged (Table A4.9b).

In the individual problems managed, the differences in the rates of diabetes, sleep disturbance and gastroenteritis were no longer significant after age-standardisation. However, one new significant difference emerged: the management rate of URTI in Queensland became significantly lower when compared with the national average (Table A4.10b).

New problems managed at encounter

The most frequently managed new problems in general practice in Queensland paralleled those most frequently managed nationally. URTI was the most frequently managed at a rate of 4.0 per 100 encounters followed by immunisation and vaccinations (2.5 per 100), acute bronchitis (1.7), sprain/strain (1.0) and urinary tract infection (1.0 per 100 encounters) (Table A4.11a). Malignant neoplasm of the skin was a new problem managed significantly more often in Queensland than throughout Australia (0.7 per 100 encounters 95% CI: 0.6–0.9 compared with 0.5 per 100 encounters 95% CI: 0.3–0.5) (results not tabulated).

Age-standardised results

After age-standardisation, the higher management rate of malignant neoplasms of the skin did not remain significant and no new differences emerged (Table A4.11b).

Management rates

Earlier in this chapter we reported the rates of each management type provided per 100 encounters. In this section we view management in two other ways. First, we compare the rate of each management variable per 100 problems managed. This removes any bias introduced by differing number of problems managed between states. Second, we look at the likelihood of GPs providing at least one of each management action at the encounter. This provides a simple picture of the chance the patient has of receiving, for example, a prescribed medication or a referral when they attend the GP.

Table A4.12a shows that GPs in Queensland provided (prescribed, supplied or advised) a similar number of medications per 100 problems managed to the national average (70.0 compared with 71.9 per 100 problems managed). Queensland GPs prescribed significantly fewer medications than GPs across Australia (58.0 per 100 compared with 60.4). They also supplied medications (6.0 per 100 problems) and advised over-the-counter purchase of medications (6.0 per 100 problems) at similar rates to the national average (5.5 and 6.1 respectively).

Queensland GPs provided other treatments at a significantly higher rate (36.5 per 100 problems) than the national average (34.4). This was mostly due to significantly higher provision of procedural treatments (11.8 compared with 9.3 per 100 problems). There was no difference in the provision of clinical treatments by Queensland GPs compared with the national average (24.7 compared with 25.1 per 100 problems).

Queensland GPs made referrals at a rate similar to the national average (4.3 compared with 4.8 per 100 problems) but referred significantly less often to specialists when compared with the national average (2.8 compared with 3.2 per 100 problems). There were no differences in the referral rates to allied health professionals (0.9 per 100) or to hospitals (0.2 per 100 problems) when compared with the average.

Queensland GPs ordered pathology tests at a higher rate (24.6 tests per 100 problems) than the national average (22.8), although imaging tests were ordered at a similar rate to all GPs in Australia (6.0 compared with 5.5).

Age-standardised results

After age-standardisation, two new differences emerged. Queensland GPs prescribed, supplied or advised medications at a significantly lower rate than average. The overall rate of referrals made by Queensland GPs also became significantly lower than the national average. However, after age-standardisation, the significantly higher rate of pathology tests and the lower referral rate to specialists were no longer apparent (Table A4.12b).

Encounters for which management was recorded

This section considers the relative likelihood of at least one management action of each type occurring at encounters. The results are presented in Table A4.13a.

The likelihood of prescription, advice or supply of at least one medication at the encounter was significantly lower for Queensland GPs compared with the national average (64.5% compared with 66.5% of encounters). This was mainly due to the lower proportion of encounters resulting in at least one prescription (55.3% compared with 57.3% of encounters). There was no difference in the proportion of encounters resulting in at least one medication being advised for over-the-counter purchase, or supplied at the encounter. Encounters with GPs in Queensland were more likely to result in at least one other treatment compared with the total for Australia (40.8% compared with 39.0% of encounters). This was mainly due to encounters with Queensland GPs being more likely to result in at least one procedural treatment when compared with the average (15.5% compared with 12.6% of encounters).

The provision of at least one referral was less likely at GP encounters in Queensland (10.3% compared with 11.2% of encounters) than for the country as a whole (particularly at least one referral to a specialist 3.9% compared with 4.5% of encounters). In contrast, encounters with GPs in Queensland were more likely to result in at least one pathology test order (15.8% compared with 14.9% of encounters). There was no difference in the proportion of encounters with Queensland GPs that involved at least one order for imaging (7.5% compared with 7.2% of encounters).

Age-standardised results

After age-standardisation, all the significant differences noted above remained. In addition, the proportion of encounters resulting in at least one investigation became higher (Table A4.13b).

Medications

The most frequently prescribed medication groups in Queensland were the same as those for the country as a whole. Antibiotics were prescribed at a rate of 15.1 per 100 encounters, followed by cardiovascular medications (11.1 per 100 encounters) and medications affecting the central nervous system (10.1 per encounters). As demonstrated in Table A4.14a, a number of medication groups were prescribed significantly less often in Queensland than throughout Australia.

- Medications acting on the cardiovascular system were prescribed at a rate of 11.1 per 100 encounters compared with 13.7 per 100 encounters for Australia as a whole. This was reflected in the lower prescribing rates of anti-hypertensives (5.8 compared with 7.4 per 100 encounters) and 'other cardiovascular drugs' (mainly lipid lowering medications) (1.9 compared with 2.5).
- Medications acting on the musculoskeletal system were prescribed at a rate of 5.3 per 100 encounters compared with 5.8 per 100 encounters for Australia as a whole.
- Medications acting on the skin were prescribed at a rate of 3.9 compared with 4.3 per 100 encounters. This was reflected in the significantly lower prescription of topical steroids (2.2 compared with 2.7 per 100 encounters).
- Medications acting on the digestive system were prescribed at a rate of 3.6 compared with 4.0 per 100 encounters.
- Medications acting on the urogenital system were prescribed at a rate of 1.7 compared with 2.1 per 100 encounters, particularly diuretics (1.2 compared with 1.5 per 100 encounters).
- Medications acting on the endocrine/metabolic system were prescribed at a rate of 1.2 compared with 1.5 per 100 encounters.
- Other subgroups prescribed at significantly lower rates were simple analgesics (3.7 compared with 4.2 per 100 encounters), hypoglycaemic agents (1.5 compared with 1.9 per 100 encounters) and other blood medications (0.8 compared with 0.9 per 100 encounters).

The only types of medication prescribed significantly more often in Queensland than the average for the nation were contraceptives (2.1 compared with 1.8 per 100 encounters) and topical otic medications (1.1 compared with 0.9 per 100 encounters).

Most commonly prescribed medications

Table A4.15a provides comparative results for the prescribing of the most common generic medications in the country. Five medications were prescribed significantly less often in Queensland when compared with the national average; paracetamol (2.9 compared with 3.4 per 100 encounters), temazepam (1.2 compared with 1.4), simvastatin (0.6 compared with 0.9), topical betamethasone (0.6 compared with 0.9) and frusemide (0.6 compared with 0.8).

Age-standardised results

After age-standardisation, the differences found in the prescription rates for digestive and metabolic medication, topical otics and other blood medication in Queensland were no longer significant (Table A4.14b). The lower prescription rates of temazepam and frusemide in Queensland also lost their significance after age-standardisation (Table A4.15b). All other significant differences identified in the descriptive analysis remained and no other significant differences appeared as a result of age-standardisation.

Other (non-pharmacological) treatments

As previously stated in 'Content of encounters' (Table A4.3a), Queensland GPs provided other treatments at a similar rate to the average for Australia. However, procedural treatments were performed at a significantly higher rate in Queensland compared with the national average. There was no difference in the rate of provision of 'clinical treatments'.

Clinical treatments

The most frequent clinical treatment provided at encounters in Queensland were advice/education relating to treatment of the problem being managed (5.8 per 100 encounters), general advice/education (5.7), counselling related to the problem under management (4.4) and counselling/advice related to nutrition (4.3). Two clinical treatments were provided at a significantly lower rate than the national average: psychological counselling (2.7 per 100 encounters compared with 3.1), and the provision of sickness certificates (0.7 compared with 1.0 per 100 encounters) (Table A4.16a).

Procedural treatments

Queensland GPs performed excisions/biopsies/removal of tissue (including destruction, debridement and cauterisation) at significantly higher rates than the national average and this difference was quite large (4.1 compared with 2.8 per 100 encounters). They also provided dressings (compression, pressure, tamponade) (2.3 compared with 1.9 per 100 encounters) and application/removal of a suture/cast/prosthetic device at higher rates than the national average (1.4 compared with 1.0 per 100 encounters) (Table A4.17a).

Age-standardised results

After age-standardisation, the lower rate of psychological counselling was no longer significant but the rate of provision of sickness certificates remained lower (Table A4.16b). Table A4.17b shows that incision/drainage (including flushing, aspiration, removal of body fluid) was performed by Queensland GPs at a significantly higher rate than the national average after age-standardisation. The remaining differences identified in the descriptive analysis remained after age-standardisation and no other significant differences emerged after age-standardisation.

Referrals

As previously stated in 'Content of encounters' (Table A4.3a), the overall referral rate by Queensland GPs was significantly lower than the average for all of Australia.

Referrals to medical specialists

Queensland GPs referred their patients to medical specialists at a significantly lower rate than the national average (7.2 compared with 7.9 per 100 encounters) and this was reflected in a significantly lower rate of referrals to dermatologists (0.4 compared with 0.6 per 100 encounters). As with the national results, Queensland GPs referred most often to surgeons (0.7 per 100 encounters), ophthalmologists (0.7) and orthopaedic surgeons (0.7) (Table A4.18a).

Referrals to allied health professionals

As shown in Table A4.18a, Queensland GPs referred patients to allied health professionals significantly less often than the national average (2.5 compared with 2.9 per 100 encounters). However, this was not reflected in decreased referral rates to any particular type of allied

health professional. As with the national results, referrals were most commonly made to physiotherapists (0.9), general health professionals (0.2) and dietitians/nutritionists (0.2).

Age-standardised results

After age-standardisation, the significant differences remained, and no new significant differences emerged (Table A4.18b).

Pathology test orders

As shown earlier in 'Content of encounters' (Table A4.3a), Queensland GPs ordered pathology tests at a similar rate to the national average. They had higher ordering rates for Haematology tests (7.4 compared with 6.5 per 100 encounters), mainly due to a higher order rate for full blood counts (5.5 compared with 4.5 per 100 encounters). Queensland GPs also ordered more Microbiology tests (6.7 compared with 5.3 per 100 encounters) and Tissue pathology (0.9 compared with 0.5 per 100 encounters) than the national average. Queensland GPs had a lower rate of Other pathology tests recorded when compared with the national average (0.6 compared with 0.8). While Chemistry tests were ordered at a similar rate to the national average there was considerable variation in the rates of the individual types of tests ordered. Significantly fewer lipid tests (2.6 compared with 3.4 per 100 encounters), electrolyte, urea and creatinine (0.9 compared with 2.2), liver function tests (1.0 compared with 2.2) and glucose tests (0.9 compared with 2.2) were ordered in Queensland than the national average. In contrast, there was a significantly higher rate of thyroid function tests (2.3 compared with 1.8 per 100 encounters) and multi-biochemical analyses (4.1 compared with 1.2) ordered than the national average (Table A4.19a).

Age-standardised results

The significant difference in the rates of Other pathology orders disappeared after age-standardisation. The other significant differences remained and no new significant differences emerged after age-standardisation (Table A4.19b).

Imaging orders

As earlier stated in 'Content of encounters' (Table A4.3a), Queensland GPs ordered imaging tests at a similar rate to the national average.

Table A4.20a shows that there were also no significant differences in the ordering rates of specific imaging tests. Tests classified as Diagnostic radiology were the most commonly ordered imaging group, at a rate of 5.3 per 100 encounters, followed by ultrasounds (2.6 per 100 encounters) and computerised tomography (0.8 per 100 encounters).

Age-standardised results

After age-standardisation, no new significant differences emerged (Table A4.20b).

Patient risk factors

There have been three major ongoing subsample studies of selected patient risk factors: patient body mass index (BMI) calculated from patient self-reported height and weight, self-reported alcohol consumption and current smoking status. The methods applied to these subsample studies are described in Chapter 2 – Methods.

Body mass index

Adults

There were 29,231 adult patients (aged 18 years and over) for whom BMI could be calculated. The distribution of adult Queensland patients' BMI scores mirrored the national distribution, with 37.7% of adult patients being classified as normal weight, 32.9% as overweight and 20.2% as obese. The only difference was that Queensland had a significantly higher proportion of patients classified as underweight (9.2%) than the national average (8.1%) (Table A4.21).

Children

There were 3,948 children aged between 2 and 17 years for whom a BMI could be calculated. Children attending general practice in Queensland were more likely to be underweight or of normal weight when compared with the national average (71.8% compared with 69.1%). However, the proportions of the sample that were overweight (16.8%) or obese (11.4%) did not differ from the national average (Table A4.21). On further analysis, with the categories of overweight and obesity combined, Queensland children were less likely to be overweight or obese than children nationally (28.2%, 95% CI: 26.5–29.9 compared with 30.9%, 95% CI: 30.1–31.7%) (results not tabulated).

Alcohol consumption

Respondents to the questions on alcohol consumption numbered 28,897 adults (aged 18 years or more). The proportion of Queensland patients who were non-drinkers was similar to the national average (30.9% compared with 31.1%). However, patients seen by Queensland GPs were less likely to be responsible drinkers (42.3% compared with 43.9%) and more likely to be at-risk drinkers (26.7% compared with 25.0%) than Australians on average (Table A4.21).

Smoking status

Respondents to the question on smoking status numbered 29,428 adults (aged 18 years or more). The distribution of smoking patterns amongst Queensland patients was similar to the national distribution. Nearly half of Queensland patients had never smoked (49.1%), about a quarter were previous smokers (27.9%), 18.9% were daily smokers and 4.2% were occasional smokers (Table A4.21).

6.3 Discussion

General practice activity in Queensland differed significantly from the nation in many areas. Participating Queensland GPs were more likely to be female, less likely to work in a capital city, and less likely to have graduated in Asia than average.

Queensland patients also differed from the national average in several areas. They were more likely to be new to the practice and to hold a Repatriation Health Card and they were also less likely to be from a non-English-speaking background. The higher proportion of patients aged less than 25 years and the lower proportion of patients aged 65 and older reflects the age distribution of the population of Queensland.

One interesting difference in Queensland general practice was the lower rate of work-related issues. Queensland GPs had the lowest proportion of encounters claimable through workers compensation and the lowest rate of work-related problems in the nation, and provided significantly fewer sickness certificates than the national average.

Queensland GPs had a lower rate of circulatory problem management. This was primarily due to having the lowest rate of hypertension management in the country (after age-standardisation). They also had a lower management rate of problems related to the endocrine and metabolic system, due to a lower management rates of diabetes and lipid disorders. This is an interesting result considering more Australians die of cardiovascular diseases than any other cause. If the population prevalence and management of cardiovascular problems in Queensland were low, and they were being managed effectively, one would expect a low mortality of cardiovascular problems in Queensland. However, Queensland had the same rate of deaths due to cardiovascular problems as the rest of Australia.³³ This may indicate that cardiovascular problems in Queensland are being under-managed in general practice.

Other morbidities of Queensland patients seem to reflect the semi-tropical environment in which they live. Queenslanders had one of the highest rates of skin problem management in Australia. Specifically, they have high rates of solar keratosis/sunburn and malignant neoplasms of the skin. This may explain why Queensland GPs administered procedural treatments at a significantly higher rate than the national average, specifically excisions/biopsies/removal of tissue (including destruction, debridement and cauterisation). It might also explain why Queensland GPs had the highest rate of Tissue pathology orders in the country.

Even though Queensland GPs managed more skin problems in general, they had a significantly lower rate of contact dermatitis than the national average. This may explain why Queensland GPs prescribed fewer skin medications (specifically topical steroids) than the national average. It could also explain why Queensland GPs referred significantly less often to dermatologists than GPs nationwide.

The semi-tropical climate of Queensland may also explain why these patients reported sore throat and cough significantly less often as a RFE. It could also explain the lower rate of respiratory problem management in Queensland, specifically in relation to URTI (after age-standardisation).

Overall, Queensland GPs prescribed, advised or supplied medications at a lower rate than the national average. This was due to a lower rate of prescribed medications. The significantly lower prescription rate of certain medication groups or subgroups in Queensland may reflect the lower management rates of associated conditions. For example, the low rates of:

- circulatory problems and cardiovascular medications
- lipid disorders and other cardiovascular medications (mainly lipid lowering medications)
- contact dermatitis and skin medications (particularly topical steroids)
- diabetes and hypoglycaemic medications.

It is interesting that the only medication group prescribed more often than the national average was contraceptives.

The ordering of tests classified as Chemistry in Queensland was interesting. The lower rate of orders for lipid profiles may be due to the lower management of lipid disorders. The high

rate of multi-biochemical analysis and the low rate of lipid tests, electrolyte, urea and creatinine tests, liver function tests and glucose tests may be due to GPs including these specific tests within multi-biochemical analyses.

In terms of risk factors, Queensland had the highest proportion of adult patients who were 'underweight'. Queensland was also the only state to have a significantly higher proportion of children classed either as of normal weight or underweight and a significantly lower proportion of children patients classed as overweight or obese compared with the national average. In contrast, Queensland adult patients were more likely to be at-risk drinkers.

The BEACH program as a data source is unique in Australia. Its strengths lie in the large size and representativeness of the sample, and the reliability of the research methods.¹⁵ However, as in all analyses of this kind, relying on 95% confidence intervals with a large number of comparisons leads to a possibility that 5% of observed differences may be false (Type 1 error).

6.4 Conclusion

The clinical activities of GPs practising in Queensland differed in several key areas compared with all GPs across Australia. These areas include the low management rates of work-related issues and circulatory problems, higher rates of skin problems and the subsequent management of each these specific problems. State authorities could use the national data reported regularly by the AIHW and the University of Sydney in publications such as *General Practice Activity in Australia 2002–03*¹⁵ as an indication of the current practise style of GPs in Queensland. However, being one of the more populated states, there are sufficient data collected each year in BEACH to provide an annual state-based measure of GP activity, and detect changes that may occur as the result of state based interventions. State authorities should consider requesting more detailed analysis of the BEACH data to gain a greater understanding of the current practise style of GPs in Queensland.

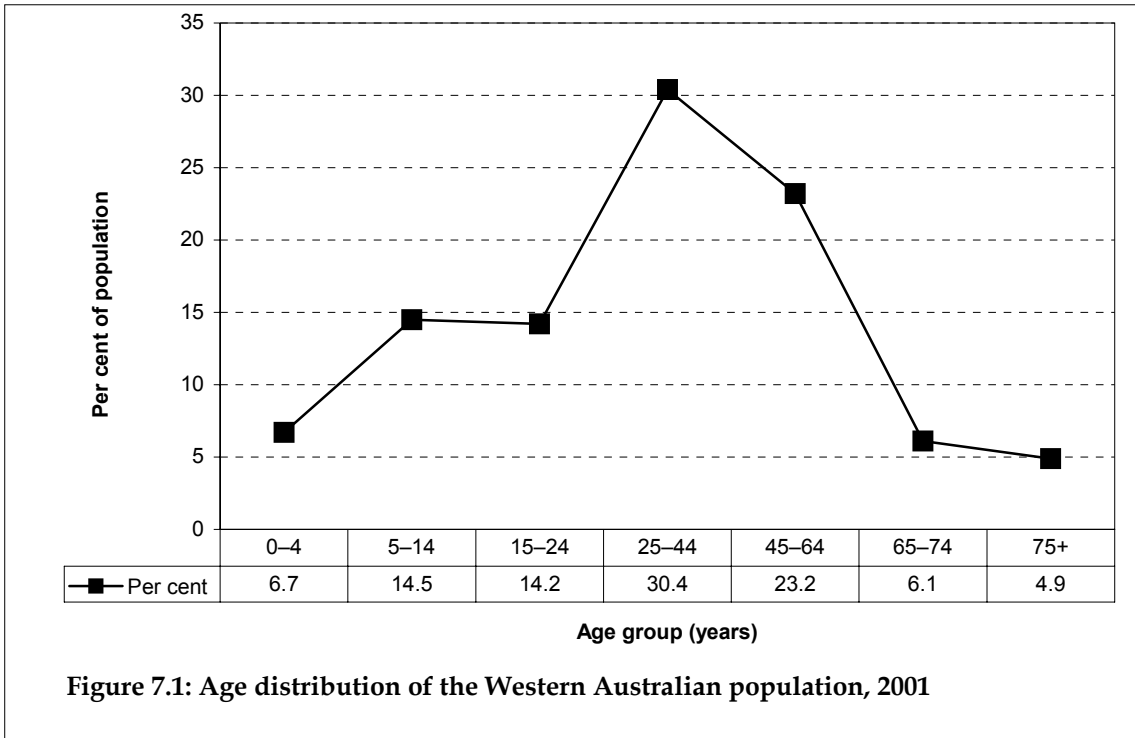
7 Western Australia

7.1 Background

The population of Western Australia in 2001 was 1,901,159 people, accounting for 9.8% of the Australian population. Just over half of those living in Western Australia were male (50.1%) which was slightly higher than the national average of 49.6%. The median age of the Western Australian population was 35.5 years, lower than the national median of 36.1 years.

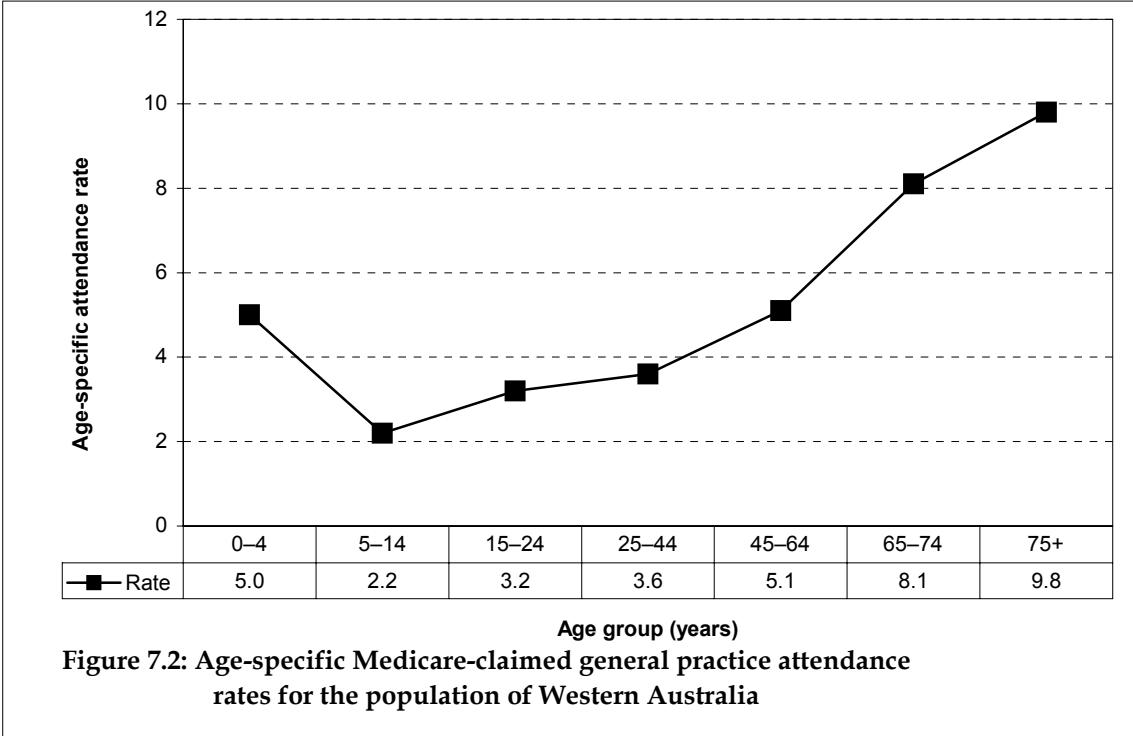
There were 2,014 Western Australian GPs and OMPs who provided a Medicare service in the last 3 months of 2001. This equated to 1,441.2 full-time workload equivalent (FWE) GPs. Therefore, there was one FWE GP in Western Australia for every 1,319.2 people. The 20.0% of FWE GPs in Western Australia who were aged over 55 years was somewhat less than the Australian average of 22.0%, while the 25.0% of FWE GPs who were female corresponded with the national average (Table A3.1).

The age distribution of the Western Australian population is shown in Figure 7.1. People aged between 25 and 44 years accounted for 30.4% of the population, and 23.2% were aged 45-64 years. In comparison with the Australian population, shown in Table A3.1, the distribution is somewhat younger. There were 28.7% of Western Australians aged 5 to 24 years, compared with 27.6% in all of Australia, while only 11.0% were aged 65 years or more, compared with 12.5% nationally.



A total of 8,295,639 Medicare A1 and A2 items of service were processed through the HIC for residents of Western Australia between July 2002 and June 2003. These accounted for 8.7% of total claims throughout Australia over this period. On average, people living in Western Australia attended general practice 4.4 times in that year, slightly lower than the 4.9 times

nationally. Older people had the highest rates of Medicare-claimed general practice attendances, with people aged 75 years and over attending 9.8 times per person on average, and those aged 65–74 attending 8.1 times. The lowest rates of attendance were for those aged 5–14 years (2.2 attendances) and people aged between 15 and 24 years (3.2 attendances) (Figure 7.2). Attendance rates across all age groups in Western Australia were lower than the national averages.



7.2 Results

There were 412 GPs from Western Australia who participated in BEACH between April 1998 and March 2003. They accounted for 8.2% of the total 5-year sample and provided details about 41,200 encounters. The Western Australian results are compared with those for all of Australia in Appendix 4. The differences highlighted below are those identified by non-overlapping 95% confidence intervals. Marginal differences (where the confidence intervals meet but do not overlap) are mentioned only when marginal differences in the crude rates become significant after age-standardisation.

The general practitioners

The proportion of GPs in Western Australia who were female (31.6%) did not differ from that of all participants. They did, however, tend to be younger, with 10.2% aged under 35 years compared with 7.2% nationally and 27.1% being over 55 years as opposed to 28.4%. There were only 13.6% who worked 11 or more sessions per week compared with 16.5% in all Australia. The same proportion was in solo practice, again a lower proportion than the national average of 16.9%. The percentage who worked part-time (i.e. less than six sessions per week) (15.8%) or who were FRACGP (33.3%) did not differ from national results. However, considerably fewer Western Australian GPs graduated in Australia (65.4%

compared with 74.3%), and graduates from the United Kingdom accounted for double the national average (16.8% compared with 8.5%). On average, 67.1% of Australian GPs worked in a capital city whereas 75.0% of Western Australian GPs worked in Perth (Table A4.1).

The encounters

The raw figures showing the number of each variable in the BEACH data set for Australia and for each state of Australia are provided in Table A4.2.

Content of the encounters

Table A4.3a provides an overview of the content of the encounters recorded by Western Australian GPs. At the 41,200 encounters reported, the number of patient reasons for encounter (147.7 per 100 encounters) and problems managed (148.5) did not differ from the national average. Western Australian GPs managed new problems at a rate of 50.2 per 100 encounters and work-related problems at a rate of 3.6 per 100 encounters, neither of which differed from the national average.

Medications were prescribed at a significantly lower rate than average (83.2 compared with 89.4 per 100 encounters) and advised for over-the-counter purchase less often (7.6 compared with 9.0). It was significantly more common for GPs in Western Australia to provide medications from their own supplies (11.0 compared with the average 8.1). There was no significant difference between encounters with Western Australian GPs and the national average in terms of the number of other (non-pharmacological) treatments provided.

There were no significant differences between Western Australian and total Australian GPs in the referral rates (12.0 per 100 encounters) or in orders for imaging (8.8 per 100). However, pathology was ordered at a significantly higher rate than average, at 39.2 per 100 compared with 31.1 per 100 encounters.

Age-standardised results

After age-standardisation, the difference in pathology ordering was no longer significant and no new differences emerged (Table A4.3b).

Type of encounter

At 92.3% of the 41,200 encounters recorded by GPs in Western Australia, the patient attended in person and for 91.7% a Medicare or Department of Veterans' Affairs item of service was claimable. Standard surgery consultations accounted for 76.3% of all encounters and a further 8.9% were long surgery consultations. These results paralleled the national pattern. The rate of prolonged surgery visits was significantly lower than average (0.6 compared with 1.0 per 100 encounters). Visits to aged care facilities were also significantly less common at 0.5 per 100 compared with 1.0 per 100 encounters nationally (Table A4.4a).

Age-standardised results

After age-standardisation, the significantly lower rate of prolonged consultations remained but the difference in residential aged care facility visits was no longer significant. No new differences in distribution of GP services between Western Australia and the national sample were identified (Table A4.4b).

Characteristics of the patients at encounter

The expected age distribution of patients at encounter in Western Australia was calculated from the age distribution of the Western Australian population (Figure 7.1) and mean annual GP visits by age group (Figure 7.2). The observed age distribution of BEACH encounters from Western Australia (Table A4.5a) did not differ from the expected age distribution (results not shown). Therefore, the Western Australian sample of BEACH encounters was representative of the Western Australian population in terms of age distribution and GP visit rates.

The demographics of patients at encounters with GPs in Western Australia did not differ significantly from that of patients seen by all GPs in Australia, with the majority (59.0) being female. Approximately 23% were young people of less than 25 years, 26% were in each of the 25–44 and 45–64 age groups, while 23.9% were 65 years of age or over.

There was a significantly lower proportion holding a Repatriation Health Card (2.9%) than the national average (3.4%) and patients were also less likely to be from a non-English-speaking background (6.1% compared with 8.8%). The proportion of encounters with Indigenous patients (2.6%) was significantly greater than the average of 1.1% (Table A4.5a).

Age-standardised results

After age-standardisation, the difference in the proportion of patients holding a Repatriation Health Card disappeared but the significantly lower proportion of non-English-speaking patients and higher proportion of Indigenous patients remained (Table A4.5b).

Patient reasons for encounter

The distribution of reasons for encounter (RFEs) described by patients attending GPs in Western Australia differed in some respects from that of patients at all encounters.

As shown in Table A4.6a, there was no significant difference in the rate at which they described general and unspecific problems (30.5 per 100 encounters), problems related to the musculoskeletal system (17.6 per 100) or skin problems (15.0 per 100). However, reasons associated with the respiratory system were significantly less common in Western Australia, described at 20.5 per 100 encounters compared with 22.7 per 100 nationally, as were circulatory reasons, presenting at a rate of 10.6 compared with the national results of 11.4 per 100 encounters.

In Table A4.7a, one can see the most common individual RFEs described by patients at encounters. In Western Australia, as with the total national data, a request for check-up, either specific or general, (14.2 per 100 encounters) and requests for prescriptions (10.6 per 100 encounters) were most frequent. There were two RFEs that occurred at a significantly lower rate in Western Australia and these were cough (5.3 compared with 6.1) and throat complaints (2.9 compared with 3.5 per 100 encounters).

Age-standardised results

After age-standardisation, these significant differences remained and some new differences emerged. Neurological problems were less common reasons for encounter, while eye problems were more common than in the national results (Tables A4.6b and A4.7b).

Problems managed at encounter

Number of problems managed

As shown in Table A4.8a, the distribution of the number of problems managed at encounter did not differ for Western Australia when compared with the national average. At almost two-thirds of encounters the GP managed only one problem and at one-quarter they managed two problems. Three problems (8.5%) and four problems (2.2%) were less often managed at a single encounter.

Types of problems managed

Table A4.9a shows the distribution of problems managed at encounters with GPs in Western Australia. Problems managed significantly less often were respiratory (20.4 compared with 21.7 per 100 encounters) and circulatory (15.3 compared with 16.6 per 100 encounters). Endocrine and metabolic disorders were managed at the significantly higher rate of 10.8 per 100 encounters compared with the national average of 9.9.

As with the national average, the most common problem managed in Western Australia was hypertension at 8.0 per 100 encounters, followed by upper respiratory tract infection (URTI), which was managed at the significantly lower rate of 5.3 per 100 encounters compared with 6.0 per 100 total encounters. Anxiety was also less frequently managed in Western Australia (1.4 per 100 compared with 1.7) (Table A4.10a).

Age-standardised results

No significant differences emerged after age-standardisation in terms of numbers of problems managed (Table A4.8b).

After age-standardisation, the significantly lower rate of respiratory problems and higher rate of endocrine/metabolic problems remained. A significantly higher rate of eye problems was found but the difference in rates of circulatory problems was no longer apparent. The lower rate of URTI remained but the difference in rates of anxiety management was no longer significant (Tables A4.9b and A4.10b).

New problems managed at encounter

URTI was the most frequent new problem managed, again at a significantly lower rate (3.6 per 100 encounters compared with the average rate of 4.2). All other results for Western Australia paralleled the national average, with immunisation and acute bronchitis the next most common new problems (Table A4.11a).

Age-standardised results

Age-standardisation did not change these results. URTI remained significantly less frequently managed and no other differences were found between Western Australia and the national average in the management rates of the most common new problems (Table A4.11b).

Management rates

Earlier in this chapter we reported the rates of each management type provided per 100 encounters. In this section we view management in two other ways. First, we compare the rate of each management variable per 100 problems managed. This removes any bias introduced by differing numbers of problems managed between states. Then we look at the likelihood of GPs providing at least one of each management action at the encounter. This

provides a simple picture of the chance the patient has of receiving, for example, a prescribed medication or a referral when they attend the GP.

Management rates per 100 problems

Total medication rates per 100 problems managed were significantly lower in Western Australia, at 68.5 per 100 problems managed compared with 71.9 per 100 problems nationally. Lower rates for medications both prescribed (56.0 per 100 problems managed) and advised (5.1) were recorded compared with the national averages of 60.4 and 6.1 respectively. However, GPs in Western Australia ordered pathology at a rate of 26.3, which was significantly higher than the national average of 22.8 per 100 problems managed (Table A4.12a).

Age-standardised results

Significant differences in rates of total, prescribed and advised medications were still apparent after standardisation and a new significant difference was found in rates of GP-supplied medications. The significant difference in pathology ordering rates between Western Australia and total Australia disappeared (Table A4.12b).

Encounters at which management was recorded

Encounters with GPs in Western Australia were less likely than average to generate a medication or other treatment (81.6% compared with 83.0%). The proportion generating at least one prescribed medication and the proportion generating at least one over-the-counter advised medication were smaller, with 54.8% compared with 57.3% for prescribing and 6.3% compared with 8.0% for advising. On the other hand, a higher proportion of encounters resulted in the direct provision of at least one medication by the GP (7.8% compared with the national figure of 6.0%).

The proportion of encounters where at least one investigation was recorded was higher (21.8% compared with the national average of 20.4%) due to the significantly higher percentage of encounters where pathology was ordered (16.0% compared with 14.9%). There were no differences in the results for other treatments and referrals (Table A4.13a).

Age-standardised results

After age-standardisation, all the significant differences for medications remained but the difference in pathology ordering became marginal. No new differences emerged (Table A4.13b).

Medications

In Table A4.3a, the total prescribing rate per 100 encounters was seen to be significantly lower in Western Australia. Table A4.14a, which lists prescribing rates of medication groups and subgroups, shows that all significant differences that were identified were lower for Western Australia than for Australia as a whole.

- Antibiotics were prescribed at the lower rate of 13.1 per 100 encounters in Western Australia compared with the national average of 14.9. 'Other antibiotics', which includes macrolides, were prescribed at a rate of 2.5 per 100 compared with 3.2 in the total data and the prescribing rate of cephalosporins was 1.4 per 100 encounters compared with 1.8 nationally.

- Anti-hypertensives were the only cardiovascular medications to demonstrate a significant difference, prescribed at the lower rate of 6.3 per 100 encounters compared with 7.4 in the total data.
- Among psychological medications, anti-anxiety agents were prescribed at the lower rate of 1.6 in Western Australia compared with the average rate of 2.0 per 100 encounters.
- The respiratory medication prescribing rate was a low 4.4 compared with the national average of 6.0 per 100 encounters, with bronchodilators/spasm relaxers prescribed at a rate of 1.9 compared with the average 3.0 per 100 encounters.
- Skin medications were prescribed at a rate of 3.9 per 100 encounters in Western Australia, significantly lower than the average of 4.3 per 100.
- Medications acting on the digestive system were prescribed at a rate of 3.5 per 100 encounters in Western Australia, significantly lower than average (4.0 per 100).

There were no significant differences in the prescribing rates of the other drug groups.

Most commonly prescribed medications

Table A4.15a provides comparative results for the rates of the most commonly prescribed medications in the country as a whole. Four significant differences appeared for Western Australia when compared with the national average: lower prescribing rates of salbutamol (1.3 compared with 2.0 per 100 encounters), roxithromycin (1.2 compared with 1.6 per 100), cefaclor monohydrate (0.9 compared with 1.3 per 100 encounters) and erythromycin (0.4 compared with 0.7 per 100).

Age-standardised results

Two changes occurred when the results were age-standardised. A significantly lower rate of asthma preventive prescribing occurred, while the lower rate of skin medication prescribing in Western Australia was reduced to only a marginal difference (Tables A4.14b and A4.15b).

Other (non-pharmacological) treatments

As previously demonstrated in Table A4.3a, there was no significant difference in the overall rates of clinical and procedural treatments provided by Western Australian GPs when compared with the average for all of Australia.

Clinical treatments

Psychological counselling was the only clinical treatment that demonstrated a significant difference in rate compared with the average. Western Australian GPs provided psychological counselling at the lower rate of 2.6 per 100 encounters, whereas the national average was 3.1. The most frequent types of clinical treatments did not differ from the national average. The most common were general advice/education at 6.0 per 100 encounters, advice and education concerning treatment of the problem at 4.8 per 100 and counselling/advice about nutrition/weight at 4.7 per 100 encounters (Table A4.16a).

Procedural treatments

There were no significant differences in the use of individual procedures in Western Australia compared with Australia as a whole. Excision/removal of tissues (including destruction, debridement or cauterisation) was recorded most often, at a rate of 3.0 per 100 encounters, followed by application of a dressing, at 1.8 per 100 (Table A4.17a).

Age-standardised results

When age-standardisation was applied, the difference in psychological counselling remained and a new difference was noted: the rate of provision of sickness certificate was lower in Western Australia (Table A4.16b).

No significant differences emerged after age-standardisation in the most commonly performed procedural treatments (Table A4.17b).

Referrals

As previously stated in Table A4.3a, the overall referral rate in Western Australia was 12.0 per 100 encounters, a similar rate to the national average (11.8).

Referrals to medical specialists

In Table A4.18a, one can see that GPs in Western Australia referred patients to a medical specialist at a rate of 8.0 per 100 encounters, a similar rate to the national average of 7.9. The most common specialist referral was to an ophthalmologist, at 0.9 per 100 encounters, close to the average rate of 0.8. There was a significantly lower rate of referrals to cardiologists in Western Australia (0.3 per 100 encounters) compared with the total data (0.4 per 100).

Referrals to allied health professionals

As shown in Table A4.18a, there were no significant differences in the rate at which Western Australian GPs referred patients to allied health services when compared with the national average. The most common referrals were to physiotherapists (1.1 per 100 encounters).

Age-standardised results

After age-standardisation, the rate of referrals to psychiatrists appeared significantly lower than the national average and the lower rate of cardiologist referrals remained (Table A4.18b).

Pathology test orders

As mentioned previously, the number of pathology tests ordered per 100 encounters, per 100 problems managed and the percentage of encounters at which any pathology was ordered were all significantly higher in Western Australia.

Table A4.19a presents details of pathology ordering rates. Chemistry tests were ordered at the significantly higher rate of 21.6 per 100 encounters compared with the average of 17.7. In this category, total glucose tests (3.4 per 100 encounters in Western Australia compared with 2.2 nationally), EUC (2.9 compared with 2.2), and thyroid function tests (2.4 compared with 1.8) were ordered at significantly higher rates. Total Microbiology tests were ordered at a rate of 6.1 per 100 encounters, also significantly higher than the average of 5.3. Erythrocyte sedimentation rate (ESR) screening was the only test to be ordered significantly less often in Western Australia, at a rate of 0.7 per 100 encounters compared with 1.0 per 100.

Age-standardised results

A number of changes in the results occurred after age-standardisation and these can be seen in Table A4.19b. The higher rates of total Chemistry test and glucose test ordering remained. The differences in EUC, thyroid function and ESR ordering became marginal, whereas the difference in Microbiology testing was no longer evident.

Imaging orders

Western Australian GPs were earlier shown to order imaging at a similar rate to the national average (Table A4.3a). One can see in Table A4.20a that most of the commonly ordered tests did not demonstrate significant differences when compared with the national data with the exception of ultrasound, ordered at a rate of 2.8 per 100 encounters compared with 2.4 per 100 encounters nationally.

Age-standardised results

The significant difference in ultrasound ordering rates between Western Australian and total GPs did not remain after age-standardisation (Table A4.20b).

Patient risk factors

Body mass index

Adults

The adult patients (aged 18 years or more) of Western Australian GPs did not differ from the average in terms of body mass index (BMI). Just over one-third of patients were of normal weight and a small proportion (7.5%) were underweight. Overweight and obese patients accounted for 54.9% of the total (Table A4.21).

Children

Using the BMI classification specific to children (aged 2-17 years), we found no significant differences between child patients in Western Australia and the national average for children (Table A4.21).

Alcohol consumption

A significantly smaller proportion of patients (aged at least 18 years) reported they were non-drinkers in Western Australia (27.9% compared with the average of 31.1%). Of those who did drink, a higher proportion drank at at-risk levels: 28.9% compared with the national average of 25.0% (Table A4.21).

Smoking status

The percentage of patients aged 18 years or more who reported they had never smoked was lower in Western Australia than nationally (47.5% compared with 49.5%), and significantly more patients, 29.0%, were previous smokers. Nationally the figure was 27.3%. The percentage of current daily smokers in the Western Australian sample was close to the average at 18.9% (Table A4.21).

7.3 Discussion

The BEACH program as a data source is unique in Australia. Its strengths lie in the large size and representativeness of the sample, and the reliability of the research methods.¹⁵ However, as in all analyses of this kind, relying on 95% confidence intervals with a large number of comparisons leads to a possibility that 5% of observed differences may be false (Type 1 error).

The comparatively younger population of the state was reflected in the age distribution of the GP participants in BEACH, who were more likely than average to be aged less than 35 years. We also found that Western Australian GPs were more inclined to work between 6 and 10 sessions a week and less likely than average to work extended hours. When one takes into account the ratio of GP to population (one FWE GP for every 1,319.2 people, which was the lowest of all the states), a pattern of service supply emerges. ABS data show annual per capita attendance rates at general practice were lower across all age groups for Western Australians than for the total population. This supports a Western Australia Planning Commission report that referred to a shortage of GPs and limited after-hours care leading to a reliance on hospital emergency services.³⁴

A capital city practice location was less common nationally than it was in Western Australia, where 75.0% of GP participants were located in Perth. This would be expected in a state that is sparsely populated except for the capital city where 72.7% of its population is concentrated.³⁵

Overseas graduates formed a much higher percentage of GPs from Western Australia than for all Australia. In particular, there were twice as many graduates from the United Kingdom as the national average. Western Australia provides work for a considerable number of temporary resident doctors, particularly from the United Kingdom, who fill rural places to which it is difficult to recruit Australian doctors.³⁶ Since 1993 the University of Western Australia's Centre for Remote and Rural Medicine together with the Australian Medical Association of Western Australia have recruited and sponsored GPs from throughout the world.^{37,38}

Patients from Western Australia encountered in the BEACH study were significantly less likely than average to hold a Repatriation Health Card and GPs were also less likely to visit aged care facilities. These differences were found to be due to the age distribution of the population as they disappeared after adjustment.

The low rate of non-English-speaking background patients in BEACH is not easily explained, given that in Western Australia overseas-born residents form a higher proportion of the population (28.5%) than in any other state or territory. However, a high proportion of these overseas-born persons come from the United Kingdom and Ireland, making the percentage of the population coming from non-English-speaking countries almost the same as the national average (about 17.0%).³⁹ The percentage of Indigenous patients in Western Australia (2.6%) was more than double the average in BEACH and was indicative of the state population of which 3.5% are of Aboriginal or Torres Strait Islander origin.³⁵

The significantly lower management rates of circulatory problems managed may be due to the slightly lower proportion of the population in the oldest age group, as the difference disappeared after age-standardisation. Respiratory problem management was also significantly lower, partly due to the low management rate of URTI, the second most common problem managed in Australian general practice. This finding was not linked to age of the population so a contributing factor could be the cleaner air in Western Australia. The Department of Environmental Protection has stated that, for most of the time, Perth enjoys

satisfactory air quality⁴⁰ and a study of the former East Germany after reunification found that decreased rates of respiratory disease were clearly linked to lower air pollution.⁴¹ These results are consistent with data published in *Australia's Health 2002*, which showed significantly lower death rates from circulatory and respiratory causes in Western Australia.⁴²

Endocrine/metabolic problems were more commonly managed in Western Australia than in the total results, despite average management rates of the two most common endocrine problems, diabetes and lipid disorder. This difference was not explained by the age distribution of the population and has no obvious cause.

Medication rates were considerably lower overall, demonstrating lower rates across a number of medication categories. Some of these are linked to the rates of problem management, for example, low management rates of circulatory and respiratory problems led to low anti-hypertensive and bronchodilator prescribing. However, many of the medications less frequently prescribed than average, such as antibiotics, digestive and skin treatments, are not easily explained by identified differences in problem management.

The significantly higher rates of pathology test ordering, which were evident across most of the common Chemistry tests and Microbiology, were shown to be linked to the age distribution of the population. Further analysis of the Western Australian data from BEACH would allow closer investigation of these differences and their relationship to problems managed.

In terms of health risk factors, Western Australian patients did not differ from average in their body mass evaluation. However, a considerably smaller proportion were non-drinkers and, of those who did drink, a larger than average proportion were in the at-risk category of alcohol consumption. The lower percentage of patients who had never smoked was possibly due to the higher than average numbers of overseas-born⁴³ and Indigenous patients¹⁵ living in Western Australia.³⁹ Western Australia also had the highest rate of previous smokers. None of these differences were explained by the age distribution of the population.

7.4 Conclusion

This analysis of BEACH data has provided a broad overview of current activities in Western Australian general practice. A number of significant differences between these results and the national average were evident, although the majority of results did not differ significantly from average. A closer examination of some of the topics covered here may be of benefit to the health workers, researchers and planners of Western Australia.

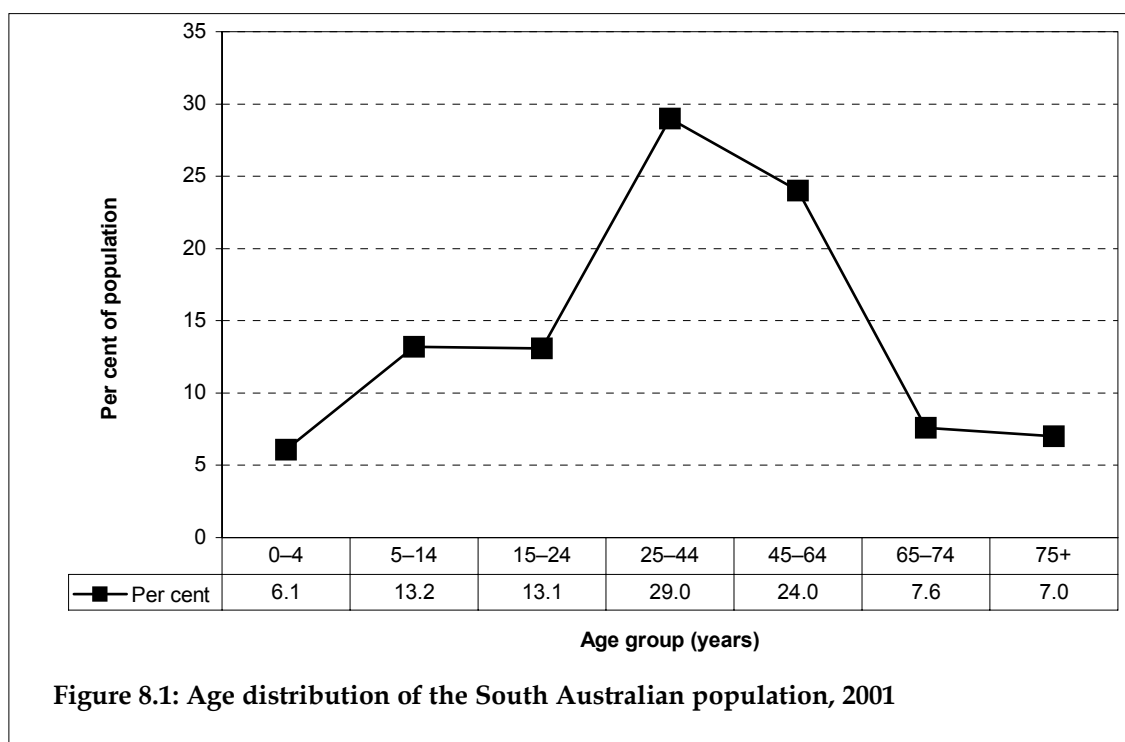
8 South Australia

8.1 Background

There were 1,511,728 residents of South Australia in 2001, accounting for 7.8% of the total Australian population. Within South Australia, 49.4% of the population were male, and 50.6% were female. The median age of the South Australian population was 38.2 years. This was the oldest median age across all states and territories of Australia (Table A3.1).

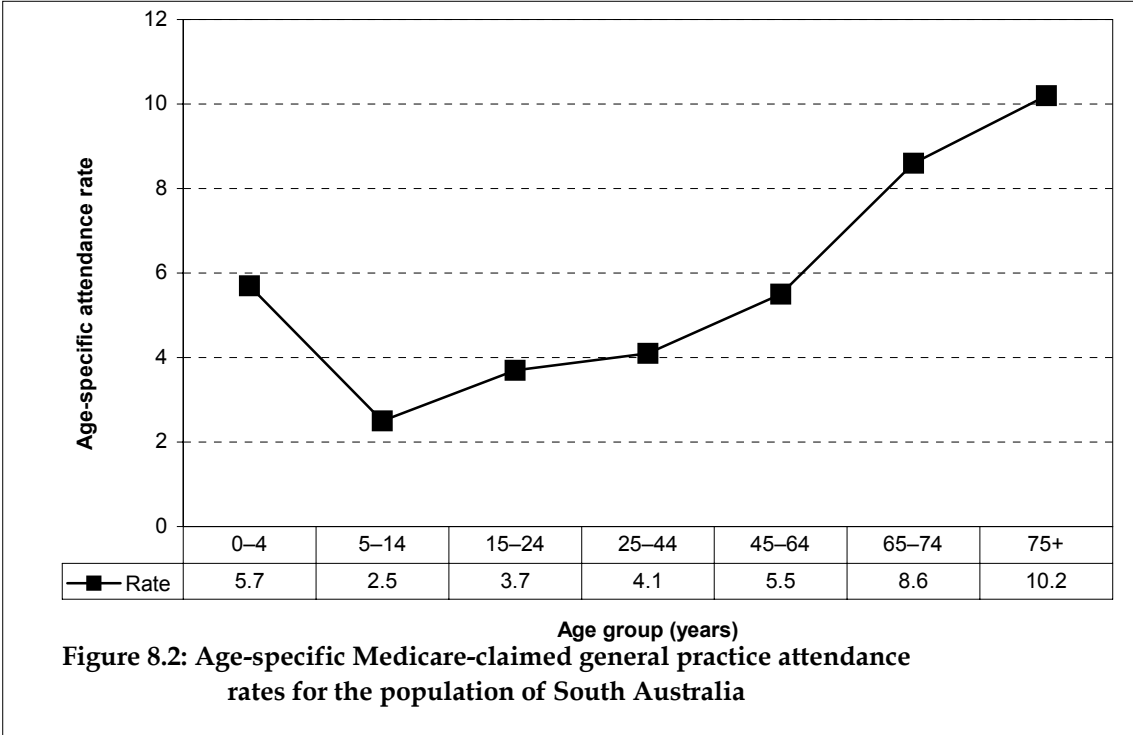
There were 1,859 South Australian GPs or OMPs who had provided at least one Medicare service in the last 3 months of 2001, equating to 1,358.8 full-time workload equivalent (FWE) GPs. Therefore, there was one FWE GP for every 1,112.6 people in South Australia. Female FWE GPs accounted for 23% of the GPs in South Australia, slightly fewer than the national average, and 21% of FWE GPs were aged more than 55 years (Table A3.1).

People aged between 25 and 44 years accounted for the greatest proportion of the population in South Australia (29.0%), while almost one-quarter of the population were aged 45–64 years (24.0%). Those aged between 0 and 4 years accounted for 6.1% of the population and 7.0% were aged 75 years or more (Figure 8.1)



Between July 2002 and June 2003, 7,609,152 Medicare A1 and A2 items of service were processed by the HIC for people living in South Australia. This equated with 8.0% of total services processed throughout Australia over this time. South Australians attended general practice an average of 5.0 times during that year. As shown in Figure 8.2, older people had the highest rates of Medicare-claimed general practice attendance, with those aged 75 years and over attending, on average, 10.2 times per person, and 65–74 year olds averaging of 8.6 attendances. Children aged between 5 and 14 years attended general practice at the lowest

rates (2.5 times in that year), while those aged 15–24 attended 3.7 times on average. These figures were very similar to the attendance rates throughout Australia.



8.2 Results

Between April 1998 and March 2003 there were 381 South Australian GPs who took part in the BEACH program. They accounted for 7.6% of the total 5-year sample and provided details about 38,100 encounters. The results for South Australia are presented in Appendix 4, and compared with the results for all states and territories in Australia. The significant differences (between South Australian and all Australian GPs) discussed below are identified by non-overlapping 95% confidence intervals. Marginal differences (where the confidence intervals meet but do not overlap) are not noted here but can be identified in the tables in the Appendix.

The general practitioners

The participating GPs from South Australia were more likely than the national average to be male (71.7% compared with 67.4%). They were less likely to be in solo practices (13.2%) or practices with 2–4 GPs (31.0%) and more likely to be in practices of 5 or more GPs (55.8%) compared with the total sample (16.9%, 39.2% and 44.0% respectively).

A greater proportion of South Australian GPs graduated in Australia (81.2% compared with 74.3%) and Asia (11.1% compared with 8.3%). They were more likely to practise in capital cities (75.9%) and other rural locations (16.8%), but less likely to practise in large rural locations (1.8%) compared with the national average (67.1%, 11.6% and 6.1% respectively).

South Australian GPs did not differ from the national average in terms of the age of GPs, the number of years in general practice, number of sessions worked per week and whether the GP was currently undertaking a general practice vocational training program or a Fellow of the RACGP (Table A4.1).

The encounters

The raw figures showing the numbers of each variable available in the BEACH data set for Australia, and for each state and territory of Australia are provided in Table A4.2.

Content of the encounters

Table A4.3a provides an overview of the encounters recorded by the South Australian GPs. At the 38,100 encounters reported by South Australian GPs, patient reasons for encounter were recorded at a rate of 147.1 per 100 encounters, a significantly lower rate than average for the country (150.2 per 100). However, the number of problems managed by South Australian GPs did not differ from the national average (145.9 per 100 encounters compared with 148.1). New problems were managed at a rate of 49.8 per 100 encounters and work-related problems at a rate of 3.7 per 100 encounters, neither of which differed from the national average.

Medications were prescribed, supplied or advised for purchase at a significantly lower rate by South Australian GPs (100.2 per 100 encounters) than average (106.5 per 100). This was due to lower prescribing rates by South Australian GPs (82.4 compared with an average rate of 89.4 per 100 encounters). There were no significant differences between South Australian and all Australian GPs in the rate of medications advised for over-the-counter purchase or supplied by the GP.

There was no overall difference in the provision of other (non-pharmacological) treatments by South Australian GPs (48.4 per 100 encounters) compared with average (50.9 per 100). However, South Australian GPs provided significantly fewer procedural treatments (12.5 per 100 encounters) than average (13.8).

Imaging was provided at a rate of 6.4 per 100 encounters by South Australian GPs, which was significantly lower than average for the country (8.2 per 100). South Australian GPs did not differ from average in terms of the number of referrals provided (11.7 per 100 encounters compared with 11.8 per 100) or in the ordering of pathology tests (31.2 compared with 33.8 per 100 encounters).

Age-standardised results

After age-standardisation, the significant differences identified above remained and no new differences emerged (Table A4.3b).

Type of encounter

The types of encounters undertaken by South Australian GPs did not differ largely from those conducted by all GPs in the national sample. At 97.4% of the 38,100 encounters, the patient was seen by the GP. A Medicare or Department of Veterans' Affairs item of service was claimable for 93.0% of encounters and standard surgery consultations were claimed at 74.8% of all encounters. However, significantly fewer long surgery consultations were claimed at encounters with South Australian GPs (8.3%) compared with the national average (9.6%).

Home visits accounted for 1.9% of all encounters, while hospital and residential aged care facility visits were even less common (0.9% and 1.6% respectively). Encounters claimable through workers compensation accounted for 2.4% of encounters, and indirect encounters accounted for 2.6% of the total for South Australia (Table A4.4a). These types of encounters did not differ significantly from the national average.

Age-standardised results

After age-standardisation, these results remained and no new differences emerged (Table A4.4b).

Characteristics of the patients at encounter

The expected age distribution of patients at encounter in South Australia was calculated from the age distribution of the South Australian population (Figure 8.1) and mean annual GP visits by age group (Figure 8.2). The observed age distribution of BEACH encounters from South Australia (Table A4.5a) did not differ from the expected age distribution (results not shown). Therefore, the South Australian sample of BEACH encounters was representative of the South Australian population in terms of age distribution and GP visit rates.

Patients at encounters with South Australian GPs were, in most ways, representative of the patients seen by all GPs in Australia. The majority of patients were female (58.1%), and this was similar to the sex distribution for the total sample (59.1% female). At encounters with South Australian GPs, the patient was slightly less likely to be aged <1 year (1.8%) compared with the national average (2.1%). However, there were no further differences in the age distribution of South Australian patients compared with that of the Australian sample.

The proportion of patients who were new to the practice (8.4%) and the proportion holding a Repatriation Health Card (3.1%) did not differ significantly from the national average. However, a significantly higher proportion of patients at encounters with South Australian GPs held a Commonwealth Concession Card (45.9% compared with 39.3%) and a lower proportion were from a non-English-speaking background (6.1% compared with 8.8%). The proportion of encounters with Indigenous patients (1.0%) did not differ from the average (1.1%) (Table A4.5a).

Age-standardised results

After age-standardisation, only the 'other characteristics' of patients at encounter were compared. The significant differences identified in the descriptive analysis of these characteristics remained, and no new significant differences were identified (Table A4.5b).

Patient reasons for encounter

Reasons for encounter (RFEs) described by patients in South Australia did not differ largely from those described by all patients in the total population.

As shown in Table A4.6a, there were no significant differences in the way patients reported RFEs of a general and unspecified nature (29.9 per 100 encounters), those related to the respiratory system (22.3 per 100), the musculoskeletal system (17.1 per 100), the circulatory system (10.6 per 100), the digestive system (10.0), the female genital system (5.8), the endocrine/metabolic system (5.9), the neurological system (5.6), the ear (4.4), pregnancy and family planning (3.3), the eye (2.9), the urinary system (2.5), blood & blood-forming organs (1.8), the male genital system (1.0), and those RFEs of a psychological (8.9) or social nature

(1.3 per 100 encounters). However, patients seen by South Australian GPs described significantly fewer RFEs related to the skin (13.9 compared with 15.0 per 100 encounters).

The most common individual RFEs are described in Table A4.7a. As with the total population, the most common RFEs reported by South Australian patients were requests for a check-up (13.6 per 100 encounters), requests for prescriptions (10.2 per 100) and cough (5.9 per 100). There were two RFEs reported less frequently in South Australia. These were requests for immunisation or vaccination (3.5 compared with 4.6 per 100 encounters) and for test results (3.5 compared with 4.6 per 100 encounters).

Age-standardised results

After age-standardisation, the significant differences identified above remained and one new difference emerged (Tables A4.6b and A4.7b). After adjustment, RFEs related to the circulatory system were reported significantly less often by patients from South Australia compared with all patients. This difference was marginally lower in the descriptive analysis.

Problems managed at encounter

Number of problems managed

As shown in Table A4.8a, there was no difference between the number of problems managed per encounter by South Australian GPs compared with all GPs in Australia. At the majority of encounters only one problem was managed (66.0%), while two problems were managed at approximately a quarter of the encounters (24.2%). Encounters where three or four problems were managed were less common.

Types of problems managed

The types of problems managed by South Australian GPs were largely representative of the problems managed by all Australian GPs. The most commonly managed problems in South Australia were those related to the respiratory (21.6 per 100 encounters) and the musculoskeletal systems (18.1 per 100). However, skin problems (15.5 per 100 encounters) and pregnancy and family planning (3.7 per 100) were managed significantly less often at encounters with South Australian GPs compared with the national average (16.6 and 4.3 per 100 encounters respectively) (Table A4.9a).

Hypertension was the most commonly managed problem (8.0 per 100 encounters), but, together with immunisation/vaccinations (3.8) and test results (0.7), hypertension was managed significantly less often compared with the national average (8.8, 4.8 and 1.0 per 100 encounters respectively). In contrast, general check-ups (2.2 per 100 encounters) and gastroenteritis (1.2 per 100) were managed at higher rates in South Australia than throughout Australia (1.9 and 1.0 respectively) (Table A4.10a).

Age-standardised results

Significant differences identified in the number and type of problems managed remained after age-standardisation and no new significant differences emerged (Tables A4.8b and A4.9b).

However, after standardisation, some of the significant differences demonstrated in the descriptive analysis of the most commonly managed individual problems did not remain. Differences observed in the provision of test results and the management of general check-ups and gastroenteritis did not persist after age-standardisation (Table A4.10b).

New problems managed at encounter

The new problems most frequently managed by South Australian GPs did not differ significantly from those managed by all Australian GPs. The most commonly managed new problem was upper respiratory tract infection (4.4 per 100 encounters), followed by immunisation (1.9), acute bronchitis (1.7) and sprains and strains (1.1 per 100) (Table A4.11a).

Age-standardised results

After age-standardisation, no significant differences emerged between the most commonly managed new problems in South Australia compared with the national average (Table A4.11b).

Management rates

Earlier in this chapter we reported the rates of each management type provided per 100 encounters. In this section we view management in two other ways. First, we compare the rate of each management variable per 100 problems managed. This removes any bias introduced by differing numbers of problems managed between the states. Second, we look at the likelihood of GPs providing at least one of each management action at the encounter. This provides a simple picture of the chance the patient has of receiving, for example, a prescribed medication or a referral when they attend the GP.

Table A4.12a provides a summary of management reported as rates per 100 problems. The differences identified earlier when reported as rates per 100 encounters remained, with one exception. In comparison to management rates reported earlier as rates per 100 encounters (Table A4.3a), procedural treatments (8.6 per 100 problems) were not significantly different from the national average (9.3 per 100) when reported as rates per 100 problems.

Age-standardised results

After age-standardisation, the significant differences identified in the descriptive analysis remained and no new differences emerged (Table A4.12b).

Encounters for which management was recorded

GPs in South Australia provided at least one management action at 91.1% of encounters. Management actions include the provision of medication (either prescribed, advised or supplied), other treatments (clinical or procedural), referrals and investigation orders.

A lower proportion of encounters with South Australian GPs resulted in having a medication prescribed, advised or supplied (64.6% of encounters) compared with the average (66.5%). This was reflected in the more specific group of prescribed medications where 54.3% of encounters resulted in at least one prescription, compared with 57.3% throughout Australia. South Australian GPs were also less likely to order at least one investigation (19.2%) compared with all Australian GPs (20.4%). This was reflected in the proportion of encounters with at least one imaging order (5.8% compared with 7.2% of encounters) (Table A4.13a).

Age-standardised results

The significant differences identified in the descriptive analysis remained after age-standardisation and no new significant differences were identified (Table A4.13b).

Medications

As discussed earlier, South Australian GPs provided fewer prescriptions than the national average (Table A4.3a). Table A4.14a shows the prescribed medications by group and subgroup. Some medications were prescribed significantly less often at encounters with South Australian GPs.

- Antibiotics were prescribed at a rate of 13.7 per 100 encounters compared with the average rate of 14.9 per 100. This was reflected in the lower prescription rates of penicillin (1.9 compared with 2.2 per 100 encounters) and anti-infectives (0.5 compared with 0.7 per 100 encounters).
- Medications acting on the cardiovascular system were prescribed at a rate of 11.7 per 100 encounters compared with the national average rate of 13.7 per 100. The subgroup anti-hypertensives were prescribed significantly less in South Australia (6.1 per 100 encounters) than throughout Australia (7.4).
- Medications acting on the musculoskeletal system were prescribed at a rate of 4.9 per 100 encounters compared with the national average (5.8). This was reflected in the subgroup of non-steroidal anti-inflammatory drugs (4.2 per 100 encounters compared with 4.8 per 100 nationally).
- Allergy and immune system medications were prescribed at a rate of 3.7 per 100 encounters, compared with the national average (4.8). This was reflected in the immunisation subgroup (3.2 compared with the national average of 4.1 per 100 encounters).
- Medications related to the skin were prescribed at a rate of 3.6 per 100 encounters in South Australia, compared with 4.3 per 100 encounters nationally.
- Medications acting on the digestive system were prescribed at a rate of 3.4 per 100 encounters compared with 4.0 per 100 nationally. Medications in the anti-ulcerant subgroup (1.9 per 100) were prescribed at significantly lower rates in South Australia than the national average (2.3).
- Topical ear and nose medications were prescribed at a rate of 1.6 per 100 encounters in South Australia compared with an average rate of 2.1 per 100. This was reflected in the topical nasal medication subgroup (0.9 compared with 1.1 per 100 encounters nationally).

Compound analgesics were the only medication subgroup that was prescribed significantly more often at encounters with South Australian GPs (3.2 per 100 encounters) compared with all GPs (2.7). It is interesting to note, however, that there was no difference between South Australia and the national average in the upper grouping of medications acting on the central nervous system.

Most commonly prescribed medications

The most commonly prescribed individual medications in South Australia were largely representative of those prescribed in Australia as a whole (Table A4.15a). Paracetamol was prescribed at a rate of 2.9 per 100 encounters, amoxicillin at a rate of 2.6 per 100 and paracetamol/codeine at a rate of 2.4 per 100 encounters. There were two medications prescribed less often at encounters with South Australian GPs compared with those prescribed by all Australian GPs: erythromycin (0.5 compared with 0.7 per 100 encounters) and amlodipine (0.5 compared with 0.7 per 100 encounters).

Age-standardised results

Differences identified in the descriptive analysis of the prescribing in groups and subgroups remained largely unchanged, with two exceptions. Differences evident for prescribing in the antibiotic group and penicillin subgroup lost significance after standardisation (Table A4.14b).

In the most commonly prescribed generic medications, one new significant difference emerged. Irbesartan was prescribed at a lower rate at encounters in South Australia compared with the national average. This difference had been marginal in the descriptive analysis. Other differences identified in the descriptive analysis remained after standardisation (Table A4.15b).

Other (non-pharmacological) treatments

As previously stated (Table A4.3a), South Australian GPs provided other treatments at the same rate as the national average. In the more specific group of clinical treatments, South Australian GPs were also found to be representative of the average. However, procedural treatments were performed at a significantly lower rate by South Australian GPs.

Clinical treatments

Table A4.16a shows the most common clinical treatments provided by South Australian GPs compared with all Australian GPs. These were largely representative of the national average, with one exception. Counselling and advice relating to exercise was provided at a significantly lower rate at encounters in South Australia (1.3 per 100 encounters) compared with the national average (1.8).

Procedural treatments

The most common procedural treatments are described in Table A4.17a. The excision or removal of tissue (including destruction, debridement or cauterisation) (2.3 per 100 encounters) and local injections (0.8 per 100) were performed significantly less often at encounters in South Australia compared with the national average (2.8 and 1.1 per 100 encounters respectively).

Age-standardised results

After age-standardisation, the significant differences observed in the descriptive analysis for clinical and procedural treatments remained and no new significant differences emerged (Tables A4.16b and A4.17b).

Referrals

The overall rate of referrals by South Australian GPs did not differ significantly from that of all Australian GPs. This was reflected in the rates of referral to medical specialists, allied health services, hospitals, emergency departments and other referrals (Table A4.3a).

Referrals to medical specialists

Table A4.18a shows the most common referrals made to medical specialists by South Australian GPs. These did not differ significantly from the national average. Referrals to medical specialists were made at a rate of 7.5 per 100 encounters. Most common were referrals to surgeons (0.8 per 100 encounters), followed by referrals to orthopaedic surgeons (0.8 per 100) and ophthalmologists (0.7 per 100).

Referrals to allied health professionals

Referrals to allied health and other professionals occurred at a rate of 3.2 per 100 encounters, and did not differ from the national average. The most common were referrals to physiotherapists (1.3 per 100) (Table A4.18a).

Age-standardised results

Rates of referral to medical specialists and allied health professionals remained representative of the national average after age-standardisation – no new differences emerged (Table A4.18b).

Pathology test orders

There was no difference in the overall ordering rate of Chemistry tests by South Australian GPs compared with all Australian GPs. However, there were differences among the most common Chemistry tests: electrolyte, urea and creatinine (EUC) and glucose tests were ordered at significantly lower rates by South Australian GPs compared with the national average (1.5 compared with 2.2 per 100 encounters, and 1.3 compared with 2.2 per 100 encounters respectively). Microbiology tests were ordered significantly less often by South Australian GPs (4.3 per 100 encounters) compared with the national average (5.3), and this was reflected in the order rates for urine MC&S (1.4 compared with 1.7 per 100 encounters). Infertility and pregnancy tests were also ordered at a significantly lower rate in South Australia (0.2 per 100 encounters) compared with the national average (0.3) (Table A4.19a).

Age-standardised results

After age-standardisation, rates of EUC tests, and tests classified as Microbiology or Infertility/pregnancy, were no longer significantly different. However, a new difference emerged. Full blood counts were ordered significantly less often at encounters with South Australian GPs after standardisation (Table A4.19b).

Imaging orders

As discussed earlier (Table A4.3a), there were significantly fewer imaging orders made by South Australian GPs compared with all Australian GPs.

The most frequently ordered imaging classified by the Medicare Benefits Schedule (MBS) groups are presented in Table A4.20a. The significantly fewer diagnostic imaging orders made by South Australian GPs (4.2 per 100 encounters), compared with the national average (5.0), were reflected in the ordering of chest x-rays (0.8 compared with 1.1 per 100 encounters) and ultrasounds (1.7 per 100 encounters compared with 2.4), and in the lower rates of pelvic ultrasounds (0.3 compared with 0.5 per 100 encounters).

Age-standardised results

The significant differences identified in the descriptive analysis of imaging orders remained and one new difference emerged after age-standardisation. Computerised tomography was ordered significantly less often at encounters with South Australian GPs compared with the national average (Table A4.20b).

Patient risk factors

Three measures of risk are assessed by subsample studies of participating patients: BMI, alcohol consumption and smoking status. The methods applied to these subsample studies are described in Chapter 2 – Methods.

Body mass index

Adults

Differences were observed in the BMI of adult patients (aged 18 years or more) in South Australia compared with the total Australian sample. These patients were significantly more likely to be obese (22.0%) and significantly less likely to be of a normal BMI (36.7%) than average (20.0% and 38.4% respectively) (Table A4.21).

Children

The BMI of patients aged between 2 and 17 years are presented in Table A4.21. The BMI of children in South Australia did not differ significantly from the national average. The majority of children were in the 'underweight/normal' category (69.6%), a further 18.2% were overweight and 12.2% were obese.

Alcohol consumption

Alcohol consumption and smoking status in South Australian patients aged 18 years or more were representative of the national average. Just over a quarter of patients reported drinking at at-risk levels. However, the majority of patients subsampled reported responsible drinking levels (44.9%) and a further 29.4% were non-drinkers (Table A4.21).

Smoking status

Almost 20% of patients (aged 18 years and over) reported daily smoking. A further 28% were previous smokers, while almost 50% reported never smoking (Table A4.21).

8.3 Discussion

Overall South Australian GPs managed a similar number of problems to the national average. However, they appeared to provide fewer management actions in terms of medications, procedural treatments and imaging. In particular, skin problems and immunisations were both reported as the RFE and managed at significantly lower rates in South Australia in comparison with Australia as a whole. This was reflected in the provision of prescriptions and procedures related to the skin and immunity.

The lower rate of management of immunisation is not due to differences in the age distribution of patients in the sample, as the difference persisted after age-standardisation. It is possible that the involvement of local councils and community centres in the South Australian immunisation program⁴⁴ means that these patients are not required to visit their GP for immunisation.

Also of concern was the high proportion of patients in South Australia who were obese (22.0%). These results are considerably higher than those reported from the 2001 South Australian omnibus survey where 17.8% of South Australians were found to be obese.⁴⁵ This

difference may be due to the fact that the omnibus survey is a household study conducted face-to-face with participants, whereas data gathered in the BEACH project are collected in a confidential GP-patient consultation. However, the current study showed that South Australian GPs did not take the opportunity to provide counselling and advice regarding exercise at their encounters as often as the average throughout Australia.

The BEACH program as a data source is unique in Australia. Its strengths lie in the large size and representativeness of the sample, and the reliability of the research methods.¹⁵ However, as in all analyses of this kind, relying on 95% confidence intervals with a large number of comparisons leads to a possibility that 5% of observed differences may be false (Type 1 error).

8.4 Conclusion

The clinical activities of GPs practising in South Australia do not differ markedly from the average of all GPs across Australia. State authorities can feel comfortable relying on the national data reported regularly by the AIHW and the University of Sydney in such publications as *General Practice Activity in Australia 2002–03*¹⁵ to gain a reliable assessment of the current practise style of GPs in this state. However, some attention should be given to immunisation and obesity, above and beyond natural demand.

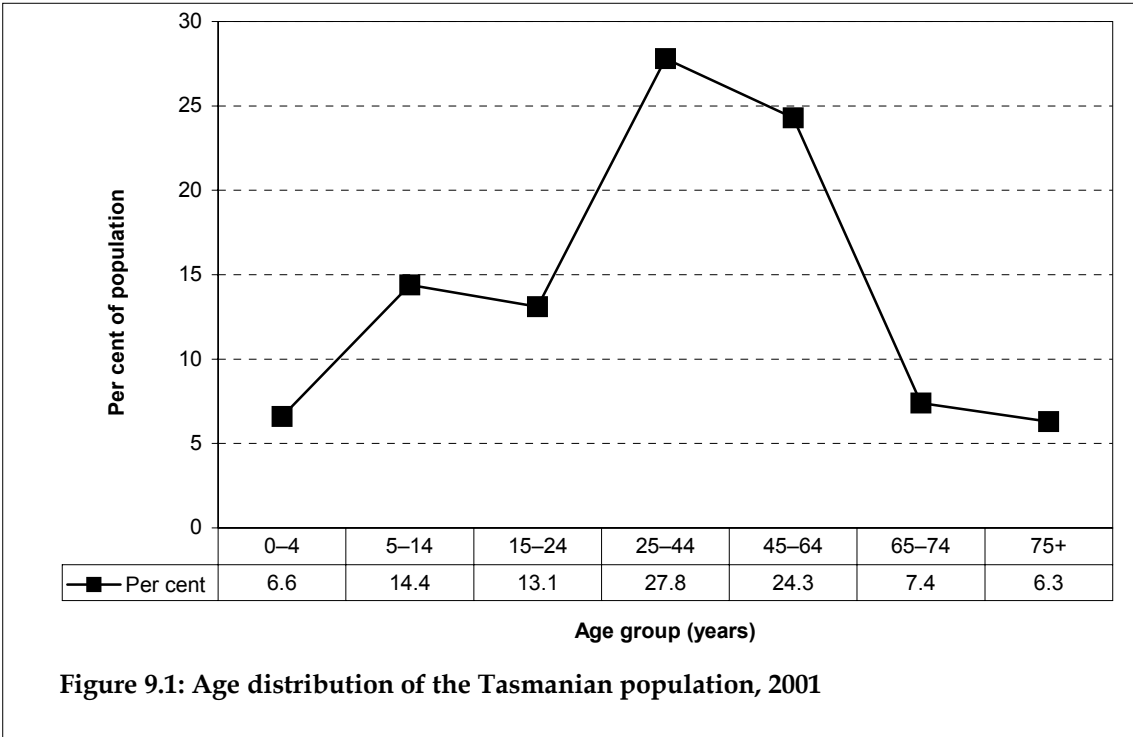
9 Tasmania

9.1 Background

The population of Tasmania in 2001 was 471,795 people, accounting for 2.4% of the total Australian population. Males accounted for just under half of the population (49.3%), and females 50.7%.

There were 589 GPs and OMPs in Tasmania who provided at least one Medicare item in the last 3 months of 2001. This equated to 388.7 full-time workload equivalent (FWE) GPs practising in Tasmania in 2001. This means that there was one FWE GP for every 1,213.8 people in Tasmania compared with one FWE per 1,153.9 for all Australians. Over one-quarter of the FWE GPs in Tasmania were female (27%). Only 17% of FWE GPs were aged more than 55 years (Table A3.1), which was the lowest rate in Australia.

The age distribution of the Tasmanian population is shown in Figure 9.1. Those aged between 25 and 44 years accounted for the greatest proportion of the population (27.8%), and almost one-quarter of Tasmanians were aged 45–64 years (24.3%). Only 6.3% were aged 75 years or more, and 6.6% were aged between 0 and 4 years. Overall, the population of Tasmania was older (median age 38.1) than the total Australian population (median age 36.1) (Table A3.1).



Over 2 million Medicare A1 and A2 items of service were processed for Tasmanians between July 2002 and June 2003 (2,158,205 services). These accounted for 2.3% of total services processed throughout Australia during this period. Tasmanians attended general practice 4.6 times in that year, on average. Figure 9.2 shows that people aged 75 years or more attended, on average, at the highest rates (8.8 attendances per person), while those aged between 65

and 74 years attended general practice 8.0 times per year. Children aged between 5 and 14 years had the lowest rates of Medicare-claimed general practice attendance (2.2 times per year), followed by those aged 15–24 years (3.6 attendances). These attendance rates are substantially lower than the Australian average for all age groups except for those aged 15–24 years, where they are the same as the average.

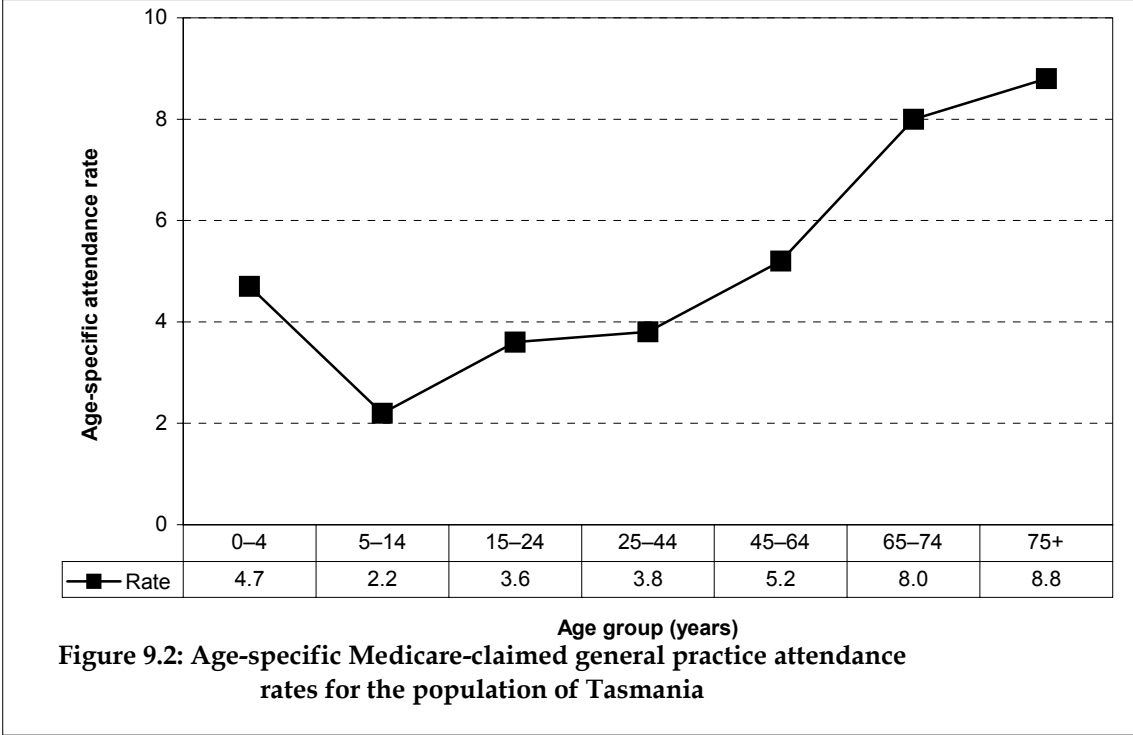


Figure 9.2: Age-specific Medicare-claimed general practice attendance rates for the population of Tasmania

9.2 Results

There were 133 GPs from Tasmania who participated in BEACH between April 1998 and March 2003. They accounted for 2.6% of the total 5-year sample and provided details about 13,300 encounters. The Tasmanian state results are compared with those for all of Australia in Appendix 4. The differences highlighted below are those identified by non-overlapping 95% confidence intervals. Marginal differences (where the confidence intervals meet but do not overlap) are not noted here but can be identified in the tables in the Appendix.

The general practitioners

The participating Tasmanian GPs did not differ from all participants in terms of their sex (33.1% female) and in terms of their practice location (67.3% in capital cities). However, they worked fewer sessions per week (17.3% less than 6 sessions per week compared with 15.9% on average and 5.3% more than 10 sessions per week compared with 16.6% for all Australian GPs).

They were a little younger than average (57.9% being 45 years or more compared with 62.6% on average), and their years in general practice reflected this difference in age distribution. They were less likely to work as a solo practitioner (12.0%) than average (16.9%) and more likely to be in practices of 5 or more GPs (48.1% compared with 44.0%). A lesser proportion of these GPs had graduated in Australia (65.4% compared with 74.3%) and many more had

graduated in the United Kingdom (24.1% compared with 8.5%). They were also more likely to hold the FRACGP (36.1%) than the average for Australia (32.2%) (Table A4.1).

The encounters

The raw figures showing the number of each variable available in the BEACH data set for Australia and for each state of Australia are provided in Table A4.2.

Content of the encounters

Table A4.3a provides an overview of the content of the encounters recorded by Tasmanian GPs. At the 13,300 encounters, GPs recorded 145.2 patient reasons for encounter per 100 encounters, a significantly lower rate than average for the country (150.2 per 100). However, the number of problems managed at encounters by Tasmanian GPs (147.0 per 100 encounters) did not differ from the national average (148.1 per 100). New problems arose at a rate of 46.3 per 100 encounters, significantly lower than the national average of 51.2 per 100, and work-related problems were managed at almost the same rate (3.6 per 100 encounters) as the national average (3.4).

Medications were prescribed, supplied or advised at a rate of 102.6 per 100 encounters, not significantly less than the average (106.5 per 100).

There was no significant difference between encounters with Tasmanian GPs and the national average in terms of the number of other (non-pharmacological) treatments provided, clinical treatments being given at a rate of 37.7 per 100 encounters (compared with 37.1 on average). The rate of procedural work (15.1 per 100 encounters) did not differ from the national average of 13.8 per 100.

Total referrals occurred at a rate of 11.6 per 100 encounters, a little lower than the national average (11.8 per 100), and Tasmanian GPs referred to specialists at a rate of 7.3 per 100 encounters (compared with 7.9 national average).

Tasmanian GPs also did not differ from average in terms of their referrals to hospitals (0.6 per 100 encounters) and emergency departments (0.2 per 100) or their ordering of pathology tests (30.3 tests per 100) and imaging (7.4 per 100).

Age-standardised results

After age-standardisation, the significant differences remained and no new differences emerged (Table A4.3b).

Type of encounter

GPs in Tasmania had significantly fewer direct encounters. At 95.1% of the 13,300 encounters, the patient was seen by the GP (compared with 97.1 on average) and a significantly lower proportion were claimable through Medicare or the Department of Veterans' Affairs (89.3% compared with 92.6% on average). Standard surgery consultations accounted for 72.8% of all encounters and a further 8.4% were long surgery consultations. While home visits accounted for only 2.1% of the total, hospital and aged care facility visits were even less common but did not differ from the national average. Indirect consultations (where the patient was not seen) accounted for 4.9% of the total, significantly higher than the national average of 2.9% (Table A4.4a).

Age-standardised results

After age-standardisation, these statistical differences remained and the marginally lower rate of hospital encounters became statistically significant (Table A4.4b).

Characteristics of the patients at encounter

The expected age distribution of patients at encounter in Tasmania was calculated from the age distribution of the Tasmanian population (Figure 9.1) and mean annual GP visits by age group (Figure 9.2). The observed age distribution of BEACH encounters from Tasmania (Table A4.5a) did not differ from the expected age distribution (results not shown). Therefore, the Tasmanian sample of BEACH encounters was representative of the Tasmanian population in terms of age distribution and GP visit rates.

The patients at encounters with GPs in Tasmania were in most ways representative of the patients seen by all GPs in Australia. The majority were female (60.1% compared with 59.1% nationally) and the age distribution aligned with the national average. Approximately 23% were young people of less than 25 years, and 25–26% were in each of the other age groups of 25–44 years, 45–64 years and 65 years and over. However, there was a small but significant difference in patients seen in the 1–4 age group who accounted for 3.9% of the total encounters in Tasmania compared with 4.9% on average.

The proportion of patients who were new to the practice (6.4%) was significantly lower than average (9.2%) and the proportion holding a Commonwealth Concession Card (50.1% compared with 39.3%) or a Repatriation Health Card (4.9% compared with 3.4%) was significantly higher than the national average. A significantly lower proportion of patients at encounters with Tasmanian GPs were from a non-English-speaking background (1.3% compared with 8.8%) or were Indigenous (0.6% compared with 1.1%) (Table A4.5a).

Age-standardised results

After age-standardisation, these other characteristics of patients at encounter remained statistically different (Table A4.5b).

Patient reasons for encounter

The distribution of patient reasons for encounter (RFEs) described by patients attending GPs in Tasmania differed in some respects from those given by all patients at all encounters.

As shown in Table A4.6a, the patients seeing GPs in Tasmania described relatively fewer problems related to the respiratory system (19.1 per 100), the digestive system (9.0 compared with 10.4 per 100 encounter) and eye problems (2.0 per 100 encounters) than in the national data set (2.7). However, there was no significant difference in the rate at which they described general and unspecific problems (32.8 per 100 encounters), problems related to the musculoskeletal system (18.2 per 100), the skin (15.0 per 100), the circulatory system (10.9 per 100), the endocrine/nutritional and metabolic system (5.4 per 100), the neurological system (5.2 per 100), the female genital system (5.7 per 100), the ear (3.7), pregnancy and family planning (33.5), the urinary system (2.5), blood/blood-forming organs (1.9), the male genital system (0.8), nor in the management rate of problems of a psychological (8.4 per 100 encounters), or social (1.2) nature.

Age-standardised results

After age-standardisation, these significant differences remained and no new differences emerged (Table A4.6b).

Individual reasons for encounter

In terms of the most common individual RFEs described by patients at encounters in Tasmania, as with the total national data, a request for check-up, either specific or general, (13.9 per 100 encounters) and requests for prescriptions (11.4 per 100 encounters) were most frequent. There were four RFEs which occurred at a less frequent rate in Tasmania than in the national data and these were cough (5.1 compared with 6.1 per 100 encounters), throat complaints (2.7 compared with 3.5 per 100 encounters), fever (1.2 compared with 1.9) and diarrhoea (0.9 compared with 1.3). Requests for immunisation or vaccination (4.9 per 100), for test results (3.8 per 100) and back complaints were other commonly described RFEs in both Tasmania and for the country as a whole (Table A4.7a).

Age-standardised results

After age-standardisation, the significant differences disappeared for fever and diarrhoea and one new difference emerged. Presentations for test results were significantly less common after standardisation (Table A4.7b).

Problems managed at encounter

Number of problems managed

As shown in Tables A4.8a and A4.8b, the distribution of the number of problems managed at encounter did not differ for Tasmania when compared with the national average either before or after age-standardisation. At more than two-thirds of encounters the GP managed only one problem, and at one-quarter they managed two problems. Three problems (7.8%) and four problems (2.4%) were less often managed at a single encounter.

Types of problems managed

Table A4.9a shows that the distribution of the problems managed at encounters with GPs in Tasmania frequently differed from the national average. Problems managed significantly more often were those associated with the musculoskeletal system (20.0 compared with 17.4 per 100 encounters). Less often managed than average were respiratory problems (18.8 compared with 21.7 per 100 encounters), digestive (9.1 compared with 10.0), endocrine and metabolic (8.9 compared with 9.9) and eye problems (2.1 compared with 2.7 per 100 encounters).

Age-standardised results

After age-standardisation, the above differences remained and no new differences emerged (Table A4.9b).

Individual problems managed

The most common problem managed in Tasmania was hypertension (9.1 per 100 encounters, followed by immunisation/vaccination (5.1 per 100), upper respiratory tract infection (URTI) (4.2 per 100 encounters), depression (also 4.2), back complaint (3.4), osteoarthritis (3.2) diabetes (2.5), asthma (2.4) and lipid disorder (2.4 per 100). However, back complaints and osteoarthritis were both managed at a significantly higher rate in Tasmania than average (3.4 compared with 2.6 per 100 encounters and 3.2 compared with 2.4 per 100 encounters respectively). Anxiety was also managed more frequently (2.4 compared with 1.7 for 100 encounters). In contrast, URTI (4.2 compared with 6.0 per 100 encounters), asthma (2.4

compared with 2.9) and gastroenteritis (0.8 compared with 1.0) were all managed less frequently (Table A4.10a).

Age-standardised results

After age-standardisation, the significant differences for osteoarthritis, anxiety and gastroenteritis disappeared, the other differences remained and no new differences emerged (Table A4.10b).

New problems managed at encounter

The most commonly managed new problems in general practice in Tasmania paralleled those most frequently managed nationally. New cases of URTI were the most frequently managed new problems at a rate of 2.9 per 100 encounters; however, this was significantly lower than the national rate of 4.2 per 100 encounters. This was followed by immunisations/vaccinations (2.0 per 100), acute bronchitis (1.6), urinary tract infection (1.0), and strain/sprain (0.9 per 100) (Table A4.11a).

Age-standardised results

Age-standardisation did not change these results (Table A4.11b).

Management rates

Earlier in this chapter we reported the rates of each management type provided per 100 encounters. In this section we view management in two other ways. First, we compare the rate of each management variable per 100 problems managed. This removes any bias introduced by differing number of problems managed between states. Second, we look at the likelihood of GPs providing at least one of each management action at the encounter. This provides a simple picture of the chance the patient has of receiving, for example, a prescribed medication or a referral when they attend the GP.

Management rates per 100 problems managed

Table A4.12a shows that GPs in Tasmania prescribed, supplied or advised medications at a rate of 69.8 per 100 problems managed, not significantly different to the national average (71.9). Prescribing rates were also similar (58.9 compared with 60.4 per 100 problems managed) as was advice for over-the-counter purchase of medications (5.2 compared with 6.1 per 100 problems). They also did not differ from the average in terms of the number of medications supplied by the GP per 100 problems managed (5.7).

All other management was conducted at rates similar to the national average (Table A4.12a).

Age-standardised results

After age-standardisation, the picture remained the same with no significant differences between the management by Tasmanian GPs and the national average (Tables A4.11b and A4.12b).

Encounters for which management was recorded

This section considers the relative likelihood of at least one management action of each type, at an encounter, and the results are presented in Table A4.13a.

As with the preceding analysis of management, there was no significant difference between the management pattern of Tasmanian GPs and the national average.

Age-standardised results

After age-standardisation, the lack of significant differences continued and no new differences emerged (Table A4.13b).

Medications

As demonstrated in Table A4.14a, some medication groups were prescribed significantly more often in Tasmania than the average for the nation.

- Narcotic analgesics were prescribed at a significantly higher rate in Tasmania (2.6 per 100 encounters) than in Australia as a whole (1.7) and this was accompanied by higher prescribing rates of psychological medications (9.2 compared with 7.6 per 100 encounters), particularly anti-anxiety agents (2.7 compared with 2.0).
- Anti-neoplastic medications were also prescribed at a significantly higher rate than average in Tasmania, at 0.7 prescriptions per 100 encounters compared with 0.4.

There were four medication groups prescribed significantly less often in Tasmania when compared with the national average.

- antibiotics (12.9 compared with 14.9 per 100 encounters), broad spectrum penicillins in particular (3.5 compared with 5.1 per 100)
- respiratory medications (4.2 compared with 6.0 per 100 encounters), in particular bronchodilators (2.4 compared with 3.0) and asthma preventives (1.6 compared with 2.2)
- ear, nose and throat medications (1.5 compared with 2.1 per 100 encounters), particularly topical nasal medications (0.8 compared with 1.1)
- nutrition/metabolic medications (1.1 compared with 1.5 per 100 encounters).

There were no significant difference in the prescribing rates of the other drug groups.

Further analysis investigated possible reasons for the higher prescribing rates for narcotic analgesics and anti-anxiety agents. Tasmanian GPs prescribed narcotic analgesics most frequently for back pain, in common with all Australian GPs, and there was no statistical difference in their prescribing rate of narcotic analgesics for back pain. However, one-third of Tasmanian GPs recorded a prescription of narcotic analgesics for back pain during their collection period compared with one-quarter of all Australian GPs. Similarly almost a fifth of Tasmanian GPs recorded at least one prescription for anti-anxiety agents for back pain compared with national recording by less than a tenth of GPs. The prescribing differences for these two groups of medications may therefore be related to the higher rate of management of back complaints by Tasmanian GPs described previously, rather than to difference in management methods.

Age-standardised results

After age-standardisation, the differences for anti-neoplastics disappeared but all the other significant differences remained and the marginally lower prescribing rate for anti-angina medications became statistically significant (Table A4.14b).

Most commonly prescribed medications

Table A4.15a provides comparative results for the prescribing rates of each of the most commonly prescribed medications in the country as a whole. Only five significant differences appeared for Tasmania when compared with the national average: a higher prescribing rate of diazepam (1.5 compared with 1.1 per 100 encounters) and lower prescribing of amoxicillin (2.3 compared with 2.9), cephalexin (1.4 compared with 1.9 per

100), amoxicillin/clavulate (0.9 compared with 1.5) and chloramphenicol eye preparations (0.6 compared with 0.8 per 100 encounters). The higher prescribing rate for diazepam is consistent with the higher rate of management of anxiety and back complaints described earlier. Similarly the lower rate of chloramphenicol eye preparations is consistent with the lower management rate of eye problems.

Age-standardised results

After age-standardisation, the difference for amoxicillin disappeared. However, the other significant differences remained and one new difference emerged: lower rates of prescribing amlodipine (Table A4.15b).

Other (non-pharmacological) treatments

As previously stated in 'Content of the encounters' (Table A4.3a), Tasmanian GPs provided clinical and procedural treatments at the same rate as the average for all of Australia.

Clinical treatments

There were also no significant differences in the rate of provision of any of the most frequent individual types of clinical treatments when compared with the national average. The most common were general advice/education (6.5 per 100 encounters), advice and education about treatment of the problem (5.3 per 100) and counselling/advice about the problem itself (4.8). Counselling regarding nutrition and weight was also commonly provided (3.9 per 100 encounters) (Table A4.16a).

Age-standardised results

After age-standardisation, no significant differences emerged (Table A4.16b).

Procedural treatments

There were no significant differences in the use of individual procedures in Tasmania (Table A4.17a).

Age-standardised results

After age-standardisation, no significant differences emerged (Table A4.17b).

Referrals

As earlier stated in 'Content of the encounters' (Table A4.3a), the overall referral rate by Tasmanian GPs was not significantly different from the national average.

Referrals to medical specialists

Tasmanian GPs referred patients to a medical specialist at a rate of 7.3 per 100 encounters (similar to the 7.9 national average). As with the national results, referrals were commonly made to surgeons (0.8 per 100 encounter), orthopaedic surgeons (0.7) and gynaecologists (0.6 per 100 encounters) (Table A4.18a).

Referrals to allied health professionals

As shown in Table A4.18a, there were no significant differences in the rate at which Tasmanian GPs referred patients to allied health services when compared with the national average with the exception of higher physiotherapy referrals (1.6 compared with 1.1 per 100

encounters). The most common referrals were to physiotherapists and to psychologists (0.3 per 100 encounters) and podiatrists (0.3 per 100).

Age-standardised results

After age-standardisation, the difference in physiotherapy referrals remained and no new differences emerged (Table A4.18b).

Pathology test orders

As stated earlier ('Content of the encounters', Table A4.3a), Tasmanian GPs ordered pathology tests at a rate of 30.3 tests per 100 encounters, a rate which did not differ from the national average. This also applied to most of the pathology tests for which rates are provided in Table A4.19a. However, three tests were ordered at significantly lower rates than average: thyroid function tests (1.3 compared with 1.8 per 100 encounters), multi-biochemical analysis (0.1 compared with 1.2 per 100 encounters) and full blood counts (3.6 compared with 4.5). As in the national results, pathology tests classed as Chemistry were most the common type ordered at a rate of 16.0 per 100 encounters, followed by Haematology (5.9 per 100) and Microbiology (4.5 per 100 encounters).

Age-standardised results

After age-adjustment, the differences for thyroid function tests and full blood counts disappeared. The rates for multi-biochemical analysis orders by Tasmanian GPs became so small that they could not be statistically compared (Table A4.19b).

Imaging orders

As earlier stated ('Content of the encounters', Table A4.3a) Tasmanian GPs ordered imaging at the same rate as the national average. Table A4.20a shows that this result applied through all the most commonly ordered tests. Chest x-rays were by far the most often ordered (0.9 per 100 encounters). The ultrasound most often ordered by Tasmanian GPs and nationally was pelvic ultrasound (0.5 per 100 encounters).

Age-standardised results

After age-standardisation, no significant differences emerged (Table A4.20b).

Patient risk factors

Body mass index

Adults

There were 4,198 adult patients (aged 18 years and over) for whom BMI could be calculated. Their results reflected those found in the total national data, 35.4% being classed as overweight and a further 19.7% being classed as obese (Table A4.21).

Children

The weight distribution of Tasmanian children (aged between 2 and 17 years) did not differ significantly from the Australian average (Table A4.21).

Alcohol consumption

The percentage of Tasmanian adults (aged 18 years and over) who were at-risk drinkers (25.2%) was not significantly different from the Australian average (25.0%). The percentages of non-drinkers and responsible drinkers also showed no difference from the average (Table A4.21).

Smoking status

Fewer Tasmanian adults (aged 18 years or more) (44.9%) had never smoked compared with the Australian average (49.5%) and a higher percentage were current daily smokers (22.2% compared with 18.6% nationally). The percentage of previous and occasional smokers did not differ from the Australian average (Table A4.21).

9.3 Discussion

Tasmanian GPs differed from their mainland colleagues in several respects. They were:

- less likely to be Australian graduates and almost a quarter had graduated in the United Kingdom
- a little younger and therefore had had less time in general practice
- more likely to work in larger practices
- more likely to work fewer sessions in general practice per week.

Their patients were also different. They were:

- somewhat older than their mainland counterparts
- less likely to have Medicare-claimable GP encounters
- less likely to be new to the practice
- much more likely to hold a Commonwealth Concession Card or Repatriation Health Card
- very much less likely to be of non-English-speaking background or Indigenous patients
- more likely to be daily smokers.

The lower rates of Medicare-claimed items in Tasmania (Figure 9.2) may be explained by the higher number of indirect encounters and the larger number of people holding a Repatriation Health Card.

These differences may contribute to the differences in both reasons for encounter and problems managed at encounters with Tasmanian GPs. The higher rates of musculoskeletal problems and lower rates of respiratory problems did not disappear after age-adjustment and may therefore be due to other practitioner or patient factors.

The differences in prescribing of antibiotics may be related to the lower prevalence of respiratory problems at encounters and/or to differences in practitioner and patient background and practitioner training. Similarly the lower use of respiratory medications may be related to the lower prevalence of respiratory problems.

The greater use of narcotic analgesics and psychotropic drugs may be explained by the higher rate of back complaints managed at encounters with Tasmanian GPs. As stated above, the reason for the higher rate of back complaints remains unexplained.

The higher rates of referral by Tasmanian GPs to physiotherapists may also be explained by the higher prevalence of musculoskeletal problems seen at encounters.

The BEACH program as a data source is unique in Australia. Its strengths lie in the large size and representativeness of the sample, and the reliability of the research methods.¹⁵ However, as in all analyses of this kind, relying on 95% confidence intervals with a large number of comparisons leads to a possibility that 5% of observed differences may be false (Type 1 error).

9.4 Conclusion

There are significant differences in the practice activity patterns of Tasmanian GPs when compared with all Australian GPs. These differences are sufficient in both importance and magnitude to justify consideration by health organisations in Tasmania of using state-based BEACH data rather than the national data to monitor the activity of general practitioners in that state.