

# **General practice activity in Australia 2005–06**

**Australian GP Statistics and Classification Centre**

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# *BEACH*

## *Bettering the Evaluation And Care of Health*

# **General practice activity in Australia 2005–06**

**Helena Britt, Graeme C Miller, Janice Charles, Ying Pan, Lisa Valenti,  
Joan Henderson, Clare Bayram, Julie O'Halloran, Stephanie Knox**

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### **Australian Institute of Health and Welfare**

#### **Board Chair**

Hon. Peter Collins, AM, QC

#### **Director**

Penny Allbon

Any enquiries about or comments on this publication should be directed to:

The Australian General Practice Statistics and Classification Centre  
University of Sydney  
Acacia House  
Westmead Hospital  
Westmead NSW 2145  
Phone: 61 2 9845 8151  
Fax: 61 2 9845 8155  
Email: [gpstats@fmrc.org.au](mailto:gpstats@fmrc.org.au)

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# Foreword

The English philosopher Sir Francis Bacon penned the phrase 'Knowledge is Power'. The absolute truth of this statement is reflected in the impact the BEACH survey has on planning and management of primary health care in Australia.

The information provided through the continuing collection and analysis of general practice data by BEACH has been invaluable in creating a clear picture of where, how and what type of services are delivered by general practitioners. This research has allowed the profession to identify and respond to trends and gaps in service delivery and monitor and regulate its own performance. It is a reliable and renowned tool in the kit bag of general practice which of necessity has to prove its central coordinating role in the health of the individual and the nation.

Without BEACH general practitioners would be operating in a vacuum with no uniform picture of how their consulting, prescribing and investigating and referring practices compared to their peers. With this information available, the profession as a whole can gauge and benchmark Australian general practice and make appropriate changes if needed.

Because knowledge is power, the Australian Medical Association believes BEACH is one of the most important tools available to general practice and policy makers. The primary care led model of health care delivery is patient centred, cost effective, responsive, exhibits quality and safety in practice and is what keeps the Australian health system effective.

It is a great honour to be able to make some introductory remarks to the eighth annual report on General Practice Activity in Australia. As a general practitioner and a past participant I am aware of the contribution of each participant, the value of the analysis and feedback to practices. As President of the AMA, the data collected are of tremendous value in making and re-enforcing the reality that Australian general practice delivers. I hope this vital work will continue unabated into the future and provide the power for effective renewal.

The 2005–06 report has made some very significant findings on general practice activity that highlight recent successes by the profession and areas that still need work. What BEACH provides is evidence to back up the profession's anecdotal beliefs on what wins have been achieved and what shortcomings exist.

General practice's ongoing commitment to quality, safe, evidence-based prescribing is reflected in the continual decline in the total medication rate. In particular, the rate of prescriptions has fallen by almost 13% between 1999–00 and 2005–06. Contributing to this is a combination of general practitioners embracing ongoing education, providing non-pharmacological interventions to patients, and having a historical record of prescription decisions provided by BEACH.

Other findings will strengthen the profession's resolve to address problem areas that centre on workforce shortages and patient access to care.

Over recent years it has been increasingly difficult to provide after-hours care to patients. This is due to a number of factors including the growing demands on the general practice workforce, reduced participation rates in the workforce, safety issues, and lifestyle requirements of all doctors. This has led to the declining sustainability of after-hours services. BEACH has tracked the decline in GPs providing their own or cooperative after-hours care and this continued in 2005–06. Having these data strengthens arguments that

more must be done to support modern general practice to provide around the clock medical care without risk to GPs' health, safety or business.

GPs are spending more of their time caring for older patients. An increasing proportion of encounters are with patients aged 45 years and over. This group of patients is more likely to have multiple, chronic and complex illnesses and will benefit from spending more time with their doctor. This is reflected in the growing management rates of chronic conditions reported by BEACH since 1999–00. Our health system needs to recognise this change and adapt to ensure older Australians receive the care they need and deserve, by doctors working with teams, where many disciplines are brought together to care for patients in collaboration, in a suitable setting recognising the importance of these patients.

The health profession relies on evidence to support calls for improvements in service delivery. BEACH is a definitive source of this evidence for general practice.

I commend all those who contributed to this report, both BEACH staff and GPs who gave of their time to the survey. I encourage GPs to continue to be involved in this crucial work.

Dr Mukesh Haikerwal

President

Australian Medical Association

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The Australian General Practice Statistics and Classification Centre (formerly the General Practice Statistics and Classification Unit) wishes to thank the 1,017 general practitioners who participated in BEACH between April 2005 and March 2006. This report would not have been possible without their valued cooperation and effort in providing the data.

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Ethics approval for this study was obtained from the Human Ethics Committee of the University of Sydney and the Ethics Committee of the Australian Institute of Health and Welfare.

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# Executive summary

In describing the health of the Australian community, mortality statistics and hospital statistics are important markers of population health. However, although the majority of the population do not die or have a hospital stay in any given year, most people do see their general practitioner (GP) – about 85% of the 20.3 million people in Australia visit a GP at least once in any year. BEACH data suggest that in the 12 months 2001–02, people in Australia spent on average 83 minutes with a GP per head of population. This compares with about 56 minutes per head in New Zealand and about 30 minutes in the United States during the same period. The extent to which this affects health outcomes for the populations is as yet unclear. However, considering this high use of general practice care, information about the problems dealt with and how they are managed by GPs is essential.

General practitioners are the first port of call in the Australian health care system. They act as gatekeepers to the secondary and tertiary sectors, and in 2005 conducted more than 90 million consultations, most of which were claimed through Medicare (a national health insurance system). The BEACH (Bettering the Evaluation And Care of Health) program provides information about the content of these GP–patient encounters and of the services and treatments provided by GPs to the Australian community.

BEACH is a continuous national study of general practice activity that began in April 1998. It is the only continuous randomised study of general practice activity in the world, and the only national program which provides direct linkage of management actions (such as prescriptions, referrals, investigations) to the problem under management.

This report provides an overview of results from the eighth year of the program (April 2005 to March 2006). It also investigates changes in morbidity and management demonstrated over the last seven years. Summaries of results for each of the past five years are provided in Appendix 4.

The report provides a timely opportunity to measure the impact of practice nurses on general practice clinical activity since the introduction of specific Medicare item numbers in late 2004 for some defined activities by practice nurses. Practice nurse activity was recorded for the first time in 2005–06, the BEACH encounter form having been altered to capture this information. In summary: multiple item numbers (up to 3) could be recorded; and a tick box was added to the other treatments section to indicate that the practice nurse had provided the treatment. General practice clinical activity reported here includes that provided by the practice nurse. However, sections of the report also specifically describe the activities of these nurses and consider the implications of this work on the clinical activities of the general practitioners.

The BEACH program relies on the cooperation of randomly selected GPs across the country. Each completes details for 100 consecutive GP–patient encounters on structured paper encounter forms (Appendix 1). They also provide information about themselves and their practice (Appendix 2). About 1,000 GPs participate in BEACH each year and the sample is ever-changing. Participants gain points towards their quality assurance requirements for continued vocational registration.

The sample frame for the study is all vocationally registered GPs who claimed at least 375 A1 Medicare items of service from Medicare Australia in the most recent data quarter. The Australian Government Department of Health and Ageing draws the GP samples from Medicare claims data. The GPs are approached by letter with telephone follow-up.

In the 2005–06 BEACH data year, 1,017 GPs (representing 31.1% of those who were contacted and were currently practising in Australia) provided details for 101,700 encounters. Results are reported in terms of GP and patient characteristics, patient reasons for encounter, problems managed and management techniques used. Questions about selected patient health risk factors were asked of a subsample of patients, and the results are included in this publication. Abstracts for all other substudies covered in the eighth year of BEACH are reported at <[www.fmrc.org.au/publications/SAND\\_abstracts.htm](http://www.fmrc.org.au/publications/SAND_abstracts.htm)>.

This report provides a summary of the results for BEACH 2005–06 (Chapter 2) and these results are compared with data from the previous seven years to assess changes over time (Chapter 3). The implications of some of these results are discussed in Chapter 4 and the methods are detailed and discussed in Chapter 5.

The GPs who participated in BEACH 2005–06 were found to be largely representative of all GPs in the original sample frame. There was an under-representation of younger GPs (aged <35 years). This could be due to the fact that over 25% of the younger GPs (compared with less than 10% of all other ages) drawn in the sample were not traceable, having moved to other practices without a forwarding address since the time the sample was drawn.

The raw encounter data were weighted for GP age and sex to ensure any discrepancies in the age–sex distribution of the sample were dealt with. The raw encounter data were also weighted according to the activity level of each participating GP (as measured by the number of Medicare items claimed) to ensure each set of 100 encounter forms represents the relative contribution of each participating GP to the total encounters across the country. As has been the case in previous years, the final sample of GP–patient encounters demonstrated excellent precision in representing the age–sex distribution of patients for all Medicare-claimed A1 items of service.

The feminisation and ageing of the GP workforce continues. In 2005–06 more than one-third (37%) of BEACH participants were female. Four in ten participants were aged 55 or more years, an increase of about 50% since 1999–00. The decrease in the number of clinical sessions worked per week detected over recent years appears to have steadied, the 2005–06 results aligning broadly with those of the previous year. The decrease in the likelihood of GPs providing their own or cooperative after-hours care of their patients continued in 2005–06, so that now more than half rely on deputising or emergency services.

The significant move away from solo practice reported in 2004–05 appears to have stabilised with approximately 12–13% of participants in each of the last two years being solo practitioners. The proportion of participants working in larger practices of five or more GPs, which increased dramatically between 1999–00 and 2003–04, has since then remained relatively constant at about 52%.

The proportion of participants who gained their primary medical degree in Australia sits at about 70% but overseas graduates from Asia, Europe and Africa make up an increasing proportion of the general practice workforce. The proportion of GPs who reported being Fellows of the RACGP (41%) aligned with last year's result, being an increase of about 25% since 1999–00 (31%).

Last year we found there had been an increase between 1998–99 and 2004–05 in the proportion of Medicare encounters claimed as long consultations. This year the rate did not differ from that found in 1999–00. However, there have been many changes in Medicare items claimable by GPs over the last few years. Addition of new item numbers means that some of the more complex consultations are now claimed under specific chronic disease management item numbers, and this influences the number of claims for long surgery consultations.

In the subsample study of 32,489 encounters that included start and finish times for A1 Medicare-claimable encounters, there was no significant change in length of consultation (mean 14.9 minutes, median 13 minutes) since it was first measured in 2000–01 (14.8, 13 minutes).

The distribution of the GPs' workload across patient age groups is changing, with a decreasing proportion of their encounters being with patients aged less than 45 years. There were about 3 million fewer encounters with children (<15 years) and 5.8 million fewer with people of 15–44 years in 2005–06 than in 1999–00. An increasing proportion of encounters were with older patients (particularly those aged 75 years or more) and 'baby boomers', currently aged 45–64 years.

Between 1999–00 and 2001–02 there was a significant increase in the proportion of encounters with patients who hold a Commonwealth concession card, but since then the proportion has remained relatively constant at about 42%.

As in the past, the majority of patients present with only one reason for encounter (RFE), but there has been an increase in the rate of RFEs of a general nature, of those associated with the endocrine/metabolic system and of the male genital system, with fewer of a respiratory and neurological nature. Visits to obtain the results of tests and investigations continued to increase although growth appears to have diminished.

In light of the changing age distribution of the patients encountered, it is surprising there has not been an increase in the number of problems managed at the encounter. It has remained steady at 146 problems per 100 encounters. However, as in previous years, there was a significant increase in the overall management rate of chronic problems from 1999–00 to 2005–06. More specifically, there have been increases in management rates of specific types of chronic conditions including hypertension, diabetes, lipid disorders, osteoarthritis and oesophageal disease, which may reflect the morbidity of the ageing patient population.

In 2005–06, upper respiratory tract infection (URTI) remained the second most common problem managed in general practice, a position it has held since problem management rates were first measured in the Australian Morbidity and Treatment Survey 1990–91. However, while it remains in second position, the management rate has decreased since 1999–00 in line with the decrease in the proportion of encounters that are with children. The rate increased marginally between 2004–05 and 2005–06, reverting to the level managed in 2002–03. This could represent a higher incidence of URTI in the community in 2005–06 than in the previous year. The management rates of other acute respiratory conditions (including acute bronchitis, allergic rhinitis and sinusitis) have also decreased since 1999–00.

As previously mentioned, there has been an increase in the rate at which patients present to their GP for results of tests and investigations. In parallel, the rate at which GPs record 'test results' as the problem being managed also increased significantly. Considered in combination with the decreasing number of encounters where the patient was not seen (e.g. telephone encounters, provision of repeat prescription) it would appear that patients are being asked more often to return to the surgery in person to receive results and that many of these results are found to be clear, so that no diagnostic label is provided by the GP.

In 2005–06 at least one management action was recorded by the GP for 86% of the problems managed. At least one medication was prescribed, supplied or advised (most commonly prescribed) for over half the problems managed. GPs used at least one form of counselling and/or advice in the management of about one in five problems and undertook at least one procedure for one in ten problems managed. Only about 11% of patients were referred elsewhere for their problem, and most of these referrals were to specialists. Ordering of tests

and investigations was more likely than referral. For 18% of problems the GP placed orders for tests, by far the majority being for pathology tests.

Some of these management activity patterns have altered since 1999–00. The total medication rate (prescribed, supplied and advised for over-the-counter purchase) decreased by about 5%. The decline has been greatest in the rate of prescriptions, which fell by almost 13%, from 94 prescriptions per 100 encounters in 1999–00 to 86 per 100 in 2005–06. Although a 13% fall may not seem large, if this change is extrapolated to general practice across Australia it represents an average annual national decrease of 2.4 million prescriptions (i.e. there being an estimated 14.3 million fewer prescriptions given by GPs in 2005–06 than in 1999–00). Note that this is a decrease in the number of occasions a prescription is written and does not consider the number of repeats involved or whether the prescription was filled. Reasons for this decrease may be a combination of wider availability of some medications for over-the-counter purchase, the increasing polyvalence of some medications, and broadening of some government initiatives in terms of free supply of selected vaccines.

The decreasing prescription rate was not consistent across all drug types. The largest decreases were seen in the prescribing of celecoxib (with a concomitant increase in meloxicam), ranitidine and omeprazole (counteracted by an increase in prescriptions for esomeprazole), diuretics (with a concomitant increase in combination ACE inhibitors and diuretics), levonorgestrel/ethinylloestradiol (perhaps in reaction to publicity about the possible negative effect of hormone replacement therapy in menopause), and salbutamol (counteracted by an increase in prescriptions for fluticasone/salmeterol combination). The overall rate of antibiotic prescribing has not changed significantly since 2001–02 but the prescribing rate of the antibiotics amoxicillin and cephalexin also continued to increase.

It is worth noting that the extent to which GPs are providing medication directly to the patient is increasing. The types of medications supplied include vaccines (reflecting changes in the supply chain for vaccines, such as the meningococcal vaccine) and relatively high direct supply rates of meloxicam, esomeprazole, paracetamol and celecoxib.

Provision of clinical treatments such as advice, education and counselling form an essential part of general practice activity. Last year we reported a steady increase in the rate of clinical treatments given by GPs between 1998–00 and 2004–05. In 2005–06, recorded clinical treatments given by either the GP or the practice nurse at the encounter, decreased by 25% in a single year. This result suggests there were about 10 million fewer clinical treatments given by GPs in 2005–06 than in 2004–05, and about 6 million fewer than in 1999–00.

The decrease was reflected in various specified types of treatments. General advice and education decreased from 7.0 per 100 encounters in 2004–05 to 4.8 per 100 in 2005–06. Advice and education about medication more than halved over the same period. Significant decreases were also demonstrated in the rates of advice and education about nutrition and weight, counselling about exercise, and advice and education about the treatment being provided. A decrease did not occur in the rate of psychological counselling recorded.

This sudden decrease follows the introduction of Medicare item numbers in November 2004 for some practice nurse services. It is possible that these item numbers have facilitated increased access to practice nurses, so that practice nurses rather than GPs are taking up responsibility for providing patients with advice and education. This relationship will be investigated further through more complex analysis.

Procedural work done by the GPs remained at last year's level and appear to have been steady since 2002–03 at about 15 per 100 encounters. However, due to a rise in this rate between 1999–00 and 2002–03, GPs would have undertaken some 900,000 additional procedures in 2005–06 than they did in 1999–00.

The proportion of encounters generating at least one referral increased significantly between 1999–00 and 2005–06. This suggests that in 2005–06 there were about 60,000 more encounters at which the GP decided to refer the patient than in 1999–00. However, the total number of referrals did not change. There was a significant increase in the referral rate to specialists and a significant decrease in referrals to hospitals, with no measurable change in referrals to allied health services.

The largest change in management activity over the last five years has been in the ordering of pathology tests. GPs are now more likely to order pathology at the encounters. The proportion of encounters generating pathology test orders increased between 1999–00 and 2005–06 from 14% to 16% of encounters. The suggested effect is an additional 5.9 million encounters at which pathology was ordered in 2005–06 than five years ago in 2001–02. The effect on total test ordering is that GPs ordered about 25% more tests (or batteries of tests) per 100 encounters in 2005–06 (38.6 per 100 encounters) than in 2001–02 (31.0 per 100). Previous research has demonstrated that in the late 1990s an increase in pathology test ordering was due not to increased likelihood of testing but to increased numbers of tests ordered at any one time. It appears this is no longer the case; the data suggest that the number of tests ordered when the decision to order has been made has settled at an average of two per problem tested.

There has also been an increase in the likelihood of GPs ordering imaging tests. In 2005–06 GPs ordered imaging tests at a rate of 8.8 per 100 encounters compared with 7.4 per 100 in 1999–00. This change was apparent in the ordering rates of ultrasound and computerised tomography.

There were 1,696 practice nurse Medicare items recorded in BEACH, the majority (79.5%) for the provision of immunisations and a further 30% for wound treatment.

At least one practice nurse activity was recorded at 4,013 encounters – 3.9% of all encounters. They were involved in the management of 2.8% of all problems managed by the participating GPs. Total other treatments given by practice nurses represented 9.0% of all other treatments recorded at BEACH encounters. The majority (95.2%) of the practice nurse activity was procedural in nature. These procedures represented almost a quarter (22.7%) of all procedures recorded. In contrast, practice nurses undertook less than 1% of all clinical treatments (such as advice, education and counselling) recorded.

Injections represented 40% of procedures recorded (mainly for immunisations) and a further 23.2% were dressing/pressure/compression/tamponade procedures. General advice/education was the most common clinical treatment recorded (17.1% of the clinical treatments provided by the nurse) followed by counselling about the problem under management (16.7%).

Treatments provided by a practice nurse were most often in the management of immunisation (30.2% of all problems managed with involvement of a practice nurse), followed by chronic skin ulcer (6.7%) and laceration/cut (6.3%).

The patient risk factors of smoking, BMI and alcohol intake are investigated for a subsample of patients. There were no significant changes between 2001–02 and 2005–06 in the proportion of adults who were overweight, the proportion of adults who were obese, the proportion of adults who were underweight, the proportion of children who were overweight or obese, the prevalence of current daily smoking among adults, and the proportion of adults who reported consuming alcohol at 'at risk' levels.





# 1 Overview

This publication is the eighth annual report of the BEACH (Bettering the Evaluation And Care of Health) program, a continuous national study of general practice activity in Australia. It provides results for the period April 2005 to March 2006 inclusive, using details of 101,700 encounters between general practitioners (GPs) and patients (about a 0.11% sample of all general practice encounters) from a random sample of 1,017 practising GPs across the country. It also reports changes that have occurred in this activity since 1999.

The BEACH program is conducted by the Australian General Practice Statistics and Classification Centre (AGPSCC). The AGPSCC is a collaborating unit of the Family Medicine Research Centre at the University of Sydney and the Australian Institute of Health and Welfare (AIHW). BEACH is currently supported financially by government instrumentalities and private industry.

The BEACH program is unique. It is the only continuous randomised study of general practice activity in the world, and the only national program that provides direct linkage of management actions (such as prescriptions, referrals, investigations) to the problem under management. It began in April 1998 and the BEACH database now includes information for more than 800,000 encounters from 7,991 participants representing more than 6,500 individual GPs.

GPs provided by far the majority of the 90+ million non-specialist services paid by Medicare in 2005–06, at an average rate of 4.5 visits per person per year.<sup>1</sup> BEACH provides knowledge of the content of these encounters and of the services and treatments they provide by giving an important insight into the health of a large proportion of the community.

## 1.1 Background

In describing the health of the community, mortality statistics and hospital statistics are important markers of population health. However, most people do not die and most do not have a hospital stay in any given year. In contrast, about 85% of the Australian population visit a general practitioner (GP) at least once in any year. BEACH data suggest that in the 12 months 2001–02, people in Australia spent on average 83 minutes with a GP per head of population. This compares with about 56 minutes per head in New Zealand and about 30 minutes per head in the United States during the same period.<sup>2</sup> The extent to which this affects health outcomes for the population cannot be measured. However, considering the emphasis on primary health care in Australia, information about the clinical activities of GPs provides a far broader indication of the health and morbidity of the population than mortality statistics and hospital admissions alone.

In 2005 the population of Australia was 20.3 million people. In 2002–03, national expenditure on health was 9.7% of gross domestic product, with governments funding over two-thirds of the \$78.6 billion total health expenditure.<sup>3</sup>

- General practitioners (GPs) are the first port of call in the Australian health care system. They act as gatekeepers to the secondary and tertiary sectors, and in 2005 conducted more than 90 million consultations, most of which were claimed through Medicare.
- In 2003 in Australia there were 51,819 medical practitioners working as clinicians, of whom 42% were primary care providers.<sup>4</sup>

- There were 110 practising primary care practitioners per 100,000 people in Australia in 2003. Together they made up 100 full-time equivalents (based on a 45 hour working week) per 100,000 population.<sup>4</sup>
  - 80% of these were recognised general practitioners and 20% were other primary care medical practitioners.<sup>5</sup>
- By far the majority of visits to GPs are funded through the Commonwealth Medicare Benefits Schedule (MBS).
- In the 2005–06 financial year, there were about 90 million unreferral attendances paid by Medicare (A1 and A2 items) at an average rate of 4.5 GP visits per person.<sup>1</sup> This equates with approximately 250,000 visits per day, every day of the year.
- In 2005 the primary cost to Medicare for GP services (A1 and A2 items) was over \$3 billion.<sup>1</sup>
- Until 2004 Medicare covered 85% of the government schedule consultation fee.<sup>6</sup> Some patients were not charged the additional 15% of the fee, the GPs accepting the Medicare payment as total payment. Others were charged the difference between the Medicare payment and the government schedule fee. Still others may pay more for these services. From January 2005 Medicare covered 100% of the schedule consultation fee for general practice services.<sup>7</sup>
- From March 2004 the safety threshold for couples and families was extended to cover 80% of out-of-pocket expenses for out-of-hospital medical treatments once the threshold was reached.<sup>8</sup>
- From 1 February 2004 Medicare payments to the GP were increased for all bulk-billed (direct to Medicare) consultations with patients who were aged less than 15 years and for those holding a Commonwealth concession card.<sup>9</sup>

Such changes in policy may affect attendance rates for some sectors of the community and in turn this may affect the types of problems managed by GPs and the management of these problems. The BEACH program can readily measure such effects.

## 1.2 The BEACH program

In summary, the BEACH (Bettering the Evaluation And Care of Health) program is a continuous national study of general practice activity in Australia. It uses details of about 100,000 encounters between GPs and patients (about a 0.11% sample of all general practice encounters) from a random sample of approximately 1,000 recognised practising GPs from across the country. A full description of the BEACH methods is provided in Chapter 5 of this report.

A random sample of GPs who claimed at least 375 general practice Medicare items of service in the previous 3 months is regularly drawn from Medicare Australia data by the Primary Care Division of the Australian Government Department of Health and Ageing. GPs are approached by letter and followed up by telephone recruitment. Each participating GP completes details for 100 consecutive GP–patient encounters on structured paper encounter forms (Appendix 1). They each also provide information about themselves and their major practice (Appendix 2).

## Aims

The BEACH program has three main aims:

- to provide a reliable and valid data collection process for general practice which is responsive to the everchanging needs of information users
- to establish an ongoing database of GP-patient encounter information
- to assess patient risk factors and health states, and the relationship these factors have with health service activity.

## Current status of BEACH

BEACH began in April 1998 and is now in its ninth year. The database for the first 8 years includes data for approximately 800,000 GP-patient encounters from more than 7,000 participating GPs. Each year the AGPSCC publishes an annual report of BEACH results through the Australian Institute of Health and Welfare. This publication reports results from the previous BEACH data year (April 2005 to March 2006) on a national basis to provide an overview of general practice activity.

Other reports use the database for secondary analyses of a selected topic or for a specific research question. The most recent examples are a comparative study of general practice activity in each of the states and territories of Australia<sup>10</sup> and a comparative study of activity in rural and metropolitan areas of Australia.<sup>11</sup> These and other BEACH reports can be downloaded from <[www.fmrc.org.au/publications/](http://www.fmrc.org.au/publications/)> (go to Books—General Practice Series) or from <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>.

## The advantages of BEACH

BEACH tells us about what happens at clinical encounters between patients and GPs. It tells us about the relationships between the characteristics of the GP workforce, the patients they manage, the problems that are presented to and managed by GPs, and the treatment provided for each problem. It also provides a reliable continuous measure of changes in general practice since 1998.

We are often asked to outline the advantages the BEACH program has over general practice activity data from other sources. These advantages are summarised below.

- BEACH is the only national study of general practice activity in the world that is continuous, relying on a random everchanging sample of GPs and directly linking management actions to the morbidity under management.
- The sheer size of the GP sample (1,000 per year) and the relatively small cluster of encounters around each GP provide more reliable estimates than a smaller number of GPs with large clusters of patients and/or encounters around each participating GP.<sup>12</sup>
- Our access to a regular random sample of recognised GPs currently in active practice, through the Australian Government Department of Health and Ageing (DoHA), ensures that the sample of GPs is drawn from a very reliable sample frame of currently active GPs.
- There are sufficient details about the characteristics of all GPs in the sample frame to test the representativeness of the final sample and to apply post-stratification weighting to correct for any under-representation or over-representation in the sample.

- The everchanging nature of the sample (where each GP can participate only once per triennium) ensures reliable representation of what is happening in general practice across the country. The sampling methods ensure that new entrants to the profession are available for selection because the sample frame is based on the most recent Medicare Australia data.

Where other data collection programs use a fixed set of GPs over a long period, they are measuring what that group is doing at any one time, or how that group has changed over time, and there may well be a 'training effect' inherent in longer term participation in such programs. Such measures cannot be generalised to the whole of general practice. Further, where GPs in the groups have a particular characteristic in common (e.g. all belong to a professional organisation to which not all GPs belong; all use a selected software system which is not used by all GPs), the group is biased and cannot represent all GPs.

- Each GP records for a set number of encounters (100), but there is wide variance among them in the number of patient consultations they conduct in any one year. The DoHA therefore provides an individual count of activity level (i.e. number of A1 Medicare item numbers claimed in the previous period) for all randomly sampled GPs, allowing us to give a weighting to each GP's set of encounters commensurate with his or her contribution to total general practice encounters. This ensures that the final encounters represent encounters with all GPs.
- The structured paper encounter form leads the GP through each step in the encounter, encouraging entry of data for each element (see Appendix 1). In contrast, systems such as electronic health records rely on the GP to complete all fields of interest without guidance.
- The activities described in BEACH include all patient encounters, not just those covered by Medicare.
- The medication data include all prescriptions, rather than being limited to those prescribed medications covered by the Pharmaceutical Benefits Scheme, PBS (as are PBS data).
- BEACH is the only source of information on medications supplied directly to the patient by the GP, and about the medications GPs advise for over-the-counter (OTC) purchase, the patients to whom they provide such advice and the problems managed in this manner.
- The inclusion of other (non-pharmacological) treatments such as clinical counselling and procedural treatments provides a broader view of the interventions used by GPs in the care of their patients than other data sources.
- The link from all management actions (e.g. prescribing, ordering tests) to the problem under management provides the user with a measure of the 'quality' of care rather than just a count of the number of times an action has occurred (e.g. how often a specific drug has been prescribed).
- The use of a well-structured classification system designed specifically for general practice, together with the use of an extended vocabulary of terms which facilitates reliable classification of the data by trained secondary coders, removes the guesswork often applied in word searches of available records (in free text format) and in classification of a concept.

- The analytical techniques applied to the BEACH data ensure that the clustering inherent in the sampling methods is dealt with. Results are reported with 95% confidence intervals. Users are therefore aware of how reliable any estimate might be.
- Reliability of the methods is demonstrated by the consistency of results over time where change is not expected, and by the measurement of change when it might be expected.

A more detailed discussion of methodological issues associated with BEACH is provided in Section 5.11. Issues surrounding future computerised data collection are discussed in Section 1.4.

## 1.3 BEACH data and other national data sources

Users of the BEACH data might wish to consider the results in relation to data from other sources. Integration of data from multiple sources can provide a more comprehensive picture of the health and health care of the Australian community. This section summarises the differences between BEACH and other national sources of data about general practice in Australia.

### The Pharmaceutical Benefits Scheme

Prescribed medications paid for under the Pharmaceutical Benefits Scheme (PBS) are recorded by Medicare Australia. The PBS data:

- count the prescription each time it crosses the pharmacist's counter (so that one prescription written by the GP with five repeats in BEACH would be counted by the PBS six times if the patient filled all repeats)
- count only those prescribed medications subsidised by the PBS and costing more than the minimum subsidy (and therefore covered by the PBS for all patients), or medications prescribed for those holding a Commonwealth concession card or for those who have reached the safety net threshold
- will change with each change in the PBS safety net threshold – when the threshold increases, as it did in January 2005, fewer prescribed medications are counted in the PBS for non-Commonwealth concession card holders<sup>13</sup>
- have no record of the problem being managed, so that economic cost analyses must rely on assumptions about the indication for specific drug types.

In BEACH:

- total medications include those prescribed (whether covered by the PBS for all or some patients), those supplied to the patient directly by the GP, and those advised for OTC purchase
- each prescription recorded reflects the GP's intent that the patient receives the prescribed medication and the specified number of repeats; the prescription, irrespective of the number of repeats ordered, is counted only once
- the medication is directly linked to the problem being managed by the GP, allowing cost analyses of pharmacological management of specific morbidity
- there is no information on the number of prescriptions not filled by the patient (and this also applies to the PBS).

These differences influence not only the numbers of prescriptions counted but also their distribution. For example, the majority of broad spectrum antibiotics such as amoxicillin fall under the PBS minimum subsidy level and would not be counted in the PBS data except where patients received the medication under the PBS because they are Commonwealth concession card holders or had reached the annual safety net threshold. The PBS would therefore under-estimate the number of antibiotic prescriptions filled and the proportion of total medications accounted for by antibiotics. Changes in the minimum subsidy level (such as the increase in 2004) make the measurement of changes in prescribing through the PBS extremely difficult.<sup>13</sup>

## **Medicare Benefits Schedule**

Consultations with GPs that are paid for in part or in full under the Medicare Benefits Schedule (MBS) are recorded by Medicare Australia.

- The MBS consultation data provided by DoHA do not usually include data about patients and encounters funded through the Department of Veterans' Affairs.
- The MBS data include only those GP services that have been billed to Medicare. In contrast, the BEACH database includes data about all clinical activities, irrespective of who pays for them (if anyone).
- The MBS data reflect the item number charged to Medicare for a service and some patient demographics but hold no information about the content of the consultation.
- In 2005–06, BEACH participants were able to record up to three Medicare item numbers for each encounter. In contrast, MBS data include all Medicare item numbers claimed at each encounter. In the BEACH data set this may result in a lower number of 'other' Medicare items than would be counted in the Medicare data.

In the first seven years of BEACH (1998–99 to 2004–05), participants had the opportunity to record only one Medicare item number on each encounter form. They were instructed to select the more general item number where two item numbers apply to the consultation. Additional services attracting their own item MBS number (e.g. 30026 – repair of wound) were captured in BEACH as actions recorded in other parts of the form. This resulted in a smaller number of 'other' Medicare items than would be counted in the Medicare data.

- In activities of relatively low frequency with a skewed distribution across individual GPs, the relative frequency of the event in the BEACH data may not reflect that reported in the MBS data. For example, a study of early uptake of some enhanced primary care items by GPs demonstrated that almost half the enhanced primary care items claimed through the MBS came from about 6% of active GPs.<sup>14</sup> Where activity is so skewed across the practising population, a national random sample will provide an under-estimate of activity because the sample reflects the population rather than the minority.

## **Pathology data from the MBS**

Pathology tests undertaken by pathologists that are charged to Medicare are recorded by Medicare Australia. However, this does not reflect tests ordered by the GP.

- Each pathology company can respond differently to a specific test order label recorded by the GP. So the tests completed by a pathologist in response to a GP order for a full blood count may differ between companies.

- The pathology companies can charge through the MBS only for the three most expensive tests undertaken even when more were actually done. This is called ‘coning’ and is part of the DoHA pathology payment system. This means that the tests recorded in the MBS include only those charged for, not all those that were done.
- The effect of these factors is that the MBS pathology data include only those tests billed to the MBS after interpretation of the order by the pathologist and after selection of the three most expensive tests. This effect will not be random. For example, in an order for four tests to review the status of a patient with diabetes, it is likely that the HbA1c test will be the least expensive and will ‘drop off’ the billing process because of coning. This results in an under-estimate of the number of HbA1c tests being ordered by GPs.
- Pathology MBS items contain pathology tests that have been grouped on the basis of cost. An MBS item may not therefore give a clear picture of the precise tests performed.

In BEACH, the pathology data:

- include details of pathology tests ordered by the participating GPs
- reflect the GP’s intent that the patient should have the pathology test(s) done, so information about the extent to which patients do not have the test done is not available (nor is it in the MBS data)
- reflect the terms used by GPs in their orders to pathologists, and for reporting purposes these have been grouped by the MBS pathology groups for comparability. The distributions of the two data sets will differ, reflecting on the one hand the GP order and on the other the MBS-billed services after coning and assignment of an MBS item number.

Those interested in GP pathology ordering will find more detailed information from the BEACH program in *Pathology ordering by general practitioners in Australia 1998*.<sup>15</sup> A study of changes in pathology ordering patterns between 1998–99 and 2000–01<sup>16</sup> is also available through the Family Medicine Research Centre (FMRC) website <[www.fmrc.org.au/publications/](http://www.fmrc.org.au/publications/)> (go to Books – General Practice Series).

### **Imaging data from the MBS**

Some of the issues discussed regarding pathology data also apply to imaging data. Although coning is not an issue for imaging, radiologists can decide whether the test ordered by the GP is the most suitable and whether to undertake other tests of their choosing. The MBS data therefore reflect the tests that are actually undertaken by the radiologist, whereas the BEACH data reflect those ordered by the GP. Those interested in GP imaging ordering should view *Imaging orders by general practitioners in Australia 1999–00*,<sup>17</sup> also available from the Family Medicine Research Centre website.

### **The National Health Survey**

The National Health Survey (NHS), conducted by the Australian Bureau of Statistics, can provide estimates of the population prevalence of specific diseases and a measure of the problems taken to the GP by people in the previous 2 weeks.

- Prevalence estimates are based on self-reported morbidity from a representative sample of the Australian population using a structured interview to elicit health-related information from participants.<sup>18</sup>

- Community surveys such as the NHS have the advantage of accessing people who do not go to a GP. They can therefore provide an estimate of population prevalence of disease and point estimates of incidence.
- Self-report has been demonstrated to be susceptible to misclassification because of a lack of clinical corroboration of diagnoses.<sup>19</sup>

Management rates of health problems in general practice represent GP workload for a health problem. BEACH can be used to estimate the period incidence of diagnosed disease presenting in general practice through the number of new cases of that disease. The management rates of individual health problems and management actions can be extrapolated to patient-population management rates (see Chapter 3). However, problem management rates cannot be extrapolated to either patient-population prevalence or total population prevalence of a disease.

The general practice patient population sits between the more clinical hospital-based population and the general population,<sup>20,21</sup> with around 85% of Australians visiting a GP at least once in any one year (personal communication, Primary Care Division, Australian Government Department of Health and Ageing, August 2002). Disease management rates are a product of both the prevalence of the disease/health problem in the population and the frequency with which a patient visits a GP for the treatment of that problem. Those who are older and/or have more chronic disease are therefore likely to visit more often and have a greater chance of being sampled in the encounter data. Further, some diseases require more frequent visits, so that the specific set of problems experienced by a patient will determine their visit frequency.

## **Access to BEACH data**

Different bundles of BEACH data are available to the general public, to BEACH participating organisations, and to other organisations and researchers.

### **Public domain**

In line with standard AIHW practice, this annual publication provides a comprehensive view of general practice activity in Australia. The BEACH program has generated many papers on a wide range of topics available in journals and professional magazines. Appendix 3 lists all published material from BEACH.

Since April 1998, a section on the bottom of each encounter form has been used to investigate aspects of patient health or health care delivery not covered by general practice consultation-based information. These additional substudies are referred to as SAND (Supplementary Analysis of Nominated Data). The SAND methods are described in Section 5.5. Abstracts of results for the substudies conducted in the eighth BEACH year and not reported here are on the website of the FMRC <[www.fmrc.org.au/publications/SAND\\_abstracts.htm](http://www.fmrc.org.au/publications/SAND_abstracts.htm)>. The subjects covered in the abstracts are listed in Table 1.1 with the sample size for each topic.

### **Participating organisations**

Organisations providing funding for the BEACH program receive summary reports of the encounter data quarterly and standard reports about their subjects of interest. Participating organisations have direct access to straightforward analyses on any selected problem, medication, pathology or imaging test through an interactive web server.



## External purchasers of standard reports

Non-contributing organisations may purchase standard reports or other ad hoc analyses. Charges are available on request. The AGPSCC should be contacted for further information. Contact details are provided at the front of this publication.

Analysis of the BEACH data is a complex task. The AGPSCC has designed standard reports that cover most aspects of a subject under investigation. Examples of a problem-based standard report (subject warts) and a pharmacological-based standard report (subject allopurinol) for a single year's data are available on <[www.fmrc.org.au/purchase.htm](http://www.fmrc.org.au/purchase.htm)>.

Standard reports are available for selected groups of patients (e.g. children aged less than 15 years, or all women with a cardiovascular problem, or all patients residing in New South Wales), or a for a specific non-pharmacological management action.

Individual data analyses can be conducted where the specific research question is not adequately answered through standard reports.

**Table 1.1: SAND abstracts for 2005–06 and sample size for each**

Abstract number	Subject	Number of respondents	Number of GPs
82	Prevalence and management of chronic pain	3,211	109
83	Prevalence and management of migraine	5,663	191
84	Menopausal status, symptoms and treatment of women aged 18 and over	1,590	106
85	Management of osteoporotic fractures in general practice patients	3,071	105
86	Diabetes Types 1 and 2 and coronary heart disease	3,099	105
87	Management of cardiovascular or diabetes related conditions	3,015	104
88	Arthritis rates and NSAID use in general practice patients	3,076	104
89	Estimates of the prevalence of chronic illnesses identified as Health Priority Areas among patients attending general practice <sup>(a)</sup>	9,156	305
90	Prevalence, management and investigations of chronic heart failure in general practice patients	2,859	98
91	Prevalence and management of gastrointestinal symptoms	5,310	181
92	Prevalence of metabolic syndrome	5,594	193
93	Sexual dysfunction—premature ejaculation	2,186	91
94	Type 2 diabetes—investigations and related conditions	2,713	92

(a) This is the second report on this topic, using additional data collected following publication of the previous abstract.

## 1.4 Future options for national representative data collection from general practice

The BEACH program is currently a paper-based data collection program. It is labour-intensive for the GPs and for secondary data entry by the research team. Further, the introduction of practice nurse item numbers and the growing role and number of practice nurses in general practices means that some of the work undertaken by GPs in the past will increasingly be transferred to practice nurses who are not completing BEACH forms. We therefore believe that a move to national electronic data collection systems will be essential in the future.

## Requirements for electronic data collection

The structure of electronic clinical systems varies, as do the coding and classification systems used in each. National electronic data collection will require:

- **the development and full adoption of a standardised minimum data set.**

During 2005 we developed a minimum data set for the Electronic Communication Working Group of the General Practice Computing Group. The project was conducted under the auspice of the RACGP with funding from DoHA. This was one of a series of projects designed to improve inter-operability of GP computer systems and to improve communication between systems by standardising data elements and database systems.

This project developed a minimum set of data items necessary for reporting from GP computer systems. The data items were derived from established reporting data sets used in general practice in Australia including the Australian Childhood Immunisation Register, the Enhanced Divisional Quality Use of Medicines Program, BEACH and the Cardiab data sets. Although these data items were derived from reporting sets, all the data items have relevance to the clinical activities of general practitioners. After consultation it was decided to format the minimum data set in the National e-Health Transition Authority (NeHTA) format to facilitate use in other related projects. Research was undertaken to elicit standardised data definitions based on commonly used definitions relevant in the context of general practice.

The final minimum data set comprises 90 data elements and includes data groups of logically associated items and a linkage diagram to specify required linkages between data items. The report 'General practice EHR and data query minimum data set' is available on the web at <[www.gpcg.org.au/index.php?option=com\\_content&task=view&id=41&Itemid=54](http://www.gpcg.org.au/index.php?option=com_content&task=view&id=41&Itemid=54)>.

We believe that the work already done on this minimum data set is extremely valuable and that the investment should be built on. The minimum dataset would provide an excellent platform for standardising the data set available in every software system, to provide standard electronic data reporting to national data collection programs.

However, the minimum data set has not been incorporated into GP software and it appears unlikely to be adopted unless adequate incentives are in place.

- **the adoption of standard coding and classification systems in all GP electronic clinical systems and uniform application of these within the clinical software.**

Currently there are about 12 software providers in Australia with finished product clinical systems being used in general practice that utilise the ICPC-2 PLUS,<sup>22</sup> an interface terminology classified to the International Classification of Primary Care (Version 2) (ICPC-2). ICPC-2 PLUS allows speedy classification of 'problems managed' data (and in some systems, presenting symptoms) to the international standard for classification of data collected in general practice, ICPC-2.<sup>23</sup> This is the same coding and classification system used in BEACH (see Section 5.8 Classification of data). However, the major software provider in Australia does not use ICPC-2 for the classification of any data.

ICPC-2 and the PLUS terminology can be used for many other aspects of the patient record, including clinical treatments (such as counselling), diagnostic and therapeutic procedures, referrals, pathology and imaging tests ordered. Generally, the software providers do not offer or do not encourage their use for these data.

It has been proposed that the Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) terminology<sup>24</sup> could be used in the Australian setting as a standardised terminology across all sectors of health care. NeHTA has recently signed a national licence for the use of SNOMED CT. Before the implementation of a standard terminology, considerable work has to be done to ensure that the terminology can integrate with other terminologies and classifications already in use in Australia through the introduction/implementation of maps to and from SNOMED CT.

Pharmaceuticals also need to be coded and classified. Currently NeHTA is developing the Australian Medicines and Devices Terminology as a national standard linked to the SNOMED CT terminology. This system is due to become available in 2007, but implementation across all IT systems in the health sector may take years.

- **resolution of privacy and confidentiality issues.**

Electronic download of patient data from GP electronic health records (EHRs) software has become a contentious issue for both professionals and consumers. The lack of adequate privacy and ethical controls in the private sector has contributed to the decision to review the National Health and Medical Research Council (NHMRC) Guidelines for Research and to the Law Reform Commission's review of the Privacy Act.

Consumer and professional concerns need to be addressed even where data collections occur under the auspices of statutory authorities such as the AIHW.

### **Passive data collection**

Passive data collection is where data is drawn by automatic download from general practice EHRs.

Many people have suggested that with the increased GP uptake of electronic prescribing systems or full clinical systems (i.e. EHRs) data can be drawn directly from the GPs' clinical computers. Some also suggest that patient-based longitudinal data could be gained by such means. This is being done in some divisions of general practice for such projects as the Enhanced Divisional Quality Use of Medicine's program, but obtaining reliable data at the national level for all data elements collected in BEACH presents a major challenge.

To obtain a national random sample of practising GPs, each GP must have an equal chance of selection and this is not possible until all GPs are using EHRs. With the recognised variance between GPs<sup>25</sup> it is likely that those who do not have EHRs differ from those who do. Sampling from only those GPs with EHRs would therefore give a biased national result.

Passive data collection also requires complete records with valid data in all compulsory fields. Proposals to randomly sample current EHRs are based on an assumption that all of the GPs (and the practice nurses) enter all of the required data, all of the time, for all patients – that is, that they are virtually paperless. Many GPs currently have electronic prescribing systems available but not full EHRs, or they use their EHRs for prescribing only (see Chapter 2). Henderson et al. recently published a more detailed analysis of the BEACH data demonstrating the extent to which individual GPs use their computers for clinical purposes. This study demonstrated that only about one in five GPs used all the functions that would be required to collect the BEACH data set and submit it electronically to the Centre.<sup>26</sup>

## **Active electronic data collection**

Active electronic data collection requires participants to manually enter all compulsory data into an electronic data collection tool (e.g. an Internet-based data collection form). Information would not be extracted from existing electronic records.

A longitudinal crossover study by the FMRC, commissioned by the RACGP and the Western Sydney Division of General Practice in 2001, demonstrated that using a purpose-built data collection software module on the GPs' desktops resulted in low compliance by the GPs and poor data quality with much less data recorded than in the paper-based BEACH collection. The results of this study clearly indicated that any active data collection program must use software that is integrated with, and automatically uses data already in, the GPs' EHRs.<sup>27</sup>

## **Ways we could move forward**

The methodological studies leading up to BEACH and the BEACH program itself have demonstrated that it is not necessary or practical to collect all of the data for all of the patients all of the time to gain a reliable national picture of GP activity.

Electronic data collection (PC or web-based), in which randomly sampled GPs record data for all the necessary BEACH data elements for a sample of patients – on computer instead of paper – could be introduced as a process integrated with GPs' desktop EHR software. The relevant data already recorded in the EHR could be transferred to a 'plug in' data collection tool. Such a process has been used in a limited way in the National Primary Care Collaboratives Program. At the end of the encounter any BEACH data fields that remain empty could be highlighted for the manual addition of information where required.

This method would mean that a GP only had to provide complete data for a sample of encounters, as is the case with the current BEACH program. However, the issues of standardised coding and classification system still apply in this model – standards will still be needed.

This approach could provide a way forward. When such a system proves reliable (as tested against parallel BEACH paper-based data), and random sampling is possible (when all GPs are using EHRs) paper-based data collection could be phased out. A move to passive data collection can be made once all GPs use complete EHRs and as standards are implemented and rigorously applied in all clinical systems.

However, for both options, the same methodological rigour should be applied as was the case in the development of the BEACH paper-based collection systems over a period of 25 years. The BEACH instrument and methodology provide an excellent jumping-off point for developing any future electronic data collection from general practice.

## 2 Annual results BEACH 2005–06

This chapter provides a summary of the annual results from the eighth year of the BEACH program – data collected between April 2005 and March 2006. The methods are only summarised in this chapter. For those wanting more detailed explanation, a full description of the BEACH methods and a discussion of methodological issues are provided in Chapter 5.

### 2.1 The sample

#### The sample frame

A random sample of general practitioners (GPs) who claimed at least 375 general practice Medicare items of service in the previous 3 months is regularly drawn from Medicare Australia data by the Primary Care Division of the Australian Government Department of Health and Ageing (DoHA) (see Chapter 5).

#### Response rate

Contact was attempted with 3,620 GPs – 9.8% could not be contacted. The majority of these had moved, retired or died and were untraceable. It is notable that of GPs approached who were aged less than 35 years, 27.5% were no longer at that practice and could not be traced. These would largely be registrars moving through practices during training. In contrast, 8.4% of GPs aged 35 years and over were not traceable.

The final participating sample consisted of 1,017 practitioners, representing 31.1% of those who were contacted and available, and 28.1% of those with whom contact was attempted (Table 2.1). Methodological issues related to the response rate are discussed in Section 5.11.

**Table 2.1: Recruitment and participation rates**

	Number	Per cent of approached ( <i>n</i> =3,620)	Per cent of contacts established ( <i>n</i> =3,266)
Letter sent and phone contact attempted	3,620	100.0	—
No contact	354	9.8	—
No phone number	49	1.4	—
Moved/retired/deceased	168	4.6	—
Unavailable	66	1.8	—
No contact after five calls	71	2.0	—
Telephone contact established	3,266	90.2	100.0
Declined to participate	1,988	54.9	60.9
Agreed but withdrew	261	7.2	7.8
Agreed and completed	1,017	28.1	31.1

## Representativeness of the GP sample

Whenever possible, the study group of GPs should be compared with the population from which the GPs were drawn in order to identify and, if necessary, adjust for any sample bias that may have an impact on the findings of the study.

Statistical comparisons, using the chi-square statistic ( $\chi^2$ ) (significant at the 5% level), were made between BEACH participants and all recognised GPs in the sample frame during the study period (Table 2.2). The GP characteristics data for BEACH participants were drawn from the GP profile questionnaire. The DoHA provided the data for all GPs in the sample frame, drawn from Medicare claims data.

Table 2.2 demonstrates that there were no significant differences in GP characteristics between the final sample and all GPs in the sample frame, in terms of sex, place of graduation and distribution across RRMA classes. However, participants were significantly older and differed in their state distribution when compared with the total sample. The under-representation of young GPs has been experienced through most years of the BEACH program and could to a large degree be due to the fact that more than 25% of those drawn in the sample were not traceable, having moved on to other practices since the sample draw.

Data on the number of Medicare A1 items of service claimed in the previous quarter were also provided by DoHA for each GP in the original sample, but not for all GPs in the sample frame. These data showed there was no significant difference ( $p=0.75$ ) in the mean number of A1 items claimed by GPs in the final BEACH sample (1,300 claims for the quarter) and among those GPs who declined to participate (1,309 for the quarter) (results not tabulated).

**Table 2.2: Comparison of BEACH participants and all active recognised GPs in Australia**

Variable	BEACH <sup>(a)(b)</sup>		Australia <sup>(a)(c)</sup>	
	Number	Per cent of GPs	Number	Per cent of GPs
Sex ( $\chi^2=2.45$ , $p=0.12$ )				
Males	639	62.8	11,500	65.2
Females	378	37.2	6,128	34.8
Age ( $\chi^2=36.2$ , $p<0.0001$ )				
<35	47	4.7	1,693	9.6
35–44	223	22.3	4,253	24.1
45–54	342	34.2	5,932	33.6
55+	387	38.7	5,770	32.7
Place of graduation ( $\chi^2=0.01$ , $p=0.93$ )				
Australia	728	72.0	12684	71.9
Overseas	283	28.0	4964	28.1

(continued)

**Table 2.2 (continued): Comparison of BEACH participants and all active recognised GPs in Australia (the sample frame)**

Variable	BEACH <sup>(a)(b)</sup>		Australia <sup>(a)(c)</sup>	
	Number	Per cent of GPs	Number	Per cent of GPs
State ( $\chi^2=26.9, p<0.001$ )				
New South Wales	407	40.0	5,997	34.0
Victoria	193	19.0	4,389	24.9
Queensland	197	19.4	3,287	18.6
South Australia	77	7.6	1,480	8.4
Western Australia	88	8.7	1,619	9.2
Tasmania	26	2.6	480	2.7
Australian Capital Territory	21	2.1	278	1.6
Northern Territory	8	0.8	118	0.7
RRMA ( $\chi^2=3.8, p=0.70$ )				
Capital	702	69.1	11,743	66.5
Other metropolitan	69	6.8	1,369	7.8
Large rural	58	5.7	1,109	6.3
Small rural	61	6.0	1,161	6.6
Other rural	113	11.1	1,988	11.3
Remote centre	5	0.5	125	0.7
Other remote	8	0.8	153	0.9

(a) Missing data removed.

(b) Data drawn from the BEACH GP profile completed by each participating GP.

(c) All GPs who claimed at least 375 A1 Medicare items during the most recent 3-month Medicare Australia data period. Data provided by the Primary Care Division of the Australian Government Department of Health and Ageing.

Note: RRMA—Rural, Remote and Metropolitan Area classification.

## Weighting the data

**Activity weights:** In BEACH each GP provides details of 100 consecutive encounters. There is considerable variation in the number of services provided by different GPs in a given year. Encounters were therefore assigned an additional weight that was directly proportional to how busy the recording GP was. GP activity level was measured as the number of Medicare A1 items claimed by the GP in the previous 12 months (data supplied by DoHA).

**Age-sex weights:** In most years, including 2005–06, BEACH has had an under-representation of young GPs. In order to achieve comparable estimates and precision, we applied GP age–sex and activity level weights to the 2005–06 data in post-stratification weighting, as we have done in previous years.

**Total weights:** The final weighted estimates were calculated by multiplying raw rates by the GP age–sex weight and the GP sampling fraction of services in the previous 12 months. Table 2.3 shows the precision ratio calculated before and after weighting the data.

## Representativeness of the final encounter sample

BEACH aims to gain a representative sample of GP-patient encounters. To assess the representativeness of the final weighted sample of encounters, the age-sex distribution of patients at BEACH A1 Medicare-claimable encounters was compared with that of all encounters claimed in the 2005–06 study period (data provided by DoHA) as Medicare A1 items of service.

As shown in Table 2.3, there is an excellent fit of the MBS and BEACH age and sex distribution both with and without weighting, with no age-sex category varying by more than 10% from the population distribution. The range of raw precision ratios (0.9–1.1) indicates that the BEACH sample of encounters is a good representation of Australian GP-patient encounters. After weighting, the precision ratios improved slightly in some aspects, but remained within the 0.9–1.1 range.

**Table 2.3: Age-sex distribution of patients at BEACH and MBS A1 services**

Variable	BEACH <sup>(a)</sup>		Australia <sup>(b)</sup>	Precision ratios	
	Number	Per cent	Per cent	Raw <sup>(a)</sup>	Weighted <sup>(c)</sup>
Male					
<1 year	1,030	1.3	1.2	0.9	0.9
1–4 years	2,061	2.5	2.7	1.1	1.1
5–14 years	2,607	3.2	3.5	1.1	1.0
15–24 years	2,670	3.3	3.4	1.0	0.9
25–44 years	6,792	8.4	8.9	1.1	1.0
45–64 years	9,160	11.3	11.7	1.0	1.0
65–74 years	4,437	5.5	5.7	1.0	1.0
75+ years	3,831	4.7	4.9	1.0	1.0
Female					
<1 year	903	1.1	1.0	0.9	1.0
1–4 years	1,743	2.1	2.4	1.1	1.1
5–14 years	2,490	3.1	3.3	1.1	1.0
15–24 years	5,084	6.3	5.9	0.9	1.0
25–44 years	12,620	15.5	14.8	1.0	1.0
45–64 years	13,505	16.6	15.5	0.9	1.0
65–74 years	5,590	6.9	6.7	1.0	1.0
75+ years	6,705	8.3	8.4	1.0	1.1

(a) Unweighted data, A1 items only, excluding encounters with patients who hold a DVA Repatriation health card.

(b) Data provided by the Primary Care Division of the Australian Government Department of Health and Ageing.

(c) Calculated from BEACH weighted data, excluding encounters with patients who hold a DVA Repatriation health card.

Note: A1 Medicare services—see Glossary. Only encounters with a valid age and sex are included in the comparison.

## The weighted data set

The final unweighted data set from the eighth year of collection contained encounters, reasons for encounters, problems and management/treatments. The apparent number of encounters and medications increased after weighting, whereas reasons for encounter, problems managed, the numbers of referrals, imaging and pathology all decreased after weighting. Raw and weighted totals for each data element are shown in Table 2.4.



**Table 2.4: The BEACH data set**

Variable	Raw	Weighted
General practitioners	1,017	1,017
Encounters	101,700	101,993
Reasons for encounter	154,653	153,309
Problems managed	152,802	149,088
Medications	105,340	106,493
Other treatments	50,517	47,847
Referrals	12,901	12,235
Imaging	9,227	9,003
Pathology	42,854	39,357

## 2.2 The general practitioners

All participants returned a GP profile questionnaire, although some were incomplete. The results are provided in Table 2.5. Of the 953 participants:

- 63% were male and almost three-quarters were 45 years or older, including almost 40% aged 55 years or more
- more than half had been in general practice for more than 20 years
- more than half were in a practice of five or more GPs and 13% were in solo practice
- 72% of GPs had graduated in Australia
- 69% practised in capital cities
- 28% conducted some consultations in a language other than English
- 41% were Fellows of the Royal Australian College of General Practitioners
- 84% worked in accredited practices
- 60% worked in practices that employed practice nurses
- 42% spent more than 40 hours each week on direct patient care services
- nearly half had provided care in a residential aged care facility in the previous month
- one in ten had worked as a salaried/sessional hospital medical officer at some time in the previous month
- almost half provided their own or cooperative after-hours care and half employed a deputising service for after-hours patient care
- about one-quarter bulk-billed Medicare for all patients; 44% bulk-billed for all consultations with pensioner/Commonwealth concession card holders and one-third bulk-billed for all consultations with children
- half worked in a teaching practice for undergraduates, for registrars, or for both.

**Table 2.5: Characteristics of participating GPs**

<b>GP characteristic</b>	<b>Number<sup>(a)</sup></b>	<b>Per cent of GPs<sup>(a)</sup> (n=1,017)</b>
Sex Male	639	62.8
Female	378	37.2
Age (missing=18)		
<35 years	47	4.7
35–44 years	223	22.3
45–54 years	342	34.2
55+ years	387	38.7
Years in general practice (missing=13)		
<2 years	6	0.6
2–5 years	49	4.9
6–10 years	121	12.1
11–19 years	241	24.0
20+ years	587	58.5
Size of practice (missing=9)		
Solo	132	13.1
2–4 GPs	355	35.2
5+ GPs	521	51.7
Practice location by RRMA (missing=1)		
Capital	702	69.1
Other metropolitan	69	6.8
Large rural	58	5.7
Small rural	61	6.0
Other rural	113	11.1
Remote central	5	0.5
Other remote, offshore	8	0.8
Practice location by ASGC Remoteness structure (missing=0)		
Major cities	733	72.1
Inner regional	191	18.8
Outer regional	79	7.8
Remote	8	0.8
Very remote	6	0.6
Place of graduation (missing=6)		
Australia	728	72.0
United Kingdom	82	8.1
Asia	110	10.9
Europe	21	2.1
Africa	45	4.5
New Zealand	19	1.9
Other	6	0.6

*(continued)*

**Table 2.5 (continued): Characteristics of participating GPs**

<b>GP characteristic</b>	<b>Number<sup>(a)</sup></b>	<b>Per cent of GPs<sup>(a)</sup> (n=1,017)</b>
Consult in languages other than English (missing=9)	281	27.9
<25%	211	21.0
25–50%	36	3.6
>50%	34	3.4
Currently in general practice training program (missing=13)	26	2.6
Department of Veterans' Affairs registered (missing=25)	901	90.8
Fellow of RACGP (missing=9)	408	40.7
Accredited practice (missing=10)	847	84.0
Practice nurse at major practice address (missing=17)	594	59.4
Sessions per week (missing=6)		
<6 per week	175	17.3
6–10 per week	715	70.7
11+ per week	121	12.0
Direct patient care hours (worked) per week (missing=34)		
≤ 10 hours	8	0.8
11–20 hours	96	9.8
21–40 hours	463	47.1
41–60 hours	383	39.0
60+ hours	33	3.4
Patient care provided in previous month (missing=22)		
As a locum	23	2.3
In a deputising service	20	2.0
In a residential aged care facility	459	46.1
As a salaried/sessional hospital medical officer	96	9.7
After-hours arrangements (missing=14)		
Own or cooperative	475	47.4
Deputising service	509	50.8
Bulk-billing (missing=15)		
All patients	272	27.2
All pension/Commonwealth concession card holders	442	44.1
Some pension/Commonwealth concession card holders	226	22.6
All children	330	32.9
Some children	266	26.6
Selected other patients	577	57.6
Major practice a teaching practice (missing=13)		
Not a teaching practice	499	49.7
Yes—for undergraduates only	240	23.9
Yes—for GP registrars only	88	8.8
Yes—for both undergraduates and registrars	177	17.6

(a) Missing data removed.

Note: GP—general practitioner; RRMA—Rural, Remote and Metropolitan Areas classification; ASGC—Australian Standard Geographical Classification; RACGP—Royal Australian College of General Practitioners.

## Computer use at GP practices

Table 2.6 shows the proportion of participating GPs who worked in a practice in which computers were used for each of five listed activities.

- Only 5.4% of GPs worked in a non-computerised practice.
- Computers were used mainly for prescribing and billing purposes.
- Almost three-quarters had computers available for administrative processes.
- Almost three-quarters had computers available for medical records.
- More than two-thirds were in practices that had Internet and/or email available.

**Table 2.6: Computer use at major practice address**

Computer use	Number	Per cent of GPs ( <i>n</i> =1,017) <sup>(a)</sup>	Per cent of GPs with computers ( <i>n</i> =962) <sup>(a)</sup>
Not at all	55	5.4	—
Billing	818	80.4	85.0
Prescribing	844	83.0	87.7
Medical records	744	73.2	77.3
Other administrative	742	73.0	77.1
Internet/email	705	69.3	73.3
Missing	19	—	—

(a) Missing data removed.

Table 2.7 lists the top ten combinations of computer use by participants' practices.

- Half the GPs indicated that their practice used computers for all five listed purposes—billing, prescribing, medical records, other administrative purposes and Internet/email.
- Nearly 60% of the GPs reported computer use for both medical records and Internet/email purposes.
- Prescribing was the only use included in all of the top ten combinations.
- Within other top ten combinations of purposes for computer use, billing was the second most frequently available function, with medical records and Internet/email usage ranking equal third.

Note these results refer to computer use at practice level. Information about reported individual GP use of computers at the practice can be found in Henderson et al. 'Extent and utilisation of computerisation in Australian general practice' in the Medical Journal of Australia.<sup>26</sup>

**Table 2.7: Top ten combinations of computer use for GPs**

Combination	Number	Per cent of GPs (n=1,017) <sup>(a)</sup>	Per cent of GPs with computers (n=962) <sup>(a)</sup>
All five uses	521	51.2	54.2
Billing + prescribing + medical records + other administrative	70	6.9	7.3
Billing + prescribing + other admin + Internet/email	45	4.4	4.7
Billing + prescribing + medical records	39	3.8	4.1
Billing + prescribing + medical records + Internet/email	36	3.5	3.7
Billing + prescribing	21	2.1	2.2
Prescribing + medical records + other admin + Internet/email	18	1.8	1.9
Billing + prescribing + other administrative	17	1.7	1.8
Billing + prescribing + Internet/email	17	1.7	1.8
Prescribing + medical records + Internet/email	16	1.6	1.7

(a) Missing data removed.

## 2.3 The encounters

In 2005–06 there were 101,993 encounters (weighted data) from 1,017 GPs. The content of these encounters is summarised in Table 2.8. Reasons for encounter (RFEs) and problems managed are expressed as rates per 100 encounters. Each management action is presented in terms of both a rate per 100 encounters and a rate per 100 problems managed, with 95% confidence limits.

- On average, patients put forward 1.5 RFEs and GPs managed about 1.5 problems per encounter (146 per 100 encounters).
- New problems accounted for nearly 40% of all problems, being managed at a rate of 57 per 100 encounters.
- Chronic problems accounted for 35% of all problems managed at encounter.
- Medications were the most common treatment choice (71 per 100 problems managed) and most of these were medications prescribed (rather than supplied or advised), at a rate of 59 per 100 problems managed.
- Clinical treatments (such as advice and counselling) were provided at a rate of 20 per 100 problems.
- The patient was referred for care elsewhere 8 times for every 100 problems.
- Twenty-six pathology tests were ordered for every 100 problems managed.

**Table 2.8: Summary of morbidity and management**

Variable	Number	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL	Rate per 100 problems (n=149,088)	95% LCL	95% UCL
General practitioners	1,017	—	—	—	—	—	—
Encounters	101,993	—	—	—	—	—	—
Reasons for encounter	153,309	150.3	148.4	152.2	—	—	—
Problems managed	149,088	146.2	144.2	148.2	—	—	—
New problems	58,002	56.9	55.5	58.2	38.9	37.9	39.9
Work-related	2,876	2.8	2.6	3.1	1.9	1.8	2.1
Chronic problems	51,946	50.9	49.1	52.8	34.8	33.9	35.8
Medications	106,493	104.4	101.8	107.0	71.4	69.9	72.9
Prescribed	87,544	85.8	83.3	88.4	58.7	57.2	60.3
GP-supplied	9,950	9.8	9.0	10.5	6.7	6.2	7.2
Advised OTC	8,999	8.8	8.2	9.5	6.0	5.6	6.5
Other treatments	44,504	43.6	41.5	45.8	29.9	28.5	31.2
Clinical*	29,785	29.2	27.3	31.1	20.0	18.8	21.2
Procedural*	14,719	14.4	13.7	15.1	9.9	9.4	10.3
Referrals	12,233	12.0	11.5	12.5	8.2	7.9	8.5
Specialist*	2,932	2.9	2.7	3.1	2.0	1.8	2.1
Allied health services*	8,342	8.2	7.8	8.5	5.6	5.4	5.8
Hospital*	192	0.2	0.2	0.2	0.1	0.1	0.2
Emergency department*	373	0.4	0.3	0.4	0.3	0.2	0.3
Other medical services*	334	0.3	0.3	0.4	0.2	0.2	0.3
Other referrals*	60	0.1	0.0	0.1	0.0	0.0	0.1
Pathology	39,358	38.6	36.9	40.3	26.4	25.3	27.5
Imaging	9,003	8.8	8.4	9.2	6.0	5.8	6.3
Other investigations	1,023	1.0	0.9	1.1	0.0	0.0	0.0

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: LCL—lower confidence limit; UCL—upper confidence limit; OTC—over-the-counter.

## Encounter type

During the first seven years of the BEACH program, where a Medicare item number was claimable for the encounter the GP was instructed to record only one item number. Where multiple item numbers (for example, an A1 item such as ‘standard surgery consultation’ and a procedural item number) were claimable for an encounter the GP was instructed to record the lower of the item numbers (usually an A1 item number).

Changes to the BEACH form were made in order to capture practice nurse activity associated with the GP–patient consultations for the 2005–06 BEACH year. One of these changes was to allow GPs to record multiple (up to three) Medicare item numbers per encounter.

Table 2.9 provides an overview of the MBS item numbers recorded in BEACH in 2005–06. Overall there were 89,063 item numbers recorded. At three-quarters of encounters only one item number was recorded.

**Table 2.9: Overview of MBS items recorded**

Variable	Number	Per cent
Encounters at which one MBS item was recorded	67,393	75.7
Encounters at which two MBS items were recorded	20,516	23.0
Encounters at which three MBS items were recorded	1,154	1.3
<b>Total encounters at which at least one item was recorded</b>	<b>89,063</b>	<b>100.0</b>

Table 2.10 reports the breakdown of encounter type (by payment source, place and type) counting a single Medicare item number per encounter (where applicable), the item number selected being the lowest of those recorded. This provides comparable data to that reported in previous years. This table is used as the comparison in Chapter 3.

- Direct encounters (patient was seen by the GP) accounted for 97.8% of all encounters.
- Direct encounters where no charge was made arose on average once per 200 encounters.
- About 96% of all direct encounters were claimable either through Medicare or the Australian Department of Veterans' Affairs (DVA).
- Standard surgery consultations accounted for the majority (83.7%) of Medicare/DVA claimable consultations.
- Almost one in ten Medicare/DVA encounters were long surgery consultations.
- Short and prolonged surgery consultations, home visits and residential aged care consultations were relatively rare, and encounters occurring in hospitals insignificant.
- Encounters payable through workers compensation accounted for 2.3% of encounters.
- Chronic disease management items, case conferences and health assessments were all recorded rarely.

Note that encounters listed as health assessments, chronic disease management visits, case conferences, or encounters involving incentive items or other items may have taken place either at the GPs' consulting rooms, or at the consulting rooms of other health professionals, at residential aged care facilities, or at the patient's home.

Table 2.11 provides the distribution of all Medicare item numbers recorded across Medicare item number groups. Overall, there were 111,888 MBS item numbers recorded in BEACH in 2005–06. An average of 1.3 items was recorded at encounters where at least one MBS item was recorded.

Surgery consultations (including short, standard, long and prolonged) accounted for three-quarters of all MBS items recorded in BEACH. Items for surgery consultations were the most commonly recorded type of item number, at 95.1% of the encounters where at least one item was recorded (Table 2.11).

The second most commonly recorded were items for bulk-billed services, which accounted for 16.9% of all items recorded. Items for hospital, residential aged care and home visits were recorded at one in every fifty encounters. Practice nurse items were recorded at 1.5% of all encounters (Table 2.11). Section 2.11, Table 2.47 provides a more detailed breakdown of practice nurse item numbers.

**Table 2.10: Type of encounter**

Variable	Number	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL	Per cent of direct encounters (n=92,617)	Per cent of Medicare-paid (n=89,011)
General practitioners	1,017	—	—	—	—	—
Direct encounters	92,617	97.8	97.5	98.1	100.0	—
No charge	431	0.5	0.4	0.5	0.5	—
MBS items of service	89,011	94.0	93.4	94.6	96.1	100.0
Short surgery consultations	855	0.9	0.8	1.1	—	1.0
Standard surgery consultations	74,477	78.7	77.5	79.8	—	83.7
Long surgery consultations	8,739	9.2	8.6	9.9	—	9.8
Prolonged surgery consultations	588	0.6	0.5	0.7	—	0.7
Home visits	1,078	1.1	0.9	1.4	—	1.2
Hospital	171	0.2	0.1	0.3	—	0.2
Residential aged care facility	1,138	1.2	0.9	1.5	—	1.3
Health assessments	162	0.2	0.1	0.2	—	0.2
Chronic disease management items	258	0.3	0.2	0.3	—	0.3
Case conferences	2	0.0 <sup>‡</sup>	0.0	0.0	—	0.0
Incentive payments	139	0.1	0.1	0.2	—	0.2
Other items	1,405	1.5	1.3	1.7	—	1.6
Workers compensation	2,190	2.3	2.1	2.5	2.4	—
Other paid (hospital, state, etc.)	995	1.1	0.6	1.5	1.1	—
Indirect encounters <sup>(b)</sup>	2,066	2.2	1.9	2.5	—	—
Missing	7,310	—	—	—	—	—
<b>Total encounters</b>	<b>101,993</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>

(a) Missing data removed from analysis.

(b) If the 'Patient not seen' box was ticked, and MBS items were recorded, the encounters were regarded as indirect encounters. Eleven of these encounters involved chronic disease management or case conference items.

‡ Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters.

Note: LCL—lower confidence limit; UCL—upper confidence limit; MBS—Medicare Benefits Schedule.



**Table 2.11: Medicare item number distribution across item number groups**

Variable	All MBS items <sup>(a)</sup>		At least one item recorded <sup>(b)</sup>			
	Number	Per cent	Number	Per cent	95% LCL	95% UCL
Surgery consultations	84,659	75.7	84,659	95.1	94.5	95.6
Hospital, residential aged care and home visits	2,388	2.1	2,388	2.7	2.2	3.2
Health assessments	182	0.2	182	0.2	0.2	0.3
Chronic disease management items (including case conferences)	432	0.4	381	0.4	0.3	0.5
Incentive payments	146	0.1	146	0.2	0.1	0.2
Acupuncture	232	0.2	232	0.3	0.2	0.4
Bulk-billed services <sup>(c)</sup>	18,857	16.9	18,857	21.2	19.1	23.3
Practice nurse services	1,695	1.5	1,682	1.9	1.6	2.2
Diagnostic procedures and investigations	464	0.4	462	0.5	0.4	0.6
Therapeutic procedures	487	0.4	486	0.5	0.4	0.7
Surgical operations	1,334	1.2	1,304	1.5	1.3	1.6
Diagnostic imaging services	8	0.0	8	0.0	0.0	0.0
Pathology services	300	0.3	295	0.3	0.2	0.4
Other items	703	0.6	394	0.4	0.3	0.6
<b>Total items</b>	<b>111,888</b>	<b>100.0</b>	—	—	—	—

(a) Up to 3 MBS items could be recorded at each encounter. Missing data removed from analysis.

(b) Identifies encounters where at least one item from a MBS group was recorded. Per cent base  $n=89,063$ .

(c) Includes 15 encounters with only a bulk-billing service item recorded at the encounter.

## 2.4 The patients

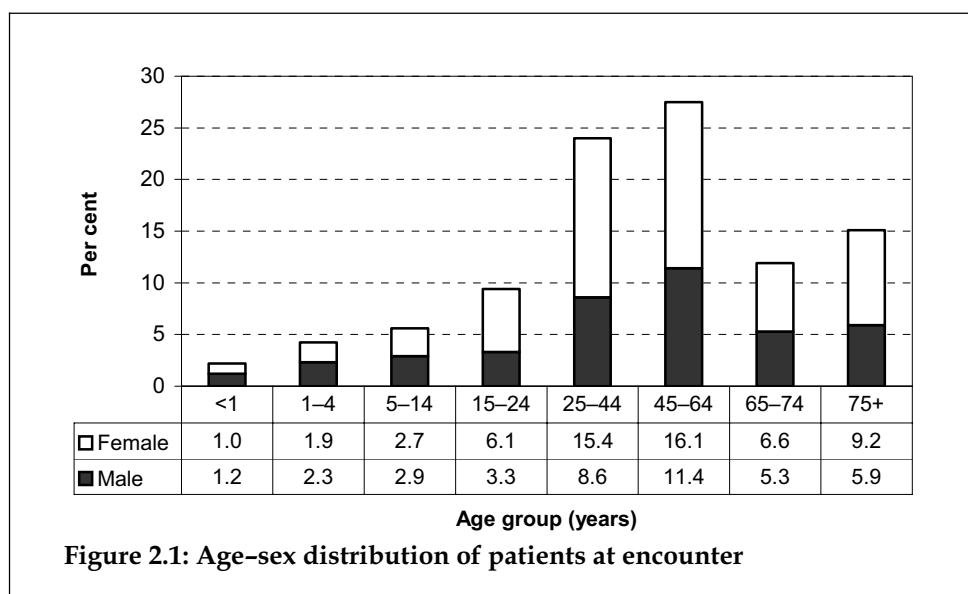
### Age–sex distribution of patients at encounter

The age–sex distribution of patients at the 101,993 encounters is shown in Figure 2.1. Females accounted for the greater proportion of encounters (56.0%). This was reflected across all age groups except for children aged less than 15 years, and was greatest among the younger adults (15–24 years and 25–44 years) (Figure 2.1).

### Other patient characteristics

Table 2.12 provides a view of other characteristics of the patients. In summary:

- the patient was new to the practice at one in ten encounters (9.1%)
- over 40% of encounters were with patients who held a Commonwealth concession card and 3.1% were with persons who held a Repatriation health card
- at one in ten encounters the patient was from a non-English-speaking background
- at 0.9% of encounters the patient identified themselves as an Aboriginal person or Torres Strait Islander.



Note: Missing data removed. The distributions will not agree perfectly with those in Table 2.12 because of to missing data in either age or sex fields.

**Table 2.12: Characteristics of the patients at encounters**

Patient variable	Number	Per cent of encounters (n=101,993) <sup>(a)</sup>	95% UCL	95% UCL
<b>Sex (Missing=788)</b>				
Males	44,486	44.0	43.2	44.7
Females	56,719	56.0	55.3	56.8
<b>Age group (Missing=769)</b>				
<1 year	2,098	2.1	1.9	2.2
1-4 years	4,301	4.2	4.0	4.5
5-14 years	6,100	6.0	5.7	6.3
15-24 years	9,486	9.4	9.0	9.8
25-44 years	24,226	23.9	23.2	24.7
45-64 years	27,980	27.6	27.0	28.2
65-74 years	12,302	12.2	11.7	12.6
75+ years	14,731	14.6	13.7	15.4
<b>Other characteristics</b>				
New patient to practice	9,098	9.1	8.3	9.9
Commonwealth concession card	42,983	42.1	40.6	43.7
Repatriation health card	3,141	3.1	2.8	3.3
Non-English-speaking background	10,000	9.8	8.2	11.4
Aboriginal person	723	0.7	0.5	0.9
Torres Strait Islander	133	0.1	0.0	0.3
Aboriginal person and Torres Strait Islander	29	0.0 <sup>‡</sup>	—	—

(a) Missing data removed.

‡ Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters. The confidence interval could not be calculated because of the small sample size.

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## Patient reasons for encounter

International interest in reasons for encounter (RFEs) has been developing over the past three decades. RFEs reflect the patient's demand for care and can provide an indication of service utilisation patterns, which may benefit from intervention on a population level.<sup>28</sup>

RFEs are those concerns and expectations that patients bring to the GP. Participating GPs were asked to record at least one and up to three patient RFEs in words as close as possible to those used by the patient, before the diagnostic or management process had begun. These reflect the patient's view of their reasons for consulting the GP. RFEs can be expressed in terms of one or more symptoms (e.g. 'itchy eyes', 'chest pain'), in diagnostic terms (e.g. 'about my diabetes', 'for my hypertension'), a request for a service ('I need more scripts', 'I want a referral'), an expressed fear of disease, or a need for a check-up.

Patient RFEs have a many-to-many relationship to problems managed; that is, the patient may describe multiple symptoms that relate to a single problem managed at the encounter or may describe one RFE that relates to multiple problems.

## Number of reasons for encounter

Table 2.13 shows the number of RFEs presented by patients at encounters. At 60% of encounters only one RFE was recorded. Patients presented on average with 150.3 RFEs per 100 encounters, or 1.5 RFEs per encounter (Table 2.14).

**Table 2.13: Number of patient reasons for encounter**

Number of RFEs at encounter	Number of encounters (n=101,993)	Per cent of encounters	95% LCL	95% UCL
One RFE	62,142	60.9	59.7	62.2
Two RFEs	28,386	27.8	27.1	28.5
Three RFEs	11,465	11.2	10.5	11.9
<b>Total</b>	101,993	100.0	—	—

Note: RFEs—reasons for encounter; LCL—lower confidence limit; UCL—upper confidence limit.

## Reasons for encounter by ICPC-2 chapter

The distribution of patient RFEs by ICPC-2 chapter and the most common RFEs within each chapter are presented in Table 2.14. Each chapter and individual RFE is expressed as a percentage of all RFEs and as a rate per 100 encounters with 95% confidence limits.

**Table 2.14: Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter**

Reasons for encounter	Number	Per cent of total RFEs <sup>(a)</sup> (n=153,309)	Rate per 100 encounters <sup>(b)</sup> (n=101,993)	95% LCL	95% UCL
<b>General &amp; unspecified</b>	<b>37,041</b>	<b>24.2</b>	<b>36.3</b>	<b>35.2</b>	<b>37.4</b>
Prescription NOS	8,139	5.3	8.0	7.5	8.5
Results tests/procedures NOS	5,421	3.5	5.3	5.0	5.6
Check-up—general*	3,697	2.4	3.6	3.4	3.9
Immunisation/vaccination—general	2,370	1.5	2.3	2.1	2.6
Fever	2,236	1.5	2.2	1.9	2.5
Administrative procedure NOS	1,457	1.0	1.4	1.3	1.6
Weakness/tiredness	1,294	0.8	1.3	1.2	1.4
Blood test NOS	1,179	0.8	1.2	1.0	1.3
Chest pain NOS	1,134	0.7	1.1	1.0	1.2
Other reason for encounter NEC	1,013	0.7	1.0	0.8	1.1
Other referrals NEC NOS	840	0.5	0.8	0.7	0.9
Trauma/injury, NOS	820	0.5	0.8	0.7	0.9
Observation/health educat/advice/diet NOS	756	0.5	0.7	0.7	0.8
<b>Respiratory</b>	<b>22,351</b>	<b>14.6</b>	<b>21.9</b>	<b>21.1</b>	<b>22.7</b>
Cough	6,533	4.3	6.4	6.0	6.8
Throat complaint	3,328	2.2	3.3	3.0	3.5
Upper respiratory tract infection	2,399	1.6	2.4	2.0	2.7
Immunisation/vaccination—respiratory	2,299	1.5	2.3	1.9	2.6
Nasal congestion/sneezing	1,364	0.9	1.3	1.1	1.6
Asthma	815	0.5	0.8	0.7	0.9
Shortness of breath, dyspnoea	775	0.5	0.8	0.7	0.8
Influenza	726	0.5	0.7	0.5	0.9
<b>Musculoskeletal</b>	<b>16,690</b>	<b>10.9</b>	<b>16.4</b>	<b>15.8</b>	<b>16.9</b>
Back complaint*	3,515	2.3	3.5	3.2	3.7
Knee complaint	1,414	0.9	1.4	1.3	1.5
Shoulder complaint	1,149	0.7	1.1	1.0	1.2
Foot/toe complaint	1,124	0.7	1.1	1.0	1.2
Leg/thigh complaint	1,045	0.7	1.0	0.9	1.1
Neck complaint	965	0.6	1.0	0.8	1.1
Injury musculoskeletal NOS	858	0.6	0.8	0.7	0.9
<b>Skin</b>	<b>15,321</b>	<b>10.0</b>	<b>15.0</b>	<b>14.5</b>	<b>15.6</b>
Rash*	2,697	1.8	2.6	2.5	2.8
Skin complaint	1,410	0.9	1.4	1.3	1.5
Check-up—skin*	1,331	0.9	1.3	1.0	1.6
Swelling*	1,161	0.8	1.1	1.0	1.2

(continued)

**Table 2.14 (continued): Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter**

Reasons for encounter	Number	Per cent of total RFEs <sup>(a)</sup> (n=153,309)	Rate per 100 encounters <sup>(b)</sup> (n=101,993)	95% LCL	95% UCL
<b>Cardiovascular</b>	<b>10,965</b>	<b>7.2</b>	<b>10.8</b>	<b>10.2</b>	<b>11.3</b>
Check-up—cardiovascular*	5,109	3.3	5.0	4.6	5.4
Hypertension/high blood pressure*	1,890	1.2	1.9	1.6	2.1
Prescription—cardiovascular	929	0.6	0.9	0.8	1.1
<b>Digestive</b>	<b>10,111</b>	<b>6.6</b>	<b>9.9</b>	<b>9.5</b>	<b>10.3</b>
Abdominal pain*	1,837	1.2	1.8	1.7	1.9
Diarrhoea	1,371	0.9	1.3	1.2	1.4
Vomiting	966	0.6	1.0	0.8	1.0
<b>Psychological</b>	<b>7,990</b>	<b>5.2</b>	<b>7.8</b>	<b>7.3</b>	<b>8.3</b>
Depression*	1,908	1.2	1.9	1.7	2.0
Sleep disturbance	1,184	0.8	1.2	1.0	1.3
Anxiety*	1,182	0.8	1.2	1.1	1.3
<b>Endocrine &amp; metabolic</b>	<b>6,307</b>	<b>4.1</b>	<b>6.2</b>	<b>5.8</b>	<b>6.5</b>
Prescription—endocrine/metabolic	1,028	0.7	1.0	0.9	1.1
Diabetes (non-gestational)*	1,036	0.7	1.0	0.9	1.1
Check-up—endocrine/metabolic*	732	0.5	0.7	0.6	0.8
<b>Female genital system</b>	<b>5,221</b>	<b>3.4</b>	<b>5.1</b>	<b>4.8</b>	<b>5.5</b>
Check-up/Pap smear*	1,932	1.3	1.9	1.7	2.1
Menstrual problems*	753	0.5	0.7	0.6	0.8
<b>Neurological</b>	<b>5,046</b>	<b>3.3</b>	<b>4.9</b>	<b>4.7</b>	<b>5.2</b>
Headache	1,711	1.1	1.7	1.6	1.8
Vertigo/dizziness	1,168	0.8	1.1	1.1	1.2
<b>Ear</b>	<b>3,956</b>	<b>2.6</b>	<b>3.9</b>	<b>3.7</b>	<b>4.1</b>
Ear pain	1,631	1.1	1.6	1.5	1.7
<b>Pregnancy &amp; family planning</b>	<b>3,423</b>	<b>2.2</b>	<b>3.4</b>	<b>3.1</b>	<b>3.6</b>
Oral contraception*	814	0.5	0.8	0.7	0.9
Pre/postnatal check-up*	810	0.5	0.8	0.7	0.9
<b>Eye</b>	<b>2,809</b>	<b>1.8</b>	<b>2.8</b>	<b>2.6</b>	<b>2.9</b>
<b>Urology</b>	<b>2,658</b>	<b>1.7</b>	<b>2.6</b>	<b>2.5</b>	<b>2.8</b>
<b>Male genital system</b>	<b>1,322</b>	<b>0.9</b>	<b>1.3</b>	<b>1.2</b>	<b>1.4</b>
<b>Blood</b>	<b>1,179</b>	<b>0.8</b>	<b>1.2</b>	<b>1.0</b>	<b>1.3</b>
<b>Social</b>	<b>918</b>	<b>0.6</b>	<b>0.9</b>	<b>0.8</b>	<b>1.0</b>
<b>Total RFEs</b>	<b>153,309</b>	<b>100.0</b>	<b>150.3</b>	<b>148.4</b>	<b>152.2</b>

(a) Only those individual RFEs accounting for  $\geq 0.5\%$  of total RFEs are included.

(b) Figures do not total 100 as more than one RFE can be recorded at each encounter.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: RFEs—reasons for encounter; LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified; NEC—not elsewhere classified; educat—education.

## Distribution of RFEs by ICPC-2 component

The distribution of patient RFEs by ICPC-2 component is presented in Table 2.15 expressed as a percentage of all RFEs and as a rate per 100 encounters with 95% confidence limits.

**Table 2.15: Distribution of RFEs by ICPC-2 component**

ICPC-2 component	Number	Per cent of total RFEs (n=153,309)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Symptoms & complaints	71,070	46.4	69.7	67.9	71.5
Diagnoses, diseases	27,319	17.8	26.8	25.4	28.2
Diagnostic & preventive procedures	24,831	16.2	24.4	23.4	25.3
Medications, treatments & therapeutics	14,692	9.6	14.4	13.7	15.1
Referral & other RFE	7,079	4.6	6.9	6.5	7.4
Results	6,618	4.3	6.5	6.1	6.9
Administrative	1,700	1.1	1.7	1.5	1.8
<b>Total RFEs</b>	<b>153,309</b>	<b>100.0</b>	<b>150.3</b>	<b>148.4</b>	<b>152.2</b>

(a) Figures do not total 100 as more than one RFE can be recorded at each encounter.

Note: RFEs—reasons for encounter; LCL—lower confidence limit; UCL—upper confidence limit.

## Most frequent patient reasons for encounter

The 30 most commonly recorded RFEs, listed in order of frequency in Table 2.16, accounted for more than half of all RFEs. In this analysis the specific ICPC-2 chapter to which an across-chapter RFE belongs is disregarded, so that, for example, 'check-up—all' includes all check-ups from all body systems irrespective of whether the type was specified.

**Table 2.16: Most frequent patient reasons for encounter**

Patient reason for encounter	Number	Per cent of total RFEs (n=153,309)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Check-up—all*	14,402	9.4	14.1	13.4	14.8
Prescription—all*	12,260	8.0	12.1	11.4	12.7
Test results*	6,618	4.3	6.5	6.1	6.9
Cough	6,533	4.3	6.4	6.0	6.8
Immunisation/vaccination—all*	4,872	3.2	4.8	4.4	5.2
Back complaint*	3,515	2.3	3.5	3.2	3.7
Throat complaint	3,328	2.2	3.3	3.0	3.5
Rash*	2,697	1.8	2.6	2.5	2.8
Upper respiratory tract infection	2,399	1.6	2.4	2.0	2.7
Fever	2,236	1.5	2.2	1.9	2.5
Depression*	1,908	1.2	1.9	1.7	2.0
Hypertension/high blood pressure*	1,890	1.2	1.9	1.6	2.1
Abdominal pain*	1,837	1.2	1.8	1.7	1.9
Headache	1,711	1.1	1.7	1.6	1.8

(continued)

**Table 2.16 (continued): Most frequent patient reasons for encounter**

Patient reason for encounter	Number	Per cent of total RFEs (n=153,309)	Rate per100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Ear pain	1,631	1.1	1.6	1.5	1.7
Administrative procedure NOS	1,457	1.0	1.4	1.3	1.6
Knee complaint	1,414	0.9	1.4	1.3	1.5
Skin complaint	1,410	0.9	1.4	1.3	1.5
Diarrhoea	1,371	0.9	1.3	1.2	1.4
Nasal congestion/sneezing	1,364	0.9	1.3	1.1	1.6
Weakness/tiredness	1,294	0.8	1.3	1.2	1.4
Blood test NOS	1,179	0.8	1.2	1.0	1.3
Anxiety*	1,182	0.8	1.2	1.0	1.3
Sleep disturbance	1,184	0.8	1.2	1.1	1.3
Swelling*	1,161	0.8	1.1	1.0	1.2
Vertigo/dizziness	1,168	0.8	1.1	1.1	1.2
Shoulder complaint	1,149	0.8	1.1	1.0	1.2
Chest pain NOS	1,134	0.7	1.1	1.0	1.2
Foot/toe complaint	1,124	0.7	1.1	1.0	1.2
Leg/thigh complaint	1,045	0.7	1.0	0.9	1.1
<i>Subtotal</i>	<i>86,474</i>	<i>56.4</i>	—	—	—
<b>Total RFEs</b>	<b>153,309</b>	<b>100.0</b>	<b>150.3</b>	<b>148.4</b>	<b>152.2</b>

(a) Figures do not total 100 as more than one RFE can be recorded at each encounter. Also, only the most frequent RFEs are included.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: RFEs—reasons for encounter; LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified.

## 2.5 Problems managed

A 'problem managed' is a formal statement of the provider's understanding of a health problem presented by the patient, family or community, and can be described in terms of a disease, symptom or complaint, social problem or ill-defined condition managed at the encounter. As GPs were instructed to record each problem to the most specific level possible from the information available, the problem managed may at times be limited to the level of a presenting symptom.

At each patient encounter, up to four problems could be recorded by the GP. A minimum of one problem was compulsory. The status of each problem to the patient—new (first presentation to a medical practitioner) or old (follow-up of previous problem)—was also indicated. The concept of a principal diagnosis, which is often used in hospital statistics, is not adopted in studies of general practice where multiple problem management is the norm rather than the exception. Further, the range of problems managed at the encounter often crosses multiple body systems and may include undiagnosed symptoms, psychosocial problems or chronic disease, which makes the designation of a principal diagnosis difficult. Thus the order in which the problems were recorded by the GP is not significant. All problems managed in general practice are included in this section including those which involved management by a practice nurse. Problems that specifically included management by a practice nurse are reported separately in Section 2.11.

There are two ways to describe the relative frequency of problems managed: as a percentage of all problems managed in the study, or as a rate of problems managed per 100 encounters. Where groups of problems are reported (e.g. cardiovascular problems), it must be remembered that more than one type of problem (e.g. hypertension and heart failure) may have been managed at a single encounter. In considering these results, the reader must be mindful that although a rate per 100 encounters for a single ungrouped problem (e.g. asthma, 2.6 per 100 encounters) can be regarded as equivalent to 'asthma is managed at 2.6% of encounters', such a statement cannot be made for grouped concepts (ICPC-2 chapters and those marked with an asterisk in the tables).

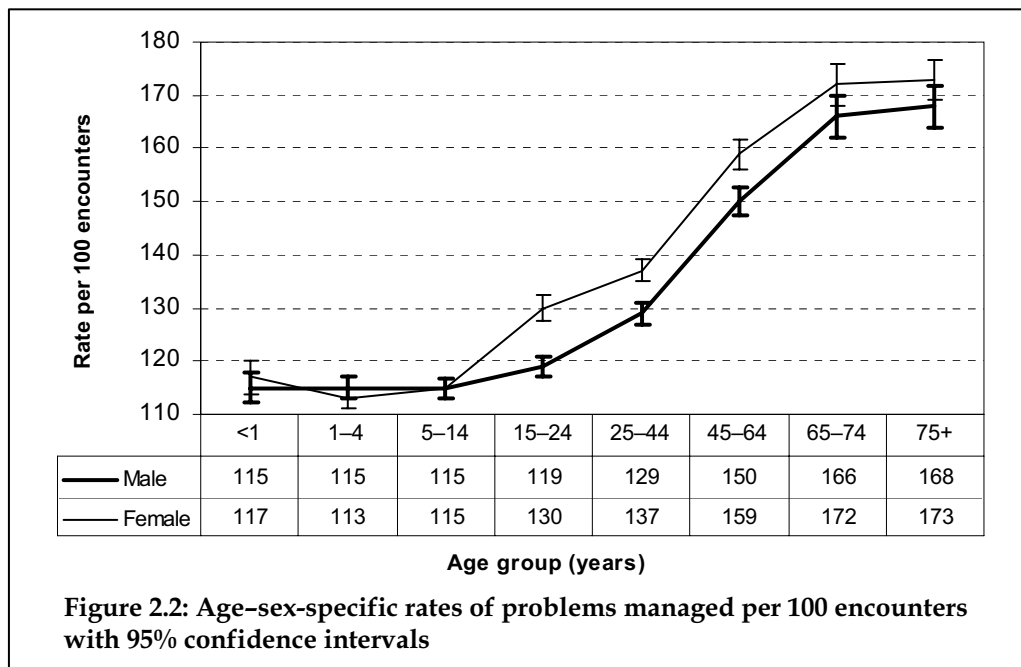
## Number of problems managed at encounter

Table 2.17 shows the number of problems managed at each encounter. Only one problem was managed at two-thirds of encounters.

**Table 2.17: Number of problems managed at an encounter**

Number of problems managed at encounter	Number of encounters	Per cent	95% LCL	95% UCL
One problem	67,687	66.4	65.1	67.6
Two problems	23,887	23.4	22.7	24.1
Three problems	8,048	7.9	7.4	8.4
Four problems	2,371	2.3	2.1	2.6
<b>Total</b>	<b>101,993</b>	<b>100.0</b>	—	—

Note: LCL—lower confidence limit; UCL—upper confidence limit.





The number of problems managed at encounters increased steadily with the age of the patient. Significantly more problems were managed overall at encounters with female patients (149.4 per 100 encounters, 95% CI: 147.2–151.6) than at those with male patients (142.1 per 100 encounters, 95% CI: 140.1–144.2). Figure 2.2 shows the age–sex-specific rates of problems managed, and demonstrates that this difference was particularly evident in the 15–24, 25–44 and 45–64 years age groups.

## Nature of morbidity

### Problems managed by ICPC-2 chapter

The frequency and the distribution of problems managed, by ICPC-2 chapter, are presented in Table 2.18. Rates per 100 encounters and the proportion of total problems are provided at the ICPC-2 chapter level and for individual problems. Only those problems accounting for at least 0.5% of all problems managed are listed in the table, in decreasing order of frequency within a chapter.

**Table 2.18: Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter**

Problem managed	Number	Per cent total problems <sup>(a)</sup> (n=149,088)	Rate per 100 encounters <sup>(b)</sup> (n=101,993)	95% LCL	95% UCL
<b>Respiratory</b>	<b>21,020</b>	<b>14.1</b>	<b>20.6</b>	<b>19.9</b>	<b>21.3</b>
Upper respiratory tract infection	6,332	4.2	6.2	5.8	6.6
Immunisation/vaccination—respiratory	2,711	1.8	2.7	2.3	3.0
Acute bronchitis/bronchiolitis	2,590	1.7	2.5	2.3	2.7
Asthma	2,319	1.6	2.3	2.1	2.4
Sinusitis	1,308	0.9	1.3	1.2	1.4
Tonsillitis*	1,108	0.7	1.1	1.0	1.2
Chronic obstructive pulmonary disease	742	0.5	0.7	0.6	0.8
<b>Musculoskeletal</b>	<b>17,527</b>	<b>11.8</b>	<b>17.2</b>	<b>16.7</b>	<b>17.7</b>
Osteoarthritis*	2,737	1.8	2.7	2.5	2.9
Back complaint*	2,698	1.8	2.6	2.5	2.8
Sprain/strain*	1,787	1.2	1.8	1.6	1.9
Fracture*	1,039	0.7	1.0	0.9	1.1
Osteoporosis	955	0.6	0.9	0.8	1.0
Injury musculoskeletal NOS	825	0.6	0.8	0.7	0.9
Bursitis/tendonitis/synovitis NOS	779	0.5	0.8	0.7	0.8
Musculoskeletal disease, other	755	0.5	0.7	0.7	0.8
<b>Cardiovascular</b>	<b>17,241</b>	<b>11.6</b>	<b>16.9</b>	<b>16.1</b>	<b>17.7</b>
Hypertension*	9,635	6.5	9.4	8.9	10.0
Ischaemic heart disease*	1,320	0.9	1.3	1.2	1.4
Cardiac check-up*	1,174	0.8	1.2	1.0	1.3
Atrial fibrillation/flutter	953	0.6	0.9	0.8	1.0

(continued)

**Table 2.18 (continued): Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter**

<b>Problem managed</b>	<b>Number</b>	<b>Per cent total problems<sup>(a)</sup> (n=149,088)</b>	<b>Rate per 100 encounters<sup>(b)</sup> (n=101,993)</b>	<b>95% LCL</b>	<b>95% UCL</b>
<b>Skin</b>	<b>16,966</b>	<b>11.4</b>	<b>16.6</b>	<b>16.1</b>	<b>17.2</b>
Contact dermatitis	1,840	1.2	1.8	1.7	1.9
Solar keratosis/sunburn	1,236	0.8	1.2	1.1	1.3
Malignant neoplasm skin	1,035	0.7	1.0	0.9	1.1
Laceration/cut	857	0.6	0.8	0.7	0.9
Skin disease, other	825	0.6	0.8	0.7	0.9
Skin injury, other	712	0.5	0.7	0.6	0.8
Dermatophytosis	693	0.5	0.7	0.6	0.7
Warts	693	0.5	0.7	0.6	0.8
<b>General &amp; unspecified</b>	<b>15,426</b>	<b>10.4</b>	<b>15.1</b>	<b>14.5</b>	<b>15.7</b>
General immunisation/vaccination	2,121	1.4	2.1	1.9	2.3
General check-up*	2,106	1.4	2.1	1.9	2.2
Medication/script/request/renew/inject NOS	1,376	0.9	1.3	1.1	1.6
Viral disease, other/NOS	1,221	0.8	1.2	1.0	1.4
Results tests/procedures NOS	1,013	0.7	1.0	0.9	1.1
<b>Endocrine &amp; metabolic</b>	<b>11,818</b>	<b>7.9</b>	<b>11.6</b>	<b>11.0</b>	<b>12.1</b>
Diabetes, non-gestational*	3,603	2.4	3.5	3.3	3.8
Lipid disorder*	3,479	2.3	3.4	3.1	3.7
<b>Psychological</b>	<b>11,286</b>	<b>7.6</b>	<b>11.1</b>	<b>10.5</b>	<b>11.7</b>
Depression*	3,688	2.5	3.6	3.4	3.8
Anxiety*	1,837	1.2	1.8	1.6	2.0
Sleep disturbance	1,621	1.1	1.6	1.5	1.7
Drug abuse	674	0.5	0.7	0.4	1.0
<b>Digestive</b>	<b>10,260</b>	<b>6.9</b>	<b>10.1</b>	<b>9.8</b>	<b>10.4</b>
Oesophageal disease	2,397	1.6	2.4	2.2	2.5
Gastroenteritis, presumed infection	1,109	0.7	1.1	1.0	1.2
<b>Female genital system</b>	<b>5,899</b>	<b>4.0</b>	<b>5.8</b>	<b>5.4</b>	<b>6.2</b>
Female genital check-up/Pap smear*	1,829	1.2	1.8	1.6	2.0
Menopausal complaint	884	0.6	0.9	0.8	0.9
Menstrual problems*	694	0.5	0.7	0.6	0.8
<b>Ear</b>	<b>4,076</b>	<b>2.7</b>	<b>4.0</b>	<b>3.8</b>	<b>4.2</b>
Acute otitis media/myringitis	1,180	0.8	1.2	1.0	1.3
<b>Pregnancy &amp; family planning</b>	<b>3,903</b>	<b>2.6</b>	<b>3.8</b>	<b>3.6</b>	<b>4.1</b>
Oral contraception*	1,219	0.8	1.2	1.1	1.3
Pregnancy*	895	0.6	0.9	0.8	1.0
Contraception, other	503	0.3	0.5	0.4	0.6

(continued)

**Table 2.18 (continued): Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter**

Problem managed	Number	Per cent total problems <sup>(a)</sup> (n=149,088)	Rate per 100 encounters <sup>(b)</sup> (n=101,993)	95% LCL	95% UCL
<b>Neurological</b>	<b>3,665</b>	<b>2.5</b>	<b>3.6</b>	<b>3.4</b>	<b>3.8</b>
Migraine	713	0.5	0.7	0.6	0.8
<b>Urology</b>	<b>3,127</b>	<b>2.1</b>	<b>3.1</b>	<b>2.9</b>	<b>3.2</b>
Urinary tract infection*	1,788	1.2	1.8	1.6	1.9
<b>Eye</b>	<b>2,818</b>	<b>1.9</b>	<b>2.8</b>	<b>2.6</b>	<b>2.9</b>
Infectious conjunctivitis	829	0.6	0.8	0.7	0.9
<b>Male genital system</b>	<b>1,910</b>	<b>1.3</b>	<b>1.9</b>	<b>1.7</b>	<b>2.0</b>
<b>Blood</b>	<b>1,509</b>	<b>1.0</b>	<b>1.5</b>	<b>1.4</b>	<b>1.6</b>
<b>Social</b>	<b>638</b>	<b>0.4</b>	<b>0.6</b>	<b>0.5</b>	<b>0.7</b>
<b>Total problems</b>	<b>149,088</b>	<b>100.0</b>	<b>146.2</b>	<b>144.2</b>	<b>148.2</b>

(a) Figures do not total 100 as more than one problem can be recorded at each encounter.

(b) Only those individual problems accounting for >=0.5% of total problems are included.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified.

## Problems managed by ICPC-2 component

Problems managed in general practice may also be examined using the components of the ICPC-2 classification to provide a more thorough understanding of the types of problems managed during general practice encounters. Table 2.19 lists the distribution of problems managed by ICPC-2 component.

In the BEACH program, participating GPs are instructed to record the problem being managed at the encounter at the highest diagnostic level possible using the currently available evidence. As such, almost two-thirds of problems were expressed as diagnoses or diseases, with the majority of other problems described as symptoms or complaints (20.8%), or as diagnostic or preventive procedures such as check-ups (9.4%). However, in some situations, rather than providing clinical details about the problem under management, a 'process' was recorded. That is, the problem was described in terms of a test result, an administrative procedure, or as a prescription.

**Table 2.19: Distribution of problems managed, by ICPC-2 component**

ICPC-2 component	Number	Per cent of total problems (n=149,088)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Diagnosis, diseases	97,359	65.3	95.5	93.6	97.3
Symptoms & complaints	31,034	20.8	30.4	29.6	31.2
Diagnostic & preventive procedures	14,000	9.4	13.7	13.1	14.4
Medications, treatments & therapeutics	3,299	2.2	3.2	3.0	3.5
Results	1,462	1.0	1.4	1.3	1.6
Referral & other RFE	1,249	0.8	1.2	1.1	1.4
Administrative	684	0.5	0.7	0.6	0.8
<b>Total problems</b>	<b>149,088</b>	<b>100.0</b>	<b>146.2</b>	<b>144.2</b>	<b>148.2</b>

(a) Figures do not total 100 as more than one problem can be managed at each encounter.

Note: LCL—lower confidence limit; UCL—upper confidence limit, RFE—reason for encounter.

## Most frequently managed problems

Overall, there were 146.2 problems managed per 100 encounters. Table 2.20 shows the most frequently managed individual problems in general practice, in decreasing order of frequency. These 30 problems accounted for almost half of all problems managed.

In this analysis, the specific chapter to which 'across chapter concepts' (check-ups, immunisation/vaccination, and prescriptions) apply is ignored and the concept is grouped with all similar concepts. For example, immunisation/vaccination includes influenza vaccinations, along with immunisations for childhood diseases, and vaccinations for hepatitis.

The far right-hand column in Table 2.20 lists the percentage of each problem that was new to the patient, indicating the first presentation of a problem to a medical practitioner. This can provide a measure of general practice incidence. For example, only 6.1% of all contacts with diabetes were new problems to the patient. In contrast, more than three-quarters of upper respiratory tract infection (URTI) problems were new to the patient.

**Table 2.20: Most frequently managed problems**

Problem managed	Number	Per cent of total problems (n=149,088)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL	Per cent new problems <sup>(b)</sup>
Hypertension*	9,635	6.5	9.4	8.9	10.0	6.1
Upper respiratory tract infection	6,332	4.2	6.2	5.8	6.6	77.9
Immunisation/vaccination—all*	5,115	3.4	5.0	4.6	5.4	54.7
Depression*	3,688	2.5	3.6	3.4	3.8	16.6
Diabetes*	3,618	2.4	3.5	3.3	3.8	6.1
Lipid disorders*	3,479	2.3	3.4	3.1	3.7	11.2
Osteoarthritis*	2,737	1.8	2.7	2.5	2.9	17.3
Back complaint*	2,698	1.8	2.6	2.5	2.8	25.2
Acute bronchitis/bronchiolitis	2,590	1.7	2.5	2.3	2.7	74.3
Oesophageal disease	2,397	1.6	2.4	2.2	2.5	19.0
Asthma	2,319	1.6	2.3	2.1	2.4	18.3
General check-up*	2,106	1.4	2.1	1.9	2.2	46.2
Prescription all*	2,035	1.4	2.0	1.7	2.2	5.9
Contact dermatitis	1,840	1.2	1.8	1.7	1.9	47.3
Anxiety*	1,837	1.2	1.8	1.6	2.0	21.0
Female genital check-up*	1,829	1.2	1.8	1.6	2.0	41.7
Urinary tract infection*	1,788	1.2	1.8	1.6	1.9	67.5
Sprain/strain*	1,787	1.2	1.8	1.6	1.9	61.4
Sleep disturbance	1,621	1.1	1.6	1.5	1.7	16.6
Test results*	1,462	1.0	1.4	1.3	1.6	29.4
Ischaemic heart disease*	1,320	0.9	1.3	1.2	1.4	13.5
Sinusitis acute/chronic	1,308	0.9	1.3	1.2	1.4	70.8
Solar keratosis/sunburn	1,236	0.8	1.2	1.1	1.3	47.7
Viral disease, other/NOS	1,221	0.8	1.2	1.0	1.4	75.6

(continued)

**Table 2.20 (continued): Most frequently managed problems**

Problem managed	Number	Per cent of total problems (n=149,088)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL	Per cent new problems <sup>(b)</sup>
Oral contraception*	1,219	0.8	1.2	1.1	1.3	18.7
Acute otitis media/myringitis	1,180	0.8	1.2	1.0	1.3	74.0
Cardiac check-up*	1,174	0.8	1.2	1.0	1.3	10.7
Gastroenteritis, presumed infection	1,109	0.7	1.1	1.0	1.2	80.5
Tonsillitis*	1,108	0.7	1.1	1.0	1.2	76.9
Fracture*	1,039	0.7	1.0	0.9	1.1	52.5
<i>Subtotal</i>	<i>72,827</i>	<i>48.8</i>	—	—	—	—
<b>Total problems</b>	<b>149,088</b>	<b>100.0</b>	<b>146.2</b>	<b>144.2</b>	<b>148.2</b>	<b>38.9</b>

(a) Figures do not total 100 as more than one problem can be recorded at each encounter. Also, only more frequently managed problems are included.

(b) The proportion of problems of this type that were new problems (the first presentation of a problem, including the first presentation of a recurrence of a previously resolved problem, but excluding the presentation of a problem first assessed by another provider).

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: UCL—upper confidence limit; LCL—lower confidence limit; NOS—not otherwise specified.

### Most common new problems

For each problem managed, participating GPs are asked to indicate whether the problem under management is a new problem for the patient, or a problem that has been managed previously by any medical practitioner. Table 2.21 lists the most common new problems managed in general practice in 2005–06, in decreasing order of frequency. Overall, in 2005–06, 58,002 problems were specified as being ‘new’, being managed at a rate of 56.9 per 100 encounters.

The far right-hand column of this table shows the proportion of total contacts with this problem that were reported as being new problems to the patient. For example, the 614 new cases of depression represented only 17% of all GP contacts with diagnosed depression. In contrast, almost three-quarters of the acute otitis media cases were first consultations to medical practitioners for this episode of acute otitis media. The balance (26%) would have been follow-up consultations for this episode of this problem.

### Most frequently managed chronic problems

Table 2.22 shows the most frequently managed chronic problems in Australian general practice in decreasing order of frequency. To identify chronic conditions, a chronic condition list classified according to ICPC-2 was applied to the BEACH data set.<sup>29</sup> Nearly 35% of the problems managed in general practice were chronic in nature in 2005–06. At least one chronic problem was managed at 39.0% of encounters (95% CI: 38.0–40.1), and chronic problems were managed at an average of 50.9 per 100 encounters.

In other parts of this chapter, both chronic and non-chronic conditions (e.g. hypertension and gestational hypertension) may be found in the groups reported (e.g. hypertension, Table 2.20). In this section, only problems regarded as ‘chronic’ have been included in the analysis. For this reason, the condition labels and figures in this analysis may differ from those in Table 2.20. Where the group used for the chronic analysis differs from that used in other analyses in this report, they are marked with a double asterisk. Codes included in the group may be found in Appendix 6, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>.

**Table 2.21: Most frequently managed new problems**

New problem managed	Number	Per cent of total new problems (n=58,002)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL	Per cent of this problem <sup>(b)</sup>
Upper respiratory tract infection	4,933	8.5	4.8	4.4	5.2	77.9
Immunisation/vaccination—all*	2,797	4.8	2.7	2.5	3.0	54.7
Acute bronchitis/bronchiolitis	1,925	3.3	1.9	1.7	2.1	74.3
Urinary tract infection*	1,206	2.1	1.2	1.1	1.3	67.5
Sprain/strain*	1,096	1.9	1.1	1.0	1.2	61.4
General check-up*	973	1.7	1.0	0.8	1.1	46.2
Sinusitis acute/chronic	926	1.6	0.9	0.8	1.0	70.8
Viral disease, other/NOS	923	1.6	0.9	0.8	1.0	75.6
Gastroenteritis, presumed infection	893	1.5	0.9	0.8	1.0	80.5
Acute otitis media/myringitis	873	1.5	0.9	0.8	1.0	74.0
Contact dermatitis	870	1.5	0.9	0.8	0.9	47.3
Tonsillitis*	852	1.5	0.8	0.7	1.0	76.9
Female genital check-up*	763	1.3	0.7	0.6	0.9	41.7
Back complaint*	679	1.2	0.7	0.6	0.7	25.2
Infectious conjunctivitis	646	1.1	0.6	0.6	0.7	77.9
Depression*	614	1.1	0.6	0.5	0.7	16.6
Solar keratosis/sunburn	589	1.0	0.6	0.5	0.7	47.7
Hypertension*	588	1.0	0.6	0.5	0.6	6.1
Malignant neoplasm skin	581	1.0	0.6	0.5	0.6	56.1
Fracture*	546	0.9	0.5	0.5	0.6	52.5
Excessive ear wax	509	0.9	0.5	0.4	0.6	62.5
Otitis externa	497	0.9	0.5	0.4	0.5	71.8
Osteoarthritis*	474	0.8	0.5	0.4	0.5	17.3
Bursitis/tendonitis/synovitis NOS	459	0.8	0.4	0.4	0.5	58.9
Oesophageal disease	456	0.8	0.4	0.4	0.5	19.0
Skin injury, other	445	0.8	0.4	0.4	0.5	62.6
Skin disease, other	441	0.8	0.4	0.4	0.5	53.5
Dermatophytosis	437	0.8	0.4	0.4	0.5	63.1
Pregnancy*	432	0.7	0.4	0.4	0.5	48.3
Test results*	430	0.7	0.4	0.3	0.5	29.4
<i>Subtotal</i>	<i>27,853</i>	<i>48.0</i>	—	—	—	—
<b>Total new problems</b>	<b>58,002</b>	<b>100.0</b>	<b>56.9</b>	<b>55.5</b>	<b>58.2</b>	—

(a) Figures do not total 100 as more than one new problem can be recorded at each encounter. Also, only the most frequently managed new problems are included.

(b) The proportion of total contacts with this problem that were accounted for by new problems.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified.

**Table 2.22: Most frequently managed chronic problems**

Chronic problem managed	Number	Per cent of total chronic problems (n=51,946)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Hypertension (non-gestational)**	9,629	18.5	9.4	8.9	10.0
Depressive disorder	3,662	7.1	3.6	3.4	3.8
Diabetes (non-gestational)**	3,603	6.9	3.5	3.3	3.8
Lipid disorders*	3,479	6.7	3.4	3.1	3.7
Osteoarthritis*	2,737	5.3	2.7	2.5	2.9
Oesophageal disease	2,397	4.6	2.4	2.2	2.5
Asthma	2,319	4.5	2.3	2.1	2.4
Ischaemic heart disease*	1,320	2.5	1.3	1.2	1.4
Malignant neoplasm skin	1,035	2.0	1.0	0.9	1.1
Back complaint*	965	1.9	0.9	0.8	1.0
Osteoporosis	955	1.8	0.9	0.8	1.0
Atrial fibrillation/flutter	953	1.8	0.9	0.8	1.0
Chronic obstructive pulmonary disease	742	1.4	0.7	0.6	0.8
Migraine	713	1.4	0.7	0.6	0.8
Hypothyroidism/myxoedema	670	1.3	0.7	0.6	0.7
Heart failure	645	1.2	0.6	0.6	0.7
Obesity (BMI >30)	582	1.1	0.6	0.5	0.6
Gout	581	1.1	0.6	0.5	0.6
Arthritis**	574	1.1	0.6	0.5	0.6
Dementia	535	1.0	0.5	0.4	0.6
Rheumatoid arthritis	522	1.0	0.5	0.5	0.6
Shoulder syndrome	497	1.0	0.5	0.4	0.6
Schizophrenia	482	0.9	0.5	0.4	0.5
Anaemia (chronic)**	466	0.9	0.5	0.4	0.5
Anxiety disorder	442	0.9	0.4	0.4	0.5
Acne (chronic)**	418	0.8	0.4	0.4	0.5
Vertiginous syndromes	349	0.7	0.3	0.3	0.4
Neck syndrome	341	0.7	0.3	0.3	0.4
Epilepsy	332	0.6	0.3	0.3	0.4
Malignant neoplasm prostate	320	0.6	0.3	0.3	0.4
<i>Subtotal</i>	<i>42,264</i>	<i>81.4</i>	—	—	—
<b>Total chronic problems</b>	<b>51,946</b>	<b>100.0</b>	<b>50.9</b>	<b>49.1</b>	<b>52.8</b>

(a) Figures do not total 100 as more than one chronic problem can be recorded at each encounter. Also, only the most frequently managed chronic problems are included.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

\*\* Indicates that this group differs from that used for analysis in other sections of this chapter, as only chronic conditions have been included in this analysis (see Appendix 6 <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)> for codes included in analysis of chronic conditions).

Note: LCL—lower confidence limit; UCL—upper confidence limit; BMI—body mass index.

## 2.6 Overview of management

The BEACH survey form allowed GPs to record several aspects of patient management for each problem managed at each encounter. Pharmaceutical management was recorded in detail. Other modes of treatment, including clinical treatments (e.g. counselling) and procedures recorded briefly in the GP's own words, were also related to a single problem. Provision was made on the form for referrals and hospital admissions, and for pathology and imaging orders to be related to multiple problems.

GPs undertook 212,614 management activities in total. Of these:

- the most common management form was medication, either prescribed, GP-supplied, or advised for over-the-counter purchase
- other treatments were the second most common management activity, with clinical treatments occurring more frequently than procedural treatments (Table 2.23).

**Table 2.23: Summary of management**

Management type	Number	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL	Rate per 100 problems (n=149,088)	95% LCL	95% UCL
Medications	106,493	104.4	101.8	107.0	71.4	69.9	72.9
Prescribed	87,544	85.8	83.3	88.4	58.7	57.2	60.3
GP-supplied	8,999	8.8	8.2	9.5	6.0	5.6	6.5
Advised OTC	9,950	9.8	9.0	10.5	6.7	6.2	7.2
Other treatments	44,504	43.6	41.5	45.8	29.9	28.5	31.2
Clinical	29,785	29.2	27.3	31.1	20.0	18.8	21.2
Procedural	14,719	14.4	13.7	15.1	9.9	9.4	10.3
Referrals	12,233	12.0	11.5	12.5	8.2	7.9	8.5
Specialist	8,342	8.2	7.8	8.5	5.6	5.4	5.8
Allied health	2,932	2.9	2.7	3.1	2.0	1.8	2.1
Hospital	373	0.4	0.3	0.4	0.3	0.2	0.3
Emergency dept	192	0.2	0.2	0.2	0.1	0.1	0.2
Other medical services	60	0.1	0.0	0.1	0.0	0.0	0.1
Other referral	334	0.3	0.3	0.4	0.2	0.2	0.3
Pathology	39,358	38.6	36.9	40.3	26.4	25.3	27.5
Imaging	9,003	8.8	8.4	9.2	6.0	5.8	6.3
Other investigations	1,023	1.0	0.9	1.1	0.0	0.0	0.0
<b>Total management activities</b>	<b>212,614</b>	<b>208.5</b>	<b>—</b>	<b>—</b>	<b>142.6</b>	<b>—</b>	<b>—</b>

Note: LCL—lower confidence limit; UCL—upper confidence limit; OTC—over-the-counter.

Another perspective emerges in analysis of the number of encounters or problems for which at least one form of management was recorded by the GP (Table 2.24). At least one management action was recorded at 91.2% of encounters and for 86.2% of problems managed.

- At least one medication or other treatment was given for three-quarters of the problems managed.



- At least one medication (most commonly prescribed) was prescribed, supplied or advised for over half the problems managed.
- At least one other treatment (most commonly clinical) was provided for one-quarter of problems managed.
- At least one referral (most commonly to a specialist) was made for 8% of problems managed.
- At least one investigation (most commonly pathology) was requested for 18% of problems managed.

**Table 2.24: Encounters and problems for which management was recorded**

Management type	Number of encounters	Per cent of total encs <sup>(a)</sup> (n=101,993)	Number of problems	Per cent of total probs <sup>(a)</sup> (n=149,088)
<b>At least one management type</b>	<b>93,034</b>	<b>91.2</b>	<b>128,574</b>	<b>86.2</b>
<b>At least one medication or other treatment</b>	<b>82,989</b>	<b>81.4</b>	<b>109,650</b>	<b>73.5</b>
<b>At least one medication</b>	<b>66,541</b>	<b>65.2</b>	<b>84,161</b>	<b>56.5</b>
At least one prescription	56,664	55.6	71,073	47.7
At least one GP-supplied	6,566	6.4	6,772	4.5
At least one OTC advised	8,792	8.6	9,002	6.0
<b>At least one other treatment</b>	<b>35,822</b>	<b>35.1</b>	<b>40,133</b>	<b>26.9</b>
At least one clinical treatment	24,514	24.0	27,210	18.3
At least one procedural treatment	13,444	13.2	13,833	9.3
<b>At least one referral</b>	<b>11,543</b>	<b>11.3</b>	<b>12,225</b>	<b>8.2</b>
At least one referral to a specialist	8,029	7.9	8,414	5.6
At least one referral to allied health	2,809	2.8	2,943	2.0
At least one referral to hospital	373	0.4	393	0.3
At least one referral to emergency department	192	0.2	196	0.1
At least one referral to other medical services	60	0.1	65	0.0
At least one referral NOS	333	0.3	343	0.2
<b>At least one investigation</b>	<b>23,060</b>	<b>22.6</b>	<b>26,241</b>	<b>17.6</b>
At least one pathology order	16,693	16.4	18,938	12.7
At least one imaging order	7,928	7.8	8,192	5.5
At least one other investigation	986	1.0	994	0.7

(a) Figures will not total 100 as multiple events may occur in one encounter or in the management of one problem at encounter.

Note: Encs—encounters; probs—problems; OTC—over-the-counter; NOS—not otherwise specified.

The combinations of management types related to each problem were then investigated. The majority of treatments occurred either as a single component or in combination with one other component. Management was provided:

- as a single component for almost two-thirds of the problems managed
- as a double component for just over 16% of problems managed
- rarely with more than two components.

Table 2.25 lists the most common management combinations. Medication alone was the most common management, followed by the combination of a medication and a clinical treatment.

**Table 2.25: Most common management combinations**

1+ medication	1+ clinical treatment	1+ procedural treatment	1+ referral	1+ imaging order	1+ pathology order	Per cent of total encs (n=101,993)	Per cent of total probs (n=149,088)
No recorded management						8.8	13.8
1+ management recorded						91.2	86.2
✓						35.0	40.2
✓	✓					9.1	5.5
	✓					6.8	8.9
✓					✓	4.7	3.2
✓		✓				3.9	2.4
		✓				3.9	4.3
			✓			3.3	4.2
					✓	3.2	4.9
✓			✓			2.9	1.4
✓				✓		1.9	1.1
				✓		1.7	2.0
✓	✓				✓	1.4	0.5
	✓				✓	1.1	1.0
		✓			✓	1.0	1.0
	✓		✓			0.9	0.7
✓	✓		✓			0.9	0.3
✓	✓	✓				0.8	0.2

Note: 1+—at least one specified management type; encs—encounters; probs—problems.

## 2.7 Medications

- GPs could record up to four medications for each of four problems—a maximum of 16 medications per encounter.
- Each medication could be recorded as prescribed (the default), supplied by the GP or recommended for over-the-counter (OTC) purchase.
- GPs were asked to:
  - enter the generic or brand name, the strength, regimen and number of repeats ordered for each medication
  - to designate this as a new or continued medication for that patient for this problem.
- Generic or brand names were entered into the database in the form recorded by the GP.
- Medications were coded using the Coding Atlas of Pharmaceutical Substances (CAPS) system (developed by the Family Medicine Research Centre) from which they were classified to the international Anatomical Therapeutic Chemical (ATC) classification (see Chapter 5).<sup>30</sup>
- Results are reported in this chapter at drug group and generic level using ATC levels 3 and 5.

## Source of medications

A total of 106,493 medications were recorded at rates of 104 per 100 encounters and 71 per 100 problems managed (Table 2.23).

- Four out of five medications (82.2% of all medications) were prescribed.
- Less than one in ten (8.5%) medications were supplied to the patient by the GP.
- About one in ten medications (9.3%) were recommended by the GP for OTC purchase.

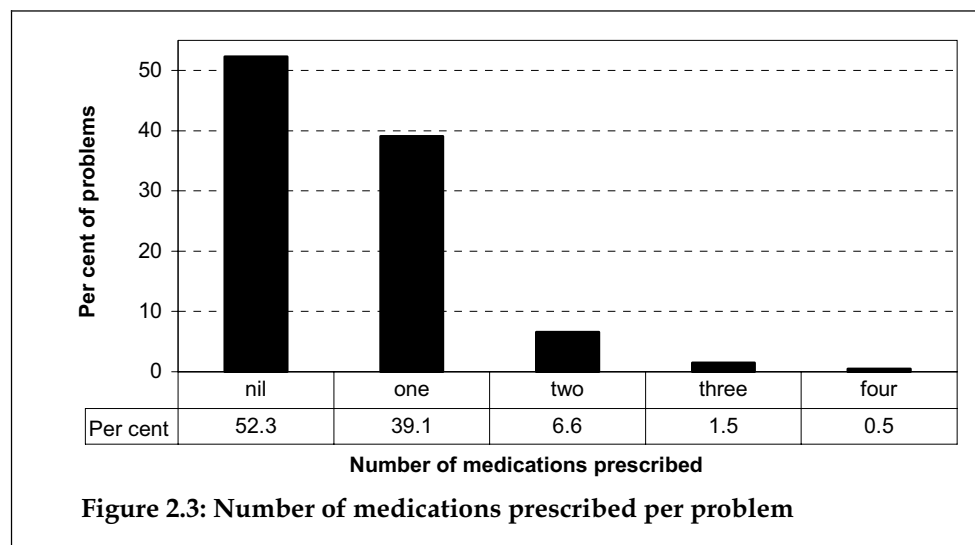
If we extrapolate to the 93 million A1 and A2 Medicare-claimed encounters in Australia in 2005, GPs in Australia:

- prescribed over 79 million medications (not counting repeats)
- supplied over eight million medications directly to the patient
- recommended over nine million medications for OTC purchase.

## Prescribed medications

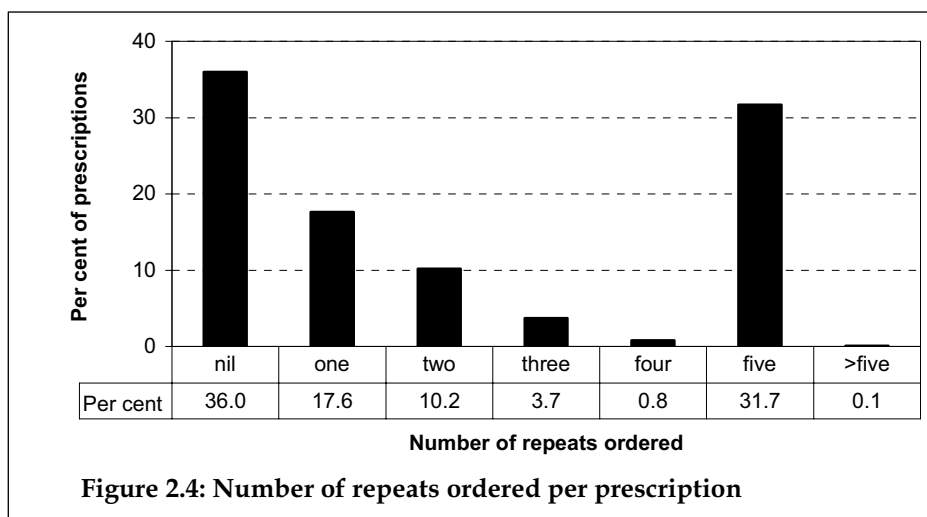
There were 87,544 prescriptions recorded, at rates of 86 per 100 encounters and 59 per 100 problems managed. On a per problem basis:

- no prescription was given for half (52.3%) of all problems managed
- one prescription was given for almost 40% of problems managed
- two prescriptions were given for 7% of problems managed
- three or more prescriptions were rarely given (2% of problems managed) (Figure 2.3).



## Number of repeats

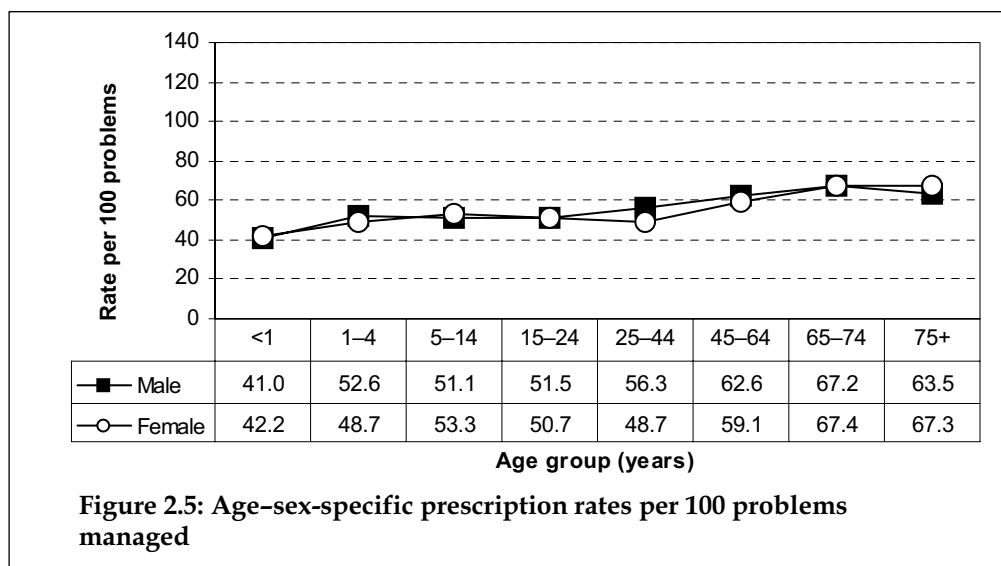
For the 65,124 prescriptions for which the GPs recorded 'number of repeats', the distribution of the specified number of repeats (from nil to more than five) is provided in Figure 2.4. For 36.0% of these prescriptions, the GP specified that no repeats had been prescribed and for 31.7%, five repeats were ordered. The latter proportion reflects the Pharmaceutical Benefits Scheme (PBS) provision of one month's supply and five repeats for many medications used for chronic conditions such as hypertension. The ordering of one or two repeats (17.6% and 10.2%) was also common.



### Age–sex-specific rates of prescribed medications

Age–sex-specific analysis found similar prescription rates per 100 encounters for males and females (results not shown). It also showed the well-described tendency for the number of prescriptions written at each encounter to rise with advancing age of the patient, with a rate of about 60 per 100 encounters with patients aged less than 25 years rising to over 100 per 100 encounters for patients aged 65 years or more (results not shown).

Figure 2.5, however, demonstrates that the age-based increase lessens if the prescription rate is related to problems. This suggests that the increased prescription rate in older patients is largely accounted for by the increased number of health problems they have managed at an encounter.



### Types of medications prescribed

Table 2.26 shows the distribution of prescribed medications using the WHO ATC classification.<sup>30</sup> This allows comparison with other data sources such as those produced by Medicare Australia for PBS data. The table lists medications in frequency order within ATC Levels 1, 3 and 5. Prescriptions are presented as a percentage of total prescriptions and as a rate per 100 encounters with 95% confidence intervals.

**Table 2.26: Distribution of prescribed medications, by ATC Levels 1, 3 and 5**

ATC Level 1	ATC Level 3	ATC Level 5	Number	Per cent of scripts (n=87,544)	Rate per 100 encls <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
<b>Nervous system</b>			<b>18,999</b>	<b>21.7</b>	<b>18.6</b>	<b>17.8</b>	<b>19.5</b>
	Other analgesics and anti-pyretics		5,157	6.6	5.5	5.1	5.8
		Paracetamol	3,073	3.5	3.0	2.7	3.3
	Paracetamol, combinations excl. psycholeptics		2,135	2.4	2.1	1.9	2.3
		Acetylsalicylic acid	756	0.9	0.7	0.7	0.8
	Anti-depressants		3,272	3.7	3.2	3.0	3.4
		Sertraline	671	0.8	0.7	0.6	0.7
	Opioids		2,862	3.3	2.8	2.5	3.1
		Tramadol	966	1.1	0.9	0.9	1.0
		Oxycodone	771	0.9	0.8	0.7	0.9
		Morphine	440	0.6	0.5	0.2	0.8
	Anxiolytics		2,112	2.4	2.1	1.9	2.3
		Diazepam	1,125	1.3	1.1	1.0	1.2
		Oxazepam	725	0.8	0.7	0.6	0.8
	Hypnotics and sedatives		1,800	2.1	1.8	1.6	1.9
		Temazepam	1,111	1.3	1.1	1.0	1.2
	Anti-psychotics		1,146	1.3	1.1	1.0	1.2
		Prochlorperazine	578	0.7	0.6	0.5	0.6
	Anti-epileptics		640	0.7	0.6	0.6	0.7
	Drugs used in addictive disorders		545	0.6	0.5	0.4	0.7
<b>Anti-infectives for systemic use</b>			<b>17,848</b>	<b>20.4</b>	<b>17.5</b>	<b>16.9</b>	<b>18.1</b>
	Beta-lactam antibacterials, penicillins		6,421	7.3	6.3	6.0	6.6
		Amoxicillin	3,640	4.2	3.6	3.3	3.8
		Amoxicillin and enzyme inhibitor	1,679	1.9	1.7	1.5	1.8
	Other beta-lactam antibacterials		3,454	4.0	3.4	3.1	3.6
		Cefalexin	2,573	2.9	2.5	2.3	2.7
		Cefaclor	817	0.9	0.8	0.6	1.0
	Macrolides, lincosamides and streptogramins		2,582	3.0	2.5	2.3	2.8
		Roxithromycin	1,499	1.7	1.5	1.3	1.7
		Erythromycin	519	0.6	0.5	0.4	0.6
	Viral vaccines		1,616	1.9	1.6	1.3	1.8
		Influenza, inactivated, whole virus	1,091	1.3	1.1	0.8	1.3
	Tetracyclines		968	1.1	1.0	0.9	1.0
		Doxycycline	783	0.9	0.8	0.7	0.9
	Bacterial vaccines		749	0.9	0.7	0.6	0.8
	Sulfonamides and trimethoprim		683	0.8	0.7	0.6	0.7
		Trimethoprim	414	0.5	0.4	0.2	0.6
	Other antibacterials		483	0.6	0.5	0.4	0.5

(continued)

**Table 2.26 (continued): Distribution of prescribed medications, by ATC Levels 1, 3 and 5**

ATC Level 1	ATC Level 3	ATC Level 5	Number	Per cent of scripts (n=87,544)	Rate per 100 encs <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
<b>Cardiovascular system</b>			<b>16,592</b>	<b>19.0</b>	<b>16.3</b>	<b>15.2</b>	<b>17.3</b>
	Lipid modifying agents, plain		3,376	3.9	3.3	3.0	3.6
		Atorvastatin	1,631	1.9	1.6	1.4	1.8
		Simvastatin	1,182	1.4	1.2	1.0	1.3
	ACE inhibitors, plain		2,679	3.1	2.6	2.4	2.8
		Perindopril	996	1.1	1.0	0.9	1.1
		Ramipril	811	0.9	0.8	0.7	0.9
	Beta blocking agents		1,954	2.2	1.9	1.8	2.1
		Atenolol	976	1.1	1.0	0.9	1.1
		Metoprolol	522	0.6	0.5	0.4	0.6
	Angiotensin II antagonists, plain		1,924	2.2	1.9	1.7	2.0
		Irbesartan	1,090	1.3	1.1	1.0	1.2
	Selective calcium channel blockers with mainly vascular effects		1,637	1.9	1.6	1.4	1.8
		Amlodipine	742	0.9	0.7	0.6	0.8
	Angiotensin II antagonists, combinations		1,072	1.2	1.1	0.9	1.2
		Irbesartan and diuretics	719	0.8	0.7	0.6	0.8
	High-ceiling diuretics		653	0.8	0.6	0.6	0.7
		Furosemide	647	0.7	0.6	0.6	0.7
	Selective calcium channel blockers with direct cardiac effects		582	0.7	0.6	0.5	0.7
	ACE inhibitors, combinations		581	0.7	0.6	0.5	0.6
	Vasodilators used in cardiac diseases		578	0.7	0.6	0.5	0.6
	Low-ceiling diuretics, excl. thiazides		493	0.6	0.5	0.4	0.6
<b>Alimentary tract and metabolism</b>			<b>8,271</b>	<b>9.5</b>	<b>8.1</b>	<b>7.6</b>	<b>8.6</b>
	Drugs for peptic ulcer and GORD		3,051	3.5	3.0	2.8	3.2
		Esomeprazole	924	1.1	0.9	0.8	1.0
		Omeprazole	638	0.7	0.6	0.6	0.7
		Pantoprazole	518	0.6	0.5	0.4	0.6
	Oral blood glucose lowering drugs		2,137	2.4	2.1	1.8	2.3
		Metformin	1,187	1.4	1.2	1.0	1.3
		Gliclazide	564	0.6	0.6	0.5	0.6
	Propulsives		685	0.8	0.7	0.6	0.7
		Metoclopramide	572	0.7	0.6	0.5	0.6
<b>Respiratory system</b>			<b>5,383</b>	<b>6.2</b>	<b>5.3</b>	<b>4.9</b>	<b>5.6</b>
	Adrenergics, inhalants		2,952	3.4	2.9	2.7	3.1
		Salbutamol	1,494	1.7	1.5	1.3	1.6
		Salmeterol with other drugs for obstructive airway disease	890	1.0	0.9	0.8	1.0

(continued)

**Table 2.26 (continued): Distribution of prescribed medications, by ATC Levels 1, 3 and 5**

ATC Level 1	ATC Level 3	ATC Level 5	Number	Per cent of scripts (n=87,544)	Rate per 100 encs <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
		Other drugs for obstructive airway disease, inhalants	914	1.0	0.9	0.8	1.0
		Decongestants and other nasal preparations for topical use	648	0.7	0.6	0.5	0.7
		Antihistamines for systemic use	440	0.5	0.4	0.3	0.6
		<b>Musculoskeletal system</b>	<b>5,285</b>	<b>6.0</b>	<b>5.2</b>	<b>4.9</b>	<b>5.5</b>
		Anti-inflammatory and antirheumatic products, non-steroids	3,953	4.5	3.9	3.6	4.1
		Diclofenac	1,157	1.3	1.1	1.0	1.3
		Meloxicam	917	1.1	0.9	0.8	1.0
		Celecoxib	524	0.6	0.5	0.5	0.6
		Drugs affecting bone structure and mineralisation	611	0.7	0.6	0.5	0.7
		Anti-gout preparations	463	0.5	0.5	0.4	0.5
		<b>Dermatologicals</b>	<b>3,906</b>	<b>4.5</b>	<b>3.8</b>	<b>3.6</b>	<b>4.0</b>
		Corticosteroids, plain	2,390	2.7	2.3	2.2	2.5
		Betamethasone	720	0.8	0.7	0.6	0.8
		Mometasone	686	0.8	0.7	0.6	0.7
		<b>Genitourinary system and sex hormones</b>	<b>3,547</b>	<b>4.1</b>	<b>3.5</b>	<b>3.3</b>	<b>3.7</b>
		Hormonal contraceptives for systemic use	1,891	2.2	1.9	1.7	2.0
			1,003	1.2	1.0	0.9	1.1
		Oestrogens	596	0.7	0.6	0.5	0.6
		<b>Sensory organs</b>	<b>2,730</b>	<b>3.1</b>	<b>2.7</b>	<b>2.5</b>	<b>2.8</b>
		Anti-infectives ophthalmological	1,164	1.3	1.1	1.0	1.2
		Chloramphenicol	1,076	1.2	1.1	1.0	1.1
		Corticosteroids with anti-infectives otological	636	0.7	0.6	0.6	0.7
		<b>Blood and blood-forming organs</b>	<b>2,042</b>	<b>2.3</b>	<b>2.0</b>	<b>1.8</b>	<b>2.2</b>
		Anti-thrombotic agents	1,336	1.5	1.3	1.2	1.4
		Warfarin	936	1.1	0.9	0.8	1.0
		Vitamin B12 and folic acid	461	0.5	0.5	0.4	0.5
		<b>Systemic hormonal preparations, excl. sex hormones and insulins</b>	<b>2,040</b>	<b>2.3</b>	<b>2.0</b>	<b>1.8</b>	<b>2.2</b>
		Corticosteroids for systemic use, plain	1,322	1.5	1.3	1.2	1.4
		Prednisolone	724	0.8	0.7	0.6	0.8
		Thyroid preparations	656	0.8	0.6	0.6	0.7
		Levothyroxine sodium	652	0.8	0.6	0.6	0.7
		<b>Anti-neoplastic and immunomodulating agents</b>	<b>417</b>	<b>0.5</b>	<b>0.4</b>	<b>0.4</b>	<b>0.5</b>
		<b>Various</b>	<b>341</b>	<b>0.4</b>	<b>0.3</b>	<b>0.3</b>	<b>0.4</b>
		<b>Anti-parasitic products, insecticides and repellents</b>	<b>141</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter and only the most frequent Level 3 and Level 5 drugs are included.

Note: Scripts—prescriptions; encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; excl—excluding; ACE—angiotensin converting enzyme; GORD—gastro-oesophageal reflux disease.

## Most frequently prescribed medications

The most frequently prescribed individual medications are reported at the generic level in Table 2.27. Together, these 30 medications accounted for 44.3% of all prescribed medications.

**Table 2.27: Most frequently prescribed medications (CAPS generic level)**

Generic medication	Number	Per cent of scripts (n=87,544)	Rate per 100 encs <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Amoxicillin	3,640	4.2	3.6	3.3	3.8
Paracetamol	3,073	3.5	3.0	2.7	3.3
Cephalexin	2,573	2.9	2.5	2.3	2.7
Paracetamol/codeine	2,032	2.3	2.0	1.8	2.2
Amoxicillin/potassium clavulanate	1,679	1.9	1.7	1.5	1.8
Atorvastatin	1,631	1.9	1.6	1.4	1.8
Salbutamol	1,521	1.7	1.5	1.4	1.6
Roxithromycin	1,498	1.7	1.5	1.3	1.7
Metformin	1,187	1.4	1.2	1.0	1.3
Simvastatin	1,182	1.4	1.2	1.0	1.3
Diazepam	1,125	1.3	1.1	1.0	1.2
Temazepam	1,110	1.3	1.1	1.0	1.2
Influenza virus vaccine	1,091	1.3	1.1	0.9	1.3
Irbesartan	1,090	1.3	1.1	1.0	1.2
Chloramphenicol eye	1,075	1.2	1.1	1.0	1.1
Diclofenac sodium systemic	1,011	1.2	1.0	0.9	1.1
Levonorgestrel/ethinylloestradiol	1,003	1.2	1.0	0.9	1.1
Perindopril	996	1.1	1.0	0.9	1.1
Atenolol	976	1.1	1.0	0.9	1.1
Tramadol	966	1.1	0.9	0.9	1.0
Warfarin sodium	936	1.1	0.9	0.8	1.0
Esomeprazole	924	1.1	0.9	0.8	1.0
Meloxicam	917	1.1	0.9	0.8	1.0
Fluticasone/salmeterol	890	1.0	0.9	0.8	1.0
Cefaclor monohydrate	816	0.9	0.8	0.6	1.0
Ramipril	811	0.9	0.8	0.7	0.9
Doxycycline	783	0.9	0.8	0.7	0.9
Oxycodone	771	0.9	0.8	0.7	0.9
Aspirin	756	0.9	0.7	0.7	0.8
Amlodipine	742	0.9	0.7	0.6	0.8
<i>Subtotal</i>	<i>38,807</i>	<i>44.3</i>	—	—	—
<b>Total prescribed medications</b>	<b>87,544</b>	<b>100.0</b>	<b>85.8</b>	<b>83.3</b>	<b>88.4</b>

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter and only the most frequently prescribed medications are included in this table.

Note: Scripts—prescriptions; encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.



## Medications supplied by GPs

GPs supplied their patients with a total of 8,999 medications in this study, at a rate of 8.8 medications per 100 encounters. At least one medication was supplied at 6.4% of encounters for 4.5% of problems. Vaccines constituted 58.4% of GP-supplied medications by group, and central nervous system medications accounted for 7.3% of medications (results not presented). Table 2.28 shows the wide range of the most commonly supplied medications.

**Table 2.28: Medications most frequently supplied by GPs**

Generic medication	Number	Per cent of GP-supplied (n=8,999)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Influenza virus vaccine	1,582	17.6	1.6	1.3	1.8
Pneumococcal vaccine	893	9.9	0.9	0.8	1.0
Polio vaccine oral sabin/injection	456	5.1	0.5	0.4	0.5
Diphtheria/pertussis/tetanus/hepatitis B vaccine	310	3.5	0.3	0.2	0.4
Mumps/measles/rubella vaccine	307	3.4	0.3	0.3	0.4
Haemophilus B vaccine	306	3.4	0.3	0.2	0.4
ADT/CDT (diphtheria/tetanus) vaccine	243	2.7	0.2	0.2	0.3
Vitamin B12 (cobalamin)	224	2.5	0.2	0.2	0.3
Meningitis vaccine	180	2.0	0.2	0.1	0.2
Triple antigen(diphtheria/pertussis/tetanus)	176	2.0	0.2	0.1	0.2
Meloxicam	146	1.6	0.1	0.1	0.2
Metoclopramide	102	1.1	0.1	0.1	0.1
Chickenpox (varicella zoster) vaccine	96	1.1	0.1	0.1	0.1
Esomeprazole	95	1.1	0.1	0.1	0.1
Allergen treatment	95	1.1	0.1	0.1	0.1
Hepatitis B vaccine	93	1.0	0.1	0.1	0.1
Hepatitis A and B vaccine	93	1.0	0.1	0.1	0.1
Budesonide/efformoterol	75	0.8	0.1	0.1	0.1
Typhoid vaccine (salmonella typhi)	73	0.8	0.1	0.1	0.1
Betamethasone systemic	72	0.8	0.1	0.0	0.1
Diphtheria/pertussis/tetanus /polio vaccine	72	0.8	0.1	0.0	0.1
Methylprednisolone	68	0.8	0.1	0.0	0.1
Medroxyprogesterone	68	0.8	0.1	0.1	0.1
Diphtheria/pertussis/tetanus/hepB/polio/hib vaccine	67	0.8	0.1	0.0	0.1
Hepatitis A vaccine	66	0.7	0.1	0.0	0.1
Haemophilus B/hepatitis B vaccine	64	0.7	0.1	0.0	0.1
Paracetamol	58	0.6	0.1	0.0	0.1
Celecoxib	57	0.6	0.1	0.0	0.1
Lignocaine injection	55	0.6	0.1	0.0	0.1
Pethidine hydrochloride	50	0.6	0.1	0.0	0.1
<i>Subtotal</i>	<i>6,241</i>	<i>69.4</i>	—	—	—
<b>Total medications supplied</b>	<b>8,999</b>	<b>100.0</b>	<b>8.8</b>	<b>8.2</b>	<b>9.5</b>

(a) Column will not add to 100 because multiple medications could be given at each encounter and only the medications most frequently supplied by GPs are included. *Note:* LCL—lower confidence limit; UCL—upper confidence limit.

## Medications advised for over-the-counter purchase

The GPs recorded 9,950 medications as recommended for OTC purchase, at rates of 9.8 per 100 encounters and 6.7 per 100 problems managed. At least one OTC medication was recorded as advised at 8.6% of encounters and for 6.0% of problems.

Central nervous system medications predominated in those advised to patients, with almost one-third in that group. Respiratory medication accounted for one-fifth of advised medications (results not presented).

Table 2.29 shows the wide range of advised medications. It includes analgesic, anti-inflammatory and skin products. The 30 listed medications accounted for over 60% of all OTC medications.

**Table 2.29: Most frequently advised over-the-counter medications**

Generic medication	Number	Per cent of OTCs (n=9,950)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Paracetamol	2,578	25.9	2.5	2.2	2.8
Ibuprofen	576	5.8	0.6	0.5	0.7
Diclofenac topical	183	1.8	0.2	0.1	0.2
Clotrimazole topical	168	1.7	0.2	0.1	0.2
Sodium chloride topical nasal	157	1.6	0.2	0.1	0.2
Glucosamine	154	1.6	0.2	0.1	0.2
Loratadine	149	1.5	0.2	0.1	0.2
Sodium/potassium/citric/glucose	139	1.4	0.1	0.1	0.2
Paracetamol/codeine	135	1.4	0.1	0.1	0.2
Fexofenadine	118	1.2	0.1	0.1	0.2
Cetirzine	112	1.1	0.1	0.1	0.1
Aspirin	110	1.1	0.1	0.1	0.1
Mouthwash/gargle other	110	1.1	0.1	0.1	0.2
Chlorpheniramine/pseudoephedrine	103	1.0	0.1	0.1	0.2
Bromhexine	102	1.0	0.1	0.1	0.1
Saline bath/solution/gargle	99	1.0	0.1	0.1	0.1
Codeine/paracet/pseudoephedrine	98	1.0	0.1	0.1	0.1
Brompheniramine/phenylephrine	96	1.0	0.1	0.1	0.1
Chlorpheniramine/phenylephrine	92	0.9	0.1	0.1	0.1
Clotrimazole vaginal	88	0.9	0.1	0.1	0.1
Promethazine hydrochloride	87	0.9	0.1	0.1	0.1
Cold and flu medication NEC	86	0.9	0.1	0.1	0.1
Hyoscine butylbromide	83	0.8	0.1	0.1	0.1
Sod bicarb/citrate/tartaric	80	0.8	0.1	0.1	0.1
Sorbolene/glycerol/cetomac	76	0.8	0.1	0.1	0.1
Pholcodine	75	0.8	0.1	0.0	0.1
Psyllium hydrophilic mucilloid	72	0.7	0.1	0.1	0.1

(continued)

**Table 2.29 (continued): Most frequently advised over-the-counter medications**

Generic medication	Number	Per cent of OTCs (n=9,950)	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL
Cinchocaine and hydrocortisone	70	0.7	0.1	0.1	0.1
Folic acid	69	0.7	0.1	0.1	0.1
Hydrocortisone topical skin	68	0.7	0.1	0.1	0.1
<i>Subtotal</i>	6,132	61.6	—	—	—
<b>Total medications advised</b>	<b>9,950</b>	<b>100.0</b>	<b>9.8</b>	<b>9.0</b>	<b>10.5</b>

(a) Column will not add to 100 because multiple medications could be given at each encounter and only the medications most frequently advised for over-the-counter purchase are included.

Note: OTCs—over-the-counter medications; LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified.

## 2.8 Other treatments

The survey form allowed GPs to record up to two other treatments for each problem managed at the encounter. Other treatments included all clinical and procedural treatments provided by the GPs at the encounters. These groups are defined in Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>. Patient observations that were regarded as routine clinical measurements, such as measurements of blood pressure, were not included.

The GPs were also asked to indicate whether the treatment was undertaken by a practice nurse (tick box). In this section all ‘other treatments’ are reported, irrespective of whether they were done by the GP or by the practice nurse. Those treatments provided by the practice nurse are reported separately in Section 2.11.

### Number of other treatments

Other treatments were commonly provided by GPs to manage patient morbidity. In 2005–06, a total of 44,504 other treatments were recorded, at a rate of 43.6 per 100 encounters. The majority of these were clinical treatments (Table 2.30).

**Table 2.30: Summary of other treatments**

	Number	Rate per 100 encs (n=101,993)	95% LCL	95% UCL	Rate per 100 problems (n=149,088)	95% LCL	95% UCL
<b>Other treatments</b>	44,504	43.6	41.5	45.8	29.9	28.5	31.2
Clinical treatments	29,785	29.2	27.3	31.1	20.0	18.8	21.2
Procedural treatments	14,719	14.4	13.7	15.1	9.9	9.4	10.3
At least one other treatment	35,822	35.1	33.7	36.6	—	—	—

Note: Encs—encounters; UCL—upper confidence limit; LCL—lower confidence limit.

Table 2.31 shows the proportion of problems for which at least one other treatment was given. In summary:

- for nearly two-thirds of the problems managed with another treatment, no pharmacological treatment was provided
- nearly one in five problems were managed with a clinical treatment, and no medications were provided at the majority of these encounters
- GPs undertook a procedure in the management of 9.3% of problems, with no pharmacological management given at two-thirds of these encounters.

**Table 2.31: Relationship of other treatments with pharmacological treatments**

Co-management of problems with other treatments	Number of problems	Per cent within class	Per cent of problems ( <i>n</i> =149,088)	95% LCL	95% UCL
At least one other treatment	40,133	100.0	26.9	25.8	28.1
Without pharmacological treatment	25,489	63.5	17.1	16.3	17.9
At least one clinical treatment	27,210	100.0	18.3	17.2	19.3
Without pharmacological treatment	16,906	62.1	11.3	10.7	12.0
At least one procedural treatment	13,833	100.0	9.3	8.9	9.7
Without pharmacological treatment	9,033	65.3	6.1	5.8	6.4

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## Clinical treatments

Clinical treatments include general and specific advice, counselling or education, family planning, and administrative processes. During 2005–06, there were 29,785 clinical treatments recorded (Table 2.30).

### Most frequent clinical treatments

Table 2.32 lists the most common clinical treatments provided. Each treatment is expressed as a percentage of all other treatments and as a rate per 100 encounters with 95% confidence limits.

**Table 2.32: Most frequent clinical treatments**

Treatment	Number	Per cent of other treatments ( <i>n</i> =44,504)	Rate per 100 encounters ( <i>n</i> =101,993)	95% LCL	95% UCL
Counselling—problem*	4,887	11.0	4.8	4.1	5.4
Advice/education*	4,858	10.9	4.8	4.1	5.4
Counselling/advice—nutrition/weight*	3,678	8.3	3.6	3.2	4.0
Advice/education—treatment*	3,111	7.0	3.1	2.6	3.5
Counselling—psychological*	3,110	7.0	3.1	2.8	3.3
Sickness certificate*	1,644	3.7	1.6	1.4	1.9
Advice/education—medication*	1,597	3.6	1.6	1.4	1.7
Counselling/advice—exercise*	1,116	2.5	1.1	0.9	1.2

(continued)

**Table 2.32 (continued): Most frequent clinical treatments**

Treatment	Number	Per cent of other treatments (n=44,504)	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
Reassurance, support	1,023	2.3	1.0	0.8	1.2
Other admin/document*	1,012	2.3	1.0	0.9	1.1
Counselling/advice—smoking*	530	1.2	0.5	0.4	0.6
Counselling/advice—life style*	470	1.1	0.5	0.3	0.6
Counselling/advice—alcohol*	307	0.7	0.3	0.3	0.3
Observe/wait*	304	0.7	0.3	0.2	0.4
Counselling/advice—pregnancy*	298	0.7	0.3	0.2	0.4
Family planning*	282	0.6	0.3	0.2	0.3
Counselling/advice—relaxation*	239	0.5	0.2	0.2	0.3
<i>Subtotal</i>	28,692	64.5	—	—	—
<b>Total clinical treatments</b>	<b>29,785</b>	<b>66.9</b>	<b>29.2</b>	<b>27.3</b>	<b>31.1</b>

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## Problems managed with clinical treatments

Table 2.33 lists the top ten problems managed with a clinical treatment. It also shows the extent to which a clinical treatment was used for that problem and the relationship between the use of a clinical treatment and a medication for individual problems.

- Clinical treatments were provided in the management of 27,210 problems (18.3% of all problems).
- The ten most common problems managed with a clinical treatment accounted for almost one-third of all problems for which a clinical treatment was provided.
- Almost half the contacts with depression involved a clinical treatment. Of these, half were also managed with a medication.
- One-quarter of upper respiratory tract infection contacts involved a clinical treatment, with over 60% of these encounters managed without medication.
- Only 11% of hypertension contacts resulted in a clinical treatment. For half of these a medication was also prescribed, supplied or advised.
- At one-quarter of both lipid disorder and diabetes contacts a clinical treatment was used, and two-thirds of these did not involve medication.

**Table 2.33: The ten most common problems managed with a clinical treatment**

Problem managed	Number	Per cent of problems with clinical treatment	Rate per 100 encounters <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL	Per cent of this problem <sup>(b)</sup>	Per cent of treated problems no meds <sup>(c)</sup>
Depression*	1,683	6.2	1.7	1.5	1.8	45.7	49.9
Upper respiratory tract infection	1,584	5.8	1.6	1.3	1.8	25.0	61.8
Hypertension*	1,031	3.8	1.0	0.9	1.2	10.7	50.4
Diabetes*	845	3.1	0.8	0.7	0.9	23.3	63.4
Anxiety*	811	3.0	0.8	0.7	0.9	44.2	65.7
Lipid disorders*	814	3.0	0.8	0.7	0.9	23.4	63.7
Back complaint*	533	2.0	0.5	0.4	0.6	19.8	56.4
Gastroenteritis, presumed infectious	467	1.7	0.5	0.4	0.5	42.1	63.0
Sprain/strain*	465	1.7	0.5	0.4	0.5	26.0	62.8
Test results*	460	1.7	0.5	0.3	0.6	31.5	95.2
<i>Subtotal</i>	<i>8,694</i>	<i>32.0</i>	—	—	—	—	—
<b>Total problems</b>	<b>27,210</b>	<b>100.0</b>	<b>26.7</b>	<b>25.1</b>	<b>28.3</b>	—	—

(a) Rate of provision of clinical treatment for selected problem per 100 total encounters.

(b) Per cent of contacts with this problem that generated at least one clinical treatment.

(c) The numerator is the number of cases of this problem that generated at least one clinical treatment but generated no medications. The denominator is the total number of contacts for this problem that generated at least one clinical treatment (with or without medications).

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: LCL—lower confidence limit; UCL—upper confidence limit; meds—medications.

## Procedural treatments

Procedural treatments included therapeutic actions and diagnostic procedures undertaken at the encounter. However, they do not include injections for immunisations/vaccinations given by either the GP or a practice nurse, as these have already been counted as medications (see Section 2.7). There were a total number of 14,719 procedural treatments provided in general practice during the study year (Table 2.30).

## Most frequent procedures

Table 2.34 lists the most common procedural treatments provided by GPs. Each treatment is expressed as a percentage of all other treatments and as a rate per 100 encounters with 95% confidence limits. To find the total number of diagnostic procedures ordered or performed by the GP, the numbers of investigations in Table 2.34 need to be added to those in Table 2.46, which reports the most common other investigations ordered by GPs.

**Table 2.34: Most frequent procedural treatments**

Treatment	Number	Per cent of other treatments <sup>(a)</sup> (n=44,504)	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	3,043	6.8	3.0	2.7	3.2
Dressing/pressure/compression/tamponade*	2,119	4.8	2.1	1.9	2.3
Local injection/infiltration*	2,006	4.5	2.0	1.8	2.2
Physical medicine/rehabilitation*	1,406	3.2	1.4	1.1	1.6
Incision/drainage/flushing/aspiration/removal body fluid*	1,304	2.9	1.3	1.2	1.4
Pap smear*	983	2.2	1.0	0.8	1.1
Repair/fixation—suture/cast/prosthetic device (apply/remove)*	982	2.2	1.0	0.9	1.1
Other therapeutic procedures/surgery NEC*	794	1.8	0.8	0.6	0.9
Electrical tracings*	416	0.9	0.4	0.3	0.5
Physical function test*	409	0.9	0.4	0.3	0.5
Urine test*	291	0.7	0.3	0.2	0.3
Other preventive procedures/high-risk medication, condition*	224	0.5	0.2	0.2	0.3
<i>Subtotal</i>	<i>13,977</i>	<i>31.4</i>	—	—	—
<b>Total procedural treatments</b>	<b>14,719</b>	<b>33.1</b>	<b>14.4</b>	<b>13.7</b>	<b>15.1</b>

(a) Only the most common procedural treatments are included, those accounting for >0.5% of all other treatments.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

+ Excludes all local injection/infiltrations performed for immunisations.

Note: LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified.

## Problems managed with a procedural treatment

Table 2.35 lists the top ten problems managed with a procedural treatment. It also demonstrates the proportion of contacts with each problem managed with a procedure and the proportion of problems managed with a procedure but without a concomitant medication.

- A total of 13,833 problems involved a procedural treatment in their management (9.3% of all problems).
- The top ten problems accounted for less than 40% of all problems for which a procedure was used.
- Solar keratosis/sunburn was the most common problem managed with a procedure, undertaken for 70% of all solar keratosis/sunburn contacts.
- Over 70% of malignant skin neoplasms were managed with a procedural treatment, and the vast majority of these did not have a medication prescribed, supplied or advised.

**Table 2.35: The ten most common problems managed with a procedural treatment**

Problem managed	Number	Per cent of problems with procedure	Rate per 100 encs <sup>(a)</sup> (n=101,993)	95% LCL	95% UCL	Per cent of this problem <sup>(b)</sup>	Per cent of treated problems no meds <sup>(c)</sup>
Solar keratosis/sunburn	874	6.3	0.9	0.8	1.0	70.7	97.6
Female genital check-up*	799	5.8	0.8	0.7	0.9	43.7	97.6
Excessive ear wax	679	4.9	0.7	0.6	0.8	79.2	71.7
Malignant neoplasm skin	586	4.2	0.6	0.5	0.6	71.8	94.7
Laceration/cut	534	3.9	0.5	0.5	0.6	77.1	97.5
Back complaint*	433	3.1	0.4	0.4	0.5	41.8	97.1
Warts	429	3.1	0.4	0.4	0.5	72.1	80.7
Sprain/strain*	359	2.6	0.4	0.3	0.4	20.1	53.2
Chronic skin ulcer (incl varicose ulcer)	319	2.3	0.3	0.2	0.4	11.8	57.8
Skin disease, other	218	1.6	0.2	0.2	0.3	26.4	94.0
<i>Subtotal</i>	<i>5,228</i>	<i>37.8</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
<b>Total problems</b>	<b>13,833</b>	<b>100.0</b>	<b>13.6</b>	<b>12.9</b>	<b>14.2</b>	<b>—</b>	<b>—</b>

(a) Rate of provision of procedural treatment for selected problem per 100 total encounters.

(b) Percentage of contacts with this problem that generated at least one procedural treatment.

(c) The numerator is the number of cases of this problem that generated at least one procedural treatment but generated no medications. The denominator is the total number of contacts (for this problem) that generated at least one procedural treatment (with or without medications).

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; meds—medications; incl—including.

## 2.9 Referrals and admissions

A referral is defined as the process by which the responsibility for part or all of the care of a patient is temporarily transferred to another health care provider. Only new referrals arising at the encounter were included (i.e. continuations were not recorded). For each encounter, GPs could record up to two referrals. These included referrals to specialists, allied health professionals, hospitals for admission, emergency departments or other medical services. Referrals to hospital outpatient clinics and other GPs were classified as referrals to other medical services.

### Number of referrals and admissions

Table 2.36 provides a summary of referrals and admissions, and the rates per 100 encounters and per 100 problems for which referrals were provided. The patient was given at least one referral at 11.3% of all encounters, and for 8.2% of all problems managed. The most frequent referrals were to specialists, followed by referrals to allied health services. Very few patients were referred to hospitals, to the hospital emergency department, or to other medical services.



**Table 2.36: Summary of referrals and admissions**

Variable	Number	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL	Rate per 100 problems (n=149,088)	95% LCL	95% UCL
At least one referral <sup>(a)</sup>	11,543	11.3	10.9	11.8	8.2	7.9	8.5
Referrals	12,233	12.0	11.5	12.5	8.2	7.9	8.5
Specialist	8,342	8.2	7.8	8.5	5.6	5.4	5.8
Allied health service	2,932	2.9	2.7	3.1	2.0	1.8	2.1
Hospital	373	0.4	0.3	0.4	0.3	0.2	0.3
Emergency department	192	0.2	0.2	0.2	0.1	0.1	0.2
Other medical services	60	0.1	0.0	0.1	0.0	0.0	0.1
Other referrals	334	0.3	0.3	0.4	0.2	0.2	0.3

(a) Rate per 100 problems for at least one referral is calculated using a numerator of number of individual problems with a referral (n=12,225).

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## Most frequent referrals

Table 2.37 shows the specialists and allied health service groups to whom GPs most often refer. The most common referrals were to ophthalmologists, surgeons and dermatologists. Almost 40% of referrals to allied health services were to physiotherapists.

**Table 2.37: The most frequent referrals by type**

Professional/organisation	Number	Per cent of referrals <sup>(a)</sup>	Per cent of referral group	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
<b>Medical specialist</b>	<b>8,342</b>	<b>74.0</b>	<b>100.0</b>	<b>8.2</b>	<b>7.8</b>	<b>8.5</b>
Ophthalmologist	820	7.3	9.8	0.8	0.7	0.9
Surgeon	773	6.9	9.3	0.8	0.7	0.8
Dermatologist	715	6.3	8.6	0.7	0.6	0.8
Orthopaedic surgeon	709	6.3	8.5	0.7	0.6	0.8
Cardiologist	619	5.5	7.4	0.6	0.5	0.7
Gynaecologist	548	4.9	6.6	0.5	0.5	0.6
Gastroenterologist	530	4.7	6.4	0.5	0.5	0.6
Ear, nose and throat	499	4.4	6.0	0.5	0.4	0.5
Urologist	332	2.9	4.0	0.3	0.3	0.4
Neurologist	266	2.4	3.2	0.3	0.2	0.3
<i>Subtotal: top ten specialist referrals</i>	<i>5,811</i>	<i>51.5</i>	<i>69.7</i>	—	—	—
<b>Allied health and other professionals</b>	<b>2,932</b>	<b>26.0</b>	<b>100.0</b>	<b>2.9</b>	<b>2.7</b>	<b>3.1</b>
Physiotherapy	1,161	10.3	39.6	1.1	1.0	1.3
Psychologist	286	2.5	9.7	0.3	0.2	0.3
Podiatrist/chiroprapist	233	2.1	8.0	0.2	0.2	0.3
Dietitian/nutritionist	232	2.1	7.9	0.2	0.2	0.3
Dentist	159	1.4	5.4	0.2	0.1	0.2

(continued)

**Table 2.37 (continued): The most frequent referrals by type**

Professional/organisation	Number	Per cent of referrals <sup>(a)</sup>	Per cent of referral group	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
Optometrist	79	0.7	2.7	0.1	0.1	0.1
Counsellor	75	0.7	2.6	0.1	0.0	0.1
Audiologist	72	0.6	2.4	0.1	0.0	0.1
Diabetes education	57	0.5	2.0	0.1	0.0	0.1
Mental health team	50	0.4	1.7	0.1	0.0	0.1
<i>Subtotal: top ten allied health referrals</i>	<i>2,404</i>	<i>21.3</i>	<i>82.0</i>	—	—	—
<b>Total specialist and allied health referrals</b>	<b>11,274</b>	<b>100.0</b>	—	<b>11.1</b>	<b>10.6</b>	<b>11.6</b>

(a) Per cent of referrals to specialists and allied health services.

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## Problems most often referred

A referral to a specialist was provided in the management of 8,524 problems. The ten problems most commonly referred to a specialist accounted for 18.7% of all problems referred to a specialist. The problems most often referred were diabetes (2.9% of problems referred to a specialist), malignant skin neoplasm, pregnancy and back complaint (Table 2.38).

Table 2.38 also shows the rate of referral per 100 contacts for each problem. Although diabetes accounted for the greatest proportion of problems referred, the problem most likely to result in a referral to a specialist was cataract, with GPs referring more than two out of every three contacts with a cataract problem.

**Table 2.38: The ten problems most frequently referred to a medical specialist**

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n=101,993)	95% LCL	95% UCL	Rate per 100 contacts of this problem <sup>(a)</sup>
Diabetes*	249	2.9	0.2	0.2	0.3	6.9
Malignant skin neoplasm	217	2.6	0.2	0.2	0.3	21.0
Pregnancy*	185	2.2	0.2	0.2	0.2	20.6
Back complaint*	161	1.9	0.2	0.1	0.2	6.0
Ischaemic heart disease*	155	1.8	0.2	0.1	0.2	11.7
Depression*	139	1.6	0.1	0.1	0.2	3.8
Osteoarthritis*	130	1.5	0.1	0.1	0.2	4.8
Oesophagus disease	122	1.4	0.1	0.1	0.2	5.1
Hypertension*	122	1.4	0.1	0.1	0.2	1.3
Cataract	116	1.4	0.1	0.1	0.1	70.7
<i>Subtotal: top ten problems referred to a specialist</i>	<i>1,596</i>	<i>18.7</i>	—	—	—	—
<b>Total problems referred to specialist</b>	<b>8,524</b>	<b>100.0</b>	<b>8.4</b>	<b>8.0</b>	<b>8.7</b>	—

(a) The rate of referrals to medical specialists per 100 contacts with the problem.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

There were 3,034 problems referred to an allied health professional or service. The ten most common of these accounted for 44.8% of all problems referred to allied health services, with back complaint the most common. However, the problem most likely to result in a referral to an allied health service was teeth/gum disease, with one in four contacts resulting in referral (Table 2.39).

The ten problems most frequently referred to hospital are shown in Table 2.40.

**Table 2.39: The ten problems most frequently referred to allied health services**

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n=101,993)	95% LCL	95% UCL	Rate per 100 contacts of this problem <sup>(a)</sup>
Back complaint*	257	8.5	0.3	0.2	0.3	9.5
Sprain/strain*	224	7.4	0.2	0.2	0.3	12.5
Depression*	200	6.6	0.2	0.2	0.2	5.4
Diabetes*	175	5.8	0.2	0.1	0.2	4.8
Osteoarthritis*	114	3.8	0.1	0.1	0.1	4.2
Teeth/gum disease	101	3.3	0.1	0.1	0.1	26.6
Anxiety*	87	2.9	0.1	0.1	0.1	4.7
Musculoskeletal injury NOS	76	2.5	0.1	0.1	0.1	9.2
Shoulder syndrome	69	2.3	0.1	0.1	0.1	13.9
Musculoskeletal disease, other	55	1.8	0.1	0.0	0.1	7.3
<i>Subtotal: top ten problems referred to AHS</i>	<i>1,358</i>	<i>44.8</i>	—	—	—	—
<b>Total problems referred to AHS</b>	<b>3,034</b>	<b>100.0</b>	<b>3.0</b>	<b>2.7</b>	<b>3.2</b>	—

(a) The rate of referrals to allied health services per 100 contacts with the problem.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified; AHS—allied health service.

**Table 2.40: The ten problems most frequently referred to hospital**

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n=101,993)	95% LCL	95% UCL	Rate per 100 contacts of this problem <sup>(a)</sup>
Ischaemic heart disease*	20	5.0	0.02	0.01	0.03	1.5
Fracture*	17	4.3	0.02	0.01	0.03	1.6
Pregnancy*	16	4.1	0.02	0.01	0.02	1.8
Appendicitis	13	3.2	0.01	0.00	0.02	23.9
Pneumonia	12	3.1	0.01	0.00	0.02	3.4
Chronic obstructive pulmonary disease	10	2.6	0.01	0.00	0.02	1.4
Stroke/cerebrovascular accident	8	2.1	0.01	0.00	0.01	4.0
Pre/postnatal check-up*	8	2.1	0.01	0.00	0.01	1.4
Depression*	7	1.9	0.01	0.00	0.01	0.2
Musculoskeletal injury NOS	7	1.9	0.01	0.00	0.01	0.9
<i>Subtotal: top ten problems referred for admission</i>	<i>119</i>	<i>30.2</i>	—	—	—	—
<b>Total problems referred to hospital</b>	<b>393</b>	<b>100.0</b>	<b>0.4</b>	<b>0.3</b>	<b>0.5</b>	—

(a) The rate of referrals to hospital per 100 contacts with the problem.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified.

## 2.10 Investigations

The GPs participating in the study were asked to record (in free text) any pathology, imaging or other tests ordered or undertaken at the encounter and to nominate the patient problem(s) associated with each test order placed. This allows the linkage of test orders to a single problem or multiple problems. Up to five orders for pathology and two for imaging and other tests could be recorded at each encounter. A single test may have been ordered for the management of multiple problems, and multiple tests may have been used in the management of a single problem.

A pathology test order may be for a single test (e.g. Pap smear, HbA1c) or for a battery of tests (e.g. lipids, full blood count). Where a battery of tests was ordered, the battery name was recorded rather than each individual test. GPs also recorded the body site for any imaging ordered (e.g. X-ray chest, CT head).

### Numbers of investigations

Table 2.41 shows the number of encounters and problems at which a pathology or imaging test was ordered. There were no tests recorded at the vast majority (77.9%) of encounters.

At least one pathology test order was recorded at 16.4% of encounters (for 12.7% of problems managed) and at least one imaging test was ordered at 7.8% of encounters (for 5.5% of problems managed).

**Table 2.41: Number of encounters and problems for which pathology or imaging ordered**

Variable	Number of encs	Per cent of encs (n=101,993)	95% LCL	95% UCL	Number of problems	Per cent of problems (n=149,088)	95% LCL	95% UCL
Pathology and imaging ordered	2,110	2.1	1.9	2.2	1,526	1.0	0.9	1.1
Pathology only ordered	14,583	14.3	13.8	14.8	17,411	11.7	11.3	12.1
Imaging only ordered	5,818	5.7	5.4	6.0	6,665	4.5	4.3	4.7
No tests ordered	79,482	77.9	77.3	78.6	123,485	82.8	82.3	83.4
At least one pathology ordered	16,693	16.4	15.8	16.9	18,938	12.7	12.2	13.2
At least one imaging ordered	7,928	7.8	7.4	8.1	8,192	5.5	5.3	5.7

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

### Pathology ordering

A comprehensive report on pathology ordering by GPs in Australia in 1998, written by the then General Practice Statistics and Classification Unit (GPSCU) using BEACH data, was published on the Internet by the Diagnostics and Technology Branch of the Department of Health and Aged Care during 2000.<sup>15</sup> A report on changes in pathology ordering by GPs from 1998 to 2001 was also published by the GPSCU in 2003.<sup>16</sup> Readers may wish to compare those results with the information presented below.

## Nature of pathology orders at encounter

The distribution of pathology tests by Medicare Benefits Schedule (MBS) group and the most common tests within each group are presented in Table 2.42. Each group and individual test is expressed as a percentage of all pathology tests, as a percentage of the group and as a rate per 100 encounters with 95% confidence limits.

The pathology tests recorded were grouped according to the categories set out in Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>. The main pathology groups reflect those used in previous analyses by Medicare Australia of pathology tests recorded.<sup>31</sup>

**Table 2.42: Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group**

Pathology test ordered	Number	Per cent of all pathology	Per cent of group	Rate per 100 encs (n=101,993)	95% LCL	95% UCL
<b>Chemistry</b>	<b>22,185</b>	<b>56.4</b>	<b>100.0</b>	<b>21.8</b>	<b>20.6</b>	<b>22.9</b>
Lipids	3,859	9.8	17.4	3.8	3.5	4.1
EUC	2,807	7.1	12.7	2.8	2.5	3.0
Liver function	2,578	6.6	11.6	2.5	2.3	2.7
Glucose/tolerance	2,367	6.0	10.7	2.3	2.1	2.6
Thyroid function	2,168	5.5	9.8	2.1	2.0	2.3
Multibiochemical analysis	1,875	4.8	8.4	1.8	1.6	2.1
Chemistry; other	1,056	2.7	4.8	1.0	0.9	1.2
HbA1c	1,027	2.6	4.6	1.0	0.9	1.1
Ferritin	925	2.4	4.2	0.9	0.8	1.0
Prostate specific antigen	756	1.9	3.4	0.7	0.7	0.8
Hormone assay	749	1.9	3.4	0.7	0.6	0.8
C reactive protein	495	1.3	2.2	0.5	0.4	0.6
<b>Haematology</b>	<b>7,460</b>	<b>19.0</b>	<b>100.0</b>	<b>7.3</b>	<b>6.9</b>	<b>7.7</b>
Full blood count	5,379	13.7	72.1	5.3	5.0	5.6
ESR	925	2.4	12.4	0.9	0.8	1.0
Coagulation	891	2.3	11.9	0.9	0.8	1.0
<b>Microbiology</b>	<b>5,677</b>	<b>14.4</b>	<b>100.0</b>	<b>5.6</b>	<b>5.2</b>	<b>5.9</b>
Urine MC&S	1,846	4.7	32.5	1.8	1.7	1.9
Microbiology; other	776	2.0	13.7	0.8	0.7	0.8
Hepatitis serology	604	1.5	10.6	0.6	0.5	0.7
Faeces MC&S	333	0.9	5.9	0.3	0.3	0.4
Chlamydia	317	0.8	5.6	0.3	0.2	0.4
Vaginal swab and C&S	316	0.8	5.6	0.3	0.3	0.4
HIV	307	0.8	5.4	0.3	0.2	0.4
<b>Cytology</b>	<b>1,773</b>	<b>4.5</b>	<b>100.0</b>	<b>1.7</b>	<b>1.6</b>	<b>1.9</b>
Pap smear	1,731	4.4	97.6	1.7	1.5	1.9

(continued)

**Table 2.42 (continued): Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group**

Pathology test ordered	Number	Per cent of all pathology	Per cent of group	Rate per 100 encs (n=101,993)	95% LCL	95% UCL
<b>Other NEC</b>	<b>709</b>	<b>1.8</b>	<b>100.0</b>	<b>0.7</b>	<b>0.6</b>	<b>0.8</b>
Blood test	296	0.8	41.7	0.3	0.2	0.4
<b>Infertility/pregnancy</b>	<b>224</b>	<b>0.6</b>	<b>100.0</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>
<b>Tissue pathology</b>	<b>591</b>	<b>1.5</b>	<b>100.0</b>	<b>0.6</b>	<b>0.5</b>	<b>0.7</b>
Histology, skin	547	1.4	92.4	0.5	0.5	0.6
<b>Immunology</b>	<b>593</b>	<b>1.5</b>	<b>100.0</b>	<b>0.6</b>	<b>0.5</b>	<b>0.7</b>
Immunology, other	268	0.7	45.2	0.3	0.2	0.3
<b>Simple basic tests</b>	<b>145</b>	<b>0.4</b>	<b>100.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>
<b>Total pathology tests</b>	<b>39,358</b>	<b>100.0</b>	<b>—</b>	<b>38.6</b>	<b>36.9</b>	<b>40.3</b>

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified.

### Problems for which pathology tests were ordered

Table 2.43 describes, in decreasing frequency order of problem–pathology combinations, the most common problems for which pathology was ordered. The two right-hand columns show the proportion of each problem that resulted in a pathology order and the rate of pathology orders per 100 specified problems when at least one test is ordered. For example, 30% of contacts with diabetes result in pathology orders, and when at least one pathology test is ordered for diabetes, 263 tests are ordered per 100 diabetes contacts.

**Table 2.43: The ten problems for which pathology was most frequently ordered**

Problem managed	Number of problems	Number of problem–path combinations <sup>(a)</sup>	Per cent of problem–path combinations <sup>(a)</sup>	Per cent of problems with test <sup>(b)</sup>	Rate of path orders per 100 problems with pathology <sup>(c)</sup>
Diabetes*	3,618	2,849	7.0	30.0	262.8
Hypertension*	9,635	2,734	6.7	11.6	244.8
Lipid disorders*	3,479	2,207	5.4	31.0	204.7
General check-up*	2,106	1,655	4.1	26.3	299.0
Female genital check-up*	1,829	1,503	3.7	70.7	116.3
Weakness/tiredness general	589	1,399	3.4	63.6	373.7
Urinary tract infection*	1,788	1,066	2.6	54.6	109.3
Blood test NOS	325	932	2.3	86.8	330.4
Pregnancy*	895	799	2.0	39.9	223.5
Microbiology/immunology NOS	208	600	1.5	87.7	330.0
<i>Subtotal</i>	<i>24,472</i>	<i>15,744</i>	<i>38.7</i>	<i>—</i>	<i>—</i>
<b>Total</b>	<b>149,088</b>	<b>40,648</b>	<b>100.0</b>	<b>12.7</b>	<b>207.8</b>

(a) A test was counted more than once if it was ordered for the management of more than one problem at an encounter. There were 39,358 pathology test orders and 40,648 problem–pathology combinations.

(b) The percentage of total contacts with the problem that generated at least one order for pathology.

(c) The rate of pathology orders placed per 100 contacts with that problem generating at least one order for pathology.

\* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Path—pathology; NOS—not otherwise specified.

## Imaging ordering

Readers wanting a more detailed study of imaging orders should consult the comprehensive report on imaging orders by GPs in Australia in 1999–00, written by the GPSCU using BEACH data, published by the AIHW in 2001.<sup>17</sup>

### Nature of imaging orders at encounter

The distribution of imaging tests by MBS group and the most common tests within each group are presented in Table 2.44. Each group and individual test is expressed as a percentage of all imaging tests, as a percentage of the group and as a rate per 100 encounters with 95% confidence limits.

**Table 2.44: The most frequent imaging tests ordered, by MBS group**

Imaging test ordered	Number	Per cent of tests	Per cent of group	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
<b>Diagnostic radiology</b>	<b>4,877</b>	<b>54.2</b>	<b>100.0</b>	<b>4.8</b>	<b>4.5</b>	<b>5.0</b>
X-ray; chest	1,126	12.5	23.1	1.1	1.0	1.2
X-ray; knee	491	5.5	10.1	0.5	0.4	0.5
Mammography; female	375	4.2	7.7	0.4	0.3	0.4
X-ray; ankle	251	2.8	5.1	0.3	0.2	0.3
X-ray; foot/feet	221	2.5	4.5	0.2	0.2	0.2
X-ray; shoulder	206	2.3	4.2	0.2	0.2	0.2
Test; densitometry	189	2.1	3.9	0.2	0.2	0.2
X-ray; spine; lumbosacral	187	2.1	3.8	0.2	0.1	0.2
X-ray; hip	176	2.0	3.6	0.2	0.1	0.2
X-ray; wrist	151	1.7	3.1	0.2	0.1	0.2
X-ray; spine; lumbar	148	1.7	3.0	0.2	0.1	0.2
X-ray; hand	145	1.6	3.0	0.1	0.1	0.2
X-ray; finger(s)/thumb	121	1.3	2.5	0.1	0.1	0.1
X-ray; spine; cervical	121	1.3	2.5	0.1	0.1	0.1
X-ray; abdomen	84	0.9	1.7	0.1	0.1	0.1
<b>Ultrasound</b>	<b>2,947</b>	<b>32.7</b>	<b>100.0</b>	<b>2.9</b>	<b>2.7</b>	<b>3.1</b>
Ultrasound; pelvis	498	5.5	16.9	0.5	0.4	0.6
Ultrasound; abdomen	314	3.5	10.7	0.3	0.3	0.4
Ultrasound; breast; female	287	3.2	9.7	0.3	0.2	0.3
Ultrasound; shoulder	285	3.2	9.7	0.3	0.2	0.3
Ultrasound; obstetric	234	2.6	7.9	0.2	0.2	0.3
Ultrasound; renal tract	126	1.4	4.3	0.1	0.1	0.1
Test; doppler	123	1.4	4.2	0.1	0.1	0.1
Echocardiography	121	1.4	4.1	0.1	0.1	0.1
Ultrasound; thyroid	101	1.1	3.4	0.1	0.1	0.1
Ultrasound; scrotum	80	1.0	3.2	0.1	0.0	0.4

(continued)

**Table 2.44 (continued): The most frequent imaging tests ordered, by MBS group**

Imaging test ordered	Number	Per cent of tests	Per cent of group	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
<b>Computerised tomography</b>	<b>1,025</b>	<b>11.4</b>	<b>100.0</b>	<b>1.0</b>	<b>0.9</b>	<b>1.1</b>
CT scan; brain	207	2.3	20.2	0.2	0.2	0.2
CT scan; spine; lumbar	125	1.4	12.2	0.1	0.1	0.2
CT scan; abdomen	114	1.3	11.1	0.1	0.1	0.1
CT scan; head	103	1.1	10.0	0.1	0.1	0.1
<b>Nuclear medicine imaging</b>	<b>106</b>	<b>1.2</b>	<b>100.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>
Scan; bone(s)	92	1.0	86.7	0.1	0.1	0.1
<b>Magnetic resonance imaging</b>	<b>48</b>	<b>0.5</b>	<b>100.0</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>Total imaging tests</b>	<b>9,003</b>	<b>100.0</b>	<b>—</b>	<b>8.8</b>	<b>8.4</b>	<b>9.2</b>

Note: LCL—lower confidence limit; UCL—upper confidence limit; CT—computerised tomography.

### Problems for which imaging tests were ordered

Table 2.45 describes, in decreasing frequency order of problem–imaging combinations, the most common problems for which imaging was ordered. The two right-hand columns show the proportion of each problem that resulted in an imaging test and the rate of imaging tests per 100 specified problems when at least one test is ordered – for example, 43% of contacts with fractures result in an imaging test and 109.8 tests are ordered per 100 fracture contacts when at least one test is ordered.

**Table 2.45: The ten problems for which an imaging test was most frequently ordered**

Problem managed	Number of probs	Number of problem–imaging combinations <sup>(a)</sup>	Per cent of problem–imaging combinations	Per cent of problems with test <sup>(b)</sup>	Rate of imaging orders per 100 tested problems <sup>(c)</sup>
Back complaint*	2,698	501.4	5.5	16.1	115.6
Fracture*	1,039	492.9	5.4	43.2	109.8
Osteoarthritis*	2,737	431.5	4.7	14.3	110.4
Sprain/strain*	1,787	372.0	4.1	18.0	115.4
Injury musculoskeletal NOS	825	247.5	2.7	25.6	117.3
Abdominal pain*	573	234.7	2.6	36.9	111.0
Injury skin, other	712	212.3	2.3	26.9	111.0
Pregnancy*	895	201.0	2.2	22.2	101.2
Breast lump/mass (female)	201	195.1	2.1	67.7	143.0
Shoulder syndrome	497	161.7	1.8	23.1	140.9
<i>Subtotal</i>	<i>11,964</i>	<i>3,050.2</i>	<i>33.5</i>	<i>—</i>	<i>—</i>
<b>Total</b>	<b>149,088</b>	<b>9,096</b>	<b>100.0</b>	<b>5.5</b>	<b>109.9</b>

(a) A test was counted more than once if it was ordered for the management of more than one problem at an encounter. There were 9,003 imaging test orders and 9,096 problem–imaging combinations.

(b) The percentage of total contacts with the problem that generated at least one order for imaging.

(c) The rate of imaging orders placed per 100 contacts with that problem generating at least one order for imaging.

\* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Probs—problems; NOS—not otherwise specified.



## Other investigations ordered

Other investigations include diagnostic procedures ordered by the GP at the encounter. There were a total of 1,040 other investigations ordered by GPs during the study year (Table 2.23).

### Most frequent procedures

Table 2.46 lists the most common other investigations ordered by GPs. Each investigation is expressed as a percentage of all 'other investigations' and as a rate per 100 encounters with 95% confidence limits.

To find the total number of these investigations ordered or performed by the GP, the numbers of investigations in Table 2.46 need to be added to those in Table 2.34, which reports the diagnostic procedures performed by the GP at the encounter.

**Table 2.46: Most frequent other investigations**

Treatment	Number	Per cent of other investigations	Rate per 100 encounters (n=101,993)	95% LCL	95% UCL
Electrical tracings*	523	51.4	0.5	0.4	0.6
Diagnostic endoscopy*	330	32.4	0.3	0.3	0.4
Physical function test*	147	14.5	0.1	0.1	0.2
<i>Subtotal</i>	<i>1,000</i>	<i>98.3</i>	—	—	—
<b>Total other investigations</b>	<b>1,017</b>	<b>100.0</b>	<b>1.0</b>	<b>0.9</b>	<b>1.1</b>

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## 2.11 Practice nurse activity

This section describes the activities of practice nurses that were directly associated with the GP–patient encounters recorded by the GPs in BEACH. New Medicare item numbers were introduced in November 2004 that allowed GPs to claim for specific tasks undertaken by a practice nurse under the direction of the GP. Changes in the recording form were made for the 2005–06 BEACH year to allow capture of this information. The changes in the form, and the methods of reporting, are described in Chapter 5. In summary: for the first time GPs were allowed to record multiple (up to three) Medicare item numbers where appropriate, rather than be limited to one item number. In the 'other treatments' section, for each problem managed, GPs were asked to tick the practice nurse box if the treatment recorded was provided by the practice nurse, rather than by the GP. If the box was not ticked it was assumed that the GP gave the 'other treatment'. The survey form allowed GPs to record up to two other treatments for each problem managed at the encounter. Other treatments included all clinical and procedural treatments provided at the encounters. These groups are defined in Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>. Patient observations that were regarded as routine clinical measurements, such as measurements of blood pressure, were not included.

This section investigates:

- the distribution of the Medicare items claimed for practice nurses (we reported the total number of these items as one group in Section 2.3, Table 2.11)
- the treatments provided by practice nurses in direct association with the GP-recorded encounters
- problems for which the practice nurse provided the treatment in direct association with the GP-recorded encounters.

In Section 2.8, we reported all treatments (other than medications) recorded by the GPs, irrespective of whether they were provided by the GP or by a practice nurse. As in previous years we did not include ‘injections’ recorded in the provision of immunisations and vaccinations, as these are already counted as pharmacological management. In contrast, in this section, being a description of practice nurse activity, we report only the activities ticked as being conducted by a practice nurse. We also include the injections for immunisation that were not counted in Section 2.8.

When viewing these results, it must be remembered that these ‘practice nurse’ data will not include activities undertaken by the practice nurse during the GP’s BEACH recording period that were outside (not associated with) the recorded encounter. Such activities could include Medicare claimable activities (e.g. immunisations/vaccinations) provided under instruction from the GP but not at the time of the encounter recorded in BEACH, or provision of other activities not currently claimable from Medicare (e.g. dietary advice on a one-to-one basis, or in a group situation).

## Practice nurse Medicare claims versus practice nurse activity

Practice nurses were involved in 4,013 GP–patient encounters but only 1,696 encounters (42.3%) were claimable for Medicare under the practice nurse item numbers. Items for practice nurse activities accounted for 1.5% of all items recorded in 2005–06 (Table 2.11).

### Distribution of practice nurse item numbers claimed at encounters

By far the majority (79.5%) of the 1,696 practice nurse item numbers recorded for the BEACH encounters were for the provision of immunisations by the practice nurse. A further 30% were for wound treatment. Items claimed for practice nurse conduct of Pap smears were very few, and the item for cervical smears for women who had not had a smear in the previous 4 years was never recorded (Table 2.47).

**Table 2.47: Distribution of practice nurse item numbers recorded at encounter**

Medicare item number	Short descriptor	Number	Per cent of total
10993	Immunisation	1179	69.5
10996	Wound treatment	509	30.0
10998	Cervical smear—in regional, rural or remote area (RRMA 3–7)	0	0.0
10999	Cervical smear—women 20–69, no smear in past 4 years—in regional, rural or remote area (RRMA 3–7)	8	0.5
<b>Total</b>	<b>All Medicare practice nurse item numbers</b>	<b>1,696</b>	<b>100.0</b>

*Note:* RRMA—Rural, Remote and Metropolitan Area classification. One encounter at which the patient was not seen by the GP but a practice nurse item number was recorded has been included in this table, but is not counted in the total practice nurse item numbers in Table 2.11.

## Treatments provided by practice nurses

There were 44,504 other treatments recorded by the GP that were reported in Section 2.8. There were a further 3,356 injections given, in the provision of immunisation (not reported in Section 2.8). In total there were 47,860 other treatments recorded.

At least one practice nurse activity was recorded at 4,013 encounters – 3.9% of all encounters. They were involved in the management of 4,110 problems (2.8% of all problems managed by the participating GPs). Total other treatments given by practice nurses numbered 4,310, representing 9.0% of all other treatments recorded at BEACH encounters. The majority (95.2%) of the practice nurse activity was procedural in nature. These procedures represented almost a quarter (22.7%) of all procedures recorded. In contrast, the practice nurse undertook less than 1% of all clinical treatments recorded (Table 2.48).

**Table 2.48: Summary of other treatments given by practice nurse**

Treatment	Performed by the practice nurse		Performed by the GP		Total number recorded <sup>(a)</sup>
	Number	Per cent of total	Number	Per cent of total	
Clinical treatments	208	0.7	29,577	99.3	29,785
Procedural treatments <sup>(a)</sup>	4,103	22.7	14,147	77.3	18,075
<b>Total other treatments</b>	<b>4,310</b>	<b>9.0</b>	<b>43,724</b>	<b>91.4</b>	<b>47,860</b>

(a) Procedural treatments include all injections given for immunisations/vaccinations.

Table 2.49 provides a breakdown of the treatments undertaken by a practice nurse at the recorded encounters. As previously stated, procedures made up the vast majority of the practice nurse activity. Of the 4,103 procedures recorded, 40.1% were injections (which in the majority were for immunisations) and a further 23.2% were dressing/pressure/compression/tamponade. Together these accounted for more than half of all procedures undertaken by practice nurses. However, practice nurses provided a wide range of other activities in association with the GP encounters, and the most common are listed in Table 2.49.

Comparing this table with the claims data in Table 2.47, we can conclude that 71.7% of the injections were claimed as a practice nurse Medicare item number and 53.2% of the dressing/pressure/compression/tamponade work was claimed under Medicare. Some of the dressings may be follow-up encounters where the follow-up treatment is included in the initial Medicare claim (claimed in the past), and may therefore not be claimable for the practice nurse.

Clinical treatments (such as advice and counselling) accounted for only 5% of the practice nurse activity. General advice/education was most commonly recorded, accounting for 17.1% of the clinical treatments provided by the nurse, followed by counselling about the problem under management (16.7%), other administrative and documentation work (12.9%) and counselling/advice about nutrition/weight (11.0%).

**Table 2.49: Most frequent treatments provided by practice nurses**

Treatment	Number	Per cent of group <sup>(a)</sup>	Rate per 100 encs involving practice nurse ( <i>n</i> =4,013) <sup>(a)</sup>	95% LCL	95% UCL
<b>Clinical treatments</b>	<b>208</b>	<b>100.0</b>	<b>5.2</b>	<b>3.7</b>	<b>6.7</b>
Advice/education*	36	17.1	0.9	0.4	1.3
Counselling—problem*	35	16.7	0.9	0.2	1.5
Other admin/document*	27	12.9	0.7	0.4	1.0
Counselling/advice—nutrition/weight*	23	11.0	0.6	0.2	1.0
Observe/wait*	21	10.1	0.6	0.0	1.2
<b>Procedural treatments</b>	<b>4,103</b>	<b>100.0</b>	<b>102.2</b>	<b>100.1</b>	<b>104.3</b>
Injection*	1,645	40.1	41.0	36.6	45.4
Dressing/pressure/compression/tamponade*	952	23.2	23.7	21.3	26.2
Incision/drainage/flushing/aspiration/removal body fluid*	326	8.0	8.1	6.2	10.0
Excision/removal issue/biopsy/destruction/debridement/cauterisation*	299	7.3	7.4	5.6	9.2
Repair/fixation—suture/cast/prosthetic device (apply/remove)*	256	6.2	6.4	5.0	7.8
Electrical tracings*	218	5.3	5.4	4.1	6.7
Physical function test*	158	3.8	3.9	2.6	5.3
Urine test*	57	1.4	1.4	0.8	2.0
Physical medicine/rehabilitation*	38	0.9	0.9	0.4	1.5
Other therapeutic procedures/surgery NEC*	37	0.9	0.9	0.5	1.3
Other diagnostic procedures*	34	0.8	0.9	0.3	1.4
Glucose test	28	0.7	0.7	0.3	1.1
<b>Total other treatments</b>	<b>4,310</b>	<b>—</b>	<b>107.4</b>	<b>105.9</b>	<b>108.9</b>

(a) Figures do not total 100 as more than one treatment can be performed by a practice nurse at each encounter and only those individual treatments accounting for  $\geq 0.5\%$  of total treatments by practice nurse are included.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified.

## Problems managed with practice nurse involvement

Treatments provided by a practice nurse were most often in the management of immunisation (30.2% of all problems managed with involvement of a practice nurse), followed by chronic skin ulcer (6.7%) and laceration/cut (6.3%) (Table 2.50).

**Table 2.50: The most common problems managed with the involvement of practice nurse**

Problem managed	Number	Per cent of problems involving practice nurse (n=4,110)	Rate per 100 encs involving practice nurse <sup>(a)</sup> (n=4,013)	95% LCL	95% UCL
Preventive immunisation/vaccination—all*	1240	30.2	30.9	26.9	34.9
Chronic skin ulcer (incl varicose ulcer)	274	6.7	6.8	5.6	8.0
Laceration/cut	258	6.3	6.4	5.0	7.8
Malignant neoplasm skin	130	3.2	3.2	2.3	4.2
General check-up*	100	2.4	2.5	1.7	3.3
Excessive ear wax	89	2.2	2.2	1.6	2.9
Skin infection, post traumatic	72	1.8	1.8	1.3	2.3
Diabetes*	70	1.7	1.7	1.0	2.4
Asthma	61	1.5	1.5	1.0	2.0
Repair/fixate—suture/cast/prosthetic device (apply/remove)	50	1.2	1.2	0.7	1.8
Skin symptom/complaint NEC	47	1.2	1.2	0.7	1.7
Atrial fibrillation/flutter	47	1.1	1.2	0.6	1.7
Abrasion/scratch/blister	47	1.1	1.2	0.7	1.6
Fracture*	44	1.1	1.1	0.7	1.5
Contraception, other than oral	43	1.1	1.1	0.6	1.5
Hypertension*	43	1.0	1.1	0.6	1.5
Injury skin NEC	41	1.0	1.0	0.6	1.4
<b>Total problems</b>	<b>4,110</b>	<b>100.0</b>	<b>102.4</b>	<b>101.7</b>	<b>103.2</b>

(a) Rate of nurse provision of treatment for selected problem per 100 total encounters.

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified; incl—including.

## Discussion

These results suggest that many GPs have utilised practice nurses for provision of immunisations and, to a lesser degree, for dressings. However, they also suggest that there has been very little utilisation of the Pap smear practice nurse item numbers. This may be due to multiple factors including:

- the fact that the practice nurse Pap smear Medicare item numbers can be claimed only by GPs in regional, rural and remote areas—i.e. by about 26% of all GPs in the BEACH sample frame (see Section 2.2, Table 2.2).
- possible patient preference for Pap smears to be done by the GP
- GP preference
- lack of training and experience of practice nurses in undertaking Pap smears
- the difficulty of separating out the Pap smear from the total clinical activity of a female check-up. Female genital checks often involve a bi-manual pelvic examination, breast check, and may also involve discussion of sexual issues and contraception which in turn may result in prescription of medication.

The practice nurse Medicare initiatives have clearly led to a shift of some work from the GP to the nurse. However, this has had an impact on the rate at which GPs provide their patients

with advice and counselling about health. Whether this advice and counselling is now being done by the practice nurse on other occasions, or as part of the procedural work the nurse does on behalf of the GP is not possible to assess from BEACH, as the nurse does not complete the BEACH form. The effect of the practice nurse on GP provision of advice and counselling is discussed in further detail in Section 4.2.

There were many activities undertaken by the practice nurse associated with the GP's BEACH encounters and many of these services were not claimable from Medicare. Some of these activities could be considered as possible additions to the Medicare practice nurse items. However, if this is to be considered, are there sufficient nurses available in the community to encourage expansion of their role in general practice without having a detrimental affect on the nursing labour force in other services such as hospitals?

## 2.12 Patient risk factors

General practice is commonly identified as a significant intervention point for health care and health promotion because GPs have considerable exposure to the health of the population.

Since April 1998, a section on the bottom of each encounter form has been used to investigate aspects of patient health or health care delivery not covered by general practice consultation-based information. These additional substudies are referred to as SAND (Supplementary Analysis of Nominated Data). The SAND methods, used in the substudies reported here, are described in Section 5.9).

### Body mass index

Overweight and obesity have been estimated to account for more than 4% of the total burden of disease in Australia.<sup>32</sup> The 1999–00 Australian diabetes, obesity and lifestyle study (AusDiab) estimated that 60% of Australians aged over 25 years were overweight or obese (BMI >25). Men were more likely to be overweight or obese than women (67% compared with 52%).<sup>33</sup> This year we have adopted the WHO recommendations<sup>34</sup> for BMI groups. This has affected the division between underweight and normal weight, which in previous reports was set at a BMI of 20, but is now set at 18.5. BMI data for previous years reported in Chapter 3 and Appendix 4 have been re-calculated and are reported for all years according to the WHO criteria.

### Body mass index of adults

The sample size was 33,101 patients aged 18 years and over at encounters with 1,005 GPs.

- More than half (56.8%) of patients were overweight or obese – 22.2% obese and 34.6% overweight.
- Only 2.8% of patients were underweight.
- 40% of patients had a BMI that was in the normal range (Table 2.51).
- Males were more likely to be overweight or obese (64.2%, 95% CI: 63.1–65.3) than females (51.9%, 95% CI: 50.8–52.9).
- Overweight/obesity was most prevalent in male patients aged 45–64 years (Figure 2.6).

- In the 18–24 years age group, 7.2% of women and 3.5% of men were underweight, as were 6.1% of women and 2.4% of men aged 75 years or more (Figure 2.7). This is considerably lower than reported in previous years because of the use of the lower BMI cut-off for normal of 18.5 instead of 20.

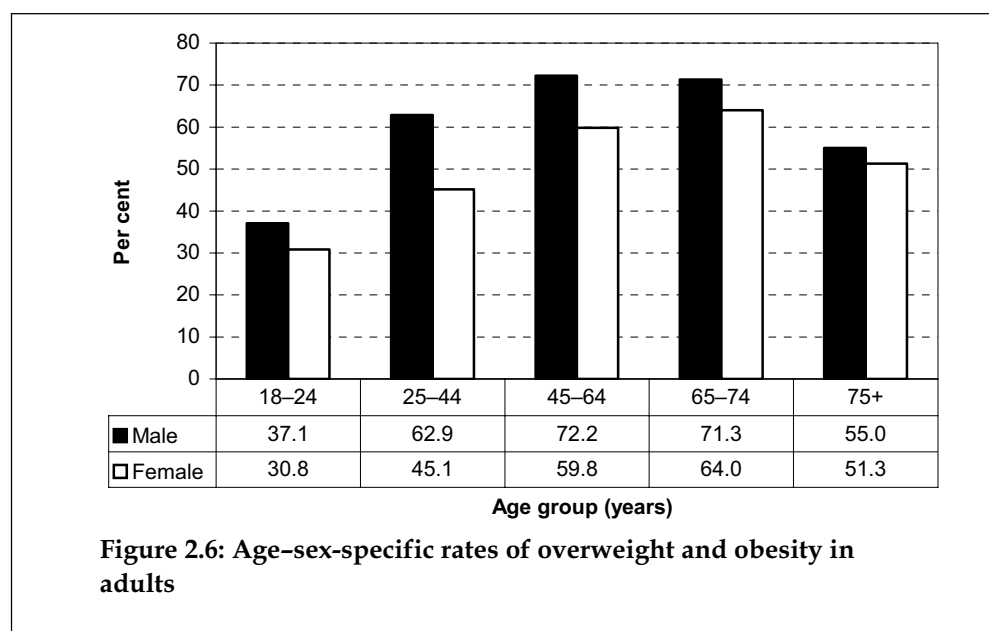
These results are consistent with those of the 1999–00 AusDiab study<sup>33</sup> and the results reported for each BEACH year from 2000–01 onwards.<sup>35</sup> They are also broadly consistent with the Australian Bureau of Statistics 2001 figures from the National Health Survey of 58% of adults aged 18 or more being overweight or obese.<sup>36</sup>

**Table 2.51: Patient body mass index (aged 18 years and over)**

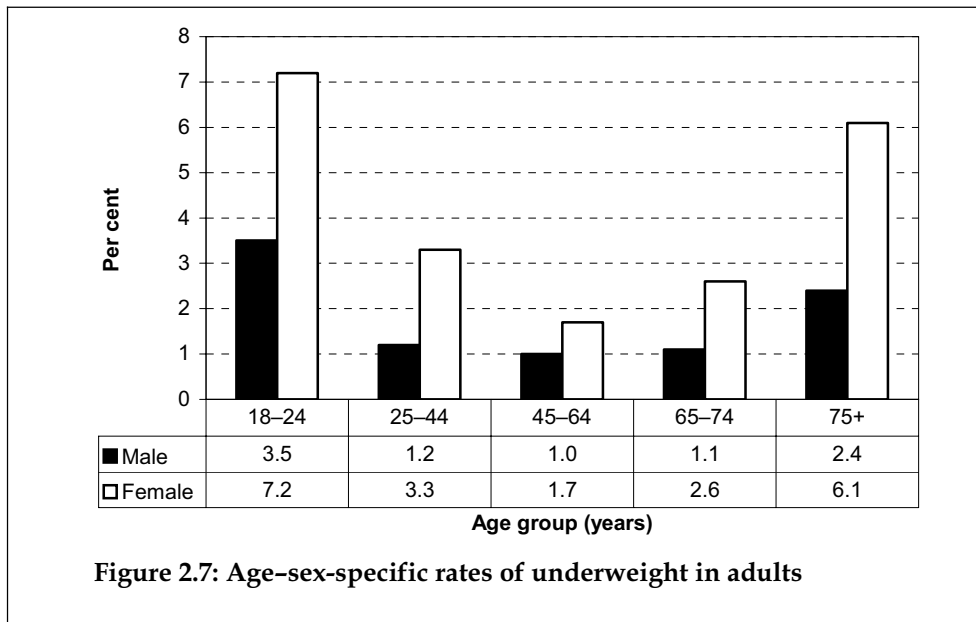
BMI class	Male <sup>(a)</sup>			Female <sup>(a)</sup>			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
Obese	21.6	20.7	22.5	22.6	21.7	23.4	22.2	21.5	22.9
Overweight	42.6	41.6	43.6	29.3	28.6	30.0	34.6	33.9	35.2
Normal	34.3	33.3	35.4	44.6	43.6	45.6	40.5	39.7	41.4
Underweight	1.5	1.3	1.7	3.5	3.2	3.8	2.8	2.5	3.0
<b>Total (n, %)</b>	<b>12,882</b>	<b>100.0</b>	—	<b>19,976</b>	<b>100.0</b>	—	<b>33,101</b>	<b>100.0</b>	—

(a) Patient sex was unknown for 243 respondents.

Note: BMI—body mass index; LCL—lower confidence limit; UCL—upper confidence limit.



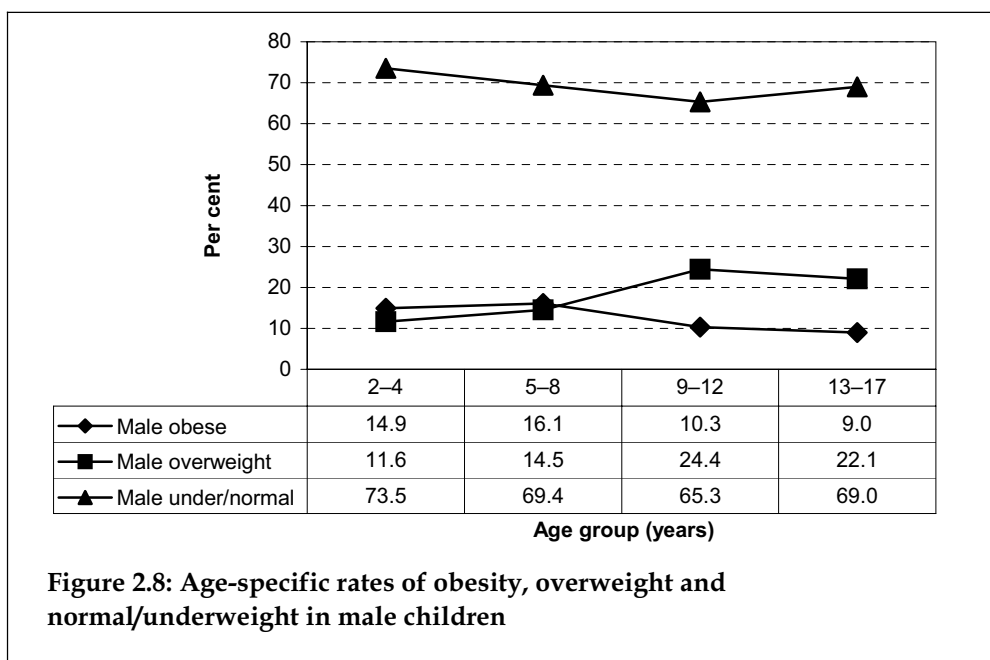
**Figure 2.6: Age-sex-specific rates of overweight and obesity in adults**



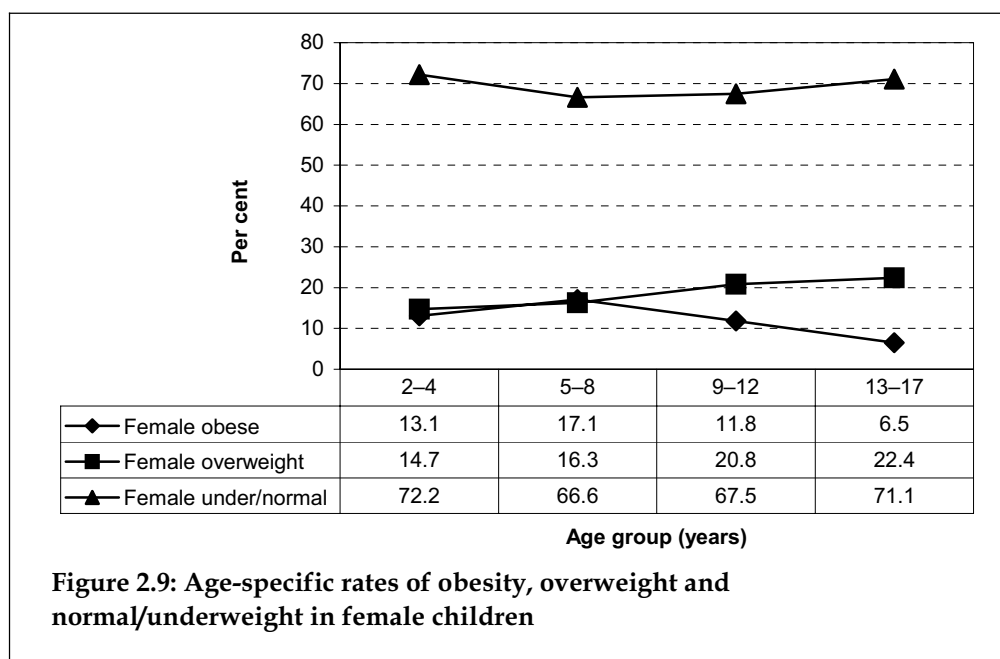
### Body mass index of children

BMI was calculated for 3,479 patients aged 2-17 years at encounters with 855 GPs.

- Three in ten children (30.4%, 95% CI: 28.6-32.3) were considered overweight or obese; 11.9% (95% CI: 10.6-13.2) of all children were considered obese and 18.6% (95% CI: 17.2-19.9) children were defined as overweight (results not tabulated).
- There was no difference in prevalence of overweight/obesity between male (30.5%, 95% CI: 28.1-33.0) and female children (30.4%, 95% CI: 28.1-32.7).
- The age-specific rates of being obese follow very similar patterns for both sexes (Figures 2.8 and 2.9).







**Figure 2.9: Age-specific rates of obesity, overweight and normal/underweight in female children**

## Smoking

Tobacco smoking is the leading cause of drug-related death and hospital separations in Australia.<sup>37</sup> It has been identified as the risk factor associated with the greatest disease burden, accounting for 9.7% of the total burden of disease in Australia.<sup>32</sup> According to the 2001 National Drug Strategy Household Survey (NDSHS), 19.5% of Australians aged 14 years and over smoked daily, 21.1% of males and 18.0% of females.<sup>38</sup>

The smoking status of 33,558 adult patients was established at encounters with 1,005 GPs.

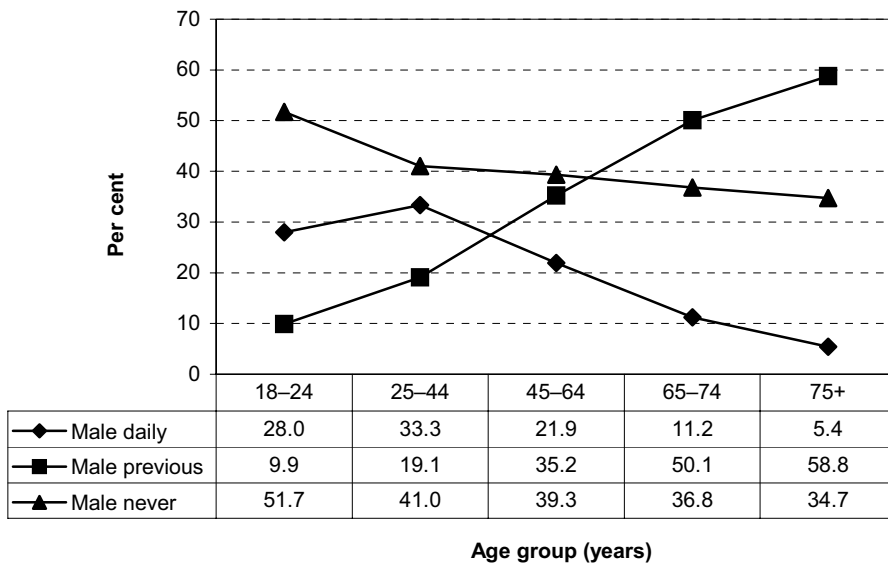
- 17% of adult patients were daily smokers.
- Significantly more male (20.7%) than female patients (14.7%) were daily smokers.
- Only 3.6% of adult patients were occasional smokers.
- More than a quarter of the adults (27.1%) were previous smokers (Table 2.52).
- Daily smoking was most prevalent among younger adult patients (aged 18–24 and 25–44) with one in four of these patients reporting daily smoking.
- Almost 60% of male and 25% of female patients aged 75 years and over were previous smokers but only 5% in this age group were daily smokers (Figures 2.10 and 2.11).

**Table 2.52: Patient smoking status (aged 18 years and over)**

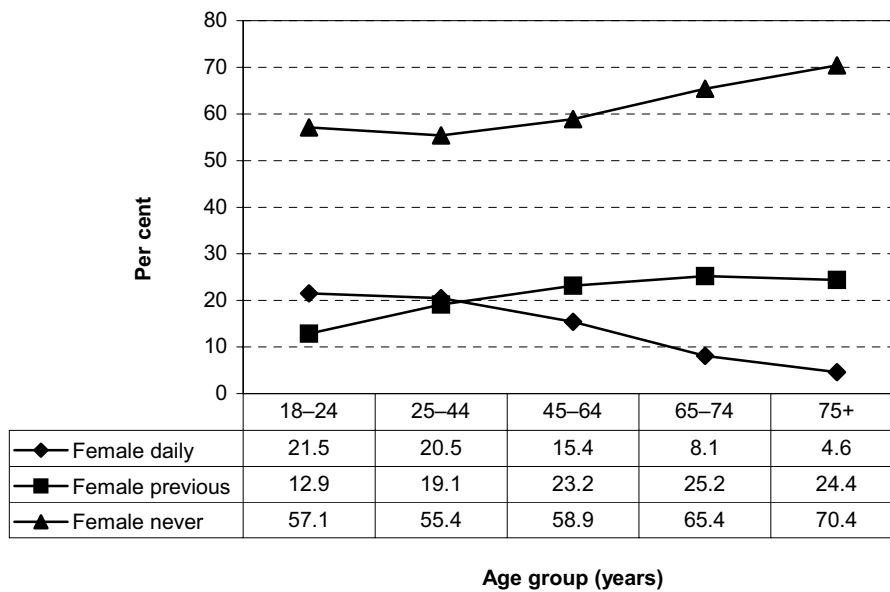
Smoking status	Male <sup>(a)</sup>			Female <sup>(a)</sup>			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
Daily	20.7	19.7	21.8	14.7	14.0	15.4	17.1	16.3	17.8
Occasional	4.1	3.7	4.6	3.3	3.0	3.6	3.6	3.4	3.9
Previous	35.7	34.5	36.9	21.5	20.7	22.3	27.1	26.3	27.8
Never	39.5	38.2	40.7	60.5	59.5	61.6	52.3	51.3	53.2
<b>Total (n, %)</b>	<b>13,016</b>	<b>100.0</b>	—	<b>20,288</b>	<b>100.0</b>	—	<b>33,558</b>	<b>100.0</b>	—

(a) Patient sex was unknown for 254 respondents.

Note: LCL—lower confidence limit; UCL—upper confidence limit.



**Figure 2.10: Smoking status – male age-specific rates**



**Figure 2.11: Smoking status – female age-specific rates**

## Alcohol consumption

In people aged 65 years and over, low to moderate consumption of alcohol has been found to have a preventive effect against selected causes of morbidity and mortality (e.g. cardiovascular disease).<sup>37</sup> The beneficial impact of low alcohol consumption has been found to prevent more mortality than is caused by harmful alcohol consumption.<sup>37</sup> Alcohol consumption accounted for 4.9% of the total burden of disease in Australia; however, after taking into account the benefit derived from low to moderate alcohol consumption, this fell to 2.2%.<sup>32</sup>

The 2001 NDSHS found that 9.9% of people aged 14 years and over (10.2% of males and 9.4% of females) drank at levels considered to be risky or high risk for their health in the long term.<sup>38</sup> This risk level of alcohol consumption was based on the NHMRC 2001 guidelines.<sup>39</sup> The NDSHS also found that 34.4% of people aged 14 years and over (39.3% of males and 29.6% of females) drank alcohol at levels which put their health at risk in the short term during the preceding 12 months.<sup>38</sup>

The questions asked of the patients and the methods used to classify at-risk levels of alcohol consumption in the BEACH study are described in Section 5.9. Patient self-reported alcohol consumption was recorded at 32,753 adult patient (18 years and over) encounters with 1,005 GPs.

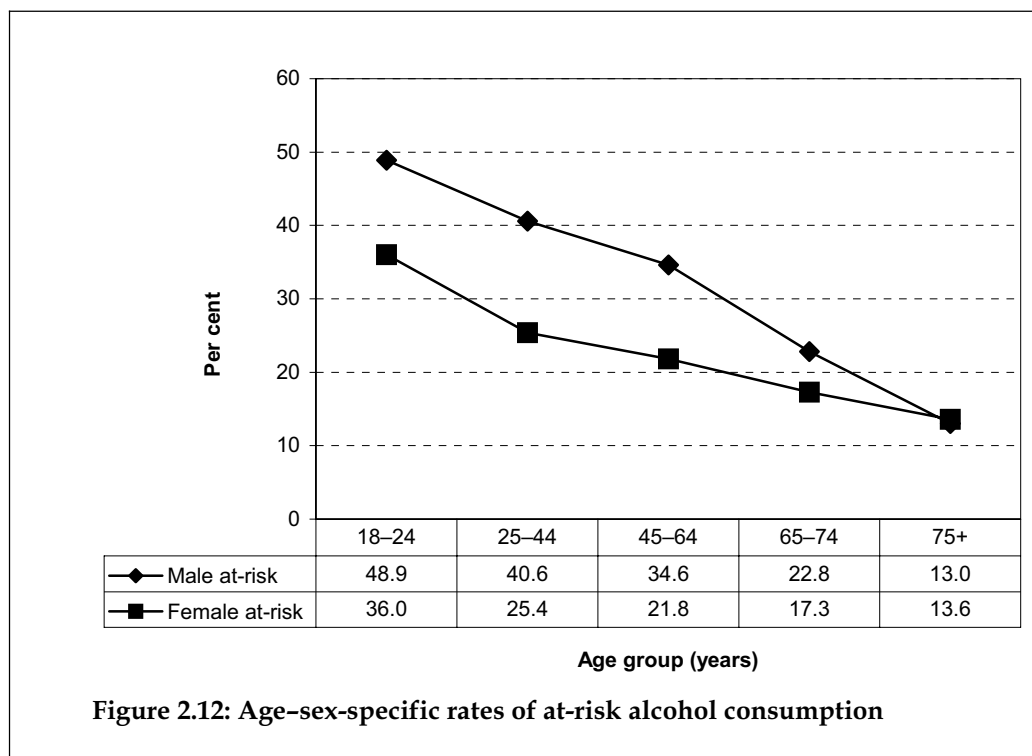
- One-quarter of patients reported drinking alcohol at at-risk levels.
- At-risk drinking was more prevalent in male (31.6%) than in female patients (22.2%) (Table 2.53).
- At-risk drinking was most prevalent in the 18–24 year age group, where almost half of the males and more than a third of females reported at-risk alcohol consumption.
- The proportion of patients who were at-risk drinkers decreased with age for both males and females (Figure 2.12).

These estimates are a little lower than those for short-term risk from the NDSHS.<sup>38</sup> This is likely to be due to the difference in the age ranges studied (14 and over in NDSHS and 18 and over in BEACH), and to differences in the age–sex distributions of the study populations. As older people attend a GP more often than young adults do, they have a greater chance of being selected in the subsample and this leads to a greater proportion of older people, the group least likely to report drinking alcohol at at-risk levels.

**Table 2.53: Patient alcohol consumption (aged 18 years and over)**

Alcohol consumption	Male			Female			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
At-risk drinker	31.6	30.3	32.8	22.2	21.3	23.2	25.9	25.0	26.8
Responsible drinker	47.9	46.7	49.1	42.8	41.8	43.9	44.8	44.0	45.7
Non-drinker	20.5	19.4	21.6	35.0	33.6	36.3	29.3	28.2	30.4
<b>Total (n, %)</b>	<b>12,792</b>	<b>100.0</b>	<b>—</b>	<b>19,961</b>	<b>100.0</b>	<b>—</b>	<b>32,753</b>	<b>100.0</b>	<b>—</b>

Note: LCL—lower confidence limit; UCL—upper confidence limit.



## Risk factor profile of adult patients

From 2001–02 onwards, all patient risk factor questions (BMI, smoking and alcohol consumption) were asked of the same subsample of patients. This allows us to build a risk profile of this sample of adult patients. For the purposes of this analysis, being overweight or obese, a daily smoker or an at-risk drinker are considered risk factors. A risk factor profile was prepared for 32,076 adult patients (aged 18 or more) (Table 2.54).

- Almost half of adult patients had one risk factor. Being overweight or obese accounted for three-quarters of these patients.
- One in five patients had two risk factors, the most common combinations being:
  - overweight + at-risk alcohol consumption – 7.0% of surveyed patients
  - obesity + at-risk alcohol consumption – 3.9% of surveyed patients
  - daily smoking + at-risk alcohol consumption – 3.4% of surveyed patients.
- A small minority (3.9%) of patients reported having all three risk factors.

Table 2.55 shows the number of risk factors by patient sex. Female patients reported significantly lower levels of risk factors than males:

- only one in five males compared with almost a third of females reported none of the measured risk factors
- one-quarter of males compared with 15% of females reported two risk factors.

**Table 2.54: Risk factor profile of patients (aged 18 years and over)**

Number of risk factors	Number	Per cent of patients (n=32,076)	95% LCL	95% UCL
<b>None</b>	<b>8,829</b>	<b>27.5</b>	<b>26.7</b>	<b>28.3</b>
<b>One</b>	<b>15,772</b>	<b>49.2</b>	<b>48.5</b>	<b>49.9</b>
Overweight only	7,089	22.1	21.5	22.7
Obese only	4,727	14.7	14.2	15.3
At-risk alcohol level only	2,524	7.9	7.4	8.3
Current daily smoker only	1,432	4.5	4.2	4.8
<b>Two</b>	<b>6,232</b>	<b>19.4</b>	<b>18.8</b>	<b>20.0</b>
Overweight and at-risk alcohol level	2,229	7.0	6.6	7.3
Obese and at-risk alcohol level	1,243	3.9	3.6	4.1
Daily smoker and at-risk alcohol level	1,097	3.4	3.2	3.7
Overweight and current daily smoker	956	3.0	2.8	3.2
Obese and current daily smoker	707	2.2	2.0	2.4
<b>Three</b>	<b>1,243</b>	<b>3.9</b>	<b>3.6</b>	<b>4.1</b>
Overweight and current daily smoker and at-risk alcohol level	820	2.6	2.4	2.8
Obese and current daily smoker and at-risk alcohol level	423	1.3	1.2	1.5

Note: LCL—lower confidence limit; UCL—upper confidence limit.

**Table 2.55: Number of risk factors, by patient sex**

Number of risk factors	Number	Per cent of patients	95% LCL	95% UCL
<b>Male patients</b>	<b>12,572</b>	<b>100.0</b>	—	—
Zero	2,647	21.1	20.1	22.0
One	5,945	47.3	46.3	48.3
Two	3,234	25.7	24.8	26.7
Three	746	5.9	5.5	6.4
<b>Female patients</b>	<b>19,504</b>	<b>100.0</b>	—	—
Zero	6,182	31.7	30.7	32.7
One	9,827	50.4	49.5	51.2
Two	2,998	15.4	14.7	16.0
Three	497	2.6	2.3	2.8
<b>Total patients</b>	<b>32,076</b>	—	—	—

Note: LCL—lower confidence limit; UCL—upper confidence limit.

# 3 Summary of changes from 1999–00 to 2005–06

In this chapter we compare the 2005–06 BEACH results (summarised in Chapter 2) with those from earlier years in the program. Presenting the data from each of the eight years of the program produces complex tables that do not comfortably fit on a page. Thus, data from the second, fourth, and sixth years of the program are presented for comparative purposes (i.e. BEACH years 1999–00, 2001–02, 2003–04), and the current year, 2005–06. However, in calculating the chi-square statistic and in extrapolating the effect of change we have used data for each year, not merely each second year displayed here.

In Section 3.8, Table 3.7 we have also presented the results from 2004–05, to highlight the very large change that occurred between 2004–05 and 2005–06.

- Where we detected a significant change over time, we calculated the estimated annual rate of change for Australia over the reported data period. This is expressed as the mean annual increase (or decrease) over the study period, in the number of general practice encounters for that problem or medication occurring in Australia each year.
- National estimates were extrapolated by multiplying the encounter rate for 1999–00 by the number of unreferred attendances (A1 and A2 items) claimed through Medicare in 1999 ( $n=100,917,750$ )<sup>1</sup> to give the estimated number of encounters for that event in 1999–00. The same was done for 2005–06, based on total A1 and A2 Medicare claims in 2005 ( $n=93,655,652$ ).<sup>1</sup> The difference between the two estimates was averaged over six years to give the estimated annual rate of change in encounters. Note there had been a considerable decrease in the total number of Medicare A1 and A2 item claims between these years. The extrapolated effect of a change in practitioner activity on national estimates is therefore less than the result may first suggest. In fact, where the positive change (i.e. an increase in the rate of an event) is significant but relatively small, the change can have a negative effect on total national encounter estimates.

Results reported and discussed in this chapter include:

- those that showed a significant change between 1999–00 and 2005–06 through non-overlapping 95% confidence intervals around the estimates *and*
- those that did not show a significant change between 1999–00 and 2005–06 (shown in *italics* in the tablets) but were reported last year as showing significant change between 1998–99 and 2004–05, and are therefore worthy of comment.

Note that for some data elements 1999–00 results have been omitted because of changes in the level of specificity of data collected from 2000–01 (the third year of the program) which result in data being non-comparable with those collected in 1999–00. Where results for 1999–00 are not reported, the extrapolated national mean annual increase (or decrease) in an event was derived from averaging the extrapolated change over 4 years.

## 3.1 Characteristics of the GPs

Some interesting changes were apparent in the characteristics of GPs who participated in BEACH between 1999–00 and 2005–06 (Table 3.1). Participants have been demonstrated to be representative of the GP workforce, with the exception that there are fewer young GPs in the BEACH sample (see Section 2.1). The encounter data are weighted to statistically adjust for this under-representation. Changes in characteristics of participants would generally reflect changes in the characteristics of the Australian GP workforce. Those interested in this topic will find a more comprehensive report of changes in the GP workforce by Charles et al.<sup>40</sup>

In summary, the majority of changes in the characteristics of participating GPs that were reported in last year's report continued to change or remained steady in 2005–06.

Results suggest that the feminisation and ageing of the GP workforce continues. Since 1999–00, participating GPs have become more likely to be female, accounting for 37% of participants in 2005–06 compared with 30% in 1999–00.

In 2005–06 almost 40% of the participants were aged 55 years or more (compared with 27% in 1999–00), and 73% were aged 45 years and over (compared with 59% in 1999–00). As a result, 59% of GP participants in 2005–06 stated they had more than 20 years in general practice (compared with 44% in 1999–00).

The significant move away from solo practice reported in 2004–05 appears to have stabilised with approximately 12–13% of participants in each of the last 2 years being solo practitioners. Also, the proportion of participants working in larger practices of five or more GPs, which increased dramatically between 1999–00 and 2003–04, has since then remained relatively constant at about 52%.

The move away from long working hours reported last year also seems to have stabilised, somewhat. In 1999–00 18% of GPs reported working 11 or more sessions per week. This decreased between 2000 and 2004 to 13% in 2003–04, and the trend continued in 2005–06 when only 12% reported working this high number of sessions per week. The increase in the proportion of participants working less than 6 sessions per week appears to have settled for the time being at about 17%.

The proportion of participants who reported being Fellows of the RACGP (41%) aligned with last year's result, being an increase of about 25% since 1999–00 (where 31% of GPs stated they were Fellows of the RACGP).

Less than half (47%) the participants in 2005–06 reported providing their own or cooperative after-hours patient care. This continued the downward trend reported last year (52%), and compares with 56% of participants in 2001–02.

The availability of computers at the GPs' major practice address continued to increase to 96%, though with such a high proportion of GPs having computers available, growth has by necessity slowed.

The proportion of 2005–06 GP participants who gained their primary medical degree in Australia (72%) reflects that of 2003–04, and suggests that the result in 2004–05 of 69% was a result of sampling variance rather than a true decrease in the proportion of Australian graduates in the GP workforce. However, the distribution of graduates from other countries shows interesting trends for increased numbers who have gained their primary medical degree from a country in Asia, Europe or Africa.

**Table 3.1: Significant changes in the characteristics of participating GPs 1999–00 to 2005–06**

GP characteristic	1999–00	2001–02	2003–04	2005–06	Chi-square statistic
	Per cent of GPs <sup>(a)</sup> (n=1,047)	Per cent of GPs <sup>(a)</sup> (n=983)	Per cent of GPs <sup>(a)</sup> (n=1,000)	Per cent of GPs <sup>(a)</sup> (n=1,017)	
Sex					$\chi^2=10.66, p=0.001$
Male	69.6	64.2	67.3	62.8	—
Female	30.4	35.8	32.7	37.2	—
Age					$\chi^2=52.64, p<0.001$
<35 years	8.4	7.1	5.8	4.7	—
35–44 years	32.4	26.8	24.9	22.3	—
45–54 years	32.4	36.5	36.5	34.2	—
55+ years	26.7	29.5	32.7	38.7	—
Years in general practice					$\chi^2=47.01, p<0.001$
<2 years	0.7	0.3	1.3	0.6	—
2–5 years	8.0	7.2	5.3	4.9	—
6–10 years	15.9	13.4	10.7	12.1	—
11–19 years	31.9	28.4	28.1	24.0	—
20+ years	43.5	50.3	54.6	58.5	—
Sessions per week					$\chi^2=16.45, p<0.001$
<6 per week	15.3	16.0	17.2	17.3	—
6–10 per week	66.0	67.8	68.2	70.7	—
11+ per week	18.3	14.8	13.6	12.0	—
Size of practice					$\chi^2=57.79, p<0.001$
Solo	18.1	15.3	10.6	13.1	—
2–4 GPs	46.1	39.7	37.8	35.2	—
5+ GPs	35.8	44.7	51.6	51.7	—
Place of graduation					$\chi^2=22.44, p=0.001$
Australia	73.3	76.1	73.5	72.0	—
United Kingdom	8.5	7.6	7.2	8.1	—
Asia	9.4	8.6	9.5	10.9	—
Europe	1.9	1.8	2.3	2.1	—
Africa	2.4	3.7	5.4	4.5	—
New Zealand	1.5	0.5	1.0	1.9	—
Other	2.8	1.6	1.0	0.6	—
Fellow of RACGP	31.0	35.1	33.5	40.7	$\chi^2=18.56, p<0.001$
Own or cooperative after-hours arrangements	NAv	56.0	59.6	47.4	$\chi^2=17.10, p<0.001$
Computer use at practice	NAv	89.7	95.0	96.4	$\chi^2=15.87, p<0.001$

(a) Missing data removed.

Note: RACGP—Royal Australian College of General Practitioners; NAv—not available.



## 3.2 Encounter type

Between 1999–2000 and 2005–06 the proportion of all recorded encounters that were indirect encounters (i.e. patient not seen by the GP who provided a service him/herself, such as a prescription or referral) has declined (Table 3.2). This result cannot be extrapolated to Medicare data since these encounters are not claimable from Medicare by the GP and are therefore not included in the national Medicare statistics. However, there appears to be an overall decline in the number of encounters where the GP provides a clinical service without seeing the patient.

Last year we found that there had been an increase between 1998–99 and 2004–05 in the proportion of Medicare encounters claimed as long consultations, and in 2005–06 this rate did not differ from that found in 1999–00. However, there have been many changes in Medicare items claimable by GPs over the last few years. Addition of new item numbers over the years means that some of the more complex consultations will now be claimed under specific chronic disease management item numbers, thus reducing the number of claims for long surgery consultations.

### Consultation length

In the subsample study of 32,489 encounters that included start and finish times for A1 Medicare-claimable encounters, there was no significant change in length of consultation. In 2000–01 ( $n=30,961$ ), the mean length of such consultations was 14.8 minutes (95% CI: 14.5–15.1) and the median length was 13 minutes. In 2005–06 the mean length was 14.9 minutes (95% CI: 14.6–15.1) and the median length remained at 13.0 minutes (results not tabulated).

## 3.3 Characteristics of the patients at encounters

There was no significant change in the proportion of encounters with males, females, Indigenous patients, patients from a non-English-speaking background or aged 65–74 years. Table 3.3 shows that between 1999–00 and 2005–06 the proportion of encounters that were with patients aged 0–44 years decreased, and the proportion of the GP workload accounted for by patients aged 45–64 years and patients aged 75 years and over increased.

There was significant increase between 1999–2000 and 2001–02 in the proportion of patients who hold a Commonwealth concession card but since that time the proportion has remained relatively constant at about 42%.

The changes noted above represent:

- 3.2 million fewer encounters with children (<15 years) in 2005–06 than in 1999–00 (an estimated average national decrease of 530,000 encounters per year)
- 5.8 million fewer encounters with young adults (15–44 years) in 2005–06 than in 1999–00 (an estimated average annual decrease of 960,000 encounters)
- an estimated national annual increase of 180,000 encounters (i.e. 1.1 million more encounters in 2005–06 than in 1999–00) with patients aged 45–64 years
- an estimated annual increase of 230,000 encounters with patients aged 75+ years (i.e. 1.4 million more encounters in 2005–06 than in 1999–00)
- half a million more encounters in 2005–06 than in 1999–00 with patients who held a Commonwealth concession card.

**Table 3.2: Significant changes in encounter types 1999–00 to 2005–06**

Variable	1999–00	2001–02	2003–04	2005–06	p-value	Annual national change <sup>(a)</sup>
	Per cent of encounters (95% CI) (n=104,856)	Per cent of encounters (95% CI) (n=96,973)	Per cent of encounters (95% CI) (n=98,877)	Per cent of encounters (95% CI) (n=101,993)		
Indirect consultations	3.3 (2.8–3.8)	2.3 (1.8–2.8)	3.1 (2.5–3.6)	2.2 (1.9–2.5)	0.0475	—

(a) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period. In this case, we cannot extrapolate to total Medicare claims because indirect encounters are not claimable from Medicare, and are therefore additional service provided by the GPs.  
 Note: CI—confidence interval.

**Table 3.3: Significant changes in the characteristics of the patients 1999–00 to 2005–06**

Age group	1999–00	2001–02	2003–04	2005–06	p-value	Annual national change <sup>(b)</sup>
	Per cent of encounters <sup>(a)</sup> (95% CI) (n=104,856)	Per cent of encounters <sup>(a)</sup> (95% CI) (n=96,973)	Per cent of encounters <sup>(a)</sup> (95% CI) (n=98,877)	Per cent of encounters <sup>(a)</sup> (95% CI) (n=101,993)		
<1 year	2.4 (2.2–2.5)	2.0 (1.8–2.1)	1.8 (1.6–2.0)	2.1 (1.9–2.2)	0.0008	-70,000
1–4 years	5.2 (4.9–5.5)	4.9 (4.6–5.2)	4.6 (4.3–4.8)	4.2 (4.0–4.5)	<0.0001	-200,000
5–14 years	7.2 (6.9–7.5)	6.4 (6.1–6.7)	5.9 (5.6–6.3)	6.0 (5.7–6.3)	<0.0001	-260,000
15–24 years	10.4 (9.9–10.8)	9.5 (9.1–10.0)	9.6 (9.2–10.1)	9.4 (9.0–9.8)	<0.0001	-280,000
25–44 years	26.3 (25.5–27.0)	25.8 (25.1–26.5)	24.1 (23.4–24.8)	23.9 (23.2–24.7)	<0.0001	-680,000
45–64 years	24.5 (24.0–25.0)	26.3 (25.7–26.8)	27.2 (26.7–27.7)	27.6 (27.0–28.2)	<0.0001	+180,000
65–74 years	12.0 (11.5–12.5)	12.3 (11.8–12.8)	12.4 (11.9–12.9)	12.2 (11.7–12.6)	N/S	N/A
75+ years	12.1 (11.4–12.9)	12.8 (12.0–13.5)	14.4 (13.6–15.2)	14.6 (13.7–15.4)	<0.0001	+230,000
Other characteristics						
Commonwealth concession card	38.6 (37.0–40.2)	41.9 (40.4–43.3)	42.5 (41.0–44.0)	42.1 (40.6–43.7)	<0.0001	+80,000

(a) Missing data removed from analysis.

(b) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.  
 Note: CI—confidence interval; N/S—not statistically significant; N/A—not applicable.

## 3.4 Patient reasons for encounter

Overall, there was no change in the number of reasons for encounter (RFEs) per 100 encounters between 1999–00 and 2005–06. However, Table 3.4 shows there were significant changes in the types of RFEs given by patients at general practice encounters.

Between 1999–00 and 2005–06 there were significant increases in:

- RFEs of a general and unspecified nature from 29.0 per 100 encounters in 1999–00 to 36.3 per 100 in 2005–06. However, this increase largely occurred during 2003–04 and the rate has remained steady since that time.
- RFEs associated with the endocrine/metabolic system. This increase largely occurred in 2001–02 and the presentation rate has remained at this higher level since that time.
- RFEs related to the male genital system. Although there had been a small steady annual increase in these RFEs, this is the first time the change (from 1.0 per 100 encounters in 1999–00 to 1.3 per 100 in 2005–06) has reached statistical significance.
- requests/need for medications, treatments and therapeutics. This increase largely occurred in 2003–04 and the rate has remained constant since that time.
- requests for results of tests. The increase in the relative rate of these RFEs has been consistent since the beginning of BEACH. However, the size of the increase has diminished somewhat over the past three data years (2003–04, 2004–05 and 2005–06), suggesting that the rate may have settled at about 6–7 occurrences per 100 encounters.

In contrast, between 1999–2000 and 2005–06 there were significant decreases in patient presentations of RFEs related to the respiratory and neurological systems, and the blood.

- From 1999–00 to 2003–04 there was a consistent decrease in RFEs of a respiratory nature, which have then remained steady at 21–22 such RFEs per 100 encounters.
- The decrease in RFEs of a neurological nature was steady and stepwise through each year from 1999–00 (5.6 per 100 encounters) to 2005–06 (4.9 per 100). This change became statistically significant for the first time in 2005–06.
- There was a minor steady decrease in RFEs describing abdominal pain, which resulted in a significant decrease between 1999–00 (2.1 per 100 encounters) and 2005–06 (1.8).
- The measured significant decrease in presentations of throat complaints really occurred between 1999–00 and 2003–04, the rate having remained steady at about 3.4 per 100 encounters since that time.

Examples of the effect of these changes on a national level are:

- 4.9 million fewer occasions in 2005–06 at which the patient presented a respiratory problem as a RFE than in 1999–00, representing an estimated national annual decrease of 820,000 presentations of respiratory problems as a reason for encounter.
- 2 million more occasions at which ‘test results’ was given as a patient RFE in 2005–06 than in 1999–00 representing an estimated national annual increase of 340,000 reasons for encounter associated with the receipt of results of tests already undertaken.

Last year, RFEs related to the ear and presentations of URTI (largely the common cold) were shown to have decreased between 1998–99 and 2004–05. However, this year presentations of URTI showed a marginal increase over 2004–05, reverting to the level found in 2000–02. This still resulted in an overall decrease of 480,000 presentations of URTI in 2005–06 than in 1999–00. Ear problems were presented at the same rate as last year, with an overall decrease of 540,000 such presentations since 1999–00.

Table 3.4: Significant changes in patient reasons for encounter 1999–00 to 2005–06

Patient RFEs	1999–00		2001–02		2003–04		2005–06	
	Rate per 100 encounters (95% CI) (n=104,856)	Rate per 100 encounters (95% CI) (n=96,973)	Rate per 100 encounters (95% CI) (n=98,877)	Rate per 100 encounters (95% CI) (n=101,993)	p-value	Annual national change <sup>(a)</sup>		
<b>Total RFEs</b>	148.5 (146.7–150.2)	149.2 (147.4–150.9)	150.2 (148.4–152.0)	150.3 (148.4–152.2)	N/S	N/A		
<b>ICPC-2 Component</b>								
<i>Diagnoses, diseases</i>	27.7 (26.2–29.1)	27.3 (25.9–28.7)	25.1 (23.8–26.3)	26.8 (25.4–28.2)	0.0004	-470,000		
Medications, treatments & therapeutics	12.0 (11.4–12.6)	11.9 (11.3–12.4)	14.4 (13.7–15.1)	14.4 (13.7–15.1)	<0.0001	+220,000		
Results	4.0 (3.7–4.3)	4.7 (4.4–5.1)	6.0 (5.6–6.4)	6.5 (6.1–6.9)	<0.0001	+340,000		
Administrative	1.3 (1.1–1.4)	1.3 (1.1–1.5)	1.8 (1.6–1.9)	1.7 (1.5–1.8)	<0.0001	+40,000		
<b>ICPC-2 Chapter</b>								
General & unspecified	29.0 (28.1–29.9)	30.9 (29.9–31.8)	36.2 (35.2–37.2)	36.3 (35.2–37.4)	<0.0001	+790,000		
Respiratory	25.3 (24.3–26.2)	23.4 (22.6–24.2)	21.4 (20.6–22.2)	21.9 (21.1–22.7)	<0.0001	-820,000		
Endocrine & metabolic	5.4 (5.1–5.7)	6.4 (6.1–6.7)	6.2 (5.8–6.5)	6.2 (5.8–6.5)	0.015	+50,000		
Neurological	5.6 (5.4–5.8)	5.4 (5.2–5.6)	5.3 (5.1–5.6)	4.9 (4.7–5.2)	<0.0001	-160,000		
Blood	2.1 (1.9–2.3)	1.1 (0.9–1.2)	1.3 (1.1–1.4)	1.2 (1.0–1.3)	<0.0001	-160,000		
Male genital system	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.1 (0.9–1.2)	1.3 (1.2–1.4)	<0.0001	+30,000		
<i>Ear</i>	4.1 (4.0–4.3)	4.1 (3.9–4.3)	3.7 (3.5–3.9)	3.9 (3.7–4.1)	0.0017	-90,000		
<b>Individual RFE</b>								
Prescription—all*	9.9 (9.4–10.5)	9.8 (9.2–10.3)	12.1 (11.5–12.7)	12.1 (11.4–12.7)	<0.0001	+210,000		
Test results*	4.0 (3.7–4.3)	4.7 (4.4–5.1)	6.0 (5.6–6.4)	6.5 (6.1–6.9)	<0.0001	+340,000		
Throat complaint	4.2 (3.8–4.5)	3.8 (3.4–4.1)	3.4 (3.1–3.6)	3.3 (3.0–3.5)	<0.0001	-190,000		
<i>Upper respiratory tract infection</i>	2.7 (2.4–3.0)	2.63(2.1–2.6)	1.9 (1.7–2.1)	2.4 (2.0–2.7)	<0.0001	-80,000		
Abdominal pain*	2.1 (1.9–2.2)	2.1 (2.0–2.3)	2.0 (1.9–2.2)	1.8 (1.7–1.9)	<0.0001	-60,000		

(a) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm?subject/19](http://www.aihw.gov.au/publications/index.cfm?subject/19)>).

Note: CI—confidence interval; N/S—not significant; N/A—not applicable. Italics indicate that although the result is not significant based on overlapping confidence intervals, the result is significant based on the p-value.

## 3.5 Problems managed

Overall, there was no change in the number of problems managed per 100 encounters between 1999–00 and 2005–06. However, Table 3.5 shows significant changes in the types of problems managed. These changes are summarised below.

- There was a significant increase in the rate at which GPs labelled the problem as results of tests and investigations. This suggests there were over half a million additional encounters for 'results' in 2005–06 than in 1999–00.
- The rate of chronic problems managed remained the same as that of 2004–05. Although this did not differ statistically from the result of 1999–00 in terms of non-overlapping confidence intervals, we tested the result further because last year the change from 1998–99 to 2004–05 had been statistically significant. The result was found again to be significant based on the *p*-value, chronic problem management increasing from 47.6 to 50.9 chronic problems per 100 encounters since 1999–00. However, the extrapolated effect of this change in terms of total encounters at which chronic problems were managed across the country was negative (300,000 fewer chronic problems managed in 2005–06 than in 1999–00 nationally), because the total number of Medicare-claimed encounters has been consistently decreasing each year.

There was an increase in the management rate of:

- general and unspecified problems
- endocrine/metabolic problems, which rose from 9.1 to 11.6 per 100 encounters. This equated to an average annual increase of 270,000 occasions where such problems were managed (1.6 million more occasions in 2005–06 than in 1999–00), and was particularly evident in the increased management rates of diabetes and lipid disorders.
- male genital system problems, from 1.4 to 1.9 per 100 encounters, representing an average annual increase of 50,000 encounters at which these problems were managed (300,000 more in 2005–06 than in 1999–00).

There was no change in the overall rate of musculoskeletal, digestive, and female genital problem management since 1999–00. However, increases in management rates were apparent for osteoarthritis, oesophageal disease and (marginal) hypertension.

There was a significant decrease in the management rate of:

- respiratory problems. The extrapolated national result suggests 5.1 million fewer contacts with respiratory problems in 2005–06 than in 1999–00, an average annual decrease of 850,000 occasions where respiratory problems were managed. However, this decrease largely occurred between 1999–00 and 2002–03. Since then it has remained relatively constant at about 20 respiratory problems per 100 encounters. Individual respiratory problems that reflected this decline included URTI, acute bronchitis/bronchiolitis, asthma, allergic rhinitis and sinusitis. These changes generally reflected the pattern of all respiratory problems in that their management rate decreased between 1999–00 and 2003–04, and have remained steady since that time. The exception is asthma, which consistently decreased every second year, a decrease that appears to be continuing.
- problems relating to the ear. Specifically, the management of acute otitis media/myringitis decreased steadily over the period examined.

A decrease in the management rate of menopausal complaints was also apparent but this change was not ongoing. The change occurred between 2001–02 and 2003–04.

Table 3.5: Significant changes in the problems managed at encounter 1999–00 to 2005–06

Problem managed	1999–00	2001–02	2003–04	2005–06	p-value	Annual national change <sup>(b)</sup>
	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=104,856)	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=101,993)		
Problems managed (all)	146.7 (144.9–148.6)	143.4 (141.7–145.2)	146.3 (144.4–148.2)	146.2 (144.2–148.2)	N/S	N/A
<i>Chronic problems</i>	47.6 (45.9–49.3)	48.4 (46.5–49.8)	50.8 (49.0–52.5)	50.9 (49.1–52.8)	<0.0001	-50,000
<b>ICPC-2 Component</b>						
Results	0.8 (0.7–0.9)	1.1 (0.9–1.2)	1.2 (1.1–1.4)	1.4 (1.3–1.6)	<0.0001	+90,000
Administrative	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	<0.0001	+30,000
<b>ICPC Chapters</b>						
Respiratory	24.2 (23.5–24.9)	21.4 (20.7–22.0)	20.1 (19.5–20.7)	20.6 (19.9–21.3)	<0.0001	-850,000
Upper respiratory tract infection	7.2 (6.7–7.7)	6.2 (5.8–6.6)	5.5 (5.1–5.8)	6.2 (5.8–6.6)	<0.0001	-23,000
Acute bronchitis/bronchiolitis	3.2 (3.0–3.4)	2.7 (2.5–2.9)	2.4 (2.2–2.6)	2.5 (2.3–2.7)	<0.0001	-130,000
Asthma	3.2 (3.0–3.4)	2.8 (2.7–3.0)	2.6 (2.4–2.7)	2.3 (2.1–2.4)	<0.0001	-180,000
Sinusitis acute/chronic	1.6 (1.4–1.7)	1.4 (1.2–1.5)	1.3 (1.1–1.5)	1.3 (1.2–1.4)	<0.0001	-60,000
Allergic rhinitis	1.1 (0.8–1.3)	0.8 (0.6–0.9)	0.7 (0.6–0.8)	0.6 (0.5–0.7)	<0.0001	-80,000
General & unspecified	13.9 (13.4–14.5)	14.7 (14.0–15.5)	15.0 (14.5–15.5)	15.1 (14.5–15.7)	0.0005	+4,000
Endocrine & metabolic	9.1 (8.7–9.6)	10.4 (10.0–10.9)	11.3 (10.8–11.8)	11.6 (11.0–12.1)	<0.0001	+270,000
Diabetes*	2.7 (2.5–2.9)	3.1 (2.9–3.3)	3.3 (3.1–3.5)	3.5 (3.3–3.8)	<0.0001	+100,000
Lipid disorder	2.6 (2.4–2.9)	2.9 (2.7–3.1)	3.1 (2.9–3.4)	3.4 (3.1–3.7)	<0.0001	+80,000
Ear	4.5 (4.3–4.7)	4.2 (4.0–4.4)	4.0 (3.8–4.1)	4.0 (3.8–4.2)	<0.0001	-120,000
Acute otitis media/myringitis	1.6 (1.4–1.7)	1.3 (1.2–1.5)	1.2 (1.0–1.4)	1.2 (1.0–1.3)	<0.0001	-80,000
Male genital system	1.4 (1.3–1.5)	1.3 (1.1–1.4)	1.6 (1.4–1.7)	1.9 (1.7–2.0)	<0.0001	+50,000
Social problems	0.9 (0.7–1.1)	0.7 (0.5–0.9)	0.8 (1.6–1.0)	0.6 (0.5–0.7)	0.0025	-50,000

(continued)

Table 3.5 (continued): Significant changes in the problems managed at encounter 1999–00 to 2005–06

Problem managed	1999–00	2001–02	2003–04	2005–06	Annual national change <sup>(b)</sup>	
	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=104,856)	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encs <sup>(a)</sup> (95% CI) (n=101,993)		p-value
<b>Other individual problems</b>						
Hypertension*	8.4 (7.9–8.9)	9.0 (8.6–9.5)	9.2 (8.7–9.7)	9.4 (8.9–10.0)	0.0036	+50,000
Osteoarthritis*	2.2 (2.0–2.4)	2.6 (2.4–2.8)	2.8 (2.6–3.0)	2.7 (2.5–2.9)	<0.0001	+40,000
Menopausal symptom/complaint	1.4 (1.2–1.5)	1.4 (1.2–1.5)	1.0 (0.8–1.2)	0.9 (0.8–0.9)	<0.0001	-90,000
Oesophageal disease	1.6 (1.5–1.8)	1.8 (1.7–2.0)	2.2 (2.0–2.4)	2.4 (2.2–2.5)	<0.0001	+90,000

(a) Figures do not total 100 as more than one problem can be managed at each encounter.

(b) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

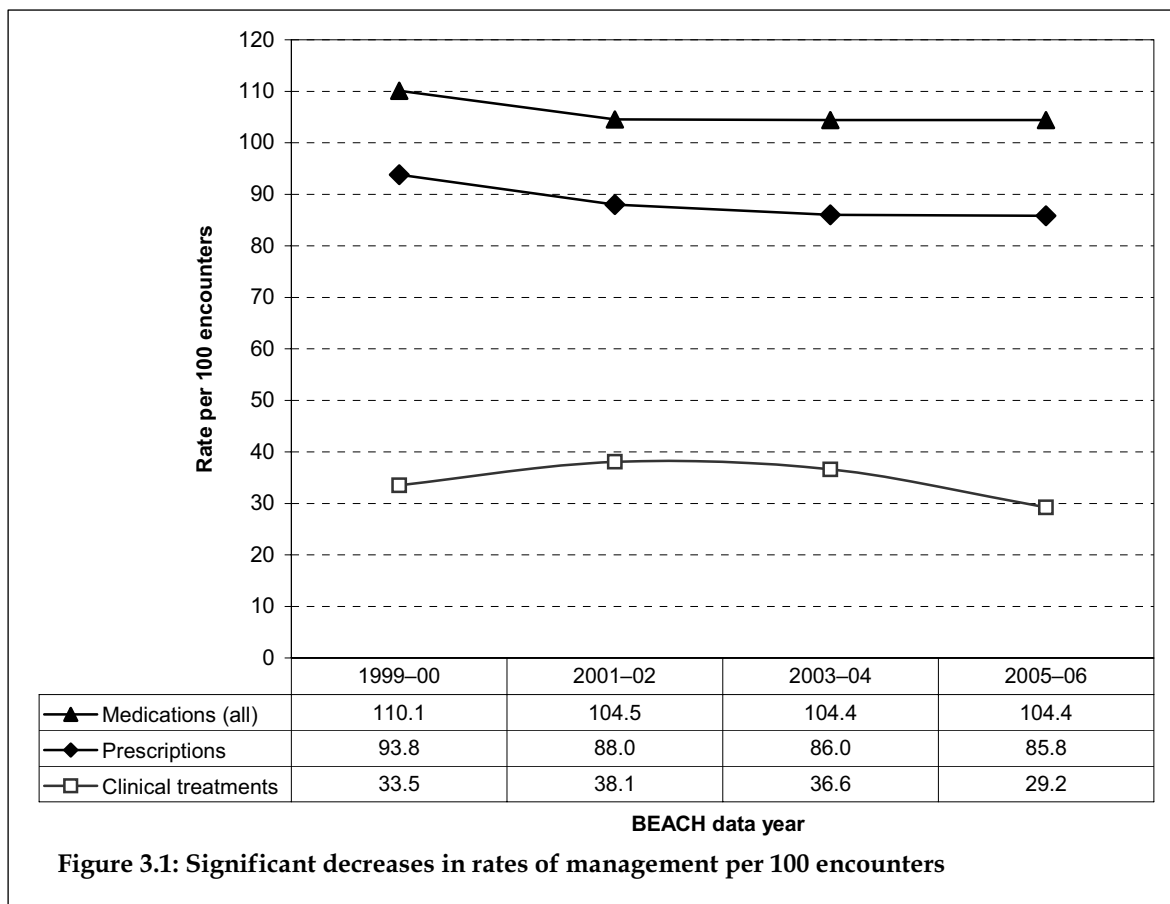
\* Includes multiple ICD-2 or ICD-9 PLUS codes (see Appendix 5, [www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)).

Note: Encs—encounters; CI—confidence interval; N/A—not applicable. Italics indicate that although the result is not significant based on overlapping confidence intervals, the result is significant based on the p-value.

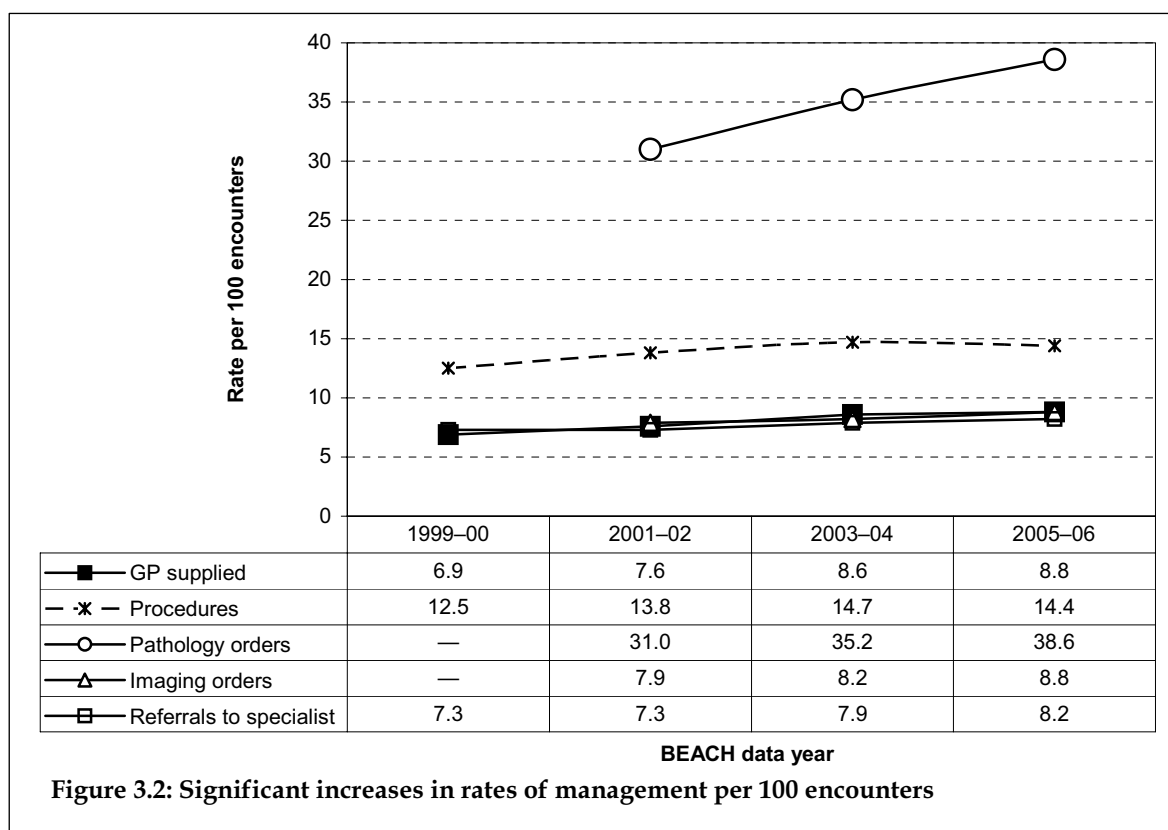
### 3.6 Overview of management

From 1999–00 to 2005–06 there were some significant changes in management activities. These are summarised below, but are examined in more detail later in this chapter.

- There was a decrease per 100 encounters in:
  - the overall medication rate (including prescribed, GP-supplied and advised OTCs)
  - the rate of prescribed medications
  - the rate of provision of clinical treatments (Figure 3.1).
- There was an increase per 100 encounters in:
  - the rate of medications supplied by the GP
  - the rate of procedural treatments
  - the number of pathology tests ordered
  - the number of imaging tests ordered
  - the rate of referrals to specialists (Figure 3.2).
- There was no significant change in overall referral rates, or in rates of referral to allied health professionals or hospital services (results not shown).







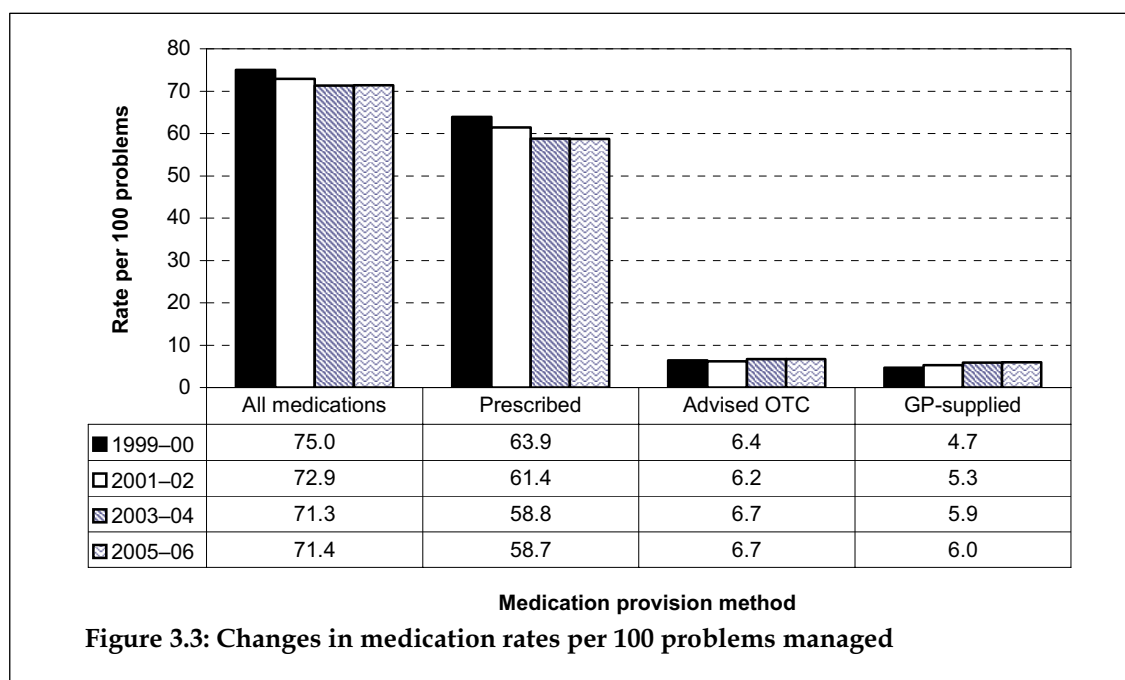
Note: Data collection and coding methods for pathology and imaging changed at the beginning of the third year of BEACH. Data from 1999-00 have therefore been omitted from this comparison.

## 3.7 Medications

Significant changes in rates of medications (prescribed, supplied or advised) are listed below.

- There was a decrease in overall medication rates, from 110.1 per 100 encounters in 1999-00 to 104.4 per 100 in 2005-06 (Table 3.6).
- The rate of prescribed medications fell from 94 per 100 encounters to 86 per 100. The extrapolated effect of this change is an average annual national decrease in prescribed medications of 2.4 million prescriptions (i.e. there were an estimated 14.3 million fewer prescriptions given by GPs in 2005-06 than in 1999-00). It must be remembered that this decrease represents a change in the number of times a prescription is written by the GP. It does not take into consideration the number of repeat prescriptions involved or whether the patient actually filled the prescription (Table 3.6).
- The rate of medications supplied by the GP significantly increased from 6.9 per 100 encounters in 1999-00 to 8.8 per 100 in 2005-06. The extrapolated effect is an estimated 1.3 million more medications supplied by GPs in 2005-06 than in 1999-00 (Table 3.6).
- The rate of advised OTC medications showed no significant change over this period (results not shown).

It has been demonstrated that the number of problems managed at encounters did not change over the period (Table 3.5). Therefore the decrease in the medication rate per 100 encounters is not due to a decrease in the number of problems managed at encounter. Figure 3.3 shows the changes in medication rates per 100 problems managed over time.



## Prescribed medications

Table 3.6 shows significant changes in rates of prescribing of some groups and some individual generic medications. The Anatomical Therapeutic Chemical (ATC) drug group Level 2 has been chosen for the group comparisons over time because it is the most stable level. As new drugs are added to the ATC they may first be allocated to a rag-bag code (i.e. a group of drugs each having insufficient separate medications to have a code of their own). As new drugs are added, a new generic group may be created. This means that comparisons over time at the lower levels of ATC (with the exception of the generic drug name at Level 5) are somewhat unstable.

Individual generic medications are reported here according to the Coding Atlas of Pharmaceutical Substances (CAPS) to ensure the most complete and comparable data are available over time. The effects of the measured changes at a national level are also presented in the right-hand column of this table. More details about the reasons for reporting in ATC Level 2 and CAPS are provided in Section 5.8.

Individual drugs and drug groups from 1999-00 are not included in this section because there was a change in the CAPS coding system at the end of the 1999-00 BEACH year to provide more detail about each prescribed medication. Although 1999-00 can be included in time series analyses for a specific topic, the mapping processes required make inclusion of these earlier data extremely time-consuming in a general analysis such as this, where so many individual medications need to be compared over time.

The following statistically significant changes in prescribing rates occurred between 2001-02 and 2005-06.

- There was a significant increase in the prescribing rate of drugs for acid-related disorders. However, the prescribing rate of ranitidine (noted last year) continued to decline and prescribing of omeprazole decreased marginally. There was a marginal increase in the prescribing rate of esomeprazole since 2003-04, its first year on the PBS.

- There was a marginal decrease in the prescribing rates of cardiac therapy (glycosides) and diuretic drug groups. The decline in plain diuretic prescribing has been steady since the advent of diuretic-cardiovascular drug combinations.
- Agents acting on the renin-angiotensin system showed a significant increase in prescribing rates. Last year ramipril appeared largely responsible for the increase in this drug group. This year ramipril explained some of the increase but the A2RA irbesartan, and the ACE inhibitor perindopril were also prescribed more frequently.
- Rates of lipid modifying agents continued to rise significantly, atorvastatin in particular. The effect of this change is an average annual increase of 160,000 additional prescriptions every year for lipid modifying agents. This equates to 640,000 more prescriptions for lipid modifying agents in 2005–06 than in 2001–02.
- The decrease in prescribing rates of sex hormones continued.
- Drugs for the treatment of bone disease increased significantly.
- The individual antibacterials amoxicillin and cephalexin increased significantly although there was no change overall for that drug group. The decrease in prescribing of roxithromycin noted last year disappeared, a reversal returning the medication to its previous level. The decrease in cefaclor monohydrate prescribing reported in 2004–05 did not continue, the rate being the same this year as last.
- Overall rates of vaccine recording decreased following the move towards combined vaccinations.
- There was a decrease in the prescribing of anti-inflammatory and antirheumatic drugs acting on the musculoskeletal system (as a group). This equated to an average national decrease of 410,000 fewer prescriptions for anti-inflammatory and antirheumatic drugs each year between 2001–02 and 2005–06. This was reflected particularly in the prescribing rate of celecoxib which decreased from its peak in 2003–04. In contrast, there was a significant increase in the prescribing of meloxicam between 2003–04 and 2005–06.
- While there was no significant change in the prescribing rate of analgesics (as a group), there was a marginal increase in the prescribing rate of tramadol. Oxycodone showed a significant increase which, when extrapolated, equalled an increase of 90,000 prescriptions for oxycodone per year (360,000 more prescriptions in 2005–06 than in 2001–02).
- Among psycholeptics, prescriptions for temazepam decreased marginally.
- The significant decrease in the prescribing rate of nasal preparations as a group noted last year continued into 2005–06.
- Drugs for obstructive airways disease (as a group) were prescribed significantly less often in 2005–06 than in 2001–02. The average annual effect of this change equates to 370,000 fewer prescriptions per year, or nearly 1.5 million fewer prescriptions for drugs for obstructive airways disease in 2005–06 than in 2001–02. The decreased prescribing rate of salbutamol, reflecting its OTC availability, would have contributed to this result, as would the increased use of combination therapies like fluticasone/salmeterol.
- Prescribing rates of ophthalmological drugs were marginally higher, with chloramphenicol showing a significant increase.

Table 3.6: Significant changes in the rates of prescribed medications, clinical treatments and procedures 1999–00 to 2005–06

	1999–00		2001–02		2003–04		2005–06		Annual national change <sup>(e)</sup>
	Rate per 100 encounters (95% CI) (n=104,856)	Rate per 100 encounters (95% CI) (n=96,973)	Rate per 100 encounters (95% CI) (n=102.2–106.9)	Rate per 100 encounters (95% CI) (n=98,877)	Rate per 100 encounters (95% CI) (n=101,993)	Rate per 100 encounters (95% CI) (n=101,993)	p-value		
<b>Medications—all</b>	<b>110.1 (107.8–112.4)</b>	<b>104.5 (102.2–106.9)</b>	<b>104.4 (102.1–106.7)</b>	<b>104.4 (101.8–107.0)</b>	<b>&lt;0.0001</b>	<b>-2,220,000</b>			
Prescribed medications	93.8 (91.5–96.2)	88.0 (85.6–90.4)	86.0 (83.6–88.5)	85.8 (83.3–88.4)	<0.0001	-2,380,000			
GP-supplied	6.9 (5.8–7.9)	7.6 (6.3–9.0)	8.6 (7.4–9.8)	8.8 (8.2–9.5)	<0.0001	+210,000			
<b>ATC group (Level 2) and CAPS generic—prescribed<sup>(b)</sup></b>									
Drugs for acid-related disorders									
Ranitidine	—	2.5 (2.3–2.7)	2.9 (2.7–3.0)	3.1 (2.9–3.2)	<0.0001	+80,000			
Omeprazole	—	0.6 (0.5–0.8)	0.4 (0.2–0.6)	0.3 (0.2–0.3)	<0.0001	-90,000			
Esomeprazole*	—	0.8 (0.7–1.0)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	<0.0001	-60,000			
Cardiac therapy	—	N/A	0.6 (0.4–0.8)	0.9 (0.8–1.0)	<0.0001	+210,000			
Diuretics	—	1.2 (1.0–1.4)	1.0 (0.8–1.3)	0.9 (0.8–1.0)	0.0008	-70,000			
Agents acting on the renin-angiotensin system	—	1.7 (1.5–1.9)	1.5 (1.4–1.7)	1.4 (1.3–1.5)	0.0008	-90,000			
Agents acting on the renin-angiotensin system	—	5.0 (4.7–5.3)	5.5 (5.1–5.8)	6.1 (5.7–6.5)	<0.0001	+180,000			
Irbesartan	—	0.8 (0.6–0.9)	0.9 (0.7–1.0)	1.1 (1.0–1.2)	<0.0001	+50,000			
Perindopril	—	0.7 (0.6–0.9)	0.7 (0.5–0.9)	1.0 (0.9–1.1)	<0.0001	+40,000			
Ramipril	—	0.6 (0.5–0.7)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	0.0011	+30,000			
Lipid modifying agents	—	2.4 (2.3–2.6)	2.8 (2.6–3.0)	3.3 (3.0–3.6)	<0.0001	+160,000			
Atorvastatin	—	1.0 (0.9–1.2)	1.2 (1.0–1.3)	1.6 (1.4–1.8)	<0.0001	+110,000			
Sex hormones and modulators of the genital system	—	3.8 (3.6–4.0)	3.5 (3.3–3.7)	3.0 (2.8–3.2)	<0.0001	-240,000			
Levonorgestrel/ethinylloestradiol	—	1.2 (1.1–1.3)	1.2 (1.0–1.3)	1.0 (0.9–1.1)	0.0009	-60,000			
Drugs for treatment of bone disease	—	0.3 (0.1–0.4)	0.4 (0.3–0.6)	0.6 (0.5–0.7)	<0.0001	+70,000			

(continued)

Table 3.6 (continued): Significant changes in the rates of prescribed medications, clinical treatments and procedures 1999–00 to 2005–06

	1999–00		2001–02		2003–04		2005–06		Annual national change <sup>(a)</sup>
	Rate per 100 encounters (95% CI) (n=104,856)		Rate per 100 encounters (95% CI) (n=96,973)		Rate per 100 encounters (95% CI) (n=98,877)		Rate per 100 encounters (95% CI) (n=101,993)	p-value	
Antibacterials for systemic use	—		13.9 (13.4–14.4)		13.6 (13.1–14.2)		14.6 (14.0–15.2)		N/A
Amoxicillin	—		2.9 (2.7–3.2)		3.3 (3.0–3.6)		3.6 (3.3–3.8)	<0.0001	+100,000
Cephalexin	—		2.0 (1.8–2.2)		2.0 (1.8–2.2)		2.5 (2.3–2.7)	<0.0001	+80,000
Cefaclor monohydrate	—		1.1 (1.0–1.2)		0.8 (0.7–0.9)		0.8 (0.6–1.0)	0.0013	-80,000
Roxithromycin	—		1.4 (1.3–1.5)		1.1 (1.0–1.2)		1.5 (1.3–1.7)	N/A	N/A
Vaccines	—		3.8 (3.4–4.2)		3.3 (2.9–3.7)		2.5 (2.2–2.8)	<0.0001	-360,000
Anti-inflammatory & antirheumatic acting on musculoskeletal system	—		5.3 (5.1–5.6)		4.8 (4.5–5.0)		3.9 (3.7–4.2)	<0.0001	-410,000
Celecoxib	—		1.4 (1.3–1.5)		1.0 (0.9–1.1)		0.5 (0.5–0.6)	<0.0001	-230,000
Meloxicam <sup>+</sup>	—		0.0 (0.0–0.1)		0.4 (0.2–0.6)		0.9 (0.8–1.0)	<0.0001	+200,000
Analgesics	—		8.5 (8.0–9.0)		8.5 (8.0–9.0)		9.0 (8.4–9.5)	N/S	N/A
Paracetamol	—		3.1 (2.8–3.4)		2.9 (2.5–3.2)		3.0 (2.7–3.3)	N/S	N/A
Tramadol	—		0.7 (0.4–0.9)		0.9 (0.8–1.1)		0.9 (0.9–1.0)	0.0004	+50,000
Oxycodone	—		0.3 (0.1–0.5)		0.4 (0.2–0.6)		0.8 (0.7–0.9)	<0.0001	+90,000
Psycholeptics	—		5.1 (4.8–5.5)		5.0 (4.7–5.4)		5.0 (4.6–5.3)	N/S	N/A
Temazepam	—		1.3 (1.2–1.5)		1.2 (1.1–1.4)		1.1 (1.0–1.2)	0.0026	-70,000
Nasal preparations	—		0.9 (0.8–1.1)		0.8 (0.6–1.0)		0.7 (0.6–0.8)	0.0018	-60,000
Drugs for obstructive airway disease	—		5.1 (4.8–5.5)		4.1 (3.9–4.4)		3.9 (3.6–4.1)	<0.0001	-370,000
Salbutamol	—		2.0 (1.8–2.2)		1.5 (1.4–1.7)		1.5 (1.4–1.6)	<0.0001	-140,000
Fluticasone/salmeterol	—		0.6 (0.4–0.8)		0.8 (0.7–1.0)		0.9 (0.8–1.0)	0.0009	+50,000
Ophthalmologicals	—		1.5 (1.4–1.7)		1.7 (1.6–1.8)		1.9 (1.7–2.0)	<0.0001	+50,000
Chloramphenicol eye	—		0.8 (0.7–0.9)		0.9 (0.8–1.0)		1.1 (1.0–1.1)	<0.0001	+40,000

(a) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

(b) Prescribing data collected in 1999–00 are not reported here due to less coding precision in that year.

+ Esomeprazole and meloxicam were not available for purchase before 2002. Note: CI—confidence interval; N/A—not applicable; musculoskeletal—musculoskeletal; N/S—not significant.

## 3.8 Other treatments

### Clinical treatments

Table 3.7 shows the significant differences in clinical treatments between 1999–00 and 2005–06.

In 2005–06 the total rate of clinical treatments decreased, leading to an estimated overall decrease since 1999–00 of an average 1 million occasions of service per year where such activity arose. This provides a total change since 1999–00 of about 6 million fewer occasions of provision of clinical treatments than occurred in 1999–00. This is due to a sudden and sharp decline in the number of clinical treatments provided between 2004–05 and 2005–06. The true nature of this decline is not evident by comparing data from 2003–04 and 2005–06 (as we have presented elsewhere in this chapter). Therefore we have included results from 2004–05 in Table 3.7 to demonstrate the striking suddenness of these changes.

This year's result of a decrease in these activities (to 29.2 per 100 encounters) is in sharp contrast to results reported last year,<sup>41</sup> which showed that the total rate of clinical treatments had increased from 31.4 per 100 encounters in 1998–99 to 39.2 per 100 in 2004–05. The 2005–06 result suggests that GPs provided fewer clinical treatments this year than they did some seven years earlier. The possible reasons for this sudden decline are considered in Chapter 4.

The sudden decrease in the total rate of provision of clinical treatments was not uniform across individual types of counselling and advice.

- The provision of general advice and education, which had been increasing steadily since 1998–99, suddenly decreased by about 30% from 7.0 in 2004–05 to 4.8 per 100 encounters in 2005–06, returning to a level just above that of 1999–00.
- The rate of provision of counselling/advice about nutrition and weight had increased at around the time of the introduction of the SNAP program (not after its introduction as might be expected). The SNAP (Smoking, Nutrition, Alcohol and Physical Activity) Framework for General Practice was introduced in June 2001. SNAP was developed by the Joint Advisory Group on General Practice and Population Health.<sup>42</sup> The frequency of this type of counselling appeared to have settled since that time, at around 5 cases per 100 encounters. However, this rate decreased significantly from 5.3 per 100 encounters in 2004–05 to 3.6 per 100 in 2005–06. This decrease meant it was provided at a lower rate in 2005–06 than it was in 1999–00. In the case of provision of counselling and advice about exercise, the pattern was less clear. While 2005–06 again demonstrated a significant decrease in its frequency of about 42%, returning it to lower level than recorded in 1999–00, there had been some variance across the years in its frequency. Note that the rate of provision of counselling and advice about alcohol or about smoking did not change over the study period (results not tabulated).
- Counselling provided by GPs about the problem under management remained steady in 2005–06, since its increase between 1999–00 and 2001–02.
- Psychological counselling was recorded at a rate of 3.0 per 100 encounters, similar to last year's rate of 3.2 per 100. There was an increase in provision of psychological counselling around 2001–02 when it rose from 2.6 per 100 to 3.2 per 100, and the rate has hovered around this level since then. Overall we estimate there were about 240,000 more

encounters at which GPs provided psychological counselling in 2005–06 than in 1999–00, an average increase of 40,000 encounters per year.

- Advice and education about medication fell sharply, to half the rate (1.6 per 100 encounters) of the previous 2 years (3.4 per 100). So too did provision of advice and education about treatment for the problem being managed, though to a lesser degree (from 4.6 per 100 encounters in 2004–05 to 3.1 per 100 in 2005–06).
- In contrast, the rate of provision of sickness certificates remained at the level recorded in the previous year after a three-fold increase had occurred between 1999–00 (0.6 per 100 encounters) and 2004–05 (1.7 per 100 encounters). Whether more employers are requiring sickness certificates for absence from work, or more are being required by child care centres before children can return after illness, is not known.

## Procedural treatments

Table 3.7 shows the significant changes in rates of procedural treatments recorded by GPs in 1999–00 and in 2005–06.

- The measured increase in total number of procedural treatments provided by GPs reported last year remained apparent in 2005–06 but did not grow. It could therefore be said that since 2002–03 GPs have been undertaking such procedures at a relatively steady level of 14.5–15.5 per 100 encounters. However, this was somewhat more frequent than in earlier years, so that we estimate there were about 900,000 more procedures performed in 2005–06 than in 1999–00.
- There was a significant increase in the rate of local injection/infiltration administered between 1999–00 and 2004–05, and this has remained steady at 2.0 per 100 encounters in 2005–06. This could be partially due to development of more specific instructions to the GPs about completing the ‘other treatment’ section for each problem.

## 3.9 Referrals

There has been a significant increase in the likelihood of a patient being referred to a specialist and/or allied health professional at the encounter. In 1999–00 referrals were made at 10.4% of all encounters. In 2005–06 this had increased to 11.3% of encounters, suggesting that the patient was referred to at least one other provider at about 60,000 more occasions in 2005–06 than in 1999–00.

However, there was no difference in the overall number of referrals per 100 encounters. This suggests that although more individual encounters are resulting in referral there is a decrease in the likelihood of multiple referrals at the encounter during which the decision to refer has been made. There were significantly more referrals made to specialists in 2005–06 compared with 1999–00 (Table 3.8).

There was no change in referral rates to allied health services. There have been variations in the rates of referrals to hospitals across the four measurement points reported in Table 3.8. In 2005–06 there were significantly fewer referrals/admissions to hospitals compared with 1999–00 but the numbers are small for all years.

**Table 3.7: Significant changes in rates of other treatments 1999–00 to 2005–06**

Other treatment	1999–00		2001–02		2003–04		2004–05		2005–06		Annual national change <sup>(a)</sup>	p-value
	Rate per 100 encs (95% CI) (n=104,856)	Rate per 100 encs (95% CI) (n=96,973)	Rate per 100 encs (95% CI) (n=98,877)	Rate per 100 encs (95% CI) (n=94,386)	Rate per 100 encs (95% CI) (n=101,993)	Rate per 100 encs (95% CI) (n=101,993)						
<b>Total clinical treatments</b>	<b>33.5 (31.8–35.2)</b>	<b>38.1 (36.1–40.1)</b>	<b>36.6 (34.5–38.8)</b>	<b>39.2 (37.1–41.4)</b>	<b>29.2 (27.3–31.1)</b>	<b>-1,070,000</b>	<b>0.0427</b>					
Counselling—problem*	3.4 (2.8–4.1)	4.7 (3.8–5.5)	4.7 (3.8–5.5)	4.2 (3.3–5.0)	4.8 (4.1–5.4)	+160,000	<0.0001					
Advice/education*	4.2 (3.6–4.9)	6.3 (5.4–7.1)	6.8 (5.9–7.7)	7.0 (6.2–7.8)	4.8 (4.1–5.4)	+30,000	0.0058					
Counselling/advice—nutrition/weight*	4.2 (3.8–4.6)	5.5 (5.0–6.0)	4.6 (4.1–5.2)	5.3 (4.7–5.9)	3.6 (3.2–4.0)	-140,000	0.0073					
Advice/education—treatment*	6.2 (5.5–6.8)	5.1 (4.5–5.7)	4.4 (3.7–5.0)	4.6 (4.0–5.1)	3.1 (2.6–3.5)	-560,000	<0.0001					
Advice/education—medication*	2.9 (2.5–3.2)	2.8 (2.5–3.2)	3.4 (3.0–3.8)	3.4 (2.9–3.8)	1.6 (1.4–1.7)	-230,000	0.0077					
Counselling—psychological	2.6 (2.4–2.8)	3.2 (2.8–3.5)	2.9 (2.6–3.1)	3.2 (2.9–3.5)	3.0 (2.8–3.3)	+40,000	0.0061					
Sickness certificate	0.6 (0.3–0.9)	1.1 (0.5–1.6)	1.0 (0.6–1.4)	1.7 (1.3–2.1)	1.6 (1.4–1.9)	+140,000	<0.0001					
Counselling/advice—exercise*	1.6 (1.3–2.0)	2.1 (1.6–2.5)	1.5 (1.1–1.9)	1.9 (1.4–2.3)	1.1 (0.9–1.2)	-100,000	<0.0001					
Reassurance, support	1.6 (1.2–2.0)	1.5 (1.0–1.9)	1.5 (1.0–1.9)	1.6 (1.2–1.9)	1.0 (0.8–1.2)	-100,000	0.0011					
<b>Total procedural treatments</b>	<b>12.5 (11.9–13.0)</b>	<b>13.8 (13.1–14.5)</b>	<b>14.7 (14.0–15.5)</b>	<b>15.5 (14.6–16.4)</b>	<b>14.4 (13.7–15.1)</b>	<b>+150,000</b>	<b>&lt;0.0001</b>					
Local injection/infiltration*	0.2 (0.0–0.6)	1.2 (0.5–1.8)	1.6 (1.3–1.9)	2.0 (1.6–2.3)	2.0 (1.8–2.2)	+270,000	<0.0001					

(a) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

\* Includes multiple ICDPC-2 or ICDPC-2 PLUS codes (see Appendix 5, <www.aihw.gov.au/publications/index.cfm/subject/19>).

Note: Encs—encounters; CI—confidence interval.

**Table 3.8: Significant changes in referrals 1999–00 to 2005–06**

	1999–00		2001–02		2003–04		2005–06		Annual national change <sup>(a)</sup>
	Rate per 100 encs (95% CI) (n=104,856)	Rate per 100 encs (95% CI) (n=96,973)	Rate per 100 encs (95% CI) (n=98,877)	Rate per 100 encs (95% CI) (n=101,993)	Rate per 100 encs (95% CI) (n=101,993)	p-value			
At least one referral	10.4 (10.0–10.3)	10.0 (9.6–10.4)	11.0 (10.5–11.5)	11.3 (10.9–11.8)	<0.0001	+10,000			
Referrals	11.2 (10.8–11.7)	10.5 (10.1–10.9)	11.6 (11.1–12.1)	12.0 (11.5–12.5)	N/S	N/A			
Specialist	7.3 (7.0–7.6)	7.3 (7.0–7.6)	7.9 (7.5–8.2)	8.2 (7.8–8.5)	<0.0001	+50,000			
Hospital	0.7 (0.5–0.9)	0.4 (0.3–0.6)	0.6 (0.3–0.8)	0.4 (0.3–0.4)	<0.0001	-60,000			

(a) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

Note: Encs—encounters; CI—confidence interval; N/S—not significant; N/A—not applicable.



## 3.10 Test ordering

### At least one test ordered 1999–00 to 2005–06

- The likelihood of the GP ordering a test or investigation at the encounter significantly increased between 1999–00 and 2005–06. We estimate there were about 8.9 million fewer test-free encounters nationally in 2005–06 than there were in 1999–00.
- Last year we reported the steady increase in the likelihood of pathology test(s) being ordered at the encounter. This increase continued in 2005–06, to result in an estimated average increase of 240,000 occasions on which such orders were placed each year (i.e. 1.4 million additional encounters where pathology was ordered in 2005–06 than in 1999–00) (Table 3.9).
- There was a significant increase of approximately the same proportion in the likelihood of one or more imaging tests being ordered at encounters between 1999–00 and 2005–06. However, since imaging is less frequently ordered by GPs than pathology, the national effect was not as large. We estimate that in 2005–06 there were approximately 600,000 more encounters that resulted in a GP order for an imaging test than in 1999–00.

### Changes in distribution of test orders 1999–00 to 2005–06

Differences in the collection and coding of each pathology test from the first two years of BEACH data (1998–99 and 1999–00) mean that these data are not comparable with data from 2000–01 onwards. Since the beginning of the third year of BEACH, this change in coding of pathology orders has allowed more specificity in recording these orders.

The change in pathology ordering over the first three years of the BEACH program was investigated in detail in a specific study of pathology ordering patterns undertaken for the Australian Government Department of Health and Ageing. The results have been reported in a separate publication.<sup>16</sup>

Table 3.10 shows the changes in pathology ordering from 2000–01 to 2005–06.

- The increase in pathology test ordering by GPs reported last year continued in 2005–06. Since 2001–02 the number of pathology tests ordered per 100 encounters increased by almost 25% from 31.0 to 38.6. The extrapolated effect of the measured change in pathology test ordering in BEACH is an average annual increase of 1.3 million tests per year between 2001–02 and 2005–06 (i.e. GPs ordered 5.2 million more pathology tests/batteries of tests in 2005–06 than they did four years earlier).
- The significant increase in overall pathology order rates was reflected in significant increases in ordering of chemical pathology and haematology (Table 3.10).

Table 3.10 shows the changes in imaging ordering from 1999–00 to 2005–06.

- In 2004–05 we identified only a marginally significant increase in GP orders for imaging. However, in 2005–06 the gentle but steady rise in such orders continued and rendered the increase statistically significant. Since 1999–00 there was an increase in the total number of imaging tests ordered per 100 encounters of almost 19% from 7.4 to 8.8. The extrapolated effect of the measured change in imaging test ordering in BEACH is an average annual increase of 120,000 tests per year between 2001–02 and 2005–06 (i.e. GPs ordered nearly 500,000 more imaging tests in 2005–06 than they did six years earlier).
- The overall increase in imaging orders was reflected in significant increases in orders for ultrasound and computerised tomography (Table 3.10).

### 3.11 Patient risk behaviours

The patient risk factor questions were asked of subsamples of patients in 1999–00, but all three questions were not asked of the same patient. From 2000–01 onwards the three questions were asked of the same patient subsample. For comparisons over time, we have used data from 2000–01 onwards, with all data years re-analysed applying the new WHO criteria for the classification of overweight and obesity in adults.

There were no significant changes between 2001–02 and 2005–06 in:

- the proportion of adults who were overweight, the proportion who were obese, and the proportion who were underweight
- the proportion of adults who smoke daily
- the proportion of adults who reported consuming alcohol at ‘at-risk’ levels
- the proportion of children who were overweight and the proportion who were obese.

**Table 3.9: Significant changes in per cent of encounters where at least one test was ordered 1999–00 to 2005–06**

	1999–00	2001–02	2003–04	2005–06	Annual national change <sup>(a)</sup>
No tests ordered	81.1 (80.5–81.7)	80.8 (80.2–81.4)	79.2 (78.5–79.9)	77.9 (77.3–78.6)	<0.0001 -1,480,000
At least one pathology test ordered	13.8 (13.3–14.3)	14.0 (13.5–14.5)	15.5 (14.9–16.1)	16.4 (15.8–16.9)	<0.0001 +240,000
At least one imaging ordered	6.7 (6.4–7.0)	6.9 (6.6–7.2)	7.2 (6.9–7.5)	7.8 (7.4–8.1)	<0.0001 +100,000

(a) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

Note: CI—confidence interval.

**Table 3.10: Significant changes in test ordering 1999–00 to 2005–06**

Test ordered	1999–00 <sup>(a)</sup>		2001–02		2003–04		2005–06		Annual national change <sup>(b)</sup>	p-value
	Rate per 100 encounters (95% CI) (n=104,856)	Rate per 100 encounters (95% CI) (n=96,973)	Rate per 100 encounters (95% CI) (n=98,877)	Rate per 100 encounters (95% CI) (n=101,993)						
Total pathology tests <sup>(c)</sup>	—	31.0 (29.7–32.4)	35.2 (33.7–36.7)	38.6 (36.9–40.3)	<0.0001	+1,290,000				
Chemistry	—	16.5 (15.6–17.3)	19.1 (18.1–20.1)	21.8 (20.6–22.9)	<0.0001	+980,000				
Haematology	—	6.2 (5.8–6.5)	6.8 (6.4–7.2)	7.3 (6.9–7.7)	<0.0001	+170,000				
Total imaging tests <sup>(c)</sup>	7.4 (7.1–7.8)	7.9 (7.6–8.2)	8.2 (7.8–8.6)	8.8 (8.4–9.2)	<0.0001	+120,000				
Ultrasound	1.9 (1.8–2.1)	2.5 (2.3–2.7)	2.7 (2.5–2.8)	2.9 (2.7–3.1)	<0.0001	+120,000				
Computerised tomography	0.6 (0.5–0.8)	0.8 (0.6–0.9)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	<0.0001	+40,000				

(a) Pathology data collected in 1999–00 are not reported here due to less coding precision in that year.

(b) Extrapolation for linear changes: the estimated average annual change on a national level in terms of events in general practice—the effect is cumulative over the study period.

(c) Data collection and coding method for imaging changed at the end of the second BEACH year (1999–00). The second year's data were re-coded to be comparable with data from year 3 onwards.

Note: CI—confidence interval.

# 4 Discussion

In the previous chapters we have summarised the annual results from BEACH 2005–06 and reported the significant changes identified in general practice since 1999–00. In this chapter we consider the implications of these results.

## 4.1 The GPs

The AGPSCC<sup>40,41</sup> and others<sup>4</sup> have previously reported changes in the characteristics of the GP practising population. In 2005–06 BEACH results suggest that the feminisation and ageing of the GP workforce continues. More than one-third (37%) of BEACH participants were female and the increase from 30% in 1999–00 has been steady over the intervening years. Four in ten participants were aged 55 years or more, representing an increase of about 50% on the 1999–00 result (27% aged 55+ years). This has implications for the future of general practice. Female GPs have been shown to have a different practice style from that of male GPs,<sup>43</sup> particularly in the length of time they spend with the patient.<sup>44,45</sup> Older GPs also spend longer with their patients than their younger counterparts,<sup>45</sup> so the combination of feminisation and ageing of the workforce may affect the number of patients that can be seen in a working day in the future. This may further exacerbate the recently reported workforce shortage in general practice in Australia.<sup>46</sup>

Last year we found a decrease in the reported number of clinical sessions worked per week by the participants and this also has implications for future GP supply. In 2005–06 the move away from working 11 or more sessions a week towards 6–10 sessions or even fewer was again apparent since 1999–00. However, the 2005–06 results align broadly with those of the previous year, which could suggest that the move to fewer clinical hours of work has slowed. Whether a move to fewer working hours will accelerate as the large group of ‘baby boomer’ GPs nears or passes ‘usual’ retirement age is yet to be seen.

A decrease since 1999 in the proportion of GPs working as solo practitioners and an increase in the proportion who have gained Fellowship of the RACGP supported last year’s finding but no further change occurred between 2004–05 and 2005–06. In contrast, the proportion of GPs providing their own or cooperative after-hours patient care continued to decrease in 2005–06, so that less than half the participants reported providing such services, more than half now relying on deputising services.

In 2004–05 we reported a decrease in the proportion of participating GPs who had gained their primary medical qualification in Australia. However, in 2005–06 this proportion reverted to the level reported in 2002–03. The 70% estimate of Australian graduates in 2004–05 was slightly lower than suggested by DoHA in that year for all GPs (i.e. all who can claim either A1 or A2 items of service from Medicare) (71.4%).<sup>47</sup> The 2005–06 figure is not yet available from this website for comparison of the most recent BEACH result.

## 4.2 Practice nurses

In November 2004, DoHA introduced new Medicare item numbers that allowed GPs to claim for specific tasks undertaken by a practice nurse, under the direction of the GP. The GP is not required to see the patient at the time of the practice nurse service. The tasks for which such claims can currently be made are the provision of immunisation, treatment of a wound, and taking a cervical smear in regional rural or remote area practices.

Changes in the recording form were made for the 2005–06 BEACH year to allow capture of information about the involvement of the nurse during, or as a continuation of the GP consultation. It was not feasible to collect additional information from the practice nurse about the service provided to the patient within the current BEACH design. We therefore had to rely on the GP to record details of activities undertaken by the nurse. They were not limited to recording practice nurse activity claimable through the MBS but could record only management activity conducted by the practice nurse that formed part of that occasion of care of the patient. It must be remembered that if the nurse saw the patient at a time other than the recorded consultation, or without the involvement of the GP, BEACH will not include a record of the event.

The introduction of practice nurses as a formal provider within general practices has the potential to have a significant impact on the activities of the GPs themselves.

Possible effects of the introduction of practice nurse Medicare item numbers may include:

- **The patients:** It may change the distribution of the GP's workload across patient age groups. If practice nurses take up a large proportion of an activity (e.g. immunisation) the GP may see patients less often for this activity (e.g. children for childhood immunisation and older people for influenza vaccine).
- **The morbidity managed:** any change in the age distribution of patients seeing the GP can affect the pattern of morbidity managed. Further, if the activities of the practice nurse centre on certain problem groups (e.g. diabetes education), it is likely the GP will see these patients less often for this problem group.
- **Clinical treatments provided:** if practice nurses are used to establish and operate clinics (e.g. diabetes clinics, obesity clinics) in the practice, advice and education about health and risk behaviours may well move from the GP to the nurse.
- **Procedural treatments undertaken:** If the conduct of Pap smears and provision of wound dressings are in large transferred to the practice nurse, this will result in fewer such services being provided by the GP.

In both 2004–05 and in 2005–06 we asked GPs whether there was a practice nurse at their major practice address. The results did not differ between the years, being about 60% of practices. However, data from the 2005–06 BEACH year gave the first insight into some of the activities conducted by the nurses in these practices.

Although the majority of practices in which the participating GPs worked employed a practice nurse, nurses were involved at only 3.9% of total encounters and in the management of 2.8% of all problems managed by the GP. The results suggest that the addition of practice nurses has not yet led to a change in age distribution of the patients seen by the GP. Nor does it appear to have a direct relationship to any changes in morbidity managed by the GP. However, it does appear to have had a very large impact on the extent to which the GPs provide clinical advice and counselling. This is discussed later in this chapter (see Section 4.8).

## 4.3 The encounters

There were significantly fewer indirect encounters recorded in BEACH in 2005–06 than in 1999–00. Indirect encounters are those where the GP provides a clinical service, such as a repeat prescription, a referral, or an administrative document, but does not see the patient face-to-face. The Privacy Legislation released at the end of 2001 requiring the clinician to ensure test results were given to the patient themselves, together with economic pressures, may have contributed to an increase in call-back of patients for receipt of test results, and a decrease in their provision over the telephone.

In last year's report, long surgery consultations were shown to have increased significantly between 1998–99 and 2004–05 as a proportion of total encounters. There was no significant change between the proportion in 2004–05 and 2005–06. However, comparing these data over time and interpreting the changes is becoming more complex each year as new item numbers are added to Medicare. In particular, chronic disease management items were not available in earlier years of the BEACH program. The introduction and expansion in recent years of such condition-specific item numbers means that some encounters that may have previously been charged as long or prolonged surgery consultations may now be claimed under a new item number.

## 4.4 The patients

Earlier in this chapter we demonstrated that between 1999–00 and 2005–06 there were changes in the age distribution of patients encountered by the GPs, continuing trends reported last year. There were significant decreases in the proportion of encounters with patients in all age groups less than 45 years. In contrast, the proportion of encounters with patients aged 45–64 years and those aged 75 years and over increased. This section investigates the relationship between these results and data drawn from other sources.

- Figure 4.1 provides a graphic view of the age distribution of patients encountered in the 2005–06 BEACH year compared with those encountered in the 1998–99 BEACH year, with the two older age groups combined into one (65 years and over) for comparability with other data sources.
- Figure 4.2 shows the age distribution of patients at services claimed as Medicare A1 items in 1998–99 compared with 2004–05. These data show similar trends for children aged less than 15 years (decreasing from 17.1% to 14.3% of the MBS A1 items of service), and for patients aged 45–64 years (increasing from 24.1% to 27.1% of MBS A1 claims). However, in contrast to the BEACH data, Medicare shows that patients of 65 years and over accounted for a smaller proportion of the claims in 2004–05 than they did in 1998–99. This is probably because the Medicare data do not include claims made through the Department of Veterans' Affairs for patients who hold the Repatriation health card, a large proportion of whom would be in this older age group. Since BEACH includes samples of all encounters, those encounters claimed through both Medicare and the Department of Veterans' Affairs are included.

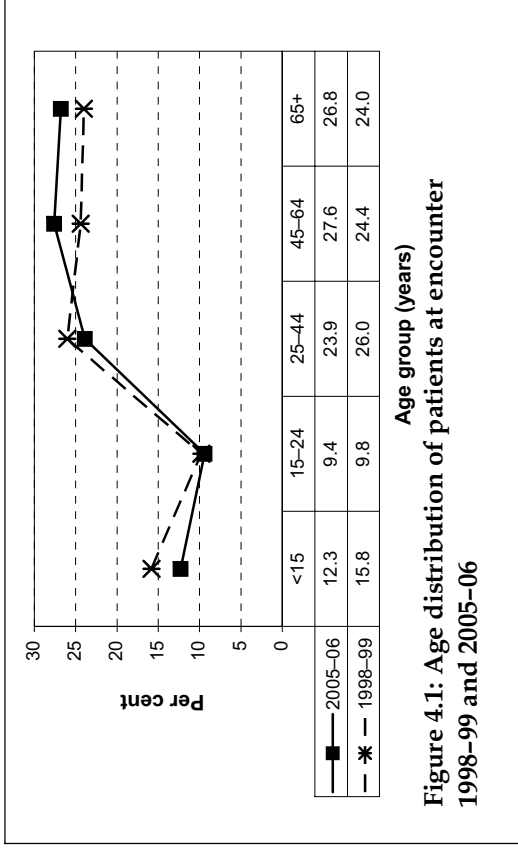


Figure 4.1: Age distribution of patients at encounter 1998-99 and 2005-06

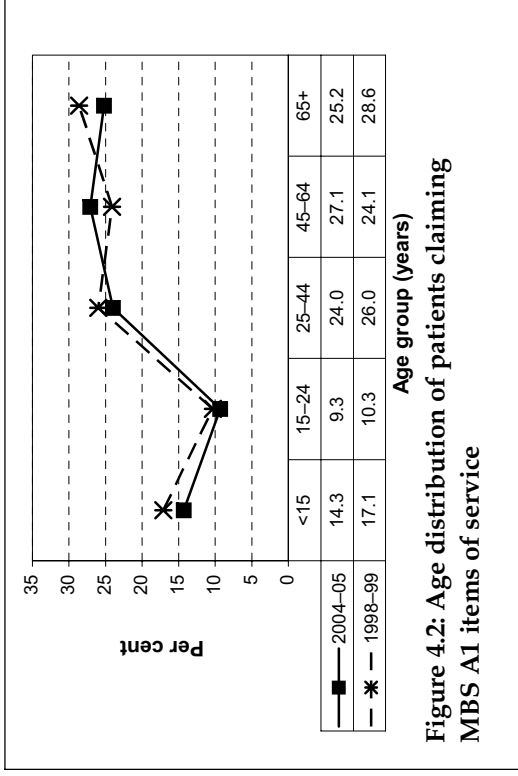


Figure 4.2: Age distribution of patients claiming MBS A1 items of service

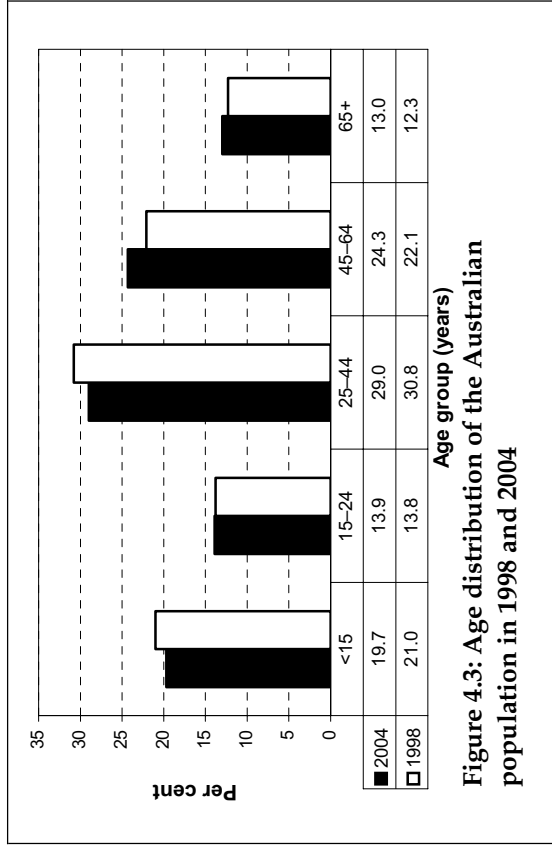


Figure 4.3: Age distribution of the Australian population in 1998 and 2004

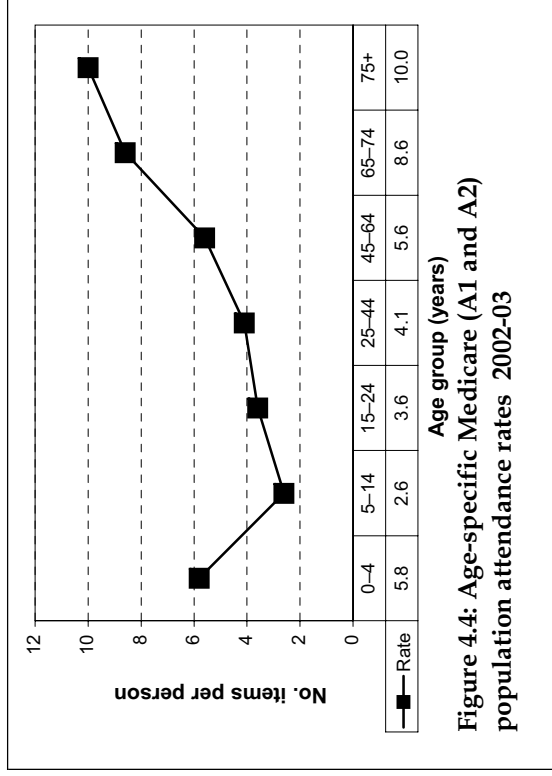


Figure 4.4: Age-specific Medicare (A1 and A2) population attendance rates 2002-03

Sources: Figure 4.1—1998-99 data from *General practice activity in Australia 1998-99* (Table 6.1, p. 25), 2005-06 data from Chapter 2, Table 2.12 this report; Figure 4.2—1998 data from *General practice activity in Australia 1998-99* (Table 4.2, p. 19), 2004-05 data from *General practice activity in Australia 2004-05* (Table 4.4, p. 53); Figure 4.3—from Australian Bureau of Statistics Population Census data; Figure 4.4—2002-03 data from *General practice activity in the states and territories of Australia 1998-2003* (Figure 3.2, p. 12).

- Figure 4.3 shows changes in the age distribution of the population of Australia over the same period. It is apparent that children aged less than 15 years have decreased as a proportion of the population since 1998–99. Further, the largest increase in proportional distribution has occurred in the 45–64 years age group, which accounted for 24.3% of the population in 2004, an increase of over 2% since 1998–99. People aged 65 years and over accounted for a larger proportion of the population in 2004 than in 1998, though the increase was not as large as in the 45–64 age group.
- Figure 4.4 shows the age-specific rates of Medicare-claimed A1 items of service in 2002–03.<sup>10</sup> It demonstrates that the age distribution of the patients at encounter will be affected to different degrees by both changes in population distribution and by the mean attendance rate of each age group. For example, although the proportion of the population accounted for by 45–64 year olds increased by 2.2% over the study period, the attendance rate of this group of patients is on average 5.6 visits per year, so the effect may be less than the smaller increase of 0.7% in the proportion who are aged 65 years and over who visit more frequently.

These data suggest that the increase in the proportion of BEACH encounters with patients of 45–64 years may reflect the baby boomers' move into this age group – that is, there are more people in this age group in the population than there used to be, so they account for more services. Baby boomers are also moving into an age of increased GP service utilisation as they get older (moving from an average 4.1 Medicare A1 claims per year to 5.6 per year). So the increase reflects the increase in their proportion in the community multiplied by their high average attendance rates. It may also be the result of an increasing likelihood of people in the older age groups remaining in the community, and therefore seeing their GP regularly.

## **Patient reasons for encounter**

The changing age distribution of the patients at GP–patient encounters resulted in a change in the reasons the patients give for seeing the GP (patient RFEs). Increases were reported last year<sup>41</sup> in RFEs associated with the need for services such as a prescription, a referral, and returning for the results of tests and other administrative processes. However, no further increase in these RFEs was apparent in 2005–06, the rates remaining steady compared with last year's result.

An apparent significant decrease in RFEs related to the blood and blood-forming organs was found to be due to a change in the coding of the RFE 'blood test results' in early 2001. In previous years this was classified in the ICPC-2 chapter 'Blood and blood-forming organs'. In later years it was classified in the 'General and unspecified' chapter. This change would have made some contribution to the increase in RFEs of a general and unspecified nature over the six time intervals of this comparison.

Presentations of patients to receive test results doubled between 1998–99 and 2004–05, and then remained steady this year. This suggests that there was an increase in GP requests to the patient to attend the GP in person to receive their test results (with a hypothesised decrease in the likelihood of GPs giving results over the telephone to their patients). The Privacy Legislation released at the end of 2001 requiring the clinician to ensure test results were given to the patient themselves, together with economic pressures, may have contributed to an increase in call-back of patients for receipt of test results.

The increase in presentations associated with the male genital system is not surprising in light of the significant publicity given over recent years to the risk of prostate cancer and the



public urging from some quarters for all men to go for a check-up for this disease and other men's health issues.

## 4.5 Problems managed at encounter

The decrease in the management rate of upper respiratory tract infection (URTI) since 1999–00 is likely to be linked to the decrease in the proportion of encounters with children. In 2002–03, BEACH data showed that children aged less than 15 years accounted for 37% of all patients managed for URTI, while in that year they represented less than 7% of the attending patients for whom records were provided.<sup>48</sup> Given that the presentation rate for URTI in children is far higher than for adults, the overall decrease in attendance rates by children will have a marked effect on the management rate of URTI. However, it is notable that there was a marginal increase this year (over 2004–05) in the management rate of URTI, and it reverted to the rate found in 2002–03. This could therefore reflect a true increase in the incidence of URTI in the community in 2005–06, as there was no major change in the age distribution of patients at encounter.

The changing age distribution of the patients may also partly or wholly explain the decrease in management rates of other acute respiratory problems such as tonsillitis and acute bronchitis, and acute otitis media – all of which decreased over the study period – since these problems were the fifth, sixth and second (respectively) most common problems managed at encounters with children in 2000–01.<sup>49</sup>

In 2005–06 chronic problem management took up a significantly greater proportion of the GPs' workload than in 1999–00. This was most apparent in the management rates of lipid disorders, diabetes and osteoarthritis. These increases may be the result of a combination of factors including the increased proportion of encounters with 45–64 year olds and with older patients, the introduction of Medicare items for the annual cycle of care for diabetes mellitus in 2001 and the considerable public attention being drawn to the need to test and control cholesterol levels.<sup>6</sup> It may also reflect an increase in the diagnosed prevalence of the disease, as self-reported prevalence increased from 3.0% to 3.5% between 2001 and 2004–05.<sup>3</sup> The steady but marginal annual increase in the management rate of diabetes resulted in about 600,000 additional encounters in 2005–06 nationally compared with 1999–00. Those interested in more detail about the management of diabetes should refer to Section 13.6 (p. 109) in *General practice activity in Australia 2003–04*.<sup>50</sup>

Hypertension has been the most commonly managed problem in general practice since first measured in 1990–91 and consistently since the beginning of BEACH in 1998–99. This year for the first time the management rate of hypertension showed a marginally significant increase over the 1999–00 rate, reflecting a build-up of minor non-significant increases in each year measured. This increase may also be associated with the factors of patient ageing and the availability of Medicare item numbers for the development of care plans for older people or for those with complex chronic disease.

The decrease in management rates of menopausal complaints between 1999–00 and 2005–06 was largely due to a sudden decrease in 2004–05. It may well suggest a decrease in the use of hormone replacement therapy by menopausal women as a result of wide publicity of the link between hormone replacement therapy and breast cancer.<sup>51</sup> The 2005–06 results gave no indication of a reversion to earlier management rates.

Last year a large decrease in the management rate of asthma suggested that there were an estimated one million fewer occasions at which GPs managed this problem in 2004–05 than

in 1998–99. This year the rate aligned with last year’s result, suggesting that the attendance rate for asthma management may have levelled. Note that in 2004 Henderson et al. found there was no change in the prevalence of asthma between 1998 and 2002 among patients attending GP consultations.<sup>52</sup> The introduction of a Medicare item for the Asthma 3+Visit Plan did not appear to be the cause of the initial drop in 2000–01, as the decrease occurred before its introduction. However, there were other types of asthma plans being promoted before the Asthma 3+Visit Plan and these may have caused the measured decrease in management rates in 2000–01. The extent to which such plans have improved patient education in self-management of this problem and in turn led to this decrease in management rate is not known.

It may have been expected that the introduction of MBS items specifically for the care of depression would lead to an increase in its management rate (i.e. in the number of encounters at which it is managed) and perhaps to the management rate of psychological problems overall. This has again proved not to be the case. There has been no significant change in the management rate of psychological problems, or of depression specifically, since 1999–00. As reported in Chapter 3, the rate at which GPs are providing psychological counselling has increased over the study period slowly and steadily rather than being a sudden response to the introduction of these MBS item numbers. It is notable that the rate did not change between last year and this year. Those interested in more detail about the management of psychological problems should refer to Section 13.3 (p. 97) in *General practice activity in Australia 2003–04*.<sup>50</sup>

## 4.6 Medications

The number of medications prescribed per 100 encounters and per 100 problems managed decreased over the study period to suggest an extrapolated effect of 13.3 million fewer prescriptions written by GPs in 2005–06 than in 1999–00. This estimate does not consider the effect on the number of prescriptions filled at the pharmacy as a result of GP prescriptions. For example, if the prescriptions that were not written by GPs in 2005–06 had in the past an average of one repeat, there would have been over 26.6 million fewer scripts crossing the counter in total in 2005–06 than in 1999–00. If the average was two repeats the decrease would be about 40 million.

In contrast there was a significant increase in the rate at which GPs provided medication directly to the patient so that the overall decrease in total medications prescribed, supplied or advised for over-the-counter (OTC) purchase was somewhat less than the decrease in prescriptions alone.

The slowing of growth of the PBS<sup>53</sup> cannot be attributed to this decrease in GP prescribing. First, growth has only recently slowed whereas the decrease in GP prescriptions has been steady throughout the study period. Second, the slowing of growth in the PBS is far more likely to be due to the increases in patient co-payments for prescribed medications in January 2004 and again in January 2005. Increases in co-payments mean that more medications fall under the co-payment level and therefore no longer qualify for PBS cover, the patient paying the whole cost of the medication.

The decrease in GP-prescribed medications may be the result of a number of factors, including:

- the increase in the number of medications supplied by the GP (as noted above)
- the move of some drugs to OTC availability

- the introduction of combination therapies which result in a halving of scripts for those who were on two drugs and then moved to the combination medications
- changes in the PBS costing structure.

Examples of these effects are:

- Last year we reported decreased prescriptions for paracetamol, possibly as a result of the availability of tramadol, and possibly because the higher patient co-payment (required since January 2004) for Commonwealth concession card holders made it less attractive to obtain paracetamol via a GP's prescription than to purchase it from supermarkets. The decrease started in 2002–03 and continued to 2004–05. However, no further decrease occurred in the prescribing of paracetamol in 2005–06.
- The decrease in prescriptions for the cardiac therapy drugs (largely beta-blockers) and in diuretics occurred in parallel with higher prescribing of agents acting on the renin-angiotensin system (ACE inhibitors and combinations of ACE inhibitor + diuretic).
- The OTC availability of salbutamol and the advent of the combination medication fluticasone/salmeterol altered the balance between these two generic drugs in terms of GP prescriptions. The former decreased as the latter increased, in line with advice from such organisations as the National Asthma Council that combination therapy would give better control of asthma.<sup>54</sup>
- Prescribing patterns for acid-related disorders were influenced by the release of ranitidine onto the OTC market, but again its prescription rate remained steady after the initial decrease this move instigated.
- The decrease in prescriptions for vaccines was surprising, as there had been no decrease in rates of immunisations and vaccinations recorded by the GPs. Further investigations suggested that in parallel, there had been an increase in the rate at which GPs supplied vaccines. This could well be related to the meningococcal vaccines being made freely available for children of selected ages, phased in from 2003. In addition, there has been a trend towards greater polyvalence in vaccines, which reduces the total count of vaccines.

Other changes in medication rates followed the management rates of the problems for which they are prescribed. For example:

- The increased prescribing rate of serum lipid lowering agents paralleled the increased management rate of lipid problems. More details about the prescribing of these medications can be found in *General practice activity in Australia 2004–05* (Chapter 3, Section 3.6).<sup>41</sup>
- The prescribing rate of drugs for acid-related disorders increased in line with the increase in the management rate of oesophageal disease.
- The increase in prescriptions for amoxicillin and for cephalexin may well reflect the marginally higher management rate of URTI this year. A decrease noted last year in prescriptions for cefaclor monohydrate did not continue into the current year.

The introduction or removal of medications from the market also affects patterns of prescribing. For example:

- Prescriptions for anti-inflammatory and antirheumatic drugs acting on the musculoskeletal system continued to decrease, particularly those for celecoxib which was prescribed at a rate of only 0.5 per 100 encounters in 2005–06. More details about change in the prescribing of this group of medications can be found in *General practice activity in Australia 2004–05* (Chapter 3, Section 3.3).<sup>41</sup>

- In the prescribing of drugs for acid-related disorders, the introduction of esomeprazole (put on the PBS in 2003) resulted in a significant increase to 2005–06, and this influenced the prescribing rate of both ranitidine and omeprazole which both decreased.
- Prescriptions of tramadol increased following the introduction in 2001 of the slow-release tablet, which provided a more reliable prevention of breakthrough pain. However, after the initial uptake of this medication, the rate remained steady in 2005–06.

## 4.7 Procedural treatments

Although the rate of procedural treatments increased between 1999–00 and 2003–04, it appears to have steadied over the last two years. It must be remembered that this year's data include the procedures undertaken by the practice nurse as part, or as an extension of, the consultation. This means that while the GPs themselves are doing less, the overall rate of procedural treatments did not change.

The range of procedures undertaken by practice nurses was extremely varied and many of the services they provided were not activities that were claimable by the GP from Medicare under the practice nurse item numbers – only 42% were claimable from Medicare. Of those for which a Medicare item number was recorded, more than two-thirds were for the immunisation item and the other third were for wound treatments. Claims for Pap smears undertaken by the nurse were negligible. This may partly be due to the geographic limitations put on such claims (i.e. they must be in practices situated in rural areas), but it may also suggest a disinclination on the part of the GPs to transfer this responsibility. First, it is unlikely that many practice nurses will have been trained to take Pap smears, though they may do so in the future if GPs become more reliant on their clinical services within the practice. Second, a Pap smear is usually only one part of a broader check of the female genital system. Many GPs take the opportunity at the time of a Pap smear to do a breast check, discuss contraception (where appropriate) and general sexual health. While practice nurses may also undertake these broader opportunistic health checks they are unable to prescribe any associated medications (for example contraceptives, hormone replacement therapy) that may be required by the patient. It may also be that GPs take the opportunity to do a Pap smear when the patient presents with other problems. It may be that it is harder, and less efficient to split the responsibilities for such care between doctor and nurse. Patient preference may also be a factor.

The range of activities recorded for practice nurses suggests that there are other services that could be considered appropriate if the practice nurse Medicare item numbers are ever expanded – some of the more commonly recorded procedures are the management of chronic skin ulcers and removal of ear wax.

Ideally, data pertaining to practice nurse activity should be collected in parallel to GP activity data. However, such data would need to be patient-based, rather than encounter-based, to ensure that the role of the practice nurse in providing patient care included information about those activities provided independent of a GP encounter.

## 4.8 Clinical treatments

A dramatic decrease in the rate at which GPs recorded clinical advice and counselling was the most startling finding in 2005–06. Last year we demonstrated that clinical treatments had steadily increased between 1998–99 (31.4 per 100 encounters) and 2004–05 (39.2 per 100) – an overall increase of approximately 20%. This increase was reflected in rates of provision of advice about nutrition/weight, general advice and education, counselling the patient about the problem being managed, and to a lesser extent in provision of psychological counselling. Suddenly this year the overall rate of clinical treatments decreased to 29.2 per 100 encounters, a significantly lower rate than measured as far back as 1999–00, and representing a 25% decrease in a single year.

This sudden large change is a reversal of previous trends and we can only hypothesise it is at least partially due to the broad use of practice nurses. Several other results give some credence to the above hypothesis. There was no change in the rate of provision of psychological counselling nor in the provision of sickness certificates – both services that cannot be provided by a practice nurse. This hypothesis raises some interesting questions:

- When the conduct of a procedure is passed to the practice nurse, does the GP also pass on an expectation that the nurse will give the patient the education, advice or counselling that the GP usually gives for this problem, but because it is an assumed part of the conduct of the procedure, the GP does not record the activity separately when the GP does not provide it him/herself?
- With the growth of services provided outside the consultation, such as diabetes clinics and obesity clinics, usually run by nurses at the practice, is the GP anticipating that general advice and education regarding health, advice about nutrition/weight, lifestyle, and advice about the management of a problem and so on will be provided at the clinic and that the GP is no longer required to provide it him/herself?
- Are the patients still receiving the previously measured levels of advice and health instruction, even though this may be given by either the GP or the nurse?

Currently we do not have the answers to these questions but we hope to shed some light on these issues through more complex analysis of these data in the coming year.

## 4.9 Tests and investigations

Test ordering by GPs continues to increase. Since 1999–00 the chances that some pathology will be ordered at the encounter increased by about 20%, and the chances that some imaging will be ordered rose by about 16%. In 2005–06 at least one test or investigation was ordered at one in five encounters. When GPs did order pathology, an average of 2.4 tests (or battery of tests such as full blood count) were listed. The combined effect of tests being ordered more often and a move to order an increasing number of tests on one occasion are having a significant impact on total pathology tests ordered by GPs.

Some increase in test orders would be expected to accompany increases in management rates of such chronic diseases as diabetes, and increases in the number of people taking medications (for example lipid lowering agents). Monitoring for adverse effects of treatment and monitoring the effectiveness of medications for such problems is required for quality care, so this hypothesised aspect of the increase is a positive rather than a negative result. However, it is also likely that patient expectations and GPs' increased fear of litigation may be contributing to the rising pathology and imaging ordering rates.

## 4.10 Referrals

Although the chances of being referred to another health professional when visiting a GP also increased between 1999–00 and 2005–06, the increase was far less than for pathology tests. The total number of referrals, and the referral rate to allied health services did not change but referrals to specialists increased whereas referrals/admissions to hospital significantly decreased. The lack of any increase in referrals to allied health professionals is somewhat surprising in light of the general pressure on GPs in the last few years to involve allied health providers more in the care of patients with chronic and complex disease. The introduction of Medicare payments for some allied health services for some patients<sup>55</sup> in the latter half of 2004 does not as yet appear to have affected the GP rate of referral to these services.

## 4.11 Conclusion

The consistency of the BEACH results over time and the measured changes in practice activity demonstrate the stability of the BEACH program. The major finding from this year's data was the dramatic decrease in the provision of advice and education, particularly that related to lifestyle, weight, management of the problem, and about medication. This decrease may be attributable to the increasing role of practice nurses in the provision of patient care in general practices, since the major policy change between 2004–05 and 2005–06 was the introduction of Medicare item numbers for selected procedures done by practice nurses. The decrease in recorded advice and education raises the question of whether the patients are still receiving the advice and education previously given or if the 'official' sharing of care between GPs and practice nurses has had unexpected and detrimental effects on patient care. The issue is certainly worthy of further investigation. We will be investigating this issue further over the next 12 months through more sophisticated statistical analysis of the data. We will also watch with interest in 2006–07 to see whether the decrease in these activities continues. However, a study conducted on a patient–practice basis (rather than an encounter–practitioner basis) of all the clinical activity of the GPs and the nurse(s) for individual patients would provide a more reliable indication of the advice and education being received by the patient from all sources in the practice. Whether this could be drawn in the first instance from practices with fully computerised medical records (i.e. paperless practices) is not known, as there is no information about the extent to which practice nurses record details of the services they provide in the computer. Even if the practice nurses are entering their data in paperless practices, such a sample would be biased, since only about 20% of practices are paperless.<sup>26</sup> Nevertheless, it could provide a better understanding of the total care provided to the patients.

# 5 Methods

In summary:

- each year BEACH involves a random sample of approximately 1,000 GPs
- each GP records details about 100 doctor–patient encounters of all types
- the GP sample is a rolling (ever-changing) sample
- approximately 20 GPs participate each week, 50 weeks a year
- each GP can be selected only once per quality assurance triennium
- the encounter information is recorded by the GPs on structured encounter forms (on paper)
- each GP participant also completes a questionnaire about themselves and their practice.

## 5.1 Sampling methods

- The source population includes all vocationally registered GPs and all general practice registrars who claimed a minimum of 375 general practice A1 Medicare items in the most recently available 3-month Medicare data period (which equates with 1,500 A1 Medicare claims a year).
- This ensures inclusion of the majority of part-time GPs while excluding those who are not in private practice but claim for a few consultations a year.
- On a quarterly basis the Primary Care Division of DoHA updates the sample frame from the Medicare records, leaving out of the sample frame any GPs already randomly sampled in the current triennium, and draws a new sample from those currently in the sample frame. This ensures the timely addition of new entries to the profession, and timely exclusion of those GPs who have stopped practising.

## 5.2 Recruitment methods

We approach the randomly selected GPs by letter, posted to the address provided by DoHA.

- Over the following 10 days we use the electronic white and yellow pages to check the telephone numbers generated from the Medicare data. This is necessary because many of the telephone numbers provided from the Medicare data are incorrect.
- We then telephone the GPs in the order they were approached and, referring to the approach letter, ask whether they will participate.
- On initial telephone contact with the practice we often find that the selected GP has moved elsewhere, but is still in practice. Where forward address and/or telephone number can be obtained, these GPs are followed up at their new address.
- GPs who agree to participate are set an agreed recording date several weeks ahead.
- We send a research pack to each participant about 10 days before the planned start date.

- We make a telephone reminder to each GP in the first days of the agreed recording period – this also provides the GP with an opportunity to ask any questions they have about the recording process.
- We follow-up non-returns by regular telephone calls for up to three months after the set recording time.
- Participating GPs earn up to 60 Clinical Audit points towards their quality assurance (QA) requirements through the Royal Australian College of General Practitioners (RACGP). As part of this QA process, each receives an analysis of his or her results compared with those of nine other de-identified GPs who recorded at approximately the same time. Comparisons with the national average and with targets relating to the National Health Priority Areas are also provided. In addition, GPs receive some educational material related to the identification and management of patients who smoke or consume alcohol at hazardous levels.

### 5.3 Data elements

BEACH includes three interrelated data collections: encounter data, GP characteristics, and patient health status. An example of the forms used to collect the encounter data and the data on patient health status is included in Appendix 1. The GP characteristics questionnaire is provided in Appendix 2.

- **Encounter data:** date of consultation, type of consultation (direct/indirect), Medicare/Veterans' Affairs item numbers (where applicable) (up to three) and other payment source (where applicable) (tick boxes).
- **The patient:** date of birth, sex and postcode of residence. Tick boxes are provided for Commonwealth concession card holder, holder of a Repatriation health card (from the Australian Department of Veterans' Affairs, DVA), non-English-speaking background (NESB) (patient self-report – a language other than English is the primary language at home), an Aboriginal person (self-identification) and Torres Strait Islander (self-identification). Space is provided for up to three patient reasons for encounter (RFEs).
- **The problems managed** at encounter (at least one and up to four). Tick boxes are provided to denote the status of each problem as new or continuing for the patient (if applicable).
- **Management** of each problem, including:
  - **medications** prescribed, supplied by the GP and advised for over-the-counter purchase including: brand name, form (where required), strength, regimen, status (if new or continuing medication for this problem for this patient) and number of repeats
  - **other treatments** provided for each problem including counselling, advice and education, and procedures undertaken; and if other treatment was provided by practice nurse (tick box)
  - **new referrals** to medical specialists, allied health professionals and hospital
  - **investigations** including pathology tests, imaging and other investigations ordered at the encounter.
- **GP characteristics:** age and sex, years in general practice, number of GP sessions worked per week, number of GPs working in the practice, postcode of major practice



address, country of graduation, postgraduate general practice training and FRACGP status, after-hours care arrangements, use of computers in the practice, whether the practice is accredited, whether it is a teaching practice, work undertaken in other clinical settings, hours worked in direct patient care and hours on call per week.

## 5.4 Changes to data elements and reporting methods in 2005–06

For the first seven years of the BEACH program, where a Medicare item number was claimable for the encounter the GP was instructed to record only one item number. Where multiple item numbers (for example, an A1 item such as ‘standard surgery consultation’ and a procedural item number) were claimable for an encounter the GP was instructed to record the lower of these (usually an A1 item number). For reporting purposes Medicare claimable encounters were broken down according to the item number recorded by the GP as claimable (either through Medicare or through DVA) for the encounter.

In November 2004 four new item numbers were added to Medicare<sup>55</sup> to cover some selected activities conducted by a practice nurse on behalf of a medical practitioner. A nurse may see the patient in conjunction with the GP–patient consultations. In this case both the GP’s professional service and the practice nurse item are claimable.

The introduction of the Medicare practice nurse items provided the research team with a challenge. To date, we had been able to describe ‘general practice activity’ in terms of GP–patient encounters and to consider this as close to equivalent to ‘general practitioner activity’. However, with the introduction of the practice nurse item numbers, if we did not include practice nurse activity initiated during the GP–patient encounter, we could no longer describe the full content of the consultation.

Therefore, two changes were made to the BEACH form in order to capture practice nurse activity associated with the GP–patient consultations and include this activity to describe ‘general practice activity in Australia’.

- For the first time we allowed GPs to record multiple (up to three) Medicare item numbers.
- In the ‘other treatments’ section, for each problem managed, we asked the GP to tick the practice nurse box if the treatment recorded was provided by the practice nurse, rather than by the GP. If the box was not ticked, we assumed the GP gave the ‘other treatment’ themselves.

### Reporting of item numbers

In the summary of annual results (Section 2.3) we provide one table (Table 2.10) which counts only one item number per Medicare/DVA-claimable encounter for comparability with previous years. Selection of one item number was undertaken on a priority basis: consultation item numbers – override incentive item numbers – override procedural item numbers – override other Medicare item numbers. An additional table in Section 2.3 (Table 2.11) provides a breakdown of all item numbers recorded by the GPs.

In Section 2.11, we provide a more specific description for each of the practice nurse Medicare item numbers recorded.

### **Reporting of other treatments**

In the section on 'other treatments' in the annual results (Section 2.8) all recorded clinical treatments and all therapeutic procedures are included – irrespective of whether they were provided by the GP or by the practice nurse. These results are also used in the measurement of changes over time (Section 3.8)

### **Reporting of practice nurse activity**

In the annual results chapter, we have added a new section on practice nurse activity (Section 2.11). This section provides a breakdown of the practice nurse Medicare items claimed, the morbidity managed with the assistance of the practice nurse, and the 'other treatments' provided by the practice nurse as recorded by the GP participants.

When viewing these results, it must be remembered that these 'practice nurse' data will not include activities undertaken by the practice nurse during the GP's BEACH recording period that were performed outside the recorded encounter. Such activities could include Medicare-claimable activities (e.g. immunisations/vaccinations) provided under instruction from the GP but not at the time of the encounter recorded in BEACH, or provision of other activities not currently claimable from Medicare (e.g. dietary advice on a one-to-one basis, or in a group situation).

## **5.5 Supplementary Analysis of Nominated Data (SAND)**

A section on the bottom of each recording form investigates aspects of patient health or health care delivery in general practice not covered by the consultation-based data.

- The year-long data period is divided into 10 blocks, each of 5 weeks. Each block includes data from 100 GPs.
- Each GP's pack of 100 forms is made up of 40 forms that contain questions about patient risk factors: patient height and weight (used to calculate body mass index, BMI), alcohol intake and smoking status (patient self-report).
- The remaining 60 forms in each pack are divided into two blocks of 30. Different questions are asked of the patient in each block and these vary throughout the year.
- The order of SAND sections in the GP recording pack is rotated, so that the 40 patient risk factor forms may appear first, second or third in the pad. Rotation of ordering of the components ensures there was no order effect on the quality of the information collected.

The results of topics in the SAND substudies for alcohol consumption, smoking status and BMI are included in this report. Abstracts of results for other substudies are available through the website of the Family Medicine Research Centre (of which the AGPSCC is a part) at <[www.fmrc.org.au/publications/SAND\\_abstracts.htm](http://www.fmrc.org.au/publications/SAND_abstracts.htm)>.

## 5.6 The BEACH relational database

The BEACH relational database is described diagrammatically in Figure 5.1. Note that:

- all variables can be directly related to GP, patient characteristics and to the encounter
- RFEs have only an indirect relationship with problems managed as a patient may describe one RFE (e.g. 'repeat prescriptions') that is related to multiple problems managed, or several RFEs (e.g. 'runny nose' and 'cough') that relate to a single problem (e.g. URTI) managed at the encounter.
- all types of management are directly related to the problem being treated.

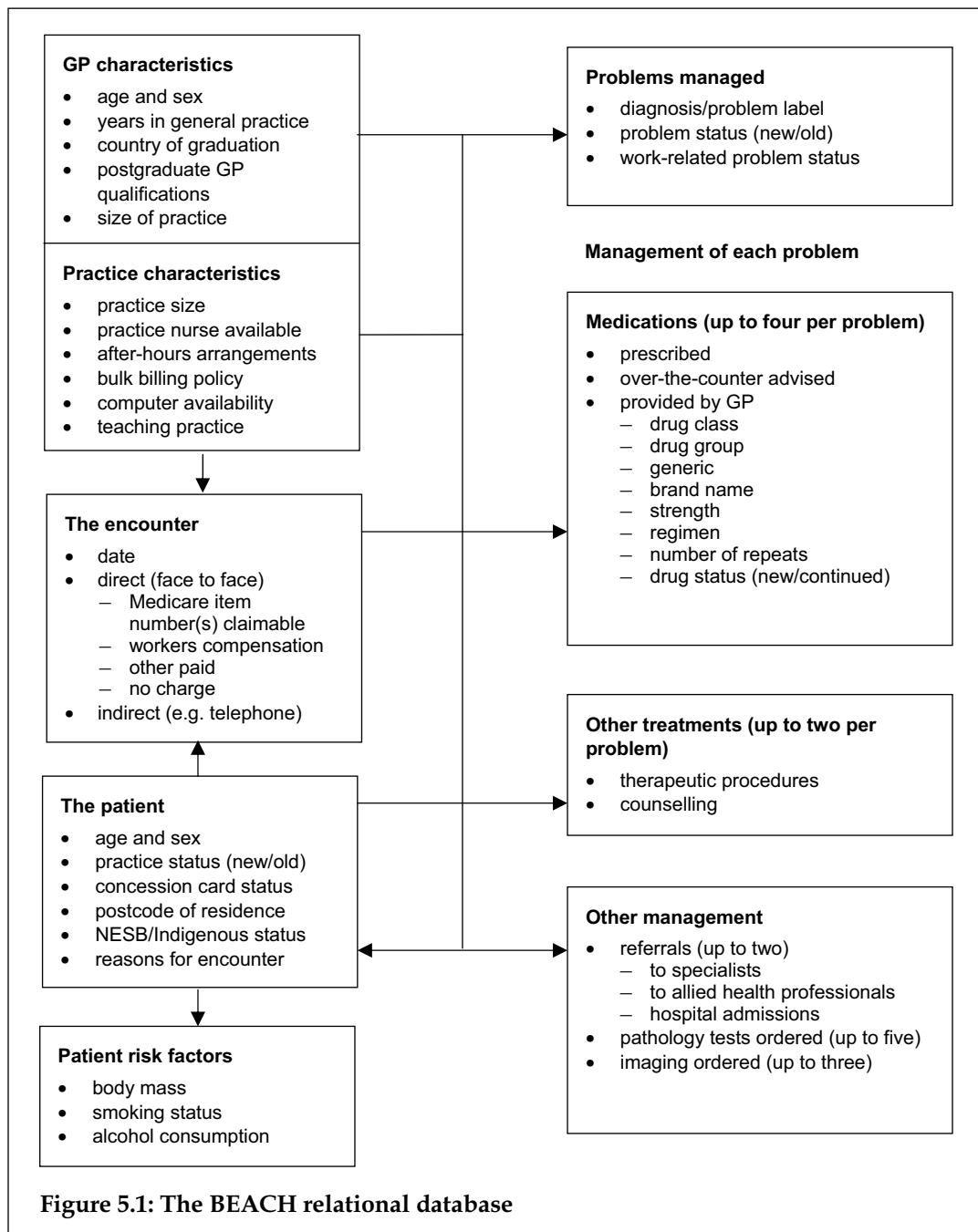


Figure 5.1: The BEACH relational database

## 5.7 Statistical methods

The analysis of the 2005–06 BEACH data was conducted with SAS version 9.1<sup>56</sup> and the encounter is the primary unit of inference. Proportions (%) are used only when describing the distribution of an event that can arise only once at a consultation (e.g. age, sex) or to describe the distribution of events within a class of events (e.g. problem *A* as a percentage of total problems). Rates per 100 encounters are used when an event can occur more than once at the consultation (e.g. RFEs, problems managed or medications).

Rates per 100 problems are also sometimes used when a management event can occur more than once per problem managed. In general, the results present the number of observations (*n*), the rate per 100 encounters and the 95% confidence interval.

The BEACH study is a random sample of GPs, each providing data about a cluster of encounters. When the encounter is the unit of inference, the cluster sampling study design violates the simple random sample (SRS) assumption of equal probability of selection of observations, because the probability of an encounter being included is a function of the probability of the GP being selected.<sup>57</sup> Cluster samples also violate the assumption of independence of observations as there is an inherent relationship or correlation between encounters sampled in the same cluster. Therefore the certainty that the sample estimates reflect the true underlying population values is reduced by cluster sampling, thus decreasing the precision of national estimates.

When a study design other than SRS is used, analytical techniques that consider the study design should be employed. In this report the standard error calculations used in the 95% confidence intervals accommodate both the single-stage clustered study design and sample weighting according to Kish's description of the formulae.<sup>58</sup>

### Changes over time

In the Chapter 3, SAS version 9.1<sup>56</sup> was used for all analysis of 2005–06 data. However, data from previous years were derived (in the past) using SAS version 6.12<sup>59</sup> for all years from 1999–00 to 2004–05 in the tables in Chapter 3, and in Appendix 4. SAS version 9.1 includes procedures that calculate the robust standard error to adjust for the intra-cluster correlation of the cluster sample. In contrast, SAS version 6.12 is limited in its capacity to calculate the standard error for the current study design, so additional programming was required to incorporate these formulae.

### Extrapolated national estimates

- Where we detected a significant change over time, we calculated the estimated annual rate of change.
- The national estimates were extrapolated by multiplying the encounter rate for 1999–00 by the number of unreferred attendances (A1 and A2 items) claimed through Medicare in that year to give the estimated number of encounters for that event in 1999–00. The same was done for 2005–06. The difference between the two estimates was averaged over six years to give the estimated annual rate of change in encounters.
- This is expressed as the mean annual increase (or decrease) over the study period, in the number of general practice encounters for that problem or medication occurring in Australia each year.

## 5.8 Classification of data

The following data elements are classified according to the International Classification of Primary Care – Version 2 (ICPC-2), a product of the World Organization of Family Doctors (Wonca).<sup>23</sup>

- patient reasons for encounter (RFEs)
- problems managed
- clinical treatments (e.g. counselling, advice)
- therapeutic procedures
- referrals
- pathology and imaging tests ordered.

The ICPC-2 is used in more than 45 countries as the standard for data classification in primary care. It has recently been accepted by the World Health Organization (WHO) in the WHO Family of Classifications<sup>60</sup> and has been declared the national standard in Australia for reporting of health data from general practice and patient self-reported health information.<sup>61</sup>

The ICPC-2 has a bi-axial structure, with 17 chapters on one axis (each with an alphabetic code) and seven components on the other (numeric codes) (Figure 5.2). Chapters are based on body systems, with additional chapters for psychological and social problems. Component 1 includes symptoms and complaints. Component 7 covers diagnoses. These are independent in each chapter and both can be used for patient RFEs or for problems managed.

Components 2 to 6 cover the process of care and are common throughout all chapters. The processes of care, including referrals, other (non-pharmacological) treatments and orders for pathology and imaging, are classified in these process components of ICPC-2. Component 2 (diagnostic, screening and prevention) is also often applied in describing the problem managed (e.g. check-up, immunisation).

The ICPC-2 is an excellent epidemiological tool. The diagnostic and symptomatic rubrics have been selected for inclusion on the basis of their relative frequency in primary care settings or because of their relative importance in describing the health of the community. It has only about 1,370 rubrics and these are sufficient for meaningful analyses. However, reliability of data entry, using ICPC-2 alone, requires a thorough knowledge of the classification if correct classification of a concept is to be ensured.

In 1995, recognising a need for a coding and classification system for general practice electronic health records, the Family Medicine Research Centre (then Unit) developed an extended vocabulary of terms classified according to the ICPC, now called ICPC-2 PLUS.<sup>62</sup> This is an interface terminology, developed by the Family Medicine Research Centre from all the terms used by GPs in studies such as the Australian Morbidity and Treatment Survey 1990–91,<sup>63</sup> the Morbidity and Therapeutic Index 1992–1998 (a clinical audit tool that was available to GPs) and BEACH 1998–2006, that together have included close to 1.5 million encounter records. These terms are classified according to ICPC-2 to ensure international standards for reporting. Readers interested in seeing how coding in ICPC-2 works can download the ICPC-2 PLUS Demonstrator at [www.fmrc.org.au/icpc2plus/demonstrator.htm](http://www.fmrc.org.au/icpc2plus/demonstrator.htm)

Components	Chapters																
	A	B	D	F	H	K	L	N	P	R	S	T	U	W	X	Y	Z
1. Symptoms, complaints																	
2. Diagnostic, screening, prevention																	
3. Treatment, procedures, medication																	
4. Test results																	
5. Administrative																	
6. Other																	
7. Diagnoses, disease																	

A	General	L	Musculoskeletal	U	Urinary
B	Blood, blood-forming	N	Neurological	W	Pregnancy, family planning
D	Digestive	P	Psychological	X	Female genital
F	Eye	R	Respiratory	Y	Male genital
H	Ear	S	Skin	Z	Social
K	Circulatory	T	Metabolic, endocrine, nutritional		

**Figure 5.2: The structure of the International Classification of Primary Care – Version 2 (ICPC-2)**

## Presentation of data classified in ICPC-2

When the free-text data are received from the GPs, trained secondary coders (who are undergraduate health information management students) code the data in more specific terms using ICPC-2 PLUS. Reporting, however, is almost always at the level of the ICPC-2 classification (e.g. acute otitis media/myringitis – ICPC-2 code H71). However, there are some exceptions where data are grouped either above the ICPC-2 level or across the ICPC-2 level.

### Reporting morbidity with groups of ICPC-2 codes

- When recording problems managed the GP may not always be very specific. For example, in recording the management of ‘diabetes’, they may simply record the problem as ‘diabetes’. In ICPC-2, ‘Diabetes unspecified’ is classified as non-insulin dependent diabetes (code T90). There is another code for insulin dependent diabetes (T89). In some cases the GP may simply have failed to tell us that the patient had ‘insulin dependent diabetes’. We therefore feel that for national data reporting, it is more reliable to group the two codes T90 and T89 and label this ‘*Diabetes – all\**’ – the asterisk indicating that multiple ICPC-2 codes (as in this example) or ICPC-2 PLUS codes are included.

### Reporting morbidity with groups of ICPC-2 PLUS codes

- In other cases a concept can be classified within (but be only part of) multiple ICPC-2 codes. For example, ‘osteoarthritis’ is classified in ICPC-2 in multiple broader codes according to site, e.g. L92 – shoulder syndrome (includes bursitis, frozen shoulder, osteoarthritis of shoulder, rotator cuff syndrome etc.). When reporting ‘osteoarthritis’ in this publication, we group all the more specific osteoarthritis ICPC-2 PLUS terms within all the appropriate ICPC-2 codes. We label this group ‘*Osteoarthritis\**’, the asterisk again indicating multiple codes, but in this case they are PLUS codes rather than ICPC-2 codes.

## Reporting pathology and imaging test orders

- All the pathology and imaging tested are coded very specifically in ICPC-2 PLUS but the ICPC-2 classifies pathology and imaging tests very broadly (e.g. a test of cardiac enzymes is classified in K34 – Blood test associated with the cardiovascular system; a CT scan of the lumbar spine is classified as L41 – Diagnostic radiology/imaging of the musculoskeletal system). In Australia the Medicare Benefits Scheme classifies pathology and imaging tests in groups that are relatively well recognised. We therefore re-group all pathology and imaging ICPC-2 PLUS codes into MBS standard groups. This allows comparison of data between data sources. These groups are not marked with an asterisk.

For all grouped morbidity (asterisked), pathology and imaging codes, a full list of inclusions is provided in Appendix 5 <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>.

## Classification of pharmaceuticals

Pharmaceuticals that are prescribed, provided by the GP or advised for over-the-counter purchase are coded and classified according to an in-house classification, the Coding Atlas for Pharmaceutical Substances (CAPS).

- This is a hierarchical structure that facilitates analysis of data at a variety of levels, such as medication class, medication group, generic composition and brand name.
- Strength and regimen are independent fields which, when combined with the CAPS code, give an opportunity to derive prescribed daily dose for any prescribed medication or group of medications.
- CAPS is mapped to the Anatomical Therapeutic Chemical (ATC)<sup>30</sup> classification which is the Australian standard for classifying medications at the generic level.

The ATC has a hierarchical structure with five levels. For example:

- Level 1: C – Cardiovascular system
- Level 2: C10 – Serum lipid reducing agents
- Level 3: C10A – cholesterol and triglyceride reducers
- Level 4: C10AA – HMG CoA reductase inhibitors
- Level 5: C10AA01 – Simvastatin (the generic drug).

## Use of the medication classifications in reporting

When reporting pharmaceutical data we have the choice of reporting in terms of the CAPS coding scheme or the ATC. They each have advantages in different circumstances.

In the CAPS system, a new drug enters at the product and generic level, and is immediately allocated a generic code. Therefore, the CAPS classification uses a bottom-up approach.

In the ATC, a new generic may initially enter the classification at any level (1 to 5), not necessarily always at the generic level. Reclassification to lower ATC levels may then occur later. Therefore, the ATC uses a top-down approach.

When analysing medications across time, a generic medication that is initially classified to a higher ATC level will not be identifiable in that data period and may result in under-enumeration of that drug during earlier data collection periods.

- When reporting the 2005–06 annual results for pharmaceutical data, we have used the CAPS database in the tables reporting the ‘most frequent medications’ (Tables 2.27 to 2.29 inclusive).
- When reporting the annual results for pharmaceuticals in terms of the ATC hierarchy (Table 2.26), we have reported using ATC Levels 1, 3, and 5. The reader should be aware that the results reported at the generic level (Level 5) may differ slightly from those reported in the ‘most frequent medication’ tables described above.
- In measuring changes in medications over time (in Chapter 3), we have chosen to report at Level 2 of the ATC (which is more stable over time than Level 3), and in CAPS for the generic level drugs.

## 5.9 Patient risk factor methods

Patient risk factors are investigated for a subsample of patients using the SAND methods (see Section 5.5). The patient risk factors measured include self-reported height and weight (for calculation of body mass index, BMI), alcohol consumption and smoking status.

### Body mass index

The BMI for an individual is calculated by dividing weight (kilograms) by height (metres) squared. This year the new WHO recommendations<sup>64</sup> for BMI groups have been adopted, which specify that a person with a BMI:

- less than 18.5 is underweight
- greater than or equal to 18.5 and less than 25 is normal
- greater than or equal to 25 and less than 30 is overweight
- of 30 or more is obese.

The division between underweight and normal weight was, in previous reports, set at a BMI of 20. In this report, changes over time in patient BMI has been re-calculated for all years reported according to the WHO criteria.

The GPs were instructed to ask the patients (or their carer in the case of children):

- What is your height in centimetres?
- What is your weight in kilograms?

Metric conversion tables (feet and inches; stones and pounds) were provided to the GP.

The standard BMI calculation described above is not appropriate in the case of children. Cole et al. have developed a method which calculates the age–sex-specific BMI cut-off levels for overweight and obesity specific to children.<sup>64</sup> This method, based on international data from developed Western cultures, is applicable in the Australian setting.

The BEACH data on BMI are presented separately for adults (aged 18 and over) and children. The standard BMI cut-offs have been applied for the adult population, and the method described by Cole et al. has been used for defining overweight and obesity in children (aged 2–17 years).<sup>64</sup> There are three categories defined for childhood BMI: underweight/normal, overweight and obese.



## Smoking

As part of the current study, GPs were instructed to ask adult patients (18 years and over):

- What best describes your smoking status? Smoke daily  
Occasional smoker  
Previous smoker  
Never smoked

Respondents were limited to adults aged 18 years and over because there are ethical concerns about approaching the younger patient group to ask for information on smoking and alcohol consumption for survey purposes. In addition, the reliability of this information from patients aged less than 18 years may be compromised if a parent is present at the consultation.

## Alcohol consumption

To measure alcohol consumption, BEACH uses three items from the WHO Alcohol Use Disorders Identification Test (AUDIT),<sup>65</sup> with scoring for an Australian setting.<sup>66</sup> Together, these three questions assess 'at-risk' alcohol consumption. The scores for each question range from zero to four. A total (sum of all three questions) score of five or more for males or four or more for females suggests that the person's drinking level is placing him or her at risk.<sup>66</sup>

GPs were instructed to ask adult patients (18 years and over):

- How often do you have a drink containing alcohol? Never  
Monthly or less  
Once a week/fortnight  
2-3 times a week  
4+ times a week
- How many standard drinks do you have on a typical day when you are drinking?  
\_\_\_\_\_
- How often do you have 6 or more standard drinks on one occasion? Never  
Less than monthly  
Monthly  
Weekly  
Daily or almost daily

A standard drinks chart was provided to each GP to help the patient identify the number of standard drinks consumed.

The wording of the responses to the first and third questions was changed from 2001-02 onwards to reflect exactly the AUDIT instrument from which the responses are derived. This update, along with a data entry change enabling more specific entry for the second question, slightly increased the rates of at-risk drinking. The data collected from 2001-02 onwards are a more accurate reflection of the alcohol consumption of general practice patients and these are the years compared in this report.

## 5.10 Quality assurance

All morbidity and therapeutic data elements were secondarily coded by staff entering key words or word fragments and selecting the required term or label from a pick list. This was then automatically coded and classified by the computer. A QA program to ensure reliability of data entry includes ongoing development of computer-aided error checks ('locks') at the data entry stage and a physical check of samples of data entered versus those on the original recording form. Further logical data checks are conducted through SAS on a regular basis.

## 5.11 Methodological issues

### Validity and reliability

In the development of a database such as BEACH, data gathering moves through specific stages: GP sample selection; cluster sampling around each GP; GP data recording; secondary coding and data entry. At each stage the data can be invalidated by the application of inappropriate methods. The methods adopted to ensure maximum reliability of coding and data entry have been described above. The statistical techniques adopted to ensure valid reporting of recorded data are described in Section 5.7.

Previous work has demonstrated the extent to which a random sample of GPs recording information about a cluster of patients represents all GPs and all patients attending general practitioners.<sup>67</sup> Other studies have reported the degree to which GP-reported patient reasons for encounter and problems managed accurately reflect those recalled by the patient<sup>68</sup> and the reliability of secondary coding of RFEs<sup>69</sup> and problems managed.<sup>63</sup> The validity of ICPC as a tool with which to classify the data has also been investigated in earlier work.<sup>70</sup>

However, the question of the extent to which the GP-recorded data are a reliable and valid reflection of the content of the encounter must also be considered.

In many primary care consultations, a clear pathophysiological diagnosis is not reached. Bentsen<sup>71</sup> and Barsky<sup>72</sup> suggest that a firm and clear diagnosis is not apparent in about half of general practitioners' consultations, and others suggest the proportion may be even greater.<sup>73</sup> Further, studies of general ambulatory medical practice have shown that a large number of patients presenting to a primary care practitioner are without a serious physical disorder.<sup>74,75</sup> As a result, it is often necessary for a practitioner to record a problem in terms of symptoms, signs, patient concerns, or the service which is requested, such as immunisation. For this reason, this report refers to patient problems (and even 'problem' is not an ideal word) rather than diagnoses.

A number of studies have demonstrated wide variance in the way a GP perceives the patient's reasons for encounter and the manner in which the GP describes the problem under management. In a direct observational study of consultations via a one-way mirror, Bentsen demonstrated differences in the way practitioners labelled problems and suggested that clinical experience may be an important influence on the identification of problems within the consultation.<sup>71</sup> Two other factors that might affect GPs' descriptions of patient reasons for encounter have been identified: while individuals may select the same stimuli, some label each stimulus separately whereas others cluster them under one label; individuals differ in the number of stimuli they select (selective perception).<sup>76</sup>

The extent to which therapeutic decisions may influence the diagnostic label selected has also been discussed. Howie<sup>77</sup> and Anderson<sup>74</sup> argue that while it is assumed that the diagnostic process utilised in general practice is one of symptom → diagnosis → management, the therapeutic method may well be selected on the basis of the symptom, and the diagnostic label chosen last. They suggest that the selection of the diagnostic label is therefore influenced by the management decision already made.

Anderson has also pointed out that the therapeutic decision may be influenced by fashion and in turn this affects the selection of the problem label. He gives the example of a rise in the occurrence of neurotic depression in parallel with a decrease in the use of menopause as a diagnosis in the United Kingdom, and suggests this may be the result of a change in the preferred treatment from oestrogen therapy to anti-depressants.<sup>74</sup> This should be remembered when considering the results of Chapter 3 of this report which describes some changes in general practice.

Alderson contends that to many practitioners 'diagnostic accuracy is only important to the extent that it will assist them in helping the patient'. He further suggests that if major symptoms are readily treatable some practitioners may feel no need to define the problem in diagnostic terms.<sup>78</sup> Crombie stated that in the second and third national morbidity surveys in the United Kingdom there was 'enormous variability in the rates at which doctors perceive and record illnesses'. He concluded that the probable cause arose from the different ways in which GPs gave priority in their perceptions and recording of certain morbidities while discounting or ignoring others. He was unable to account statistically for this variation by the effect of geography, age, sex, or class differences in the practice populations.<sup>25</sup> Differences in the way male and female GPs label problems have also been shown to be independent of such influences.<sup>43</sup>

These problems are inherent in the nature of general practice. Knottnerus argues that the GP is confronted with a fundamentally different pattern of problems from the specialist, the GP often having to draw up general diagnostic hypotheses related to probability, severity and consequences.<sup>79</sup> Anderson suggests that morbidity statistics from family practice should therefore be seen as 'a reflection of the physician's diagnostic opinions about the problems that patients bring to them rather than an unarguable statement of the problems managed'.<sup>74</sup> In any case, doctors base their actions on problems as they perceive them.

While these findings regarding limitations in the reliability and validity of practitioner-recorded morbidity should be borne in mind, they apply equally to data drawn from medical records, whether paper or electronic, as they do to active data collection methods.<sup>80,81</sup> There is as yet no more reliable method of gaining detailed data about morbidity and its management in general practice. Further, irrespective of the differences between individual GPs in their labelling of the problems, morbidity data collected by GPs in active data collection methods have been shown to provide a reliable overview of the morbidity managed in general practice.<sup>82</sup>

## **How many individual GPs have participated in BEACH to date?**

Over the first eight years of the BEACH program, 799,100 encounters have been recorded by 7,991 GPs. Since GPs may be sampled from the Medicare data once in each QA triennium, we are often asked the extent to which GPs have participated more than once over the eight years.

We investigated the extent of 'double ups' and found that the 7,991 participants in the first 8 years of BEACH represented 6,463 individuals. This means that by March 2006 we had

sampled more than one-third of the VR GPs and Registrars (approximately 17,500 in any one year) who qualify for inclusion in the original sample frame (for definition see Section 5.1).

## **Cluster sampling**

The statistical techniques applied in BEACH recognise that the sampling is based on GPs and that for each GP there is a cluster of encounters. Each cluster may have its own characteristics, being influenced by the characteristics of the GP. Although ideally the sample should be a random sample of GP-patient encounters, such a sampling method is impractical in the Australian health care system. The reader should, however, be aware that the larger the GP sample and the smaller the cluster, the better. The sample size of 100,000 encounters from a random sample of 1,000 GPs has been demonstrated to be the most suitable balance between cost and statistical power and validity.<sup>12</sup> The cluster effect is dealt with through SAS version 9.1 (see Section 5.5).

## **GP participation rates**

The response rate of GPs in the eighth year of BEACH was 31.1% of those we could contact—somewhat of an improvement since the previous year (28.1%), and particularly the sixth year (2003–04) when it was only 23.7%. The 2005–06 result is comparable with the 28.9% in the fifth BEACH year (2002–03), 32.3% in the fourth year, and the 29.8% in the third year. In the first two years of BEACH, response rates were far higher, at 39.1% in the second year and 38.4% in the first year (1998–99). The current data are probably the best estimate we have gained for some years of the true response rate in BEACH. This is because in 2005–06 the sample frame prepared by DoHA from the Medicare database, from which the BEACH sample is drawn, included only vocationally registered GPs and registrars, all whom are required to undertake quality assurance activities. In past years the sample frame has included many other medical practitioners who are allowed to claim general practice A1 items of service from Medicare even though they were not vocationally registered or a registrar. As stated last year, this meant the denominator for calculating response rates was contaminated with a varying number of additional clinicians working in general practice under a range of government programs but who were not vocationally registered GPs.

## **How many can we contact?**

In recent years we have expressed increasing concern over the (in)accuracy of the contact details provided by Medicare Australia for sampled GPs. About 15–20% of addresses provided are no longer current and approximately 90% of telephone numbers are incorrect when the sample is received. A considerable amount of time is invested by the recruitment team in locating practitioners, and this is not always successful as GPs don't usually have a work telephone number in their own name. In spite of these inaccuracies we have, in all previous years, still established contact with a minimum of 90% of the GPs for whom details were provided in our Medicare sample. This year we managed to contact only 85.7%. The proportion of all sampled GPs who were found to have died, moved to an untraceable location, or to have retired doubled from 4.0% in 2003–04 to 8.3% this year. As the aim is to represent active, practising GPs, the exclusion of these GPs from the denominator when calculating response rates is a valid and necessary action.

## **What about the young GPs?**

In all years except 2004–05 we have had an under-representation of GPs aged less than 35 years. We correct for this under-representation in the final BEACH data set each year using post-stratification weighting. In 2003–04 we hypothesised that the under-representation of young GPs reflected the lack of requirement for GP registrars to undertake QA activities during training or during the QA triennium on completion of training. In 2004–05 this hypothesis appeared to be correct – the registrars now have to complete QA during the triennium in which they complete their training – and that year was the first since BEACH began in which GPs aged less than 35 years were not under-represented in the participating sample. However, this year, this age group was again under-represented in the final participating sample of GPs so this system issue may be only part of the problem in recruiting young GPs.

### **A new hypothesis**

For 2005–06, we investigated the proportion of these young GPs who were not traceable when contacted at the practice address provided from Medicare Australia records by DoHA. We found that 27.5% of those drawn in the sample could not be traced, for they had left the practice to move on through their training. This compares with a non-contactable rate of 8.4% for GPs aged 35 years or more. We believe this has a significant impact on the chances of successfully recruiting GPs who are in this youngest age group. The only way to overcome this problem is to ensure that registrars leave a forwarding address at all practices during training.

The reasons for the 2004–05 result (where young GPs were not under-represented) now seem to be different. In that year we conducted a parallel specific study of the experience of registrars in each stage of their training through Victoria Metropolitan Alliance. We were provided with up-to-date contact details for all registrars who agreed to participate – we were not relying on contact details from the Medicare data. Registrars who participated in the registrar study agreed that if they were also randomly selected in the BEACH sample for that year, their data from the registrar study could be included in the BEACH 2004–05 sample. In that year, we did not have under-representation of young GPs.

It would seem, therefore, that the reason for the under-representation of young GPs in BEACH is that they move through the training program and are no longer contactable by the time they are randomly selected and we attempt to recruit them to the program.

We therefore conclude that any national general practice study relying on samples being drawn from Medicare data for recognised general practitioners and registrars will be faced with similar issues. All such studies should check the final participating sample against the sample frame and use post-stratification weighting to adjust for any under-representation of this age group.

## **Using SAND to estimate prevalence of disease in the attending population**

Many SAND substudies ask an opening question to ascertain whether the patient present at the encounter has a named condition or to measure the prevalence of a number of diseases among the respondents. Using a qualified medical practitioner to record morbidity in conjunction with patient self-report may provide a more accurate classification of patients' major health problems than self-report alone.<sup>19,21</sup> In the SAND substudies, the patient rather than the content of the encounter is the subject of interest. This overcomes the problem of trying to estimate prevalence of disease among the attending patients, where the disease of

interest was not managed at the encounter. However, we cannot use these results to extrapolate to prevalence in the population attending general practice, because the patient sample is biased towards those who attend more often – that is, you have a higher chance of being surveyed if you attend a GP ten times per year than you do if you attend once per year. However, we can say, based on SAND prevalence estimates, that on average, a GP would see 'x number' of patients who have this morbidity in any average GP working week, regardless of whether the GP manages that morbidity at that time.

We are currently working on statistical methods using SAND prevalence estimates in combination with age–sex-specific attendance rates (from Medicare statistics) to gain a GP patient population estimate of prevalence of morbidities included in the National Health Priority Areas.

## **5.12 Other BEACH applications**

Last year the AGPSCC completed a study measuring the experience gained by GP registrars during each stage of their training. The BEACH methods were applied in this study which was conducted in collaboration with Monash University and the Victorian Metropolitan Alliance. The results will help to better define the areas in which registrars should receive training and identify areas in which they are not gaining experience.

Another parallel BEACH study was conducted in Victoria Community Health Centres for the Victorian Department of Human Services. There is currently limited information available about the clinical role of Community Health Service GPs and the characteristics of the patients they see, and how these may differ from the 'average' GP in Australia. The department will use the results to assist them in planning future health services.

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# Glossary

*A1 Medicare items:* Medicare item numbers 1, 2, 3, 4, 13, 19, 20, 23, 24, 25, 33, 35, 36, 37, 38, 40, 43, 44, 47, 48, 50, 51, 601, 602.

*Aboriginal:* The patient identifies himself or herself as an Aboriginal person.

*Activity level:* The number of general practice A1 Medicare items claimed during the previous 3 months by a participating GP.

*Allied and other health professionals:* Those who provide clinical and other specialised services in the management of patients, including physiotherapists, occupational therapists, dietitians, dentists and pharmacists.

*Chapters (ICPC-2):* The main divisions within ICPC-2. There are 17 chapters primarily representing the body systems.

*Commonwealth concession card:* An entitlement card provided by the Commonwealth which entitles the holder to reduced cost medicines under the Pharmaceutical Benefits Scheme and a limited number of other concessions from state and local government authorities.

*Complaint:* A symptom or disorder expressed by the patient when seeking care.

*Component (ICPC-2):* In ICPC-2 there are seven components which act as a second axis across all chapters.

*Consultation:* See *Encounter*.

*Diagnosis/problem:* A statement of the provider's understanding of a health problem presented by a patient, family or community. GPs are instructed to record at the most specific level possible from the information available at the time. It may be limited to the level of symptoms.

- *New problem:* The first presentation of a problem, including the first presentation of a recurrence of a previously resolved problem but excluding the presentation of a problem first assessed by another provider.
- *Old problem:* A previously assessed problem that requires ongoing care. Includes follow-up for a problem or an initial presentation of a problem previously assessed by another provider.

*Encounter (enc):* Any professional interchange between a patient and a GP.

- *Indirect:* Encounter where there is no face-to-face meeting between the patient and the GP but a service is provided (e.g. prescription, referral).
- *Direct:* Encounter where there is a face-to-face meeting of the patient and the GP.

Direct encounters can be further divided into:

- *Medicare-claimable*
  - *Surgery consultations:* Encounters identified by any one of MBS item numbers 3, 23, 36, 44, 52, 53, 54, 57, 5000, 5020, 5040, 5060, 5200, 5203, 5207, 5208.
  - *Home visits:* Encounters identified by any one of MBS item numbers 4, 24, 37, 47, 58, 59, 60, 65, 5003, 5023, 5043, 5063, 5220, 5223, 5227, 5228.
  - *Hospital encounters:* Encounters identified by any one of MBS item numbers 19, 33, 40, 50, 87, 89, 90, 91.

- *Residential aged care facility*: Encounters identified by any one of MBS item numbers 20, 35, 43, 51, 92, 93, 95, 96, 5010, 5028, 5049, 5067, 5260, 5263, 5265, 5267.
- *Health assessments*: Encounters identified by any one of MBS item numbers 700, 702, 704, 706, 708, 710, 712.
- *Chronic disease management items*: Encounters identified by any one of MBS item numbers 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731.
- *Case conferences*: 734, 736, 738, 740, 742, 744, 746, 749, 757, 759, 762, 765, 768, 771, 773, 775, 778, 779.
- *Incentive payments*: 2497, 2501, 2503, 2504, 2506, 2507, 2509, 2517, 2518, 2521, 2522, 2525, 2526, 2546, 2547, 2552, 2553, 2558, 2559, 2574, 2575, 2577, 2578, 2598, 2600, 2603, 2606, 2610, 2613, 2616, 2620, 2622, 2624, 2631, 2633, 2635, 2664, 2666, 2668, 2673, 2675, 2677, 2704, 2705, 2707, 2708.
- *Other MBS encounters*: Encounters identified by an MBS item number that does not identify place of encounter (see *A1 Medicare items*).
- *Workers compensation*: Encounters paid by workers compensation insurance.
- *Other paid*: Encounters paid from another source (e.g. state).

*General practitioner (GP)*: A medical practitioner who provides primary comprehensive and continuing care to patients and their families within the community (Royal Australian College of General Practitioners).

*Medication*: Medication that is prescribed, provided by the GP at the encounter or advised for over-the-counter purchase.

*Medication rates*: The rate of use of all medications including medications that were prescribed, supplied by the GP and advised for over-the-counter purchase.

*Medication status*:

- *New*: The medication prescribed/provided at the encounter/advised is being used for the management of the problem for the first time.
- *Continuation*: The medication prescribed/provided at the encounter/advised is a continuation or repeat of previous therapy for this problem.
- *Old*: See *Continuation*.

*Morbidity*: Any departure, subjective or objective, from a state of physiological wellbeing. In this sense, sickness, illness and morbid conditions are synonymous.

*Patient status*: The status of the patient to the practice.

- *New patient*: The patient has not been seen before in the practice.
- *Old patient*: The patient has attended the practice before.

*Prescribed rates*: The rate of use of prescribed medications (i.e. does not include medications that were GP-supplied or advised for over-the-counter purchase).

*Problem managed*: See *Diagnosis/problem*.

*Provider*: A person to whom a patient has access when contacting the health care system.

*Reasons for encounter (RFEs)*: The subjective reasons given by the patient for seeing or contacting the general practitioner. These can be expressed in terms of symptoms, diagnoses or the need for a service.

*Recognised GP*: A medical practitioner who is:

- vocationally recognised under Section 3F of the Health Insurance Act, *or*

- a holder of the Fellowship of the Royal Australian College of General Practitioners who participates in, and meets the requirements for, quality assurance and continuing medical education as defined in the RACGP Quality Assurance and Continuing Medical Education Program, *or*
- undertaking an approved placement in general practice as part of a training program for general practice leading to the award of the Fellowship of the Royal Australian College of General Practitioners or undertaking an approved placement in general practice as part of some other training program recognised by the RACGP as being of equivalent standard.<sup>6</sup>

*Referral:* The process by which the responsibility for part or all of the care of a patient is temporarily transferred to another health care provider. Only new referrals to specialists and allied health professionals and for hospital and residential aged care facility admissions arising at a recorded encounter are included. Continuation referrals are not included. Multiple referrals can be recorded at any one encounter.

*Repatriation health card:* An entitlement card provided by the Department of Veterans' Affairs which entitles the holder to access a range of Repatriation health care benefits, including access to prescription and other medications under the Pharmaceutical Benefits Scheme.

*Rubric:* The title of an individual code in ICPC-2.

*Torres Strait Islander:* The patient identifies himself or herself as a Torres Strait Islander person.

# Abbreviations

ACE	Angiotensin converting enzyme
AGPSCC	Australian General Practice Statistics and Classification Centre, University of Sydney, a collaborating unit of the Australian Institute of Health and Welfare
AIHW	Australian Institute of Health and Welfare
ATC	Anatomical Therapeutic Chemical (classification)
AUDIT	Alcohol Use Disorders Identification Test
BEACH	Bettering the Evaluation And Care of Health
BMI	Body mass index
CAPS	Coding Atlas for Pharmaceutical Substances
CI	Confidence interval (in this report 95% CI is used)
C&S	Culture and sensitivity
CT	Computerised tomography
DoHA	Australian Government Department of Health and Ageing
DVA	Australian Department of Veterans' Affairs
EHRs	Electronic health records
Enc	Encounter
ESR	Erythrocyte sedimentation rate
EUC	Electrolytes, urea and creatinine
FRACGP	Fellow of the Royal Australian College of General Practitioners
GORD	Gastro-oesophageal reflux disorder
GP	General practitioner
GPSCU	General Practice Statistics and Classification Unit (now the Australian General Practice Statistics and Classification Centre, AGPSCC)
HbA1c	Haemoglobin, type A1c
ICPC	International Classification of Primary Care
ICPC-2	International Classification of Primary Care (Version 2)
ICPC-2 PLUS	A terminology classified according to ICPC-2
LCL	Lower confidence limit
MBS	Medicare Benefits Schedule
MC&S	Microscopy, culture and sensitivity
N/A	Not applicable
NAv	Not available
NEC	Not elsewhere classified



NESB	Non-English-speaking background (i.e. a language other than English is spoken at home)
NHMRC	National Health and Medical Research Council
NOS	Not otherwise specified
N/S	Not significant
NSAID	Non-steroidal anti-inflammatory drug
OTC	Over-the-counter (i.e. medications advised for over-the-counter purchase)
PBS	Pharmaceutical Benefits Scheme
QA	Quality assurance (in this case the Quality Assurance Program of the Royal Australian College of General Practitioners)
RACGP	Royal Australian College of General Practitioners
RFE(s)	Reason(s) for encounter (see Glossary)
RRMA	Rural, Remote and Metropolitan Areas (classification)
SAND	Supplementary Analysis of Nominated Data
SAS	Statistical Analysis System
SRS	Simple random sample
UCL	Upper confidence limit
URTI	Upper respiratory tract infection
WHO	World Health Organization
Wonca	World Organization of Family Doctors

# Appendices

## Appendix 1: Example of a 2005–06 recording form

**BEACH (Bettering the Evaluation And Care of Health) - Morbidity and Treatment Survey - National** © BEACH General Practitioner & Specialist Classification Unit, University of Sydney 1996

DOC ID

PATIENT SEEN BY GP

PATIENT NOT SEEN BY GP

Medicare Item Nos: (if applicable)

Workers comp paid

State Govt/Other paid

No charge

Yes / No

New Patient

Health Care/Benefits Card

Veterans Affairs Card

NESB

Aboriginal

Torres Strait Islander

Strength of product

Dose

Frequency

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ③:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ④:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑤:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑥:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑦:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑧:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑨:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑩:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑪:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑫:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑬:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑭:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑮:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑯:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑰:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑱:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑲:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ⑳:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉑:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉒:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉓:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉔:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉕:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉖:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉗:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉘:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉙:

Work related

Problem Status

Drug Name AND Form for this problem

1.

2.

3.

4.

Prac nurse?  2.

Prac nurse?

Diagnosis/ Problem ㉚:

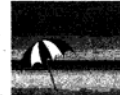
Work related

# Appendix 2: GP characteristics questionnaire 2005-06



**The University of Sydney**  
at Westmead Hospital

**General Practice Statistics and  
Classification Unit**  
Family Medicine Research Centre



a collaborating unit of the

**Australian Institute of Health and Welfare**

Doctor Identification Number

--	--	--	--	--	--

Please fill in boxes or circle answers

1. Sex ..... Male / Female

2. Age .....

3. How many years have you spent  
in general practice? .....

4. How many GPs work with you at this  
practice? .....   
*(Practice = shared medical records)*

5. Postcode of major practice address ..

6. In which GP Division is this practice

7. Year of graduation .....

8. Place of graduation (*primary medical degree*):

- Aust ..... 1
- NZ ..... 2
- Asia ..... 3
- UK / Ireland ..... 4
- Other: (specify) ..... 5

9. Do you conduct any of your consultations in a  
language other than English?

- No ..... 1
- Yes - <25% ..... 2
- Yes - 25 to 50% ..... 3
- Yes - >50% ..... 4

10. Are you a GP registrar (i.e. in training)? ... Yes / No

11. Are you DVA registered? ..... Yes / No

12. Do you hold FRACGP ? ..... Yes / No

13. Is your major practice accredited ? ..... Yes / No

14. Is there a practice nurse at your major  
practice address ? ..... Yes / No

15. Number of general practice  
sessions you usually work per week?  
*(1 session = ~4 hrs eg a morning session) ....*

16. Direct patient care hours worked per week?  
*(Include hours of direct patient care, instructions,  
counselling etc and other services such as  
referrals, prescriptions, phone calls etc.) ....*

17. Over the past four weeks have you provided any  
patient care ....*(Circle all that apply)*

- As a locum ..... 1
- In a deputising service ..... 2
- In a residential aged care facility ..... 3
- As a salaried/sessional hospital medical officer ..... 4
- None of the above ..... 5

18. What are the normal after-hours arrangements  
for your practice? *(Circle all that apply)*

- Practice does its own ..... 1
- Co-operative with other practices ..... 2
- Deputising service ..... 3
- Referral to other service (eg A&E) ..... 4
- Other ..... 5
- None ..... 6

19. Do you bulk bill ALL patients? ..... Yes / No

If No, which groups are bulk billed?

*(Tick those that apply)*

- |                                       | All                      | Some                     |
|---------------------------------------|--------------------------|--------------------------|
| Pensioner/Healthcare Card holders ... | <input type="checkbox"/> | <input type="checkbox"/> |
| Children <16 years.....               | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected other patients .....         | <input type="checkbox"/> | <input type="checkbox"/> |

20. To what extent are computers used -

(i) at your major practice? (ii) by you (at work)?

- |                         |                         |
|-------------------------|-------------------------|
| Not at all.....1        | Not at all ..... 1      |
| Billing .....2          | Test ordering ..... 2   |
| Prescribing .....3      | Prescribing .....3      |
| Medical Records .....4  | Medical Records ..... 4 |
| Other Admin .....5      | Internet ..... 5        |
| Internet / Email .....6 | Email .....6            |

(iii) Prescribing / Health record software used is —

21. Is your major practice site a teaching practice?  
*(Circle all that apply)*

- for undergraduates..... 1
- for GP registrars..... 2
- No..... 3

22. Did any of your BEACH consultations take place  
in an Aboriginal Community Controlled Health  
Service (ACCHS)?

- No..... 1
- Yes - all ..... 2
- Yes - some (which dates?) ..... 3

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*Thank you for participating in the BEACH PROGRAM.*

GPS&CU, Acacia House, Westmead Hospital, WESTMEAD, 2145.  
Ph: 02 98458151 fax: 02 98458155 email: janc@med.usyd.edu.au Web http://www.fmrc.org.au

## Appendix 3: Dissemination of results from the BEACH program

A full list of BEACH publications is also available from the Family Medicine Research Centre website: <<http://www.fmrc.org.au/publications/>>.

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## **Appendix 4: Summary of annual results 2001–02 to 2005–06**

Table A4.1: GP characteristics, summary of annual results BEACH 2001–02 to 2005–06

GP characteristic	2001–02		2002–03		2003–04		2004–05		2005–06	
	n <sup>(a)</sup>	Per cent of GPs (n=983)	n <sup>(a)</sup>	Per cent of GPs (n=1,008)	n <sup>(a)</sup>	Per cent of GPs (n=1,000)	n <sup>(a)</sup>	Per cent of GPs (n=953)	n <sup>(a)</sup>	Per cent of GPs (n=1,017)
Sex (missing)	(0)	—	(0)	—	(0)	—	(0)	—	(0)	—
Male	631	64.2	653	64.8	673	67.3	647	67.9	639	62.8
Female	352	35.8	355	35.2	327	32.7	306	32.1	378	37.2
Age (missing)	(1)	—	(0)	—	(1)	—	(1)	—	(18)	—
<35 years	70	7.1	74	7.3	58	5.8	86	8.9	47	4.7
35–44 years	263	26.8	268	26.6	249	24.9	243	25.5	223	22.3
45–54 years	359	36.5	355	35.2	365	36.5	303	31.8	342	34.2
55+ years	290	29.5	311	30.9	327	32.7	320	33.6	387	38.7
Years in general practice (missing)	(4)	—	(6)	—	(9)	—	(5)	—	(13)	—
<2 years	3	0.3	6	0.6	13	1.3	4	0.4	6	0.6
2–5 years	71	7.2	75	7.5	53	5.3	98	10.3	49	4.9
6–10 years	132	13.4	135	13.5	106	10.7	119	12.6	121	12.1
11–19 years	279	28.4	281	28.0	278	28.1	241	25.4	241	24.0
20+ years	494	50.3	505	50.4	541	54.6	486	51.3	587	58.5
Sessions per week (missing)	(15)	—	(8)	—	(7)	—	(8)	—	(6)	—
<6 per week	157	16.0	187	18.7	171	17.2	136	14.4	175	17.3
6–10 per week	666	67.8	679	67.9	687	68.2	701	71.2	715	70.7
11+ per week	145	14.8	134	13.4	135	13.6	108	11.4	121	12.0
Size of practice (missing)	(4)	—	(8)	—	(10)	—	(6)	—	(9)	—
Solo	150	15.3	137	13.7	105	10.6	116	12.2	132	13.1
2–4 GPs	390	39.7	384	38.4	374	37.8	345	36.4	355	35.2
5+ GPs	439	44.7	479	47.9	511	51.6	486	51.3	521	51.7

(continued)

Table A4.1 (continued): GP characteristics, summary of annual results BEACH 2001-02 to 2005-06

GP characteristic	2001-02		2002-03		2003-04		2004-05		2005-06	
	n <sup>(a)</sup>	Per cent of GPs (n=983)	n <sup>(a)</sup>	Per cent of GPs (n=1,008)	n <sup>(a)</sup>	Per cent of GPs (n=1,000)	n <sup>(a)</sup>	Per cent of GPs (n=953)	n <sup>(a)</sup>	Per cent of GPs (n=1,017)
Place of graduation (missing)	(0)	—	(0)	—	(1)	—	(1)	—	(6)	—
Australia	748	76.1	726	72.6	735	73.5	665	69.8	728	72.0
United Kingdom	75	7.6	92	9.1	72	7.2	72	7.6	82	8.1
Asia	85	8.6	100	9.9	95	9.5	104	10.9	110	10.9
Europe	18	1.8	16	1.6	23	2.3	36	3.8	21	2.1
Africa	36	3.7	43	4.3	54	5.4	51	5.4	45	4.5
New Zealand	5	0.5	22	2.2	10	1.0	12	1.3	19	1.9
Other	16	1.6	9	0.9	10	1.0	12	1.3	6	0.6
Practice location (missing)	(1)	—	(0)	—	(2)	—	(1)	—	(1)	—
Capital	681	69.3	652	64.7	623	62.4	618	64.9	702	69.1
Other metropolitan	80	8.1	86	8.5	64	6.4	64	6.7	69	6.8
Large rural	58	5.9	51	5.1	70	7.0	51	5.4	58	5.7
Small rural	48	4.9	78	7.7	70	7.0	66	6.9	61	6.0
Other rural	103	10.5	121	12.0	142	14.2	124	13.0	113	11.1
Remote central	4	0.5	6	0.6	9	0.9	12	1.3	5	0.5
Other remote, offshore	8	0.8	14	1.4	20	2.0	17	1.8	8	0.8
Consultations in Languages other than English (missing)*	—	—	—	—	(6)	—	(1)	—	(10)	—
<25%	NAV	NAV	NAV	NAV	177	17.8	207	21.7	211	21.0
25-50%	NAV	NAV	NAV	NAV	29	2.9	23	2.4	36	3.6
>50%	NAV	NAV	NAV	NAV	24	2.4	32	3.4	34	3.4

(continued)

Table A4.1 (continued): GP characteristics, summary of annual results BEACH 2001–02 to 2005–06

GP characteristic	2001–02		2002–03		2003–04		2004–05		2005–06	
	<i>n</i> <sup>(a)</sup>	Per cent of GPs ( <i>n</i> =983)	<i>n</i> <sup>(a)</sup>	Per cent of GPs ( <i>n</i> =1,008)	<i>n</i> <sup>(a)</sup>	Per cent of GPs ( <i>n</i> =1,000)	<i>n</i> <sup>(a)</sup>	Per cent of GPs ( <i>n</i> =953)	<i>n</i> <sup>(a)</sup>	Per cent of GPs ( <i>n</i> =1,017)
Currently in a general practice vocational training program	25	2.5	28	2.9	43	4.4	33	3.5	26	2.6
Completed training program	375	38.1	377	39.5	NAV	NAV	NAV	NAV	NAV	NAV
Fellow of RACGP	345	35.1	355	35.5	332	33.5	399	42.3	408	40.7
Own or cooperative after-hours arrangements	550	56.0	551	55.2	593	59.6	492	52.1	475	47.4
Computer use at practice	883	89.7	920	91.3	950	95.0	880	93.7	962	96.4

(a) Missing data removed.

\* Data for all three groupings only available from 2003–04.

Note: NAV—not available; RACGP—Royal Australian College of General Practitioners.

**Table A4.2: Summary of morbidity and management, summary of annual results BEACH 2001–02 to 2005–06**

Variable	2001–02	2002–03	2003–04	2004–05	2005–06
	Rate per 100 encounters (95% CI) (n=96,973)	Rate per 100 encounters (95% CI) (n=100,987)	Rate per 100 encounters (95% CI) (n=98,877)	Rate per 100 encounters (95% CI) (n=94,386)	Rate per 100 encounters (95% CI) (n=101,993)
Reasons for encounter	149.2 (147.4–150.9)	150.9 (149.0–152.7)	150.2 (148.4–152.0)	149.6 (147.8–151.5)	150.3 (148.4–152.2)
Problems managed	143.4 (141.7–145.2)	144.9 (143.0–146.8)	146.3 (144.4–148.2)	145.5 (143.6–147.4)	146.2 (144.2–148.2)
New problems	55.1 (53.8–56.5)	57.0 (55.6–58.3)	55.9 (54.5–57.3)	55.2 (53.8–56.5)	56.9 (55.5–58.2)
Chronic problems	48.4 (46.9–49.9)	48.2 (46.5–49.8)	50.8 (49.0–52.5)	50.8 (49.1–52.5)	50.9 (49.1–52.8)
Work-related	3.0 (2.7–3.2)	NAV	NAV	3.1 (2.8–3.5)	2.8 (2.6–3.1)
Medications	104.5 (102.2–106.9)	103.8 (101.4–106.2)	104.4 (102.1–106.7)	101.5 (99.3–103.8)	104.4 (101.8–107.0)
Prescribed	88.0 (85.6–90.4)	84.3 (81.8–86.9)	86.0 (83.6–88.5)	83.4 (81.2–85.5)	85.8 (83.3–88.4)
GP-supplied	7.6 (6.3–9.0)	9.3 (7.6–11.0)	8.6 (7.4–9.8)	8.1 (7.3–8.9)	8.8 (8.2–9.5)
Advised OTC	8.9 (8.1–9.6)	10.2 (9.2–11.1)	9.8 (9.0–10.6)	10.1 (9.1–11.0)	9.8 (9.0–10.5)
Non-pharmacological treatments	51.9 (49.6–54.2)	51.8 (49.3–54.3)	51.4 (48.9–53.8)	54.7 (52.1–57.3)	43.6 (41.5–45.8)
Clinical	38.1 (36.1–40.1)	37.2 (35.0–39.4)	36.6 (34.5–38.8)	39.2 (37.1–41.4)	29.2 (27.3–31.1)
Procedural	13.8 (13.1–14.5)	14.6 (13.9–15.3)	14.7 (14.0–15.5)	15.5 (14.6–16.4)	14.4 (13.7–15.1)
Referrals	10.5 (10.1–10.9)	11.1 (10.7–11.6)	11.6 (11.1–12.1)	11.5 (11.1–12.0)	12.0 (11.5–12.5)
Specialist	7.3 (7.0–7.6)	7.7 (7.3–8.0)	7.9 (7.5–8.2)	7.7 (7.4–8.0)	8.2 (7.8–8.5)
Allied health services	2.6 (2.3–2.9)	2.5 (2.3–2.8)	2.6 (2.4–2.9)	2.7 (2.5–2.9)	2.9 (2.7–3.1)
Hospital	0.4 (0.3–0.6)	0.6 (0.3–0.8)	0.6 (0.3–0.8)	0.5 (0.3–0.7)	0.4 (0.3–0.4)
Emergency department	0.1 (0.0–0.4)	0.1 (0.0–0.4)	0.2 (0.0–0.5)	0.2 (0.0–0.4)	0.2 (0.2–0.2)
Other referrals	0.3 (0.0–0.6)	0.3 (0.0–0.5)	0.3 (0.0–0.6)	0.3 (0.1–0.6)	0.3 (0.3–0.4)
Pathology	31.0 (29.7–32.4)	32.9 (31.5–34.4)	35.2 (33.7–36.7)	36.7 (35.2–38.2)	38.6 (36.9–40.3)
Imaging	7.9 (7.6–8.2)	8.6 (8.2–9.0)	8.2 (7.8–8.6)	8.3 (8.0–8.6)	8.8 (8.4–9.2)
Other investigations	0.9 (0.8–1.0)	1.0 (0.8–1.2)	1.0 (0.9–1.2)	1.1 (0.9–1.3)	1.0 (0.9–1.1)

Note: CI—confidence interval; NAV—not available; OTC—over-the-counter.

**Table A4.3: Type of encounter, summary of annual results BEACH 2001–02 to 2005–06**

Variable	2001–02		2002–03		2003–04		2004–05		2005–06	
	Rate per 100 encounters (95% CI) <sup>(a)</sup> (n=96,973)	Rate per 100 encounters (95% CI) <sup>(a)</sup> (n=100,987)	Rate per 100 encounters (95% CI) <sup>(a)</sup> (n=100,987)	Rate per 100 encounters (95% CI) <sup>(a)</sup> (n=98,877)	Rate per 100 encounters (95% CI) <sup>(a)</sup> (n=94,386)	Rate per 100 encounters (95% CI) <sup>(a)</sup> (n=101,993)				
Direct encounters	97.7 (97.4–98.0)	98.4 (98.2–98.6)	97.0 (96.6–97.3)	97.4 (97.1–97.7)	97.8 (97.5–98.1)					
No charge	0.6 (0.2–1.1)	0.5 (0.2–0.8)	0.5 (0.3–0.7)	0.5 (0.2–0.9)	0.5 (0.4–0.5)					
Medicare-claimable <sup>(b)</sup>	93.9 (93.5–94.4)	95.0 (94.6–95.3)	93.8 (93.3–94.2)	93.7 (93.3–94.2)	94.0 (93.4–94.6)					
Short surgery consultations	1.0 (0.5–1.6)	1.1 (0.6–1.7)	1.1 (0.4–1.7)	1.0 (0.3–1.6)	0.9 (0.8–1.1)					
Standard surgery consultations	79.0 (78.0–79.9)	78.7 (77.6–79.7)	77.3 (76.2–78.4)	77.2 (76.0–78.2)	78.7 (77.5–79.8)					
Long surgery consultations	8.1 (7.5–8.7)	9.1 (8.5–9.7)	9.2 (8.5–9.8)	9.9 (9.2–10.6)	9.2 (8.6–9.9)					
Prolonged surgery consultations	0.6 (0.0–1.2)	0.7 (0.0–1.5)	0.7 (0.0–1.4)	0.7 (0.1–1.3)	0.6 (0.5–0.7)					
Home visits	1.5 (0.8–2.2)	1.3 (0.4–2.1)	1.3 (0.1–2.5)	0.9 (0.2–1.6)	1.1 (0.9–1.4)					
Hospital	0.2 (0.0–1.4)	0.4 (0.0–2.7)	0.3 (0.0–1.7)	0.2 (0.0–2.0)	0.2 (0.1–0.3)					
Residential aged care facility	0.9 (0.0–2.4)	1.2 (0.0–2.9)	1.1 (0.0–2.3)	1.1 (0.0–3.2)	1.2 (0.9–1.5)					
Case conference	0.0 <sup>†</sup> (0.0–2.3)	0.0 <sup>†</sup> (0.0–1.4)	0.0 <sup>†</sup> (0.0–1.2)	0.0 <sup>†</sup> (0.0–1.4)	0.0 <sup>†</sup> (0.0–0.0)					
Care plans	0.1 (0.0–1.7)	0.1 (0.0–1.0)	0.1 (0.0–1.3)	0.2 (0.0–0.9)	0.3 (0.2–0.3)					
Health assessments	0.1 (0.0–0.7)	0.1 (0.0–0.6)	0.1 (0.0–0.7)	0.2 (0.0–0.7)	0.2 (0.1–0.2)					
Other items	2.4 (1.4–3.5)	2.3 (1.1–3.5)	2.6 (1.3–4.0)	2.4 (0.6–4.2)	1.5 (1.3–1.7)					
Workers' compensation	2.0 (1.8–2.3)	1.9 (1.6–2.2)	2.0 (1.8–2.3)	2.5 (2.1–2.8)	2.3 (2.1–2.5)					
Other paid (hospital, state, etc.)	1.1 (0.2–2.0)	1.0 (0.2–1.8)	0.6 (0.0–1.4)	0.7 (0.1–1.3)	1.1 (0.6–1.5)					
Indirect encounters	2.3 (1.8–2.8)	1.6 (1.2–2.0)	3.1 (2.5–3.6)	2.6 (2.1–3.1)	2.2 (1.9–2.5)					

(a) Missing data removed.

(b) Includes encounters that were recorded as claimable through the Australian Department of Veterans' Affairs.

† Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters.

Note: CI—confidence interval.

**Table A4.4: Characteristics of the patients at encounters, summary of annual results BEACH 2001-02 to 2005-06**

Patient variable	2001-02	2002-03	2003-04	2004-05	2005-06
	Per cent of encounters (95% CI) (n=96,973)	Per cent of encounters (95% CI) (n=100,987)	Per cent of encounters (95% CI) (n=98,877)	Per cent of encounters (95% CI) (n=94,386)	Per cent of encounters (95% CI) (n=101,993)
<b>Sex</b>					
Male	42.6 (41.9-43.3)	42.2 (41.4-42.9)	42.6 (41.8-43.3)	43.5 (42.7-44.3)	44.0 (43.2-44.7)
Female	57.4 (56.7-58.1)	57.8 (57.0-58.6)	57.4 (56.7-58.2)	56.5 (55.7-57.3)	56.0 (55.3-56.8)
<b>Age group</b>					
<1 year	2.0 (1.8-2.1)	1.9 (1.8-2.1)	1.8 (1.6-2.0)	1.9 (1.7-2.1)	2.1 (1.9-2.2)
1-4 years	4.9 (4.6-5.2)	5.0 (4.7-5.3)	4.6 (4.3-4.8)	4.3 (4.0-4.7)	4.3 (4.0-4.5)
5-14 years	6.4 (6.1-6.7)	6.6 (6.3-6.9)	5.9 (5.6-6.3)	5.8 (5.5-6.1)	6.0 (5.7-6.3)
15-24 years	9.5 (9.1-10.0)	10.1 (9.7-10.4)	9.6 (9.2-10.1)	9.0 (8.6-9.4)	9.4 (9.0-9.8)
25-44 years	25.8 (25.1-26.5)	25.7 (24.9-26.4)	24.1 (23.4-24.8)	24.4 (23.7-25.1)	23.9 (23.2-24.7)
45-64 years	26.3 (25.7-26.8)	26.5 (25.9-27.0)	27.2 (26.7-27.7)	28.0 (27.4-28.6)	27.6 (27.0-28.2)
65-74 years	12.3 (11.8-12.8)	11.6 (11.1-12.0)	12.4 (11.9-12.9)	12.6 (12.1-13.2)	12.2 (11.7-12.6)
75+ years	12.8 (12.0-13.5)	12.7 (11.9-13.4)	14.4 (13.6-15.2)	13.9 (13.1-14.7)	14.6 (13.7-15.4)
<b>Other characteristics</b>					
New patient to practice	9.2 (8.5-9.9)	9.9 (9.0-10.8)	9.3 (8.5-10.0)	9.1 (8.3-9.9)	9.1 (8.3-9.9)
Commonwealth concession card	41.9 (40.4-43.3)	40.4 (38.8-41.9)	42.5 (41.0-44.0)	43.2 (41.8-44.7)	42.1 (40.6-43.7)
Repatriation health card	3.3 (3.0-3.6)	3.3 (3.0-3.6)	3.5 (3.2-3.8)	3.2 (2.8-3.5)	3.1 (2.8-3.3)
Non-English-speaking background	9.3 (5.9-12.7)	10.6 (7.8-13.4)	9.7 (5.8-13.6)	10.8 (7.2-14.4)	9.8 (8.2-11.4)
Aboriginal person	0.9 (0.0-2.0)	0.8 (0.0-1.7)	1.4 (0.0-2.9)	1.1 (0.0-3.0)	0.7 (0.5-0.9)
Torres Strait Islander	0.1 (0.0-0.5)	0.1 (0.0-0.9)	0.2 (0.0-1.0)	0.2 (0.0-1.8)	0.1 (0.0-0.3)

Note: CI—confidence interval.



Table A4.5: Rate of patient reasons for encounter by ICP-C-2 chapter, summary of annual results BEACH 2001-02 to 2005-06

Reasons for encounter	2001-02	2002-03	2003-04	2004-05	2005-06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
General & unspecified	30.9 (29.9-31.8)	34.6 (33.6-35.6)	36.2 (35.2-37.2)	36.5 (35.5-37.6)	36.3 (35.2-37.4)
Respiratory	23.4 (22.6-24.2)	23.0 (22.0-24.0)	21.4 (20.6-22.2)	20.6 (19.8-21.4)	21.9 (21.1-22.7)
Musculoskeletal	16.7 (16.1-17.3)	17.7 (17.2-18.3)	16.3 (15.7-16.9)	16.7 (16.0-17.3)	16.4 (15.8-16.9)
Skin	14.4 (13.9-14.9)	14.7 (14.3-15.2)	15.1 (14.5-15.7)	15.6 (15.0-16.2)	15.0 (14.5-15.6)
Circulatory	11.4 (10.8-11.9)	10.6 (10.0-11.1)	10.7 (10.1-11.2)	10.5 (10.0-11.0)	10.8 (10.2-11.3)
Digestive	10.6 (10.2-11.0)	10.4 (10.0-10.8)	10.7 (10.3-11.2)	9.9 (9.5-10.3)	9.9 (9.5-10.3)
Psychological	7.8 (7.3-8.3)	7.3 (6.9-7.8)	7.3 (6.9-7.7)	7.6 (7.2-8.0)	7.8 (7.3-8.3)
Endocrine & metabolic	6.4 (6.1-6.7)	6.0 (5.7-6.3)	6.2 (5.8-6.5)	6.2 (5.8-6.5)	6.2 (5.8-6.5)
Female genital system	5.5 (5.1-5.9)	6.1 (5.7-6.6)	5.1 (4.8-5.5)	5.0 (4.6-5.4)	5.1 (4.8-5.5)
Neurological	5.4 (5.2-5.6)	5.7 (5.5-6.0)	5.3 (5.1-5.6)	5.1 (4.9-5.4)	4.9 (4.7-5.2)
Ear	4.2 (4.0-4.4)	4.0 (3.8-4.1)	3.7 (3.6-3.9)	3.9 (3.7-4.1)	3.9 (3.7-4.1)
Pregnancy & family planning	3.5 (3.2-3.8)	3.6 (3.3-3.9)	3.7 (3.4-4.0)	3.4 (3.1-3.7)	3.4 (3.1-3.6)
Eye	2.5 (2.4-2.7)	2.7 (2.6-2.9)	2.7 (2.6-2.9)	2.7 (2.6-2.9)	2.8 (2.6-2.9)
Urology	2.5 (2.4-2.7)	2.5 (2.3-2.6)	2.5 (2.4-2.7)	2.5 (2.4-2.7)	2.6 (2.5-2.8)
Blood	1.1 (0.9-1.2)	1.0 (0.8-1.2)	1.3 (1.1-1.4)	1.2 (1.0-1.5)	1.2 (1.0-1.3)
Male genital system	1.0 (0.9-1.1)	1.0 (0.9-1.2)	1.1 (0.9-1.2)	1.2 (1.1-1.4)	1.3 (1.2-1.4)
Social problems	1.0 (0.8-1.1)	1.0 (0.8-1.2)	0.9 (0.8-1.1)	1.0 (0.8-1.1)	0.9 (0.8-1.0)
<b>Total RFEs</b>	<b>149.2 (147.4-150.9)</b>	<b>150.9 (149.0-152.7)</b>	<b>150.2 (148.4-152.0)</b>	<b>149.6 (147.8-151.5)</b>	<b>150.3 (148.4-152.2)</b>

(a) Figures do not total 100 as more than one RFE can be recorded for each encounter.

Note: CI—confidence interval; RFE—reason for encounter.

Table A4.6: Rate of RFEs by ICPC-2 component, summary of annual results BEACH 2001-02 to 2005-06

	2001-02	2002-03	2003-04	2004-05	2005-06
<b>ICPC-2 component</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=96,973)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=100,987)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=98,877)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=94,386)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=101,993)</b>
Symptoms & complaints	74.1 (72.3-75.9)	74.0 (72.0-76.1)	71.7 (69.8-73.5)	71.3 (69.4-73.2)	69.7 (67.9-71.5)
Diagnosis, diseases	27.3 (25.9-28.7)	26.0 (24.6-27.4)	25.1 (23.9-26.4)	24.5 (23.3-25.7)	26.8 (25.4-28.2)
Diagnostic & preventive procedures	22.7 (21.7-23.6)	23.8 (22.8-24.7)	24.0 (23.1-25.0)	23.4 (22.5-24.3)	24.4 (23.4-25.3)
Medications, treatments & therapeutics	11.9 (11.3-12.4)	13.0 (12.4-13.6)	14.4 (13.7-15.1)	14.5 (13.8-15.3)	14.4 (13.7-15.1)
Referral & other RFE	7.2 (6.7-7.7)	7.0 (6.6-7.5)	7.2 (6.8-7.6)	7.4 (6.9-7.9)	6.9 (6.5-7.4)
Results	4.7 (4.4-5.1)	5.4 (5.0-5.7)	6.0 (5.6-6.4)	6.8 (6.4-7.2)	6.5 (6.1-6.9)
Administrative	1.3 (1.1-1.5)	1.6 (1.4-1.8)	1.8 (1.6-1.9)	1.7 (1.5-1.8)	1.7 (1.5-1.8)
<b>Total RFEs</b>	<b>149.2 (147.4-150.9)</b>	<b>150.9 (149.0-152.7)</b>	<b>150.2 (148.4-152.0)</b>	<b>149.6 (147.8-151.5)</b>	<b>150.3 (148.4-152.2)</b>

(a) Figures do not total 100 as more than one RFE can be recorded for each encounter.

Note: CI—confidence interval; RFE—reason for encounter.

Table A4.7: Distribution of problems managed, summary of annual results BEACH 2001-02 to 2005-06

Problem managed	2001-02	2002-03	2003-04	2004-05	2005-06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
Respiratory	21.4 (20.7-22.0)	20.6 (20.0-21.3)	20.1 (19.5-20.7)	19.2 (18.6-19.9)	20.6 (19.9-21.3)
Musculoskeletal	17.5 (17.0-18.0)	17.1 (16.5-17.6)	17.1 (16.6-17.6)	17.7 (17.1-18.3)	17.2 (16.7-17.7)
Cardiovascular	16.1 (15.5-16.8)	16.0 (15.3-16.7)	16.8 (16.1-17.5)	16.2 (15.5-16.9)	16.6 (16.1-17.7)
Skin	16.1 (15.6-16.6)	16.5 (16.0-17.0)	16.9 (16.2-17.6)	17.2 (16.6-17.9)	16.6 (16.1-17.2)
General & unspecified	14.7 (14.0-15.5)	15.8 (15.2-16.3)	15.0 (14.5-15.5)	15.1 (14.5-15.7)	15.1 (14.5-15.7)
Endocrine & metabolic	10.4 (10.0-10.9)	10.6 (10.2-11.0)	11.3 (10.8-11.8)	11.8 (11.2-12.3)	11.6 (11.0-12.1)
Psychological	10.6 (10.1-11.2)	10.3 (9.8-10.8)	10.8 (10.3-11.4)	11.4 (10.8-12.0)	11.1 (10.5-11.7)
Digestive	9.9 (9.6-10.2)	10.1 (9.8-10.4)	10.5 (10.2-10.8)	9.9 (9.6-10.2)	10.1 (9.8-10.4)
Female genital system	6.1 (5.8-6.5)	6.7 (6.2-7.1)	5.9 (5.5-6.3)	5.7 (5.3-6.1)	5.8 (5.4-6.2)
Ear	4.2 (4.0-4.4)	4.0 (3.8-4.2)	4.0 (3.8-4.1)	4.1 (3.9-4.2)	4.0 (3.8-4.1)
Pregnancy & family planning	4.0 (3.7-4.3)	4.2 (3.8-4.5)	4.2 (3.9-4.5)	3.8 (3.5-4.1)	3.8 (3.6-4.1)
Neurological	3.7 (3.5-3.9)	4.2 (4.0-4.4)	3.9 (3.8-4.1)	3.6 (3.5-3.8)	3.6 (3.4-3.8)
Urology	2.8 (2.7-3.0)	2.8 (2.7-3.0)	3.0 (2.9-3.2)	3.0 (2.9-3.2)	3.1 (2.9-3.2)
Eye	2.5 (2.4-2.6)	2.6 (2.5-2.7)	2.7 (2.6-2.9)	2.7 (2.5-2.9)	2.8 (2.6-2.9)
Male genital system	1.3 (1.1-1.4)	1.4 (1.3-1.6)	1.6 (1.4-1.7)	1.8 (1.6-1.9)	1.9 (1.7-2.0)
Blood	1.3 (1.2-1.4)	1.4 (1.2-1.5)	1.7 (1.5-1.8)	1.6 (1.4-1.8)	1.5 (1.4-1.6)
Social problems	0.7 (0.5-0.9)	0.7 (0.5-0.9)	0.8 (1.6-1.0)	0.8 (0.6-1.0)	0.6 (0.5-0.7)
<b>Total problems</b>	<b>143.4 (141.7-145.2)</b>	<b>144.9 (143.0-146.8)</b>	<b>146.3 (144.4-148.2)</b>	<b>145.5 (143.6-147.7)</b>	<b>146.2 (144.2-148.2)</b>

(a) Figures do not total 100 as more than one problem can be managed at each encounter.

Note: CI—confidence interval.

Table A4.8: Most frequently managed problems, summary of annual results BEACH 2001–02 to 2005–06

Problem managed	2001–02		2002–03		2003–04		2004–05		2005–06	
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)				
Hypertension*	9.0 (8.6–9.5)	8.9 (8.4–9.3)	9.2 (8.7–9.7)	8.9 (8.4–9.4)	9.4 (8.9–10.0)					
Upper respiratory tract infection	6.2 (5.8–6.6)	6.4 (5.9–6.8)	5.5 (5.1–5.9)	5.6 (5.1–6.0)	6.2 (5.8–6.6)					
Immunisation/vaccination—all*	4.7 (4.2–5.1)	4.6 (4.2–5.1)	4.7 (4.2–5.2)	4.6 (4.1–5.2)	5.0 (4.6–5.4)					
Depression*	3.4 (3.2–3.6)	3.5 (3.3–3.8)	3.7 (3.4–3.8)	3.7 (3.5–3.9)	3.6 (3.4–3.8)					
Diabetes*	3.1 (2.9–3.3)	2.9 (2.7–3.1)	3.1 (2.9–3.4)	3.2 (3.0–3.4)	3.5 (3.3–3.8)					
Lipid disorder	2.9 (2.7–3.1)	3.0 (2.8–3.2)	3.3 (3.1–3.5)	3.3 (3.1–3.6)	3.4 (3.1–3.7)					
Osteoarthritis*	2.6 (2.4–2.8)	2.6 (2.4–2.8)	2.8 (2.6–3.0)	2.8 (2.6–3.0)	2.7 (2.5–2.9)					
Back complaint*	2.6 (2.4–2.8)	2.6 (2.3–2.8)	2.7 (2.5–2.9)	2.8 (2.6–3.0)	2.6 (2.5–2.8)					
Acute bronchitis/bronchiolitis	2.7 (2.5–3.0)	2.6 (2.3–2.8)	2.4 (2.2–2.6)	2.4 (2.1–2.7)	2.5 (2.3–2.7)					
Oesophageal disease	1.8 (1.7–2.0)	1.9 (1.7–2.1)	2.2 (2.0–2.4)	2.1 (1.9–2.3)	2.4 (2.2–2.5)					
Asthma	2.8 (2.6–3.0)	2.7 (2.5–2.9)	2.6 (2.4–2.7)	2.3 (2.2–2.5)	2.3 (2.1–2.4)					
<b>Total problems</b>	<b>143.4 (141.7–145.2)</b>	<b>144.9 (143.0–146.8)</b>	<b>146.3 (144.4–148.2)</b>	<b>145.5 (143.6–147.4)</b>	<b>146.2 (144.2–148.2)</b>					

(a) Figures do not total 100 as more than one problem can be managed at each encounter. Also only the most frequent problems are included.

\* Includes multiple ICP-2 or ICP-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

Note: CI—confidence interval.

**Table A4.9: Distribution of medications prescribed by CAPS group and subgroup, summary of annual results BEACH 2001–02 to 2005–06**

Group and subgroup	2001–02		2002–03		2003–04		2004–05		2005–06	
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)				
Cardiovascular	13.9 (13.2–14.7)	13.1 (12.3–13.9)	14.4 (13.6–15.2)	14.1 (13.3–14.9)	15.6 (14.6–16.6)					
Antihypertensives	7.5 (7.1–8.0)	7.3 (6.8–7.8)	8.1 (7.6–8.5)	7.9 (7.4–8.4)	8.7 (8.1–9.3)					
Other cardiovascular/lipid modifying	2.7 (2.5–2.9)	2.6 (2.4–2.8)	2.9 (2.7–3.1)	3.1 (2.9–3.3)	3.4 (3.1–3.7)					
Beta-blockers	1.7 (1.5–1.9)	1.5 (1.3–1.7)	1.7 (1.5–1.9)	1.6 (1.4–1.7)	1.8 (1.7–2.0)					
Anti-angina	1.1 (0.9–1.3)	0.8 (0.6–1.1)	1.0 (0.8–1.2)	0.7 (0.5–0.9)	0.9 (0.7–1.1)					
Anti-infections/infestations	14.4 (13.9–14.9)	13.8 (13.2–14.4)	14.2 (13.6–14.7)	14.6 (14.1–15.2)	15.2 (14.6–15.7)					
Broad-spectrum penicillin	4.5 (4.2–4.8)	4.7 (4.4–5.1)	5.0 (4.6–5.3)	5.2 (4.9–5.6)	5.2 (4.9–5.5)					
Cephalosporins	3.2 (3.0–3.5)	3.0 (2.8–3.2)	2.9 (2.7–3.1)	3.3 (3.0–3.6)	3.4 (3.1–3.7)					
Other antibiotics	3.0 (2.8–3.2)	2.8 (2.6–3.0)	2.8 (2.6–3.0)	2.8 (2.6–3.0)	3.3 (3.0–3.5)					
Other penicillins	1.5 (1.2–1.7)	1.2 (1.0–1.4)	1.3 (1.2–1.5)	1.1 (0.9–1.2)	1.1 (0.9–1.3)					
Tetracycline	1.0 (0.8–1.2)	0.9 (0.7–1.0)	0.9 (0.7–1.0)	0.9 (0.8–1.1)	0.9 (0.8–1.1)					
Central nervous system	10.7 (10.1–11.2)	10.5 (10.0–11.1)	10.5 (9.9–11.1)	10.2 (9.7–10.7)	11.1 (10.5–11.7)					
Simple analgesics	3.8 (3.4–4.1)	3.9 (3.4–4.3)	3.6 (3.1–4.0)	3.4 (3.0–3.7)	3.8 (3.4–4.1)					
Narcotic analgesics	2.0 (1.6–2.4)	2.2 (1.9–2.6)	2.3 (2.1–2.6)	2.5 (2.2–2.9)	2.9 (2.4–3.3)					
Compound analgesics	2.7 (2.5–2.9)	2.4 (2.2–2.6)	2.5 (2.3–2.7)	2.4 (2.2–2.6)	2.4 (2.2–2.6)					
Anti-emetic/anti-nausea	1.4 (1.2–1.5)	1.3 (1.2–1.5)	1.4 (1.3–1.5)	1.1 (1.0–1.3)	1.3 (1.1–1.4)					
Anticonvulsant	0.5 (0.3–0.7)	0.5 (0.4–0.7)	0.5 (0.3–0.7)	0.5 (0.3–0.8)	0.6 (0.4–0.8)					
Psychological	7.4 (7.0–7.8)	7.0 (6.6–7.4)	7.6 (7.2–8.0)	7.4 (7.0–7.8)	7.6 (7.2–8.0)					
Anti-depressants	2.9 (2.7–3.1)	2.9 (2.7–3.1)	3.2 (3.0–3.4)	3.1 (2.9–3.2)	3.2 (3.0–4.0)					
Anti-anxiety	1.9 (1.7–2.2)	1.9 (1.7–2.1)	2.0 (1.8–2.2)	2.0 (1.7–2.2)	2.1 (1.8–2.4)					
Sedative hypnotics	1.9 (1.7–2.2)	1.7 (1.6–1.9)	1.8 (1.7–2.0)	1.9 (1.7–2.2)	1.8 (1.6–1.9)					

(continued)

Table A4.9 (continued): Distribution of medications prescribed by CAPS group and subgroup, summary of annual results BEACH 2001–02 to 2005–06

Group and subgroup	2001–02	2002–03	2003–04	2004–05	2005–06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
Hormones	6.1 (5.8–6.4)	5.4 (5.1–5.7)	5.7 (5.3–6.0)	5.3 (5.0–5.6)	5.7 (5.4–6.1)
Hypoglycaemics	2.2 (1.9–2.5)	1.9 (1.6–2.2)	2.2 (1.9–2.4)	2.1 (1.8–2.3)	2.5 (2.1–2.8)
Corticosteroids	1.3 (1.2–1.5)	1.1 (0.9–1.2)	1.3 (1.1–1.4)	1.2 (1.1–1.4)	1.3 (1.1–1.5)
Sex/anabolic hormones	2.0 (1.8–2.1)	1.8 (1.6–1.9)	1.5 (1.3–1.7)	1.3 (1.1–1.4)	1.3 (1.1–1.4)
Other hormones	0.6 (0.5–0.8)	0.6 (0.5–0.8)	0.7 (0.6–0.9)	0.7 (0.5–0.9)	0.7 (0.5–0.9)
Musculoskeletal	6.1 (5.8–6.4)	5.7 (5.4–6.0)	5.6 (5.3–5.8)	5.3 (5.0–5.5)	4.5 (4.3–4.8)
NSAIDs	5.3 (5.0–5.5)	4.8 (4.5–5.0)	4.7 (4.5–4.9)	4.4 (4.2–4.7)	3.8 (3.6–4.1)
Urosuric agents	0.4 (0.2–0.6)	0.5 (0.3–0.7)	0.5 (0.3–0.6)	0.5 (0.3–0.7)	0.5 (0.3–0.6)
Respiratory	5.8 (5.3–6.2)	5.3 (4.9–5.7)	4.6 (4.3–4.9)	4.3 (4.0–4.6)	4.3 (4.0–4.6)
Bronchodilators/spasm relaxants	2.9 (2.6–3.1)	2.5 (2.2–2.7)	2.2 (2.0–2.4)	2.1 (1.9–2.2)	2.1 (1.9–2.3)
Asthma preventives	2.2 (2.0–2.4)	2.0 (1.9–2.2)	1.8 (1.7–2.0)	1.7 (1.5–1.8)	2.1 (1.9–2.3)
Skin	4.1 (3.9–4.4)	3.9 (3.7–4.2)	3.9 (3.7–4.1)	4.0 (3.8–4.3)	1.7 (1.6–1.8)
Topical steroids	2.8 (2.6–3.0)	2.6 (2.5–2.8)	2.6 (2.4–2.8)	2.8 (2.6–2.9)	3.7 (3.5–3.9)
Anti-infection, skin	0.7 (0.5–0.8)	0.7 (0.5–0.8)	0.7 (0.6–0.8)	0.7 (0.5–0.8)	2.5 (2.4–2.7)
Other skin	0.6 (0.4–0.8)	0.6 (0.4–0.8)	0.6 (0.4–0.8)	0.6 (0.4–0.7)	0.6 (0.5–0.8)
Digestive	3.8 (3.6–4.1)	3.9 (3.6–4.1)	4.2 (4.0–4.8)	3.8 (3.6–4.0)	4.2 (3.9–4.4)
Anti-ulcerants	2.4 (2.2–2.5)	2.4 (2.2–2.6)	2.7 (2.6–2.9)	2.6 (2.4–2.8)	3.0 (2.8–3.1)
Anti-diarrhoeals	0.5 (0.3–0.7)	0.5 (0.3–0.7)	0.5 (0.3–0.6)	0.4 (0.2–0.6)	0.5 (0.3–0.6)
Allergy, immune system	4.5 (4.1–4.8)	4.8 (4.3–5.3)	3.8 (3.4–4.2)	3.4 (2.9–3.9)	3.0 (2.4–3.5)
Immunisation	3.9 (3.5–4.3)	4.2 (3.7–4.7)	3.3 (2.9–3.7)	3.0 (2.4–3.5)	2.5 (2.0–3.1)

(continued)

Table A4.9 (continued): Distribution of medications prescribed by CAPS group and subgroup, summary of annual results BEACH 2001–02 to 2005–06

Group and subgroup	2001–02	2002–03	2003–04	2004–05	2005–06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
Blood	1.8 (1.7–2.0)	1.7 (1.6–1.9)	2.1 (1.9–2.3)	2.0 (1.8–2.2)	1.9 (1.7–2.1)
Other blood	1.1 (0.9–1.3)	1.0 (0.9–1.2)	1.2 (1.0–1.4)	1.2 (1.0–1.4)	1.3 (1.1–1.5)
Haemopoietics	0.8 (0.6–0.9)	0.7 (0.6–0.8)	0.9 (0.7–1.0)	0.7 (0.5–0.9)	0.6 (0.5–0.8)
Eye medications	1.5 (1.4–1.6)	1.6 (1.5–1.8)	1.7 (1.5–1.9)	1.7 (1.5–1.9)	1.8 (1.7–1.9)
Anti-infectives	0.9 (0.8–1.1)	1.0 (0.9–1.2)	1.0 (0.9–1.2)	1.0 (0.9–1.2)	1.1 (1.0–1.3)
Other eye medications	0.4 (0.2–0.6)	0.4 (0.2–0.6)	0.5 (0.3–0.6)	0.5 (0.3–0.7)	0.5 (0.3–0.7)
Urogenital	1.8 (1.6–2.0)	1.7 (1.5–1.9)	1.8 (1.7–2.0)	1.6 (1.5–1.8)	1.7 (1.5–1.8)
Diuretics	1.3 (1.1–1.5)	1.1 (0.9–1.3)	1.1 (0.9–1.3)	0.9 (0.8–1.1)	0.9 (0.7–1.1)
Contraceptives	1.7 (1.5–1.8)	1.7 (1.5–1.9)	1.8 (1.6–1.9)	1.6 (1.5–1.8)	1.5 (1.4–1.7)
Oral/systemic contraception	1.7 (1.5–1.8)	1.7 (1.5–1.9)	1.7 (1.6–1.9)	1.6 (1.4–1.7)	1.5 (1.3–1.7)
Nutrition, metabolism	1.7 (1.1–2.2)	1.6 (1.4–1.8)	1.6 (1.5–1.8)	1.5 (1.4–1.7)	1.6 (1.5–1.8)
Nutrition, metabolism other	0.3 (0.1–0.5)	0.5 (0.3–0.7)	0.5 (0.4–0.7)	0.6 (0.4–0.8)	0.7 (0.6–0.9)
Mineral tonic	0.6 (0.3–0.8)	0.5 (0.3–0.7)	0.5 (0.4–0.7)	0.5 (0.4–0.7)	0.5 (0.3–0.7)
Ear, nose topical	1.8 (1.7–2.0)	1.6 (1.4–1.7)	1.6 (1.5–1.9)	0.5 (0.3–0.7)	1.5 (1.4–1.7)
Topical otic	0.9 (0.8–1.1)	0.9 (0.7–1.0)	0.9 (0.7–1.1)	0.9 (0.8–1.1)	0.9 (0.7–1.0)
Topical nasal	0.9 (0.7–1.0)	0.7 (0.5–0.9)	0.7 (0.5–0.9)	0.7 (0.5–1.0)	0.6 (0.4–0.8)
Miscellaneous	0.5 (0.3–0.6)	0.3 (0.1–0.6)	0.3 (0.1–0.6)	0.3 (0.1–0.5)	0.3 (0.1–0.6)

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter. Also only the most frequent medications are included.

Note: CI—confidence interval; NSAID—non-steroidal anti-inflammatory drug.

Table A4.10: Most frequently prescribed generic medications, summary of annual results BEACH 2001-02 to 2005-06

Generic drug	2001-02	2002-03	2003-04	2004-05	2005-06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
Amoxicillin	2.9 (2.7-3.2)	3.1 (2.8-3.5)	3.3 (3.0-3.6)	3.5 (3.2-3.8)	3.6 (3.3-3.8)
Paracetamol	3.1 (2.7-3.4)	3.1 (2.7-3.6)	2.9 (2.4-3.3)	2.7 (2.4-3.0)	3.0 (2.7-3.3)
Cephalexin	2.0 (1.8-2.2)	1.9 (1.7-2.1)	2.0 (1.8-2.2)	2.4 (2.2-2.6)	2.5 (2.3-2.7)
Paracetamol/codeine	2.2 (2.0-2.4)	2.0 (1.8-2.2)	2.1 (1.9-2.3)	2.0 (1.8-2.2)	2.0 (1.8-2.2)
Amoxicillin/potassium clavulanate	1.6 (1.3-1.8)	1.6 (1.4-1.8)	1.7 (1.5-1.9)	1.7 (1.5-1.9)	1.7 (1.5-1.8)
Atorvastatin	1.0 (0.9-1.2)	1.0 (0.9-1.2)	1.2 (1.0-1.3)	1.4 (1.2-1.5)	1.6 (1.4-1.8)
Salbutamol	2.0 (1.8-2.2)	1.7 (1.5-1.9)	1.5 (1.4-1.7)	1.4 (1.3-1.6)	1.5 (1.4-1.6)
Roxithromycin	1.4 (1.2-1.6)	1.3 (1.1-1.6)	1.1 (1.0-1.3)	1.1 (0.9-1.4)	1.5 (1.3-1.7)
Mefformin	0.9 (0.8-1.1)	0.8 (0.7-1.0)	1.0 (0.8-1.2)	1.0 (0.8-1.1)	1.2 (1.0-1.3)
Simvastatin	0.9 (0.8-1.1)	0.9 (0.7-1.0)	1.0 (0.9-1.2)	1.1 (0.9-1.3)	1.2 (1.0-1.3)
Diazepam	1.0 (0.8-1.3)	1.0 (0.8-1.2)	1.1 (0.9-1.3)	1.1 (0.9-1.3)	1.1 (1.0-1.2)
Temazepam	1.3 (1.2-1.5)	1.2 (1.0-1.3)	1.2 (1.1-1.4)	1.1 (1.0-1.3)	1.1 (1.0-1.2)
Influenza virus vaccine	1.5 (0.8-2.2)	1.4 (0.6-2.3)	1.2 (0.4-2.0)	0.9 (0.0-1.8)	1.1 (0.9-1.3)
Irbesartan	0.8 (0.6-0.9)	0.8 (0.7-1.0)	0.9 (0.7-1.0)	0.9 (0.7-1.0)	1.1 (1.0-1.2)
Chloramphenicol eye	0.8 (0.7-0.9)	0.9 (0.8-1.1)	0.9 (0.8-1.0)	0.9 (0.8-1.1)	1.1 (1.0-1.1)
Diclofenac sodium systemic	0.9 (0.7-1.1)	0.7 (0.5-0.9)	0.8 (0.6-1.0)	1.0 (0.8-1.1)	1.0 (0.9-1.1)
Levonorgestrel/ethinyloestradiol	1.2 (1.1-1.3)	1.1 (1.0-1.3)	1.2 (1.0-1.3)	1.0 (0.9-1.2)	1.0 (0.9-1.1)
Perindopril	0.7 (0.6-0.9)	0.7 (0.5-0.8)	0.7 (0.5-0.9)	0.8 (0.7-1.0)	1.0 (0.9-1.1)
Atenolol	1.0 (0.7-1.2)	0.8 (0.6-1.0)	1.0 (0.8-1.1)	0.9 (0.7-1.1)	1.0 (0.9-1.1)
Tramadol	0.7 (0.4-0.9)	1.0 (0.8-1.1)	0.9 (0.8-1.1)	1.0 (0.8-1.2)	1.0 (0.9-1.0)
Warfarin sodium	0.9 (0.7-1.1)	0.8 (0.6-1.0)	0.9 (0.7-1.1)	0.9 (0.7-1.2)	0.9 (0.8-1.0)
Esomeprazole	N/A	0.3 (0.0-0.5)	0.6 (0.4-0.8)	0.7 (0.6-0.8)	0.9 (0.8-1.0)
Meloxicam	0.0 <sup>†</sup> (0.0-1.2)	0.3 (0.0-0.6)	0.4 (0.2-0.6)	0.8 (0.6-1.0)	0.9 (0.8-1.0)

(continued)



Table A4.10 (continued): Most frequently prescribed generic medications, summary of annual results BEACH 2001–02 to 2005–06

Generic drug	2001–02		2002–03		2003–04		2004–05		2005–06	
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)				
Fluticasone/salmeterol	0.6 (0.4–0.8)	0.9 (0.7–1.1)	0.8 (0.7–1.0)	0.8 (0.7–1.0)	0.9 (0.7–1.0)	0.9 (0.8–1.0)				
Cefaclor monohydrate	1.1 (0.8–1.3)	1.0 (0.7–1.3)	0.8 (0.5–1.1)	0.8 (0.5–1.1)	0.8 (0.4–1.2)	0.8 (0.6–1.0)				
Ramipril	0.6 (0.4–0.8)	0.7 (0.5–0.8)	0.7 (0.6–0.9)	0.7 (0.6–0.9)	0.8 (0.6–1.0)	0.8 (0.7–0.9)				
Doxycycline hydrochloride	0.8 (0.6–1.0)	0.7 (0.5–0.9)	0.7 (0.5–0.9)	0.7 (0.5–0.9)	0.7 (0.6–0.9)	0.8 (0.7–0.9)				
Oxycodone	0.3 (0.1–0.5)	0.3 (0.1–0.6)	0.4 (0.2–0.6)	0.4 (0.2–0.6)	0.5 (0.3–0.7)	0.8 (0.7–0.9)				
Aspirin	0.7 (0.5–0.8)	0.7 (0.5–0.9)	0.7 (0.5–0.9)	0.7 (0.5–0.9)	0.7 (0.5–0.8)	0.7 (0.7–0.8)				
Amlodipine	0.7 (0.6–0.9)	0.7 (0.5–0.8)	0.7 (0.5–0.8)	0.7 (0.5–0.8)	0.6 (0.5–0.8)	0.7 (0.6–0.8)				
<b>Total prescribed medications</b>	<b>88.0 (85.6–90.4)</b>	<b>84.3 (81.8–86.9)</b>	<b>86.0 (83.6–88.5)</b>	<b>86.0 (83.6–88.5)</b>	<b>83.4 (81.2–85.5)</b>	<b>85.8 (83.3–88.4)</b>				

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter.

† Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters.

Note: CI—confidence interval; N/A—not applicable.

**Table A4.11: Distribution of prescribed medications by ATC Level 2, summary of annual results BEACH 2001–02 to 2005–06**

ATC Level 2	2001–02		2002–03		2003–04		2004–05		2005–06	
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)				
Antibacterials for systemic use	13.9 (13.4–14.4)	13.3 (12.8–13.9)	13.6 (13.1–14.2)	14.0 (13.5–14.6)	14.6 (14.0–15.2)					
Analgesics	8.5 (8.0–9.0)	8.5 (8.0–9.1)	8.5 (8.0–9.0)	8.3 (7.8–8.7)	9.0 (8.4–9.5)					
Agents acting on the renin-angiotensin system	5.0 (4.7–5.3)	4.9 (4.6–5.2)	5.5 (5.1–5.8)	5.5 (5.2–5.9)	6.1 (5.7–6.5)					
Psycholeptics	5.1 (4.8–5.5)	4.7 (4.4–5.0)	5.0 (4.7–5.4)	4.9 (4.6–5.2)	5.0 (4.6–5.3)					
Anti-inflammatory and antirheumatic products	5.3 (5.1–5.6)	4.8 (4.6–5.1)	4.8 (4.5–5.0)	4.5 (4.2–4.8)	3.9 (3.7–4.2)					
Drugs for obstructive airway diseases	5.1 (4.8–5.5)	4.6 (4.2–4.9)	4.1 (3.9–4.4)	3.8 (3.6–4.1)	3.9 (3.6–4.1)					
Serum lipid reducing agents	2.4 (2.3–2.6)	2.4 (2.2–2.6)	2.8 (2.6–3.0)	3.0 (2.8–3.2)	3.3 (3.0–3.6)					
Psychoanaesthetics	3.0 (2.8–3.2)	3.0 (2.8–3.2)	3.3 (3.1–3.5)	3.1 (3.0–3.3)	3.3 (3.1–3.5)					
Drugs for acid-related disorders	2.5 (2.3–2.7)	2.5 (2.4–2.7)	2.9 (2.7–3.0)	2.7 (2.5–2.9)	3.1 (2.9–3.2)					
Sex hormones and modulators of the genital system	3.8 (3.6–4.0)	3.7 (3.5–4.0)	3.5 (3.3–3.7)	3.1 (2.9–3.3)	3.0 (2.8–3.2)					
Corticosteroids, dermatological preparations	2.8 (2.6–3.0)	2.6 (2.5–2.8)	2.6 (2.4–2.8)	2.8 (2.6–2.9)	2.5 (2.4–2.7)					
Vaccines	3.8 (3.4–4.2)	4.2 (3.7–4.6)	3.3 (2.9–3.7)	2.9 (2.4–3.5)	2.5 (2.2–2.8)					
Drugs used in diabetes	2.2 (1.9–2.5)	1.9 (1.6–2.2)	2.2 (1.9–2.4)	2.1 (1.8–2.3)	2.5 (2.2–2.7)					
Calcium channel blockers	2.2 (2.0–2.4)	2.0 (1.8–2.2)	2.2 (2.0–2.3)	2.0 (1.8–2.2)	2.2 (2.0–2.4)					
Beta-blocking agents	1.8 (1.6–2.0)	1.6 (1.4–1.8)	1.8 (1.6–2.0)	1.7 (1.5–1.8)	1.9 (1.8–2.1)					
Ophthalmologicals	1.5 (1.4–1.7)	1.6 (1.5–1.8)	1.7 (1.6–1.8)	1.7 (1.6–1.9)	1.9 (1.7–2.0)					
Diuretics	1.7 (1.5–1.9)	1.6 (1.4–1.8)	1.5 (1.4–1.7)	1.3 (1.2–1.5)	1.4 (1.3–1.5)					
Anti-thrombotic agents	1.1 (0.9–1.3)	1.1 (0.9–1.3)	1.3 (1.1–1.5)	1.3 (1.1–1.5)	1.3 (1.2–1.4)					
Corticosteroids for systemic use	1.3 (1.2–1.5)	1.1 (0.9–1.2)	1.3 (1.1–1.4)	1.2 (1.1–1.4)	1.3 (1.2–1.4)					
Cardiac therapy	1.2 (1.0–1.4)	1.0 (0.7–1.2)	1.0 (0.8–1.3)	0.8 (0.7–1.0)	0.9 (0.8–1.0)					
Drugs used for functional gastrointestinal disorders	0.9 (0.8–1.1)	0.9 (0.7–1.1)	1.0 (0.8–1.1)	0.7 (0.6–0.8)	0.8 (0.7–0.9)					
Otologicals	0.9 (0.7–1.0)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.8 (0.7–1.0)	0.8 (0.7–0.8)					

(continued)

**Table A4.11 (continued): Distribution of prescribed medications by ATC Level 2, summary of annual results BEACH 2001–02 to 2005–06**

	2001–02	2002–03	2003–04	2004–05	2005–06
<b>ATC Level 2</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=96,973)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=100,987)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=98,877)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=94,386)</b>	<b>Rate per 100 encounters<sup>(a)</sup> (95% CI) (n=101,993)</b>
Thyroid therapy	0.6 (0.4–0.7)	0.6 (0.4–0.7)	0.6 (0.5–0.8)	0.7 (0.5–0.8)	0.7 (0.6–0.8)
Nasal preparations	0.9 (0.8–1.1)	0.8 (0.6–1.0)	0.8 (0.6–1.0)	0.8 (0.5–1.0)	0.7 (0.6–0.8)
Anti-anaemic preparations	0.8 (0.6–0.9)	0.7 (0.6–0.8)	0.9 (0.7–1.0)	0.7 (0.5–0.9)	0.6 (0.6–0.7)
Anti-epileptics	0.6 (0.3–0.8)	0.6 (0.4–0.7)	0.5 (0.3–0.7)	0.5 (0.3–0.8)	0.6 (0.6–0.7)
Drugs for treatment of bone disease	0.3 (0.1–0.4)	0.4 (0.2–0.6)	0.4 (0.3–0.6)	0.5 (0.3–0.6)	0.6 (0.5–0.7)
Anti-diarrhoeals, intestinal anti-inflammatory/anti-infective agents	0.6 (0.4–0.8)	0.6 (0.4–0.9)	0.6 (0.4–0.8)	0.6 (0.4–0.7)	0.6 (0.5–0.6)
Other nervous system drugs	0.6 (0.0–1.3)	0.4 (0.0–1.2)	0.3 (0.0–0.8)	0.5 (0.0–1.2)	0.6 (0.4–0.7)
Anti-gout preparations	0.4 (0.2–0.6)	0.5 (0.3–0.7)	0.5 (0.3–0.6)	0.5 (0.3–0.7)	0.5 (0.4–0.5)

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter. Also only the most frequent medications are included.

Note: CI—confidence interval.

Table A4.12: Medications most frequently supplied by GPs, summary of annual results BEACH 2001-02 to 2005-06

Generic medication	2001-02	2002-03	2003-04	2004-05	2005-06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
Influenza virus vaccine	0.9 (0.0-2.1)	0.7 (0.0-0.9)	1.2 (0.0-2.6)	1.2 (0.0-2.9)	1.6 (1.3-1.8)
Pneumococcal vaccine	0.0 <sup>†</sup> (0.0-1.0)	0.1 (0.0-0.9)	0.1 (0.0-0.8)	0.4 (0.0-1.0)	0.9 (0.8-1.0)
Polio vaccine oral sabin/injection	0.3 (0.0-0.7)	0.3 (0.0-0.7)	0.3 (0.1-0.6)	0.4 (0.2-0.7)	0.5 (0.4-0.5)
Diphtheria/pertussis/tetanus/Hep B	0.2 (0.0-0.6)	0.2 (0.0-0.7)	0.2 (0.0-0.6)	0.2 (0.0-0.5)	0.3 (0.2-0.4)
Mumps/measles/rubella vaccine	0.2 (0.0-0.5)	0.1 (0.0-0.4)	0.2 (0.0-0.5)	0.3 (0.0-0.5)	0.3 (0.3-0.4)
Haemophilus B vaccine	0.2 (0.0-0.5)	0.2 (0.0-0.6)	0.2 (0.0-0.5)	0.2 (0.0-0.5)	0.3 (0.2-0.4)
ADT/CDT (diphtheria/tetanus) vaccine	0.1 (0.0-0.5)	0.1 (0.0-0.5)	0.1 (0.0-0.4)	0.2 (0.0-0.4)	0.2 (0.2-0.3)
Vitamin B12 (cobalamin)	0.1 (0.0-0.7)	0.1 (0.0-0.8)	0.1 (0.0-0.5)	0.2 (0.0-0.6)	0.2 (0.2-0.3)
Meningitis vaccine	0.0 <sup>†</sup> (0.0-0.9)	0.2 (0.0-0.9)	0.3 (0.0-0.6)	0.2 (0.0-0.5)	0.2 (0.1-0.2)
Triple antigen(diphtheria/pertussis/tetanus)	0.2 (0.0-0.6)	0.1 (0.0-0.6)	0.2 (0.0-0.5)	0.3 (0.0-0.7)	0.2 (0.1-0.2)
Meloxicam	0.0 <sup>†</sup> (0.0-1.1)	0.1 (0.0-0.6)	0.2 (0.0-0.7)	0.2 (0.0-0.6)	0.1 (0.1-0.2)
Metoclopramide	0.1 (0.0-0.4)	0.1 (0.0-0.4)	0.2 (0.0-0.6)	0.1 (0.0-0.4)	0.1 (0.1-0.1)
<b>Total GP-supplied medications</b>	<b>7.6 (6.3-9.0)</b>	<b>9.3 (7.6-11.0)</b>	<b>8.6 (7.4-9.8)</b>	<b>8.1 (7.3-8.9)</b>	<b>8.8 (8.2-9.5)</b>

(a) Only those medications supplied at a rate of 0.2 per 100 encounters or more in any BEACH year reported here are included.

<sup>†</sup> Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters.

Note: CI—confidence interval.

Table A4.13: Most frequently advised over-the-counter medications, summary of annual results BEACH 2001-02 to 2005-06

Generic medication	2001-02	2002-03	2003-04	2004-05	2005-06
	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
Paracetamol	2.1 (1.7-2.6)	2.6 (2.1-3.0)	2.5 (1.9-3.0)	2.3 (1.8-2.8)	2.5 (2.2-2.8)
Ibuprofen	0.5 (0.2-0.8)	0.7 (0.1-1.3)	0.2 (0.0-0.5)	0.5 (0.2-0.9)	0.6 (0.5-0.7)
Diclofenac diethyl topical	0.2 (0.0-0.5)	0.2 (0.0-0.5)	0.2 (0.0-0.6)	0.2 (0.0-0.5)	0.2 (0.1-0.2)
Clotrimazole topical	0.2 (0.0-0.4)	0.2 (0.0-0.4)	0.2 (0.0-0.4)	0.2 (0.0-0.4)	0.2 (0.1-0.2)
Sodium chloride topical nasal	0.1 (0.0-0.6)	0.1 (0.0-0.7)	0.1 (0.0-0.5)	0.1 (0.0-0.5)	0.2 (0.1-0.2)
Glucosamine	..	..	0.1 (0.0-0.4)	0.1 (0.0-0.4)	0.2 (0.1-0.2)
Loratadine	0.3 (0.0-0.5)	0.3 (0.0-0.6)	0.2 (0.0-0.5)	0.2 (0.0-0.6)	0.2 (0.1-0.2)
Sodium/potassium/citric/glucose	0.1 (0.0-0.6)	0.1 (0.0-0.5)	0.1 (0.0-0.6)	0.1 (0.0-0.5)	0.1 (0.1-0.2)
Paracetamol/codeine	0.2 (0.0-0.5)	0.1 (0.0-0.5)	0.1 (0.0-0.5)	0.1 (0.0-0.6)	0.1 (0.1-0.2)
Fexofenadine	0.1 (0.0-0.5)	0.1 (0.0-0.4)	0.1 (0.0-0.5)	0.2 (0.0-0.5)	0.1 (0.1-0.2)
Cetirizine	0.1 (0.0-0.6)	0.1 (0.0-0.5)	0.1 (0.0-0.5)	0.1 (0.0-0.4)	0.1 (0.1-0.1)
Aspirin	0.2 (0.0-0.5)	0.2 (0.0-0.4)	0.2 (0.0-0.5)	0.1 (0.0-0.5)	0.1 (0.1-0.1)
Mouthwash/gargle other	0.1 (0.0-1.3)	0.1 (0.0-1.1)	0.1 (0.0-1.0)	0.1 (0.0-0.9)	0.1 (0.1-0.2)
Chlorpheniramine/pseudoephedrine	0.1 (0.0-0.5)	0.1 (0.0-0.7)	0.1 (0.0-0.5)	0.1 (0.0-1.0)	0.1 (0.1-0.2)
Bromhexine	0.1 (0.0-0.6)	0.1 (0.0-0.7)	..	01 (0.0-0.8)	0.1 (0.1-0.1)
<b>Total advised medications</b>	<b>8.9 (8.1-9.6)</b>	<b>10.2 (9.2-11.1)</b>	<b>9.4 (8.6-10.1)</b>	<b>10.1 (9.1-11.0)</b>	<b>9.8 (9.0-10.5)</b>

(a) Only those medications supplied at a rate of 0.2 per 100 encounters or more in any BEACH year reported here are included.

Note: CI—confidence interval.

Table A4.14: The most frequent clinical treatments, summary of annual results BEACH 2001–02 to 2005–06

Treatment	2001–02	2002–03	2003–04	2004–05	2005–06
	Rate per 100 encounters (95% CI) (n=96,973)	Rate per 100 encounters (95% CI) (n=100,987)	Rate per 100 encounters (95% CI) (n=98,877)	Rate per 100 encounters (95% CI) (n=94,386)	Rate per 100 encounters (95% CI) (n=101,993)
Advice/education*	6.3 (5.4–7.1)	6.9 (5.9–7.9)	6.8 (5.9–7.7)	7.0 (6.2–7.8)	4.8 (4.1–5.4)
Counselling—problem*	4.7 (3.8–5.5)	5.5 (4.7–6.3)	4.7 (3.8–5.5)	4.2 (3.3–5.0)	4.8 (4.1–5.4)
Counselling/advice—nutrition/weight*	5.5 (5.0–6.0)	5.2 (4.6–5.9)	4.6 (4.1–5.2)	5.3 (4.7–5.9)	3.6 (3.2–4.0)
Advice/education—treatment*	5.1 (4.5–5.7)	4.2 (3.6–4.9)	4.4 (3.7–5.0)	4.6 (4.0–5.1)	3.1 (2.6–3.5)
Counselling—psychological*	3.2 (2.8–3.5)	2.9 (2.6–3.2)	2.9 (2.6–3.1)	3.2 (2.9–3.5)	3.1 (2.8–3.3)
Advice/education—medication*	2.8 (2.5–3.2)	2.5 (2.1–2.8)	3.4 (3.0–3.8)	3.4 (2.9–3.8)	1.6 (1.4–1.7)
Sickness certificate	1.1 (0.5–1.6)	1.3 (0.8–1.8)	1.0 (0.6–1.4)	1.7 (1.3–2.1)	1.6 (1.4–1.9)
Counselling/advice—exercise*	2.1 (1.6–2.5)	1.6 (1.2–2.0)	1.5 (1.1–1.9)	1.9 (1.4–2.3)	1.1 (0.9–1.2)
Reassurance, support	1.5 (1.0–1.9)	1.4 (1.0–1.7)	1.5 (1.0–1.9)	1.6 (1.2–1.9)	1.0 (0.8–1.2)
Administrative procedure*	1.5 (1.3–1.8)	1.6 (1.3–1.8)	1.8 (1.5–2.1)	1.3 (1.1–1.5)	1.0 (0.9–1.1)
Counselling/advice—smoking*	0.8 (0.6–1.0)	0.7 (0.4–0.9)	0.6 (0.4–0.9)	0.8 (0.6–1.0)	0.5 (0.4–0.6)
Counselling/advice—lifestyle*	0.4 (0.0–1.0)	0.5 (0.0–1.5)	0.3 (0.0–0.8)	0.4 (0.0–1.0)	0.5 (0.3–0.6)
Counselling/advice—alcohol*	0.4 (0.2–0.6)	0.4 (0.1–0.6)	0.4 (0.2–0.5)	0.5 (0.2–0.7)	0.3 (0.3–0.3)
Observe/wait*	0.3 (0.0–0.7)	0.3 (0.0–0.7)	0.3 (0.0–0.7)	0.4 (0.0–0.7)	0.3 (0.2–0.4)
Family planning*	0.3 (0.1–0.6)	0.4 (0.1–0.6)	0.4 (0.2–0.6)	0.4 (0.2–0.6)	0.3 (0.2–0.3)
Counselling/advice—prevention*	0.3 (0.0–0.6)	0.3 (0.0–0.8)	0.4 (0.0–0.8)	0.4 (0.1–0.8)	0.2 (0.2–0.3)
Counselling/advice—health/body*	0.3 (0.1–0.6)	0.3 (0.0–0.8)	0.3 (0.0–0.7)	0.4 (0.1–0.6)	0.1 (0.1–0.2)
<b>Total clinical treatments</b>	<b>38.1 (36.1–40.1)</b>	<b>37.2 (35.0–39.4)</b>	<b>36.6 (34.5–38.8)</b>	<b>39.2 (37.1–41.4)</b>	<b>29.2 (27.3–31.1)</b>

\* Includes multiple ICP-2 or ICP-2 PLUS codes (see Appendix 5, <www.aihw.gov.au/publications/index.cfm/subject/19>).

Note: CI—confidence interval.

**Table A4.15: The most frequent procedural treatments, summary of annual results BEACH 2001–02 to 2005–06**

	2001–02	2002–03	2003–04	2004–05	2005–06
<b>Treatment</b>	<b>Rate per 100 encounters (95% CI) (n=96,973)</b>	<b>Rate per 100 encounters (95% CI) (n=100,987)</b>	<b>Rate per 100 encounters (95% CI) (n=98,877)</b>	<b>Rate per 100 encounters (95% CI) (n=94,386)</b>	<b>Rate per 100 encounters (95% CI) (n=101,993)</b>
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	2.7 (2.4–3.0)	2.9 (2.6–3.1)	3.1 (2.6–3.7)	3.3 (2.9–3.7)	3.0 (2.7–3.2)
Dressing/pressure/compression/tamponade*	1.8 (1.6–2.0)	2.0 (1.8–2.2)	1.8 (1.6–2.1)	2.0 (1.8–2.2)	2.1 (1.9–2.3)
Local injection/infiltration*	1.2 (0.5–1.8)	1.5 (1.2–1.8)	1.6 (1.3–1.9)	2.0 (1.6–2.3)	2.0 (1.8–2.2)
Physical medicine/rehabilitation*	2.2 (1.8–2.6)	2.1 (1.6–2.6)	1.7 (1.3–2.0)	2.0 (1.5–2.5)	1.4 (1.1–1.6)
Incision/drainage/flushing/aspiration/removal body fluid*	1.2 (1.0–1.3)	1.1 (1.0–1.3)	1.2 (1.0–1.3)	1.0 (0.9–1.2)	1.3 (1.2–1.4)
Pap smear*	0.9 (0.6–1.1)	1.1 (0.8–1.4)	1.1 (0.7–1.5)	1.0 (0.6–1.3)	1.0 (0.8–1.1)
Repair/fixation—suture/cast/prosthetic device (apply/remove)*	0.9 (0.7–1.0)	0.9 (0.7–1.0)	0.8 (0.7–1.0)	0.9 (0.8–1.0)	1.0 (0.9–1.1)
Other therapeutic procedures/surgery NEC*	1.4 (0.8–2.0)	1.2 (0.8–1.6)	1.1 (0.6–1.7)	1.2 (0.3–2.1)	0.8 (0.6–0.9)
Physical function test*	0.4 (0.0–0.9)	0.5 (0.0–1.1)	0.4 (0.1–0.7)	0.4 (0.1–0.7)	0.4 (0.3–0.5)
Electrical tracings*	0.3 (0.0–0.5)	0.3 (0.1–0.6)	0.3 (0.1–0.6)	0.3 (0.1–0.6)	0.4 (0.3–0.5)
Urine test*	0.2 (0.0–0.6)	0.3 (0.0–0.6)	0.3 (0.0–0.6)	0.3 (0.0–0.6)	0.3 (0.2–0.3)
Other preventive procedures/high-risk medication, condition*	0.0 <sup>†</sup>	0.2 (0.0–0.6)	0.3 (0.0–0.7)	0.3 (0.0–0.7)	0.2 (0.2–0.3)
<b>Total procedural treatments</b>	<b>13.8 (13.1–14.5)</b>	<b>14.6 (13.9–15.3)</b>	<b>14.7 (14.0–15.5)</b>	<b>15.5 (14.6–16.4)</b>	<b>14.4 (13.7–15.1)</b>

\* Includes multiple ICP-2 or ICP-2 PLUS codes (see Appendix 5, <[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>).

<sup>†</sup> Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters. The sample size is too small to calculate confidence intervals.

Note: CI—confidence interval; NEC—not elsewhere classified.

Table A4.16: The most frequent referrals, summary of annual results BEACH 2001–02 to 2005–06

	2001–02	2002–03	2003–04	2004–05	2005–06
At least one referral	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=96,973)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=100,987)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=98,877)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=94,386)	Rate per 100 encounters <sup>(a)</sup> (95% CI) (n=101,993)
	10.0 (9.6–10.4)	10.6 (10.2–11.0)	11.0 (10.5–11.5)	10.9 (10.5–11.3)	11.3 (10.9–11.8)
Referrals	10.5 (10.1–10.9)	11.1 (10.7–11.6)	11.6 (11.1–12.1)	11.5 (11.1–12.0)	12.0 (11.5–12.5)
Specialist	7.3 (7.0–7.6)	7.7 (7.3–8.0)	7.9 (7.5–8.2)	7.7 (7.4–8.0)	8.2 (7.8–8.5)
Referral; ophthalmologist	0.8 (0.6–0.9)	0.7 (0.6–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)
Referral; surgeon	0.8 (0.6–0.9)	0.7 (0.6–0.9)	0.8 (0.7–1.0)	0.8 (0.7–0.9)	0.8 (0.7–0.8)
Referral; orthopaedic surgeon	0.7 (0.6–0.8)	0.8 (0.6–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)
Allied health service	2.3 (2.1–2.5)	2.5 (2.3–2.8)	2.6 (2.4–2.9)	2.7 (2.5–2.9)	2.9 (2.7–3.1)
Referral; physiotherapy	0.9 (0.7–1.1)	1.1 (0.8–1.3)	1.0 (0.9–1.2)	1.1 (0.9–1.2)	1.1 (1.0–1.3)
Referral; psychologist	0.2 (0.0–0.4)	0.2 (0.0–0.4)	0.2 (0.0–0.5)	0.2 (0.0–0.5)	0.2 (0.2–0.3)
Referral; podiatrist/chiroprapist	0.2 (0.0–0.4)	0.2 (0.0–0.4)	0.2 (0.0–0.4)	0.2 (0.0–0.4)	0.2 (0.2–0.3)
Hospital	0.4 (0.3–0.6)	0.6 (0.3–0.8)	0.6 (0.3–0.8)	0.5 (0.3–0.7)	0.4 (0.3–0.4)
Emergency department	0.1 (0.0–0.4)	0.1 (0.0–0.4)	0.2 (0.0–0.5)	0.2 (0.0–0.4)	0.2 (0.2–0.2)
Other medical services*	NAV	NAV	NAV	0.1 (0.0–0.6)	0.1 (0.0–0.1)
Other referrals	0.3 (0.0–0.6)	0.3 (0.0–0.5)	0.3 (0.0–0.6)	0.3 (0.1–0.6)	0.3 (0.3–0.4)

+ The 'other medical services' grouping was introduced in 2003–04, previously these were grouped in the 'other referrals' group.

Note: CI—confidence interval; NAV—not available.



**Table A4.17: Number of encounters where pathology/imaging ordered, summary of annual results BEACH 2001-02 to 2005-06**

	2001-02	2002-03	2003-04	2004-05	2005-06
	Per cent of encounters (95% CI) (n=96,973)	Per cent of encounters (95% CI) (n=100,987)	Per cent of encounters (95% CI) (n=98,877)	Per cent of encounters (95% CI) (n=94,386)	Per cent of encounters (95% CI) (n=101,993)
No tests ordered	80.8 (80.2-81.4)	79.7 (79.0-80.3)	79.2 (78.5-79.9)	78.8 (78.2-79.5)	77.9 (77.3-78.6)
At least one pathology test ordered	14.0 (13.5-14.5)	14.7 (14.2-15.3)	15.5 (14.9-16.1)	15.7 (15.2-16.3)	16.4 (15.8-16.9)
At least one imaging ordered	6.9 (6.6-7.2)	7.5 (7.1-7.8)	7.2 (6.9-7.5)	7.3 (7.0-7.6)	7.8 (7.4-8.1)

Note: CI—confidence interval.

**Table A4.18: Distribution of pathology orders across pathology groups, summary of annual results BEACH 2001-02 to 2005-06**

	2001-02	2002-03	2003-04	2004-05	2005-06
	Rate per 100 encounters (95% CI) (n=97,973)	Rate per 100 encounters (95% CI) (n=100,987)	Rate per 100 encounters (95% CI) (n=98,877)	Rate per 100 encounters (95% CI) (n=94,386)	Rate per 100 encounters (95% CI) (n=101,993)
<b>Pathology test ordered</b>					
Chemistry	16.5 (15.6-17.3)	17.7 (16.8-18.6)	19.1 (18.1-20.1)	20.4 (19.5-21.4)	21.8 (20.6-22.9)
Haematology	6.2 (5.8-6.5)	6.3 (5.9-6.6)	6.8 (6.4-7.2)	7.0 (6.6-7.3)	7.3 (6.9-7.7)
Microbiology	4.9 (4.5-5.2)	5.1 (4.8-5.5)	5.3 (4.9-5.7)	5.2 (4.8-5.6)	5.6 (5.2-5.9)
Cytology	1.6 (1.3-1.8)	1.7 (1.4-1.9)	1.8 (1.4-2.1)	1.6 (1.3-2.0)	1.7 (1.6-1.9)
Other NEC	0.7 (0.5-0.9)	0.8 (0.4-1.1)	0.8 (0.5-1.1)	0.8 (0.5-1.2)	0.7 (0.6-0.8)
Tissue pathology	0.5 (0.1-0.8)	0.5 (0.2-0.8)	1.8 (1.4-2.1)	0.8 (0.3-1.2)	0.6 (0.5-0.7)
Immunology	0.5 (0.3-0.7)	0.5 (0.2-0.7)	0.7 (0.2-1.2)	0.5 (0.3-0.8)	0.6 (0.5-0.7)
Infertility/pregnancy	0.3 (0.1-0.5)	0.3 (0.1-0.5)	0.2 (0.0-0.5)	0.3 (0.0-0.6)	0.2 (0.2-0.3)
Simple test; other	0.1 (0.0-0.4)	0.1 (0.0-0.4)	0.1 (0.0-0.4)	0.1 (0.0-0.4)	0.1 (0.1-0.2)
<b>Total pathology tests</b>	<b>31.0 (29.7-32.4)</b>	<b>32.9 (31.5-34.4)</b>	<b>35.2 (33.7-36.7)</b>	<b>36.7 (35.2-38.2)</b>	<b>38.6 (36.9-40.3)</b>

Note: CI—confidence interval; NEC—not elsewhere classified.

Table A4.19: Most frequent imaging test orders, summary of annual results BEACH 2001–02 to 2005–06

	2001–02	2002–03	2003–04	2004–05	2005–06
<b>Imaging test ordered</b>	<b>Rate per 100 encounters (95% CI) (n=96,973)</b>	<b>Rate per 100 encounters (95% CI) (n=100,987)</b>	<b>Rate per 100 encounters (95% CI) (n=98,877)</b>	<b>Rate per 100 encounters (95% CI) (n=94,386)</b>	<b>Rate per 100 encounters (95% CI) (n=101,993)</b>
Diagnostic radiology	4.6 (4.4–4.8)	5.1 (4.9–5.4)	4.6 (4.3–4.8)	4.5 (4.3–4.7)	4.8 (4.5–5.0)
Ultrasound	2.5 (2.3–2.7)	2.6 (2.5–2.8)	2.7 (2.5–2.8)	2.7 (2.5–2.8)	2.9 (2.7–3.1)
Computerised tomography	0.8 (0.6–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	1.0 (0.9–1.2)	1.0 (0.9–1.1)
Nuclear medicine imaging	0.0 <sup>†</sup> (0.0–0.4)	0.0 <sup>†</sup> (0.0–0.4)	0.1 (0.0–0.3)	0.1 (0.0–0.3)	0.1 (0.1–0.1)
Magnetic resonance imaging	0.0 <sup>†</sup> (0.0–0.5)	0.0 <sup>†</sup> (0.0–0.6)	0.0 <sup>†</sup> (0.0–0.5)	0.0 <sup>†</sup> (0.0–0.5)	0.1 (0.0–0.1)
<b>Total imaging tests</b>	<b>7.9 (7.6–8.2)</b>	<b>8.6 (8.2–9.0)</b>	<b>8.2 (7.8–8.6)</b>	<b>8.3 (8.0–8.6)</b>	<b>8.8 (8.4–9.2)</b>

<sup>†</sup> Rates are reported to one decimal place. This indicates that the rate is <0.05 per 100 encounters.

Note: CI—confidence interval.

Table A4.20: Comparative results for patient risk factors, 2001–02 to 2005–06

Risk factor	2001–02		2002–03		2003–04		2004–05		2005–06	
	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)	Per cent (95% CI)
<b>Adult (aged 18 years and over)</b>										
Obese <sup>(a)</sup>	21.4 (20.8–22.2)	20.9 (20.2–21.5)	22.1 (21.4–22.7)	22.4 (21.7–23.2)	22.2 (21.5–22.9)					
Overweight <sup>(a)</sup>	33.5 (32.9–34.1)	33.8 (33.2–34.5)	34.5 (33.8–35.1)	34.6 (33.9–35.2)	34.6 (33.9–35.2)					
Normal <sup>(a)</sup>	42.1 (41.3–42.9)	42.4 (41.6–43.3)	40.7 (39.9–41.6)	40.3 (39.5–41.2)	40.5 (39.7–41.4)					
Underweight <sup>(a)</sup>	3.0 (2.8–3.2)	2.9 (2.7–3.1)	2.8 (2.6–3.0)	2.7 (2.5–2.9)	2.8 (2.5–3.0)					
Current daily smoker <sup>(b)</sup>	18.4 (17.7–19.1)	17.2 (16.5–17.9)	17.6 (16.8–18.3)	18.0 (17.2–18.7)	17.1 (16.3–17.8)					
At-risk alcohol level <sup>(c)</sup>	26.0 (25.1–26.8)	26.2 (25.4–27.1)	26.7 (25.8–27.6)	26.4 (25.5–27.3)	25.9 (25.0–26.8)					
<b>Children (aged 2–17 years) (n)</b>	<b>3,692</b>	<b>3,579</b>	<b>3,301</b>	<b>3,148</b>	<b>3,479</b>					
Obese	13.0 (10.7–15.3)	14.1 (11.4–16.8)	13.2 (10.5–16.0)	12.1 (10.7–13.6)	11.9 (10.6–13.2)					
Overweight	17.6 (15.9–19.3)	18.1 (16.3–19.8)	19.0 (17.0–21.0)	18.1 (16.7–19.4)	18.6 (17.2–19.9)					

(a) Number of adult patients (aged 18 years or more) with available data for BMI: 2001–02 was 31,789; 2002–03 was 32,367; 2003–04 was 31,890; 2004–05 was 30,476; 2005–06 was 33,101.

(b) Number of adult patients (aged 18 years or more) who reported smoking status: 2001–02 was 31,966; 2002–03 was 32,651; 2003–04 was 32,718; 2004–05 was 31,295; 2005–06 was 33,558.

(c) Number of adult patients (aged 18 years or more) who reported alcohol consumption: 2001–02 was 31,559; 2002–03 was 32,140; 2003–04 was 31,721; 2004–05 was 30,414; 2005–06 was 32,753.

Note: CI—confidence interval

## **Appendix 5: Code groups from ICPC-2 and ICPC-2 PLUS**

**Available from**

**<[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>**

## **Appendix 6: Chronic code groups from ICPC-2 and ICPC-2 PLUS**

**Available from**

**<[www.aihw.gov.au/publications/index.cfm/subject/19](http://www.aihw.gov.au/publications/index.cfm/subject/19)>**

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