

1 Introduction

The BEACH (Bettering the Evaluation and Care of Health) program is a continuous national study of general practice activity in Australia. This publication is the sixth annual report of the program and provides a summary of results for the period April 2003 to March 2004 inclusive. It uses details of 100,000 encounters between general practitioners (GPs) and patients (about a 0.11% sample of all general practice encounters) from a random sample of 1,000 recognised practising GPs from across the country.

The BEACH program is unique. 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) with the problem under management.

In 2001, the population of Australia was 19,413,240 people and there were 53,384 'employed' medical practitioners of whom 49,647 (93%) were clinicians. Of these, 44% were primary care practitioners and 35% were specialists.¹

GPs perform a gatekeeper role for entry into the secondary and tertiary sectors of the Australian health care system. Most (85%) of the 19.7 million Australians attended a GP at least once during the year 2002 (personal communication, GP Branch, Australian Government Department of Health and Ageing, August 2002). An individual is free to visit multiple GPs of their choice and services are provided on a fee-for-service system. However, by far the majority of visits to GPs are funded through the Commonwealth Medicare Benefits Schedule (MBS) scheme, Medicare paying for 85% of the government schedule consultation fee.² Some patients are not charged the additional 15% of the fee, the GPs accepting the Medicare payment as total payment. Others are charged the difference between the Medicare payment and the government scheduled fee, while still others may be asked to pay more for the service.

There are more than 17,000 recognised GPs in Australia and about 1,500 registrars enrolled in general practice vocational training programs.³ GPs provide by far the majority of the 96 million non-specialist services paid by Medicare in 2002-03, at an average rate of 4.9 visits per person per year.¹ Knowledge of the content of these encounters and of the services and treatments provided by the GPs gives an important insight into the health of a large proportion of the community.

Recognised GPs accounted for about 80% of the 21,338 primary care practitioners, both recognised GPs and other medical practitioners (OMPs), who provided at least one Medicare item of service in the last quarter of 2001. This equated to 16,824.3 full-time workload equivalent (FWE) GPs/OMPs practising in Australia (personal communication, Health Insurance Commission, February 2004). Therefore, there were 867 FWE GPs or OMPs per 100,000 people.

Information on the number of Medicare-paid services per capita is readily available from the website of the Health Insurance Commission (HIC).⁴ The HIC also holds data about pharmaceuticals purchased under the Commonwealth Pharmaceutical Benefits Scheme (PBS). However, these data only partially reflect the medications prescribed by GPs, for they only include those medications that are covered by the PBS. They do not include information about prescribed medications not covered by the Scheme, nor those directly supplied by the GP or those advised for over-the-counter purchase. Further, there is no information held in the PBS about the indication (problem being managed) for the medication because the HIC

does not hold data about the content of the encounters. These issues are discussed in more detail in Chapter 15 of this report.

The Australian Bureau of Statistics provides data on self-reported health through the National Health Survey.⁵ The data differ from those collected in BEACH because they are self-reported by a random sample of people in the community.

BEACH provides a picture of what happens when people visit a GP, why they present, what problems are managed and the treatments that are provided. Its linkage of management to specific problems is one of its greatest advantages.

There have been many initiatives that aim to improve the care provided to the community through general practice, and it is important to ask what impact they have on practice behaviour at a national level. It is therefore essential to measure changes that occur in the clinical care of the population, even if we are unable to demonstrate a direct causal effect from any single intervention being undertaken.

This year of the program provides the sixth measured data point, allowing further measurement of changes over time. Changes that have occurred over the last 5 years of the program are described at the end of each chapter of the results and these results are summarised in Appendix 5 of this report. More detailed analyses of changes in the morbidity managed and the medications prescribed in areas associated with the National Health Priority Areas⁶ are reported in Chapter 13.

A second part of the BEACH program collects information about patient health and risk factors. This section is called SAND (Supplementary Analysis of Nominated Data) and it relies on GPs asking patients questions about specific aspects of their health. Between ten and twenty topics are covered in SAND each year (depending on the subsample size for each topic). However, there are three that are consistent across the whole year and in which all participating GPs are involved. Due to their standard nature, summary results for patient-derived body mass index, smoking status and alcohol consumption are included in this annual report (Chapter 14).

1.1 The advantages of BEACH

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 ever-changing 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 provides more reliable estimates than a smaller number of GPs with large clusters of patients and/or encounters around each participating GP.⁷
- Our access to a regular random sample of recognised GPs who are 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.
- We are provided with sufficient details about the characteristics of all GPs in the sample frame to allow statistical testing of the representativeness of the final sample and to allow post-stratification weighting to correct for any under-representation or over-representation in the sample (e.g. in BEACH this applies to GPs aged less than 35 years).

- The ever-changing nature of the sample (where each GP can only participate 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 HIC Medicare claims data.

Where 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 the 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 terms of the number of patient consultations they conduct in any one year. We aim to represent all encounters conducted in general practice across the country. The DoHA therefore provides an individual count of activity level (i.e. number of A1 Medicare item numbers claimed in the previous quarter) for all randomly sampled GPs, allowing us to give a weighting to each GP's set of encounters, commensurate with their contribution to total general practice encounters. This ensures that the final encounters represent encounters with all GPs (see Chapter 4).
- The structured paper encounter form leads the GP through each step in the patient encounter, encouraging entry of data for each element. 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 that are covered by Medicare.
- The medication data include prescriptions, GP-supplied medications and advised over-the-counter (OTC) drugs, rather than being limited to those prescribed medications that are covered by the 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 OTC purchase, the patients to whom they provide such advice and the problems managed in this manner.
- The inclusion of non-pharmacological management such as clinical counselling and therapeutic procedures 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 frequently 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 and in the allocation of a concept to the correct place in the classification.

- The analytical techniques applied to the BEACH data ensure that the cluster sample inherent in the methods is dealt with and that results are provided with 95% confidence intervals. Users are therefore aware of how reliable (or unreliable) any estimate might be.
- The reliability of the methods is demonstrated by the consistency of the results over the 6 years in areas where change is not expected and by the ability to identify change when it might be expected (e.g. the pattern of coxib prescriptions since these medications were first released).

A more detailed discussion of methodological issues associated with BEACH is provided in Chapter 15 (Section 15.1) and the use of BEACH data in combination with other data sets is discussed in more detail in Section 15.2.

1.2 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 ever-changing 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.

2 Methods

The methods adopted in the BEACH program have been described in detail elsewhere.⁸⁻¹⁰ In summary, each of the recognised GPs in a random sample of approximately 1,000 per year records details about 100 doctor-patient encounters of all types. The information is recorded on structured encounter forms (on paper). It is a rolling sample, recruited approximately 3 weeks ahead. Approximately 20 GPs participate each week, 50 weeks a year.

2.1 Sampling methods

The source population includes all GPs who claimed a minimum of 375 general practice A1 Medicare items in the most recently available 3-month HIC data period. This equates with 1,500 Medicare claims a year and 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. The General Practice Branch of the DoHA draws a sample on a regular basis.

2.2 Recruitment methods

The randomly selected GPs are approached initially by letter, then by telephone follow-up. GPs who agree to participate are set an agreed recording date approximately 3 to 4 weeks ahead. A research pack is sent to each participant about 10 days before the planned recording date. A telephone reminder is made to each participating GP in the first days of the agreed recording period. Non-returns are followed up by regular telephone calls.

Participating GPs earn up to 65 Clinical Audit points towards their quality assurance (QA) requirements. As part of this QA process, each receives an analysis of his or her results compared with those of nine other unidentified 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 made. In addition, GPs receive some educational material related to the identification and management of patients who smoke or consume alcohol at hazardous levels.

2.3 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 included in Appendix 2.

Encounter data include date of consultation, type of consultation (direct, indirect), Medicare/Veterans' Affairs item number (where applicable) and specified other payment source (tick boxes).

Information about **the patient** includes 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), an Aboriginal person (self-identification) and Torres Strait Islander (self-identification). Space is provided for up to three patient reasons for encounter (RFEs).

The **content of the encounter** is described in terms of the problems managed and the management techniques applied to each of these problems. Data elements include up to four diagnoses/problems. Tick boxes are provided to denote the status of each problem as new to the patient (if applicable).

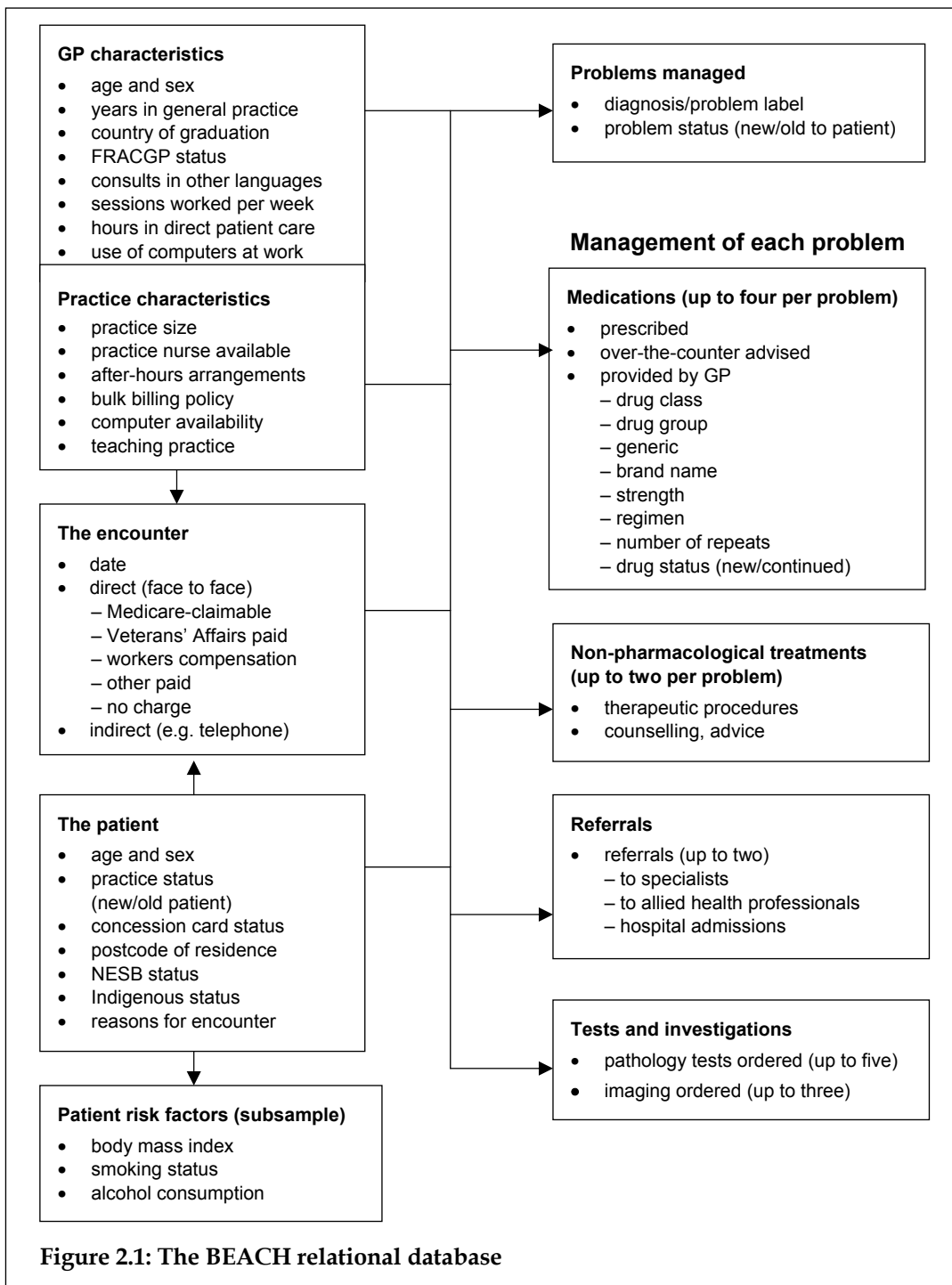
Management data for each problem include medications prescribed, over-the-counter medications advised and other medications supplied by the GP. Details for each **medication** comprise brand name, form (where required), strength, regimen, status (if new medication for this problem for this patient) and number of repeats. **Non-pharmacological management** of each problem includes counselling and procedures, new referrals, and pathology and imaging ordered.

GP characteristics include age and sex, years in general practice, number of GP sessions worked per week, number of GPs working in the practice (to generate a measure of practice size), 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 and whether it is a teaching practice, work undertaken by the GP in other clinical settings, hours worked in direct patient care and hours on call per week.

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 collection period is divided into 10 blocks, each of 5 weeks. Each block is designed to include data from 100 GPs. Each GP's recording pack of 100 forms is made up of 40 forms that contain questions about patient height and weight (for calculation of body mass index, BMI), alcohol intake and smoking status. The remaining 60 forms in each pack are divided into two blocks of 30 forms. Different questions are asked of the patient in each block and these vary throughout the year. The results of topics in the SAND substudies for alcohol consumption, smoking status and BMI are included in this report. Abstracts of results for the substudies conducted in the sixth year of the program and not reported in this document are available through the website of the Family Medicine Research Centre (of which the General Practice Statistics and Classification Unit is a part) at <http://www.fmrc.org.au/publications/SAND_abstracts.htm>.

2.4 The BEACH relational database

The BEACH relational database is described diagrammatically in Figure 2.1. Note that all variables can be directly related to GP and patient characteristics and to the encounter. RFEs have only an indirect relationship with problems managed. All types of management are directly related to the problem being treated.



2.5 Statistical methods

The analysis of the BEACH database is conducted with SAS versions 6.12¹¹ and 8.2¹² and the encounter is the primary unit of analysis. Proportions (%) are used only when describing the distribution of an event that can arise only once at a consultation (e.g. age, sex or item numbers) 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 following results present the number of observations (n), the rate per 100 encounters and the 95% confidence intervals.

The BEACH study is essentially a random sample of GPs, each providing data about a cluster of encounters. Cluster sampling study designs in general practice research violate the simple random sample (SRS) assumption because the probability of an encounter being included is a function of the probability of the GP being selected.¹³

There is also a secondary probability function of particular encounters being included in the GP's cluster (associated with the characteristics of the GP or the type and place of the practice) and this increases the likelihood of sampling bias. In addition, there will be inherent relationships between encounters from the same cluster and this creates a potential statistical bias. The probability of gaining a representative sample of encounters is therefore reduced by the potential sampling and statistical bias, decreasing the accuracy 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.¹⁴ SAS 6.12 is limited in its capacity to calculate the standard error for the current study design, so additional programming was required to incorporate the formulae. For comparability with previous years, we have continued to use SAS 6.12 for the tables in the body of the report. SAS version 8.2¹² now includes procedures that calculate the robust standard error to adjust for the intra-cluster correlation of the cluster sample. SAS version 8.2 procedures were used in the analysis of trends over time.

The investigation of the relationship between changes in medication rates and changes in the management rates of related morbidities used multiple linear regression and these methods are described in Chapter 13.

Post-stratification weighting was applied to the raw data before analysis (see Chapter 4). Weights are calculated for each year's sample and are used to estimate national general practice encounter rates for that year. Weights are valid for summarising a complete year's sample and for analysing trends from year to year. Sampling weights are therefore used for the summary tables in the report and the trend analysis across time.

Weights are specific for the total sample in each year so they are not valid for the analysis of subgroups of patients or when combining data across years. Therefore, in analyses of patient risk factors for a subsample of patients (Chapter 14), these weights are not applied.

2.6 Classification of data

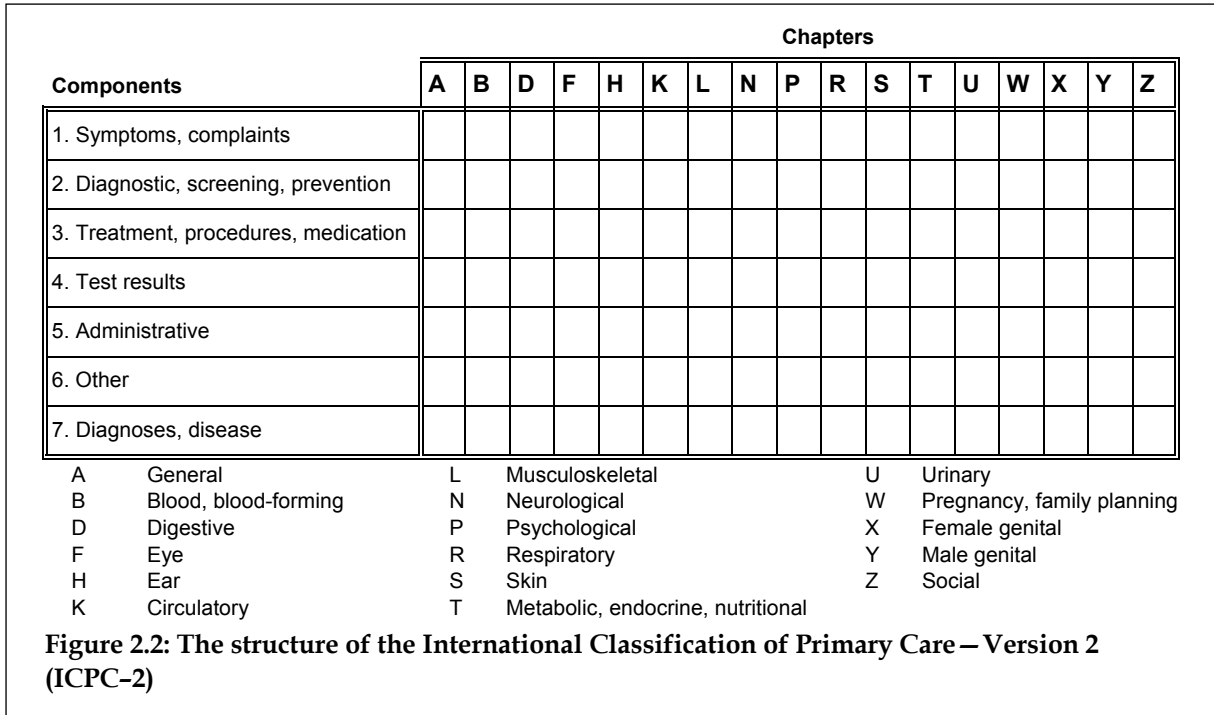
The imaging tests ordered, patient RFEs, problems managed, procedures, other non-pharmacological treatments, referrals, pathology and imaging are coded using ICPC-2 PLUS.¹⁵ This is an extended vocabulary of terms classified according to the International Classification of Primary Care – Version 2 (ICPC-2), a product of the World Organization of Family Doctors (Wonca).¹⁶

The ICPC 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 Classifications¹⁷ and has been declared the national standard in Australia for reporting of health data from general practice and patient self-reported health information.¹⁸

The ICPC 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 2.2). 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, 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, would require a thorough knowledge of the classification if correct classification of a concept were 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. These terms were derived from those recorded by GPs on more than half a million encounter forms. The terms have developed further over the past 8 years in response to the use of terminology by GPs participating in the BEACH program and in response to requests from GPs using ICPC-2 PLUS in their electronic clinical systems. This allows far greater specificity in data entry and ensures high inter-coder reliability between secondary coding staff. It also facilitates analyses of information about more specific problems when required.¹⁵

Classification of pharmaceuticals

Pharmaceuticals prescribed or provided and over-the-counter medications advised by the GP 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. CAPS is mapped to the Anatomical Therapeutic Chemical classification (ATC)¹⁹ which is the Australian standard for classifying medications at the generic level. Strength and regimen are independent fields which, when combined with the CAPS code, give an opportunity to derive prescribed daily dose for any medication or group of medications.

2.7 Quality assurance

All morbidity and therapeutic data elements are automatically coded and classified by the computer as secondary coding staff enter key words or word fragments and select the required term or label from a pick list. 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.

2.8 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, and 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 Chapter 4.

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 GPs.²⁰ Other studies have reported the degree to which GP-reported patient RFEs and problems managed accurately reflect those recalled by the patient²¹ and the reliability of secondary coding of RFEs²² and problems managed.²³ The validity of ICPC as a tool with which to classify the data has also been investigated in earlier work.²⁴

Limitations regarding the reliability and validity of practitioner-recorded morbidity have been discussed elsewhere and should always be borne in mind. However, these apply equally to data drawn from medical records (whether paper-based or electronic) and to active data collection methods.^{25,26} 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 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.²⁷

3 The general practitioners

3.1 Results of recruitment

Contact was attempted with 4,625 GPs, and established with 4,224 (91.3%) of these. Of the 401 who could not be contacted (8.7% of those approached), there were 40 for whom telephone numbers could not be established, 183 had moved and were untraceable, or were retired or deceased, and 66 were not currently practising (e.g. overseas, on maternity or other leave). A further 112 were unable to be contacted after five attempts by telephone recruiters. Of the 4,224 available practitioners, 1,314 (31.1%) agreed to participate but 314 (7.4%) failed to complete the study. The final participating sample consisted of 1,000 practitioners, representing 23.7% of those who were contacted and available, and 21.6% of those with whom contact was attempted (Table 3.1).

Table 3.1: Recruitment and participation rates

	Number	Per cent of approached (n=4,625)	Per cent of contacts established (n=4,224)
Letter sent and phone contact attempted	4,625	100.0	—
No contact	401	8.7	—
No phone number	40	0.9	—
Moved/retired/deceased	183	4.0	—
Unavailable	66	1.4	—
No contact after five calls	112	2.4	—
Telephone contact established	4,224	91.3	100.0
Declined to participate	2,910	62.9	68.9
Agreed but withdrew	314	6.8	7.4
Agreed and completed	1,000	21.6	23.7

3.2 The participating GPs

All participants returned a GP profile questionnaire although some were incomplete (Table 3.2). Of the 1,000 participants, 67.3% were male and 69.2% were 45 years of age or older. Four out of five (82.6%) had been in general practice for more than 10 years and 17.2% could be regarded as practising part-time, working fewer than six sessions per week. The majority (73.5%) had graduated in Australia and 43 GPs (4.4%) were currently undertaking a general practice vocational training program. One-third (33.5%) were Fellows of the RACGP. Almost half of participants (47.2%) spent more than 40 hours each week on direct patient care services. Nine out of ten GPs (88.6%) were registered with the DVA to provide care to ex-service personnel. Almost half the participants (46.0%) had provided patient care in a residential aged care facility during the month before their participation in this study but only 12.5% had worked as a salaried or sessional hospital medical officer during that period.

One-quarter of GPs bulk-billed Medicare for all their patient consultations, while nearly one-fifth bulk-billed for pensioners and Commonwealth concession card holders only. One in ten bulk-billed for a selected mixture of patients. About one-quarter of GPs (23.1%) conducted some of their consultations in a language other than English.

Table 3.2: Characteristics of participating GPs

GP characteristic	Number^(a)	Per cent of GPs^(a) (n=1,000)
Sex		
Male	673	67.3
Female	327	32.7
Age (missing=1)		
<35 years	58	5.8
35–44 years	249	24.9
45–54 years	365	36.5
55+ years	327	32.7
Years in general practice (missing=9)		
<2 years	13	1.3
2–5 years	53	5.3
6–10 years	106	10.7
11–19 years	278	28.1
20+ years	541	54.6
Sessions per week (missing=7)		
<6 per week	171	17.2
6–10 per week	687	68.2
11+ per week	135	13.6
Place of graduation (missing=1)		
Australia	735	73.5
United Kingdom	72	7.2
Asia	95	9.5
Europe	23	2.3
Africa	54	5.4
New Zealand	10	1.0
Other	10	1.0
Currently in general practice vocational training program (missing=14)	43	4.4
Fellow of RACGP (missing=10)	332	33.5
Direct patient care hours (worked) per week (missing=28)		
<10 hours	1	0.1
10–20 hours	100	10.3
21–40 hours	412	42.4
41–60 hours	411	42.3
60+ hours	48	4.9

(continued)

Table 3.2 (continued): Characteristics of participating GPs

GP characteristic	Number^(a)	Per cent of GPs^(a) (n=1,000)
DVA registered (missing=79)	816	88.6
Patient care provided in previous month		
As a locum	47	4.7
In a deputising service	25	2.5
In a residential aged care facility	460	46.0
As a salaried/sessional hospital medical officer	125	12.5
Bulk billing (missing=6)		
All patients	258	26.0
Pensioner/Commonwealth concession card only	175	17.6
Selected mixture of patients	101	10.2
Consultations in languages other than English (missing=6)		
<25%	177	17.8
25–50%	29	2.9
>50%	24	2.4
Size of practice (missing=10)		
Solo	105	10.6
2–4 GPs	374	37.8
5+ GPs	511	51.6
Practice location (missing=2)		
Capital	623	62.4
Other metropolitan	64	6.4
Large rural	70	7.0
Small rural	70	7.0
Other rural	142	14.2
Remote central	9	0.9
Other remote, offshore	20	2.0
Own or cooperative after-hours arrangements (missing=5)	593	59.6
Accredited practice (missing=8)	804	81.0
Major practice a teaching practice (missing=12)		
For undergraduates only	235	23.8
For GP registrars only	81	8.2
For both undergraduates and registrars	185	18.7
Practice nurse at major practice address (missing=8)		
Full time	405	40.8
Part-time	173	17.4

(a) Missing data removed.

Note: RACGP—Royal Australian College of General Practitioners; DVA—Australian Department of Veterans' Affairs.

Fewer than one in ten GPs (10.6%) were in solo practice with more than half (51.6%) working in practices of 5 or more doctors. About two-thirds of GPs (62.4%) practised in capital cities. Over half (59.6%) provided their own after-hours practice arrangements or worked in cooperation with other practices to provide after-hours services. Four out of five GPs (81.0%) worked in accredited practices. Half (50.7%) of the GPs worked in a teaching practice, either for undergraduates only (23.8%), GP registrars only (8.2%) or both (18.7%). Over half the GPs (58.3%) worked at a practice which employed a practice nurse on either a full-time (40.8%) or part-time (17.4%) basis.

3.3 Computer use at GP practices

Computers were used in 95.0% of practices, mainly for prescribing (83.0%) and billing (79.9%) purposes. More than two-thirds (70.4%) of practices used computers for other administrative purposes, 68.8% for medical records and two-thirds (66.1%) used the internet or email (Table 3.3).

Table 3.3: GP computer use

Computer use	Number	Per cent of GPs (n=1,000)	Per cent of GPs with computers (n=950) ^(a)
Not at all	50	5.0	—
Billing	794	79.9	83.6
Prescribing	825	83.0	86.8
Medical records	684	68.8	72.0
Other administrative	700	70.4	73.7
Internet/email	657	66.1	69.2
Missing	6	—	—

(a) Missing data removed.

Table 3.4: Top ten combinations of computer use for GPs

Combination	Number	Per cent of GPs (n=1,000)	Per cent of GPs with computers (n=950) ^(a)
All five uses	422	42.5	44.4
Billing + prescribing + medical records + other administrative	84	8.5	8.8
Billing + prescribing + other admin + internet/email	50	5.0	5.3
Billing + prescribing + medical records + internet/email	48	4.8	5.1
Billing + prescribing + medical records	46	4.6	4.8
Billing + prescribing + other administrative	28	2.8	2.9
Billing + prescribing	26	2.6	2.7
Billing + prescribing + internet/email	26	2.6	2.7
Prescribing + medical records + other admin + internet/email	21	2.1	2.2
Prescribing + medical records + internet/email	18	1.8	1.9

(a) Missing data removed.

The top ten combinations of computer use in participants' practices are listed in Table 3.4. Two in 5 GPs (42.5%) indicated that their practice used computers for all five purposes: billing, prescribing, medical records, other administrative and internet/email. Prescribing was the only usage included in all of the top ten combinations. Billing was the second most common usage, with medical records third and email/internet usage ranking fourth. Half the GPs (51.2% of participants; 53.6% of participants with computers) reported computer use for both medical records and internet/email purposes at their major practice address.

3.4 Comparison of participating and non-participating GPs

The General Practice Branch of the DoHA provided some information about each of the GPs drawn in the initial sample from HIC data. This information was used to determine the extent to which the final participating GPs were representative of the initial sample of practitioners. These data included the number of general practice A1 Medicare items claimed in the previous 12 months, and in the previous quarter. For the purposes of this analysis, the number of items in the previous quarter is referred to as 'activity level'.

In Table 3.5 the characteristics of the final participants are compared with those of all other GPs drawn in the initial sample using DoHA data elements. There were considerable discrepancies between the DoHA information about the participants (Table 3.5) and that self-reported by the GPs (Table 3.2), suggesting that the reliability of DoHA GP characteristic data may be questionable. There is, however, no reason to assume that the accuracy of DoHA data should differ for the participants and non-participants, so for comparative purposes we have relied on the DoHA data for both participants and non-participants.

Differences between participants and non-participants were tested with the chi-square statistic (significance at the 5% level). There were no significant differences between participants and non-participants in terms of place of graduation. For the first time since the BEACH program began, there was no significant difference between participants and non-participants at state or territory level.

The sex and age distributions for participants and non-participants were significantly different. There were slightly fewer males and slightly more females in the participating group, and GPs under the age of 35 years were under-represented in the participant sample while those aged 55 years or more were over-represented (Table 3.5). The difference in years since graduation of participants compared with non-participants reflected this age difference (results not shown).

For the first time since BEACH began, there was a significant difference between participants and non-participants in the location of their practice in terms of the Rural, Remote and Metropolitan Area (RRMA) classification.²⁸ A greater proportion of participants were from large rural, other rural, remote centre and other remote/offshore categories when compared with non-participants.

There was a statistically significant difference in mean activity level in the previous quarter (measured by the number of A1 Medicare items of service claimed) between participants and non-participants. A greater proportion of GPs with an activity level of 375–750 services in the previous quarter participated, and fewer GPs in the >1,500 services category participated compared with non-participants. There was no difference between the proportions of participants and non-participants in the 751–1,500 services group. Comparisons of the

median scores for each group showed a significant difference of 10.6 consultations per week ($\chi^2=24.25$, $p<0.0001$). It is possible that the time required to participate in BEACH may be a greater issue for full-time GPs than part-time GPs. BEACH also may offer an avenue for fulfilling RACGP Clinical Audit requirements to part-time GPs who may not be as able to take up other avenues.

Table 3.5: Comparison of characteristics of participating and non-participating GPs

GP characteristics	Participants ^(a) (n=1,000)		Non-participants ^(a) (n=3,224)	
	Number	Per cent of GPs ^(b)	Number	Per cent of GPs ^(b)
Sex ($\chi^2=6.75$, $p=0.03$)				
Male	671	67.1	2,301	71.4
Female	329	32.9	922	28.6
Missing	—	—	1	—
Age ($\chi^2=14.65$, $p=0.002$)				
<35 years	57	5.9	251	8.1
35–44 years	216	22.4	780	25.2
45–54 years	361	37.4	1,173	37.9
55+ years	331	34.3	890	28.8
Missing	35	—	130	—
Place of graduation ($\chi^2=2.759$, $p=0.25$)				
Australia	737	73.7	2,288	71.0
Overseas	263	26.3	935	29.0
Missing	—	—	1	—
State ($\chi^2=11.992$, $p=0.10$)				
New South Wales	354	35.4	1,083	33.6
Victoria	228	22.8	836	26.0
Queensland	187	18.7	538	16.7
South Australia	88	8.8	283	8.8
Western Australia	91	9.1	320	9.9
Tasmania	21	2.1	94	2.9
Australian Capital Territory	21	2.1	52	1.6
Northern Territory	9	0.9	14	0.4
Missing	1	—	4	—
RRMA ($\chi^2=13.65$, $p=0.034$)				
Capital	626	62.6	2,104	65.3
Other metropolitan	65	6.5	217	6.7
Large rural	68	6.8	188	5.8
Small rural	70	7.0	257	8.0
Other rural	144	14.4	397	12.3
Remote centre	8	0.8	30	0.9
Other remote	19	1.9	27	0.8
Missing	—	—	4	—

(continued)

Table 3.5 (continued): Comparison of characteristics of participating and non-participating GPs

GP characteristics	Participants ^(a) (n=1,000)		Non-participants ^(a) (n=3,224)	
	Number of claims	Per cent of GPs ^(b)	Number of claims	Per cent of GPs ^(b)
Activity ($\chi^2=35.748$, $p<0.001$)				
375–750 services in previous quarter	270	27.0	605	18.8
751–1,500 services in previous quarter	436	43.6	1,449	44.9
>1,500 services in previous quarter	294	29.4	1,170	36.3
Mean activity level ($t=5.10$, $p<0.0001$)	1,256.3	—	1,389.2	—
Median activity level	1,101.5	—	1,239.0	—
Standard deviation	771.3	—	758.1	—

(a) Data drawn from that provided by the DoHA.

(b) Missing data removed.

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

3.5 Discussion

The response rate of GPs to BEACH was 23.7% of those with whom contact was established. This rate, viewed with the varied response rates from the previous five years of BEACH, continues to reflect the fluctuations associated with the stage of quality assurance (QA) triennium for each year of recruitment. The wide variety of QA options currently available to GPs may also affect the response rate. An increasing concern over the past two years is the (in)accuracy of the contact details provided by the HIC for sampled GPs. About 15–20% of addresses provided are no longer current and approximately 90% of telephone numbers are incorrect. 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. Another factor possibly affecting the response rate over the past year is the sampling frame itself. The sample frame includes all GPs who have claimed more than 375 A1 Medicare items of service in the previous quarter. There is no differentiation between recognised GPs and those other medical practitioners who can claim Medicare A1 service items through the MedicarePlus initiatives.²⁹ It also includes overseas trained doctors employed in areas of workforce shortage, the number of which is increasing. It is expected there will be an additional 725 such doctors working in Australia by 2007.²⁹ Until 2004 these groups of doctors were not required to undertake QA activities and were therefore unlikely to participate when approached. As the pool of overseas trained doctors and other medical practitioners who are paid A1 items of service increases,²⁹ the denominator used to calculate the response rate grows – yet these practitioners are not 'recognised' and do not really qualify for inclusion. Unfortunately there is no way we can identify the size of this effect. This issue is further discussed in Section 15.1 – Methodological issues.

The continued under-representation of GPs aged less than 35 years also may reflect the fact that GP registrars are not required to undertake QA activities during training or during the QA triennium on completion of training. The BEACH substudy of a sample of GP registrars referred to in last year's report is continuing. It will be interesting to see whether registrars do practice differently from other GPs. If so, incentives are needed to encourage the participation of these younger GPs to ensure their sufficient representation in the future.

An interesting result was the 2.4% of GPs who reported conducting more than 50% of their consultations in a language other than English. This question was surveyed in the first three years of BEACH in the format 'do you conduct more than 50% of your consultations in a language other than English?' with options of 'yes' or 'no'. The positive responses for those three years were 11.3%, 10.6% and 13.5% respectively. The question was removed for years 4 and 5 of BEACH to allow for other investigations. It was reintroduced at the beginning of Year 6, but in the changed format of 'do you conduct any of your consultations in a language other than English?' with options of 'no'; 'yes – <25%'; 'yes – 25–50%'; 'yes – >50%'. Perhaps GPs in previous years have felt the need to report their 'other than English language' consultations in some manner, and when given the option to report them only if they exceeded 50%, GPs over-estimated this item.

Of continuing interest is the combination of computerised medical records and internet/email use. Only 436 GPs (43.5% of participants; 47.4% of participants with computers) reported computer use for both purposes at their major practice. Given the increasing promotion of the internet as a tool for providing clinicians with guidelines and other information, to claim for bulk billing and PIP payments, and for transfer of information from computerised records via electronic download for data collection, this is a surprising outcome. In our report last year, we hypothesised that this result was an effect of rural GPs having limited internet access as a consequence of limited telecommunications infrastructure in many areas. The results of further analyses applying the RRMA classification did not support this hypothesis. This year's results were similar, again showing that rural and metropolitan GPs differed significantly in their internet/email use ($\chi^2=40.3623$, $p<0.0001$) and, again, it was the rural GPs who (proportionally) use the internet/email the most. Four out of five (80.3%) rural GPs participating in BEACH work in practices with internet availability compared with 59.7% of their metropolitan counterparts. These results may have some bearing on the success of proposed ventures such as HealthConnect.

It should be emphasised that these results refer to computer use at practice level. We are currently undertaking further research involving the extent of individual computer use by GPs for clinical activity.

3.6 Trends in characteristics of GPs

In last years annual report we reported trends in the characteristics of GPs who participated in BEACH from 1998–2003. Changes in the characteristics of the practising GP population have recently been reported in detail elsewhere.³⁰ In summary, Charles et al. found that the Australian GP workforce is becoming proportionally:

- more female
- older
- more likely to work fewer sessions per week
- more likely to hold Fellowship of the RACGP
- more likely to work in large practices
- increasingly more likely to have graduated overseas.

4 Representativeness

4.1 Comparison of BEACH GPs with GP population

The extent to which one can generalise results from a sample depends on how well the sample represents the population from which it is drawn. Random sampling of GPs improves the likelihood that a study will be representative, because each GP has an equal probability of being selected into the study sample. Random sampling error and GP response rates, however, may result in some under-representation or over-representation in the sample of certain population groups.

Inferences about population characteristics from a sample can be improved by calculating weights that adjust for any under-sampling or over-sampling of particular groups of GPs. Weights are assigned by comparing the distribution of the sample against the distribution in the benchmark population on those characteristics that may influence the final results (e.g. age group and sex). Distribution weights are calculated as the proportion of each subgroup in the population divided by the proportion in the sample. Over-representation results in a weight less than one, under-representation in a weight greater than one.

When each observation is multiplied by its weight the weighted sample distribution will conform to the population distribution. The weights are then used to adjust the sample estimate to give a better representation of the true population value.

If possible, the final 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. Comparisons of the characteristics of participants and non-participants were reported in Chapter 3 (Table 3.5).

Statistical comparisons, using the chi-square statistic (χ^2), were then made between BEACH participants and all recognised GPs in Australia who claimed 375 or more general practice Medicare item numbers in the last quarter of 2002 (Table 4.1). The GP characteristics data for the BEACH participants have been drawn from the GP profile questionnaire to ensure highest reliability. The GP Branch of the DoHA provided the data for Australia.

Results

No statistical differences were apparent for GP sex and place of graduation. However, as in previous BEACH samples, the BEACH participants were significantly less likely to be under 35 years of age ($\chi^2=29.5$, $p<0.001$). This is likely to be due to the fact that the national GP profile utilises a sample frame that includes GPs who are currently undertaking a general practice vocational training program. These GPs are not required to complete QA activities during training, nor in the QA triennium in which they complete training. This means that the offer of QA points is less likely to attract them. Most of these GPs would be less than 35 years old.

All states and territories were well-represented in the sample ($\chi^2=11.7$, $p=0.11$) and there were no significant differences in terms of metropolitan, rural or remote location of GPs ($\chi^2=9.5$, $p=0.15$).

Table 4.1: Comparison of BEACH participants and all active recognised GPs in Australia

Variable	BEACH ^{(a)(b)}		Australia ^{(a)(c)(d)}	
	Number	Per cent of GPs	Number	Per cent of GPs
Sex ($\chi^2=0.23$, $p=0.63$)				
Males	673	67.3	12,022	66.6
Females	327	32.7	6,038	33.4
Age ($\chi^2=29.5$, $p<0.001$)				
<35	58	5.8	1,987	11.0
35–44	249	24.9	4,666	25.8
45–54	365	36.5	6,000	33.2
55+	327	32.7	5,426	30.0
Place of graduation ($\chi^2=1.20$, $p=0.16$)				
Australia	735	73.6	12,927	71.5
Overseas	264	26.4	5,152	28.5
State ($\chi^2=11.70$, $p=0.11$)				
New South Wales	353	35.4	6,066	33.6
Victoria	227	22.7	4,430	24.5
Queensland	188	18.8	3,421	18.9
South Australia	87	8.7	1,531	8.5
Western Australia	92	9.2	1,723	9.5
Tasmania	21	2.1	495	2.7
Australian Capital Territory	21	2.1	270	1.5
Northern Territory	9	0.9	142	0.8
RRMA ($\chi^2=9.50$, $p=0.15$)				
Capital	623	62.4	11,655	64.5
Other metropolitan	64	6.4	1,308	7.2
Large rural	70	7.0	1,069	5.9
Small rural	70	7.0	1,327	7.3
Other rural	142	14.2	2,284	12.6
Remote centre	9	0.9	202	1.1
Other remote	20	2.0	233	1.3

(a) Missing data removed.

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

(c) Data provided by GP Branch, Australian Government Department of Health and Ageing.

(d) All GPs who claimed at least 375 A1 Medicare items during the most recent 3-month Health Insurance Commission data period.

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

4.2 Sample weights

Most research studies rely on random sampling to reduce the impact of any sampling bias. It is unusual to have information about the benchmark population from which the sample is drawn, with which the sample can be compared. When such information is available it is important to consider the possible effect of any differences between the sample and the

population on the generalisability of the findings. The data were only weighted for factors thought to have an important effect on morbidity and management. Although there were differences between the sample and the Medical Benefits Schedule (MBS) data in terms of the proportion of GPs from each state, it was assumed that the morbidity and management profile of GPs was similar across states and therefore weighting by state was not undertaken. The raw data were, however, assigned sample weights according to GP age (stratified by sex) to adjust for the slight under-representation of younger GPs in the sample, and this age weighting was multiplied by the activity level of the participating GPs.

GP weights

We have shown (Table 4.1) that there was a difference in GP age between BEACH GPs and all GPs in Australia and this may influence any national estimates made from unweighted data. Therefore post-stratification weights were calculated for the BEACH GPs to match the age distribution of all GPs in Australia. Simply, the GPs aged less than 35 years were given greater weighting than GPs of other age groups. This increases the contribution of the encounters from these GPs to any national estimate. Weightings for age were stratified by sex, age weights being calculated separately for male and female GPs.

Encounter weights

The BEACH process requires that each GP provides details of 100 consecutive encounters. The assumption based on previous research is that 100 encounters provide a reliable sample of the GP's patients and practice style.⁷ However, there is considerable variation in the number of services provided by different GPs in a given year. This may impact on the reliability of any estimate due to the differences in the sampling fraction for each GP – a GP who provides 6,000 services in a given year should make a greater contribution to any national estimate than a GP who provides 3,000 services. Encounters were therefore assigned an additional weight that was directly proportional to the busyness of the GP who recorded the encounter. GP activity level was measured as the number of A1 items claimed by the GP in the previous 12 months (MBS data supplied by the DoHA).

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 4.2 shows the precision ratio calculated before and after weighting the data.

4.3 Comparison of BEACH consultations with all GP consultations in Australia

The aim of this study is to gain a representative sample of GP-patient encounters. Representativeness of the GP sample is used to weight the encounters, based on the assumption that the characteristics of the patient encounter are related to the characteristics of the GP. It is therefore important to compare the distribution of the sample patient encounters to the population of general practice encounters in Australia, to assess the representativeness of the sample encounters. The GP Branch of the DoHA provided the age-sex distribution of all A1 Medicare general practice items claimed during 2002, against which the age-sex distribution of the BEACH sample of patient encounters was compared.

Table 4.2: Comparison of BEACH encounters with age–sex distribution of patients at MBS A1 services

Variable	BEACH ^(a)		Australia ^(b)	Precision ratios	
	Number	Per cent	Per cent	Raw ^(a)	Weighted ^(c)
Male					
<1 year	875	1.1	1.1	1.04	1.07
1–4 years	2,044	2.5	2.9	1.17	1.15
5–14 years	2,375	2.9	3.7	1.26	1.17
15–24 years	2,730	3.4	3.6	1.06	0.99
25–44 years	6,666	8.2	9.2	1.12	1.05
45–64 years	8,957	11.0	11.5	1.04	0.98
65–74 years	4,572	5.6	5.6	1.00	0.94
75+ years	4,008	4.9	4.2	0.85	0.86
Female					
<1 year	771	0.9	1.0	1.02	1.05
1–4 years	1,876	2.3	2.6	1.13	1.09
5–14 years	2,462	3.0	3.5	1.16	1.08
15–24 years	5,235	6.4	6.1	0.95	0.97
25–44 years	12,696	15.6	15.1	0.97	1.00
45–64 years	13,183	16.2	15.2	0.94	0.98
65–74 years	5,644	7.0	6.5	0.94	0.98
75+ years	7,045	8.7	8.0	0.92	1.00

(a) Unweighted data, A1 items only, *excluding* encounters claimable from the Australian Department of Veterans' Affairs.

(b) Data provided by GP Branch, DoHA.

(c) Calculated from BEACH weighted data, *excluding* encounters claimable from the Australian Department of Veterans' Affairs.

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

The BEACH data include patient encounters that are paid by funding sources other than the MBS and include indirect (and some direct) encounters that cannot be or are not (by GP choice) claimed against any funding body. Further, the BEACH program counts only a single Medicare item number for each encounter covered by the MBS. In reality, more than one Medicare claim can result from a single encounter. Due to the large size of the data sets used, any statistical comparison (e.g. χ^2) would generate statistical significance for even the most minor differences between the two sources of data. Therefore, it is necessary to consider whether any difference is likely to have a strong influence on the results and whether the precision of any estimate from BEACH complies with statistical standards. In determining whether any estimate is reliable, power calculations use a precision of 0.2 or 20% of the true proportion (or value). For example, if the true value were 15% then it would be desirable that any estimate was in the range of 12% to 18% if it is to be considered to have 20% precision.

The age–sex distribution of the final sample of encounters was compared with the known age–sex distribution of all MBS annual A1 claims data. For comparability with the equivalent Medicare data, only those BEACH encounters where a Medicare A1 item was recorded were included in the age and sex distributions shown in Table 4.2. BEACH encounters that were paid for by the Australian Department of Veterans Affairs were also excluded as these services are not included in the Medicare claims database.

As can be seen in Table 4.2, there is a good fit of the MBS and BEACH age and sex distribution both with and without weighting, with no age-sex category varying by more than 20% from the population distribution. The range of raw precision ratios (0.85–1.26) indicate that the BEACH sample of encounters is a good representation of Australian general practice patient encounters. After weighting, the range of precision ratios improved slightly to within 20% (range 0.86–1.17) of the population distribution.

4.4 The weighted data set

The final unweighted data set from the fifth year of collection contained encounters, reasons for encounters, problems and management/treatments. The apparent number of encounters, reasons for encounter, medications, 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 4.3.

Table 4.3: The BEACH data set

Variable	Raw	Weighted
General practitioners	1,000	1,000
Encounters	100,000	98,877
Reasons for encounter	150,126	144,674
Problems managed	151,222	148,521
Medications	103,774	103,210
Non-pharmacological treatments	54,964	52,315
Referrals	12,371	11,794
Imaging	8,644	8,121
Pathology	37,721	34,831

5 The encounters

5.1 Overview of the data set

Using weighted data, in 2003–04 there were 98,877 encounters from 1,000 GPs. Reasons for encounter were recorded at an average rate of 150.2 per 100 encounters. There were an average of 146.3 problems managed per 100 encounters (n=144,674). New problems were managed at a rate of 55.9 per 100 encounters. Chronic problems were managed at half the encounters (50.8 per 100 encounters), and just over one-third of all problems managed were of a chronic nature (34.7 per 100 problems managed) (Table 5.1).

Table 5.1: Summary of morbidity and management

Variable	Number	Rate per 100 encounters (n=98,877)	95% LCL	95% UCL	Rate per 100 problems (n=144,674)	95% LCL	95% UCL
General practitioners	1,000	—	—	—	—	—	—
Encounters	98,877	—	—	—	—	—	—
Reasons for encounter	148,521	150.2	148.4	152.0	—	—	—
Problems managed	144,674	146.3	144.4	148.2	—	—	—
New problems	55,292	55.9	54.5	57.3	38.2	37.2	39.2
Chronic problems	50,183	50.8	49.0	52.5	34.7	33.8	35.6
Medications	103,210	104.4	102.1	106.7	71.3	70.0	72.7
Prescribed	85,073	86.0	83.6	88.5	58.8	57.3	60.3
Advised OTC	9,649	9.8	9.0	10.6	6.7	6.1	7.2
GP-supplied	8,488	8.6	7.4	9.8	5.9	5.1	6.7
Non-pharmacological treatments	50,775	51.4	48.9	53.8	35.1	33.5	36.7
Clinical*	36,211	36.6	34.5	38.8	25.0	23.6	26.4
Procedural*	14,564	14.7	14.0	15.5	10.1	9.6	10.6
Referrals	11,495	11.6	11.1	12.1	8.0	7.6	8.3
Specialist*	7,775	7.9	7.5	8.2	5.4	5.1	5.6
Allied health services*	2,600	2.6	2.4	2.9	1.8	1.6	2.0
Hospital*	544	0.6	0.3	0.8	0.4	0.2	0.5
Emergency department*	157	0.2	0.0	0.5	0.1	0.0	0.3
Other medical services*	138	0.1	0.0	0.6	0.1	0.0	0.4
Other referrals*	281	0.3	0.0	0.6	0.2	0.0	0.4
Pathology	34,831	35.2	33.7	36.7	24.1	23.1	25.0
Imaging	8,121	8.2	7.8	8.6	5.6	5.4	5.9
Other investigations	1,028	1.0	0.9	1.2	0.7	0.6	0.8

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3).

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

Medications were prescribed to the patient, advised for over-the-counter (OTC) purchase or supplied by the GP at an average rate of 104.4 per 100 encounters, equating to a rate of 71.3 medications per 100 problems managed. The majority of medications were prescribed to the patient (86.0 per 100 encounters). This figure only takes into account the rate at which prescriptions were given to patients, not the number of repeats recorded as part of the prescription. Medications were advised for OTC purchase at a rate of 9.8 per 100 encounters, and were supplied by the GP at a rate of 8.6 per 100 encounters. Non-pharmacological treatments were provided to patients at an average rate of 51.4 per 100 encounters. Clinical treatments (including advice, education and counselling) were provided to patients at a rate of 36.6 per 100 encounters, or at a rate of 25.0 per 100 problems managed. Procedural treatments were recorded less often than clinical treatments, at a rate of 14.7 per 100 encounters.

Referrals were given to patients at an average rate of 11.6 per 100 encounters. The majority of referrals were made to medical specialists (7.9 per 100 encounters). Referrals to allied health professionals were made at a rate of 2.6 per 100 encounters. Referrals to hospitals (0.6 per 100 encounters) and emergency departments (0.2 per 100 encounters) were relatively rare.

Pathology tests were ordered at a rate of 35.2 per 100 encounters, or at a rate of 24.1 per 100 problems managed. Orders for imaging tests were made less often, at a rate of 8.2 per 100 encounters (Table 5.1).

5.2 Encounter type

The distribution of encounter types shows the varied nature of general practice (Table 5.2). The funding of Australian general practice reflects this variety, with a mixture of patient contribution, government rebate scheme through the Medicare Benefits Schedule (MBS), payment by other government programs (e.g. Australian Department of Veterans' Affairs, Correctional Services) and insurance schemes (e.g. workers compensation).

Direct encounters, where the patient was seen by the GP, accounted for 97.0% of all general practice encounters. Almost all direct consultations were claimable either through Medicare or the Australian Department of Veterans' Affairs (96.7% of direct encounters, equating to 93.8% of total encounters). These figures indicate only that the consultation was claimable under the MBS, and do not give an indication of whether the consultation was bulk-billed. Standard surgery consultations accounted for the majority of Medicare-claimable consultations (82.4%), and 9.8% of Medicare encounters were long surgery consultations. Short surgery consultations and prolonged consultations were relatively rare (1.1% and 0.7% respectively). Encounters payable through workers' compensation accounted for 2.0% of GP encounters.

While the vast majority of encounters took place in the GPs' consulting rooms (at least 91.0% of direct consultations), encounters were also held at a number of other settings. Home visits accounted for 1.3% of all encounters, and encounters at residential aged care facilities equated to 1.1% of encounters. Very few GP consultations took place in hospitals (0.3%). It is important to note that other types of encounters, such as health assessments, care plans, case conferences and encounters listed as 'other items' may also 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, according to the relevant MBS regulations.

Indirect encounters, where the patient is not seen by the GP, are not eligible for payment through the MBS, with only one exception (case conferences). This type of encounter

accounted for 3.1% of total GP services. These encounters, which may consist of telephone calls, generally result in prescriptions, referrals or other such services. While it cannot be determined whether these services were provided free of charge to the patient, it can be assumed that, in general, they are a free service provided by the GP. However, they contribute considerably to patient care and problem management, and do generate costs to the health sector through the provision of prescriptions or referrals.

Table 5.2: Type of encounter

Variable	Number	Rate per 100 encounters ^(a)	95% LCL	95% UCL	Per cent of direct encounters	Per cent of Medicare-paid
General practitioners	1,000	—	—	—	—	—
Direct consultations	89,160	97.0	96.6	97.3	100.0	—
No charge	463	0.5	0.3	0.7	0.5	—
MBS items of service ^(b)	86,244	93.8	93.3	94.2	96.7	100.0
Short surgery consultations	989	1.1	0.4	1.7	—	1.1
Standard surgery consultations	71,106	77.3	76.2	78.4	—	82.4
Long surgery consultations	8,413	9.2	8.5	9.8	—	9.8
Prolonged surgery consultations	612	0.7	0.0	1.4	—	0.7
Home visits	1,210	1.3	0.1	2.5	—	1.4
Hospital	294	0.3	0.0	1.7	—	0.3
Residential aged care facility	974	1.1	0.0	2.3	—	1.1
Enhanced Primary Care items						
Case conference	1	0.0	0.0	1.2	—	0.0
Care plan	82	0.1	0.0	1.3	—	0.1
Health assessments	132	0.1	0.0	0.7	—	0.2
Other items	2,432	2.6	1.3	4.0	—	2.8
Workers compensation	1,872	2.0	1.8	2.3	2.1	—
Other paid (hospital, state, etc.)	581	0.6	0.0	1.4	0.7	—
Indirect consultations	2,805	3.1	2.5	3.6	—	—
Missing	6,912	—	—	—	—	—
Total encounters	98,877	—	—	—	—	—

(a) Missing data removed from analysis. Per cent base $n=91,965$.

(b) Includes 1,806 encounters that were recorded as claimable through the Australian Department of Veterans' Affairs.

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

5.3 Changes from 1999–00 to 2003–04

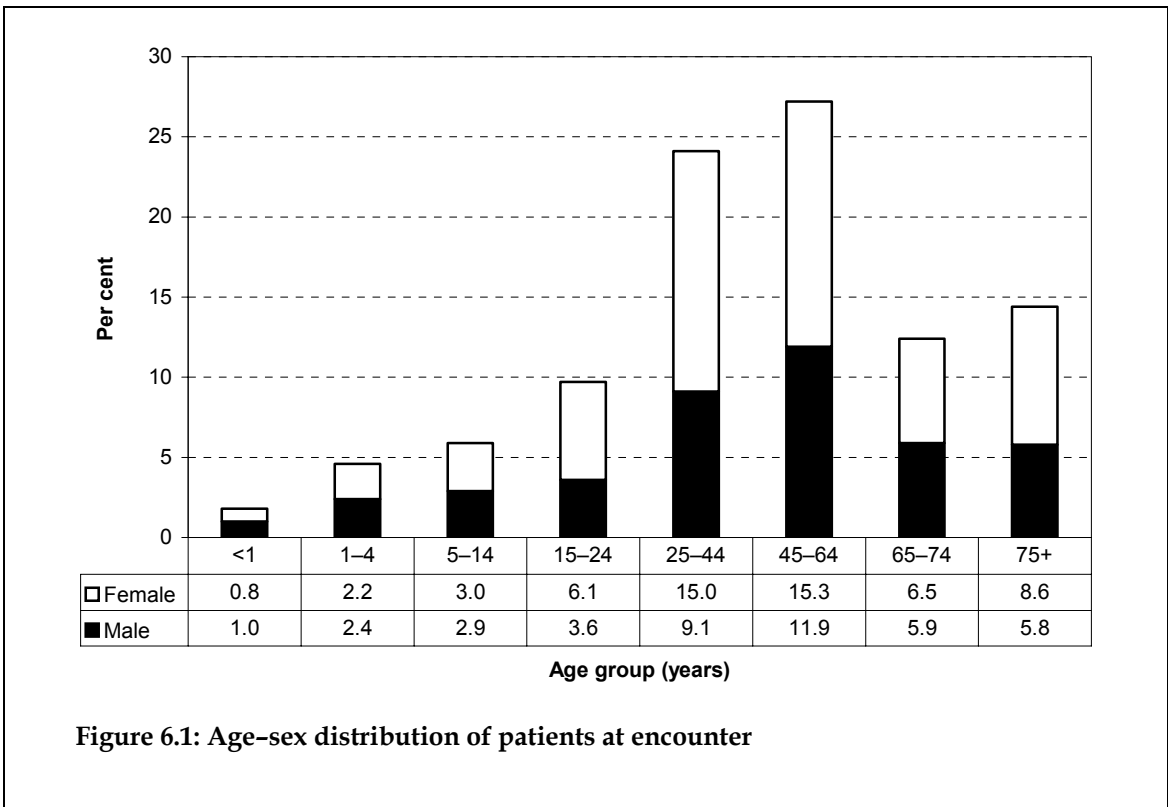
Over the 5 years between 1999 and 2004, there were no significant differences observed in the types of encounter recorded by GP participants (Appendix 5, Table A5.4).

6 The patients

6.1 Patient characteristics

Age–sex distribution of patients

The age–sex distribution of patients at the 98,877 encounters recorded in the survey is shown in Figure 6.1. Age and/or sex was not recorded at 1.7% of encounters. Overall, there were more encounters with female than male patients (57.4% compared with 42.6%). This was reflected across all age groups except for patients aged less than 5 years, where there were slightly more male than female encounters. Differences in the distribution of male and female patients were greatest in the reproductive years (25–44 year age group) and in the middle age group (45–64 years) (Table 6.1).



Note: Missing data removed. The distributions will not agree perfectly with those in Table 6.1 due to missing data in either age or sex fields.

Approximately one in eight encounters were with children aged less than 15 years (12.3%), one in ten were with young adults (9.6%), and approximately one in four with patients in each of the following age groups, 25–44 years (24.1%), 45–64 years (27.2%), and 65 years and older (26.8%) (Table 6.1).

Other patient characteristics

The patient was new to the practice at one in ten (9.3%) encounters. Two in five encounters were with patients who held a Commonwealth concession card (42.5%), and 3.5% were with persons who held a Repatriation health card. At 9.7% of encounters, the patient was from a non-English-speaking background, and at 1.6% the patient was an Aboriginal person and/or Torres Strait Islander.

Table 6.1: Characteristics of the patients at encounters

Patient variable	Number	Per cent of encounters (<i>n</i> =98,877) ^(a)	95% LCL	95% UCL
Sex				
Males	41,683	42.6	41.8	43.3
Females	56,261	57.4	56.7	58.2
Missing sex	932	—	—	—
Age group				
<1 year	1,754	1.8	1.6	2.0
1–4 years	4,463	4.6	4.3	4.8
5–14 years	5,824	5.9	5.6	6.3
15–24 years	9,424	9.6	9.2	10.1
25–44 years	23,584	24.1	23.4	24.8
45–64 years	26,658	27.2	26.7	27.7
65–74 years	12,183	12.4	11.9	12.9
75+ years	14,082	14.4	13.6	15.2
Missing age	905	—	—	—
Other characteristics				
New patient to practice	8,979	9.3	8.5	10.0
Commonwealth concession card	42,018	42.5	41.0	44.0
Repatriation health card	3,441	3.5	3.2	3.8
Non-English-speaking background	9,587	9.7	5.8	13.6
Aboriginal person	1,393	1.4	0.0	2.9
Torres Strait Islander	157	0.2	0.0	1.0
Aboriginal person and Torres Strait Islander	50	0.1	0.0	0.8

(a) Missing data removed.

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

6.2 Patient reasons for encounter

International interest in reasons for encounter (RFEs) has been developing over the past three decades. They 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.³¹

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 RFEs at encounter

There were 148,521 patient RFEs recorded at a rate of 150.2 per 100 encounters. For three out of five encounters (61.0%) only one RFE was recorded, and at 11.3% of encounters the maximum of three RFEs was recorded (Table 6.2).

Table 6.2: Number of patient reasons for encounter

Number of RFEs (n=148,521)	Number of encounters (n=98,877)	Per cent of encounters	95% LCL	95% UCL
One RFE	60,358	61.0	59.9	62.2
Two RFEs	27,393	27.7	27.0	28.4
Three RFEs	11,126	11.3	10.5	12.0
Total	98,877	100.0	—	—

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

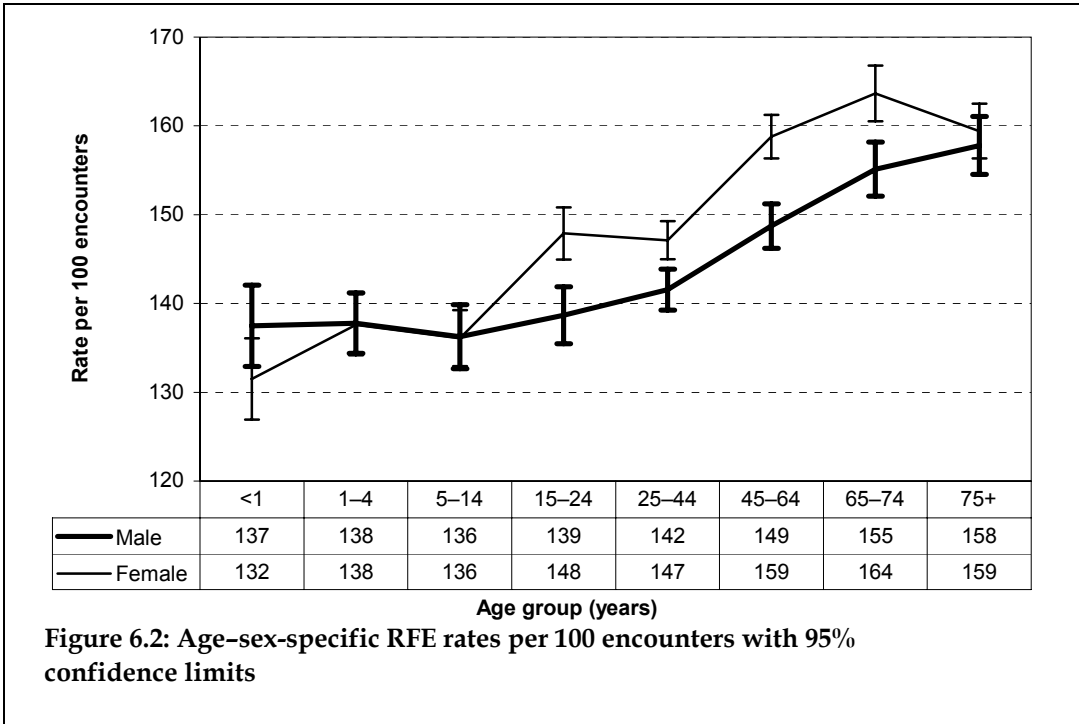


Figure 6.2: Age-sex-specific RFE rates per 100 encounters with 95% confidence limits

Note: Missing data removed.

Age–sex-specific rates of RFEs

Overall, significantly more RFEs were recorded at encounters with female patients (152.8 per 100 encounters, 95% CI: 150.9–154.7) than at those with male patients (146.8, 95% CI: 144.9–148.7), but particularly at encounters with females aged between 15 and 74 years.

Figure 6.2 shows the number of RFEs per 100 encounters for male and female patients in each age group. The age–sex-specific rate of RFEs per 100 encounters increased with advancing age for both males and females, with two exceptions: patients aged 1–4 years had more RFEs than the encounters with children aged between 5 and 14 years, and the rate of RFEs decreased in female patients aged 75 years and over.

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 6.3. Each chapter and individual RFE are expressed as a percentage of all RFEs and as a rate per 100 encounters with 95% confidence limits.

Almost one in five RFEs (24.1%, 36.2 per 100 encounters) were classified in the general chapter, not being associated with any particular body system. Of these, the most common were requests for a prescription, for test results or a check-up. However, there were also some general symptoms frequently described, such as fever, weakness and tiredness, and chest pain (of unspecified origin).

Approximately half the RFEs related to the respiratory, musculoskeletal, skin, digestive and circulatory systems. Less common were RFEs related to the eye, urological, blood and male genital systems, and those of a social nature.

RFEs related to the respiratory system arose at a rate of 21.4 per 100 encounters, the most common being cough, throat complaints, requests for respiratory system immunisation (mainly influenza vaccination) and upper respiratory tract infection (URTI) (often expressed as a ‘cold’). Nasal congestion, asthma and short of breath were also relatively common RFEs.

RFEs related to the musculoskeletal system were described at a rate of 16.3 per 100 encounters and were most commonly for symptoms and complaints of specific skeletal body parts. Complaints related to the back were by far the most common (3.5 per 100 encounters), followed by those related to the knee, leg/thigh, foot/toe, shoulder and neck.

Reasons associated with the skin were described at a rate of 15.1 per 100 encounters, rash being the most frequent RFE, followed by skin complaints. Request for a skin check-up and localised/generalised swelling were also in the most frequent list of RFEs related to the skin.

Digestive problems accounted for 7.1% of all reasons described, arising at a rate of 10.7 per 100 encounters. Abdominal pain was most common, followed by diarrhoea and vomiting. Together these three symptoms represented approximately half of all digestive-related RFEs.

Table 6.3: Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter

Patients reasons for encounter	Number	Per cent of total RFEs ^(a) (n=148,521)	Rate per 100 encounters ^(b) (n=98,877)	95% LCL	95% UCL
General & unspecified	35,771	24.1	36.2	35.2	37.2
Prescription NOS	8,027	5.4	8.1	7.6	8.7
Results tests/procedures NOS	4,628	3.1	4.7	4.3	5.0
Check-up NOS*	3,612	2.4	3.7	3.4	3.9
Fever	1,864	1.3	1.9	1.6	2.2
Immunisation/vaccination—general	1,807	1.2	1.8	1.6	2.0
Administrative procedure NOS	1,526	1.0	1.5	1.4	1.7
Weakness/tiredness	1,486	1.0	1.5	1.3	1.7
Chest pain NOS	1,241	0.8	1.3	1.1	1.4
Blood test NOS	1,076	0.7	1.1	0.8	1.4
Other reason for encounter NEC	1,051	0.7	1.1	0.7	1.4
Trauma/injury NOS	922	0.6	0.9	0.8	1.1
Follow-up encounter NOS	798	0.5	0.8	0.5	1.1
Clarify/discuss patient RFE NOS	791	0.5	0.8	0.6	1.0
Respiratory	21,166	14.3	21.4	20.6	22.2
Cough	6,160	4.2	6.2	5.8	6.6
Throat complaint	3,323	2.2	3.4	3.1	3.6
Immunisation/vaccination—respiratory	2,176	1.5	2.2	1.1	3.3
Upper respiratory tract infection	1,901	1.3	1.9	1.7	2.2
Nasal congestion/sneezing	1,295	0.9	1.3	1.0	1.7
Asthma	909	0.6	0.9	0.8	1.1
Shortness of breath, dyspnoea	848	0.6	0.9	0.7	1.0
Musculoskeletal	16,123	10.9	16.3	15.7	16.9
Back complaint*	3,433	2.3	3.5	3.3	3.7
Knee complaint	1,369	0.9	1.4	1.3	1.5
Leg/thigh complaint	1,116	0.8	1.1	1.0	1.3
Foot/toe complaint	1,094	0.7	1.1	1.0	1.2
Shoulder complaint	1,010	0.7	1.0	0.9	1.2
Neck complaint	934	0.6	0.9	0.8	1.1
Skin	14,936	10.1	15.1	14.5	15.7
Rash*	2,742	1.9	2.8	2.6	3.0
Skin complaint	1,353	0.9	1.4	1.2	1.5
Check-up—skin*	1,215	0.8	1.2	0.5	2.0
Swelling*	1,180	0.8	1.2	1.0	1.4

(continued)

Table 6.3 (continued): Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter

Patients reasons for encounter	Number	Per cent of total RFEs ^(a) (n=148,521)	Rate per 100 encounters ^(b) (n=98,877)	95% LCL	95% UCL
Digestive	10,598	7.1	10.7	10.3	11.2
Abdominal pain*	2,007	1.4	2.0	1.9	2.2
Diarrhoea	1,432	1.0	1.5	1.3	1.6
Vomiting	1,129	0.8	1.1	1.0	1.3
Circulatory	10,528	7.1	10.7	10.1	11.2
Check-up—cardiovascular*	4,931	3.3	5.0	4.6	5.4
Hypertension/high blood pressure*	1,843	1.2	1.9	1.5	2.3
Prescription—cardiovascular	835	0.6	0.8	0.5	1.2
Psychological	7,245	4.9	7.3	6.9	7.7
Depression*	1,784	1.2	1.8	1.6	2.0
Sleep disturbance	1,136	0.8	1.2	1.0	1.3
Anxiety*	1,008	0.7	1.0	0.9	1.2
Endocrine & metabolic	6,092	4.1	6.2	5.8	6.5
Diabetes (non-gestational)*	905	0.6	0.9	0.6	1.2
Prescription—endocrine/metabolic	902	0.6	0.9	0.7	1.1
Check-up—endocrine/metabolic*	844	0.6	0.9	0.6	1.1
Neurological	5,256	3.5	5.3	5.1	5.6
Headache	1,768	1.2	1.8	1.6	2.0
Vertigo/dizziness	1,170	0.8	1.2	1.1	1.3
Female genital system	5,076	3.4	5.1	4.8	5.5
Check-up/Pap smear*	1,831	1.2	1.9	1.5	2.2
Ear	3,700	2.5	3.7	3.6	3.9
Ear pain	1,533	1.0	1.6	1.4	1.7
Pregnancy & family planning	3,629	2.4	3.7	3.4	4.0
Oral contraception*	1,000	0.7	1.0	0.8	1.2
Pre-/post-natal check-up*	876	0.6	0.9	0.5	1.3
Eye	2,678	1.8	2.7	2.6	2.9
Urology	2,500	1.7	2.5	2.4	2.7
Blood	1,246	0.8	1.3	1.1	1.4
Male genital system	1,046	0.7	1.1	0.9	1.2
Social	931	0.6	0.9	0.8	1.1
Total RFEs	148,521	100.0	150.2	148.4	152.0

(a) Only 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 3).

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

Requests for a cardiovascular check-up accounted for almost half of all RFEs associated with the circulatory system, which arose at a rate of 10.7 per 100 encounters. Patients also frequently presented for their ‘hypertension’ or ‘high blood pressure’ problems.

RFEs of a psychological nature were recorded at a rate of 7.3 per 100 encounters, and these were frequently described in terms of depression, sleep disturbance and anxiety. The relative frequencies of the remaining ICPC-2 chapters for patient reasons for encounter are provided in Table 6.3.

Distribution of RFEs by ICPC-2 component

Almost half of the RFEs were expressed in terms of a symptom or complaint (e.g. back pain, cough), presented at a rate of 71.7 per 100 encounters. RFEs expressed in diagnostic terms (e.g. ‘about my diabetes’) accounted for 16.7% of all RFEs and were described at a rate of 25.1 per 100 encounters. Requests for diagnostic and preventive procedures were made at a rate of 24.0 per 100 encounters, and these were most often requests for a check-up or for immunisation/vaccination (demonstrated in Table 6.5). Patient requests for medication and non-pharmacological treatments were made at a rate of 14.4 per 100 encounters, while requests for referrals, results, and administrative procedures were relatively few (Table 6.4).

Table 6.4: Distribution of RFEs by ICPC-2 component

ICPC-2 component	Number	Per cent of total RFEs (n=148,521)	Rate per 100 encounters ^(a) (n=98,877)	95% LCL	95% UCL
Symptoms & complaints	70,879	47.7	71.7	69.8	73.5
Diagnoses, diseases	24,841	16.7	25.1	23.9	26.4
Diagnostic & preventive procedures	23,744	16.0	24.0	23.1	25.0
Medications, treatments & therapeutics	14,237	9.6	14.4	13.7	15.1
Referral & other RFE	7,120	4.8	7.2	6.8	7.6
Results	5,967	4.0	6.0	5.6	6.4
Administrative	1,734	1.2	1.8	1.6	1.9
Total RFEs	148,521	100.0	150.2	148.4	152.0

(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 6.5, accounted for 56.1% of all RFEs. In this analysis the specific ICPC-2 chapter to which an across-chapter RFE belongs is disregarded, such that ‘check-up – all’ includes all check-ups from all body systems irrespective of whether the type was specified (e.g. ‘BP check’) or whether the request was very general. Equally, ‘immunisation/vaccination – all’ includes influenza vaccination requests as well as those for childhood immunisation, hepatitis etc.

A request for a check-up was the most common RFE, accounting for 9.4% of all RFEs, being recorded at a rate of 14.1 per 100 encounters. Requests for medication were also frequent (12.1 per 100 encounters). It is notable that RFEs described as ‘hypertension’ or ‘high blood pressure’ also arose at a rate of 1.9 per 100 encounters, and these are likely to be closely

associated with the need for a check-up and/or medication. A request for test results was the fourth most often expressed RFE (6.0 per 100 encounters), followed by presentations for immunisation or vaccination (4.4 per 100 encounters).

Table 6.5: Most frequent patient reasons for encounter

Patient reason for encounter	Number	Per cent of total RFEs (n=148,521)	Rate per 100 encounters ^(a) (n=98,877)	95% LCL	95% UCL
Check-up—all*	13,942	9.4	14.1	13.4	14.8
Prescription—all*	11,987	8.1	12.1	11.5	12.7
Cough	6,160	4.2	6.2	5.8	6.6
Test results*	5,967	4.0	6.0	5.6	6.4
Immunisation/vaccination—all*	4,385	3.0	4.4	3.9	4.9
Back complaint*	3,433	2.3	3.5	3.2	3.7
Throat complaint	3,323	2.2	3.4	3.1	3.6
Rash*	2,742	1.9	2.8	2.6	2.9
Abdominal pain*	2,007	1.4	2.0	1.9	2.2
Upper respiratory tract infection	1,901	1.3	1.9	1.7	2.2
Fever	1,864	1.3	1.9	1.6	2.2
Hypertension/high blood pressure*	1,843	1.2	1.9	1.5	2.3
Depression*	1,784	1.2	1.8	1.6	2.0
Headache	1,768	1.2	1.8	1.6	2.0
Ear pain	1,533	1.0	1.6	1.4	1.7
Administrative procedure NOS	1,526	1.0	1.5	1.4	1.7
Weakness/tiredness	1,486	1.0	1.5	1.3	1.7
Diarrhoea	1,432	1.0	1.5	1.3	1.6
Knee complaint	1,369	0.9	1.4	1.3	1.5
Skin complaint	1,353	0.9	1.4	1.2	1.5
Nasal congestion/sneezing	1,295	0.9	1.3	1.0	1.7
Chest pain NOS	1,241	0.8	1.3	1.1	1.4
Swelling*	1,180	0.8	1.2	1.0	1.4
Vertigo/dizziness	1,170	0.8	1.2	1.1	1.3
Sleep disturbance	1,136	0.8	1.2	1.0	1.3
Vomiting	1,129	0.8	1.1	1.0	1.3
Leg/thigh complaint	1,116	0.8	1.1	1.0	1.3
Foot/toe complaint	1,094	0.7	1.1	1.0	1.2
Blood test NOS	1,076	0.7	1.1	0.8	1.4
Other reason for encounter NEC	1,051	0.7	1.1	0.7	1.4
<i>Subtotal</i>	<i>83,295</i>	<i>56.1</i>	—	—	—
Total RFEs	148,521	100.0	150.2	148.4	152.0

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

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 3).

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

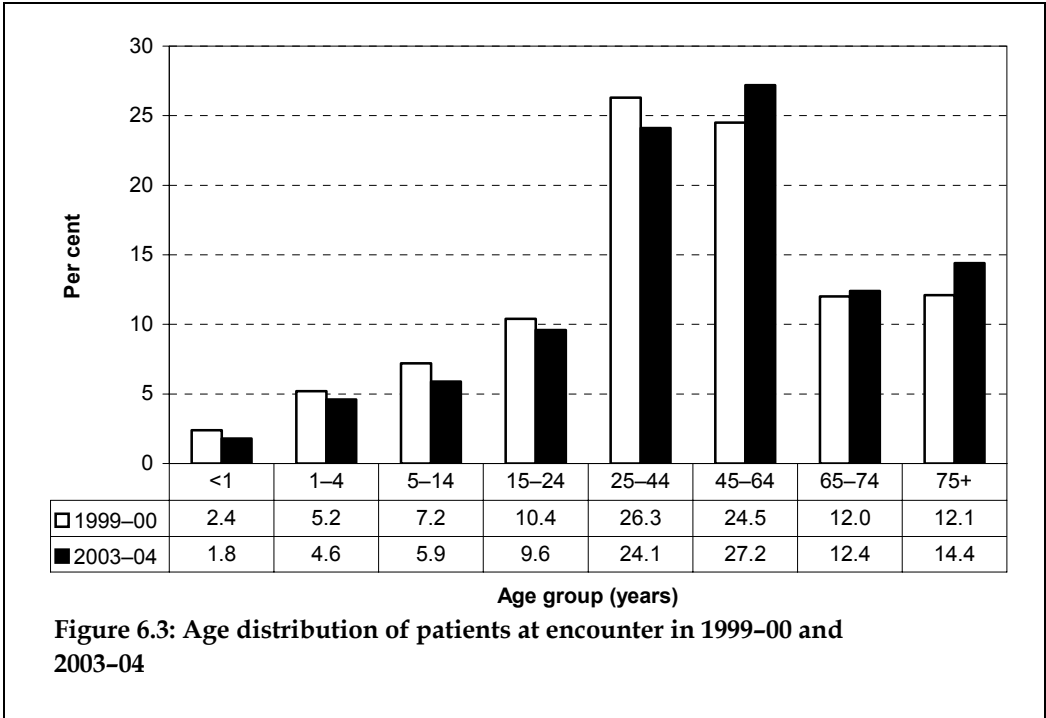
The remaining RFEs in the top 30 were largely symptom-based, led by cough (6.2 per 100 encounters), back complaints (3.5 per 100 encounters), throat complaints (3.4 per 100 encounters), rash, abdominal pain, and URTI (often described as ‘a cold’).

Undifferentiated symptoms such as fever, headache, nasal congestion, ear pain, weakness, and diarrhoea were also common. Many musculoskeletal symptoms also appeared in the top 30 RFEs. It is notable that chronic conditions such as depression and sleep disturbance were also frequently recorded.

6.3 Changes from 1999–00 to 2003–04

Changes in characteristics of the patients at the encounters

The sex distribution of the patients encountered in 2003–04 did not differ significantly from that for every year of the BEACH program. However, the age distribution of patients encountered changed considerably between 1999–00 and 2003–04, with an overall trend for increased proportions of encounters with older people and decreased proportions with those aged less than 45 years. In 2003–04 the GPs’ workloads included a significantly smaller proportion of encounters with children in each of the age groups under fifteen years, making a total decrease from 14.8% of the workload to 12.3%. The proportion of encounters with patients aged between 25 and 44 years also decreased (from 16.3% to 24.1%). In contrast patients aged between 45–64 years and those of 75 years or more accounted for a significantly increased proportion of the GP’s workload (increasing from 24.5% to 27.2% and from 12.1% to 14.4% respectively (Figure 6.3 and Appendix 5, Table A5.4).



Since 1999–00 the proportion of encounters with patients who were new to the GP's practice increased from 7.3% (95% CI: 6.6–8.0) to 9.3% (95% CI: 8.5–10.0). Similar trends were noted in the proportion of encounters that were with people from a non-English-speaking background, which increased from 7.1% in 1999–00 to 9.7% in 2003–04; however, this change did not reach statistical significance due to relatively wide confidence intervals which suggest wide variance between individual participating GPs in the proportion of encounters that were with patients of this group. Both increases largely occurred between 2000–01 and 2001–02 and the proportions have remained relatively steady since then.

Encounters with people who held a Commonwealth concession card increased significantly from 38.6% (95% CI: 37.0–40.2) to 42.5% (95% CI: 41.0–44.0), as did the proportion holding a Repatriation health card, from 2.6% (95% CI: 2.3–2.9) to 3.5 (95% CI: 3.2–3.8).

The proportion of patients who identified themselves as being Indigenous people also increased, but the small sample size rendered this an insignificant change to date. The trend will be further investigated in the coming year of the BEACH program.

Changes in rates of RFEs by ICPC-2 chapter

The overall rate of RFEs per 100 encounters did not change significantly between 1999–00 and 2002–03, and the 2003–04 rate (150.2 per 100 encounters) was almost identical to that of the previous year (150.9 per 100). There was a significant increase in the rate of RFEs classified as general and unspecified, from 29.0 (95% CI: 28.1–29.9) per 100 encounters in 1999–00 to 36.2 (95% CI: 35.2–37.2) in 2003–04. The rate of presentation of RFEs related to the female genital system (5.1, 95% CI: 2.8–5.5) decreased significantly since the previous year (6.1, 95% CI: 5.7–6.6), reverting to the rates recorded in 1999–00 (5.3 per 100). There was a marginal decrease in the rate of RFEs related to the ear, from 4.2 (95% CI: 4.0–4.4) per 100 encounters in 1999–00 to 3.7 (95% CI: 3.6–3.9) per 100 in 2003–04.

An apparent significant decrease in RFEs related to the blood and blood-forming organs was found due to a change in classification of the RFE 'blood test results' in early 2001. In the 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 five years of this comparison (Appendix 5, Table A5.5).

Changes in rate of RFEs (ICPC-2 component)

The relative rate of RFEs classified as symptoms and complaints has significantly decreased since 2000–01, from 76.6 (95% CI: 74.6–78.6) per 100 encounters in 1998–99 to 71.7 (95% CI: 69.8–73.5) in 2003–04. Those described in terms of diagnosis/disease also decreased from a peak of 29.0 (95% CI: 27.6–30.5) per 100 encounters in 2000–01 to 25.1 (95% CI: 23.9–26.4) per 100 in 2003–04. In parallel, the number of RFEs described in terms of the processes of care, including requests for diagnostic and preventive procedures, medications, therapeutics, referrals, results and administrative processes increased significantly since 1999–00, from 47.4 (95% CI: 45.9–48.9) to 53.4 (95% CI: 51.9–54.9) per 100 encounters.

An increase in the relative rate of requests for results that had been identified in 2001–02 continued through the fifth and sixth years. The rate of such requests has increased 50% since 1999–00, from 4.0 (95% CI: 3.7–4.3) to 6.0 (95% CI: 5.6–6.4) in 2003–04. This represents a national increase of 1.8 million encounters at which a request for results was one of the patient's reasons for contacting the GP. This trend supported the hypothesis that there has

been an increase in the rate at which patients are being asked to return to the GP 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 together with economic reasons may have contributed to an increase in call-back of patients for receipt of test results (Appendix 5, Table A5.6).

7 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. It 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.

Problems were coded using ICPC-2 PLUS, an extended terminology classified according to the internationally recognised International Classification of Primary Care – Version 2 (ICPC-2). ICPC-2 has a bi-axial structure with 17 chapters on one axis and seven components on the other. Chapters are based on body systems, with additional chapters for psychological problems and for social problems (see Chapter 2 – Methods).

The relative frequency of problems managed can be described in two ways: 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. circulatory problems), it must be remembered that more than one type of problem (e.g. hypertension and oedema) 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 (those marked with an asterisk in the tables).

7.1 Number of problems managed at encounter

At the 98,877 patient encounters recorded during 2003–04, a total of 144,674 problems were managed, at an average rate of 146.3 problems per 100 encounters. One problem was managed at two-thirds of encounters (66.2%), while two problems were managed at almost one-quarter of encounters (23.8%). Three or four problems were managed at 10.1% of encounters (Table 7.1).

Table 7.1: Number of problems managed at an encounter

Number of problems managed at encounter	Number of encounters	Per cent	95% LCL	95% UCL
One problem	65,410	66.2	65.0	67.3
Two problems	23,513	23.8	23.1	24.5
Three problems	7,577	7.7	7.2	8.1
Four problems	2,377	2.4	2.0	2.8
Total	98,877	100.0	—	—

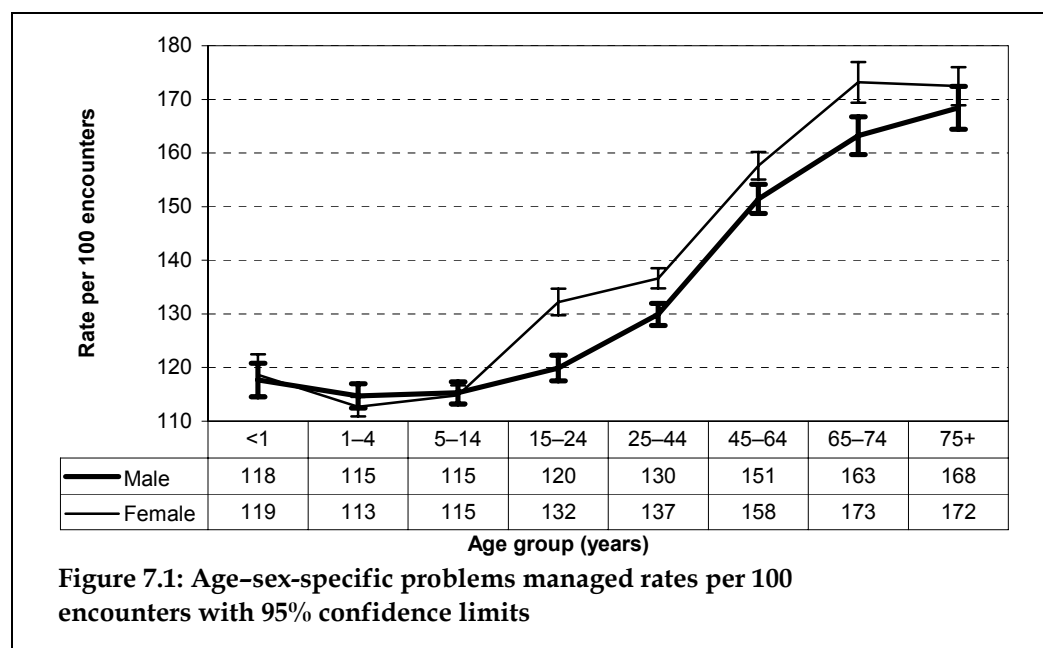
Note: LCL—lower confidence limit; UCL—upper confidence limit.

7.2 Age–sex-specific rates of problems managed

Significantly more problems were managed overall at encounters with female patients (149.0 per 100 encounters, 95% CI: 147.0–151.0) than at those with male patients (142.8 per 100 encounters, 95% CI: 140.8–144.8). This difference was particularly evident in the 15–24 year age group.

Figure 7.1 shows the age–sex-specific rates of problems managed per 100 encounters for each age group. There were more problems managed (per 100 encounters) for females than males in each of the age groups from 15–24 to 65–74 years. It is interesting to note that while the number of problems managed continued to increase for males between the 65–74 and 75+ age groups, the rates for females in these age groups reached a plateau.

These figures parallel those reported in Figure 6.2, showing the age–sex-specific rates of RFEs. In the age groups where significant differences were reported in the number of RFEs between males and females, a similar difference was apparent in the number of problems managed for the age group.



7.3 Nature of morbidity

Problems managed by ICPC-2 chapter

The frequency and distribution of problems managed are represented in Table 7.2, by ICPC-2 chapter. Individual problems with a proportion of at least 0.5% of all problems managed are listed in the table, in decreasing order of frequency. Rates per 100 encounters and the proportion of total problems are expressed both at the ICPC-2 chapter level and for individual problems.

The body system accounting for the highest proportion of problems managed in general practice was the respiratory system (13.7% of all problems managed). Respiratory problems were managed at a rate of 20.1 per 100 encounters. Upper respiratory tract infections (URTI) accounted for 3.7% of all problems managed in general practice, and for over 27% of respiratory problems managed. Other respiratory problems frequently managed included asthma (2.6 per 100 encounters), acute bronchitis/bronchiolitis and immunisations/vaccinations related to the respiratory system (each at a rate of 2.4 per 100 encounters).

Problems relating to the musculoskeletal system accounted for 11.7% of all problems managed, at a rate of 17.1 per 100 encounters. Osteoarthritis was the most frequently managed individual musculoskeletal problem, accounting for 1.9% of all problems managed, at a rate of 2.8 per 100 encounters. Other musculoskeletal problems commonly managed in general practice included back complaints (2.7 per 100 encounters), sprains and strains (1.6 per 100 encounters) and fractures (1.0 per 100 encounters).

Problems relating to the circulatory system, and those relating to the skin, each accounted for 11.5% of total problems managed in general practice. Skin problems were managed at a rate of 16.9 per 100 encounters. The skin conditions managed most frequently in general practice were contact dermatitis (1.8 per 100 encounters), solar keratosis/sunburn (1.3 per 100 encounters) and malignant neoplasms of the skin (1.1 per 100 encounters). Circulatory problems were managed at a rate of 16.8 per 100 encounters. Hypertension, the most commonly managed individual problem in general practice (9.2 per 100 encounters), was the main contributor to the high management rate of circulatory conditions, accounting for more than half of the circulatory problems managed. Other circulatory problems often managed in general practice included ischaemic heart disease, cardiac check-ups and atrial fibrillation/flutter.

Problems not relating directly to any one body system accounted for over 10% of the problems managed in general practice. Most of these problems related to general check-ups (1.3% of all problems managed) and general immunisations or vaccinations (1.2% of total problems managed).

Other problems managed frequently in general practice related to the endocrine and metabolic system (7.7% of total problems managed, at a rate of 11.3 per 100 encounters). Of these, lipid disorder and non-gestational diabetes together accounted for 57% of all endocrine problems managed.

Psychological problems accounted for 7.4% of all problems managed (at a rate of 10.8 per 100 encounters), the most common being depression, managed at a rate of 3.7 per 100 encounters. Problems relating to the blood and the male genital system, and those of a social nature, were the least frequently managed in general practice in 2003–04.

Table 7.2: Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter

Problem managed	Number	Per cent total problems^(a) (n=144,674)	Rate per 100 encounters^(a) (n=98,877)	95% LCL	95% UCL
Respiratory	19,883	13.7	20.1	19.5	20.7
Upper respiratory tract infection	5,395	3.7	5.5	5.1	5.9
Asthma	2,530	1.8	2.6	2.4	2.7
Acute bronchitis/bronchiolitis	2,396	1.7	2.4	2.2	2.6
Immunisation/vaccination—respiratory	2,354	1.6	2.4	1.3	3.4
Sinusitis	1,281	0.9	1.3	1.1	1.5
Tonsillitis*	1,130	0.8	1.1	1.0	1.3
Chronic obstructive pulmonary disease	735	0.5	0.7	0.6	0.9
Musculoskeletal	16,909	11.7	17.1	16.6	17.6
Osteoarthritis*	2,748	1.9	2.8	2.6	3.0
Back complaint*	2,637	1.8	2.7	2.5	2.9
Sprain/strain*	1,564	1.1	1.6	1.4	1.7
Fracture*	984	0.7	1.0	0.9	1.1
Osteoporosis	802	0.6	0.8	0.6	1.0
Injury musculoskeletal NOS	761	0.5	0.8	0.6	0.9
Arthritis*	726	0.5	0.7	0.6	0.9
Skin	16,688	11.5	16.9	16.2	17.6
Contact dermatitis	1,747	1.2	1.8	1.6	1.9
Solar keratosis/sunburn	1,313	0.9	1.3	1.0	1.7
Malignant neoplasm skin	1,094	0.8	1.1	0.7	1.5
Skin disease, other	718	0.5	0.7	0.6	0.9
Circulatory	16,630	11.5	16.8	16.1	17.5
Hypertension*	9,099	6.3	9.2	8.7	9.7
Ischaemic heart disease*	1,346	0.9	1.4	1.2	1.5
Cardiac check-up*	1,144	0.8	1.2	0.8	1.5
Atrial fibrillation/flutter	786	0.5	0.8	0.6	1.0
Heart failure	722	0.5	0.7	0.6	0.9
General & unspecified	14,834	10.3	15.0	14.5	15.5
General check-up*	1,806	1.3	1.8	1.6	2.0
General immunisation/vaccination	1,757	1.2	1.8	1.6	2.0
Medication/request/renew/inject NOS	1,384	1.0	1.4	1.0	1.8
Viral disease, other/NOS	1,301	0.9	1.3	1.0	1.6
Results tests/procedures NOS	756	0.5	0.8	0.6	1.0
Endocrine & metabolic	11,177	7.7	11.3	10.8	11.8
Lipid disorder	3,244	2.2	3.3	3.0	3.5
Diabetes, non-gestational*	3,093	2.1	3.1	2.9	3.4

(continued)

Table 7.2 (continued): Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter

Problem managed	Number	Per cent total problems^(a) (n=144,674)	Rate per 100 encounters^(a) (n=98,877)	95% LCL	95% UCL
Psychological	10,716	7.4	10.8	10.3	11.4
Depression*	3,606	2.5	3.7	3.4	3.8
Anxiety*	1,694	1.2	1.7	1.5	1.9
Sleep disturbance	1,593	1.1	1.6	1.5	1.8
Digestive	10,403	7.2	10.5	10.2	10.8
Oesophageal disease	2,154	1.5	2.2	2.0	2.4
Gastroenteritis, presumed infection	1,148	0.8	1.2	1.0	1.4
Female genital system	5,864	4.1	5.9	5.5	6.3
Female genital check-up/Pap smear*	1,759	1.2	1.8	1.4	2.1
Menopausal complaint	994	0.7	1.0	0.8	1.2
Pregnancy & family planning	4,144	2.9	4.2	3.9	4.5
Oral contraception*	1,338	0.9	1.4	1.2	1.5
Pregnancy*	790	0.6	0.8	0.6	1.0
Ear	3,909	2.7	4.0	3.8	4.1
Acute otitis media/myringitis	1,166	0.8	1.2	1.0	1.4
Neurological	3,880	2.7	3.9	3.8	4.1
Migraine	798	0.6	0.8	0.7	0.9
Urology	2,972	2.1	3.0	2.9	3.2
Urinary tract infection*	1,650	1.1	1.7	1.6	1.8
Eye	2,709	1.9	2.7	2.6	2.9
Infectious conjunctivitis	739	0.5	0.8	0.6	0.9
Blood	1,634	1.1	1.7	1.5	1.8
Male genital system	1,561	1.1	1.6	1.4	1.7
Social	763	0.5	0.8	0.6	1.0
Total problems	144,674	100.0	146.3	144.4	148.2

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3).

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. This provides a more thorough understanding of the types of problems managed during general practice encounters.

In the BEACH program, participating GPs are instructed to record the problem being managed at the encounter using the most specific term possible. As such, the majority of problems are expressed as symptoms or complaints, as a diagnosis or disease, or as a diagnostic or preventive procedure (such as a check-up). 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.

Of the 144,674 problems managed, over two-thirds (64.8%) were recorded as a diagnosis or disease, at an average rate of 94.8 per 100 encounters. Over 20% of problems were expressed in terms of a symptom or complaint, at a rate of 30.8 per 100 encounters. Diagnostic and preventive procedures (e.g. immunisations/vaccinations and check-ups) were recorded at an average rate of 13.6 per 100 encounters, accounting for 9.3% of all problems managed. As discussed above, 'processes' comprised 4.9% of all problem labels. Problems related to medication or treatment accounted for 2.7% of all problems, at a rate of 4.0 per 100 encounters, while referrals (1.3 per 100 encounters), test results (1.2 per 100 encounters) and administrative procedures (0.6 per 100 encounters) comprised the remainder (Table 7.3).

Table 7.3: Distribution of problems managed, by ICPC-2 component

ICPC-2 component	Number	Per cent of total problems (n=144,674)	Rate per 100 encounters ^(a) (n=98,877)	95% LCL	95% UCL
Diagnosis, diseases	93,686	64.8	94.8	93.0	96.5
Symptoms & complaints	30,493	21.1	30.8	30.0	31.6
Diagnostic & preventive procedures	13,463	9.3	13.6	12.9	14.4
Medications, treatments & therapeutics	3,933	2.7	4.0	3.6	4.3
Referral & other RFE	1,244	0.9	1.3	1.0	1.5
Results	1,225	0.9	1.2	1.0	1.5
Administrative	630	0.4	0.6	0.4	0.8
Total problems	144,674	100.0	146.3	144.4	148.2

(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

Table 7.4 includes the most frequently managed individual problems in general practice, in decreasing order of frequency.

In this analysis, the specific chapter to which 'across chapter concepts' (immunisation/vaccination, and prescriptions) apply is ignored and the concept grouped to all other similar concepts. For example, immunisation/vaccination includes influenza vaccinations (from Chapter R—respiratory) as well as those for childhood immunisation (Chapter A—general and unspecified), hepatitis immunisation (Chapter D—digestive) and neurological immunisations such as the haemophilus B vaccine (Chapter N).

The 30 most frequently managed problems accounted for almost half of all the problems managed in general practice (47.8%). Overall, 146.3 problems were managed per 100 encounters. The most frequently managed problem was hypertension, at an average rate of 9.2 per 100 encounters. The management of hypertension accounted for 6.3% of all problems in 2003–04. URTI was the second most commonly managed problem (5.5 per 100 encounters), accounting for 3.7% of all problems managed. Together, these two problems accounted for 10.0% of all problems managed in general practice.

Other problems that were managed frequently included immunisations/vaccinations (3.2 per 100 encounters), depression (2.5 per 100), diabetes (2.3 per 100), lipid disorders (2.1 per 100), osteoarthritis (1.9 per 100), back complaints (1.8 per 100), asthma (1.8 per 100) and acute bronchitis or bronchiolitis (1.7 per 100 encounters).

It is interesting to note that a number of non-diagnostic problem labels were included in the most frequently managed problems. Examples of these include preventive activities (immunisations/vaccinations), providing medication prescriptions or test results, and check-ups, both general check-ups and those specific to a body system (female genital and cardiac).

It is notable that oral contraception is included in the 30 most frequently managed problems in 2003–04, at an average rate of 1.4 per 100 encounters. This rate is significantly higher than the rate recorded in the previous year of BEACH (0.9 per 100 encounters, 95% CI: 0.7–1.1). It is thought that the increase in oral contraceptive use could partially be explained by a move away from the use of injected forms of contraception, such as implanon, following the medical indemnity issues regarding this form of contraception.³²

Table 7.4: Most frequently managed problems

Problem managed	Number	Per cent of total problems (n=144,674)	Rate per 100 encounters^(a) (n=98,877)	95% LCL	95% UCL
Hypertension*	9,099	6.3	9.2	8.7	9.7
Upper respiratory tract infection	5,395	3.7	5.5	5.1	5.9
Immunisation/vaccination—all*	4,674	3.2	4.7	4.2	5.2
Depression*	3,606	2.5	3.7	3.4	3.8
Diabetes—all*	3,264	2.3	3.3	3.1	3.5
Lipid disorders*	3,093	2.1	3.1	2.9	3.4
Osteoarthritis*	2,748	1.9	2.8	2.6	3.0
Back complaint*	2,637	1.8	2.7	2.5	2.9
Asthma	2,530	1.8	2.6	2.4	2.7
Acute bronchitis/bronchiolitis	2,396	1.7	2.4	2.2	2.6
Prescription—all*	2,281	1.6	2.3	1.8	2.8
Oesophageal disease	2,154	1.5	2.2	2.0	2.4
General check-up*	1,806	1.3	1.8	1.6	2.0
Female genital check-up/Pap smear*	1,759	1.2	1.8	1.4	2.1
Contact dermatitis	1,747	1.2	1.8	1.6	1.9
Anxiety*	1,694	1.2	1.7	1.5	1.9
Urinary tract infection*	1,650	1.1	1.7	1.6	1.8
Sleep disturbance	1,593	1.1	1.6	1.5	1.8
Sprain/strain*	1,564	1.1	1.6	1.4	1.7
Ischaemic heart disease*	1,346	0.9	1.4	1.2	1.5
Oral contraception*	1,338	0.9	1.4	1.2	1.5
Solar keratosis/sunburn	1,313	0.9	1.3	1.0	1.7
Viral disease, other/NOS	1,301	0.9	1.3	1.0	1.6
Sinusitis acute/chronic	1,281	0.9	1.3	1.1	1.5

(continued)

Table 7.4 (continued): Most frequently managed problems

Problem managed	Number	Per cent of total problems (n=144,674)	Rate per 100 encounters^(a) (n=98,877)	95% LCL	95% UCL
Test results*	1,225	0.9	1.2	1.0	1.5
Acute otitis media/myringitis	1,166	0.8	1.2	1.0	1.4
Gastroenteritis, presumed infection	1,148	0.8	1.2	1.0	1.4
Cardiac check-up*	1,144	0.8	1.2	0.8	1.5
Tonsillitis*	1,130	0.8	1.1	1.0	1.3
Malignant neoplasm, skin	1,094	0.8	1.1	0.7	1.5
<i>Subtotal</i>	<i>69,175</i>	<i>47.8</i>	—	—	—
Total problems	144,674	100.0	146.3	144.4	148.2

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3).

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

Most frequently managed chronic problems

With increasing mortality rates due to chronic conditions,³³ it is becoming important to monitor the impact of chronic conditions in Australian general practice. We have applied a chronic condition list classified according to ICPC-2³⁴ to the BEACH data set, with the aim of providing data about the management rates and types of chronic conditions managed in Australian general practice.

Only problems regarded as ‘chronic’ have been included in the analysis for this section. Therefore, some of the groups (marked with a double asterisk) used in this analysis are different from those used in other parts of the chapter, due to the fact that both chronic (e.g. hypertension) and non-chronic (gestational hypertension) conditions may be found in the groups used in other sections in this chapter (e.g. hypertension*, Table 7.4). Where the group used for the chronic analysis (marked with a double asterisk) differs from that used in other analyses in this report, codes included in the group may be found in Appendix 4. It is also important to note that the condition labels and figures in this analysis may differ from those in Table 7.4 for this reason.

In 2003–04, 50,183 problems managed (34.7% of the total) were classified as ‘chronic’ (Table 7.5). At least one chronic problem was managed at 39.2% of encounters (95% CI: 38.1–40.2), and chronic problems were managed at an average rate of 50.8 per 100 encounters. In parallel with the most frequently managed problems overall, non-gestational hypertension was the most frequently managed chronic problem in Australian general practice, at a rate of 9.2 per 100 encounters. Non-gestational hypertension accounted for almost one-fifth of all chronic problems managed (18.1%). Depressive disorder was the second most frequently managed problem (3.6 per 100 encounters, 7.1% of all chronic problems), followed by non-gestational diabetes (3.3 per 100 encounters), lipid disorders (3.1 per 100 encounters) and osteoarthritis (2.8 per 100 encounters). Together, the top 5 chronic problems managed accounted for 43.4% of all chronic problems managed (Table 7.5).

The degenerative musculoskeletal disorders of osteoarthritis, osteoporosis, rheumatoid arthritis and unspecified arthritis together accounted for almost 10% of all chronic problems managed, while circulatory problems included in the 30 most frequently managed chronic problems together accounted for almost one-quarter of all chronic problems managed.

Although some chronic conditions individually were not managed at high rates, the long-term nature of chronic conditions, and the need for many of them to be managed and treated on an ongoing basis, indicates that these problems contribute to a considerable proportion of the workload of GPs.

Table 7.5: Most frequently managed chronic problems

Chronic problem managed	Number	Per cent of total chronic problems (n=50,183)	Rate per 100 encounters ^(a) (n=98,877)	95% LCL	95% UCL
Hypertension (non-gestational)**	9,091	18.1	9.2	8.7	9.7
Depressive disorder	3,579	7.1	3.6	3.4	3.8
Diabetes (non-gestational)**	3,244	6.5	3.3	3.0	3.5
Lipid disorders*	3,093	6.2	3.1	2.9	3.4
Osteoarthritis*	2,748	5.5	2.8	2.6	3.0
Asthma	2,530	5.0	2.6	2.4	2.7
Oesophageal disease	2,154	4.3	2.2	2.0	2.4
Ischaemic heart disease*	1,346	2.7	1.4	1.2	1.5
Malignant neoplasm, skin	1,094	2.2	1.1	0.7	1.5
Back syndrome with radiating pain	926	1.8	0.9	0.7	1.1
Osteoporosis	802	1.6	0.8	0.6	1.0
Migraine	798	1.6	0.8	0.7	0.9
Atrial fibrillation/flutter	786	1.6	0.8	0.6	1.0
Chronic obstructive pulmonary disease	735	1.5	0.7	0.6	0.9
Heart failure	722	1.4	0.7	0.6	0.9
Arthritis**	717	1.4	0.7	0.5	0.9
Obesity	682	1.4	0.7	0.5	0.9
Gout	566	1.1	0.6	0.4	0.7
Hypothyroidism/myxoedema	540	1.1	0.6	0.4	0.7
Anaemia (chronic)**	537	1.1	0.5	0.4	0.7
Rheumatoid arthritis	502	1.0	0.5	0.4	0.7
Dementia	466	0.9	0.5	0.1	0.8
Schizophrenia	465	0.9	0.5	0.3	0.6
Anxiety disorder	439	0.9	0.4	0.2	0.7
Acne (chronic)**	409	0.8	0.4	0.3	0.5
Shoulder syndrome	379	0.8	0.4	0.2	0.5
Sprain/strain**	359	0.7	0.4	0.1	0.6
Vertiginous syndromes	353	0.7	0.4	0.2	0.5
Epilepsy	321	0.6	0.3	0.2	0.5
Irritable bowel syndrome	310	0.6	0.3	0.1	0.5
<i>Subtotal</i>	<i>40,693</i>	<i>81.1</i>	—	—	—
Total chronic problems	50,183	100.0	50.8	49.0	52.5

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3).

** 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 4 for codes included in analysis of chronic conditions).

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

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. In 2003–04, 55,292 problems were specified as being 'new', being managed at a rate of 55.9 per 100 encounters (Table 7.6).

The most frequently managed new problem was acute URTI, managed at a rate of 4.2 per 100 encounters. This problem accounted for 7.5% of all new problems under management. Immunisations/vaccinations were the second most frequently managed new problem (2.9 per 100 encounters, accounting for 5.2% of all new problems). Another acute respiratory problem, acute bronchitis/bronchiolitis, was managed at an average rate of 1.8 per 100 encounters. Acute bronchitis and URTI together comprised 10.6% of all new problems managed in 2003–04.

It is interesting to note that some problems ranked considerably higher when comparing the status of the problem to the overall management rate. Urinary tract infections were the fourth most commonly managed new problem, at a rate of 1.1 per 100 encounters, while the overall management rate for this problem was 1.9 per 100 encounters. This indicates that the presentation of urinary tract infections is more likely to be a new presentation.

Some chronic conditions also fell into the top 30 list of new problems. Depression (0.6 per 100 encounters), hypertension (0.5 per 100 encounters) and osteoarthritis (0.5 per 100 encounters) are all listed among the 30 most frequently managed new problems, despite being characterised as conditions that require long-term, ongoing management.

Table 7.6: Most frequently managed new problems

New problem managed	Number	Per cent of total new problems (n=55,292)	Rate per 100 encounters ^(a) (n=98,877)	95% LCL	95% UCL
Upper respiratory tract infection	4,131	7.5	4.2	3.8	4.5
Immunisation/vaccination—all*	2,887	5.2	2.9	2.4	3.4
Acute bronchitis/bronchiolitis	1,738	3.1	1.8	1.6	2.0
Urinary tract infection*	1,054	1.9	1.1	1.0	1.2
Viral disease, other/NOS	991	1.8	1.0	0.7	1.3
Sprain/strain*	942	1.7	1.0	0.8	1.1
Tonsillitis*	896	1.6	0.9	0.7	1.1
Gastroenteritis, presumed infection	885	1.6	0.9	0.7	1.1
Sinusitis acute/chronic	874	1.6	0.9	0.7	1.1
Acute otitis media/myringitis	854	1.5	0.9	0.7	1.0
Contact dermatitis	841	1.5	0.9	0.7	1.0
General check-up*	819	1.5	0.8	0.6	1.1
Female genital check-up*	724	1.3	0.7	0.3	1.1
Back complaint*	633	1.1	0.6	0.5	0.8
Depression*	627	1.1	0.6	0.5	0.8
Solar keratosis/sunburn	599	1.1	0.6	0.3	0.9
Infectious conjunctivitis	591	1.1	0.6	0.4	0.8
Malignant neoplasm skin	587	1.1	0.6	0.2	0.9

(continued)

Table 7.6 (continued): Most frequently managed new problems

New problem managed	Number	Per cent of total new problems (n=55,292)	Rate per 100 encounters^(a) (n=98,877)	95% LCL	95% UCL
Hypertension*	511	0.9	0.5	0.3	0.7
Otitis externa	462	0.8	0.5	0.3	0.7
Osteoarthritis*	451	0.8	0.5	0.3	0.6
Skin infection, post-traumatic	459	0.8	0.5	0.3	0.6
Respiratory infection, other	441	0.8	0.5	0.0	1.2
Oesophageal disease	431	0.8	0.4	0.3	0.6
Fracture*	434	0.8	0.4	0.3	0.6
Gastrointestinal infection	422	0.8	0.4	0.0	0.9
Asthma	426	0.8	0.4	0.2	0.6
Bursitis/tendonitis/synovitis NOS	415	0.8	0.4	0.3	0.5
Excessive ear wax	407	0.7	0.4	0.3	0.6
<i>Subtotal</i>	<i>25,531</i>	<i>46.1</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total new problems	55,292	100.0	55.9	54.5	57.3

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3).

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

7.4 Changes from 1999–00 to 2003–04

There has been no change in the number of problems managed per 100 encounters between 1999–00 and 2003–04. However, there has been a significant increase in the management rate of new problems over this time, from 45.3 per 100 encounters in 1999–00 to 55.9 per 100 encounters in 2003–04 (Appendix 5, Table A5.2).

Over the five years between 1999 and 2004, there has been a steady decline in the management rate of respiratory problems, from 24.2 to 20.1 per 100 encounters (Appendix 5, Table A5.7). This decline is largely due to a significant decrease in the management rates of: URIs (7.2 compared with 5.5 per 100 encounters), acute bronchitis/bronchiolitis (3.2 compared with 2.4 per 100 encounters), and asthma (3.2 compared with 2.6 per 100 encounters) (Appendix 5, Table A5.8).

There has been a significant increase in the management rate of endocrine and metabolic conditions, partly due to a significant increase in diabetes management over this period (increasing from 2.7 per 100 encounters to 3.3 per 100 encounters). There was a similar trend observed in the management of lipid disorders, but the higher rate in 2003–04 compared with 1999–00 did not reach statistical significance. However, if the management rate of lipid disorders is examined using the full BEACH data set over six years (1998–99 to 2003–04), a significant increase is observed (from 2.5 per 100 encounters, 95% CI: 2.3–2.7, to 3.1 per 100 encounters).

A significant increase was also observed in the management rate of osteoarthritis (from 2.2 per 100 encounters to 2.8 per 100 encounters), while the management rate of problems related to the ear decreased significantly over the last 5 years (from 4.5 per 100 encounters to 4.0 per 100 encounters) (Appendix 5, Table A5.8).