

General practice activity in Australia 2006–07

Australian GP Statistics and Classification Centre

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Bettering the Evaluation And Care of Health

General practice activity in Australia 2006–07

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Foreword

As BEACH approaches the end of its tenth year of continuous collection of GP activity data, it remains the only independent survey on patterns of primary care in Australia. BEACH is a powerful tool for public health. So much so, that the Canadians are drawing on the experience and expertise from BEACH in planning data collection in their own country. The rigour of the study design, the breadth of the sample – 93,000 encounters with 930 GPs in this year 9 collection – combined with the ability to examine trends over time, provides a unique opportunity to plan and evaluate the front line response to what is happening more broadly with the health of the population.

What's happening in Australia should make us sit up and take notice. As baby boomer GPs think ahead to retirement they are reducing their hours of work whilst their baby boomer patients and those aged more than 75 years are seeing their GP more frequently. Chronic diseases, such as diabetes, cancer, cardiovascular disease and mental ill health are on the rise. Without a better funded, coordinated and integrated approach to managing chronic disease in the community, much of the burden will continue to fall on GPs. This is reflected in the number of consultations related to the management of chronic problems. There has been a 5.4 million increase in the number of GP encounters related to chronic disease in less than a decade.

The response from GPs to an ageing and more demanding patient population reveals the impact of changes in Medicare funding, health policy and practice management. The use of longer consultations, increased utilisation of Medicare funded procedural care provided by practice nurses, fewer prescriptions, increased referrals to specialists and a reduction in work hours all come at a time when the number of new medical graduates entering general practice falls short of the number expected to leave the GP workforce over the next decade. The same problem with workforce replacement for nurses and allied health professions will place additional pressure on GPs.

Despite these challenges, general practice in Australia is remarkably resilient. Earlier this year Professor Helena Britt (Director of the Family Medicine Research Centre) with co-authors from the USA, UK and New Zealand published a paper in the *British Medical Journal*¹ that compared GP encounters and activities across those countries. Not only does general practice in Australia compare favourably to our Commonwealth and North American counterparts, the BEACH survey and methodology itself is regarded as a world leader.

It is inevitable that technology will drive a shift to electronic data capture from general practice but that day may be many years away. In the meantime, the public-private partnership that exists between the Australian Government Department of Health and Ageing, the Australian Institute of Health and Welfare, The University of Sydney, pharmaceutical companies and NGOs that fund a paper-based BEACH needs to be preserved. It is a tribute to Professor Britt and Professor Graeme Miller (Medical Director of the Family Medicine Research Centre) that they have been able to combine the demands of academic entrepreneurship in funding BEACH with the high quality of research required to serve the public good.

John Kenneth Galbraith once noted that managers don't much like information because it complicates the otherwise simple joys of making decisions. But there are joys in knowing, whether or not the news is good. The information provided by the BEACH annual reports is essential reading for our health managers. BEACH is essential to the betterment and evaluation of general practice in Australia.

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1. Bindman AB, Forrest CB, Britt H, Crampton P, Majeed A 2007. Diagnostic scope of and exposure to primary care physicians in Australia, New Zealand, and the United States: cross sectional analysis of results from three national surveys. *BMJ* 334(7606):1261-6.

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

Abbreviations

ABS	Australian Bureau of Statistics
AGPSCC	Australian General Practice Statistics and Classification Centre, University of Sydney, a collaborating unit of the Australian Institute of Health and Welfare
AIHW	Australian Institute of Health and Welfare
ATC	Anatomical Therapeutic Chemical (classification)
AUDIT	Alcohol Use Disorders Identification Test
AusDiab	Australian Diabetes, Obesity and Lifestyle Study
BEACH	Bettering the Evaluation And Care of Health
BOIMHC	Better Outcomes in Mental Health Care
BMI	Body mass index
CAPS	Coding Atlas for Pharmaceutical Substances
CDC	United States Centers for Disease Control and Prevention
CI	confidence interval (in this report 95% CI is used)
COAG	Council of Australian Governments
CT	Computerised tomography
DoHA	Australian Government Department of Health and Ageing
DUSOI	Duke University Severity of Illness
DVA	Australian Government Department of Veterans' Affairs
ED	Erectile dysfunction
EHR	Electronic health record
ESR	Erythrocyte sedimentation rate
EUC	Electrolytes, urea and creatinine
FMRC	Family Medicine Research Centre
FRACGP	Fellow of the Royal Australian College of General Practitioners
GP	General practitioner
GPSCU	General Practice Statistics and Classification Unit (now the Australian General Practice Statistics and Classification Centre, AGPSCC)
HbA1c	Haemoglobin, type A1c
HDL	High-density lipoprotein
HIV	Human immunodeficiency virus
ICPC	International Classification of Primary Care
ICPC-2	International Classification of Primary Care (Version 2)
ICPC-2 PLUS	A terminology classified according to ICPC-2
INR	International Normalised Ratio

IT	information technology
MBS	Medicare Benefits Schedule
M,C&S	Microscopy, culture and sensitivity
NDSHS	National Drug Strategy Household Survey
NeHTA	National e-Health Transition Authority
NSAID	Non-steroidal anti-inflammatory drug
OTC	over-the-counter (i.e. medications advised for over-the-counter purchase)
PBS	Pharmaceutical Benefits Scheme
QA	quality assurance (in this case the Quality Assurance Program of the Royal Australian College of General Practitioners)
RACGP	Royal Australian College of General Practitioners
RFE(s)	reason(s) for encounter (see Glossary)
SAND	Supplementary Analysis of Nominated Data
SAS	Statistical Analysis System
SNOMED CT	Systematized Nomenclature of Medicine Clinical Terms
URTI	Upper respiratory tract infection
WHO	World Health Organization
Wonca	World Organization of Family Doctors

Contents

Executive summary	xiv
1 Overview.....	1
1.1 Background.....	1
1.2 The BEACH program	2
Aims	2
Current status of BEACH	2
Access to BEACH data	3
1.3 Future options for national representative data collection from general practice.....	4
Requirements for electronic data collection	4
Possible ways to move forward	6
2 Methods	8
2.1 Sampling methods	8
2.2 Recruitment methods	8
2.3 Data elements	9
2.4 Changes to data elements and reporting methods.....	10
2.5 Supplementary Analysis of Nominated Data.....	11
2.6 The BEACH relational database	12
2.7 Statistical methods	13
Changes over time	13
Extrapolated national estimates.....	14
2.8 Classification of data	15
Presentation of data classified in ICPC-2.....	16
Classification of pharmaceuticals	17
Use of the medication classifications in reporting	18
2.9 Quality assurance.....	18
2.10 Methodological issues	18
Validity and reliability	18
Cluster sampling	20
GP participation	20
Limitations of extrapolations	21
2.11 Other BEACH applications.....	23
3 The sample	24
3.1 Annual results, 2006–07	24
Response rate.....	24
Representativeness of the GP sample	25

Weighting the data, 2006–07.....	27
Representativeness of the final encounter sample, 2006–07	27
The weighted data set.....	28
3.2 The total data set, 1998–2007	29
4 The participating GPs.....	30
4.1 Annual results, 2006–07	30
Characteristics of the GP participants.....	30
Computer use at GP practices	33
4.2 Changes over time, 1998–99 to 2006–07	34
5 The encounters.....	41
5.1 Annual results, 2006–07	41
Content of the encounters.....	41
Encounter type	41
5.2 Changes over time, 1998–99 to 2006–07	46
6 The patients.....	52
6.1 Annual results, 2006–07	52
Age–sex distribution of patients at encounter	52
Other patient characteristics.....	52
Patient reasons for encounter	53
6.2 Changes over time, 1998–99 to 2006–07	58
7 Problems managed.....	70
7.1 Annual results, 2006–07	70
Number of problems managed at encounter	70
Problems managed by ICPC-2 chapter	71
Problems managed by ICPC-2 component	71
Most frequently managed problems	74
Most common new problems.....	75
Most frequently managed chronic problems.....	77
Work-related problems managed.....	78
7.2 Changes over time, 1998–99 to 2006–07	79
8 Overview of management	95
8.1 Annual results, 2006–07	95
8.2 Changes over time, 1998–99 to 2006–07	98
9 Medications	104
9.1 Annual results, 2006–07	104
Source of medications.....	104
Prescribed medications	104
Medications supplied by GPs.....	111

Medications advised for over-the-counter purchase	112
9.2 Changes over time, 1998–99 to 2006–07	113
10 Other treatments.....	130
10.1 Annual results, 2006–07	130
Number of other treatments.....	130
Clinical treatments	131
Procedural treatments	133
10.2 Changes over time, 1998–99 to 2006–07	135
11 Referrals and admissions.....	145
11.1 Annual results, 2006–07	145
Number of referrals and admissions.....	145
Most frequent referrals.....	145
Problems most often referred.....	146
11.2 Changes over time, 1998–99 to 2006–07	148
12 Investigations.....	152
12.1 Annual results, 2006–07	152
Numbers of investigations.....	152
Pathology ordering	152
Imaging ordering	155
Other investigations ordered	157
12.2 Changes over time, 1998–99 to 2006–07	158
13 Practice nurse activity	162
13.1 Annual results, 2006–07	163
Practice nurse Medicare claims versus practice nurse activity	163
Discussion	166
13.2 Changes over time	167
14 Changes in policy and practice: type 2 diabetes and depression.....	168
14.1 Background.....	168
14.2 Type 2 diabetes.....	169
14.3 Mental health.....	176
14.4 Discussion	181
15 Patient risk factors.....	183
15.1 Annual results, 2006–07	183
Body mass index	183
Smoking (patients aged 18 years and over)	187
Alcohol consumption (patients aged 18 years and over)	189
Risk factor profile of adult patients	191
15.2 Changes over time, 1998–99 to 2006–07	192

16 SAND abstracts and research tools.....	200
SAND abstract 105: Measurement of severity of illness in general practice	201
SAND abstract 106: Weight loss attempts and methods	203
SAND abstract 107: Type 2 diabetes and dyslipidaemia.....	206
SAND abstract 108: Type 2 diabetes among patients attending general practice.....	208
SAND abstract 109: Secondary prevention of heart attack and stroke.....	210
SAND abstract 110: Erectile dysfunction.....	212
Reference list.....	215
Glossary.....	223
Appendices	226
Appendix 1: Example of a 2006–07 recording form	226
Appendix 2: GP characteristics questionnaire, 2006–07	228
Appendix 3: Dissemination of results from the BEACH program	229
Available from < www.aihw.gov.au/publications/index.cfm/subject/19 >	229
Appendix 4: Code groups from ICPC-2 and ICPC-2 PLUS	229
Available from < www.aihw.gov.au/publications/index.cfm/subject/19 >	229
Appendix 5: Chronic code groups from ICPC-2 and ICPC-2 PLUS	229
Available from < www.aihw.gov.au/publications/index.cfm/subject/19 >	229
List of tables	230
List of figures	234

Executive summary

BEACH is a continuous cross-sectional national study of general practice activity in Australia which began in April 1998. It is the only continuous randomised study of GP activity in the world, and the only national program directly linking management actions (such as prescriptions, referrals, investigations) to the problem under management.

This ninth annual report summarises results from April 2006–March 07 from a sample of 93,000 encounters with 930 GPs. It describes the characteristics of GPs and the patients who consult them, patient reasons for encounter, the problems managed and management techniques used. It also examines changes that have occurred since 1998.

Summary

The general practice workforce is ageing, becoming increasingly feminised and seeking a better work-life balance (working few sessions). GP activity is also changing. More of the GPs' work is with baby-boomers and the aged and less is with children. Changes in problems managed by the GPs reflect the changing patient pattern, with more frequent management of chronic problems (reflecting ageing patients) and lower rates of acute problems, particularly those of the respiratory system.

GPs are prescribing fewer medications but supplying more directly to the patient. There have been significant decreases in clinical treatments (such advice and education) provided at the encounter following the introduction of practice nurse Medicare item numbers. More procedures are being undertaken during the encounters, and practice nurses are contributing strongly to their provision. GPs are referring their patients to specialists more often. Referrals to psychologists have also increased in response to Medicare coverage of these services. Orders for tests and investigations continue to grow steadily, particularly for pathology tests.

The changing general practice workforce

- The feminisation of the general practice workforce is reflected in the proportion of GP participants who are female, increasing from 30.0% in 1998–99 to 34.1% in 2006–07.
- The ageing of the GP workforce continues. In 2006–07 one in three participants were aged 55 years or more, an increase of about 40% since 1998–99. Limitations on GP training places over the last decade mean that now fewer than 10% of GPs are under 35 years of age, a reduction from 15% in 1998–99.
- Many GPs are working fewer hours. The proportion working less than 6 sessions per week has increased from 12% to 17% while the proportion working 11 or more sessions has halved (from 19.0% to 9.6%) over this time period. This effects the total number of full-time workload equivalent GPs available for patient care.
- Half the GPs now rely on deputising or emergency services for after hours care of their patients. This represents a 20% decrease in the proportion providing their own or cooperative after-hours services since 2000–01.
- Larger practices (of five or more GPs) now account for more than half of the GP sample while the number of participants in solo practice has halved since 1998–99, to about 8%.

The encounters

- Long surgery consultations accounted for 10% of the MBS claimable encounters in 2006–07, a significant increase since 1998–99 when they accounted for 7%.
- GPs are doing fewer home visits. In 1998–99 home visits accounted for 1.9% of encounters but have halved to 0.9% in 2006–07.
- The average measured length of Medicare/DVA claimable consultations has stayed constant at about 15 minutes since 2000–01. Length of consultation is measured (from recorded start and finish time) in a subsample of encounters.

The patients

Patients aged 75 years and over and baby boomers (aged 45–64 years) are taking up an increasing proportion of the GPs' workload. Encounters with patients aged 75 years and over increased by 30% and those with 45–64 year olds increasing by 15% from 1998–99 to 2006–07. Children make up an ever decreasing proportion of encounters.

Patients are coming to the GP with more reasons for encounter (RFEs). The number of RFEs has increased from 146.3 in 1998–99 to 150.8 per 100 encounters in 2006–07, equating to an estimated additional 3.6 million RFEs nationally in 2006–07 than nine years earlier

Visits to obtain results of tests and request administrative procedures (such as medical certificates) have increased. Attendances to receive results have doubled from 3.4 to 6.9 per 100 encounters and requests for administrative procedures have increased from 1.1 to 1.9 per 100 encounters.

Problems managed

There has been no change in the number of problems managed at the average GP encounter since 1998–99, being steady at about 1.5 problems per encounter.

There has been a decrease in the frequency of management of acute respiratory conditions (e.g. upper respiratory tract infection, acute bronchitis) which would be partially explained by the decrease in the proportion of workload associated with children.

The management rate of chronic problems has increased from 46.5 per 100 encounters in 1998–99 to 52.1 in 2006–07, equating to an additional 5.4 million occasions of chronic problem management in 2006–07 than in 1998–99. This is reflected in increased management rates of hypertension, diabetes, oesophageal disease, malignant skin neoplasm, atrial fibrillation and osteoporosis, reflecting the morbidity of the ageing attending patients.

Changes in management provided by GPs

Fewer medications are being prescribed, advised for over-the-counter purchase or supplied by the GP. This is largely due to decreasing prescription rates (from 93.6 per 100 encounters in 1998–99 to 83.3 per 100 in 2006–07), being counteracted slightly by an increase in GP-supplied medications (from 7.3 to 8.9 per 100 encounters). Extrapolation to all GP Medicare claims nationally suggests that in 2006–07 there were 9.2 million fewer occasions on which the GPs prescribed/advised/supplied medication than in 1998–99 – made up of about 11.2 million fewer prescriptions written with a counteracting increase of about 1.6 million GP-supplied medications.

Reasons for the decrease in prescriptions may include wider availability of some medications by over-the-counter purchase, the increasing number of combination medications available, changes in GP prescribing behaviour (for example, the decrease in prescriptions for oral

contraceptives), broadening of government initiatives such as free supply of selected vaccines, and increases in the number of repeats given by the GP.

Referral rates to medical specialists (particularly cardiologists) have increased since 1998–99. While the total referral rate to allied health professionals has not changed referrals to psychologists, podiatrists and dietitians have increased.

The number of tests and investigations ordered by GP continues to rise, particularly pathology test ordering. GPs are now more likely to order a pathology test and are ordering more tests once the decision to order has been made. The likelihood of ordering pathology tests at the encounter increased from 13.2% to 17.4%, an increase of 32% since 1998–99. GPs ordered about 44% more tests (or batteries of tests) per 100 encounters in 2006–07 (42.4 orders per 100 encounters) than in 2000–01 (29.7 per 100).

The rate of imaging orders increased from 7.7 per 100 encounters to 9.0 per 100 encounters, an increase of 17% from 1998–99 to 2006–07. The rate of other investigations ordered also increased over time, from 0.6 per 100 encounters in 2000–01 to 1.1 per 100 in 2006–07.

Clinical and procedural activity

Clinical treatment rates (education, advice and counselling) consistently increased from 1998–99 to 2004–05, but fell by 25% to 29.5 per 100 encounters in 2005–06 (reverting to the 1998–99 level) and stayed at that level in 2006–07. The decrease was largely in the areas of advice about treatment and lifestyle advice (including diet, exercise, smoking alcohol consumption etc). The sudden decrease followed the introduction of practice nurse Medicare item numbers in November 2004, and suggest that the practice nurses may be taking up some of these duties in patient contacts occurring independently of the GP–patient encounter. The 2005–06 decrease did not significantly effect the rate of psychological counselling recorded by the GPs – an activity for which the practice nurse cannot substitute.

Procedural treatments increased by almost 30% from 1998–99 to 2006–07. Some of the increase noted in 2005–06 and 2006–07 could reflect practice nurse activity which accounted for 23% of all procedures done during the encounter in 2005–06 and 28% in 2006–07.

There were 1,835 practice nurse Medicare items recorded in BEACH, two thirds being for provision of immunisations and a third for wound management. At least one practice nurse activity was recorded at 5% of the encounters. The majority (92%) of their activity was procedural. In contrast, less than 2% of all recorded clinical treatments (advice, counselling) were provided by the practice nurse in conjunction with the GP–patient encounter.

These activities include work undertaken by practice nurses at the time of the GP–patient encounter. They do not include any clinical or procedural work done by practice nurses under instruction from the GP, at independent consultations with the patient. It may be that the practice nurses are providing education, advice and lifestyle counselling at independent contacts with the patient, and that the overall education and advice level in general practice as a whole has not changed. However there are no data available about these ‘out of encounter’ activities, on which to test this hypothesis.

Policy and practice: Type 2 diabetes and depression

The continuous nature of the BEACH program allows us to consider changes in management in light of changes in policy. Policy initiatives have had a significant impact on the management of type 2 diabetes, but a lesser effect on management of depression.

For type 2 diabetes we found:

- an increased identification rate of new cases
- increased management rates among patients aged 45 and over of both sexes
- increased management rates of blood pressure and lipids as part of diabetes care
- increased pathology testing
- higher referral rates, suggesting improved patient access to other health professionals, particularly allied health.

For depression we found:

- no change in identification or management rates between 1998–99 and 2006–07
- GP provision of counselling for depression increased in 2000–01 and stayed at this higher level until 2006–07.
- in 2006–07, when Medicare rebates were offered for psychologist consultations for patients referred by GPs, GP provision of counselling for depression reverted to 1998–99 rates; referrals to psychologists increased sharply; and those to psychiatrists decreased.

Patient risk factor substudies

Overweight and obesity: Among a sample of more than 32,000 attending patients. Only four in ten patients were in the normal BMI range. More than half (58.5%) were overweight (23.5%) or obese (35.0%), a considerable increase since 1998–99, when 32.8% were overweight and 18.3% obese (51.1% being overweight or obese). These increases applied in both sexes.

In contrast, prevalence of overweight and obesity among a sub-sample of about 3,000 children (2–17 years) remained steady – 10.6% being obese and 18.6% overweight in 2006–07.

Fewer adults are smoking: According to the subsample study of approximately 30,000 adults there has been a significant decrease in prevalence of current daily smoking in adults, from 19.2% in 1998–98 to 16.1% in 2006–07. This decrease applied in both sexes.

Alcohol consumption: Of the 30,000 subsampled adults 27.0% reporting drinking alcohol at levels classed as ‘at-risk’. The prevalence of at-risk alcohol consumption has not changed since first measured in the 1998–99 sub-study.

The future of national data collection in general practice

Currently BEACH data collection is paper-based, at present it is not possible to collect representative general practice data electronically. Many complex issues need to be addressed prior to national electronic data collection becoming a viable alternative to the current method (see Section 1.4).

1 Overview

This publication is the ninth annual report and the 21st book in the series from the BEACH (Bettering the Evaluation And Care of Health) program, a continuous national study of general practice activity in Australia. It provides results for the period April 2006 to March 2007 inclusive, using details of 91,805 encounters between general practitioners (GPs) and patients (about a 0.1% sample of all general practice encounters) from a random sample of 930 practising GPs across the country. It also reports changes that have occurred in this activity since BEACH began in 1998.

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

The BEACH program is unique. It is the only continuous randomised study of general practice activity in the world, and the only national program that provides direct linkage of management actions (such as prescriptions, referrals, investigations) to the problem under management. It began in April 1998 and the BEACH database now includes information for 892,300 encounters from 8,923 participants representing about 7,000 individual GPs.

GPs provided by far the majority of the 103 million non-specialist services paid by Medicare in Australia in 2005–06, at an average rate of about five visits per person per year.¹ BEACH gives us some understanding of the content of these encounters and of the services and treatments that GPs provide.

1.1 Background

GPs are the first port of call in the Australian health care system. They act as gatekeepers to the secondary and tertiary sectors of the health system. In 2006–07 they claimed more than 100 million items of service through Medicare and provided an estimated additional 6.6 million services that were paid for by other funders (such as workers compensation, state Government) or not charged for at all.²

About 80% of the Australian population visit a GP at least once in any year.³ Previous research using BEACH data suggested that in the 12 months 2001–02, people in Australia spent on average 83 minutes with a GP per head of population. This compares with about 56 minutes per head in New Zealand and about 30 minutes per head in the United States during the same period.⁴ The extent to which this affects health outcomes for the population cannot be measured. However, considering the important role general practice plays in the health care of the community, information about the clinical activities of GPs is essential.

In March 2007 the population of Australia was estimated to be 20.9 million people.⁵ In 2005–06, national expenditure on health was 9.0% of gross domestic product, with governments funding two-thirds of the \$86.9 billion total health expenditure.⁶

- In 2003 in Australia there were 51,819 medical practitioners working as clinicians, of whom 42% were primary care providers.⁷ Of these, 80% were recognised general practitioners and 20% were other primary care medical practitioners.⁸

- There were 110 practising primary care practitioners per 100,000 people in Australia in 2003. Together they made up 100 full-time equivalents (based on a 45-hour working week) per 100,000 population.⁷
- By far the majority of visits to GPs are funded through the Commonwealth Medicare Benefits Schedule (MBS).
- In the 2006–07 financial year, there were about 103 million general practice services paid through Medicare at an average of 5 GP services per person.¹ This equates with approximately 280,000 services per day, every day of the year.¹
- In 2005 the primary cost to Medicare for GP items was over \$4 billion.⁹ Up-to-date estimates of secondary costs generated by GPs could not be located.

1.2 The BEACH program

In summary, the BEACH program is a continuous national study of general practice activity in Australia. It uses details of about 100,000 encounters between GPs and patients (about a 0.1% sample of all general practice encounters) from a random sample of approximately 1,000 recognised practising GPs from across the country. A full description of the BEACH methods is provided in Chapter 2 of this report.

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

Aims

The BEACH program has three main aims:

- to provide a reliable and valid data collection process for general practice which is responsive to the 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.

Current status of BEACH

BEACH began in April 1998 and is now in its 10th year. The database for the first 9 years includes data for approximately 900,000 GP–patient encounters from almost 9,000 participating GPs. Each year the AGPSCC publishes an annual report of BEACH results through the AIHW. This publication reports results from the previous BEACH data year (April 2006 to March 2007) on a national basis to provide an overview of general practice activity.

Other reports use the database for secondary analyses of a selected topic or for a specific research question. Recent examples are a comparative study of general practice activity in

each of the states and territories of Australia¹⁰, a comparative study of activity in rural and metropolitan areas of Australia¹¹, and a report of more than 100 BEACH substudies (including abstracts of results and the research tools).¹² These and other BEACH reports can be downloaded from <www.fmrc.org.au/publications/> (go to Books – General Practice Series) or from <www.aihw.gov.au/publications/index.cfm/criteria//subject/19>.

Access to BEACH data

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

Public domain

This annual publication provides a comprehensive view of general practice activity in Australia. The BEACH program has generated many papers on a wide range of topics in journals and professional magazines. Appendix 3 lists all published material from BEACH, see <www.aihw.gov.au/publications/index.cfm>.

Since April 1998, a section on the bottom of each encounter form has been used to investigate aspects of patient health or health care delivery not covered by general practice consultation-based information. These additional substudies are referred to as SAND (Supplementary Analysis of Nominated Data). The SAND methods are described Section 2.5.

A recently published report *Patient-based substudies from BEACH: abstracts and research tools 1999–2006* provides details of more than 100 SAND substudies conducted in the BEACH program. Abstracts and research tools for substudies conducted in 2006–07 that were not included in that report are presented in Chapter 16. The subjects covered in the abstracts from the 2006–07 BEACH year are listed in Table 16.1 with the sample size for each topic.

Abstracts of results for all SAND substudies are also available on the FMRC's website <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Participating organisations

Organisations providing funding for the BEACH program receive summary reports of the encounter data quarterly and standard reports about their subjects of interest. Participating organisations also have direct access to straightforward analyses on any selected problem, medication, pathology or imaging test through an interactive web server. All data made available to participating organisations is further 'de-identified'. Patient data are not identifiable, but are further stripped of date of birth (replaced with age in years and months) and postcode of residence (replaced with state and area type). GP characteristics data are only provided in the form of grouped output (for example GPs aged less than 35 years) to any external organisation.

External purchasers of standard reports

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

Analysis of the BEACH data is a complex task. The AGPSCC has designed standard reports that cover most aspects of a subject under investigation. Examples of a problem-based standard report (subject: ischaemic heart disease in patients aged 45 years or more), a group

report (subject: female patients aged 15–24 years) and a pharmacological-based standard report (subject: allopurinol) for a single year's data are available on www.fmrc.org.au/purchase.htm.

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

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

1.3 Future options for national representative data collection from general practice

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

Requirements for electronic data collection

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

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

During 2005 we developed a minimum data set for the Electronic Communication Working Group of the General Practice Computing Group. The project was conducted under the auspices of the the Royal Australian College of General Practitioners (RACGP) with funding from DoHA. This was one of a series of projects designed to improve interoperability of GP computer systems and to improve communication between systems by standardising data elements and database systems.

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

The final minimum data set comprises 90 data elements and includes data groups of logically associated items and a linkage diagram to specify required linkages between data items. The report 'General practice EHR and data query minimum data set' is

available on the web at <www.gpcg.org.au/index.php?option=com_content&task=view&id=41&Itemid=54>.

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

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

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

Currently there are about 12 software providers in Australia with finished product clinical systems being used in general practice that utilise the ICPC-2 PLUS¹³, an interface terminology classified to the International Classification of Primary Care (Version 2) (ICPC-2). ICPC-2 PLUS allows speedy classification of 'problems managed' data (and, in some systems, presenting symptoms) to the international standard for classification of data collected in general practice, ICPC-2.¹⁴ This is the same coding and classification system used in BEACH (see Section 5.8 Classification of data). However, the major software provider in Australia does not use ICPC-2 for the classification of any data.

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

The Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT)¹⁵, the pre-eminent clinical terminology, has been identified by NeHTA as the preferred national terminology for Australia. SNOMED CT remains freely available for e-health software developers to use in their Australian products, under NeHTA's new licensing arrangements. However, as SNOMED CT does not provide total coverage of all concepts and descriptions used in the Australian health sector, NeHTA will supplement SNOMED CT by developing specific extension terminologies to cover local clinical information requirements. This will include mapping to the existing classifications used for data coding in Australia, such as ICD-10-AM.¹⁶

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

- **resolution of privacy and confidentiality issues**

Any consumer and professional concerns regarding electronic download of patient data from GP electronic health records (EHRs) software need to be identified and addressed even where data collections occur under the auspices of statutory authorities such as the AIHW.

Passive data collection

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

Many people have suggested that, with the increased GP uptake of electronic prescribing systems or full clinical systems (that is, EHRs), data can be drawn directly from the GPs' clinical computers. Some also suggest that patient-based longitudinal data could be gained by such means. This is being done in some divisions of general practice for selected morbidity topics in projects such as the National Primary Care Collaboratives program.¹⁷ However, obtaining reliable data at the national level for all aspects of care and for all data elements collected in BEACH presents a major challenge.

To obtain a national random sample of practising GPs, each GP must have an equal chance of selection and this is not possible until all GPs are using EHRs. GPs who use computers for clinical practice differ from those who do not. They are younger and more likely to have graduated in Australia, be Fellows of the Royal Australian College of General Practitioners (FRACGP), work in larger practices, practise outside major cities, be female, and less likely to bulk-bill all patients, than those who do not use a computer for clinical purposes.¹⁸ Sampling from only those GPs with EHRs would therefore give a biased national result.

Passive data collection also requires complete records with valid data in all compulsory fields. Proposals to randomly sample current EHRs are based on an assumption that all of the GPs (and the practice nurses) enter all of the required data, all of the time, for all patients – that is, that they are virtually paperless. Many GPs currently have electronic prescribing systems available but not full EHRs, or they use their EHRs for prescribing only (see Chapter 4). Henderson et al. recently published a more detailed analysis of the BEACH data demonstrating the extent to which individual GPs use their computers for clinical purposes. This study demonstrated that only about one in five GPs used all the functions that would be required to collect the BEACH data set and submit it electronically to the AGPSCC.¹⁹

Active electronic data collection

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

A longitudinal crossover study in 2002–03 by the FMRC, commissioned by the RACGP and the Western Sydney Division of General Practice, demonstrated that using a purpose-built data collection software module on the GPs' desktops resulted in low compliance by the GPs and poor data quality, with much less data recorded than in the paper-based BEACH collection. The results of this study clearly indicated that any active data collection program must use software that is integrated with, and automatically uses data already in, the GPs' EHRs.²⁰

Possible ways to move forward

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

Electronic data collection (PC- or web-based), in which randomly sampled GPs record data for all the necessary BEACH data elements for a sample of patients – on computer instead of paper – could be introduced as a process integrated with GPs' desktop EHR software. The relevant data already recorded in the EHR could be transferred to a 'plug in' data collection tool. Such a process has been used in a limited way in the National Primary Care

Collaboratives Program. At the end of the encounter any BEACH data fields that remain empty could be highlighted for the manual addition of information where required.

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

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

However, for both options, the same methodological rigour should be applied as was the case in the development of valid and reliable paper-based methods of GP data collection over a period of more than 20 years. The BEACH instrument and methodology provide an excellent jumping-off point for developing any future electronic data collection from general practice.

2 Methods

In summary:

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

2.1 Sampling methods

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

2.2 Recruitment methods

The randomly selected GPs are approached by letter posted to the address provided by DoHA.

- Over the following 10 days the telephone numbers generated from the Medicare data are checked using the electronic white and yellow pages. This is necessary because many of the telephone numbers provided from the Medicare data are incorrect.
- The GPs are then telephoned in the order they were approached and, referring to the approach letter, asked whether they will participate.
- This initial telephone contact with the practice often indicates that the selected GP has moved elsewhere, but is still in practice. Where forward address and/or telephone number can be obtained, these GPs are followed up at their new address.
- GPs who agree to participate are set an agreed recording date several weeks ahead.
- A research pack is sent to each participant about 10 days before the planned start date.
- Each GP receives a telephone reminder in the first days of the agreed recording period – this also provides the GP with an opportunity to ask questions about the recording process.

- GPs can use a 'free-call' (1800) number to ring the research team with any questions during their recording period.
- Non-returns are followed up by regular telephone calls for up to 3 months after the set recording time.
- Participating GPs earn Clinical Audit points towards their quality assurance (QA) requirements through the RACGP. As part of this QA process, each receives an analysis of his or her results compared with those of nine other de-identified GPs who recorded at approximately the same time. Comparisons with the national average and with targets relating to the National Health Priority Areas are also provided. In addition, GPs receive some educational material related to the identification and management of patients who smoke or consume alcohol at hazardous levels. Additional points can be earned if the participant chooses to do a follow-up audit of smoking and alcohol consumption among a sample of patients about 6 months later.

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 provided in Appendix 2.

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

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

2.4 Changes to data elements and reporting methods

For the first 7 years of the BEACH program (1998–99 to 2004–05), where a Medicare item number was claimable for the encounter the GP was instructed to record only one item number. Where multiple item numbers (for example, an A1 item such as ‘standard surgery consultation’ and a procedural item number) were claimable for an encounter the GP was instructed to record the lower of these (usually an A1 item number). For reporting purposes Medicare-claimable encounters were broken down according to the item number recorded by the GP as claimable (either through Medicare or through DVA) for the encounter.

In November 2004 four new item numbers were added to Medicare²¹ to cover some selected activities conducted by a practice nurse on behalf of a medical practitioner. A nurse may see the patient in conjunction with the GP–patient consultations. In this case both the GP’s professional service and the practice nurse item are claimable.

The introduction of the Medicare practice nurse items provided the research team with a challenge. In the past ‘general practice activity’ has been described in terms of GP–patient encounters and this was considered close to equivalent to ‘general practitioner activity’. However, the introduction of the practice nurse item numbers meant that, if practice nurse activity associated with the GP–patient encounter was not included, the content of the consultation was no longer fully described.

Therefore, two changes were made to the BEACH form from 2005–06 onwards in order to capture practice nurse activity associated with the GP–patient consultations and include this activity to describe ‘general practice activity in Australia’:

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

Reporting of item numbers

In reporting about the encounters in Chapter 5, Table 5.3 and Table 5.4 count only one item number per Medicare/DVA-claimable encounter for comparability with previous years. Selection of one item number was undertaken on a priority basis: consultation item numbers override incentive item numbers, which override procedural item numbers, which override other Medicare item numbers. These results have been used when reporting changes over time. An additional table (Table 5.5) provides a breakdown of all item numbers recorded by the GPs. Chapter 13 gives a more specific description for each of the practice nurse Medicare item numbers recorded.

Reporting of other treatments

In the section on 'other treatments' in the annual results (Section 10.1), all recorded clinical and procedural treatments are included, irrespective of whether they were provided by the GP or by the practice nurse. These results are also used in the measurement of changes over time (Section 10.2).

Reporting of practice nurse activity

Chapter 13 provides a breakdown of the practice nurse Medicare items claimed, the morbidity managed with the assistance of the practice nurse, and the 'other treatments' provided by the practice nurse as recorded by the GP participants.

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

2.5 Supplementary Analysis of Nominated Data

A section at 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. These additional substudies are referred to as SAND, Supplementary Analysis of Nominated Data.

- The year-long data period is divided into 10 blocks, each of 5 weeks with three substudies per block. The research team aims to include data from about 100 GPs in each block.
- Each GP's pack of 100 forms is made up of 40 forms that ask for the start and finish times of the encounter and include questions about patient risk factors: patient height and weight (used to calculate body mass index, BMI), alcohol intake and smoking status (patient self-report). The methods and results of topics in the SAND substudies for alcohol consumption, smoking status and BMI are reported in Chapter 15. The start and finish times collected on these encounters is used to calculate the length of consultation. The length of consultation for Medicare-claimable encounters is reported in Section 5.1.
- The remaining 60 forms in each pack are divided into two blocks of 30. Different questions are asked of the patient in each block and these vary throughout the year.
- The order of SAND sections is rotated in the GP recording pack, so that 40 patient risk factor forms may appear first, second or third in the pack. Rotation of ordering ensures there was no order effect on the quality of the information collected.

Abstracts of results and research tools from the SAND substudies conducted in BEACH have recently been published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*, available through the FMRC's website <www.fmrc.org.au/publications/> or the AIHW's website <www.aihw.gov.au/publications>. Abstracts and research tools for substudies conducted in 2006–07 that were not included in that report are in Chapter 16 of this report.

2.6 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 as a patient may describe one RFE (such as 'repeat prescriptions') that is related to multiple problems managed, or several RFEs (such as 'runny nose' and 'cough') that relate to a single problem (URTI) managed at the encounter.
- all types of management are directly related to the problem being treated.

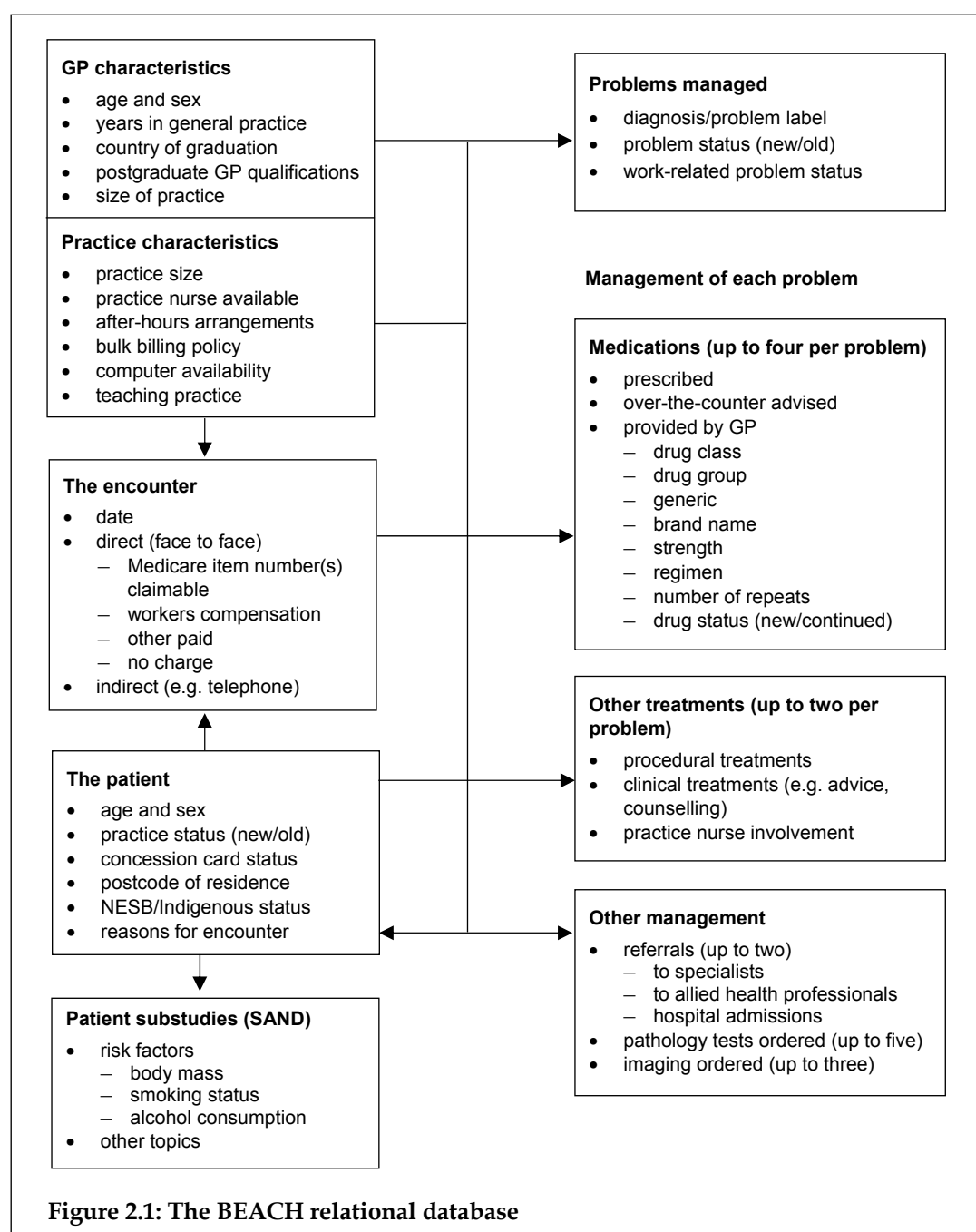


Figure 2.1: The BEACH relational database

Note: NESB—non-English-speaking background.

2.7 Statistical methods

The analysis of the 2006–07 BEACH data was conducted with SAS version 9.1²² and the encounter is the primary unit of inference. Proportions (%) are used only when describing the distribution of an event that can arise only once at a consultation (for example age, sex) or to describe the distribution of events within a class of events (for example 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 (for example RFEs, problems managed or medications).

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

The BEACH study is a random sample of GPs, each providing data about a cluster of encounters. When the encounter is the unit of inference, the cluster sampling study design violates the simple random sample assumption of equal probability of selection of observations, because the probability of an encounter being included is a function of the probability of the GP being selected.²³ Cluster samples also violate the assumption of independence of observations as there is an inherent relationship or correlation between encounters sampled in the same cluster. Therefore the certainty that the sample estimates reflect the true underlying population values is reduced by cluster sampling, thus decreasing the precision of national estimates.

When a study design other than simple random sample 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.²⁴

Changes over time

SAS version 9.1²² was used for all analysis of 2006–07 data (as was the case in 2005–06). All data from previous years (1999–00 to 2004–05) were originally analysed using SAS version 6.12²⁵ (with additional programming to adjust for the cluster sample study design). This year the research team re-calculated all previous data originally analysed with SAS V6.12, using SAS V9.1. This has resulted in slightly tighter confidence intervals and minor variations in point estimates (of up to 0.1) when compared with the data published in earlier annual reports for the 1998–2004 data years.

In measuring changes over time, the research team compared the 2006–07 results with those from 1998–99 wherever possible. However, as in any long-term research program, changes occur over the years. For example, in response to requests from the DoHA (then the Department of Health and Aged Care), more detailed coding systems for pharmaceuticals, pathology and imaging test orders were developed, and these were applied from year 3 (2000–01) onwards. Where this has occurred, change was measured from 2000–01 because earlier years are not comparable.

Where the BEACH 2006–07 results demonstrate a significant change over time, the team calculated the estimated national change across total GP Medicare services from 1998–99 (or where appropriate 2000–01) to 2006–07.

Some concepts have been grouped for comparability over the 9 years of the study. Where concepts have been grouped the change has been footnoted in the table. Due to this grouping some figures may be different from those previously published.

Extrapolated national estimates

In past years BEACH estimates have been extrapolated to the total number of unreferred general practice attendances in Australia (that is, A1 and A2 items combined) as reported by Medicare. However, most of the more recent additions to Medicare item numbers claimable through general practice are not classed as A1 or A2. Therefore an increasing proportion of general practice Medicare claims were not being counted when the extrapolation was limited to A1 and A2 items of service. Table 2.1 demonstrates the proportion of total GP Medicare claims that are accounted for in these other types of general practice Medicare items. Please refer to Section 2.10 for discussion of limitations regarding extrapolations.

Table 2.1 provides the breakdown of Medicare groups that were used to calculate the total GP Medicare item claims. These data were drawn from Medicare Benefits Schedule (MBS) statistics reports²⁶ and an estimate (based on BEACH data) was applied to the Antenatal attendance Medicare claims, of the proportion likely to be claimed by GPs.

The total GP Medicare claims rounded to the nearest 100,000 were used to calculate the extrapolations in each of the changes over time sections. The numbers used to extrapolate were 103,500,000 for 1998–99, 101,200,000 for 2000–01 (where applicable), and 102,800,000 for 2006–07.

- The national estimates were calculated by multiplying the encounter rate for 1998–99 (or 2000–01 where appropriate) by the estimated total number of general practice services claimed through Medicare in that year (see Table 2.1) to give the estimated annual number of events in 1998–99 (or 2000–01). The same was done for 2006–07. The difference between the two estimates (rounded to the nearest 10,000) gives the estimated national change in the rate of encounters for that event.
- This is expressed as the estimated increase or decrease over the study period (between 1998–99 or 2000–01 and 2006–07), in the number of general practice contacts for that event (for example an increase or decrease in the number of contacts where a problem was managed or management provided) occurring in Australia.

Table 2.1: Number of general practice Medicare items claimed in Australia, 1998–99, 2000–01 and 2006–07

Medicare group descriptor		1998–99	2000–01	2006–07
A1	General practice attendances	90,800,767	89,814,608	90,678,610
A2	Other non-referred attendances	11,180,126	9,972,657	4,283,879
Total A1+A2 items claimed		101,980,893	99,787,265	94,962,489
A5	Prolonged attendances	8,311	9,169	9,581
A6	Group therapy	27,040	24,894	16,890
A7	Acupuncture	901,414	736,691	592,291
A14	Health assessments	0	97,513	376,107
A15	(Subgroup 1 only): GP management plans, team care, care plans and case conferences	0	29,783	1,596,717
A17	Domiciliary medication management review	0	0	54,555
A18	GP attendance practice incentive payments (PIP)	0	0	252,275
A19	Other non-referred attendances associated with practice incentive payments (PIP)	0	0	4,907

(continued)

Table 2.1 (continued): Number of general practice Medicare items claimed in Australia, 1998–99, 2000–01 and 2006–07

Medicare group descriptor		1998–99	2000–01	2006–07
A20	GP mental health care	0	0	338,078
A22	GP after-hours	0	0	4,056,368
A23	Non-referred after-hours	0	0	261,977
A27	Pregnancy support counselling	0	0	700
T4	(Item 16500 only): Antenatal attendance (estimated GP portion)	540,000	483,000	244,000
Total other items claimed (estimated GP claims)		1,476,765	1,381,050	7,794,865
Per cent of total item numbers claimed		1.4%	1.4%	7.6%
Total general practice items claimed (estimate)		103,457,658	101,168,315	102,766,935

2.8 Classification of data

The following data elements are classified according to the International Classification of Primary Care – Version 2 (ICPC-2), a product of the World Organization of Family Doctors (Wonca).¹⁴

- patient reasons for encounter (RFEs)
- problems managed
- clinical treatments (for example counselling, advice)
- procedural treatments
- referrals
- investigations ordered (including pathology, imaging and other investigations).

The ICPC-2 is used in more than 45 countries as the standard for data classification in primary care. It has recently been accepted by the World Health Organization (WHO) in the WHO Family of Classifications²⁷ and has been declared the national standard in Australia for reporting of health data from general practice and patient self-reported health information.²⁸

The ICPC-2 has a bi-axial structure, with 17 chapters on one axis (each with an alphabetic code) and seven components on the other (numeric codes) (Figure 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 problems managed.

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

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

In 1995, recognising a need for a coding and classification system for general practice electronic health records, the FMRC (then the Family Medicine Research Unit) developed an extended vocabulary of terms classified according to the ICPC, now called ICPC-2 PLUS.²⁹ This is an interface terminology, developed by the FMRC from all the terms used by GPs in studies such as the Australian Morbidity and Treatment Survey 1990–91,³⁰ the Morbidity and Therapeutic Index 1992–1998 (a clinical audit tool that was available to GPs) and BEACH 1998–2007, that together have included close to 1.5 million encounter records. These terms are classified according to ICPC-2 to ensure international standards for reporting. Readers interested in seeing how coding works can download the ICPC-2 PLUS Demonstrator at <www.fmrc.org.au/icpc2plus/demonstrator.htm>.

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

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

Figure 2.2: The structure of the International Classification of Primary Care – Version 2 (ICPC-2)

Presentation of data classified in ICPC-2

When the free-text data are received from the GPs, trained secondary coders (who are undergraduate health information management students) code the data in more specific terms using ICPC-2 PLUS. Reporting, however, is almost always at the level of the ICPC-2 classification (for example acute otitis media/myringitis – ICPC-2 code H71). However, there are some exceptions where data are grouped either above the ICPC-2 level or across the ICPC-2 level. These grouped codes for morbidity, pathology and imaging data are defined in Appendix 4 and for chronic morbidity in Appendix 5 (see <www.aihw.gov.au/publications/index.cfm/subject/19>).

Reporting morbidity with groups of ICPC-2 codes

- When recording problems managed, the GP may not always be very specific. For example, in recording the management of ‘diabetes’, they may simply record the problem as ‘diabetes’. In ICPC-2, ‘Diabetes unspecified’ is classified as non-insulin dependent diabetes (code T90). There is another code for insulin dependent diabetes (T89). In some cases the GP may simply have failed to tell us that the patient had ‘insulin dependent diabetes’. The research team therefore feels that for national data reporting, it

is more reliable to group the two codes T90 and T89 and label this 'Diabetes – all*' – the asterisk indicating that multiple ICPC-2 codes (as in this example) or ICPC-2 PLUS codes (see below) are included.

Reporting morbidity with groups of ICPC-2 PLUS codes

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

Reporting pathology and imaging test orders

- All the pathology and imaging tested are coded very specifically in ICPC-2 PLUS but the ICPC-2 classifies pathology and imaging tests very broadly (for example a test of cardiac enzymes is classified in K34 – Blood test associated with the cardiovascular system; a CT scan of the lumbar spine is classified as L41 – Diagnostic radiology/imaging of the musculoskeletal system). In Australia the MBS classifies pathology and imaging tests in groups that are relatively well recognised. The team therefore re-grouped all pathology and imaging ICPC-2 PLUS codes into MBS standard groups. This allows comparison of data between data sources. These groups are marked with an asterisk and included in Appendix 4.

For all grouped morbidity, pathology and imaging codes, a full list of inclusions is provided in Appendix 4 <www.aihw.gov.au/publications/index.cfm/subject/19>.

Classification of pharmaceuticals

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

- This is a hierarchical structure that facilitates analysis of data at a variety of levels, such as medication class, medication group, generic composition and brand name.
- Strength and regimen are independent fields that, when combined with the CAPS code, give an opportunity to derive the prescribed daily dose for any prescribed medication or group of medications.
- CAPS is mapped to the Anatomical Therapeutic Chemical (ATC)³¹ classification, which is the Australian standard for classifying medications at the generic level.

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

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

Use of the medication classifications in reporting

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

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

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

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

- When reporting the 2006–07 annual results for pharmaceutical data, the CAPS database is used in tables of the ‘most frequent medications’ (tables 9.2 to 9.4 inclusive).
- When reporting the annual results for pharmaceuticals in terms of the ATC hierarchy (Table 9.1), ATC Levels 1, 3, and 5 were used. The reader should be aware that the results reported at the generic level (Level 5) may differ slightly from those reported in the ‘most frequent medication’ tables for the reasons described above.
- In measuring changes in medications over time (in Section 9.2), the team chose to report at Level 2 of the ATC (which is more stable over time than Level 3), and in CAPS for the generic-level drugs.

2.9 Quality assurance

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

2.10 Methodological issues

Validity and reliability

In the development of a database such as BEACH, data gathering moves through specific stages: GP sample selection, cluster sampling around each GP, GP data recording, secondary coding and data entry. At each stage the data can be invalidated by the application of inappropriate methods. The methods adopted to ensure maximum reliability of coding and data entry have been described above. The statistical techniques adopted to ensure valid analysis and reporting of recorded data are described in Section 2.7. Previous work has demonstrated the extent to which a random sample of GPs recording information about a cluster of patients represents all GPs and all patients attending GPs.³² Other studies have reported the degree to which GP-reported patient RFEs and problems managed accurately reflect those recalled by the patient³³ and the reliability of secondary coding of RFEs³⁴ and

problems managed.³⁰ The validity of ICPC as a tool with which to classify the data has also been investigated in earlier work.³⁵

However, the question of the extent to which the GP-recorded data are a reliable and valid reflection of the content of the encounter must also be considered. In many primary care consultations, a clear pathophysiological diagnosis is not reached. Bentsen³⁶ and Barsky³⁷ suggest that a firm and clear diagnosis is not apparent in about half of GPs' consultations, and others suggest the proportion may be even greater.³⁸ Further, studies of general ambulatory medical practice have shown that a large number of patients presenting to a primary care practitioner are without a serious physical disorder.^{39,40,40} As a result, it is often necessary for a practitioner to record a problem in terms of symptoms, signs, patient concerns, or the service that is requested, such as immunisation. For this reason, this report refers to patient 'problems' rather than 'diagnoses'.

A number of studies have demonstrated wide variance in the way a GP perceives the patient's RFE and the manner in which the GP describes the problem under management. In a direct observational study of consultations via a one-way mirror, Bentsen demonstrated differences in the way practitioners labelled problems and suggested that clinical experience may be an important influence on the identification of problems within the consultation.³⁶ Two other factors that might affect GPs' descriptions of patient RFEs have been identified: while individuals may select the same stimuli, some label each stimulus separately whereas others cluster them under one label; individuals differ in the number of stimuli they select (selective perception).⁴¹

The extent to which therapeutic decisions may influence the diagnostic label selected has also been discussed. Howie⁴² and Anderson³⁹ argue that, while it is assumed that the diagnostic process utilised in general practice is one of symptom → diagnosis → management, the therapeutic method may well be selected on the basis of the symptom, and the diagnostic label chosen last. They suggest that the selection of the diagnostic label is therefore influenced by the management decision already made.

Anderson has also pointed out that the therapeutic decision may be influenced by fashion and in turn this affects the selection of the problem label. He gives the example of a rise in the occurrence of neurotic depression in parallel with a decrease in the use of menopause as a diagnosis in the United Kingdom, and suggests this may be the result of a change in the preferred treatment from oestrogen therapy to antidepressants.³⁹ This should be remembered when considering the changes in general practice described in this report.

Alderson contends that to many practitioners 'diagnostic accuracy is only important to the extent that it will assist them in helping the patient'. He further suggests that if major symptoms are readily treatable some practitioners may feel no need to define the problem in diagnostic terms.⁴³ Crombie stated that in the second and third national morbidity surveys in the United Kingdom there was 'enormous variability in the rates at which doctors perceive and record illnesses'. He concluded that the probable cause arose from the different ways in which GPs gave priority in their perceptions and recording of certain morbidities while discounting or ignoring others. He was unable to account statistically for this variation by the effect of geography, age, sex or class differences in the practice populations.⁴⁴ Differences in the way male and female GPs label problems also appear to be independent of such influences.⁴⁵

These problems are inherent in the nature of general practice. Knotterus argues that the GP is confronted with a fundamentally different pattern of problems from the specialist, the GP often having to draw up general diagnostic hypotheses related to probability, severity and consequences.⁴⁶ Anderson suggests that morbidity statistics from family practice should therefore be seen as 'a reflection of the physician's diagnostic opinions about the problems that

patients bring to them rather than an unarguable statement of the problems managed'.³⁹ In any case, doctors base their actions on problems as they perceive them.

While these findings regarding limitations in the reliability and validity of practitioner-recorded morbidity should be borne in mind, they apply equally to data drawn from medical records, whether paper or electronic, as they do to active data collection methods.^{47,48,48} There is as yet no more reliable method of gaining detailed data about morbidity and its management in general practice. Further, irrespective of the differences between individual GPs in their labelling of the problems, morbidity data collected by GPs in active data collection methods have been shown to provide a reliable overview of the morbidity managed in general practice.⁴⁹

Cluster sampling

The statistical techniques applied in BEACH recognise that the sampling is based on GPs and that for each GP there is a cluster of encounters. Each cluster may have its own characteristics, being influenced by the characteristics of the GP. Although ideally the sample should be a random sample of GP-patient encounters, such a sampling method is impractical in the Australian health care system. The reader should, however, be aware that the larger the GP sample and the smaller the cluster, the better. The sample size of 100,000 encounters from a random sample of 1,000 GPs has been demonstrated to be the most suitable balance between cost and statistical power and validity.⁵⁰ The cluster effect is dealt with through SAS version 9.1 (see Section 2.7).

GP participation

How many individual GPs have participated in BEACH to date?

Over the 9 years of the BEACH program, 892,300 encounters have been recorded by 8,923 GPs. Since GPs may be sampled from the Medicare data once in each QA triennium, the research team are often asked about the extent to which GPs have participated more than once over the 9 years.

The team investigated the extent of 'double ups' and found that the 8,923 participants in the first 9 years of BEACH represented 6,949 individuals. This means that by March 2007 about 40% of GPs and registrars (approximately 17,500 in any one year) who qualify for inclusion in the original sample frame (for definition see Section 2.1) have participated to date.

Response rates

The response rate of GPs in the ninth year of BEACH was 22.9% of those who could be contacted.

Response rates have fluctuated over the 9 years of BEACH, being highest in the first year (1998-99) at 39.1%. Fluctuations appear related to the QA cycle. In each QA triennium the best response rate occurs in the first year, followed by the third year, and last is the second year of the triennium. GPs are keen to earn their points in the first year, and some are keen to 'catch up' needed points in the third year. In the middle year it seems there is far less interest. It will be interesting to see if the response rate picks up for the 2007-08 data year as it is the third year of the cycle.

Nevertheless, even with a response rate of 22.9%, after post-stratification weights for GP activity and the under-representation of young GPs were applied to the raw data, the age-sex distribution of the patients at encounters this year again demonstrated excellent precision when compared with Medicare data (see Chapter 3). Those concerned about the BEACH response rate should remember that commercial data sources in Australia fail to publicly report response rates, so comparisons cannot be made.

How many GPs can be contacted?

In recent years the research team has expressed increasing concern over the (in)accuracy of the contact details provided by Medicare Australia for sampled GPs. About 15–20% of addresses provided are no longer current and approximately 90% of telephone numbers are incorrect when the sample is received. A considerable amount of time is invested by the recruitment team in locating practitioners. This is not always successful as GPs do not usually have a work telephone number in their own name. In spite of these inaccuracies the recruitment team has, in all previous years, established contact with a minimum of 90% of the GPs for whom details were provided in our Medicare sample. This year the team managed to contact only 88.7%. The proportion of all sampled GPs who were found to have retired, died or moved to an untraceable location was 7.6% this year. As the aim is to represent active, practising GPs, the exclusion of these GPs from the denominator when calculating response rates is a valid and necessary action.

What about the young GPs?

In all years except 2004–05, GPs aged less than 35 years have been under-represented. This under-representation is corrected in the final BEACH data set each year using post-stratification weighting.

For 2006–07, the team investigated the proportion of these young GPs who were not traceable when contacted at the practice address provided from Medicare Australia records by DoHA. We found that 27.0% of those drawn in the sample could not be traced, for they had left the practice to move on through their training. This compares with a non-contactable rate of 9.8% for GPs aged 35 years or more. The team believes that this has a significant impact on the chances of successfully recruiting GPs in this youngest age group. The only way to overcome this problem is to ensure that registrars leave a forwarding address at all practices during training.

It would seem, therefore, that the reason for the under-representation of young GPs in BEACH is that they move through the training program and are no longer contactable by the time they are randomly selected and we attempt to recruit them to the program. Any national general practice study relying on samples being drawn from Medicare data for recognised GPs and registrars would be faced with similar problems. All such studies should check the final participating sample against the sample frame and use post-stratification weighting to adjust for any under-representation of this age group.

Limitations of extrapolations

National estimates

The extrapolation to total estimated encounters occurring nationally in any one year is only an estimate. It is likely to provide:

- an underestimate of the true 'GP workload' of a condition/treatment because the extrapolations are made to GP Medicare items claimed, not to the total number of GP encounters per year (which include indirect encounters and those paid by other sources than Medicare, including DVA, state governments, work cover, employers)
- an overestimate of the management rate of a group of conditions (for example 'cardiovascular disease') because there is a chance that more than one problem of this type will be managed at a single encounter. In the extrapolations two cardiovascular problems managed at the same encounter will be counted as two encounters.

Further, the base numbers used in the extrapolations are rounded to the nearest 100,000 and the extrapolations are rounded to the nearest 10,000.

However, these are used to measure differences between 1998–99 (or 2000–01) and 2006–07 and these limitations apply equally in all years. The extrapolation therefore still provides an indication of the size of the effect of measured change nationally.

Using SAND to estimate prevalence of disease in the attending population

Many SAND substudies ask an opening question to ascertain if the patient present at the encounter has a named condition or to measure the prevalence of a number of diseases among the respondents. Using a qualified medical practitioner to record morbidity in conjunction with patient self-report may provide a more accurate classification of patients' major health problems than self-report alone.^{51,52} In the SAND substudies, the patient rather than the content of the encounter is the subject of interest. This overcomes the problem of trying to estimate prevalence of disease among the attending patients, where the disease of interest was not managed at the encounter.

However, in the SAND substudies patients who attend more often have a greater chance of being sampled than those who attend less frequently, so these raw results cannot be used to estimate prevalence of a disease in the total population of attenders. Further, up to 20% of the population currently do not visit a GP in 1 year³ and these non-attenders cannot be sampled in SAND.

It can be stated that, based on SAND prevalence estimates, a GP would see, on average, 'x number' of patients who have this morbidity in any average GP working week, regardless of whether the GP manages that morbidity at that time.

Further, SAND prevalence estimates of morbidities covered in the National Health Priority Areas have recently been used in combination with age–sex-specific attendance rates (from Medicare statistics) to gain estimates of the prevalence of selected morbidity in the general practice patient population. It was assumed that the 20% of the population that did not visit a GP that year (and therefore had no chance to be selected) did not have the disease in question under ongoing medical management, and extrapolated to estimates of total population prevalence. This method provided prevalence estimates that are somewhat higher than those from the National Health Survey, which relies on self-report of a random sample of the population for diabetes, depression, anxiety, hypertension, hyperlipidaemia and ischaemic heart disease.⁵³

2.11 Other BEACH applications

The BEACH methodology can be applied in various health settings. In the past the AGPSCC has used the methodology to conduct a variety of studies in collaboration with other organisations. Examples of past studies are described below.

In 2004 a study was conducted in collaboration with Monash University and the Victorian Metropolitan Alliance. The BEACH methods were used to measure the experience gained by GP registrars during each stage of their training. The results will help to better define the areas in which registrars should receive training and identify areas in which they are not gaining experience.

Another registrar study was conducted in 2003 as a consultancy for North Coast GP Training Ltd and the Institute of General Practice Education. This study looked at the clinical activities of registrars compared with those of their supervisors, to assess their education program in terms of actual practice.

A study in the Victoria Community Health Centres was done in 2004 in collaboration with the Victorian Department of Human Services. The project aimed to provide information about the clinical role of Community Health Service GPs and the characteristics of the patients they see, and how these may differ from the 'average' GP in Australia. The department will use the results to help them plan future health services.

From 2002–04 the BEACH methods were used in the Alternative Pathway Program to assess the educational needs of each GP enrolled in the program. The Alternative Pathway Program was conducted by the National Consortium for Education in Primary Medical Care. The results for each GP were used in identifying specific educational needs and in planning an educational program for the individual practitioner.

In 2002–03 the AGPSCC conducted a longitudinal, matched, controlled trial of active computerised data collection compared with paper-based data collection in the western, north-western and south-western areas of Sydney. Software was developed that reflected the data elements collected in BEACH; the software did not interact with any clinical system being used by GPs. This study demonstrated that active GP computerised data collection in structured, stand-alone software does not provide a reliable and valid measure of GP activity and could not be adopted at this stage as an acceptable alternative to the paper-based data collection methods currently being used.

Due to the fact that BEACH collects data nationally it is possible to analyse data at a level specific to local areas. For example, reports have been published comparing general practice in the different states and territories of Australia and investigating the differences between metropolitan and rural general practice. The research team is also developing Statistical Evaluation Areas (SEAs) that are aimed to provide localised data for divisions of general practice.

Studies have been conducted for the Townsville and Inner South East Melbourne divisions of general practice. These studies were conducted in 1999 and involved oversampling the GPs in each division to provide sufficient samples for statistical analysis of general practice activity within the divisions.

A study investigating changes over time in Victorian general practice was conducted in 1998. The Victorian Morbidity and Treatment Survey used the same methodology as BEACH to measure changes in general practice activity from 1990–91 to 1998. The 1990–91 data were collected in the Australian Morbidity and Treatment Survey (AMTS).³⁰

3 The sample

This chapter provides a summary of the annual results from the ninth year of the BEACH program—data collected between April 2006 and March 2007. The methods are only summarised in this chapter. For those wanting more detailed explanation, a full description of the BEACH methods and a discussion of methodological issues are provided in Chapter 2.

3.1 Annual results, 2006–07

Response rate

A random sample of GPs who claimed at least 375 general practice Medicare items of service in the previous 3 months is regularly drawn from Medicare Australia data by the Primary and Ambulatory Care Division of DoHA (see Chapter 2).

Contact was attempted with 4,576 GPs—11.3% could not be contacted. The majority of these had moved, retired or died, and were untraceable (Table 3.1). It is notable that of GPs approached who were aged less than 35 years, 27.0% were no longer at that practice and could not be traced. These would largely be registrars moving through practices during training. In contrast, 9.8% of GPs aged 35 years and over were not traceable (results not tabulated).

The final participating sample consisted of 930 practitioners, representing 22.9% of those who were contacted and available, and 20.3% of those with whom contact was attempted (Table 3.1). Methodological issues related to the response rate are discussed in Section 2.10.

Table 3.1: Recruitment and participation rates, 2006–07

	Number	Per cent of approached (<i>n</i> = 4,576)	Per cent of contacts established (<i>n</i> = 4,057)
Letter sent and phone contact attempted	4,576	100.0	—
No contact	519	11.3	—
No phone number	57	1.3	—
Moved/retired/deceased	347	7.6	—
Unavailable	40	0.9	—
No contact after five calls	75	1.6	—
Telephone contact established	4,057	88.7	100.0
Declined to participate	2,810	61.4	69.3
Agreed but withdrew	317	6.9	7.8
Agreed and completed	930	20.3	22.9

Representativeness of the GP sample

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

Statistical comparisons, using the chi-square statistic (χ^2) (significant at the 5% level), were made between BEACH participants and all recognised GPs in the sample frame during the study period (Table 3.2). The GP characteristics data for BEACH participants were drawn from the GP profile questionnaire. The DoHA provided the data for all GPs in the sample frame, drawn from Medicare claims data.

Table 3.2 demonstrates that there were no significant differences in GP characteristics between the final sample and all GPs in the sample frame, in terms of sex, place of graduation and distribution across Rural, Remote and Metropolitan Area classes, and the differences in their state distribution were negligible. However, participants were significantly older when compared with the total sample. The under-representation of young GPs has been experienced through most years of the BEACH program and could largely be due to the fact that 27.0% of the young GPs drawn in the sample were not traceable, having moved on to other practices, without leaving contact details, since the sample draw.

Data on the number of Medicare A1 items of service claimed in the previous quarter were also provided by DoHA for each GP in the original sample, but not for all GPs in the sample frame. 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. There was a significant difference ($p = 0.013$) in the mean number of A1 items claimed by participants (1,230 claims for the quarter) compared with those GPs who declined to participate (1,291 for the quarter) (Table 3.3). Comparisons of the median scores for each group showed a difference of approximately five consultations per week. It is possible that the time required to participate in BEACH may be a greater issue for busier 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. It cannot be assumed, however, that a GP seeing 15 patients per day on 3 days per week is any less ‘busy’ than a GP seeing 15 patients per day over 5 days per week.

Table 3.2: Comparison of BEACH participants and all active recognised GPs in Australia (the sample frame), 2006–07

Variable	BEACH ^{(a)(b)}		Australia ^{(a)(c)}	
	Number	Per cent of GPs (n = 930)	Number	Per cent of GPs
Sex ($\chi^2 = 0.54$, $p = 0.46$)				
Males	613	65.9	11,585	64.7
Females	317	34.1	6,312	35.3
Age ($\chi^2 = 9.63$, $p = 0.02$)				
< 35 years	62	6.7	1,618	9.0
35–44 years	208	22.6	4,356	24.3
45–54 years	327	35.6	6,276	35.1
> 54 years	322	35.0	5,646	31.5

(continued)

Table 3.2 (continued): Comparison of BEACH participants and all active recognised GPs in Australia (the sample frame), 2006–07

Variable	BEACH ^{(a)(b)}		Australia ^{(a)(c)}	
	Number	Per cent of GPs (n = 930)	Number	Per cent of GPs
Place of graduation ($\chi^2 = 3.47$, $p = 0.06$)				
Australia	684	73.6	12,668	70.8
Overseas	245	26.4	5,229	29.2
State ($\chi^2 = 6.93$, $p = 0.436$)				
New South Wales	321	34.5	6,082	34.0
Victoria	220	23.7	4,431	24.8
Queensland	159	17.1	3,330	18.6
South Australia	82	8.8	1,517	8.5
Western Australia	87	9.4	1,648	9.2
Tasmania	31	3.3	489	2.7
Australian Capital Territory	22	2.4	279	1.6
Northern Territory	8	0.9	121	0.7
RRMA ($\chi^2 = 10.9$, $p = 0.09$)				
Capital	594	63.9	11,849	66.2
Other metropolitan	68	7.3	1,385	7.7
Large rural	73	7.8	1,117	6.2
Small rural	50	5.4	1,197	6.7
Other rural	126	13.5	2,044	11.4
Remote centre	9	1.0	144	0.8
Other remote	10	1.1	161	0.9

(a) Missing data removed.

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

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

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

Table 3.3: Activity level of participating and non-participating GPs, 2006–07

Variable	Participants ^(a) (n = 930)		Non-participants ^(a) (n = 3,127)	
	Number of claims	Per cent of GPs	Number of claims	Per cent of GPs
Activity ($\chi^2 = 6.34$, $p = 0.042$)				
374–750 services in previous quarter	249	26.8	721	23.1
750–1,500 services in previous quarter	424	45.6	1,449	46.3
> 1,500 services in previous quarter	257	27.6	957	30.6
Mean activity level ($t = 2.48$, $p = 0.0132$)	1,230.0	—	1,291.2	—
Median activity level	1,104.5	—	1,169.0	—
Standard deviation	655.08	—	665.15	—

(a) Missing data removed.

Weighting the data, 2006–07

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

Age-sex weights: In most years, including 2006–07, BEACH has had an under-representation of young GPs. In order to achieve comparable estimates and precision, GP age-sex weights were applied to the 2006–07 data in post-stratification weighting, as was done in previous years.

Total weights: The final weighted estimates were calculated by multiplying raw rates by the GP age-sex weight and the GP sampling fraction of services in the previous 12 months. Table 3.4 shows the precision ratio calculated before and after weighting the data.

Representativeness of the final encounter sample, 2006–07

BEACH aims to gain a representative sample of GP–patient encounters. To assess the representativeness of the final weighted sample of encounters, the age–sex distribution of patients at BEACH A1 Medicare/DVA-claimable encounters was compared with that of patients at all encounters claimed as Medicare A1 items of service in the 2006–07 study period (data provided by DoHA).

As shown in Table 3.4, there is an excellent fit of the MBS and BEACH age and sex distribution both with and without weighting, with no age–sex category varying by more than 20% from the population distribution. The range of raw precision ratios (0.90–1.15) indicates that the BEACH sample of encounters is a good representation of Australian GP–patient encounters. After weighting, the precision ratios improved slightly in some aspects, but within the 0.92–1.17 range.

Table 3.4: Age–sex distribution of patients at BEACH and MBS A1 services, 2006–07

Variable	BEACH				Australia ^(c) Per cent	Precision ratios	
	Raw ^(a)		Weighted ^(b)			Raw ^(a)	Weighted ^(c)
	Number	Per cent	Number	Per cent			
Male							
< 1 year	798	1.1	743	1.0	1.2	1.09	1.17
1–4 years	1,723	2.3	1,765	2.4	2.6	1.14	1.11
5–14 years	2,119	2.9	2,328	3.2	3.3	1.15	1.04
15–24 years	2,433	3.3	2,582	3.5	3.4	1.03	0.97
25–44 years	6,066	8.2	6,518	8.8	8.7	1.07	0.99
45–64 years	8,651	11.7	9,332	12.7	11.8	1.01	0.93
65–74 years	4,097	5.5	4,397	6.0	5.8	1.05	0.97
75+ years	3,902	5.3	3,990	5.4	5.2	0.98	0.95

(continued)

Table 3.4 (continued): Age-sex distribution of patients at BEACH and MBS A1 services, 2006–07

Variable	BEACH				Australia ^(c) Per cent	Precision ratios	
	Raw ^(a)		Weighted ^(b)			Raw ^(a)	Weighted ^(c)
	Number	Per cent	Number	Per cent			
Female							
< 1 year	732	1.0	692	0.9	1.0	1.03	1.09
1–4 years	1,598	2.2	1,592	2.2	2.3	1.08	1.08
5–14 years	2,030	2.7	2,134	2.9	3.2	1.15	1.09
15–24 years	4,552	6.1	4,232	5.7	5.9	0.96	1.03
25–44 years	11,243	15.2	10,489	14.2	14.7	0.97	1.03
45–64 years	12,305	16.6	11,542	15.7	15.7	0.94	1.00
65–74 years	5,498	7.4	5,354	7.3	6.7	0.90	0.92
75+ years	6,312	8.5	5,995	8.1	8.5	1.00	1.04

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

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

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

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

The weighted data set

The final unweighted data set from the ninth year of collection contained encounters, reasons for encounters, problems and management/treatments. The apparent number of encounters, reasons for encounter, problems managed, and the numbers of other treatments, referrals, imaging and pathology all decreased after weighting, and the number of medications increased after weighting. Raw and weighted totals for each data element are shown in Table 3.5.

Table 3.5: The BEACH data set, 2006–07

Variable	Raw	Weighted
General practitioners	930	930
Encounters	93,000	91,805
Reasons for encounter	140,676	138,434
Problems managed	140,886	136,333
Medications	93,140	93,193
Other treatments	47,361	44,035
Referrals	12,941	12,195
Imaging	8,690	8,229
Pathology	41,847	38,963

3.2 The total data set, 1998–2007

Table 3.6 shows the number of encounters contained in each year of the BEACH program since it began in April 1998, and the size of the total 9-year database for each variable (weighted), upon which all comparisons over time reported in this report are based.

Table 3.6: Annual summary of data sets, 1998–2007 (final weighted data)

Variable	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	Total all years
General practitioners	984	1,047	999	983	1,008	1,000	954	1,017	930	8,922
Encounters	96,901	104,856	99,307	96,973	100,987	98,877	94,386	101,993	91,805	794,280
Reasons for encounter	141,766	155,690	149,962	144,654	152,352	144,674	141,215	153,309	138,434	1,322,056
Problems managed	140,824	153,857	143,528	139,092	146,336	148,521	137,330	149,088	136,333	1,294,909
Medications	106,320	115,432	107,400	101,350	104,813	103,210	95,816	106,493	93,193	934,027
Other treatments	41,839	48,194	49,072	51,130	53,676	52,315	53,630	47,847	44,035	441,738
Referrals	10,866	11,760	10,366	7,761	12,265	11,794	10,881	12,235	12,195	100,123
Imaging	6,844	7,841	8,227	7,642	8,678	8,121	7,840	9,003	8,229	72,425
Pathology	23,872	27,613	29,225	30,086	33,234	34,831	34,652	39,357	38,963	291,833

4 The participating GPs

4.1 Annual results, 2006–07

Characteristics of the GP participants

All participants returned a GP profile questionnaire, although some were incomplete. The results are provided in Table 4.1. Of the 930 participants:

- 66% were male and 35% were aged 55 years or older
- more than half had been in general practice for more than 20 years
- almost half were in practices of five or more GPs and 8% were in solo practice
- 74% had graduated in Australia
- 66% practised in major cities (classified using the Australian Standard Geographical Classification)
- 23% conducted some consultations in a language other than English
- 46% were Fellows of the RACGP
- 91% worked in an accredited practice
- 68% worked in a practice that employed practice nurse(s)
- 73% did 6–10 clinical sessions per week, while 17% worked fewer than six sessions per week, but only 10% worked more than 10 sessions per week.
- 40% spent more than 40 hours each week on direct patient care services
- nearly half had provided care in a residential aged care facility in the previous month
- one in 10 had worked as a salaried/sessional hospital medical officer at some time in the previous month
- half provided their own or cooperative after-hours care and nearly half employed a deputising service for after-hours patient care (multiple responses allowed)
- about one-quarter bulk-billed Medicare for all patients; 43% bulk-billed for all consultations with pensioner/Commonwealth concession care holders and one-third bulk-billed for all consultations with children (multiple responses allowed)
- more than half worked in a teaching practice for undergraduates or registrars, or both.

Table 4.1: Characteristics of participating GPs and their practices, 2006–07

GP characteristic		Number ^(a)	Per cent of GPs ^(a) (n = 930)
Sex	Male	613	65.9
	Female	317	34.1
Age (missing = 11)			
	< 35 years	62	6.7
	35–44 years	208	22.6
	45–54 years	327	35.6
	55+ years	322	35.0
Years in general practice (missing = 13)			
	< 2 years	5	0.5
	2–5 years	72	7.9
	6–10 years	102	11.1
	11–19 years	215	23.4
	20+ years	523	57.0
Size of practice (missing = 6)			
	Solo	76	8.2
	2–4 GPs	434	47.0
	5+ GPs	414	44.8
Practice location by RRMA (missing = 0)			
	Capital	594	63.9
	Other metropolitan	68	7.3
	Large rural	73	7.9
	Small rural	50	5.4
	Other rural	126	13.6
	Remote central	9	1.0
	Other remote, offshore	10	1.1
Practice location by ASGC Remoteness structure (missing = 0)			
	Major cities	617	66.3
	Inner regional	211	22.7
	Outer regional	87	9.4
	Remote	12	1.3
	Very remote	3	0.3
Place of graduation (missing = 1)			
	Australia	684	73.6
	United Kingdom	68	7.3
	Asia	94	10.1
	Europe	16	1.7
	Africa	47	5.1
	New Zealand	13	1.4

(continued)

Table 4.1 (continued): Characteristics of participating GPs and their practices, 2006–07

GP characteristic	Number^(a)	Per cent of GPs^(a) (n = 930)
Consult in languages other than English (missing = 0)	210	22.6
< 25% of consultations	168	18.1
25–50% of consultations	15	2.7
> 50% of consultations	27	2.9
Currently in general practice training program (missing = 13)	27	2.9
Department of Veterans' Affairs registered (missing = 20)	834	91.6
Fellow of RACGP (missing = 6)	428	46.3
Accredited practice (missing = 2)	783	91.3
Practice nurse at major practice address (missing = 1)	629	67.7
Sessions per week (missing = 7)		
< 6 per week	157	17.0
6–10 per week	677	73.3
11+ per week	89	9.6
Direct patient care hours (worked) per week (missing = 28)		
≤ 10 hours	6	0.7
11–20 hours	102	11.3
21–40 hours	432	47.9
41–60 hours	333	36.9
60+ hours	29	3.2
Patient care provided in previous month ^(b) (missing = 11)		
As a locum	34	3.7
In a deputising service	18	2.0
In a residential aged care facility	434	47.2
As a salaried/sessional hospital medical officer	93	10.1
None of the above	431	46.9
After-hours arrangements ^(b) (missing = 3)		
Practice does its own	321	34.6
Cooperative with other practices	144	15.5
Deputing service	446	48.1
Referral to other service (e.g. A&E)	142	15.3
Other arrangement	42	4.5
Bulk-billing ^(b) (missing = 0)		
All patients	229	24.6
All pension/Commonwealth concession card holders	396	42.6
Some pension/Commonwealth concession card holders	244	26.2
All children	302	32.4
Some children	260	28.0
Selected other patients	576	61.9

(continued)

Table 4.1 (continued): Characteristics of participating GPs and their practices, 2006–07

GP characteristic	Number ^(a)	Per cent of GPs ^(a) (<i>n</i> = 930)
Major practice a teaching practice (missing = 2)		
Not a teaching practice	386	41.6
Yes—for undergraduates only	236	25.4
Yes—for GP registrars only	81	8.7
Yes—for both undergraduates and registrars	225	24.3

(a) Missing data removed.

(b) Multiple responses allowed.

Note: RRMA—Rural, Remote and Metropolitan Areas classification; ASGC—Australian Standard Geographical Classification; RACGP—Royal Australian College of General Practitioners; A&E—accident and emergency hospital department.

Computer use at GP practices

Table 4.2 shows the proportion of participating GPs who worked in a practice in which computers were used for each of five listed activities.

- Only 3.4% of GPs worked in a non-computerised practice.
- Computers were used mainly for prescribing and billing purposes.
- Four-fifths had computers available for administrative purposes.
- Four-fifths had computers available for medical records.
- Nearly four-fifths were in practices that had Internet and/or email available.

Table 4.2: Computer use at major practice address, 2006–07

Computer use	Number	Per cent of GPs (<i>n</i> = 930) ^(a)	Per cent of GPs with computers (<i>n</i> = 898) ^(a)
Not at all	32	3.4	—
Billing	803	86.3	89.4
Prescribing	826	88.8	92.0
Medical records	750	80.6	83.5
Other administrative	740	79.6	82.4
Internet/email	733	78.8	81.6
Missing	0	—	—

(a) Missing data removed.

Table 4.3 lists the top 10 combinations of computer use by participants' practices.

- 61% of GPs indicated that their practice used computers for all five listed purposes — billing, prescribing, medical records, other administrative purposes and Internet/email.
- Within the top 10 combinations, more than two-thirds of GPs reported computer use for both medical records and Internet/email purposes.
- Prescribing was the only use included in all of the top 10 combinations.
- Within other top 10 combinations of purposes for computer use, billing was the second most frequently available function, with medical records and Internet/email usage ranking equal third.

Table 4.3: Top 10 combinations of computer use for GPs, 2006–07

Combination	Number	Per cent of GPs (n = 930) ^(a)	Per cent of GPs with computers (n = 898) ^(a)
All five uses	569	61.2	63.4
Billing + prescribing + medical records + other administrative	55	5.9	6.1
Billing + prescribing + medical records + Internet/email	38	4.1	4.2
Billing + prescribing + other admin + Internet/email	37	4.0	4.1
Billing + prescribing + medical records	28	3.0	3.1
Billing + prescribing	16	1.7	1.8
Prescribing + medical records + other admin + Internet/email	16	1.7	1.8
Prescribing + medical records + Internet/email	15	1.6	1.7
Billing + prescribing + Internet/email	10	1.1	1.1
Billing + prescribing + other administrative	9	1.0	1.0

(a) Missing data removed.

Note that these results refer to computer availability at the practice level. Information about reported individual GP's use of computers at the practice can be found in Henderson et al. 'Extent and utilisation of computerisation in Australian general practice'.¹⁹

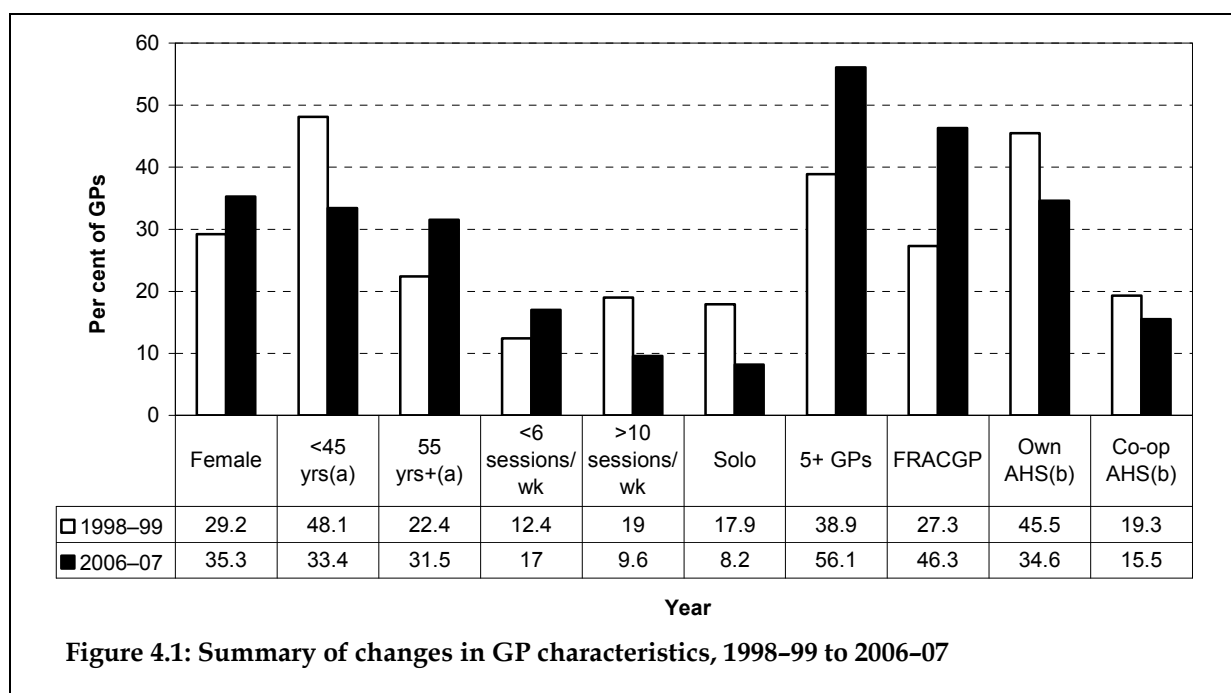
4.2 Changes over time, 1998–99 to 2006–07

Since BEACH began in 1998–99 some trends have emerged in the characteristics of GP participants (Table 4.4). The most noticeable changes over the 9 years of the study are listed below and some are presented graphically in Figure 4.1.

- The feminisation of the general practice workforce is reflected in the larger proportion of GP participants who are female. The proportion of female participants increased from 30.0% in 1998–99 to 34.1% in 2006–07, and reflects the change in the sample frame of all recognised GPs claiming more than 375 A1 items in the previous quarter in Australia, as provided each year by DoHA from Medicare claims data. In 1998–99, the proportion of female GPs in the sample frame was 29.2% (Table 4.1 in *General practice activity in Australia 1998–99*)⁵⁴ and in 2006–07 the proportion was 35.3% (Table 3.2 of this report).
- There has been a considerable decrease in the proportion of GPs aged 35–44 years (from 36.3% in 1998–99 to 22.6% in 2006–07) and an increase in the proportion aged 55 years or more (from 25.2% in 1998–99 to 35.0% in 2006–07). Again, these changes reflect the differences observed in the sample frame from Medicare data. Since 1998–99 the proportion of GPs aged less than 35 years and 35–44 years decreased from 14.8% and 33.4% respectively to 9.0% and 24.3% respectively in 2006–07. Over the same time period, the proportion of GPs in the Medicare data sample frame increased from 29.5% to 35.1% in the 45–54 year age group, and from 22.4% to 31.5% in the 55 years or older age group (1998–99 data from Table 4.1 in *General practice activity in Australia 1998–99*⁵⁴ and 2006–07 data from Table 3.2 of this report). (For further information see Charles et al. 'The independent effect of age of general practitioner on clinical practice'⁵⁵ and 'The evolution of the general practice workforce in Australia, 1991–2003'.⁵⁶)
- Reflecting the change in age groups, there has been a reduction in the proportion of GPs working in general practice for fewer than 2 years, from 0.8% in 1998–99 to 0.5% in

2006–07, and an increase in the proportion practising for 20 years or more, from 42.2% to 57.0%. There has also been a decrease in the proportion working in general practice for 11–19 years, from 33.7% in 1998–99 to 23.4% in 2006–07.

- There has been a considerable increase in the proportion of GPs working fewer than six sessions per week, and a significant decrease in the proportion working 11 or more sessions per week. This was thought to partially reflect the larger proportion of female GPs working part-time in conjunction with motherhood. However, Charles et al. (2004) found that, while female GPs were much more likely to work fewer sessions, no significant change had occurred between 1999 and 2003. They found the proportion of males working fewer than six sessions per week rose from 6.1% in 1998–99 to 11.4% in 2002–03.⁵⁶ There has also been a significant increase in the proportion of GPs working 6–10 sessions per week, from 68.5% in 1998–99 to 73.3% in 2006–07. The proportion of GPs working 11 or more sessions per week decreased by nearly half, from 19.0% to 9.6% over this period.
- The proportion of participants in solo practice has halved over the 9 years, and the proportion in smaller practices of 2–4 GPs has also decreased considerably. There has been an associated significant increase in the proportion of GPs working in practices with 5 or more practitioners, from 38.9% in 1998–99 to 56.1% in 2006–07.



- (a) Per cent of GPs in the sample frame from which the GP participants were drawn: all recognised GPs who had claimed at least 375 A1 items of service in the most recent 3 month Medicare Australia data period (provided by DoHA).
- (b) Data about after hours services (AHS) were only collected from 2000–01 onward. This figure compares the results from 2000–01 and 2006–07.

Note: Yrs—years of age; wk—week; FRACGP—Fellows of the Royal Australian College of General Practitioners; Own AHS—the practice provides its own after-hours service for their patients; Co-op AHS—the practice provides after-hours services in a cooperative arrangement with other practices.

- The results for consultations in a language other than English reflect a change in question design. Between 1998–99 and 2000–01 GPs were asked only one question: ‘Do you conduct more than 50% of consultations in a language other than English?’. The question was removed for the following 2 years, but was replaced as the issue again

became of interest to some stakeholders. A new question was designed to collect more specific data. The recent results suggest that about one-quarter of participants provide some consultations in a language other than English, but few are doing so at more than 50% of their consultations. It would appear that, in the survey's original format, those GPs who did consult in another language were keen to let that be known, and the '> 50%' category was the only avenue available to them.

- The proportion of GP participants holding Fellowship of the RACGP has significantly increased, from 27.3% in 1998–99 to 46.3% in 2006–07.
- Although the data range covers only 7 years, there has been a significant reduction ($p = <0.001$) in the proportion of GPs providing their own after-hours services, from 45.5% (95% CI: 42.5–48.6) in 2000–01 to 34.6% (95% CI: 31.6–37.7) in 2006–07 and those who provide after-hours services in cooperation with other practices, from 19.3% (95% CI: 16.9–21.8) in 2000–01 to 15.5% (95% CI: 13.2–17.9) in 2006–07.
- Over the same period there has been a significant increase in the proportion of GPs with a computer available at their major practice address, for either administrative or clinical use, or both, from 87.4% in 2000–01 to 96.6% in 2006–07.

Table 4.4: GP characteristics, summary of annual results, BEACH, 1998–99 to 2006–07

GP characteristic	Per cent of GPs ^(a)								
	1998–99 (n = 984)	1999–00 (n = 1,047)	2000–01 (n = 999)	2001–02 (n = 983)	2002–03 (n = 1,008)	2003–04 (n = 1,000)	2004–05 (n = 953)	2005–06 (n = 1,017)	2006–07 (n = 930)
Sex									
($\chi^2 = 4.49$, $p = 0.03$) (missing n)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Male	70.0	69.6	68.4	64.2	64.8	67.3	67.9	62.8	65.9
Female	30.0	30.4	31.6	35.8	35.2	32.7	32.1	37.2	34.1
Age									
($\chi^2 = 35.18$, $p < 0.001$) (missing n)	(4)	(4)	(9)	(1)	(0)	(1)	(1)	(18)	(11)
< 35 years	6.3	8.4	6.7	7.1	7.3	5.8	8.9	4.7	6.7
35–44 years	36.3	32.4	28.4	26.8	26.6	24.9	25.5	22.3	22.6
45–54 years	32.1	32.4	34.2	36.5	35.2	36.5	31.8	34.2	35.6
55+ years	25.2	26.7	29.7	29.5	30.9	32.7	33.6	38.7	35.0
Years in general practice									
($\chi^2 = 53.33$, $p < 0.001$) (missing n)	(12)	(8)	(6)	(4)	(6)	(9)	(5)	(13)	(13)
< 2 years	0.8	0.7	0.5	0.3	0.6	1.3	0.4	0.6	0.5
2–5 years	6.1	8.0	6.4	7.2	7.5	5.3	10.3	4.9	7.9
6–10 years	17.2	15.9	13.7	13.4	13.5	10.7	12.6	12.1	11.1
11–19 years	33.7	31.9	29.9	28.4	28.0	28.1	25.4	24.0	23.4
20+ years	42.2	43.5	48.8	50.3	50.4	54.6	51.3	58.5	57.0
Sessions per week									
($\chi^2 = 38.73$, $p < 0.001$) (missing n)	(12)	(6)	(16)	(15)	(8)	(7)	(8)	(6)	(7)
< 6 per week	12.4	15.3	15.9	16.0	18.7	17.2	14.4	17.3	17.0
6–10 per week	68.5	66.0	66.3	67.8	67.9	68.2	71.2	70.7	73.3
11+ per week	19.0	18.3	16.2	14.8	13.4	13.6	11.4	12.0	9.6

(continued)

Table 4.4 (continued): GP characteristics, summary of annual results, BEACH, 1998–99 to 2006–07

GP characteristic	Per cent of GPs ^(a)								
	1998–99 (n = 984)	1999–00 (n = 1,047)	2000–01 (n = 999)	2001–02 (n = 983)	2002–03 (n = 1,008)	2003–04 (n = 1,000)	2004–05 (n = 953)	2005–06 (n = 1,017)	2006–07 (n = 930)
Size of practice ($\chi^2 = 38.33$, $p < 0.001$) (missing n)	(62)	(5)	(28)	(4)	(8)	(10)	(6)	(9)	(6)
Solo	17.9	18.1	19.3	15.3	13.7	10.6	12.2	13.1	8.2
2–4 GPs	43.2	46.1	38.6	39.7	38.4	37.8	36.4	35.2	35.7
5+ GPs	38.9	35.8	42.1	44.7	47.9	51.6	51.3	51.7	56.1
Place of graduation ($\chi^2 = 2.15$, $p = 0.142$) (missing n)	(4)	(2)	(0)	(0)	(0)	(1)	(1)	(6)	(1)
Australia	76.5	73.3	72.7	76.1	72.6	73.5	69.8	72.0	73.6
United Kingdom	9.0	8.5	8.2	7.6	9.1	7.2	7.6	8.1	7.3
Asia	8.6	9.4	4.7	8.6	9.9	9.5	10.9	10.9	10.1
Europe	2.4	1.9	1.9	1.8	1.6	2.3	3.8	2.1	1.7
Africa	1.5	2.4	1.5	3.7	4.3	5.4	5.4	4.5	5.1
New Zealand	1.1	1.5	1.5	0.5	2.2	1.0	1.3	1.9	1.4
Other	0.9	2.8	9.5	1.6	0.9	1.0	1.3	0.6	0.8
Practice location by RRMA ($\chi^2 = 9.60$, $p = 0.142$) (missing n)	(0)	(0)	(0)	(1)	(0)	(2)	(1)	(1)	(0)
Capital	68.2	65.2	68.1	69.3	64.7	62.4	64.9	69.1	63.9
Other metropolitan	7.5	7.4	6.9	8.1	8.5	6.4	6.7	6.8	7.3
Large rural	6.2	7.6	5.6	5.9	5.1	7.0	5.4	5.7	7.9
Small rural	6.1	6.2	5.6	4.9	7.7	7.0	6.9	6.0	5.4

(continued)

Table 4.4 (continued): GP characteristics, summary of annual results, BEACH, 1998–99 to 2006–07

GP characteristic	Per cent of GPs ^(a)								
	1998–99 (n = 984)	1999–00 (n = 1,047)	2000–01 (n = 999)	2001–02 (n = 983)	2002–03 (n = 1,008)	2003–04 (n = 1,000)	2004–05 (n = 953)	2005–06 (n = 1,017)	2006–07 (n = 930)
Other rural	11.0	12.2	12.2	10.5	12.0	14.2	13.0	11.1	13.6
Remote central	0.5	0.4	1.0	0.5	0.6	0.9	1.3	0.5	1.0
Other remote, offshore	0.5	1.0	0.7	0.8	1.4	2.0	1.8	0.8	1.1
Practice location by ASGC ($\chi^2 = 7.36$, $p = 0.117$) (missing n)	(0)	(0)	(1)	(0)	(0)	(2)	(2)	(0)	(0)
Major cities	70.9	68.6	70.9	71.4	69.4	65.4	67.6	72.1	66.3
Inner regional	18.2	20.3	18.9	17.3	19.1	21.8	20.1	18.8	22.7
Outer regional	9.6	9.7	8.4	10.1	9.3	10.1	10.1	7.8	9.4
Remote	1.2	1.2	1.4	0.9	1.6	1.6	1.5	0.8	1.3
Very remote	0.1	0.2	0.3	0.3	0.7	1.0	0.7	0.6	0.3
Consultations in languages other than English (missing n) [†]	—	—	—	—	—	(6)	(1)	(10)	(0)
< 25%	NAv	NAv	NAv	NAv	NAv	17.8	21.7	21.0	18.1
25–50%	NAv	NAv	NAv	NAv	NAv	2.9	2.4	3.6	2.7
> 50%	11.3	10.6	13.5	NAv	NAv	2.4	3.4	3.4	2.9
Currently in a general practice vocational training program ($\chi^2 = 1.156$, $p = 0.282$)	2.2	2.2	2.5	2.5	2.9	4.4	3.5	2.6	2.9
Fellow of RACGP ($\chi^2 = 77.153$, $p < 0.001$)	27.3	31.0	31.4	35.1	35.5	33.5	42.3	40.7	46.3

(continued)

Table 4.4 (continued): GP characteristics, summary of annual results, BEACH, 1998–99 to 2006–07

GP characteristic	Per cent of GPs ^(a)								
	1998–99 (n = 984)	1999–00 (n = 1,047)	2000–01 (n = 999)	2001–02 (n = 983)	2002–03 (n = 1,008)	2003–04 (n = 1,000)	2004–05 (n = 953)	2005–06 (n = 1,017)	2006–07 (n = 930)
After-hours arrangements [†] ($\chi^2 = 72.894$, $p < 0.001$) (missing n)	NAv	NAv	—	—	(5)	(5)	(8)	(14)	(3)
Practice does its own	NAv	NAv	45.5	41.6	42.8	43.6	35.9	34.6	34.6
Cooperative with other practices	NAv	NAv	19.3	19.4	16.7	20.0	16.2	15.7	15.5
Computer use at practice ($\chi^2 = 53.87$, $p < 0.001$)	NAv	NAv	87.4	89.7	91.3	95.0	93.7	96.4	96.6

(a) Missing data removed.

† Data for all three groupings only available from 2003–04.

‡ Multiple responses were allowed.

Note: NAv—not available; RRMA—Rural, Remote and Metropolitan Areas classification; ASGC—Australian Standard Geographical Classification; RACGP—Royal Australian College of General Practitioners.

5 The encounters

5.1 Annual results, 2006–07

Content of the encounters

In 2006–07 there were 91,805 encounters (weighted data) from 930 GPs. The content of these encounters is summarised in Table 5.1. Reasons for encounter (RFEs) and problems managed are expressed as rates per 100 encounters. Each management action is presented in terms of both a rate per 100 encounters and a rate per 100 problems managed, with 95% confidence limits.

- On average, patients put forward 151 RFEs and GPs managed about 149 problems per 100 encounters.
- New problems accounted for nearly 40% of all problems, being managed at a rate of 57 per 100 encounters.
- Chronic problems accounted for 35% of all problems managed, managed at a rate of 52 chronic problems per 100 encounters.
- Work-related problems were managed at a rate of 2.9 per 100 encounters.
- Medications were the most common treatment choice (68 per 100 problems managed) and most of these were medications prescribed (rather than supplied or advised), at a rate of 56 per 100 problems managed.
- Clinical treatments (such as advice and counselling) were provided at a rate of 20 per 100 problems.
- The patient was referred for care elsewhere 8 times for every 100 problems managed, most often to medical specialists (5.4 referrals per 100 problems) and less frequently to allied health professionals (2.1 referrals per 100 problems).
- GPs placed 28 orders for pathology tests and 6 imaging tests in the management of every 100 problems.

Encounter type

During the first 7 years of the BEACH program, where one or more MBS/DVA item numbers were claimable for the encounter the GP was instructed to record only one item number. Where multiple item numbers (for example, an A1 item such as ‘standard surgery consultation’ and a procedural item number) were claimable for an encounter the GP was instructed to record the lower of the item numbers (usually an A1 item number).

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

Table 5.2 provides an overview of the MBS/DVA item numbers recorded in BEACH in 2006–07. Overall there were 79,913 encounters where at least one MBS/DVA item number

was recorded. Where at least one item number was recorded at BEACH encounters, only one item number was recorded at three-quarters of BEACH encounters.

Table 5.1: Summary of morbidity and management, 2006–07

Variable	Number	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL	Rate per 100 problems (n = 136,333)	95% LCL	95% UCL
General practitioners	930	—	—	—	—	—	—
Encounters	91,805	—	—	—	—	—	—
Reasons for encounter	138,434	150.8	148.9	152.7	—	—	—
Problems managed	136,333	148.5	146.4	150.6	—	—	—
New problems	51,895	56.5	55.1	57.9	38.1	37.1	39.0
Work-related	2,620	2.9	2.6	3.1	1.9	1.8	2.1
Chronic problems	47,810	52.1	50.4	53.7	35.1	34.2	35.9
Medications	93,193	101.5	99.2	103.9	68.4	67.0	69.7
Prescribed	76,430	83.3	81.0	85.5	56.1	54.7	57.4
GP-supplied	8,160	8.9	8.2	9.6	6.0	5.5	6.5
Advised OTC	8,604	9.4	8.7	10.1	6.3	5.8	6.8
Other treatments	41,011	44.7	42.3	47.0	30.1	28.6	31.5
Clinical*	27,084	29.5	27.6	31.4	19.9	18.7	21.1
Procedural*	13,927	15.2	14.4	16.0	10.2	9.7	10.7
Referrals	11,224	12.2	11.7	12.7	8.2	7.9	8.5
Specialist*	7,387	8.0	7.7	8.4	5.4	5.2	5.7
Allied health services*	2,819	3.1	2.9	3.3	2.1	1.9	2.2
Hospital*	366	0.4	0.3	0.5	0.3	0.2	0.3
Emergency department*	149	0.2	0.1	0.2	0.1	0.1	0.1
Other medical services*	89	0.1	0.1	0.1	0.1	0.0	0.1
Other referrals*	413	0.4	0.4	0.5	0.3	0.3	0.3
Pathology	38,963	42.4	40.7	44.2	28.6	27.5	29.6
Imaging	8,229	9.0	8.6	9.3	6.0	5.8	6.3
Other investigations	971	1.1	1.0	1.2	0.7	0.6	0.8

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Table 5.2: Overview of MBS items recorded, 2006–07

Variable	Number	Per cent of encounters
Encounters at which one MBS item was recorded	62,236	77.9
Encounters at which two MBS items were recorded	16,510	20.7
Encounters at which three MBS items were recorded	1,167	1.5
Total encounters at which at least one item was recorded	79,913	100.0

Note: 11 encounters at which only a bulk-billing item number was recorded are not included in this table.

Table 5.3 reports the breakdown of encounter type (by payment source), counting a single Medicare item number per encounter (where applicable). The item numbers reported in this table were selected (from multiple items recorded at an encounter) according to priority, with A1 Medicare items of service taking priority over other items (see Chapter 2).

- Indirect encounters (where the patient was not seen by the GP) accounted for 1.8% of all encounters.
- Direct encounters (patient was seen by the GP) accounted for 98.2% of all encounters.
- Direct encounters where the GP indicated that no charge was made arose on average once per 200 encounters.
- About 96% of all direct encounters were claimable either through Medicare or the DVA.
- Encounters payable through workers compensation accounted for 2.3% of encounters.
- Encounters payable through other sources (including hospital paid encounters) accounted for 1.1% of encounters.
- There were 31 encounters where the only item recorded related to practice nurse activity, but the GP had indicated that she or he had seen the patient him/herself. There were 35 encounters at which a practice nurse item was recorded and the GP had indicated that they had not seen the patient. These were counted as indirect encounters.

Table 5.3: Type of encounter, 2006–07

Variable	Number	Per cent of all encounters ^(a) (n = 91,805)	95% LCL	95% UCL	Per cent of direct encounters (n = 83,106)
General practitioners	930	—	—	—	—
Indirect encounters ^(b)	1,531	1.8	1.6	2.1	—
Practice nurse only items (indirect encs)	35	0.0	0.0	0.1	—
Direct encounters	83,106	98.2	97.9	98.4	100.0
No charge	430	0.5	0.4	0.6	0.5
MBS/DVA items of service (all) ^(c)	79,913	94.4	94.0	94.9	96.2
MBS/DVA items of service (GPs only)	79,847	94.3	93.9	94.8	96.1
Practice nurse only items (direct encs)	31	0.0	0.0	0.1	0.0
Workers compensation	1,925	2.3	2.1	2.5	2.3
Other paid (hospital, state, etc.)	876	1.0	0.8	1.3	1.1
Practice nurse only items (unspecified)	0	0.0	0.0	0.0	—
<i>Subtotal</i>	<i>84,637</i>	<i>100.0</i>	—	—	—
Missing ^(d)	7,167	—	—	—	—
Total encounters	91,805	—	—	—	—

(a) Missing data removed from analysis.

(b) Three encounters involving chronic disease management or case conference items were recorded as indirect encounters.

(c) Includes 35 indirect encounters at which a practice nurse item only was recorded.

(d) If the 'Patient not seen' box was ticked, and MBS items other than chronic disease management items or case conference items were recorded, those items were included as missing data.

Note: LCL—lower confidence limit; UCL—upper confidence limit; MBS—Medicare Benefits Schedule; encs—encounters; DVA—Australian Government Department of Veterans' Affairs.

Table 5.4 provides a summary of the MBS items recorded in BEACH, counting one item number only, using the same method described for Table 5.3. This provides comparable data to those reported in previous years. This table is used as the comparison in 'Changes over time' (Section 5.2).

- Standard surgery consultations accounted for the majority (83.3%) of Medicare/DVA-claimable consultations, at a rate of 78.6 per 100 encounters.
- One in 10 Medicare/DVA encounters were long surgery consultations.
- Short and prolonged surgery consultations, home visits and residential aged care consultations were relatively rare, and encounters occurring in hospitals infrequent.
- Chronic disease management items, health assessments and GP mental health care items were all recorded rarely. There were no case conferences recorded during the 2006–07 BEACH year.

Table 5.4: Summary of MBS/DVA items recorded (counting one item number per encounter only), 2006–07

MBS/DVA item	Number	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL	Per cent of Medicare-paid GP items (n = 79,847)
Short surgery consultations	903	1.1	0.9	1.3	1.1
Standard surgery consultations	66,552	78.6	77.6	79.7	83.3
Long surgery consultations	7,951	9.4	8.8	10.0	10.0
Prolonged surgery consultations	488	0.6	0.5	0.7	0.6
Home visits	735	0.9	0.7	1.1	0.9
Hospital	188	0.2	0.1	0.3	0.2
Residential aged care facility	1,054	1.2	1.0	1.5	1.3
Health assessments	215	0.3	0.2	0.3	0.3
Chronic disease management items	341	0.4	0.3	0.5	0.4
Case conferences	0	0.0	0.0	0.0	0.0
GP mental health care	179	0.2	0.2	0.3	0.2
Incentive payments	128	0.2	0.1	0.2	0.2
Other items	1,112	1.3	1.1	1.6	1.4
MBS items of service (GPs only)	79,847	94.3	93.9	94.8	100.0

(a) Missing data removed from analysis.

Note: LCL—lower confidence limit; UCL—upper confidence limit; MBS—Medicare Benefits Schedule; DVA—Australian Government Department of Veterans' Affairs.

Table 5.5 provides the distribution of all Medicare item numbers recorded across Medicare item number groups. Overall, there were 98,768 MBS item numbers recorded in BEACH in 2006–07. An average of 1.2 items was recorded at encounters where at least one MBS item was recorded.

Surgery consultations (including short, standard, long and prolonged) accounted for over three-quarters of all MBS items recorded in BEACH. They were the most commonly recorded type of item number, at 95% of the encounters where at least one item was recorded (Table 5.4).

The second most commonly recorded were items for bulk-billed services, which accounted for 15.0% of all items recorded. Items for hospital, residential aged care and home visits were recorded at one in every 50 encounters. Practice nurse items were recorded at 1.9% of all encounters (Table 5.5). For a more detailed breakdown of practice nurse item numbers, and related data on practice nurse activity, please refer to Chapter 13.

Consultation length

In a subsample of 33,758 BEACH encounters containing start and finish times for A1 Medicare/DVA-claimable encounters, the mean length of consultation in 2006–07 was 14.9 minutes (95% CI: 14.7–15.2) and the median length was 13.0 minutes (Table 5.8). Methods describing the substudy from which consultation length data are collected are described in Section 2.5.

For all MBS/DVA-claimable encounters, the mean length of consultation in 2006–07 was 15.1 minutes (95% CI: 14.8–15.3), with a median length of 13.0 minutes.

Table 5.5: Medicare item number distribution across item number groups, 2006–07

Variable	All MBS items ^(a)		At least one item recorded ^(b)			
	Number	Per cent	Number	Per cent	95% LCL	95% UCL
Surgery consultations	75,894	76.8	75,894	95.0	94.4	95.5
Hospital, residential aged care and home visits	1,978	2.0	1,978	2.5	2.0	2.9
Health assessments	241	0.2	241	0.3	0.2	0.4
Chronic disease management items (including case conferences)	574	0.6	483	0.6	0.5	0.7
Incentive payments	139	0.1	139	0.2	0.1	0.2
Acupuncture	135	0.1	135	0.2	0.1	0.3
Bulk-billed services ^(c)	14,783	15.0	14,782	18.5	16.6	20.4
Practice nurse services	1,835	1.9	1,823	2.3	1.9	2.7
Diagnostic procedures and investigations	502	0.5	494	0.6	0.5	0.7
Therapeutic procedures	350	0.4	349	0.4	0.3	0.5
Surgical operations	1,244	1.3	1,176	1.5	1.3	1.7
Diagnostic imaging services	26	0.0	25	0.0	0.0	0.1
Pathology services	219	0.2	216	0.3	0.2	0.3
Other items	638	0.6	636	0.8	0.6	1.0
Total items/encounters	98,768	100.0	79,847	—	—	—

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

(b) Identifies encounters where at least one item from a MBS group was recorded.

(c) Includes 10 encounters with only a bulk-billing service item recorded at the encounter.

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

5.2 Changes over time, 1998–99 to 2006–07

Content of the encounters

Table 5.6 provides an overview of the changes over time for data collected in BEACH between 1998–99 and 2006–07. There were significantly more RFEs reported in 2006–07 than in 1998–99, equating to an additional 3.6 million RFEs reported in 2006–07. There was no change in the average number of problems managed at encounters over this time. However, the rate of chronic problems managed increased significantly over time, from 46.5 per 100 encounters in 1998–99 to 52.1 per 100 encounters in 2006–07. This equates to an additional 5.4 million encounters with chronic problems nationally in 2006–07 than in 1998–99. The rate of work-related problems managed has decreased since 1998–99, with an estimated 1.2 million fewer work-related problems managed nationally in 2006–07 than in 1998–99.

There has been a significant decline in the overall rate of medications prescribed/advised/supplied by the GP between 1998–99 and 2006–07. Extrapolated to all GP encounters nationally, this suggests that in 2006–07, there were 9.2 million fewer medications prescribed/advised/supplied by GPs than in 1998–99. This was reflected in the declining rate of prescriptions, with about 11.2 million fewer prescriptions written by GPs in 2006–07 than in 1998–99. More detailed analysis of these results can be found in Chapter 9. In contrast, the rate at which medications were supplied by the GP over the same period increased significantly, from 7.3 per 100 encounters to 8.9 per 100. This equates to an additional 1.6 million medications supplied by the GP in 2006–07 compared with 1998–99.

The rate of procedures performed by GPs has increased over time, from 11.8 per 100 encounters in 1998–99 to 15.2 per 100 encounters in 2006–07. This equates to an estimated 3.4 million more procedures performed in general practice nationally in 2006–07 than in 1998–99. These changes are discussed in more detail in Chapter 10.

Referrals have increased since 1998–99. Extrapolated results suggest that in 2006–07 there were almost 1.1 million more referrals made by GPs than in 1998–99. This was reflected in marginal increases in the rates of referrals to specialists and emergency departments. However, there were fewer referrals/admissions to hospitals. More detailed analysis of these changes is provided in Chapter 11.

In the third year of BEACH (2000–01) the data collection and coding system for pathology test orders changed. Therefore, comparisons of changes over time for pathology are based on 2000–01 data to ensure comparability of the results. There were significantly more pathology tests ordered in 2006–07 than in 2000–01, the rate of orders increasing from 29.7 per 100 encounters to 42.4 per 100 encounters. This equates to an estimated 13.5 million more pathology tests/batteries of tests ordered by GPs in 2006–07 than in 2000–01.

There were significantly more imaging tests ordered in 2006–07 than in 1998–99. The rate of imaging orders increased from 7.7 per 100 encounters to 9.0 per 100 encounters, equating to an estimated 1.5 million more orders for imaging in 2006–07 than in 1998–99. The rate of other investigations ordered also increased over time, from 0.6 per 100 encounters in 2000–01 to 1.1 per 100 in 2006–07. Chapter 12 includes a more detailed description of the changes over time for both pathology and imaging orders.

As a proportion of all Medicare/DVA-claimable encounters recorded in BEACH, long surgery consultations have increased, accounting for 7.7% of MBS-claimable encounters in 1998–99, increasing to 10.0% in 2006–07. Home visits have decreased as a proportion of MBS

encounters, from 1.9% in 1998–99 to 0.9% in 2006–07. The proportion of other items (not belonging to any of the MBS consultation categories specified) has declined significantly over time, from 2.4% of all items in 1998–99 to 1.4% in 2006–07 (Table 5.7).

In the subsample study for length of consultation that included start and finish times for A1 Medicare/DVA-claimable encounters, there was no significant change in length of consultation between 2000–01 and 2006–07. In 2000–01 the mean length of such consultations was 14.8 minutes and the median length was 13.0 minutes. In 2006–07 the mean length was 14.9 minutes and the median length remained at 13.0 minutes. There was also no significant change in consultation length when all encounters with a GP Medicare item number were considered over time (Table 5.8).

Table 5.6: Content of encounters, summary of annual results, BEACH, 1998–99 to 2006–07

Variable	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Reasons for encounter	146.3 (144.6–148.0)	148.5 (146.7–150.2)	151.0 (149.2–152.8)	149.2 (147.4–150.9)	150.9 (149.0–152.7)	150.2 (148.4–152.0)	149.6 (147.8–151.5)	150.3 (148.4–152.2)	150.8 (148.9–152.7)	↑	+3,600
Problems managed	145.3 (143.5–147.2)	146.7 (144.9–148.6)	144.5 (142.8–146.3)	143.4 (141.7–145.2)	144.9 (143.0–146.8)	146.3 (144.4–148.2)	145.5 (143.6–147.4)	146.2 (144.2–148.2)	148.5 (146.4–150.6)	—	—
New problems	54.5 (53.0–56.0)	45.3 (43.6–46.9)	47.4 (45.7–49.0)	55.1 (53.8–56.5)	57.0 (55.6–58.3)	55.9 (54.5–57.3)	55.2 (53.8–56.5)	56.9 (55.5–58.2)	56.5 (55.1–57.9)	—	—
Chronic problems	46.5 (44.9–48.0)	47.6 (45.9–49.3)	47.3 (45.8–48.9)	48.4 (46.9–49.9)	48.2 (46.5–49.8)	50.8 (49.0–52.5)	50.8 (49.1–52.5)	50.9 (49.1–52.8)	52.1 (50.4–53.7)	↑	+5,430
Work-related	4.0 (3.7–4.3)	3.2 (2.9–3.5)	3.3 (3.1–3.5)	3.0 (2.7–3.2)	NAv	NAv	3.1 (2.8–3.5)	2.8 (2.6–3.1)	2.9 (2.6–3.1)	↓	–1,160
Medications	109.7 (107.4–112.0)	110.1 (107.8–112.4)	108.2 (105.7–110.6)	104.5 (102.2–106.9)	103.8 (101.4–106.2)	104.4 (102.1–106.7)	101.5 (99.3–103.8)	104.4 (101.8–107.0)	101.5 (99.2–103.9)	↓	–9,200
Prescribed	93.6 (91.2–96.1)	93.8 (91.5–96.2)	92.3 (89.9–94.7)	88.0 (85.6–90.4)	84.3 (81.8–86.9)	86.0 (83.6–88.5)	83.4 (81.2–85.5)	85.8 (83.3–88.4)	83.3 (81.0–85.5)	↓	–11,240
GP-supplied	7.3 (6.5–8.1)	6.9 (6.0–7.7)	6.9 (5.9–7.9)	7.6 (6.6–8.7)	9.3 (8.0–10.6)	8.6 (7.6–9.6)	8.1 (7.3–8.8)	8.8 (8.2–9.5)	8.9 (8.2–9.6)	↑	+1,590
Advised OTC	8.8 (8.1–9.5)	9.4 (8.7–10.1)	9.0 (8.2–9.7)	8.9 (8.2–9.6)	10.2 (9.3–11.1)	9.8 (9.0–10.5)	10.1 (9.2–10.9)	9.8 (9.0–10.5)	9.4 (8.7–10.1)	—	—
Other treatments	43.2 (41.3–45.1)	46.0 (44.1–47.8)	49.4 (47.1–51.7)	51.9 (49.5–54.2)	51.8 (49.3–54.3)	51.4 (48.9–53.8)	54.7 (52.1–57.3)	43.6 (41.5–45.8)	44.7 (42.3–47.0)	\$	—
Clinical	31.4 (29.7–33.0)	33.5 (31.8–35.2)	37.2 (35.1–39.3)	38.1 (36.1–40.1)	37.2 (35.0–39.4)	36.6 (34.5–38.8)	39.2 (37.1–41.4)	29.2 (27.3–31.1)	29.5 (27.6–31.4)	\$	—
Procedural	11.8 (11.2–12.5)	12.5 (11.9–13.0)	12.2 (11.6–12.8)	13.8 (13.1–14.5)	14.6 (13.9–15.3)	14.7 (14.0–15.5)	15.5 (14.6–16.4)	14.4 (13.7–15.1)	15.2 (14.4–16.0)	↑	+3,410

(continued)

Table 5.6 (continued): Summary of morbidity and management, summary of annual results, BEACH, 1998–99 to 2006–07

Variable	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Referrals	11.1 (10.7–11.6)	11.1 (10.7–11.6)	10.4 (10.0–10.8)	10.5 (10.1–10.9)	11.1 (10.7–11.6)	11.6 (11.1–12.1)	11.5 (11.1–12.0)	12.0 (11.5–12.5)	12.2 (11.7–12.7)	↑	+1,050
Specialist	7.4 (7.1–7.7)	7.3 (7.0–7.6)	7.4 (7.1–7.7)	7.3 (7.0–7.6)	7.7 (7.3–8.0)	7.9 (7.5–8.2)	7.7 (7.4–8.0)	8.2 (7.8–8.5)	8.0 (7.7–8.4)	↑	+570
Allied health services ^(b)	3.0 (2.8–3.2)	3.1 (2.9–3.3)	2.3 (2.2–2.5)	2.3 (2.1–2.4)	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.7 (2.5–2.9)	2.9 (2.7–3.1)	3.1 (2.9–3.3)	§	
Hospital	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.3–0.5)	↓	–310
Emergency department	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	↑	+100
Other referrals/other medical services ^(b)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.2 (0.1–0.2)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.5 (0.5–0.6)	↑	+510
Pathology ^(c)	NAv	NAv	29.7 (28.4–30.9)	31.0 (29.7–32.4)	32.9 (31.5–34.4)	35.2 (33.7–36.7)	36.7 (35.2–38.2)	38.6 (36.9–40.3)	42.4 (40.7–44.2)	↑	+13,530
Imaging ^(d)	NAv	NAv	7.7 (7.3–8.0)	7.9 (7.6–8.2)	8.6 (8.2–9.0)	8.2 (7.8–8.6)	8.3 (8.0–8.6)	8.8 (8.4–9.2)	9.0 (8.6–9.3)	↑	+1,460
Other investigations ^(d)	NAv	NAv	0.6 (0.5–0.7)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (1.0–1.1)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	↑	+520

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

(b) In the first 2 years 'allied health services' and 'other referrals' were grouped together and reported together.

(c) In the third year of BEACH the data collection and data coding system for pathology changed. Changes over time are calculated using the 2000–01 data to ensure comparability.

(d) In the first 2 years 'imaging' and 'other investigations' were grouped and reported together.

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

Note: CI—confidence interval; NAv—not available; OTC—over-the-counter.

Table 5.7: Type of encounter, summary of annual results (most frequent events), BEACH, 1998–99 to 2006–07

MBS/DVA consultation category	Percentage distribution of Medicare/DVA-claimable encounters ^(a) (95% CI)									Change
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓
Short surgery consultations	1.5 (1.3–1.7)	1.4 (1.1–1.8)	1.6 (0.3–2.0)	1.1 (0.9–1.3)	1.2 (1.0–1.4)	1.2 (0.9–1.4)	1.0 (0.8–1.3)	1.0 (0.8–1.1)	1.1 (0.9–1.4)	—
Standard surgery consultations	84.6 (83.7–85.4)	84.1 (83.2–84.9)	83.9 (82.9–84.9)	84.1 (83.1–85.0)	82.8 (81.8–83.9)	82.4 (81.2–83.6)	82.3 (81.0–83.5)	83.7 (82.7–84.7)	83.4 (82.4–84.3)	—
Long surgery consultations	7.7 (7.1–8.3)	8.7 (8.0–9.3)	8.8 (8.2–9.5)	8.7 (8.0–9.3)	9.6 (8.9–10.2)	9.7 (9.0–10.4)	10.5 (9.7–11.2)	9.8 (9.1–10.5)	10.0 (9.3–10.6)	↑
Prolonged surgery consultations	0.6 (0.4–0.8)	0.6 (0.5–0.7)	0.7 (0.5–0.8)	0.7 (0.5–0.8)	0.8 (0.6–0.9)	0.7 (0.6–0.9)	0.8 (0.6–0.9)	0.7 (0.5–0.8)	0.6 (0.5–0.7)	—
Home visits	1.9 (1.7–2.2)	1.5 (1.3–1.7)	1.5 (1.2–1.9)	1.6 (1.3–1.9)	1.3 (1.1–1.6)	1.4 (1.0–1.8)	1.0 (0.8–1.2)	1.2 (0.9–1.5)	0.9 (0.7–1.1)	↓
Hospital	0.4 (0.3–0.6)	0.5 (0.3–0.7)	0.2 (0.1–0.3)	0.2 (0.1–0.3)	0.4 (0.2–0.6)	0.4 (0.3–0.5)	0.2 (0.1–0.3)	0.2 (0.1–0.3)	0.2 (0.1–0.3)	↓
Residential aged care facility	0.9 (0.7–1.1)	1.0 (0.8–1.2)	0.7 (0.5–1.0)	1.0 (0.7–1.3)	1.2 (0.9–1.6)	1.2 (0.9–1.4)	1.2 (0.8–1.6)	1.3 (0.9–1.6)	1.3 (1.0–1.6)	—
Chronic disease management	N/A	N/A	0.0 [‡] (0.0–0.0)	0.1 (0.1–0.3)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.3 (0.2–0.4)	0.4 (0.3–0.5)	↑
Case conference	N/A	N/A	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	—
Health assessment	N/A	0.0 [‡] (0.0–0.0)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	↑
Incentive payments	N/A	N/A	N/A	N/A	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	—
Other items	2.4 (2.1–2.7)	2.3 (2.0–2.6)	2.5 (2.0–3.0)	2.5 (1.9–3.0)	2.4 (1.8–3.0)	2.7 (2.0–3.5)	2.6 (1.7–3.4)	1.6 (1.3–0.8)	1.4 (1.1–1.7)	↓

(a) Missing data removed.

(b) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and—indicates there was no change.

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

Note: Includes encounters that were recorded as claimable through the Australian Government Department of Veterans' Affairs (DVA). CI—confidence interval; MBS—Medicare Benefits Schedule; N/A—not applicable.

Table 5.8: Consultation length (minutes), summary of annual results, BEACH, 2000–01 to 2006–07

	Consultation length (minutes)						
	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07
	(n = 30,961)	(n = 35,104)	(n = 34,886)	(n = 31,844)	(n = 30,683)	(n = 32,830)	(n = 33,756)
A1 Medicare/DVA items (A,B,C,D)							
Mean	14.8 (14.5–15.1)	14.9 (14.7–15.2)	14.8 (14.5–15.1)	15.0 (14.7–15.3)	15.1 (14.8–15.4)	14.9 (14.6–15.1)	14.9 (14.7–15.2)
Median	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Mode	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Range	1–106	1–155	1–165	1–120	1–120	1–110	1–155
All Medicare/DVA-claimable encounters (GP items)							
	(n = 31,734)	(n = 36,142)	(n = 35,861)	(n = 32,839)	(n = 31,510)	(n = 34,111)	(n = 35,201)
Mean	14.9 (14.6–15.2)	15.0 (14.8–15.3)	14.9 (14.6–15.2)	15.1 (14.9–15.4)	15.2 (14.9–15.5)	15.0 (14.7–15.2)	15.1 (14.8–15.3)
Median	13.0	13.0	13.0	14.0	13.0	13.0	13.0
Mode	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Range	1–150	1–180	1–165	1–175	1–180	1–110	1–155

Note: A1 Medicare items—Group A includes: 3, 4, 13, 19, 20; Group B includes: 23, 24, 25, 33, 35; Group C includes: 36, 37, 38, 40, 43; Group D includes: 44, 47, 48, 50, 51.
DVA—Australian Government Department of Veterans' Affairs. Results for 1998–99 and 1999–00 are not presented as data are not comparable for these years.

6 The patients

6.1 Annual results, 2006–07

Age–sex distribution of patients at encounter

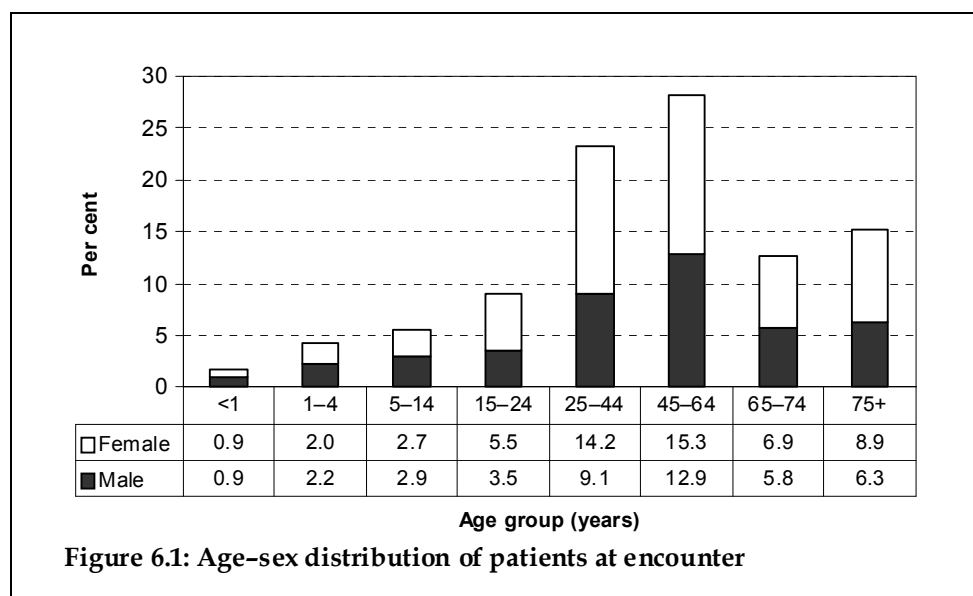
The age–sex distribution of patients at the 91,805 encounters is shown in Figure 6.1. Females accounted for the greater proportion of encounters (56.3%). This was reflected across all age groups except for children aged less than 15 years (Figure 6.1).

Patients aged less than 25 years accounted for 20.6% of encounters; those aged 25–44 years accounted for 23.3% of encounters, patients aged 45–64 years accounted for 28.2% and those aged 65 years or older accounted for 27.9% of encounters.

Other patient characteristics

Table 6.1 provides a view of other characteristics of the patients. In summary:

- The patient was new to the practice at 8.6% of encounters.
- Over 40% of encounters were with patients who held a Commonwealth concession card and 3.1% were with persons who held a Repatriation health card.
- At 7.1% of encounters the patient was from a non-English-speaking background.
- At 0.9% of encounters the patient identified themselves as an Aboriginal person or Torres Strait Islander.



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

Table 6.1: Characteristics of the patients at encounters, 2006–07

Patient variable	Number	Per cent of encounters (<i>n</i> = 91,805)	95% LCL	95% UCL
Sex (missing = 765) ^(a)				
Males	39,757	43.7	42.9	44.5
Females	51,284	56.3	55.5	57.1
Age group (missing = 779) ^(a)				
<1 year	1,669	1.8	1.7	2.0
1–4 years	3,763	4.1	3.9	4.4
5–14 years	5,091	5.6	5.3	5.9
15–24 years	8,261	9.1	8.6	9.5
25–44 years	21,173	23.3	22.6	24.0
45–64 years	25,645	28.2	27.6	28.7
65–74 years	11,566	12.7	12.2	13.2
75+ years	13,857	15.2	14.4	16.0
Other characteristics ^(b)				
New patient to practice	7,745	8.6	7.9	9.4
Commonwealth concession card	38,071	41.5	39.9	43.0
Repatriation health card	2,815	3.1	2.8	3.3
Non-English-speaking background	6,563	7.1	5.8	8.5
Aboriginal person	739	0.8	0.6	1.1
Torres Strait Islander	53	0.1	0.0	0.1
Aboriginal person and Torres Strait Islander	29	0.0	0.0	0.1

(a) Missing data removed.

(b) Missing data for each of the listed 'other' patient characteristics were counted as a 'no' response.

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

Patient reasons for encounter

International interest in reasons for encounter (RFEs) has been developing over the past three decades. RFEs reflect the patient's demand for care and can provide an indication of service utilisation patterns, which may benefit from intervention on a population level.⁵⁷

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 (for example 'itchy eyes', 'chest pain'), in diagnostic terms (for example '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 can have a one-to-one, one-to-many, many-to-one and many-to-many relationship to problems managed; that is, the patient may describe multiple symptoms that relate to a single problem managed at the encounter or may describe one RFE that relates to multiple problems.

Number of reasons for encounter

Table 6.2 shows the number of RFEs presented by patients at encounters. At 61% of encounters only one RFE was recorded. Patients presented on average with 150.8 RFEs per 100 encounters, or 1.5 RFEs per encounter (Table 6.3).

Table 6.2: Number of patient reasons for encounter, 2006–07

Number of RFEs at encounter	Number of encounters (n = 91,805)	Per cent of encounters	95% LCL	95% UCL
One RFE	55,673	60.6	59.4	61.9
Two RFEs	25,633	27.9	27.2	28.7
Three RFEs	10,498	11.4	10.7	12.2
Total	91,805	100.0	—	—

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

Reasons for encounter by ICPC-2 chapter

The distribution of patient RFEs by ICPC-2 chapter and the most common RFEs within each chapter are presented in Table 6.3. Each chapter and individual RFE is expressed as a percentage of all RFEs and as a rate per 100 encounters with 95% confidence limits.

Table 6.3: Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter, 2006–07

Reasons for encounter	Number	Per cent of total RFEs ^(a) (n = 138,434)	Rate per 100 encounters ^(b) (n = 91,805)	95% LCL	95% UCL
General & unspecified	34,638	25.0	37.7	36.7	38.8
Prescription NOS	7,583	5.5	8.3	7.7	8.8
Results tests/procedures NOS	5,302	3.8	5.8	5.4	6.1
Check-up—general*	3,629	2.6	4.0	3.7	4.2
Immunisation/vaccination—general	1,825	1.3	2.0	1.8	2.2
Fever	1,671	1.2	1.8	1.6	2.0
Administrative procedure NOS	1,501	1.1	1.6	1.5	1.8
Weakness/tiredness	1,252	0.9	1.4	1.2	1.5
Blood test NOS	1,114	0.8	1.2	1.1	1.4
Chest pain NOS	1,073	0.8	1.2	1.1	1.3
Other reason for encounter NEC	957	0.7	1.0	0.9	1.2
Other referrals NEC	818	0.6	0.9	0.8	1.0
Observation/health educat/advice/diet NOS	778	0.6	0.8	0.8	0.9
Trauma/injury NOS	734	0.5	0.8	0.7	0.9
Follow-up encounter unspecified NOS	698	0.5	0.8	0.6	0.9
Clarify/discuss patient RFE/demand NOS	643	0.5	0.7	0.6	0.8

(continued)

Table 6.3 (continued): Distribution of patient reasons for encounter, by ICP-2 chapter and most frequent individual reasons for encounter within chapter, 2006-07

Reasons for encounter	Number	Per cent of total RFEs ^(a) (n = 138,434)	Rate per 100 encounters ^(b) (n = 91,805)	95% LCL	95% UCL
Respiratory	19,025	13.7	20.7	19.9	21.6
Cough	5,318	3.8	5.8	5.4	6.2
Throat complaint	3,071	2.2	3.3	3.1	3.6
Upper respiratory tract infection	2,172	1.6	2.4	2.1	2.7
Immunisation/vaccination—respiratory	1,969	1.4	2.1	1.8	2.5
Nasal congestion/sneezing	998	0.7	1.1	0.9	1.2
Asthma	748	0.5	0.8	0.7	0.9
Shortness of breath, dyspnoea	730	0.5	0.8	0.7	0.9
Musculoskeletal	14,812	10.7	16.1	15.6	16.6
Back complaint*	2,961	2.1	3.2	3.0	3.4
Knee complaint	1,174	0.8	1.3	1.2	1.4
Shoulder complaint	1,083	0.8	1.2	1.1	1.3
Foot/toe complaint	1,044	0.8	1.1	1.0	1.2
Leg/thigh complaint	963	0.7	1.0	1.0	1.1
Neck complaint	795	0.6	0.9	0.8	0.9
Injury musculoskeletal NOS	717	0.5	0.8	0.7	0.9
Skin	14,421	10.4	15.7	15.1	16.3
Rash*	2,591	1.9	2.8	2.6	3.0
Skin complaint	1,294	0.9	1.4	1.3	1.5
Check-up—skin*	1,232	0.9	1.3	1.1	1.6
Swelling*	1,039	0.8	1.1	1.0	1.2
Cardiovascular	10,314	7.5	11.2	10.7	11.8
Check-up—cardiovascular*	4,845	3.5	5.3	4.9	5.6
Hypertension/high blood pressure*	1,953	1.4	2.1	1.8	2.5
Prescription—cardiovascular	652	0.5	0.7	0.6	0.8
Digestive	9,283	6.7	10.1	9.7	10.5
Abdominal pain*	1,645	1.2	1.8	1.7	1.9
Diarrhoea	1,228	0.9	1.3	1.2	1.5
Vomiting	943	0.7	1.0	0.9	1.1
Psychological	6,847	5.0	7.5	7.1	7.8
Depression*	1,781	1.3	1.9	1.8	2.1
Sleep disturbance	976	0.7	1.1	1.0	1.2
Anxiety*	928	0.7	1.0	0.9	1.1

(continued)

Table 6.3 (continued): Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter, 2006–07

Reasons for encounter	Number	Per cent of total RFEs ^(a) (n = 138,434)	Rate per 100 encounters ^(b) (n = 91,805)	95% LCL	95% UCL
Endocrine & metabolic	5,911	4.3	6.4	6.1	6.8
Prescription—endocrine/metabolic	834	0.6	0.9	0.8	1.0
Diabetes (non-gestational)*	1,001	0.7	1.1	1.0	1.2
Check-up—endocrine/metabolic*	709	0.5	0.8	0.7	0.9
Blood test—endocrine/metabolic	640	0.5	0.7	0.6	0.8
Female genital system	4,637	3.4	5.1	4.7	5.4
Female genital check-up/pap smear*	1,645	1.2	1.8	1.6	2.0
Menstrual problems*	711	0.5	0.8	0.7	0.9
Neurological	4,513	3.3	4.9	4.7	5.2
Headache	1,444	1.0	1.6	1.4	1.7
Vertigo/dizziness	1,016	0.7	1.1	1.0	1.2
Ear	3,255	2.4	3.6	3.4	3.7
Ear pain	1,285	0.9	1.4	1.3	1.5
Pregnancy & family planning	3,022	2.2	3.3	3.0	3.6
Pre/postnatal check-up*	768	0.6	0.8	0.7	1.0
Oral contraception*	660	0.5	0.7	0.6	0.8
Urology	2,370	1.7	2.6	2.4	2.7
Eye	2,329	1.7	2.5	2.4	2.7
Male genital system	1,128	0.8	1.2	1.1	1.3
Blood	1,123	0.8	1.2	1.1	1.4
Social	806	0.6	0.9	0.8	1.0
Total RFEs	138,434	100.0	150.8	148.9	152.7

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Distribution of RFEs by ICPC-2 component

The distribution of patient RFEs by ICPC-2 component is presented in Table 6.4 expressed as a percentage of all RFEs and as a rate per 100 encounters with 95% confidence limits. Nearly half (45.1%) of patient RFEs were expressed in terms of symptoms or complaints (for example ‘tired’, ‘fever’). RFEs were described in diagnostic terms for 18.5% of RFEs (for example ‘I am here about my diabetes’, ‘I think I have depression’). The remaining 36.4% of RFEs were described in terms of processes of care, such as requests for a health check, to renew scripts, to get a referral, find out test results or get a medical certificate.

Table 6.4: Distribution of RFEs by ICPC-2 component, 2006–07

ICPC-2 component	Number	Per cent of total RFEs (n = 138,434)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Symptoms & complaints	62,363	45.1	67.9	66.1	69.8
Diagnoses, diseases	25,575	18.5	27.9	26.2	29.5
Diagnostic & preventive procedures	22,759	16.4	24.8	23.8	25.7
Medications, treatments & therapeutics	12,999	9.4	14.2	13.5	14.8
Referrals & other RFEs	6,729	4.9	7.3	6.9	7.8
Results	6,312	4.6	6.9	6.5	7.3
Administrative	1,697	1.2	1.9	1.7	2.0
Total RFEs	138,343	100.0	150.8	148.9	152.7

(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 more than half of all RFEs. In this analysis the specific ICPC-2 chapter to which an across-chapter RFE belongs is disregarded, so that, for example, ‘check-up—all’ includes all check-ups from all body systems irrespective of whether the type was specified.

Of the top 30 most common RFEs, 18 were descriptive of symptoms such as cough, throat & back complaints and rash. However, four of the top five RFEs reflected requests for a process of care (that is, requests for check-ups, prescriptions, test results and immunisations) and together accounted for a quarter of all RFEs (24.9%) (Table 6.5).

Table 6.5: Most frequent patient reasons for encounter, 2006–07

Patient reason for encounter	Number	Per cent of total RFEs (n = 138,434)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Check-up—all*	13,367	9.7	14.6	13.9	15.2
Prescription—all*	10,800	7.8	11.8	11.2	12.4
Test results*	6,312	4.6	6.9	6.5	7.3
Cough	5,318	3.8	5.8	5.4	6.2
Immunisation/vaccination—all*	3,956	2.9	4.3	3.9	4.7
Throat complaint	3,071	2.2	3.3	3.1	3.6
Back complaint*	2,961	2.1	3.2	3.0	3.4
Rash*	2,591	1.9	2.8	2.6	3.0
Upper respiratory tract infection	2,172	1.6	2.4	2.1	2.7
Hypertension/high blood pressure*	1,953	1.4	2.1	1.8	2.5
Depression*	1,781	1.3	1.9	1.8	2.1
Fever	1,671	1.2	1.8	1.6	2.0
Abdominal pain*	1,645	1.2	1.8	1.7	1.9
Administrative procedure NOS	1,501	1.1	1.6	1.5	1.8

(continued)

Table 6.5 (continued): Most frequent patient reasons for encounter, 2006–07

Patient reason for encounter	Number	Per cent of total RFEs (n = 138,434)	Rate per 100 encounters ^(a) (= 91,805)	95% LCL	95% UCL
Headache	1,444	1.0	1.6	1.4	1.7
Skin complaint	1,294	0.9	1.4	1.3	1.5
Ear pain	1,285	0.9	1.4	1.3	1.5
Weakness/tiredness	1,252	0.9	1.4	1.2	1.5
Diarrhoea	1,228	0.9	1.3	1.2	1.5
Knee complaint	1,174	0.8	1.3	1.2	1.4
Blood test NOS	1,114	0.8	1.2	1.1	1.4
Shoulder complaint	1,083	0.8	1.2	1.1	1.3
Chest pain NOS	1,073	0.8	1.2	1.1	1.3
Foot/toe complaint	1,044	0.8	1.1	1.0	1.2
Swelling*	1,039	0.8	1.1	1.0	1.2
Vertigo/dizziness	1,016	0.7	1.1	1.0	1.2
Diabetes—all*	1,010	0.7	1.1	1.0	1.2
Nasal congestion/sneezing	998	0.7	1.1	0.9	1.2
Sleep disturbance	976	0.7	1.1	1.0	1.2
Leg/thigh complaint	963	0.7	1.0	1.0	1.1
<i>Subtotal</i>	<i>77,092</i>	<i>55.7</i>	—	—	—
Total RFEs	138,434	100.0	150.8	148.9	152.7

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

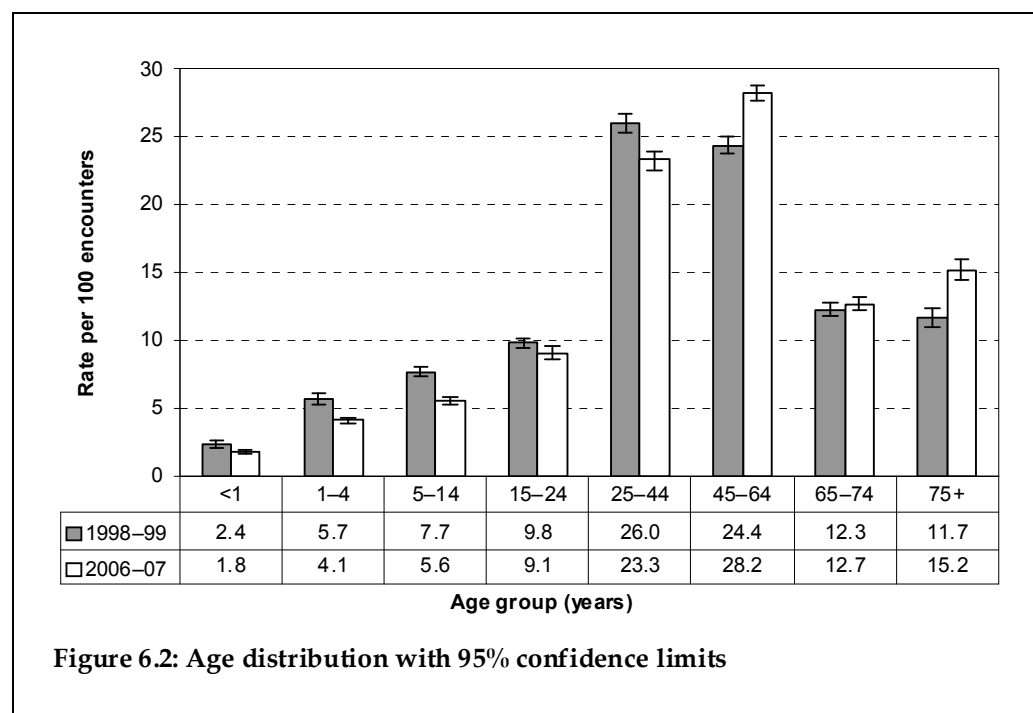
6.2 Changes over time, 1998–99 to 2006–07

Age–sex distribution of patients at encounter

Figure 6.2 shows that between 1998–99 and 2006–07 the proportion of encounters that were with patients aged 45–64 years increased from 24.4% to 28.2%. The proportion that were with patients 75 years or older also increased from 11.7% to 15.2%. At the same time, there was a decrease in the proportion of encounters that were with younger patients. Specifically, encounters with patients aged less than 1 year decreased from 2.4% to 1.8% of all encounters, those with patients aged 1–4 years from 5.7% to 4.1% and those with patients 5–14 years from 7.7% to 5.6%. There was also a significant decrease in the proportion of encounters that were with patients aged 25–44 years, from 26.0% in 1998–99 to 23.3% in 2006–07.

Table 6.6 shows that there was a large decrease in encounters with patients aged less than 45 years (from 51.6% in 1998–99 to 43.9% in 2006–07). This represents an extrapolated decrease of more than 8 million encounters with patients aged 0–44 years nationally from 1998–99 to 2006–07. There was a concomitant estimated national increase of about 7.6 million encounters with patients aged 45 years and over.

From 1998–99 to 2006–07 there was been a trend towards an increase in the proportion of males at general practice encounters. This trend was tested using simple linear regression analysis (which accounted for the cluster sample design) and found to represent a significant increase, equivalent to an annual increase of 0.17% encounters with male patients ($t = 3.4, p < 0.001, df = 8,920$).



Other patient characteristics

Table 6.6 shows that the proportion of encounters with patients holding a Commonwealth concession card fluctuated over the years. Initially it decreased from 43.1% in 1998–99 to a low of 36.7% in 2000–01, then increased to a high of 43.2% in 2004–05 from which it has decreased to the current level of 41.5%.

Table 6.6: Characteristics of the patients at encounters, summary of annual results, BEACH, 1998–99 to 2006–07

Patient variable	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Sex (missing n) ^(b)	(1,474)	(1,182)	(1,111)	(809)	(911)	(932)	(809)	(788)	(765)	—	—
Male	42.3 (41.6–43.0)	42.7 (42.0–43.5)	42.9 (42.2–43.6)	42.6 (41.9–43.3)	42.2 (41.4–42.9)	42.6 (41.8–43.3)	43.5 (42.7–44.3)	44.0 (43.2–44.7)	43.7 (42.9–44.5)	—	—
Female	57.7 (57.0–58.4)	57.3 (56.5–58.0)	57.1 (56.4–57.8)	57.4 (56.7–58.1)	57.8 (57.0–58.6)	57.4 (56.7–58.2)	56.5 (55.7–57.3)	56.0 (55.3–56.8)	56.3 (55.5–57.1)	—	—
Age group (missing n) ^(b)	(1,023)	(804)	(846)	(760)	(895)	(905)	(925)	(769)	(779)	—	—
< 1 year	2.4 (2.2–2.6)	2.4 (2.2–2.5)	2.1 (1.9–2.3)	2.0 (1.9–2.1)	1.9 (1.8–2.1)	1.8 (1.7–1.9)	1.9 (1.8–2.1)	2.1 (1.9–2.2)	1.8 (1.7–2.0)	↓	–630
1–4 years	5.7 (5.3–6.0)	5.2 (4.9–5.5)	5.4 (5.1–5.7)	4.9 (4.6–5.2)	5.0 (4.7–5.3)	4.6 (4.3–4.8)	4.3 (4.0–4.7)	4.3 (4.0–4.5)	4.1 (3.9–4.4)	↓	–1,680
5–14 years	7.7 (7.3–8.1)	7.2 (6.9–7.5)	6.8 (6.4–7.2)	6.4 (6.1–6.7)	6.6 (6.3–6.9)	5.9 (5.6–6.3)	5.8 (5.5–6.1)	6.0 (5.7–6.3)	5.6 (5.3–5.9)	↓	–2,210
15–24 years	9.8 (9.4–10.2)	10.4 (9.9–10.8)	10.3 (9.8–10.7)	9.5 (9.1–10.0)	10.1 (9.7–10.4)	9.6 (9.2–10.1)	9.0 (8.6–9.4)	9.4 (9.0–9.8)	9.1 (8.6–9.5)	—	—
25–44 years	26.0 (25.3–26.7)	26.3 (25.5–27.0)	26.3 (25.6–27.0)	25.8 (25.1–26.5)	25.7 (24.9–26.4)	24.1 (23.4–24.8)	24.4 (23.7–25.1)	23.9 (23.2–24.7)	23.3 (22.6–24.0)	↓	–2,960
45–64 years	24.4 (23.8–25.0)	24.5 (24.0–25.0)	26.1 (25.5–26.7)	26.3 (25.7–26.8)	26.5 (25.9–27.0)	27.2 (26.7–27.7)	28.0 (27.4–28.6)	27.6 (27.0–28.2)	28.2 (27.6–28.7)	↑	+3,740
65–74 years	12.3 (11.7–12.8)	12.0 (11.5–12.5)	11.7 (11.2–12.2)	12.3 (11.8–12.8)	11.6 (11.1–12.0)	12.4 (11.9–12.9)	12.6 (12.1–13.2)	12.2 (11.7–12.6)	12.7 (12.2–13.2)	—	—
75+ years	11.7 (11.1–12.4)	12.1 (11.4–12.9)	11.3 (10.7–12.0)	12.8 (12.0–13.5)	12.7 (11.9–13.4)	14.4 (13.6–15.2)	13.9 (13.1–14.7)	14.6 (13.7–15.4)	15.2 (14.4–16.0)	↑	+3,520

(continued)

Table 6.6 (continued): Characteristics of the patients at encounters, summary of annual results, BEACH, 1998–99 to 2006–07

Patient variable	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Other characteristics ^(c)											
New patient to practice	9.1 (8.5–9.7)	7.3 (6.7–7.9)	8.0 (7.2–8.7)	8.9 (8.2–9.5)	9.7 (8.9–10.5)	9.1 (8.4–9.8)	8.9 (8.1–9.6)	8.9 (8.2–9.7)	8.4 (7.7–9.2)	—	—
Commonwealth concession card	43.1 (41.7–44.5)	38.6 (37.0–40.2)	36.7 (35.1–38.3)	41.9 (40.4–43.3)	40.4 (38.8–41.9)	42.5 (41.0–44.0)	43.2 (41.8–44.7)	42.1 (40.6–43.7)	41.5 (39.9–43.0)	\$	—
Repatriation health card ^(d)	3.4 (3.1–3.6)	2.9 (2.6–3.1)	3.1 (2.9–3.4)	3.3 (3.0–3.5)	3.3 (3.0–3.6)	3.5 (3.2–3.8)	3.2 (2.9–3.4)	3.1 (2.8–3.3)	3.1 (2.8–3.3)	—	—
Non-English-speaking background	14.5 (12.9–16.0)	8.0 (6.5–9.5)	8.0 (7.2–8.7)	9.3 (7.6–11.0)	10.6 (9.0–12.2)	9.7 (7.8–11.6)	10.8 (9.0–12.6)	9.8 (8.2–11.4)	7.1 (5.8–8.5)	\$	—
Aboriginal person and/or Torres Strait Islander	1.2 (0.9–1.5)	0.7 (0.5–0.9)	0.8 (0.5–1.1)	1.0 (0.8–1.3)	1.0 (0.8–1.3)	1.6 (1.2–2.0)	1.3 (1.0–1.7)	0.9 (0.6–1.1)	0.9 (0.6–1.2)	\$	—

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, \$ indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

(b) Missing data removed.

(c) Missing data for each of the listed 'other' patient characteristics were counted as a 'no' response.

(d) The 1998–99 and 1999–00 results published here include patients who held either a gold or white Repatriation health card; previously published figures only included patients who held the gold card.

Note: CI—confidence interval.

Patient reasons for encounter

Number of reasons for encounter

Table 6.7 shows there has been a decrease in the proportion of patients giving a single RFE, from 63.4% in 1998–99 to 60.6% in 2006–07, equating to a national decrease of over 3 million single RFE encounters. To balance this there has been an increase in the proportion of encounters at which three RFEs are recorded, from 9.7% in 1998–99 to 11.4% in 2006–07, suggesting approximately 1.5 million more encounters nationally where three RFEs were reported in 2006–07 than in 1998–99.

Reasons for encounter by ICPC-2 chapter

Table 6.8 shows that between 1998–99 and 2006–07 there has been:

- a significant increase in the overall rate of RFEs, from 146.3 per 100 encounters in 1998–99 to 150.8 per 100 encounters in 2006–07. This increase equates to approximately 3.6 million extra RFEs nationally in 2006–07 than in 1998–99
- a 40% increase in the rate of general and unspecified RFEs, equating to an approximate increase of over 11 million general and unspecified RFEs from 1998–99 to 2006–07 nationally
- a 14% increase in the rate RFEs related to the endocrine and metabolic systems, equating to a national increase of about 780,000 encounters where RFEs associated with the endocrine and metabolic systems were recorded nationally
- a 17% decrease in the rate of respiratory related RFEs equating to a decrease of approximately 4.4 million encounters with respiratory RFEs nationally
- a 20% decrease in the rate of ear related RFEs equating to a decrease of roughly 960,000 encounters with ear related RFEs nationally
- a significant decrease in the rate of RFEs related to the blood and blood-forming organs by a third, equating to a decrease of about 630,000 encounters with such RFEs.

Distribution of RFEs by ICPC-2 component

Table 6.9 shows that between 1998–99 and 2006–07:

- requests for test results doubled, equating to an increase of roughly 3.6 million encounters with such requests in 2006–07 than in 1998–99
- there has been a 70% increase in the rate of requests for an administrative procedure (such as a medical certificate), equating to an increase of approximately 810,000 requests for an administrative procedure nationally
- patient requests for medications, treatments and therapeutics (such as repeat prescriptions) increased by a third, resulting in about 3.9 million requests of this type nationally in 2006–07 than in 1998–99
- there was a slight increase in the rate of requests for a diagnostic or preventative procedure. This increase equates to approximately 2.3 million additional RFEs of this type in 2006–07 than in 1998–99. Diagnostic and preventative procedures include health examinations, check-ups, blood tests, pap smears.

RFEs expressed in terms of a symptom or complaint (for example 'tired', 'feeling anxious') were the most frequent. The presentation rate of symptoms or complaints has fluctuated over the years. It increased between 1998–99 and 2000–01, and has been decreasing ever since. The rate at which patients described their RFE in terms of a specific diagnosis or disease decreased steadily between 1998–99 and 2004–05 but over the most recent years has been increasing.

There was a 60% increase in patients describing their RFEs as a need for a referral or that the encounter was initiated by someone other than the patient between 1998–99 and 1999–00. Since then the rate has been fairly consistent.

Most frequent patient reasons for encounter

Table 6.10 shows that between 1998–99 and 2006–07:

- the rate at which patients cited a need to get their prescription(s) as an RFE has increased by 40%, equating to an increase of about 3.6 million encounters with this RFE
- the rate of patient attendance to secure test results has doubled, equating to an increase of 3.6 million encounters with an RFE of this type in 2006–07 than in 1998–99
- requests or a need for an administrative procedure has also doubled, equating to about 820,000 extra encounters with administrative procedure requests in 2006–07 than in 1998–99
- there was also a slight increase in the number of RFEs describing unspecified skin complaints
- the rate of requests for unspecified blood tests as a RFE increased by 70%, equating to roughly a half a million extra encounters with this RFE
- the presentation rate of ear pain decreased by a quarter, equating to 530,000 fewer encounters where ear pain was the reported RFE
- there was a 20% decrease in the presentation rate of abdominal pain, a 15% decrease in the rate of headache and a 25% decrease in the rate of neck pain
- patient presentations regarding asthma decreased by over 40% and the rate of acute bronchitis/bronchiolitis as an RFE halved. These two decreases combined suggests that there were approximately one million fewer encounters with RFEs of this type in 2006–07 than in 1998–99, which would partly explain the decrease in the rate of RFEs related to the respiratory system (Table 6.8).

Table 6.7: Number of patient reasons for encounter, summary of annual results, BEACH, 1998–99 to 2006–07

Number of reasons for encounter	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
One RFE	63.4 (62.3–64.6)	62.0 (60.8–63.1)	60.4 (59.2–61.6)	61.8 (60.6–63.0)	60.7 (59.5–61.9)	61.0 (59.9–62.2)	61.4 (60.2–62.6)	60.9 (59.7–62.2)	60.6 (59.4–61.9)	↓	–3,320
Two RFEs	26.8 (26.1–27.5)	27.5 (26.9–28.2)	28.2 (27.6–28.9)	27.2 (26.5–28.0)	27.8 (27.1–28.4)	27.7 (27.0–28.4)	27.6 (26.9–28.3)	27.8 (27.1–28.5)	27.9 (27.2–28.7)	—	—
Three RFEs	9.7 (9.2–10.4)	10.5 (9.8–11.1)	11.4 (10.7–12.1)	11.0 (10.3–11.6)	11.6 (10.8–12.3)	11.3 (10.5–12.0)	11.0 (10.3–11.7)	11.2 (10.5–11.9)	11.4 (10.7–12.2)	↑	+1,680

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

Note: CI—confidence interval; RFEs—reasons for encounter.

Table 6.8: Rate of patient reasons for encounter by ICPC-2 chapter, summary of annual results, BEACH, 1998–99 to 2006–07

ICPC-2 Chapter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
General & unspecified	26.6 (25.7–27.4)	29.0 (28.1–29.9)	28.3 (27.5–29.1)	30.9 (29.9–31.8)	34.6 (33.6–35.6)	36.2 (35.2–37.2)	36.5 (35.5–37.6)	36.3 (35.2–37.4)	37.7 (36.7–38.8)	↑	+11,220
Respiratory	24.8 (24.0–25.6)	25.3 (24.3–26.2)	24.6 (23.7–25.4)	23.4 (22.6–24.2)	23.0 (22.0–24.0)	21.4 (20.6–22.2)	20.6 (19.8–21.4)	21.9 (21.1–22.7)	20.7 (19.9–21.6)	↓	–4,390
Musculoskeletal	16.7 (16.1–17.4)	16.6 (16.1–17.1)	17.7 (17.1–18.2)	16.7 (16.1–17.3)	17.7 (17.2–18.3)	16.3 (15.7–16.9)	16.7 (16.0–17.3)	16.4 (15.8–16.9)	16.1 (15.6–16.6)	§	—
Skin	15.1 (14.6–15.5)	15.1 (14.7–15.6)	15.5 (15.0–16.0)	14.4 (13.9–14.9)	14.7 (14.3–15.2)	15.1 (14.5–15.7)	15.6 (15.0–16.2)	15.0 (14.5–15.6)	15.7 (15.1–16.3)	—	—
Cardiovascular	11.4 (10.9–12.0)	11.2 (10.6–11.8)	11.7 (11.1–12.2)	11.4 (10.8–11.9)	10.6 (10.0–11.1)	10.7 (10.1–11.2)	10.5 (10.0–11.0)	10.8 (10.2–11.3)	11.2 (10.7–11.8)	—	—
Digestive	10.6 (10.3–10.9)	10.4 (10.0–10.7)	11.1 (10.7–11.5)	10.6 (10.2–11.0)	10.4 (10.0–10.8)	10.7 (10.3–11.2)	9.9 (9.5–10.3)	9.9 (9.5–10.3)	10.1 (9.7–10.5)	—	—

(continued)

Table 6.8 (continued): Rate of patient reasons for encounter by ICPC-2 chapter, summary of annual results, BEACH, 1998–99 to 2006–07

ICPC-2 Chapter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Psychological	7.6 (7.2–8.0)	7.2 (6.8–7.6)	8.1 (7.7–8.6)	7.8 (7.3–8.3)	7.3 (6.9–7.8)	7.3 (6.9–7.7)	7.6 (7.2–8.0)	7.8 (7.3–8.3)	7.5 (7.1–7.8)	—	—
Endocrine & metabolic	5.6 (5.3–5.9)	5.4 (5.1–5.7)	6.2 (5.9–6.5)	6.4 (6.1–6.7)	6.0 (5.7–6.3)	6.2 (5.8–6.5)	6.2 (5.8–6.5)	6.2 (5.8–6.5)	6.4 (6.1–6.8)	↑	+780
Female genital system	5.3 (5.0–5.7)	5.3 (4.9–5.7)	5.5 (5.1–5.9)	5.5 (5.1–5.9)	6.1 (5.7–6.6)	5.1 (4.8–5.5)	5.0 (4.6–5.4)	5.1 (4.8–5.5)	5.1 (4.7–5.4)	—	—
Neurological	5.3 (5.1–5.5)	5.6 (5.4–5.8)	5.8 (5.5–6.0)	5.4 (5.2–5.6)	5.7 (5.5–6.0)	5.3 (5.1–5.6)	5.1 (4.9–5.4)	4.9 (4.7–5.2)	4.9 (4.7–5.2)	§	—
Ear	4.5 (4.3–4.7)	4.2 (4.0–4.4)	4.2 (4.0–4.3)	4.2 (4.0–4.4)	4.0 (3.8–4.1)	3.7 (3.6–3.9)	3.9 (3.7–4.1)	3.9 (3.7–4.1)	3.6 (3.4–3.7)	↓	–960
Pregnancy & family planning	3.4 (3.4–4.0)	3.8 (3.5–4.2)	3.5 (3.2–3.8)	3.5 (3.2–3.8)	3.6 (3.3–3.9)	3.7 (3.4–4.0)	3.4 (3.1–3.7)	3.4 (3.1–3.6)	3.3 (3.0–3.6)	—	—
Urology	2.5 (2.3–2.6)	2.6 (2.5–2.8)	2.4 (2.3–2.6)	2.5 (2.4–2.7)	2.5 (2.3–2.6)	2.5 (2.4–2.7)	2.5 (2.4–2.7)	2.6 (2.5–2.8)	2.6 (2.4–2.7)	—	—
Eye	2.7 (2.7–3.0)	2.8 (2.7–3.0)	2.7 (2.5–2.8)	2.5 (2.4–2.7)	2.7 (2.6–2.9)	2.7 (2.6–2.9)	2.7 (2.6–2.9)	2.8 (2.6–2.9)	2.5 (2.4–2.7)	—	—
Male genital system	1.1 (0.9–1.2)	1.0 (0.9–1.1)	1.1 (1.0–1.3)	1.0 (0.9–1.1)	1.0 (0.9–1.2)	1.1 (0.9–1.2)	1.2 (1.1–1.4)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	—	—
Blood	1.8 (1.6–2.0)	2.1 (1.9–2.3)	2.0 (1.8–2.2)	1.1 (0.9–1.2)	1.0 (0.8–1.2)	1.3 (1.1–1.4)	1.2 (1.0–1.5)	1.2 (1.0–1.3)	1.2 (1.1–1.4)	↓	–630
Social problems	0.9 (0.7–1.1)	1.0 (0.8–1.1)	0.9 (0.7–1.1)	1.0 (0.8–1.1)	1.0 (0.8–1.2)	0.9 (0.8–1.1)	1.0 (0.8–1.1)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	—	—
Total RFEs	146.3 (144.6–148.0)	148.5 (146.7–150.2)	151.0 (149.2–152.8)	149.2 (147.4–150.9)	150.9 (149.0–152.7)	150.2 (148.4–152.0)	149.6 (147.8–151.5)	150.3 (148.4–152.2)	150.8 (148.9–152.7)	↑	+3,600

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, § indicates a non-linear significant or marginal change, and—indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

Note: CI—confidence interval; RFE—reason for encounter.

Table 6.9: Rate of patient reasons for encounter by ICPC-2 component, summary of annual results, BEACH, 1998–99 to 2006–07

ICPC component	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Symptoms & complaints	71.1 (69.4–72.9)	73.4 (71.5–75.3)	76.6 (74.6–78.6)	74.1 (72.3–75.9)	74.0 (72.0–76.1)	71.7 (69.8–73.5)	71.3 (69.4–73.2)	69.7 (67.9–71.5)	67.9 (66.1–69.8)	§	—
Diagnosis, diseases	33.6 (31.9–35.2)	27.7 (26.2–29.2)	29.0 (27.6–30.5)	27.3 (25.9–28.7)	26.0 (24.6–27.4)	25.1 (23.9–26.4)	24.5 (23.3–25.7)	26.8 (25.4–28.2)	27.9 (26.2–29.5)	§	—
Diagnostic & preventive procedures	22.4 (21.5–23.3)	22.9 (22.0–23.8)	22.3 (21.4–23.2)	22.7 (21.7–23.6)	23.8 (22.8–24.7)	24.0 (23.1–25.0)	23.4 (22.5–24.3)	24.4 (23.4–25.3)	24.8 (23.8–25.7)	↑	+2,310
Medications, treatments & therapeutics	10.3 (9.8–10.9)	12.0 (11.4–12.6)	11.2 (10.6–11.8)	11.9 (11.3–12.4)	13.0 (12.4–13.6)	14.4 (13.7–15.1)	14.5 (13.8–15.3)	14.4 (13.7–15.1)	14.2 (13.5–14.8)	↑	+3,940
Referral & other RFE	4.4 (4.0–4.7)	7.2 (6.7–7.7)	6.5 (6.0–7.0)	7.2 (6.7–7.7)	7.0 (6.6–7.5)	7.2 (6.8–7.6)	7.4 (6.9–7.9)	6.9 (6.5–7.4)	7.3 (6.9–7.8)	§	—
Results	3.4 (3.1–3.7)	4.0 (3.7–4.3)	4.2 (3.9–4.6)	4.7 (4.4–5.1)	5.4 (5.0–5.7)	6.0 (5.6–6.4)	6.8 (6.4–7.2)	6.5 (6.1–6.9)	6.9 (6.5–7.3)	↑	+3,570
Administrative	1.1 (0.9–1.2)	1.3 (1.1–1.4)	1.1 (0.9–1.3)	1.3 (1.1–1.5)	1.6 (1.4–1.8)	1.8 (1.6–1.9)	1.7 (1.5–1.8)	1.7 (1.5–1.8)	1.9 (1.7–2.0)	↑	+810
Total RFEs	146.3 (144.6–148.0)	148.5 (146.7–150.2)	151.0 (149.2–152.8)	149.2 (147.4–150.9)	150.9 (149.0–152.7)	150.2 (148.4–152.0)	149.6 (147.8–151.5)	150.3 (148.4–152.2)	150.8 (148.9–152.7)	↑	+3,600

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

Note: CI—confidence interval; RFE—reason for encounter.

Table 6.10: Most frequent patient reasons for encounter, summary of annual results, BEACH, 1998–99 to 2006–07

Patient reason for encounter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Check-up—all*	13.6 (13.0–14.3)	14.2 (13.5–14.9)	13.2 (12.5–13.9)	13.4 (12.7–14.0)	13.6 (12.9–14.2)	14.1 (13.4–14.8)	13.4 (12.8–14.0)	14.1 (13.4–14.8)	14.6 (13.9–15.2)	—	—
Prescription—all*	8.2 (7.7–8.7)	9.6 (9.1–10.2)	9.2 (8.7–9.8)	9.8 (9.2–10.3)	10.8 (10.2–11.3)	12.1 (11.5–12.7)	12.2 (11.5–12.8)	12.1 (11.4–12.7)	11.8 (11.2–12.4)	↑	+3,640
Test results*	3.4 (3.1–3.7)	4.0 (3.7–4.2)	4.3 (3.9–4.6)	4.7 (4.4–5.0)	5.4 (5.0–5.7)	6.0 (5.7–6.4)	6.8 (6.4–7.2)	6.5 (6.1–6.9)	6.9 (6.5–7.3)	↑	+3,570
Cough	6.2 (5.8–6.6)	7.0 (6.5–7.4)	7.0 (6.5–7.4)	6.5 (6.1–6.9)	6.7 (6.3–7.2)	6.2 (5.8–6.6)	5.9 (5.5–6.2)	6.4 (6.0–6.8)	5.8 (5.4–6.2)	§	—
Immunisation/vaccination—all*	4.9 (4.5–5.3)	4.2 (3.9–4.6)	4.4 (4.0–4.8)	4.6 (4.2–5.0)	4.7 (4.3–5.1)	4.4 (4.0–4.9)	4.3 (3.9–4.8)	4.8 (4.4–5.2)	4.3 (3.9–4.7)	§	—
Throat complaint	3.8 (3.5–4.1)	4.2 (3.8–4.5)	4.0 (3.7–4.3)	3.8 (3.5–4.0)	3.8 (3.5–4.1)	3.4 (3.1–3.6)	3.5 (3.3–3.8)	3.3 (3.0–3.5)	3.3 (3.1–3.6)	§	—
Back complaint*	3.6 (3.3–3.8)	3.6 (3.4–3.8)	3.8 (3.5–4.0)	3.8 (3.6–4.1)	3.5 (3.3–3.8)	3.5 (3.2–3.7)	3.4 (3.2–3.6)	3.5 (3.2–3.7)	3.2 (3.0–3.4)	§	—
Rash*	2.6 (2.4–2.8)	2.7 (2.6–2.9)	2.9 (2.8–3.1)	2.8 (2.6–3.0)	2.8 (2.7–3.0)	2.8 (2.6–2.9)	2.9 (2.7–3.1)	2.6 (2.5–2.8)	2.8 (2.6–3.0)	—	—
Upper respiratory tract infection	2.9 (2.6–3.2)	2.7 (2.4–3.0)	2.6 (2.3–2.9)	2.3 (2.1–2.6)	2.2 (1.9–2.4)	1.9 (1.7–2.1)	1.8 (1.5–2.0)	2.4 (2.0–2.7)	2.4 (2.1–2.7)	§	—
Hypertension/high blood pressure*	2.5 (2.2–2.8)	1.7 (1.4–1.9)	2.2 (1.9–2.4)	2.1 (1.8–2.3)	1.8 (1.6–2.0)	1.9 (1.6–2.1)	1.7 (1.5–1.9)	1.9 (1.6–2.1)	2.1 (1.8–2.5)	—	—
Depression*	2.1 (2.0–2.3)	1.7 (1.6–1.8)	2.1 (2.0–2.3)	1.9 (1.8–2.0)	1.9 (1.7–2.0)	1.8 (1.7–1.9)	1.9 (1.7–2.0)	1.9 (1.7–2.0)	1.9 (1.8–2.1)	—	—
Fever	1.8 (1.6–2.0)	2.2 (1.9–2.5)	2.3 (2.0–2.5)	2.0 (1.8–2.2)	2.2 (1.9–2.5)	1.9 (1.7–2.1)	1.8 (1.6–2.0)	2.2 (1.9–2.5)	1.8 (1.6–2.0)	—	—
Abdominal pain*	2.2 (2.1–2.4)	2.1 (1.9–2.2)	2.3 (2.1–2.4)	2.1 (2.0–2.2)	1.9 (1.8–2.1)	2.0 (1.9–2.2)	1.9 (1.8–2.0)	1.8 (1.7–1.9)	1.8 (1.7–1.9)	↓	–430

(continued)

Table 6.10 (continued): Most frequent patient reasons for encounter, summary of annual results, BEACH, 1998–99 to 2006–07

Patient reason for encounter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Administrative procedure NOS	0.8 (0.8–0.9)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	1.2 (1.0–1.3)	1.4 (1.3–1.6)	1.5 (1.4–1.7)	1.4 (1.3–1.5)	1.4 (1.3–1.6)	1.6 (1.5–1.8)	↑	+820
Headache	1.9 (1.8–2.1)	2.2 (2.0–2.3)	2.2 (2.0–2.3)	2.0 (1.9–2.2)	2.1 (1.9–2.3)	1.8 (1.6–1.9)	1.7 (1.6–1.8)	1.7 (1.6–1.8)	1.6 (1.4–1.7)	↓	–320
Skin complaint	1.2 (1.1–1.3)	1.2 (1.1–1.4)	1.5 (1.4–1.6)	1.3 (1.1–1.5)	1.3 (1.2–1.5)	1.4 (1.2–1.5)	1.5 (1.3–1.6)	1.4 (1.3–1.5)	1.4 (1.3–1.5)	↑	+200
Ear pain	1.9 (1.8–2.1)	1.9 (1.7–2.0)	1.8 (1.7–1.9)	1.7 (1.6–1.9)	1.7 (1.5–1.8)	1.6 (1.4–1.7)	1.6 (1.5–1.7)	1.6 (1.5–1.7)	1.4 (1.3–1.5)	↓	–530
Weakness/tiredness	1.6 (1.4–1.7)	1.5 (1.4–1.6)	1.7 (1.5–1.8)	1.5 (1.4–1.6)	1.5 (1.3–1.6)	1.5 (1.4–1.6)	1.7 (1.5–1.8)	1.3 (1.2–1.4)	1.4 (1.2–1.5)	—	—
Diarrhoea	1.4 (1.3–1.5)	1.3 (1.2–1.4)	1.5 (1.4–1.6)	1.4 (1.3–1.5)	1.6 (1.4–1.7)	1.5 (1.3–1.6)	1.4 (1.3–1.5)	1.3 (1.2–1.4)	1.3 (1.2–1.5)	—	—
Knee complaint	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.4 (1.3–1.5)	1.4 (1.3–1.5)	1.3 (1.2–1.4)	1.4 (1.3–1.5)	1.4 (1.3–1.5)	1.4 (1.3–1.5)	1.3 (1.2–1.4)	—	—
Blood test NOS	0.7 (0.6–0.9)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.8 (0.7–1.0)	1.0 (0.9–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.3)	1.2 (1.0–1.3)	1.2 (1.1–1.4)	↑	+510
Shoulder complaint	1.1 (1.0–1.2)	1.0 (1.0–1.1)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	1.3 (1.1–1.4)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	—	—
Chest pain NOS	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.3 (1.2–1.4)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	—	—
Foot/toe complaint	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.2 (1.1–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	—	—
Swelling*	1.1 (1.0–1.2)	1.1 (1.0–1.1)	1.1 (0.9–1.1)	1.1 (1.0–1.2)	1.1 (1.0–1.1)	1.2 (1.0–1.3)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	—	—
Vertigo/dizziness	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.1 (1.1–1.2)	1.1 (1.0–1.2)	—	—

(continued)

Table 6.10 (continued): Most frequent patient reasons for encounter, summary of annual results, BEACH, 1998–99 to 2006–07

Patient reason for encounter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Diabetes—all*	1.1 (1.0–1.2)	0.8 (0.7–0.9)	1.0 (0.8–1.1)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	§	—
Nasal congestion/sneezing	1.4 (1.2–1.5)	1.7 (1.4–1.9)	1.6 (1.4–1.8)	1.5 (1.3–1.7)	1.7 (1.4–2.0)	1.3 (1.1–1.5)	1.4 (1.2–1.6)	1.3 (1.1–1.6)	1.1 (0.9–1.2)	§	—
Sleep disturbance	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.2 (1.0–1.3)	1.2 (1.0–1.3)	1.2 (1.1–1.4)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	—	—
Leg/thigh complaint	1.0 (1.0–1.1)	1.0 (0.9–1.0)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	1.0 (1.0–1.1)	—	—
Vomiting	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.3)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	—	—
Anxiety*	1.1 (1.0–1.2)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.2 (1.0–1.3)	1.0 (0.9–1.1)	—	—
Neck complaint	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	0.9 (0.9–1.0)	1.0 (0.9–1.2)	0.9 (0.8–1.1)	0.9 (0.8–0.9)	↓	–320
Asthma	1.4 (1.3–1.5)	1.2 (1.0–1.3)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (0.9–1.2)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	↓	–630
Oral contraception*	0.9 (0.8–0.9)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	↓	–210
Acute bronchitis/bronchiolitis	1.0 (0.9–1.1)	0.7 (0.6–0.8)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.6 (0.5–0.7)	0.5 (0.4–0.5)	↓	–520
Total RFEs	146.3 (144.6–148.0)	148.5 (146.7–150.2)	151.0 (149.2–152.8)	149.2 (147.4–150.9)	150.9 (149.0–152.7)	150.2 (148.4–152.0)	149.6 (147.8–151.5)	150.3 (148.4–152.2)	150.8 (148.9–152.7)	↑	+3,600

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; RFE—reason for encounter.

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, and can be described in terms of a disease, symptom or complaint, social problem or ill-defined condition managed at the encounter. As GPs were instructed to record each problem at the most specific level possible from the information available, the problem managed may at times be limited to the level of a presenting symptom.

At each patient encounter, up to four problems could be recorded by the GP. A minimum of one problem was compulsory. The status of each problem to the patient – new (first presentation to a medical practitioner) or old (follow-up of previous problem) – was also indicated. The concept of a principal diagnosis, which is often used in hospital statistics, is not adopted in studies of general practice where multiple problem management is the norm rather than the exception. Further, the range of problems managed at the encounter often crosses multiple body systems and may include undiagnosed symptoms, psychosocial problems or chronic disease, which makes the designation of a principal diagnosis difficult. Thus the order in which the problems were recorded by the GP is not significant. All problems managed in general practice are included in this section, including those that involved management by a practice nurse. Problems that specifically included management by a practice nurse are reported additionally in Chapter 13.

There are two ways to describe the relative frequency of problems managed: as a percentage of all problems managed in the study, or as a rate of problems managed per 100 encounters. Where groups of problems are reported (for example cardiovascular problems), it must be remembered that more than one type of problem (such as hypertension and heart failure) may have been managed at a single encounter. In considering these results, the reader must be mindful that although a rate per 100 encounters for a single ungrouped problem (for example asthma, 2.3 per 100 encounters) can be regarded as equivalent to 'asthma is managed at 2.3% of encounters', such a statement cannot be made for grouped concepts (ICPC-2 chapters and those marked with asterisks in the tables).

7.1 Annual results, 2006–07

Number of problems managed at encounter

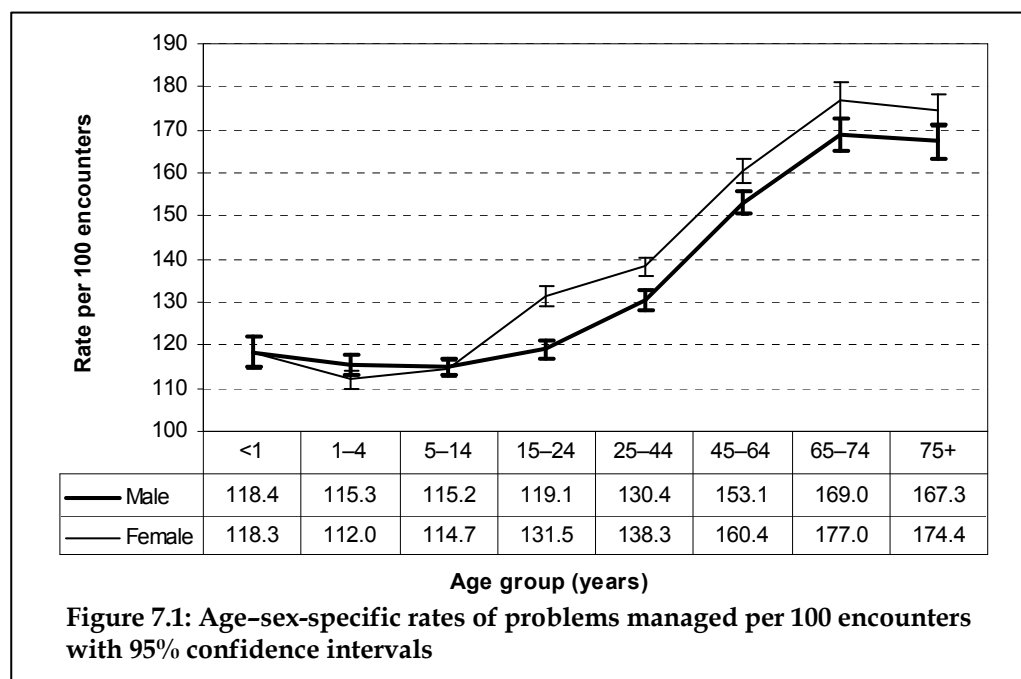
Table 7.1 shows the number of problems managed at each encounter. Only one problem was managed at almost two-thirds of encounters.

Table 7.1: Number of problems managed at an encounter, 2006–07

Number of problems managed at encounter	Number of encounters	Per cent	95% LCL	95% UCL
One problem	59,635	65.0	63.7	66.2
Two problems	22,073	24.0	23.3	24.8
Three problems	7,835	8.5	8.1	9.0
Four problems	2,262	2.5	2.2	2.7
Total	91,805	100.0	—	—

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

The number of problems managed at encounter increased steadily with the age of the patient. Significantly more problems were managed overall at encounters with female patients (151.7 per 100 encounters, 95% CI: 149.4–153.9) than at those with male patients (144.6 per 100 encounters, 95% CI: 142.4–146.7). Figure 7.1 shows the age-sex-specific rates of problems managed, and demonstrates that this difference was particularly evident in the 15–24, 25–44 and 45–64 years age groups.



Problems managed by ICPC-2 chapter

The frequency and the distribution of problems managed, by ICPC-2 chapter, are presented in Table 7.2. Rates per 100 encounters and the proportion of total problems are provided at the ICPC-2 chapter level and for frequent individual problems within each chapter. Only those individual problems accounting for at least 0.5% of all problems managed are listed in the table, in decreasing order of frequency.

Problems managed by ICPC-2 component

Problems managed in general practice may also be examined using the components of the ICPC-2 classification to provide a more thorough understanding of the types of problems managed during general practice encounters. Table 7.3 lists the distribution of problems managed by ICPC-2 component.

In the BEACH program, participating GPs are instructed to record the problem being managed at the encounter at the highest diagnostic level possible using the currently available evidence. As such, almost two-thirds of problems were expressed as diagnoses or diseases, with the majority of other problems described as symptoms or complaints (21.1%), or as diagnostic or preventive procedures such as check-ups (9.3%). 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 or an administrative procedure, or as a prescription.

Table 7.2: Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter, 2006–07

Problem managed	Number	Per cent total problems^(a) (n = 136,333)	Rate per 100 encounters^(b) (n = 91,805)	95% LCL	95% UCL
Respiratory	17,993	13.2	19.6	18.9	20.3
Upper respiratory tract infection	5,283	3.9	5.8	5.3	6.2
Immunisation/vaccination—respiratory	2,265	1.7	2.5	2.1	2.9
Asthma	2,069	1.5	2.3	2.1	2.4
Acute bronchitis/bronchiolitis	2,047	1.5	2.2	2.1	2.4
Sinusitis	1,274	0.9	1.4	1.3	1.5
Tonsillitis*	948	0.7	1.0	0.9	1.1
Chronic obstructive pulmonary disease	778	0.6	0.8	0.8	0.9
Skin	16,078	11.8	17.5	16.9	18.2
Contact dermatitis	1,753	1.3	1.9	1.8	2.0
Solar keratosis/sunburn	1,181	0.9	1.3	1.2	1.4
Malignant neoplasm skin	1,042	0.8	1.1	1.0	1.3
Laceration/cut	861	0.6	0.9	0.8	1.0
Skin disease, other	745	0.5	0.8	0.7	0.9
Warts	697	0.5	0.8	0.7	0.8
Cardiovascular	16,005	11.7	17.4	16.7	18.1
Hypertension*	8,768	6.4	9.6	9.1	10.0
Cardiac check-up*	1,206	0.9	1.3	1.1	1.5
Ischaemic heart disease*	1,177	0.9	1.3	1.2	1.4
Atrial fibrillation/flutter	881	0.6	1.0	0.9	1.1
Heart failure	626	0.5	0.7	0.6	0.8
Musculoskeletal	15,697	11.5	17.1	16.6	17.6
Arthritis—all*	3,363	2.5	3.7	3.5	3.9
Osteoarthritis*	2,403	1.8	2.6	2.4	2.8
Back complaint*	2,403	1.8	2.6	2.5	2.8
Sprain/strain*	1,423	1.0	1.5	1.4	1.7
Fracture*	960	0.7	1.0	1.0	1.1
Osteoporosis	793	0.6	0.9	0.8	1.0
Injury musculoskeletal NOS	792	0.6	0.9	0.8	0.9
Bursitis/tendonitis/synovitis NOS	723	0.5	0.8	0.7	0.9
Musculoskeletal disease, other	629	0.5	0.7	0.6	0.7
General & unspecified	14,910	10.9	16.2	15.6	16.8
General check-up*	2,236	1.6	2.4	2.2	2.6
General immunisation/vaccination	1,798	1.3	2.0	1.8	2.1
Medication/script/request/renew/inject NOS	1,362	1.0	1.5	1.3	1.7
Results tests/procedures NOS	988	0.7	1.1	1.0	1.2

(continued)

Table 7.2 (continued): Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter, 2006–07

Problem managed	Number	Per cent total problems^(a) (n = 136,333)	Rate per 100 encounters^(b) (n = 91,805)	95% LCL	95% UCL
Viral disease, other/NOS	979	0.7	1.1	0.9	1.2
Abnormal results/investigations NOS	632	0.5	0.7	0.6	0.8
Endocrine & metabolic	11,143	8.2	12.1	11.6	12.6
Diabetes, non-gestational*	3,374	2.5	3.7	3.5	3.9
Lipid disorders	3,176	2.3	3.5	3.2	3.7
Obesity (BMI > 30)	701	0.5	0.8	0.6	0.9
Psychological	10,051	7.4	11.0	10.5	11.4
Depression*	3,377	2.5	3.7	3.5	3.9
Anxiety*	1,594	1.2	1.7	1.6	1.9
Sleep disturbance	1,434	1.1	1.6	1.4	1.7
Digestive	9,557	7.0	10.4	10.1	10.7
Oesophageal disease	2,103	1.5	2.3	2.1	2.5
Gastroenteritis*	1,530	1.1	1.7	1.5	1.8
Female genital system	5,259	3.9	5.7	5.3	6.1
Female genital check-up/pap smear*	1,579	1.2	1.7	1.5	1.9
Menopausal complaint	808	0.6	0.9	0.8	1.0
Pregnancy & family planning	3,600	2.6	3.9	3.6	4.2
Oral contraception*	1,200	0.9	1.3	1.2	1.4
Pregnancy*	1,156	0.8	1.3	1.1	1.4
Ear	3,451	2.5	3.8	3.6	3.9
Acute otitis media/myringitis	1,013	0.7	1.1	1.0	1.2
Excessive ear wax	713	0.5	0.8	0.7	0.8
Neurological	3,441	2.5	3.8	3.6	3.9
Urology	2,888	2.1	3.2	3.0	3.3
Urinary tract infection*	1,512	1.1	1.6	1.5	1.8
Eye	2,452	1.8	2.7	2.5	2.8
Infectious conjunctivitis	657	0.5	0.7	0.6	0.8
Male genital system	1,696	1.2	1.9	1.7	2.0
Blood	1,518	1.1	1.7	1.5	1.8
Social	595	0.4	0.7	0.6	0.7
Total problems	136,333	100.0	148.5	146.4	150.6

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified; BMI—body mass index.

Table 7.3: Distribution of problems managed, by ICPC-2 component, 2006–07

ICPC-2 component	Number	Per cent of total problems (n = 136,333)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Diagnosis, diseases	88,649	65.0	96.6	94.8	98.3
Symptoms & complaints	28,826	21.1	31.4	30.6	32.2
Diagnostic & preventive procedures	12,622	9.3	13.8	13.0	14.5
Medications, treatments & therapeutics	2,897	2.1	3.2	2.9	3.5
Results	1,427	1.1	1.6	1.4	1.7
Referrals & other RFEs	1,225	0.9	1.3	1.2	1.5
Administrative	687	0.5	0.8	0.7	0.8
Total problems	136,333	100.0	148.5	146.4	150.6

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

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

Most frequently managed problems

Overall, there were 148.5 problems managed per 100 encounters. Table 7.4 shows the most frequently managed individual problems in general practice, in decreasing order of frequency. These 30 problems accounted for almost half of all problems managed.

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

The far right-hand column in Table 7.4 lists the percentage of each problem that was new to the patient, indicating the first presentation of a problem to a medical practitioner. This can provide a measure of general practice incidence. For example, only 6.1% of all contacts with diabetes were new problems to the patient. In contrast, more than three-quarters of upper respiratory tract infection (URTI) problems were new to the patient.

Table 7.4: Most frequently managed problems, 2006–07

Problem managed	Number	Per cent of total problems (n = 136,333)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL	Per cent of new problems ^(b)
Hypertension*	8,768	6.4	9.6	9.1	10.0	6.2
Check-up—all*	6,057	4.4	6.6	6.2	7.0	37.8
Upper respiratory tract infection	5,283	3.9	5.8	5.3	6.2	76.7
Immunisation/vaccination—all*	4,329	3.2	4.7	4.3	5.2	59.0
Arthritis—all*	3,363	2.5	3.7	3.5	3.9	18.0
Diabetes—all*	3,387	2.5	3.7	3.5	3.9	6.1
Depression*	3,377	2.5	3.7	3.5	3.9	17.4
Lipid disorders	3,176	2.3	3.5	3.2	3.7	13.0
Back complaint*	2,403	1.8	2.6	2.5	2.8	23.5
Oesophageal disease	2,103	1.5	2.3	2.1	2.5	18.7

(continued)

Table 7.4 (continued): Most frequently managed problems, 2006–07

Problem managed	Number	Per cent of total problems (<i>n</i> = 136,333)	Rate per 100 encounters ^(a) (<i>n</i> = 91,805)	95% LCL	95% UCL	Per cent of new problems ^(b)
Asthma	2,069	1.5	2.3	2.1	2.4	18.9
Acute bronchitis/bronchiolitis	2,047	1.5	2.2	2.1	2.4	72.1
Prescription—all*	1,989	1.5	2.2	1.9	2.4	5.5
Contact dermatitis	1,753	1.3	1.9	1.8	2.0	45.8
Anxiety*	1,594	1.2	1.7	1.6	1.9	19.3
Gastroenteritis*	1,530	1.1	1.7	1.5	1.8	77.3
Urinary tract infection*	1,512	1.1	1.6	1.5	1.8	64.8
Sleep disturbance	1,434	1.1	1.6	1.4	1.7	15.1
Test results*	1,427	1.0	1.6	1.4	1.7	27.6
Sprain/strain*	1,423	1.0	1.5	1.4	1.7	60.6
Sinusitis acute/chronic	1,274	0.9	1.4	1.3	1.5	66.8
Oral contraception*	1,200	0.9	1.3	1.2	1.4	19.7
Solar keratosis/sunburn	1,181	0.9	1.3	1.2	1.4	48.1
Ischaemic heart disease*	1,177	0.9	1.3	1.2	1.4	10.8
Pregnancy*	1,156	0.8	1.3	1.1	1.4	40.9
Malignant neoplasm skin	1,042	0.8	1.1	1.0	1.3	52.0
Acute otitis media/myringitis	1,013	0.7	1.1	1.0	1.2	73.7
Viral disease, other/NOS	979	0.7	1.1	0.9	1.2	71.4
Fracture*	960	0.7	1.0	1.0	1.1	45.0
Tonsillitis	948	0.7	1.0	0.9	1.1	74.2
<i>Subtotal</i>	<i>68,955</i>	<i>50.6</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total problems	136,333	100.0	148.5	146.4	150.6	38.1

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Most common new problems

For each problem managed, participating GPs are asked to indicate whether the problem under management is a new problem for the patient, or a problem that has been managed previously by any medical practitioner. Table 7.5 lists the most common new problems managed in general practice in 2006–07, in decreasing order of frequency. Overall, 51,895 problems were specified as being ‘new’, being managed at a rate of 56.5 per 100 encounters.

The far right-hand column of this table shows the proportion of total contacts with this problem that was reported as being a new problem for the patient. This gives us an idea of the incidence of each problem. For example, the 588 new cases of depression represented only 17% of all GP contacts with diagnosed depression, suggesting that four out of five contacts for depression are for ongoing management. In contrast, more than three-quarters of the gastroenteritis cases were first consultations to a medical practitioner for this episode of gastroenteritis. The balance (23%) would have been follow-up consultations for this episode

of this problem. This indicates that most patients only require one visit to a GP for the management of an episode of gastroenteritis.

Table 7.5: Most frequently managed new problems, 2006–07

New problem managed	Number	Per cent of total new problems (n = 51,895)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL	Per cent of this problem ^(b)
Upper respiratory tract infection	4,053	7.8	4.4	4.1	4.8	76.7
Immunisation/vaccination—all*	2,553	4.9	2.8	2.5	3.1	59.0
Acute bronchitis/bronchiolitis	1,476	2.8	1.6	1.5	1.7	72.1
Gastroenteritis*	1,183	2.3	1.3	1.2	1.4	77.3
General check-up*	1,106	2.1	1.2	1.1	1.3	49.5
Urinary tract infection*	979	1.9	1.1	1.0	1.2	64.8
Sprain/strain*	863	1.7	0.9	0.8	1.0	60.6
Sinusitis acute/chronic	851	1.6	0.9	0.8	1.0	66.8
Contact dermatitis	802	1.5	0.9	0.8	1.0	45.8
Acute otitis media/myringitis	747	1.4	0.8	0.7	0.9	73.7
Tonsillitis*	703	1.4	0.8	0.7	0.9	74.2
Viral disease, other/NOS	699	1.3	0.8	0.7	0.9	71.4
Female genital check-up*	650	1.3	0.7	0.6	0.8	41.1
Depression*	588	1.1	0.6	0.6	0.7	17.4
Solar keratosis/sunburn	568	1.1	0.6	0.5	0.7	48.1
Back complaint*	565	1.1	0.6	0.6	0.7	23.5
Hypertension*	543	1.0	0.6	0.5	0.7	6.2
Malignant neoplasm skin	542	1.0	0.6	0.5	0.7	52.0
Conjunctivitis	513	1.0	0.6	0.5	0.6	78.2
Pregnancy*	473	0.9	0.5	0.4	0.6	40.9
Osteoarthritis*	445	0.9	0.5	0.4	0.5	18.5
Laceration/cut	445	0.9	0.5	0.4	0.5	51.6
Fracture*	432	0.8	0.5	0.4	0.5	45.0
Excessive ear wax	431	0.8	0.5	0.4	0.5	60.5
Lipid disorders	413	0.8	0.4	0.4	0.5	13.0
Abnormal test results*	395	0.8	0.4	0.4	0.5	47.3
Test results*	394	0.8	0.4	0.4	0.5	27.6
Oesophagus disease	394	0.8	0.4	0.4	0.5	18.7
Skin injury, other	394	0.8	0.4	0.4	0.5	68.4
Asthma	392	0.8	0.4	0.4	0.5	18.9
<i>Subtotal</i>	<i>24,592</i>	<i>47.4</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total new problems	51,895	100.0	56.5	55.1	57.9	—

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Most frequently managed chronic problems

To identify chronic conditions, a chronic condition list classified according to ICPC-2 was applied to the BEACH data set.⁵⁸ More than a third (35.1%) of the problems managed in general practice were chronic in nature. At least one chronic problem was managed at 39.9% of encounters (95% CI: 39.0–40.9), and chronic problems were managed at an average rate of 52.1 per 100 encounters.

In other parts of this chapter, both chronic and non-chronic conditions (for example diabetes and gestational diabetes) may have been grouped together when reporting (for example diabetes – all*, Table 7.4). In this section, only problems regarded as ‘chronic’ have been included in the analysis. For this reason, the condition labels and figures in this analysis may differ from those in Table 7.4. Where the group used for the chronic analysis differs from that used in other analyses in this report, they are marked with a double asterisk. Codes included in the group may be found in Appendix 5, <www.aihw.gov.au/publications/index.cfm/subject/19>.

Table 7.6 shows the most frequently managed chronic problems in Australian general practice in decreasing order of frequency. The top seven chronic problems made up more than half of all chronic problems managed; these were non-gestational hypertension (18.3% of chronic conditions), non-gestational diabetes (7.1%), depressive disorder (7.0%), lipid disorders (6.6%), osteoarthritis (5.0%), oesophageal disease (4.4%) and asthma (4.3%).

Table 7.6: Most frequently managed chronic problems, 2006–07

Chronic problem managed	Number	Per cent of total chronic problems (n = 47,810)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Hypertension (non-gestational)**	8,759	18.3	9.5	9.0	10.0
Diabetes (non-gestational)**	3,374	7.1	3.7	3.5	3.9
Depressive disorder	3,357	7.0	3.7	3.5	3.9
Lipid disorders	3,176	6.6	3.5	3.2	3.7
Osteoarthritis*	2,403	5.0	2.6	2.4	2.8
Oesophageal disease	2,103	4.4	2.3	2.1	2.5
Asthma	2,069	4.3	2.3	2.1	2.4
Ischaemic heart disease*	1,177	2.5	1.3	1.2	1.4
Malignant neoplasm skin	1,042	2.2	1.1	1.0	1.3
Atrial fibrillation/flutter	881	1.8	1.0	0.9	1.1
Osteoporosis	793	1.7	0.9	0.8	1.0
Back complaint*	791	1.7	0.9	0.8	0.9
Chronic obstructive pulmonary disease	778	1.6	0.8	0.8	0.9
Obesity (BMI > 30)	701	1.5	0.8	0.6	0.9
Heart failure	626	1.3	0.7	0.6	0.8
Migraine	605	1.3	0.7	0.6	0.7
Hypothyroidism/myxoedema	597	1.2	0.6	0.6	0.7
Gout	534	1.1	0.6	0.5	0.6
Arthritis**	521	1.1	0.6	0.5	0.6
Shoulder syndrome	442	0.9	0.5	0.4	0.5

(continued)

Table 7.6 (continued): Most frequently managed chronic problems, 2006–07

Chronic problem managed	Number	Per cent of total chronic problems (<i>n</i> = 47,810)	Rate per 100 encounters ^(a) (<i>n</i> = 91,805)	95% LCL	95% UCL
Anxiety disorder	438	0.9	0.5	0.4	0.5
Rheumatoid arthritis	434	0.9	0.5	0.4	0.5
Dementia	426	0.9	0.5	0.4	0.5
Anaemia (chronic)**	420	0.9	0.5	0.4	0.5
Schizophrenia	389	0.8	0.4	0.4	0.5
Acne (chronic)**	380	0.8	0.4	0.4	0.5
Epilepsy	333	0.7	0.4	0.3	0.4
Back syndrome without radiating pain	313	0.7	0.3	0.3	0.4
Neck syndrome	309	0.6	0.3	0.3	0.4
Malignant neoplasm prostate	300	0.6	0.3	0.3	0.4
<i>Subtotal</i>	<i>38,471</i>	<i>80.5</i>	—	—	—
Total chronic problems	47,810	100.0	52.1	50.4	53.7

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

** 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 5 <www.aihw.gov.au/publications/index.cfm> for codes included in analysis of chronic conditions).

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

Work-related problems managed

The work-related status of a problem under management is determined by the GP, and is defined as any problem that is likely (in the GP's view) to have resulted from work-related activity, workplace exposures or a pre-existing condition that has been significantly exacerbated by work activity or workplace exposure. Work-related problems were managed at a rate of 2.9 per 100 general practice encounters in 2006–07 (Table 7.7).

The most common group of work-related problems were musculoskeletal problems, accounting for almost two-thirds of work-related problems and managed at a rate of 1.7 per 100 general practice encounters. One in 10 musculoskeletal problems managed in general practice were work-related. The most common musculoskeletal work-related problems were back complaints (14.8% of work-related problems), sprains and strains (10.4%), musculoskeletal injury (9.0%) and fractures (3.7%).

Work-related psychological problems accounted for 9.3% of total work-related problems and were managed at a rate of 0.3 per 100 encounters. These psychological problems accounted for only 2.4% of total psychological problems managed in general practice. The most commonly managed psychological problems were depression (3.2% of work-related problems), acute stress reaction (2.6%) and anxiety (1.6%).

Preventive checks related to the patient's work accounted for 5.9% of work-related problems and were performed at a rate of 0.2 per 100 encounters. The majority of these preventive checks were check-ups classified in the general and unspecified chapter of ICPC-2, including pre-employment and employment check-ups.

Other work-related problems not covered in the above groups accounted for 24.9% of work-related problems and included skin injuries not classified elsewhere (3.5% of work-related problems) and lacerations (3.5%).

Although back complaint was the most commonly managed individual work-related problem (accounting for 14.8% of work-related problems), it accounted for only 16.1% of the management of all back complaints. In contrast, musculoskeletal injury (not otherwise specified) accounted for 9.0% of work-related problems but represented 29.7% of all musculoskeletal injuries (not otherwise specified) managed (Table 7.7).

Table 7.7: Work-related problems by type and most frequently managed individual problems, 2006–07

Work-related problem managed	Number	Per cent of total work-related problems (n = 2,621)	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL	Per cent of this problem ^(a)
Musculoskeletal problems	1570	59.9	1.7	1.5	1.9	10.0
Back complaint*	388	14.8	0.4	0.4	0.5	16.1
Sprain/strain*	274	10.4	0.3	0.2	0.4	19.3
Injury musculoskeletal NOS	235	9.0	0.3	0.2	0.3	29.7
Fracture*	98	3.7	0.1	0.1	0.1	10.2
Shoulder syndrome	70	2.7	0.1	0.1	0.1	15.8
Acute internal knee damage	56	2.1	0.1	0.0	0.1	22.0
Bursitis/tendonitis/synovitis NOS	54	2.1	0.1	0.0	0.1	7.5
Tennis elbow	48	1.8	0.1	0.0	0.1	23.0
Neck syndrome	44	1.7	0.1	0.0	0.1	14.2
Psychological problems	243	9.3	0.3	0.2	0.3	2.4
Depression*	83	3.2	0.1	0.1	0.1	2.5
Acute stress reaction	69	2.6	0.1	0.0	0.1	12.6
Anxiety*	41	1.6	0.1	0.0	0.1	2.6
Preventive checks	155	5.9	0.2	0.1	0.2	1.7
General check-up*	126	4.8	0.1	0.1	0.2	5.6
Other work-related problems	654	24.9	0.7	0.6	0.8	0.6
Injury skin, other	92	3.5	0.1	0.1	0.1	16.0
Laceration/cut	91	3.5	0.1	0.1	0.1	10.6
Total work-related problems	2621	100.0	2.9	2.6	3.1	—

(a) The proportion of total contacts with this problem that were accounted for by work-related problems.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: LCL—lower confidence limit; UCL—upper confidence limit; NOS—not otherwise specified. Only the most frequent individual work-related problems accounting for > 1.5% of total work-related problems are reported.

7.2 Changes over time, 1998–99 to 2006–07

Number of problems managed

GPs are asked to record information about the management of up to four problems at each encounter. Table 7.8 shows the number of problems managed at each encounter over time.

There was little change in the pattern of number of problems managed at encounter. There was a marginal increase in encounters where three problems were managed, suggesting 770,000 more occasions where three problems were managed in 2006–07 than in 1998–99. While there appears to be a very gradual increase in the average number of problems managed at an encounter, this failed to reach statistical significance (Table 7.9).

Distribution of problems managed by ICPC-2 component

The way in which problems managed are described has changed over time is shown in Table 7.9.

- There was no significant change in the management rate of problems described in terms of a diagnosis or disease between 1998–99 and 2006–07, managed at a rate of 94–97 per 100 encounters. There was also no change in the management rate of problems described as ‘diagnostic and preventive procedures’, managed at rate of about 13 per 100 encounters over the 9 years of the study.
- The rate of problems described in terms of symptoms and complaints decreased by 5% from 33.1 to 31.4 per 100 encounters, equating to a national decrease of nearly 2 million problems between 1998–99 and 2006–07.
- There was a move toward describing the problems managed as ‘medications, treatments and therapeutics’, ‘results’, ‘referrals and other reasons for encounter’, and administrative procedures. Together these types of problems increased from 5 to 7 per 100 encounters. The major changes within the group were in test results (extrapolated increase of 820,000 contacts for this problem) and administrative problems (extrapolated increase of 410,000 problems in Australia).

Problems managed by ICPC-2 chapter and individual problems managed

Table 7.10 shows that there was no change in the total rate of problems managed between 1998–99 and 2006–07. This result was also true for the management rate of new problems (Table 7.12). However, the management rate of chronic conditions increased from 46.5 per 100 encounters in 1998–99 to 52.1 per 100 in 2006–07, suggesting approximately 5.4 million more GP contacts in Australia in 2006–07 where chronic problems were managed compared with 1998–99 (Table 7.13).

Problems managed at general practice encounters by ICPC chapter are described in Table 7.10 and the most common individual problems managed are described in Table 7.11 for all years from 1998–99 to 2006–07.

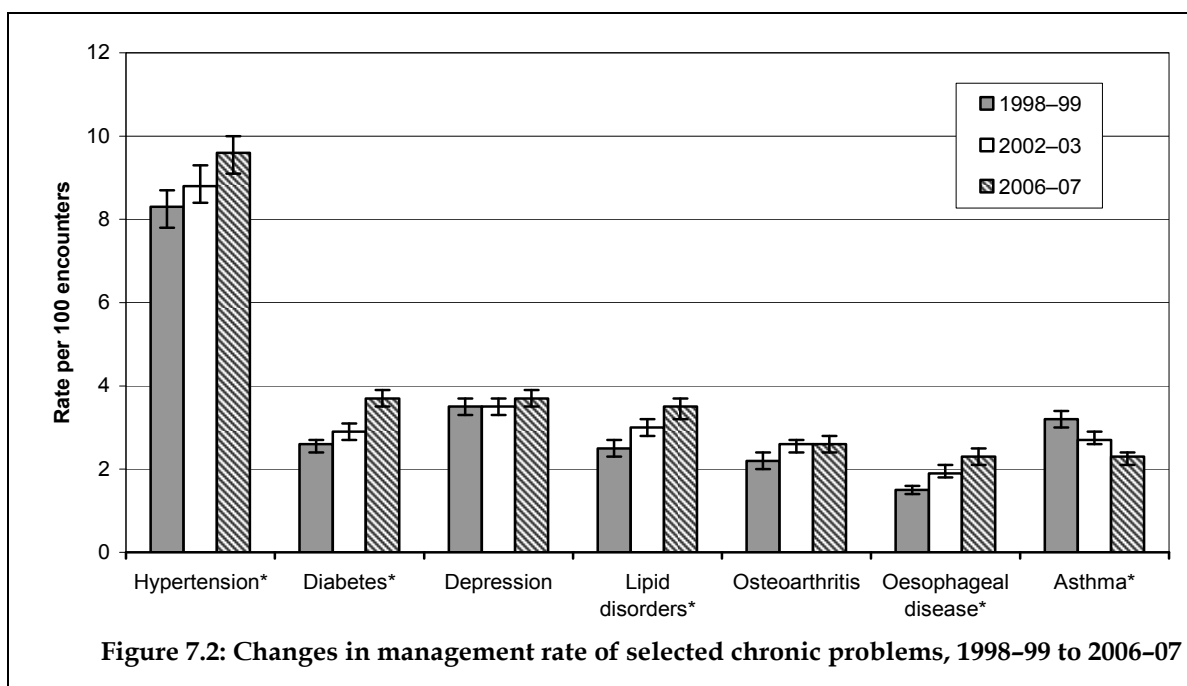
- There was a 23% increase in the management rate of problems of a general and unspecified nature, equating to a national increase of about 3 million GP contacts with such problems from 1998–99 to 2006–07 (Table 7.10). This was reflected in significant increases in the management rate of general check-ups, and problems described as ‘prescriptions’ and ‘results of tests and investigations’. In contrast there was a marginal decrease in the management rate of (unspecified) viral illness (Table 7.11).
- There was a 37% increase in the management rate of problems of the endocrine and metabolic system, suggesting there were approximately 3.3 million more occasions of GP management of endocrine and metabolic problems across Australia in 2006–07 compared with 1998–99 (Table 7.10). In particular there was a 42% increase in the management rate

of diabetes, and a 40% increase in the management rate of lipid disorders over the 9 years (Table 7.11).

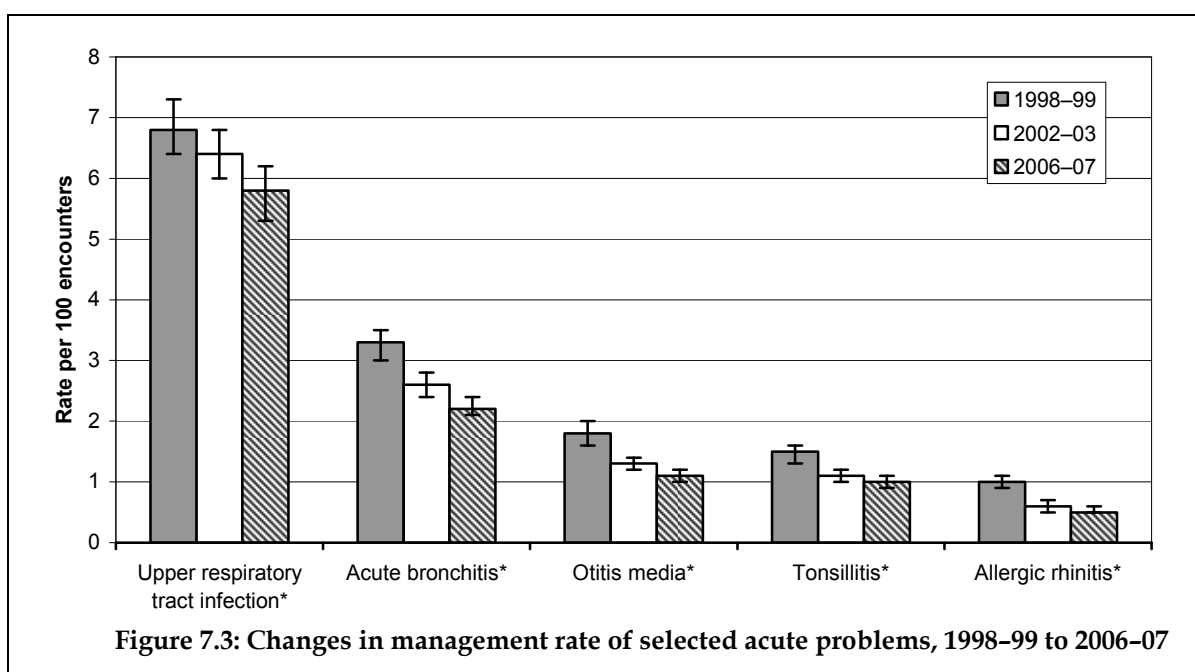
- The management rate of problems related to the male genital system increased by 36%, equating to a national increase of about 500,000 male genital system problems managed in 2006–07 than in 1998–99 (Table 7.10).
- There was a marginal increase in the management rate of urological problems from 1998–99 to 2006–07 (Table 7.10).
- There was almost a 20% decrease in the management rate of respiratory problems, suggesting an extrapolated affect of 5 million fewer respiratory problems managed by GPs in 2006–07 than in 1998–99 (Table 7.10). This was reflected in significant decreases in the management rates of URTI, asthma, acute bronchitis/bronchiolitis, tonsillitis and allergic rhinitis (Table 7.11).
- There was a 22% decrease in the management of ear problems, suggesting about 1.2 million fewer GP contacts involving the management of ear problems in 2006–07 than in 1998–99 nationally (Table 7.10). In particular, there was a 39% decrease in the management rate of acute otitis media/myringitis (Table 7.11).
- There was a marginal decrease in the management rate of social problems from 1998–99 to 2006–07 (Table 7.10).
- There was no change in the management rate of cardiovascular problems between 1998–99 and 2006–07 (Table 7.10). However, there was a 16% increase in the management rate of hypertension and a 40% increase in the management rate of atrial fibrillation, equating to national increases of approximately 1.3 million contacts with hypertension and 410,000 contacts with atrial fibrillation from 1998–99 to 2006–07. In contrast, there was a marginal decrease in the management rate of ischaemic heart disease (Table 7.11).
- The management rate of skin problems did not change significantly over the 9 years of the study (Table 7.10). However, there was a 37% increase in the management rate of malignant skin neoplasm and a 30% increase in the management rate of solar keratosis, equating to a national increase of about 300,000 malignant skin neoplasm contacts and 300,000 solar keratosis contacts (Table 7.11).
- There was no change in the management rate of problems related to pregnancy and family planning (Table 7.10). However, the management rate of oral contraception increased by 30%, suggesting 300,000 more occasions where this problem was managed in 2006–07 than in 1998–99. There was also a 60% increase in the management rate of pregnancy from 1998–99 to 2006–07. However, this coincided with a 60% decrease in the management of pre/postnatal care, which suggests a change in terminology used by GPs (Table 7.11).
- Overall there was no change in the management rate of musculoskeletal problems (Table 7.10). However, the management rate of osteoporosis increased significantly and the management rate of sprains and strains showed a marginal decrease between 1998–99 and 2006–07. The management rate of arthritis (all types) increased significantly from 3.5 per 100 encounters in 1998–99 to a peak of 4.0 per 100 encounters in 2003–04, and then decreased to 3.7 per 100 in 2006–07. The management rate of osteoarthritis showed a marginal increase over the study period, although the management rate followed a similar pattern to that of the total arthritis group (Table 7.11). The decrease in management of arthritis from 2004–05 onward may reflect the withdrawal of the medication rofecoxib.

- Table 7.11 also shows that there was a significant increase in the management rate of oesophageal disease, equating to a national increase of about 810,000 contacts for this problem from 1998-99 to 2006-07; and a significant decrease in the management rate of menopausal complaints.

Selected individual problems managed are presented graphically in figures 7.2 and 7.3. These figures show changes in the management rate of selected chronic and acute conditions from 1998-99 to 2006-07. Note that there was no change in the management rate of depression from 1998-99 to 2006-07. The management of depression over time is investigated in greater detail in Chapter 14.



* Indicates a statistically significant change from 1998-99 to 2006-07 (for management rates see Table 7.11).



* Indicates a statistically significant change from 1998-99 to 2006-07 (for management rates see Table 7.11).

Table 7.8: Number of problems managed at an encounter, summary of annual results, BEACH, 1998–99 to 2006–07

Number of problems managed at encounter	Per cent of encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
One problem	66.3 (65.1–67.4)	65.4 (64.3–66.5)	66.5 (65.4–67.5)	67.7 (66.6–68.8)	66.9 (65.8–68.1)	66.2 (65.0–67.3)	66.5 (65.3–67.7)	66.4 (65.1–67.6)	65.0 (63.7–66.2)	—	—
Two problems	24.1 (23.4–24.8)	24.7 (24.0–25.3)	24.4 (23.8–25.1)	23.1 (22.4–23.7)	23.4 (22.6–24.1)	23.8 (23.1–24.5)	23.6 (22.9–24.3)	23.4 (22.7–24.1)	24.0 (23.3–24.8)	—	—
Three problems	7.7 (7.3–8.1)	7.7 (7.3–8.1)	7.3 (6.9–7.7)	7.3 (6.9–7.7)	7.6 (7.2–8.0)	7.7 (7.2–8.1)	7.7 (7.3–8.2)	7.9 (7.4–8.4)	8.5 (8.1–9.0)	↑	+770
Four problems	2.0 (1.6–2.3)	2.2 (1.9–2.5)	1.9 (1.5–2.2)	1.9 (1.6–2.2)	2.1 (1.7–2.5)	2.4 (2.0–2.8)	2.2 (1.8–2.5)	2.3 (2.1–2.6)	2.5 (2.2–2.7)	—	—

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national change and are reported in thousands in the far right column.

Note: CI—confidence interval.

Table 7.9: Distribution of problems managed, by ICPC-2 component, summary of annual results, BEACH, 1998–99 to 2006–07

ICPC-2 component	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Diagnosis, diseases	94.7 (93.1–96.3)	96.1 (94.4–97.8)	95.2 (93.6–96.7)	93.7 (92.1–95.2)	93.1 (91.5–94.8)	94.8 (93.0–96.5)	94.2 (94.2–96.0)	95.5 (93.6–97.3)	96.6 (94.8–98.3)	—	—
Symptoms & complaints	33.1 (32.3–33.9)	32.0 (31.2–32.8)	31.7 (30.9–32.5)	31.4 (30.6–32.2)	31.4 (30.6–32.2)	30.8 (30.0–31.6)	31.1 (30.2–31.9)	30.4 (29.6–31.2)	31.4 (30.6–32.2)	↓	–1,980
Diagnostic & preventive procedures	12.8 (12.2–13.5)	13.1 (12.4–13.7)	12.6 (11.9–13.2)	12.4 (11.8–13.0)	13.5 (12.8–14.2)	13.6 (12.9–14.4)	13.3 (12.5–14.0)	13.7 (13.1–14.4)	13.8 (13.0–14.5)	—	—
Medications, treatments & therapeutics	2.6 (2.4–2.8)	3.1 (2.9–3.3)	2.9 (2.7–3.1)	3.3 (3.0–3.6)	3.6 (3.3–3.8)	4.0 (3.6–4.3)	3.7 (3.4–3.9)	3.2 (3.0–3.5)	3.2 (2.9–3.5)	↑	+600
Results	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	1.1 (0.9–1.2)	1.1 (0.9–1.2)	1.2 (1.1–1.4)	1.4 (1.3–1.5)	1.4 (1.3–1.6)	1.6 (1.4–1.7)	↑	+820

(continued)

Table 7.9 (continued): Distribution of problems managed, by ICPC-2 component, summary of annual results, BEACH, 1998–99 to 2006–07

ICPC-2 component	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Referral & other RFE	1.0 (0.8–1.1)	1.3 (1.2–1.4)	1.1 (1.0–1.2)	1.1 (1.0–1.3)	1.7 (1.5–1.9)	1.3 (1.1–1.4)	1.4 (1.2–1.5)	1.2 (1.1–1.4)	1.3 (1.2–1.5)	↑	+300
Administrative	0.4 (0.3–0.5)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.5 (0.4–0.5)	0.5 (0.5–0.6)	0.6 (0.6–0.7)	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.8 (0.7–0.8)	↑	+410
Total problems	145.3 (143.5–147.2)	146.7 (144.9–148.6)	144.5 (142.8–146.3)	143.4 (141.7–145.2)	144.9 (143.0–146.8)	146.3 (144.4–148.2)	145.5 (143.6–147.4)	146.2 (144.2–148.2)	148.5 (146.4–150.6)	—	—

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national change and are reported in thousands in the far right column.

Note: CI—confidence interval; RFE—reason for encounter.

Table 7.10: Distribution of problems managed, by ICPC-2 chapter summary of annual results, BEACH, 1998–99 to 2006–07

ICPC-2 Chapter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Respiratory	24.3 (23.6–25.0)	24.2 (23.5–24.9)	22.5 (21.9–23.2)	21.4 (20.7–22.0)	20.6 (20.0–21.3)	20.1 (19.5–20.7)	19.2 (18.6–19.9)	20.6 (19.9–21.3)	19.6 (18.9–20.3)	↓	–5,000
Skin	16.5 (16.0–17.0)	17.0 (16.6–17.5)	16.7 (16.2–17.3)	16.1 (15.6–16.6)	16.5 (16.0–17.0)	16.9 (16.2–17.6)	17.2 (16.6–17.9)	16.6 (16.1–17.2)	17.5 (16.9–18.2)	—	—
Cardiovascular	16.1 (15.4–16.8)	16.3 (15.5–17.0)	16.0 (15.3–16.7)	16.1 (15.5–16.8)	16.0 (15.3–16.7)	16.8 (16.1–17.5)	16.2 (15.5–16.9)	16.6 (16.1–17.7)	17.4 (16.7–18.1)	—	—
Musculoskeletal	16.9 (16.3–17.5)	16.9 (16.4–17.4)	17.4 (16.9–18.0)	17.5 (17.0–18.0)	17.1 (16.5–17.6)	17.1 (16.6–17.6)	17.7 (17.1–18.3)	17.2 (16.7–17.7)	17.1 (16.6–17.6)	—	—
General & unspecified	13.2 (12.7–13.7)	13.9 (13.4–14.5)	14.2 (13.7–14.7)	14.7 (14.0–15.5)	15.8 (15.2–16.3)	15.0 (14.5–15.5)	15.1 (14.5–15.7)	15.1 (14.5–15.7)	16.2 (15.6–16.8)	↑	+2,990
Endocrine & metabolic	8.8 (8.4–9.2)	9.1 (8.7–9.6)	9.8 (9.3–10.2)	10.4 (10.0–10.9)	10.6 (10.2–11.0)	11.3 (10.8–11.8)	11.8 (11.2–12.3)	11.6 (11.0–12.1)	12.1 (11.6–12.6)	↑	+3,330

(continued)

Table 7.10 (continued): Distribution of problems managed, by ICPC-2 chapter summary of annual results, BEACH, 1998–99 to 2006–07

ICPC-2 Chapter	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Psychological	10.5 (10.0–11.0)	10.5 (10.0–11.1)	10.8 (10.2–11.3)	10.6 (10.1–11.2)	10.3 (9.8–10.8)	10.8 (10.3–11.4)	11.4 (10.8–12.0)	11.1 (10.5–11.7)	11.0 (10.5–11.4)	—	—
Digestive	10.2 (9.9–10.5)	10.1 (9.7–10.3)	9.9 (9.6–10.2)	9.9 (9.6–10.2)	10.1 (9.8–10.4)	10.5 (10.2–10.8)	9.9 (9.6–10.2)	10.1 (9.8–10.4)	10.4 (10.1–10.7)	—	—
Female genital system	6.3 (5.9–6.6)	6.2 (5.8–6.5)	6.1 (5.7–6.4)	6.1 (5.8–6.5)	6.7 (6.2–7.1)	5.9 (5.5–6.3)	5.7 (5.3–6.1)	5.8 (5.4–6.2)	5.7 (5.3–6.1)	—	—
Pregnancy & family planning	4.1 (3.8–4.3)	4.3 (4.0–4.6)	3.9 (3.6–4.2)	4.0 (3.7–4.2)	4.2 (3.9–4.5)	4.2 (3.9–4.5)	3.8 (3.6–4.1)	3.8 (3.6–4.1)	3.9 (3.6–4.2)	—	—
Ear	4.9 (4.7–5.1)	4.5 (4.3–4.7)	4.4 (4.2–4.6)	4.2 (4.0–4.4)	4.0 (3.8–4.2)	4.0 (3.8–4.1)	4.1 (3.9–4.2)	4.0 (3.8–4.1)	3.8 (3.6–3.9)	↓	–1,170
Neurological	4.0 (3.8–4.2)	3.9 (3.7–4.1)	3.8 (3.6–3.9)	3.7 (3.5–3.9)	4.2 (4.0–4.4)	3.9 (3.8–4.1)	3.6 (3.5–3.8)	3.6 (3.4–3.8)	3.8 (3.6–3.9)	—	—
Urology	2.8 (2.7–3.0)	3.0 (2.9–3.2)	2.7 (2.5–2.8)	2.8 (2.7–3.0)	2.8 (2.7–3.0)	3.0 (2.9–3.2)	3.0 (2.9–3.2)	3.1 (2.9–3.2)	3.2 (3.0–3.3)	↑	+390
Eye	2.8 (2.7–3.0)	2.7 (2.6–2.9)	2.6 (2.5–2.7)	2.5 (2.4–2.6)	2.6 (2.5–2.7)	2.7 (2.6–2.9)	2.7 (2.5–2.8)	2.8 (2.6–2.9)	2.7 (2.5–2.8)	—	—
Male genital system	1.4 (1.3–1.5)	1.4 (1.3–1.5)	1.5 (1.3–1.6)	1.3 (1.2–1.4)	1.4 (1.3–1.6)	1.6 (1.5–1.7)	1.8 (1.6–1.9)	1.9 (1.7–2.0)	1.9 (1.7–2.0)	↑	+500
Blood	1.7 (1.5–1.9)	1.7 (1.6–1.8)	1.7 (1.5–1.8)	1.3 (1.2–1.4)	1.4 (1.3–1.5)	1.7 (1.5–1.8)	1.6 (1.4–1.8)	1.5 (1.4–1.6)	1.7 (1.5–1.8)	—	—
Social problems	0.8 (0.7–0.8)	0.9 (0.8–1.0)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.6 (0.5–0.7)	0.7 (0.6–0.7)	↓	–110
Total problems	145.3 (143.5–147.2)	146.7 (144.9–148.6)	144.5 (142.8–146.3)	143.4 (141.7–145.2)	144.9 (143.0–146.8)	146.3 (144.4–148.2)	145.5 (143.6–147.4)	146.2 (144.2–148.2)	148.5 (146.4–150.6)	—	—

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national change and are reported in thousands in the far right column.

Note: CI—confidence interval.

Table 7.11: Most frequently managed problems, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Hypertension*	8.3 (7.8–8.7)	8.4 (7.9–8.9)	8.6 (8.2–9.1)	9.0 (8.5–9.5)	8.8 (8.4–9.3)	9.2 (8.7–9.7)	8.9 (8.4–9.4)	9.4 (8.9–10.0)	9.6 (9.1–10.0)	↑	+1,280
Check-up—all*	5.9 (5.5–6.3)	6.4 (6.0–6.8)	5.9 (5.5–6.2)	5.8 (5.4–6.1)	6.4 (6.0–6.8)	6.4 (5.9–6.9)	6.3 (5.9–6.7)	6.4 (6.0–6.8)	6.6 (6.2–7.0)	—	—
<i>General check-up*</i>	1.6 (1.4–1.7)	1.8 (1.6–1.9)	1.6 (1.5–1.8)	1.8 (1.6–1.9)	1.9 (1.8–2.1)	1.8 (1.7–2.0)	2.1 (1.9–2.2)	2.1 (1.9–2.2)	2.4 (2.2–2.6)	↑	+810
<i>Female genital check-up*</i>	1.6 (1.5–1.8)	1.6 (1.4–1.7)	1.5 (1.3–1.6)	1.6 (1.4–1.7)	1.8 (1.6–2.0)	1.8 (1.6–2.0)	1.8 (1.6–2.0)	1.8 (1.6–2.0)	1.7 (1.5–1.9)	—	—
<i>Cardiac check-up*</i>	1.2 (1.1–1.4)	1.3 (1.2–1.5)	1.3 (1.2–1.4)	1.1 (1.0–1.3)	1.1 (0.9–1.2)	1.2 (1.0–1.3)	1.0 (0.9–1.1)	1.2 (1.0–1.3)	1.3 (1.1–1.5)	—	—
Upper respiratory tract infection	6.8 (6.4–7.3)	7.2 (6.7–7.7)	6.9 (6.5–7.3)	6.2 (5.8–6.6)	6.4 (6.0–6.8)	5.5 (5.1–5.8)	5.6 (5.2–5.9)	6.2 (5.8–6.6)	5.8 (5.3–6.2)	↓	–1,080
Immunisation/ vaccination—all*	5.2 (4.7–5.6)	4.6 (4.2–5.0)	4.6 (4.2–4.9)	4.7 (4.3–5.1)	4.6 (4.3–5.0)	4.7 (4.3–5.2)	4.6 (4.2–5.1)	5.0 (4.6–5.4)	4.7 (4.3–5.2)	—	—
Arthritis—all*	3.5 (3.2–3.7)	3.6 (3.3–3.8)	3.9 (3.7–4.1)	3.8 (3.5–4.0)	3.7 (3.5–3.9)	4.0 (3.8–4.2)	3.9 (3.7–4.2)	3.8 (3.5–4.0)	3.7 (3.5–3.9)	§	—
<i>Osteoarthritis*</i>	2.2 (2.0–2.4)	2.2 (2.1–2.4)	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.6 (2.4–2.7)	2.8 (2.6–3.0)	2.8 (2.6–3.0)	2.7 (2.5–2.9)	2.6 (2.4–2.8)	↑	+400
Diabetes—all*	2.6 (2.4–2.7)	2.7 (2.5–2.9)	2.8 (2.6–3.0)	3.1 (2.9–3.3)	2.9 (2.7–3.1)	3.3 (3.1–3.5)	3.2 (3.0–3.4)	3.5 (3.3–3.8)	3.7 (3.5–3.9)	↑	+1,110
Depression*	3.5 (3.3–3.7)	3.4 (3.2–3.6)	3.7 (3.4–3.9)	3.4 (3.2–3.6)	3.5 (3.3–3.7)	3.6 (3.4–3.9)	3.7 (3.5–3.9)	3.6 (3.4–3.8)	3.7 (3.5–3.9)	—	—
Lipid disorders*	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.9 (2.7–3.1)	2.9 (2.7–3.1)	3.0 (2.8–3.2)	3.1 (2.9–3.4)	3.3 (3.1–3.6)	3.4 (3.1–3.7)	3.5 (3.2–3.7)	↑	+1,010

(continued)

Table 7.11 (continued): Most frequently managed problems, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Back complaint*	2.7 (2.4–2.9)	2.8 (2.6–2.9)	2.6 (2.4–2.8)	2.6 (2.4–2.8)	2.6 (2.4–2.8)	2.7 (2.5–2.8)	2.8 (2.6–3.0)	2.6 (2.5–2.8)	2.6 (2.5–2.8)	—	—
Oesophageal disease	1.5 (1.4–1.6)	1.6 (1.5–1.8)	1.5 (1.4–1.6)	1.8 (1.7–2.0)	1.9 (1.8–2.1)	2.2 (2.0–2.4)	2.1 (1.9–2.2)	2.4 (2.2–2.5)	2.3 (2.1–2.5)	↑	+810
Asthma	3.2 (3.0–3.4)	3.2 (3.0–3.4)	2.8 (2.7–3.0)	2.8 (2.7–3.0)	2.7 (2.6–2.9)	2.6 (2.4–2.7)	2.3 (2.2–2.5)	2.3 (2.1–2.4)	2.3 (2.1–2.4)	↓	–950
Acute bronchitis/ bronchiolitis	3.3 (3.0–3.5)	3.2 (3.0–3.4)	2.7 (2.5–2.9)	2.7 (2.5–2.9)	2.6 (2.4–2.8)	2.4 (2.2–2.6)	2.4 (2.2–2.6)	2.5 (2.3–2.7)	2.2 (2.1–2.4)	↓	–1,150
Prescription—all*	1.4 (1.2–1.6)	1.8 (1.6–2.0)	1.7 (1.5–1.8)	1.9 (1.6–2.1)	2.0 (1.8–2.2)	2.3 (2.0–2.6)	2.1 (1.8–2.3)	2.0 (1.7–2.2)	2.2 (1.9–2.4)	↑	+810
Contact dermatitis	1.8 (1.7–2.0)	1.9 (1.8–2.0)	2.1 (1.9–2.2)	1.9 (1.8–2.0)	1.9 (1.8–2.0)	1.8 (1.6–1.9)	1.9 (1.8–2.0)	1.8 (1.7–1.9)	1.9 (1.8–2.0)	—	—
Anxiety*	1.7 (1.6–1.8)	1.7 (1.6–1.9)	1.7 (1.5–1.8)	1.6 (1.5–1.8)	1.6 (1.4–1.7)	1.7 (1.6–1.9)	1.7 (1.6–1.9)	1.8 (1.6–2.0)	1.7 (1.6–1.9)	—	—
Gastroenteritis*	1.7 (1.6–1.8)	1.6 (1.4–1.7)	1.6 (1.5–1.8)	1.6 (1.5–1.7)	1.7 (1.6–1.9)	1.7 (1.5–1.8)	1.5 (1.4–1.7)	1.5 (1.4–1.7)	1.7 (1.5–1.8)	—	—
Urinary tract infection*	1.6 (1.5–1.7)	1.8 (1.7–1.9)	1.5 (1.4–1.6)	1.6 (1.5–1.7)	1.7 (1.6–1.8)	1.7 (1.6–1.8)	1.7 (1.6–1.8)	1.8 (1.6–1.9)	1.6 (1.5–1.8)	—	—
Sleep disturbance	1.6 (1.5–1.8)	1.5 (1.4–1.7)	1.6 (1.4–1.7)	1.6 (1.5–1.8)	1.6 (1.4–1.7)	1.6 (1.5–1.7)	1.7 (1.5–1.9)	1.6 (1.5–1.7)	1.6 (1.4–1.7)	—	—
Test results*	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	1.1 (0.9–1.2)	1.1 (0.9–1.2)	1.2 (1.1–1.4)	1.4 (1.3–1.5)	1.4 (1.3–1.6)	1.6 (1.4–1.7)	↑	+820
Sprain/strain*	1.9 (1.7–2.1)	1.8 (1.7–2.0)	2.0 (1.9–2.2)	1.8 (1.7–1.9)	1.7 (1.5–1.8)	1.6 (1.5–1.7)	1.7 (1.5–1.9)	1.8 (1.6–1.9)	1.5 (1.4–1.7)	§	—
Sinusitis acute/chronic	1.6 (1.4–1.7)	1.6 (1.4–1.7)	1.5 (1.4–1.6)	1.4 (1.3–1.5)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.4 (1.3–1.5)	—	—

(continued)

Table 7.11 (continued): Most frequently managed problems, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Oral contraception*	1.0 (0.9–1.1)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.4 (1.2–1.5)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	↑	+300
Solar keratosis/sunburn	1.0 (0.9–1.1)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.0 (0.9–1.2)	1.2 (1.0–1.3)	1.3 (1.1–1.5)	1.3 (1.1–1.6)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	↑	+300
Ischaemic heart disease*	1.5 (1.4–1.7)	1.6 (1.4–1.7)	1.3 (1.2–1.4)	1.3 (1.1–1.4)	1.2 (1.1–1.3)	1.4 (1.2–1.5)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	↓	–220
Pregnancy*	0.7 (0.6–0.8)	0.7 (0.6–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.8 (0.7–1.0)	0.8 (0.7–0.9)	0.8 (0.7–0.8)	0.9 (0.8–1.0)	1.3 (1.1–1.4)	↑	+610
Malignant neoplasm, skin	0.8 (0.8–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.7–1.0)	0.8 (0.7–0.9)	1.1 (0.9–1.3)	1.2 (1.0–1.4)	1.0 (0.9–1.1)	1.1 (1.0–1.3)	↑	+300
Acute otitis media/ myringitis	1.8 (1.6–2.0)	1.6 (1.5–1.7)	1.5 (1.4–1.6)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.2 (1.0–1.3)	1.1 (1.0–1.2)	↓	–730
Viral disease, other/NOS	1.3 (1.2–1.5)	1.5 (1.3–1.7)	1.6 (1.4–1.8)	1.5 (1.3–1.7)	1.4 (1.2–1.6)	1.3 (1.2–1.5)	1.2 (1.1–1.4)	1.2 (1.0–1.4)	1.1 (0.9–1.2)	↓	–210
Fracture*	1.1 (1.0–1.2)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	1.0 (1.0–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (1.0–1.1)	—	—
Tonsillitis*	1.5 (1.3–1.6)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.1 (1.0–1.3)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (0.9–1.2)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	↓	–520
Atrial fibrillation/flutter	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	↑	+410
Menopausal complaint	1.5 (1.4–1.6)	1.4 (1.2–1.5)	1.4 (1.3–1.5)	1.4 (1.3–1.5)	1.5 (1.3–1.6)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.9 (0.8–0.9)	0.9 (0.8–1.0)	↓	–630
Osteoporosis	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	↑	+410

(continued)

Table 7.11 (continued): Most frequently managed problems, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Allergic rhinitis	1.0 (0.9–1.1)	1.1 (0.9–1.2)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.6 (0.5–0.7)	0.7 (0.6–0.8)	0.7 (0.6–0.9)	0.6 (0.5–0.7)	0.5 (0.5–0.6)	↓	–520
Pre-postnatal check-up*	1.0 (0.9–1.2)	1.1 (1.0–1.3)	0.7 (0.6–0.9)	0.7 (0.6–0.9)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.4 (0.3–0.5)	↓	–620
Total problems	145.3 (143.5–147.2)	146.7 (144.9–148.6)	144.5 (142.8–146.3)	143.4 (141.7–145.2)	144.9 (143.0–146.8)	146.3 (144.4–148.2)	145.5 (143.6–147.4)	146.2 (144.2–148.2)	148.5 (146.4–150.6)	—	—

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national change and are reported in thousands in the far right column.

* Includes multiple ICPC–2 or ICPC–2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; NOS—not otherwise specified. Labels in *italics* indicate that the results reported for that row are a subset, for example, *osteoarthritis* (*italics*) is a subset of arthritis—all. This table includes individual problems which were managed at ≥ 1.0 per 100 encounters in any year, and any other statistically significant differences of interest.

Most common new problems

Table 7.12 shows the most frequently managed new problems between 1998–99 and 2006–07. The changes are similar to those noted in Table 7.11. Briefly, there were significant increases in the management rates of general check-up and test results, and a marginal increase in the management of new cases of urinary tract infections; and significant decreases in the management rates of new cases of acute bronchitis/bronchiolitis, acute otitis media/myringitis and otitis externa, and a marginal decrease in the management rate of tonsillitis over the 9 years of the study.

Most frequently managed chronic problems

Table 7.13 shows the most frequently managed chronic problems between 1998–99 and 2006–07. The changes are similar to those noted in Table 7.11. Briefly, there were significant increases in the management rates of hypertension, diabetes, oesophageal disease, malignant skin neoplasm, atrial fibrillation, osteoporosis and hypothyroidism, and marginal increases in the management rates of obesity and dementia from 1998–99 to 2006–07.

Over the same period there were significant decreases in the management rates of asthma and migraine, and a marginal decrease in the management of heart failure. The management rate of chronic arthritis (excluding osteoarthritis and rheumatoid arthritis) decreased. In contrast, the management rate of osteoarthritis showed a marginal increase (95% confidence intervals touching) (Table 7.13).

The management rate of malignant neoplasm of the prostate is interesting. Its management rate had two peaks at 0.8 per 100 encounters in 2000–01 and in 2002–03, significantly higher than in all other years when it was 0.2–0.3 per 100 encounters (Table 7.13).

Table 7.12: Most frequently managed new problems, summary of annual results, BEACH, 1998–99 to 2006–07

New problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Upper respiratory tract infection	5.0 (4.7–5.4)	4.5 (4.1–4.9)	4.4 (4.1–4.8)	4.7 (4.4–5.1)	5.1 (4.7–5.5)	4.2 (3.8–4.5)	4.3 (4.0–4.6)	4.8 (4.4–5.2)	4.4 (4.1–4.8)	—	—
Immunisation/ vaccination—all*	2.9 (2.6–3.3)	1.3 (1.1–1.5)	1.5 (1.3–1.8)	2.7 (2.4–3.0)	2.9 (2.6–3.2)	2.9 (2.6–3.3)	2.7 (2.4–3.1)	2.7 (2.5–3.0)	2.8 (2.5–3.1)	—	—
Acute bronchitis/ bronchiolitis	2.1 (1.9–2.3)	1.7 (1.6–1.9)	1.6 (1.5–1.7)	1.9 (1.7–2.0)	1.9 (1.7–2.1)	1.8 (1.6–1.9)	1.7 (1.5–1.9)	1.9 (1.7–2.1)	1.6 (1.5–1.7)	↓	–530
Gastroenteritis*	1.3 (1.1–1.4)	1.0 (0.9–1.2)	1.1 (1.0–1.2)	1.2 (1.1–1.4)	1.3 (1.2–1.5)	1.3 (1.2–1.5)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	—	—
General check-up*	0.7 (0.6–0.7)	0.5 (0.4–0.5)	0.4 (0.3–0.5)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.0 (0.8–1.1)	1.2 (1.1–1.3)	↑	+510
Urinary tract infection*	0.9 (0.9–1.0)	0.8 (0.8–0.9)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	1.1 (1.0–1.1)	1.1 (1.0–1.1)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	↑	+200
Sprain/strain*	1.1 (0.9–1.2)	0.9 (0.8–1.0)	1.1 (0.9–1.2)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.0)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	0.9 (0.8–1.0)	—	—
Sinusitis acute/chronic	1.0 (0.8–1.1)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.7 (0.7–0.8)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	—	—
Acute otitis media/ myringitis	1.2 (1.1–1.3)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	1.0 (0.9–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.8–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	↓	–420
Tonsillitis*	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.8 (0.7–0.9)	↓	–210
Viral disease, other/NOS	0.9 (0.8–1.0)	1.0 (0.8–1.1)	1.1 (0.9–1.2)	1.0 (0.9–1.2)	1.1 (0.9–1.2)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	—	—
Test results*	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.5)	0.4 (0.4–0.5)	↑	+310

(continued)

Table 7.12 (continued): Most frequently managed new problems, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
New problem managed											
Skin disease, other	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.3)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	↑	+100
Otitis externa	0.5 (0.5–0.6)	0.4 (0.3–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	↓	–110
Total new problems	54.5 (53.0–56.0)	45.3 (43.6–46.9)	47.4 (45.7–49.0)	55.1 (53.8–56.5)	57.0 (55.6–58.3)	55.9 (54.5–57.3)	55.2 (53.8–56.5)	56.9 (55.5–58.2)	56.5 (55.1–57.9)	—	—

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national change and are reported in thousands in the far right column.

* Includes multiple ICPC–2 or ICPC–2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; NOS—not otherwise specified. This table includes individual new problems which were managed at ≥ 1.0 per 100 encounters in any year, and any other statistically significant differences of interest.

Table 7.13: Most frequently managed chronic problems, summary of annual results, BEACH, 1998–99 to 2006–07

Chronic problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Hypertension (non-gestational)**	8.2 (7.8–8.7)	8.4 (7.9–8.9)	8.6 (8.1–9.1)	9.0 (8.5–9.5)	8.8 (8.3–9.3)	9.2 (8.7–9.7)	8.9 (8.4–9.4)	9.4 (8.9–10.0)	9.5 (9.0–10.0)	↑	+1,280
Diabetes (non-gestational)**	2.6 (2.4–2.7)	2.7 (2.5–2.9)	2.8 (2.6–3.0)	3.1 (2.9–3.3)	2.9 (2.7–3.1)	3.3 (3.1–3.5)	3.2 (3.0–3.4)	3.5 (3.3–3.8)	3.7 (3.5–3.9)	↑	+1,110
Depressive disorder	3.5 (3.3–3.7)	3.4 (3.2–3.6)	3.6 (3.4–3.9)	3.4 (3.2–3.6)	3.5 (3.3–3.7)	3.6 (3.4–3.8)	3.7 (3.5–3.9)	3.6 (3.4–3.8)	3.7 (3.5–3.9)	—	—
Lipid disorders*	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.9 (2.7–3.1)	2.9 (2.7–3.1)	3.0 (2.8–3.2)	3.1 (2.9–3.4)	3.3 (3.1–3.6)	3.4 (3.1–3.7)	3.5 (3.2–3.7)	↑	+1,010
Osteoarthritis*	2.2 (2.0–2.4)	2.2 (2.1–2.4)	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.6 (2.4–2.7)	2.8 (2.6–3.0)	2.8 (2.6–3.0)	2.7 (2.5–2.9)	2.6 (2.4–2.8)	↑	+400
Oesophageal disease	1.5 (1.4–1.6)	1.6 (1.5–1.8)	1.5 (1.4–1.6)	1.8 (1.7–2.0)	1.9 (1.8–2.1)	2.2 (2.0–2.4)	2.1 (2.0–2.3)	2.4 (2.2–2.5)	2.3 (2.1–2.5)	↑	+810
Asthma	3.2 (3.0–3.4)	3.2 (3.0–3.4)	2.8 (2.7–3.0)	2.8 (2.7–3.0)	2.7 (2.6–2.9)	2.6 (2.4–2.7)	2.3 (2.2–2.5)	2.3 (2.1–2.4)	2.3 (2.1–2.4)	↓	–950
Ischaemic heart disease*	1.5 (1.4–1.7)	1.6 (1.4–1.7)	1.3 (1.2–1.4)	1.3 (1.1–1.4)	1.2 (1.1–1.3)	1.4 (1.2–1.5)	1.2 (1.1–1.3)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	§	—
Malignant neoplasm skin	0.8 (0.8–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.7–1.0)	0.8 (0.7–0.9)	1.1 (0.9–1.3)	1.2 (1.0–1.4)	1.0 (0.9–1.1)	1.1 (1.0–1.3)	↑	+300
Atrial fibrillation/flutter	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	↑	+410
Osteoporosis	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	↑	+410
Back complaint*	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.1)	0.9 (0.8–1.0)	0.9 (0.8–0.9)	—	—
Chronic obstructive pulmonary disease	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.8 (0.8–0.9)	—	—

(continued)

Table 7.13 (continued): Most frequently managed chronic problems, summary of annual results, BEACH, 1998–99 to 2006–07

Chronic problem managed	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
Obesity (BMI > 30)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.6 (0.6–0.7)	0.8 (0.6–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.6 (0.5–0.6)	0.8 (0.6–0.9)	↑	+300
Heart failure	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.7 (0.6–0.7)	0.7 (0.6–0.8)	0.7 (0.7–0.8)	0.7 (0.7–0.8)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	↓	–210
Migraine	0.9 (0.9–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.8–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.7)	↓	–210
Hypothyroidism/ myxoedema	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.6–0.7)	0.7 (0.6–0.7)	0.6 (0.6–0.7)	↑	+100
Gout	0.6 (0.6–0.7)	0.6 (0.5–0.7)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	—	—
Arthritis (excl osteoarthritis and rheumatoid arthritis)**	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.7 (0.7–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	↓	–210
Shoulder syndrome	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.4–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	—	—
Anxiety disorder	0.4 (0.3–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.5 (0.4–0.5)	—	—
Rheumatoid arthritis	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.5 (0.5–0.6)	0.5 (0.4–0.5)	—	—
Dementia	0.4 (0.3–0.4)	0.4 (0.3–0.5)	0.3 (0.2–0.4)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.5 (0.4–0.6)	0.5 (0.3–0.6)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	↑	+100
Malignant neoplasm prostate	0.2 (0.2–0.3)	0.2 (0.2–0.2)	0.8 (0.7–0.9)	0.2 (0.1–0.2)	0.8 (0.7–0.9)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	§	—
Total chronic problems	46.5 (44.9–48.0)	47.6 (45.9–49.3)	47.3 (45.8–48.9)	48.4 (46.9–49.9)	48.2 (46.5–49.8)	50.8 (49.0–52.5)	50.8 (49.1–52.5)	50.9 (49.1–52.8)	52.1 (50.4–53.7)	↑	+5,430

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national change and are reported in thousands in the far right column.

* Includes multiple ICP–2 or ICP–2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

** 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 5 <www.aihw.gov.au/publications/index.cfm> for codes included in analysis of chronic conditions).

Note: CI—confidence interval; excl—excluding. This table includes individual chronic problems which were managed at > 0.5 per 100 encounters in any year, and any other statistically significant differences of interest.

8 Overview of management

8.1 Annual results, 2006–07

The BEACH survey form allowed GPs to record several aspects of patient management for each problem managed at each encounter. Pharmaceutical management is recorded in detail. Other modes of treatment, including clinical treatments (for example counselling) and procedures recorded briefly in the GP's own words, are also related to a single problem. Provision is made on the form for referrals and hospital admissions, and for pathology and imaging test orders, to be related to a single or multiple problems (see Appendix 1).

At the 91,805 recorded encounters, GPs undertook 193,591 management activities in total.

- The most common management form was medication, either prescribed, GP-supplied, or advised for over-the-counter purchase.
- 'Other treatments' were the second most common management activity, with clinical treatments occurring more frequently than procedural treatments (Table 8.1).

For an 'average' 100 GP–patient encounters, GPs provided 83 prescriptions, 30 clinical treatments and 15 procedures, made 8 referrals to specialists and 3 to allied health services, and placed 42 pathology test orders and 9 imaging test orders.

Table 8.1: Summary of management, 2006–07

Management type	Number	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL	Rate per 100 problems (n = 136,333)	95% LCL	95% UCL
Medications	93,193	101.5	99.2	103.9	68.4	67.0	69.7
Prescribed	76,430	83.3	81.0	85.5	56.1	54.7	57.4
GP-supplied	8,160	8.9	8.2	9.6	6.0	5.5	6.5
Advised OTC	8,604	9.4	8.7	10.1	6.3	5.8	6.8
Other treatments	41,011	44.7	42.3	47.0	30.1	28.6	31.5
Clinical	27,084	29.5	27.6	31.4	19.9	18.7	21.1
Procedural	13,927	15.2	14.4	16.0	10.2	9.7	10.7
Referrals	11,224	12.2	11.7	12.7	8.2	7.9	8.5
Specialist	7,387	8.0	7.7	8.4	5.4	5.2	5.7
Allied health	2,819	3.1	2.9	3.3	2.1	1.9	2.2
Hospital	366	0.4	0.3	0.5	0.3	0.2	0.3
Emergency dept	149	0.2	0.1	0.2	0.1	0.1	0.1
Other medical services	89	0.1	0.1	0.1	0.1	0.0	0.1
Other referral	413	0.4	0.4	0.5	0.3	0.3	0.3
Pathology	38,963	42.4	40.7	44.2	28.6	27.5	29.6
Imaging	8,229	9.0	8.6	9.3	6.0	5.8	6.3
Other investigations	971	1.1	1.0	1.2	0.7	0.6	0.8
Total management activities	193,591	210.9	—	—	142.0	—	—

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

Another perspective emerges in analysis of the number of encounters or problems for which at least one form of management was recorded by the GP (Table 8.2). At least one management action was recorded at 90.4% of encounters and for 85.3% of problems managed.

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

Table 8.2: Encounters and problems for which management was recorded, 2006–07

Management type	Number of encounters	Per cent of total encounters ^(a) (n = 91,805)	Number of problems	Per cent of total problems ^(a) (n = 136,333)
At least one management type	82,983	90.4	116,261	85.3
At least one medication or other treatment	73,396	79.9	97,845	71.8
At least one medication	58,699	63.9	74,288	54.5
At least one prescription	49,700	54.1	62,136	45.6
At least one GP-supplied	6,237	6.8	6,429	4.7
At least one OTC advised	7,680	8.4	7,850	5.8
At least one other treatment	32,423	35.3	36,785	27.0
At least one clinical treatment	21,890	23.8	24,564	18.0
At least one procedural treatment	12,684	13.8	13,141	9.6
At least one referral	10,541	11.5	11,277	8.3
At least one referral to a specialist	7,068	7.7	7,508	5.5
At least one referral to allied health	2,713	3.0	2,831	2.1
At least one referral to hospital	366	0.4	387	0.3
At least one referral to emergency department	149	0.2	152	0.1
At least one referral to other medical services	89	0.1	93	0.1
At least one referral NOS	413	0.4	429	0.3
At least one investigation	21,595	23.5	24,869	18.2
At least one pathology order	15,939	17.4	18,296	13.4
At least one imaging order	7,210	7.9	7,459	5.5
At least one other investigation	929	1.0	945	0.7

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

Note: OTC—over-the-counter; NOS—not otherwise specified.

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

- as a single component for almost two-thirds of the problems managed
- as a double component for 17% of problems managed
- rarely with more than two components.

Table 8.3 lists the most common management combinations. Medication alone was the most common management, followed by the combination of a medication and a clinical treatment. When a problem was referred to another health professional it was most likely that no other treatments were given for the problem at the encounter. This situation also applied to pathology testing.

Table 8.3: Most common management combinations, 2006–07

1+ medication	1+ clinical treatment	1+ procedural treatment	1+ referral	1+ imaging order	1+ pathology order	Per cent of total encounters (n = 91,805)	Per cent of total problems (n = 136,333)
No recorded management						9.6	14.7
1+ management recorded						90.4	85.3
✓						33.4	38.4
✓	✓					9.0	5.5
	✓					6.4	8.7
✓					✓	4.9	3.3
		✓				3.9	4.5
✓		✓				3.9	2.3
			✓			3.4	4.5
					✓	3.3	5.3
✓			✓			2.9	1.4
				✓		1.9	2.3
✓				✓		1.8	1.0
✓	✓				✓	1.5	0.5
		✓			✓	1.2	1.1
	✓				✓	1.2	1.0
✓	✓	✓				0.9	0.2
✓		✓			✓	0.9	0.3
	✓		✓			0.9	0.7
✓	✓		✓			0.9	0.3
				✓	✓	0.7	0.5
	✓	✓				0.5	0.3
✓				✓	✓	0.5	0.2

Note: 1+—at least one specified management type.

8.2 Changes over time, 1998–99 to 2006–07

Since BEACH began in 1998–99 some trends have emerged in the management of patients' problems (Table 8.4). Most noticeably, over the 9 years of the study:

- The rate of medications prescribed, supplied or advised for over-the-counter purchase has significantly decreased, from 109.7 per 100 encounters in 1998–99 to 101.5 per 100 encounters in 2006–07.
- The above reduction is a direct result of a significant decrease in the rate of prescribed medications, from 93.6 per 100 encounters in 1998–99 to 83.3 per 100 in 2006–07.
- An interesting trend was observed in the rate of other treatments, which rose steadily from 43.2 per 100 encounters in 1998–99 to 54.7 per 100 in 2004–05, but then dropped to 43.6 per 100 in 2005–06 and 44.7 per 100 in 2006–07.
- A similar decrease was observed in the rate of clinical treatments. These rose repeatedly over 6 years, from 31.4 per 100 encounters in 1998–99 to 39.2 per 100 in 2004–05, and then decreased sharply to 29.2 per 100 in 2005–06 and 29.5 per 100 in 2006–07.
- There has been an increase in the rate of procedural treatments undertaken in general practice, from 11.8 per 100 encounters in 1998–99 to 15.2 per 100 encounters in 2006–07.
- The rate of referrals has significantly increased, from 11.1 to 12.2 per 100 encounters between 1998–99 and 2006–07.
- The increased referral rate is directly related to a significant increase in the rate of referrals to specialists, from 7.4 per 100 encounters in 1998–99 to 8.0 per 100 in 2006–07.
- Since 2000–01, the rate of pathology tests ordered has significantly increased by 42%, from 29.7 orders per 100 encounters to 42.4 per 100 encounters in 2006–07.
- There has also been a significant increase in the rate of imaging tests ordered, from 7.7 per 100 encounters in 2000–01 to 9.0 per 100 in 2006–07, and in the rate of other investigations, from 0.6 per 100 in 2000–01 to 1.1 per 100 encounters in 2006–07.

Similar changes can be observed in each of these areas, for the percentages of encounters where at least one management type was provided (Table 8.5). This reflects a change in the likelihood of each action when an encounter occurs.

- There was a decrease in the proportion of encounters where at least one management was provided, resulting in an overall reduction from 91.9% in 1998–99 to 90.4% in 2006–07, but this change only became statistically significant in the most recent 12 months. There were years where the proportion was not significantly different from the most recent result, for example 2002–03 (91.3%) and 2003–04 (91.5%).
- There was a significant reduction in the proportion of encounters where at least one medication or other management was provided, from 83.7% in 1998–99 to 79.9% in 2006–07. A major contributor to this reduction was the decrease in the provision of medications, from 68.7% in 1998–99 to 63.9% in 2006–07, particularly prescribed medications, which decreased from 60.1% to 54.1% over this time. The reduction in the proportion of encounters where at least one prescription was given reflects the reduction in the rate of prescribed medications reported above and shown in Table 8.4.
- While there was an overall decrease in the proportion of encounters where at least one medication was recorded and the proportion where at least one medication was prescribed, there was an increase in the proportion of encounters where at least one GP-supplied medication was reported, from 5.6% in 1998–99 to 6.8% in 2006–07.

- As with the rate of other treatments and clinical treatments, which increased over 6 years and then suddenly decreased in 2005–06 and 2006–07, the proportion of encounters with at least one other (non-pharmacological) treatment and at least one clinical treatment also followed the same pattern. The likelihood of other treatments increased from 34.5% of encounters in 1998–99 to 41.2% in 2004–05 and then decreased in 2005–06 to 35.1% and to 35.3% in 2006–07. For clinical treatments, the proportion increased from 25.5% in 1998–99 to 30.5% in 2004–05 and then decreased to 24.0% and 23.8% in 2005–06 and 2006–07 respectively.
- Unlike the rates or likelihood of clinical or other treatments, the likelihood of encounters with at least one procedural treatment being provided at the encounter continually and significantly increased from 10.8% in 1998–99 to 13.8% in 2006–07.
- There was an increasing trend that reached marginal statistical significance (confidence intervals touched but did not overlap) in the likelihood of referral at the encounters (from 10.6% in 1998–99 to 11.5% in 2006–07), particularly in referrals to specialists (from 7.1% in 1998–99 to 7.7% in 2006–07) and referrals to emergency departments. There was a significant increase in the likelihood of the patient receiving ‘other’ referrals (including referrals to other medical services). In contrast, the proportion of encounters with at least one referral to hospital decreased significantly, from 0.7% in 1998–99 to 0.4% in 2006–07.
- Reflecting the increase in the rates of pathology and imaging tests ordered per 100 encounters shown in Table 8.4, there was an increase in the likelihood of the GP ordering at least one investigation, from 18.1% in 1998–99 to 23.5% in 2006–07. In 1998–99 the proportion of encounters where at least one pathology test was ordered was 13.2%, and the proportion with at least one imaging test order was 6.3%. By 2006–07 these proportions had significantly increased to 17.4% and 7.9% respectively.

Table 8.4: Summary of management, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
Medications	109.7 (107.4–112.0)	110.1 (107.8–112.4)	108.2 (105.7–110.6)	104.5 (102.2–106.9)	103.8 (101.4–106.2)	104.4 (102.1–106.7)	101.5 (99.3–103.8)	104.4 (101.8–107.0)	101.5 (99.2–103.9)	↓	–9,200
Prescribed	93.6 (91.2–96.1)	93.8 (91.5–96.2)	92.3 (89.9–94.7)	88.0 (85.6–90.4)	84.3 (81.8–86.9)	86.0 (83.6–88.5)	83.4 (81.2–85.5)	85.8 (83.3–88.4)	83.3 (81.0–85.5)	↓	–11,240
GP-supplied	7.3 (6.5–8.1)	6.9 (5.8–7.9)	6.9 (5.7–8.1)	7.6 (6.3–9.0)	9.3 (7.6–11.0)	8.6 (7.4–9.8)	8.1 (7.3–8.9)	8.8 (8.2–9.5)	8.9 (8.2–9.6)	↑	+1,590
Advised OTC	8.8 (8.1–9.5)	9.4 (8.6–10.2)	9.0 (8.1–9.8)	8.9 (8.1–9.6)	10.2 (9.2–11.1)	9.8 (9.0–10.6)	10.1 (9.1–11.0)	9.8 (9.0–10.5)	9.4 (8.7–10.1)	—	—
Other treatments	43.2 (41.3–45.1)	46.0 (44.1–47.8)	49.4 (47.1–51.7)	51.9 (49.6–54.2)	51.8 (49.3–54.3)	51.4 (48.9–53.8)	54.7 (52.1–57.3)	43.6 (41.5–45.8)	44.7 (42.3–47.0)	§	—
Clinical	31.4 (29.7–33.0)	33.5 (31.8–35.2)	37.2 (35.1–39.3)	38.1 (36.1–40.1)	37.2 (35.0–39.4)	36.6 (34.5–38.8)	39.2 (37.1–41.4)	29.2 (27.3–31.1)	29.5 (27.6–31.4)	§	—
Procedural	11.8 (11.2–12.5)	12.5 (11.9–13.0)	12.2 (11.6–12.8)	13.8 (13.1–14.5)	14.6 (13.9–15.3)	14.7 (14.0–15.5)	15.5 (14.6–16.4)	14.4 (13.7–15.1)	15.2 (14.4–16.0)	↑	+3,410
Referrals	11.1 (10.7–11.6)	11.1 (10.7–11.6)	10.4 (10.0–10.8)	10.5 (10.1–10.9)	11.1 (10.7–11.6)	11.6 (11.1–12.1)	11.5 (11.1–12.0)	12.0 (11.5–12.5)	12.2 (11.7–12.7)	↑	+1,050
Specialist	7.4 (7.1–7.7)	7.2 (6.9–7.5)	7.4 (7.0–7.7)	7.3 (7.0–7.6)	7.7 (7.3–8.0)	7.9 (7.5–8.2)	7.7 (7.4–8.0)	8.2 (7.8–8.5)	8.0 (7.7–8.4)	↑	+570
Allied health service	3.0 (2.8–3.2)	3.1 (2.9–3.3)	2.3 (2.2–2.5)	2.3 (2.1–2.4)	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.7 (2.5–2.9)	2.9 (2.7–3.1)	3.1 (2.9–3.3)	—	—
Hospital	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.3–0.5)	↓	–310
Emergency department	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	↑	+100
Other referrals/other medical services ^(b)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.2 (0.1–0.2)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.5 (0.5–0.6)	↑	+510

(continued)

Table 8.4 (continued): Summary of management, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)	↓	
Pathology ^(c)	NAv	NAv	29.7 (28.4–30.9)	31.0 (29.7–32.4)	32.9 (31.5–34.4)	35.2 (33.7–36.7)	36.7 (35.2–38.2)	38.6 (36.9–40.3)	42.4 (40.7–44.2)	↑	+13,530
Imaging ^(c)	NAv	NAv	7.7 (7.3–8.0)	7.9 (7.6–8.2)	8.6 (8.2–9.0)	8.2 (7.8–8.6)	8.3 (8.0–8.6)	8.8 (8.4–9.2)	9.0 (8.6–9.3)	↑	+1,460
Other investigations ^(c)	NAv	NAv	0.6 (0.5–0.7)	0.9 (0.8–1.0)	1.0 (0.8–1.2)	1.0 (0.9–1.2)	1.1 (0.9–1.3)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	↑	+520

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

(b) Other referrals and other medical services have been grouped for comparability. In the first 2 years 'other medical services' and 'other referrals' were grouped and reported together.

(c) In the third year of BEACH the data collection and data coding system for pathology, imaging and other investigations changed. Data from 1998–99 and 1999–00 are not comparable to those from 2000–01 onward.

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

Note: CI—confidence interval; NAv—not available; OTC—over-the-counter.

Table 8.5: Encounters and problems for which at least one management was recorded

At least one...	Per cent of encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Management type	91.9 (91.5–92.4)	92.2 (91.7–92.7)	91.6 (91.0–92.2)	91.8 (91.3–92.3)	91.3 (90.6–92.0)	91.5 (90.9–92.0)	91.9 (91.3–92.5)	91.2 (90.6–91.8)	90.4 (89.8–91.0)	↓	–2,190
Medication or other treatment	83.7 (83.1–84.3)	83.8 (83.1–84.5)	83.5 (82.7–84.2)	83.2 (82.5–84.0)	82.5 (81.6–83.3)	82.3 (81.5–83.1)	82.4 (81.6–83.2)	81.4 (80.6–82.1)	79.9 (79.1–80.8)	↓	–4,490
Medication	68.7 (67.9–69.5)	68.5 (67.6–69.3)	68.0 (67.1–68.9)	66.6 (65.7–67.5)	65.8 (64.9–66.8)	65.6 (64.7–66.5)	64.3 (63.4–65.2)	65.2 (64.3–66.2)	63.9 (63.0–64.9)	↓	–5,420
Prescription	60.1 (59.1–61.1)	60.1 (59.1–61.1)	59.8 (58.7–60.8)	57.4 (56.4–58.5)	54.9 (53.7–56.1)	55.7 (54.6–56.9)	54.8 (53.8–55.8)	55.6 (54.5–56.6)	54.1 (53.2–55.1)	↓	–6,590
GP-supplied	5.6 (5.0–6.2)	5.1 (4.5–5.6)	5.1 (4.5–5.7)	5.8 (5.1–6.5)	6.8 (6.0–7.7)	6.5 (5.8–7.3)	6.2 (5.7–6.7)	6.4 (6.0–6.9)	6.8 (6.3–7.3)	↑	+1,190
OTC advised	7.9 (7.3–8.5)	8.3 (7.7–8.9)	8.0 (7.3–8.6)	8.0 (7.4–8.6)	9.0 (8.3–9.8)	8.7 (8.0–9.3)	8.7 (8.1–9.4)	8.6 (8.0–9.2)	8.4 (7.8–8.9)	—	—
Other treatment	34.5 (33.2–35.7)	36.2 (35.0–37.4)	37.6 (36.2–39.1)	39.5 (38.1–41.0)	39.4 (37.8–40.9)	39.3 (37.8–40.8)	41.2 (39.7–42.8)	35.1 (33.7–36.6)	35.3 (33.8–36.9)	§	—
Clinical treatment	25.5 (24.4–26.7)	27.0 (25.8–28.2)	29.0 (27.6–30.3)	29.7 (28.4–31.1)	29.2 (27.7–30.6)	28.9 (27.4–30.3)	30.5 (29.1–32.0)	24.0 (22.7–25.4)	23.8 (22.5–25.2)	§	—
Procedural treatment	10.8 (10.3–11.3)	11.4 (11.0–11.9)	11.1 (10.6–11.7)	12.7 (12.0–13.3)	13.2 (12.6–13.8)	13.3 (12.7–13.9)	13.8 (13.1–14.6)	13.2 (12.6–13.8)	13.8 (13.2–14.5)	↑	+3,010
Referral	10.6 (10.2–11.0)	10.4 (10.0–10.8)	9.9 (9.6–10.3)	10.0 (9.6–10.4)	10.6 (10.2–11.0)	11.0 (10.5–11.5)	10.9 (10.5–11.3)	11.3 (10.9–11.8)	11.5 (11.0–11.9)	↑	+850
Specialist	7.1 (6.8–7.4)	6.9 (6.6–7.2)	7.1 (6.8–7.4)	7.0 (6.7–7.3)	7.4 (7.0–7.7)	7.6 (7.3–8.0)	7.5 (7.2–7.8)	7.9 (7.5–8.2)	7.7 (7.4–8.0)	↑	+570
Allied health	2.9 (2.8–3.1)	3.0 (2.8–3.2)	2.3 (2.1–2.4)	2.2 (2.1–2.4)	2.4 (2.2–2.6)	2.5 (2.3–2.7)	2.6 (2.5–2.8)	2.8 (2.6–3.0)	3.0 (2.8–3.1)	—	—
Hospital	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.3–0.5)	↓	–310

(continued)

Table 8.5 (continued): Encounters and problems for which at least one management was recorded

At least one...	Per cent of encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Emergency department	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	↑	+100
Other referral/other medical service ^(c)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.2 (0.1–0.2)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.5 (0.5–0.6)	↑	+510
Investigation	18.1 (17.5–18.7)	18.9 (18.3–19.5)	19.3 (18.7–19.9)	19.7 (19.1–20.3)	20.8 (20.2–21.5)	21.3 (20.7–22.0)	21.8 (21.1–22.4)	22.6 (21.9–23.3)	23.5 (22.8–24.2)	↑	+5,420
Pathology order ^(d)	13.2 (12.8–13.7)	13.8 (13.3–14.3)	13.8 (13.3–14.3)	14.0 (13.5–14.5)	14.7 (14.2–15.3)	15.5 (14.9–16.1)	15.7 (15.2–16.3)	16.4 (15.8–16.9)	17.4 (16.8–18.0)	↑	+4,230
Imaging order ^(d)	6.3 (6.0–6.6)	6.7 (6.4–7.0)	7.2 (6.9–7.5)	6.9 (6.6–7.2)	7.5 (7.1–7.8)	7.2 (6.9–7.5)	7.3 (7.0–7.6)	7.8 (7.4–8.1)	7.9 (7.6–8.2)	↑	+1,600
Other investigation ^(d)	NAv	NAv	0.6 (0.5–0.7)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	↑	+410

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

(b) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

(c) Other referrals and other medical services have been grouped for comparability. In the first 2 years 'other medical services' and 'other referrals' were grouped and reported together.

(d) While the coding system for pathology and imaging changed in the third year of BEACH, the presence or absence of a test at the encounter was still recorded. These figures are therefore comparable with data from subsequent years.

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

Note: Encs—encounters; probs—problems; OTC—over-the-counter; NAv—not available.

9 Medications

GPs could record up to four medications for each of four problems – a maximum of 16 medications per encounter. Each medication could be recorded as prescribed (the default), supplied by the GP or recommended for over-the-counter (OTC) purchase.

- GPs were asked to:
 - enter the generic or brand name, the strength, regimen and number of repeats ordered for each medication
 - designate this as a new or continued medication for that patient for this problem.
- Generic or brand names were entered into the database in the form recorded by the GP.
- Medications were coded using the Coding Atlas of Pharmaceutical Substances (CAPS) system (developed by the FMRC) from which they were mapped to the international Anatomical Therapeutic Chemical (ATC) classification (see Chapter 2).³¹
- Results are reported in this chapter at drug group, subgroup and generic level using ATC levels 1, 3 and 5. Individual medications are also reported at the CAPS generic level (ATC Level 5 equivalent).

9.1 Annual results, 2006–07

Source of medications

A total of 93,194 medications were recorded at rates of 102 per 100 encounters and 68 per 100 problems managed (Table 8.1).

- Four out of five medications (82.0% of all medications) were prescribed.
- Less than one in 10 (8.8%) medications were supplied to the patient by the GP.
- Almost one in 10 medications (9.2%) were recommended by the GP for OTC purchase.

If these are extrapolated to the 103 million general practice Medicare-claimed encounters in Australia in 2006–07, GPs in Australia:

- prescribed medications on more than 85 million occasions
- supplied 9.1 million medications directly to the patient
- recommended medications for OTC purchase on 9.6 million occasions.

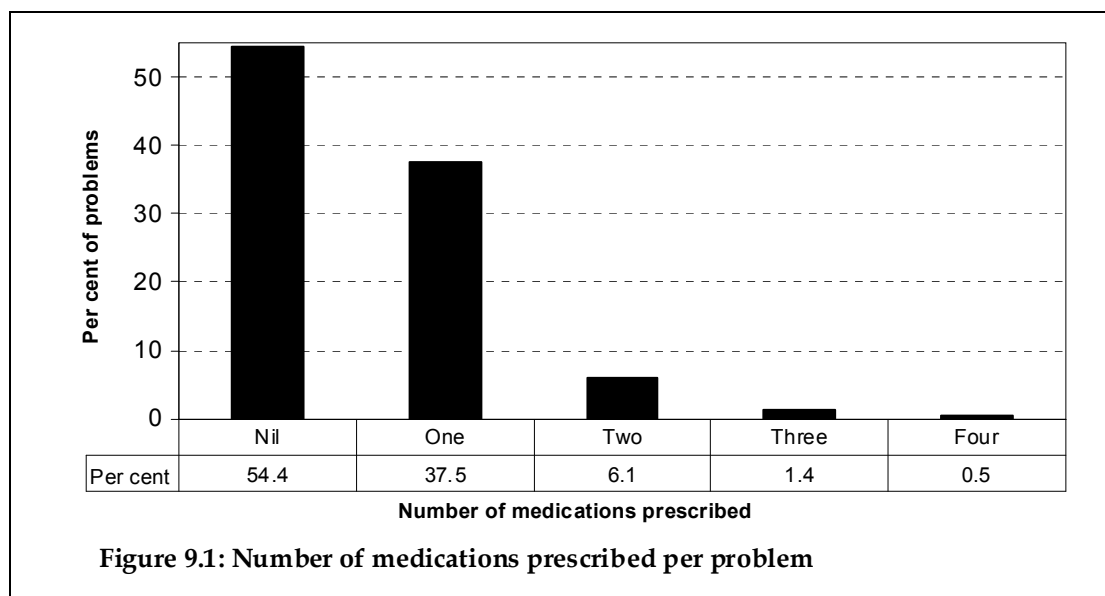
Prescribed medications

There were 76,430 prescriptions recorded, at rates of 83 per 100 encounters and 56 per 100 problems managed. GPs recorded 85.0% of prescribed medications by brand (proprietary) name and 15.0% by their generic (non-proprietary) name (results not shown).

On a per problem basis:

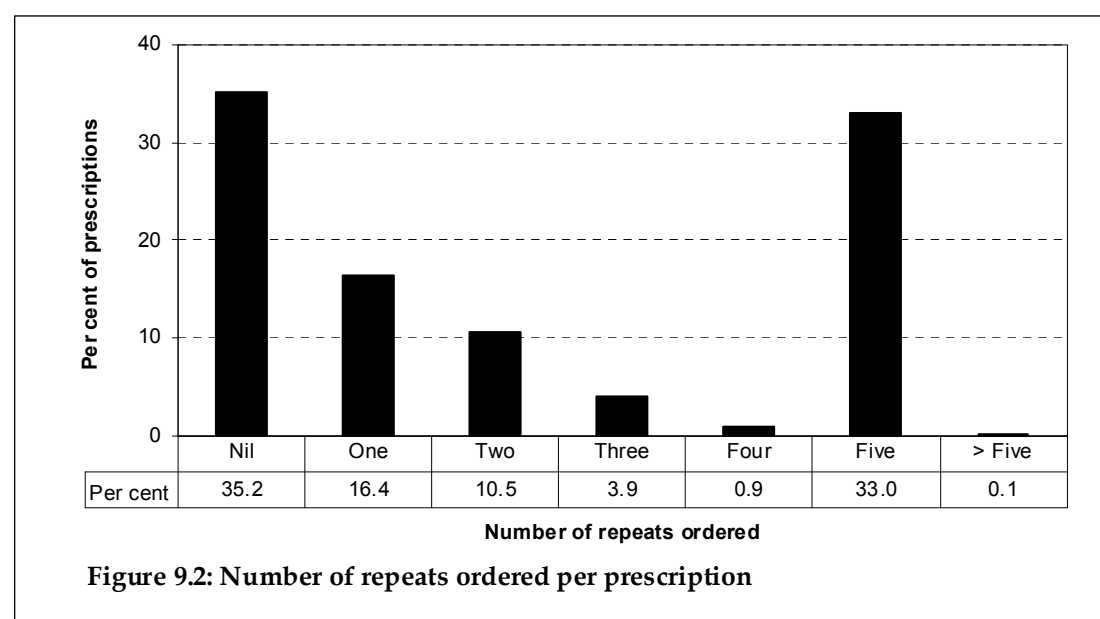
- no prescription was given for half (54.4%) of all problems managed
- one prescription was given for 37.5% of problems managed

- two prescriptions were given for 6.1% of problems managed
- three or more prescriptions were rarely given (1.9% of problems managed) (Figure 9.1).



Number of repeats

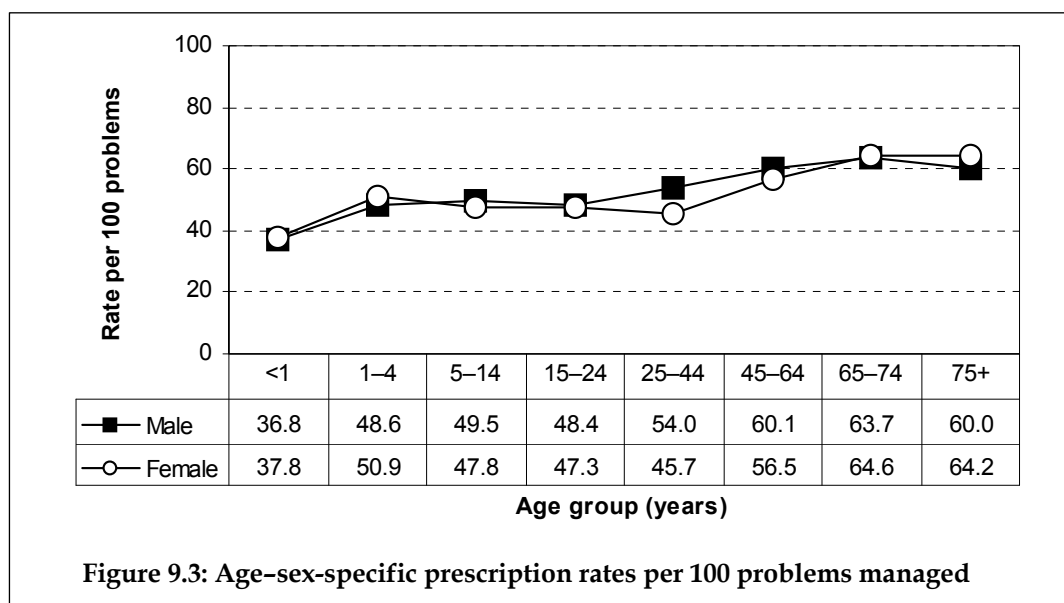
For the 58,895 prescriptions for which the GPs recorded 'number of repeats', the distribution of the specified number of repeats (from nil to more than five) is provided in Figure 9.2. For 35.2% of these prescriptions, the GP specified that no repeats had been prescribed, and for 33.0% five repeats were ordered. The latter proportion reflects the PBS's provision of one month's supply and five repeats for many medications used for chronic conditions such as hypertension. The ordering of one or two repeats (16.4% and 10.5%) was also quite common.



Age-sex-specific rates of prescribed medications

Age-sex-specific analysis found similar prescription rates per 100 encounters for males and females (73.1 and 74.9 respectively). It also showed the well-described tendency for the number of prescriptions written at each encounter to rise with the advancing age of the patient, with a rate of about 54 per 100 encounters with patients aged less than 25 years rising to over 100 per 100 encounters for patients aged 65 years or more (results not shown).

Figure 9.3, however, demonstrates that the age-based increase lessens if the prescription rate is related to problems. This suggests that the increased prescription rate in older patients is largely accounted for by the increased number of health problems they have managed at an encounter.



Types of medications prescribed

Table 9.1 shows the distribution of prescribed medications using the WHO ATC classification.³¹ This allows comparison with other data sources such as those produced by Medicare Australia for PBS data. The table lists medications in frequency order within ATC Levels 1, 3 and 5. Prescriptions are presented as a percentage of total prescriptions and as a rate per 100 encounters with 95% confidence intervals.

Table 9.1: Distribution of prescribed medications, by ATC Levels 1, 3 and 5, 2006–07

ATC Level 1	ATC Level 3	ATC Level 5	Number	Per cent of scripts (n = 76,430)	Rate per 100 encs ^(a) (n = 91,805)	95% LCL	95% UCL
Nervous system			16,623	21.8	18.1	17.3	18.9
	Other analgesics and antipyretics		4,936	6.5	5.4	5.0	5.7
		Paracetamol	2,363	3.1	2.6	2.3	2.8
		Paracetamol, combinations excl psycholeptics	1,912	2.5	2.1	1.9	2.2
		Acetylsalicylic acid	652	0.9	0.7	0.6	0.8
	Antidepressants		3,103	4.1	3.4	3.23	3.6
		Sertraline	598	0.8	0.7	0.6	0.7
		Venlafaxine	481	0.6	0.5	0.5	0.6
	Opioids		2,711	3.6	3.0	2.7	3.2
		Tramadol	848	1.1	0.9	0.8	1.0
		Oxycodone	819	1.1	0.9	0.8	1.0
		Morphine	414	0.5	0.5	0.4	0.5
	Anxiolytics		1,831	2.4	2.0	1.8	2.2
		Diazepam	1,005	1.3	1.1	1.0	1.2
		Oxazepam	575	0.8	0.6	0.5	0.7
	Hypnotics and sedatives		1,669	2.2	1.8	1.7	2.0
		Temazepam	1,017	1.3	1.1	1.0	1.2
	Antipsychotics		947	1.2	1.0	0.9	1.1
		Prochlorperazine	483	0.6	0.5	0.5	0.6
	Anti-epileptics		561	0.7	0.6	0.5	0.7
Anti-infectives for systemic use			14,843	19.4	16.2	15.6	16.8
	Beta-lactam antibacterials, penicillins		5,604	7.3	6.1	5.7	6.5
		Amoxycillin	3,041	4.0	3.3	3.0	3.6
		Amoxycillin and enzyme inhibitor	1,558	2.0	1.7	1.5	1.9
	Other beta-lactam antibacterials		2,915	3.8	6.2	3.0	3.4
		Cefalexin	2,146	2.8	2.3	2.2	2.5
		Cefaclor	700	0.9	0.8	0.6	0.9
	Macrolides, lincosamides and streptogramins		2,189	2.9	2.4	2.2	2.6
		Roxithromycin	1,246	1.6	1.4	1.2	1.5
		Erythromycin	448	0.6	0.5	0.4	0.6
	Viral vaccines		942	1.2	1.0	0.9	1.2
		Influenza, inactivated, whole virus	571	0.8	0.6	0.5	0.7
	Tetracyclines		795	1.0	0.9	0.8	1.0
		Doxycycline	684	0.9	0.7	0.7	0.8
	Bacterial vaccines		465	0.6	0.5	0.4	0.6
	Sulfonamides and trimethoprim		597	0.8	0.7	0.6	0.7
		Trimethoprim	438	0.6	0.5	0.4	0.5

(continued)

Table 9.1 (continued): Distribution of prescribed medications, by ATC Levels 1, 3 and 5, 2006–07

ATC Level 1	ATC Level 3	ATC Level 5	Number	Per cent of scripts (n = 76,430)	Rate per 100 encls ^(a) (n = 91,805)	95% LCL	95% UCL
Cardiovascular system			15,124	19.8	16.5	15.6	17.4
	Lipid modifying agents, plain		3,112	4.1	3.4	3.2	3.6
		Atorvastatin	1,543	2.0	1.7	1.5	1.8
		Simvastatin	979	1.3	1.1	1.0	1.2
	ACE inhibitors, plain		2,496	3.3	2.7	2.5	2.9
		Perindopril	1,097	1.4	1.2	1.1	1.3
		Ramipril	723	1.0	0.8	0.7	0.9
	Angiotensin II antagonists, plain		1,890	2.5	2.1	1.9	2.2
		Irbesartan	927	1.2	1.0	0.9	1.1
		Candesartan	529	0.7	0.6	0.5	0.7
	Beta blocking agents		1,693	2.2	1.8	1.7	2.0
		Atenolol	872	1.1	1.0	0.8	1.1
		Metoprolol	440	0.6	0.5	0.4	0.5
	Selective calcium channel blockers with mainly vascular effects		1,493	2.0	1.6	1.5	1.8
		Amlodipine	698	0.9	0.8	0.7	0.8
	Angiotensin II antagonists, combinations		1,066	1.4	1.2	1.0	1.3
		Irbesartan and diuretics	690	0.9	0.8	0.7	0.8
	High-ceiling diuretics		575	0.8	0.6	0.6	0.7
		Furosemide	569	0.7	0.6	0.6	0.7
	Selective calcium channel blockers with direct cardiac effects		457	0.6	0.5	0.4	0.6
Alimentary tract and metabolism			6,996	9.2	7.6	7.2	8.0
	Drugs for peptic ulcer and GORD		2,719	3.6	3.0	2.8	3.1
		Esomeprazole	919	1.2	1.0	0.9	1.1
		Omeprazole	508	0.7	0.6	0.5	0.6
		Pantoprazole	451	0.6	0.5	0.4	0.6
	Oral blood glucose lowering drugs		1,875	2.5	2.0	1.8	2.2
		Metformin	1,042	1.4	1.1	1.0	1.2
		Gliclazide	458	0.6	0.5	0.4	0.6
	Propulsives		558	0.7	0.6	0.5	0.7
		Metoclopramide	479	0.6	0.5	0.5	0.6
Respiratory system			4,841	6.3	5.6	4.9	5.6
	Adrenergics, inhalants		2,493	3.3	2.7	2.5	2.9
		Salbutamol	1,254	1.6	1.4	1.3	1.5
		Salmeterol with other drugs for obstructive airway	789	1.0	0.9	0.8	0.9
	Other drugs for obstructive airway disease, inhalants		867	1.1	0.9	0.9	1.0
	Decongestants and other nasal preparations for topical use		577	0.8	0.6	0.6	0.7

(continued)

Table 9.1 (continued): Distribution of prescribed medications, by ATC Levels 1, 3 and 5, 2006–07

ATC			Per cent of	Rate per	95%	95%	
Level 1	ATC Level 3	ATC Level 5	Number	scripts (n = 76,430)	100 encs ^(a) (n = 91,805)	LCL	UCL
Musculoskeletal system			4,482	5.9	4.9	4.6	5.2
	Anti-inflammatory and antirheumatic products, non-steroids		3,323	4.4	3.6	3.4	3.9
		Diclofenac	832	1.1	0.9	0.8	1.0
		Meloxicam	675	0.9	0.7	0.7	0.8
		Celecoxib	542	0.7	0.6	0.5	0.7
	Drugs affecting bone structure and mineralisation		557	0.7	0.6	0.5	0.7
Dermatologicals			3,526	4.6	3.8	3.6	4.0
	Corticosteroids, plain		2,222	2.9	2.4	2.3	2.6
		Betamethasone	655	0.9	0.7	0.6	0.8
		Mometasone	620	0.8	0.7	0.6	0.7
Genitourinary system and sex hormones			3,216	4.2	3.5	3.2	3.8
	Hormonal contraceptives for systemic use		1,636	2.1	1.8	1.6	1.9
		Levonorgestrel and estrogen	896	1.2	1.0	0.9	1.1
	Oestrogens		556	0.7	0.6	0.5	0.7
Sensory organs			2,259	3.0	2.5	2.3	2.6
	Anti-infectives ophthalmological		969	1.3	1.1	1.0	1.1
		Chloramphenicol	904	1.2	1.0	0.9	1.1
	Corticosteroids with anti-infectives otological		558	0.7	0.6	0.5	0.7
Blood and blood-forming organs			1,894	2.5	2.1	1.9	2.2
	Antithrombotic agents		1,353	1.8	1.5	1.3	1.6
		Warfarin	951	1.2	1.0	0.9	1.2
Systemic hormonal preparations, excl sex hormones and insulins			1,919	2.5	2.1	1.9	2.3
	Corticosteroids for systemic use, plain		1,200	1.6	1.3	1.2	1.4
		Prednisolone	706	0.9	0.8	0.7	0.9
	Thyroid preparations		638	0.8	0.7	0.6	0.8
		Levothyroxine sodium	634	0.8	0.7	0.6	0.8
Antineoplastic and immunomodulating agents			378	0.5	0.4	0.3	0.5
Various			215	0.3	0.2	0.2	0.3
Antiparasitic products, insecticides and repellents			115	0.2	0.1	0.1	0.2
Total prescribed medications			76,430	100.0	83.3	81.0	85.5

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

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

Most frequently prescribed medications

The most frequently prescribed individual medications are reported at the CAPS generic level (ATC Level 5 equivalent) in Table 9.2. Together, these 30 medications accounted for 44.0% of all prescribed medications. Three of the top five medications were antibiotics, and two were plain and combination paracetamol.

Table 9.2: Most frequently prescribed medications (CAPS generic level), 2006–07

Generic medication	Number	Per cent of scripts (n = 76,430)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Amoxicillin	3,041	4.0	3.3	3.0	3.6
Paracetamol	2,363	3.1	2.6	2.3	2.9
Cephalexin	2,146	2.8	2.3	2.2	2.5
Paracetamol–codeine	1,804	2.4	2.0	1.8	2.1
Amoxicillin–potassium clavulanate	1,558	2.0	1.7	1.5	1.9
Atorvastatin	1,543	2.0	1.7	1.5	1.8
Salbutamol	1,287	1.7	1.4	1.3	1.5
Roxithromycin	1,246	1.6	1.4	1.2	1.5
Perindopril	1,097	1.4	1.2	1.1	1.3
Metformin	1,042	1.4	1.1	1.0	1.3
Temazepam	1,017	1.3	1.1	1.0	1.2
Diazepam	1,005	1.3	1.1	1.0	1.2
Simvastatin	979	1.3	1.1	1.0	1.2
Warfarin sodium	951	1.2	1.0	0.9	1.2
Irbesartan	927	1.2	1.0	0.9	1.1
Esomeprazole	919	1.2	1.0	0.9	1.1
Chloramphenicol eye	904	1.2	1.0	0.9	1.1
Levonorgestrel–ethinylloestradiol	896	1.2	1.0	0.9	1.1
Atenolol	872	1.1	1.0	0.9	1.1
Tramadol	848	1.1	0.9	0.8	1.1
Oxycodone	819	1.1	0.9	0.8	1.0
Fluticasone–salmeterol	789	1.0	0.9	0.8	0.9
Diclofenac sodium systemic	749	1.0	0.8	0.7	0.9
Ramipril	723	0.9	0.8	0.7	0.9
Cefaclor monohydrate	700	0.9	0.8	0.6	0.9
Amlodipine	698	0.9	0.8	0.7	0.8
Irbesartan–hydrochlorothiazide	690	0.9	0.8	0.7	0.8
Doxycycline	684	0.9	0.7	0.7	0.8
Meloxicam	675	0.9	0.7	0.7	0.8
Betamethasone topical	655	0.9	0.7	0.6	0.8
<i>Subtotal</i>	33,626	44.0	—	—	—
Total prescribed medications	76,430	100.0	83.3	81.0	85.5

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

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

Medications supplied by GPs

GPs supplied their patients with a total of 8,160 medications in this study, at a rate of 8.9 medications per 100 encounters. At least one medication was supplied at 6.8% of encounters for 4.7% of problems. Table 9.3 shows the most commonly supplied medications at the CAPS generic level (ATC Level 5 equivalent), with vaccines accounting for over half of this group.

Table 9.3: Medications most frequently supplied by GPs, 2006–07

Generic medication	Number	Per cent of GP-supplied (n = 8,160)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Influenza virus vaccine	1,795	22.0	2.0	1.6	2.3
Pneumococcal vaccine	390	7.2	0.6	0.6	0.7
Mumps–measles–rubella vaccine	290	3.6	0.3	0.3	0.4
Vitamin B12 (cobalamin)	250	3.1	0.3	0.2	0.3
Polio vaccine oral sabin/injection	203	2.5	0.2	0.2	0.3
ADT–CDT (diphtheria–tetanus) vaccine	196	2.4	0.2	0.2	0.3
<i>Haemophilus</i> B vaccine	179	2.2	0.2	0.2	0.2
Diphtheria–pertussis–tetanus/–polio vaccine	166	2.0	0.2	0.1	0.2
Meningitis vaccine	164	2.0	0.2	0.1	0.2
Meloxicam	137	1.7	0.2	0.1	0.2
Metoclopramide	129	1.6	0.1	0.1	0.2
Diphtheria–pertussis–tetanus–hepB–polio–Hib vaccine	126	1.5	0.1	0.1	0.2
Triple antigen (diphtheria–pertussis–tetanus)	122	1.5	0.1	0.1	0.2
Diphtheria–pertussis–tetanus–hepatitis B vaccine	122	1.5	0.1	0.1	0.2
Chickenpox (varicella zoster virus) vaccine	115	1.4	0.1	0.1	0.2
Hepatitis B vaccine	111	1.4	0.1	0.1	0.2
<i>Haemophilus</i> B–hepatitis B vaccine	103	1.3	0.1	0.1	0.2
Allergen treatment	94	1.2	0.1	0.1	0.1
Hepatitis A and B vaccine	84	1.0	0.1	0.1	0.1
Hepatitis A vaccine	82	1.0	0.1	0.1	0.1
Esomeprazole	81	1.0	0.1	0.1	0.1
Typhoid vaccine (<i>Salmonella typhi</i>)	70	0.9	0.1	0.1	0.1
Methylprednisolone	66	0.8	0.1	0.0	0.1
Medroxyprogesterone	60	0.7	0.1	0.0	0.1
Betamethasone systemic	57	0.7	0.1	0.0	0.1
Pantoprazole	57	0.7	0.1	0.0	0.1
Prochlorperazine	50	0.6	0.1	0.0	0.1
Testosterone	47	0.6	0.1	0.0	0.1
Salbutamol	47	0.6	0.1	0.0	0.1
Budesonide/eformoterol	46	0.6	0.1	0.0	0.1
<i>Subtotal</i>	5,635	69.1	—	—	—
Total medications supplied	8,160	100.0	8.9	8.2	9.6

(a) Column will not add to 100 because multiple medications could be given at each encounter and only the medications most frequently supplied by GPs are included.

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

Medications advised for over-the-counter purchase

The GPs recorded 8,604 medications as recommended for OTC purchase, at rates of 9.4 per 100 encounters and 6.3 per 100 problems managed. At least one OTC medication was recorded as advised at 8.4% of encounters and for 5.8% of problems.

Table 9.4 shows the top 30 advised medications at the CAPS generic level (ATC Level 5 equivalent). Analgesics made up almost one-third of this group.

Table 9.4: Most frequently advised over-the-counter medications, 2006–07

Generic medication	Number	Per cent of OTC (n = 8,604)	Rate per 100 encounters ^(a) (n = 91,805)	95% LCL	95% UCL
Paracetamol	2,195	25.5	2.4	2.1	2.7
Ibuprofen	490	5.7	0.5	0.5	0.6
Sodium/potassium/citric/glucose	171	2.0	0.2	0.1	0.2
Loratadine	164	1.9	0.2	0.1	0.2
Clotrimazole topical	156	1.8	0.2	0.1	0.2
Diclofenac topical	149	1.7	0.2	0.1	0.2
Aspirin	140	1.6	0.2	0.1	0.2
Sodium chloride topical nasal	139	1.6	0.2	0.1	0.2
Saline bath/solution/gargle	115	1.3	0.1	0.1	0.2
Cetirizine	112	1.3	0.1	0.1	0.2
Paracetamol–codeine	111	1.3	0.1	0.1	0.2
Glucosamine	104	1.2	0.1	0.1	0.1
Cream/ointment/lotion NEC	94	1.1	0.1	0.1	0.2
Hydrocortisone/clotrimazole	83	1.0	0.1	0.1	0.1
Fexofenadine	83	1.0	0.1	0.1	0.1
Loperamide	83	1.0	0.1	0.1	0.1
Sodium bicarbonate/citrate/tartaric acid	72	0.8	0.1	0.1	0.1
Clotrimazole vaginal	71	0.8	0.1	0.1	0.1
Hyoscine butylbromide	71	0.8	0.1	0.1	0.1
Ferrous sulphate	69	0.8	0.1	0.1	0.1
Sorbolene/glycerol/cetomac	68	0.8	0.1	0.1	0.1
Folic acid	68	0.8	0.1	0.1	0.1
Chlorpheniramine/pseudoephedrine	64	0.7	0.1	0.0	0.1
Psyllium hydrophilic mucilloid	61	0.7	0.1	0.1	0.1
Bromhexine	61	0.7	0.1	0.0	0.1
Budesonide topical nasal	59	0.7	0.1	0.0	0.1
Simple analgesic	58	0.7	0.1	0.0	0.1
Cinchocaine/hydrocortisone	58	0.7	0.1	0.0	0.1
Hydrocortisone topical	57	0.7	0.1	0.0	0.1
Brompheniramine/phenylephrine	56	0.7	0.1	0.0	0.1
<i>Subtotal</i>	5,283	61.4	—	—	—
Total medications advised	8,604	100.0	9.4	8.7	10.1

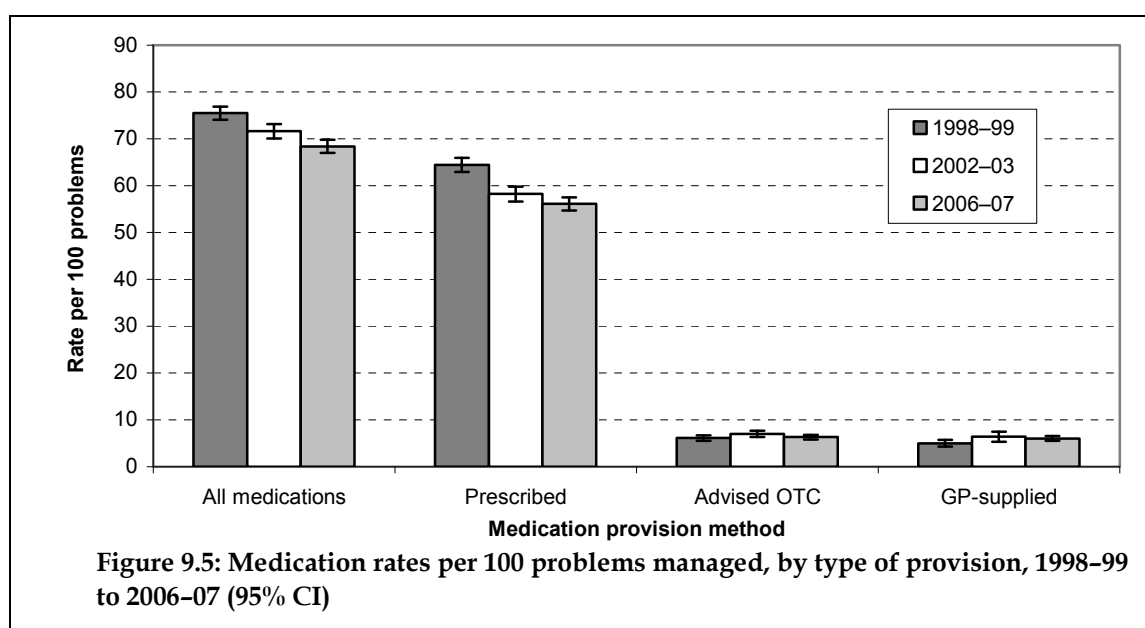
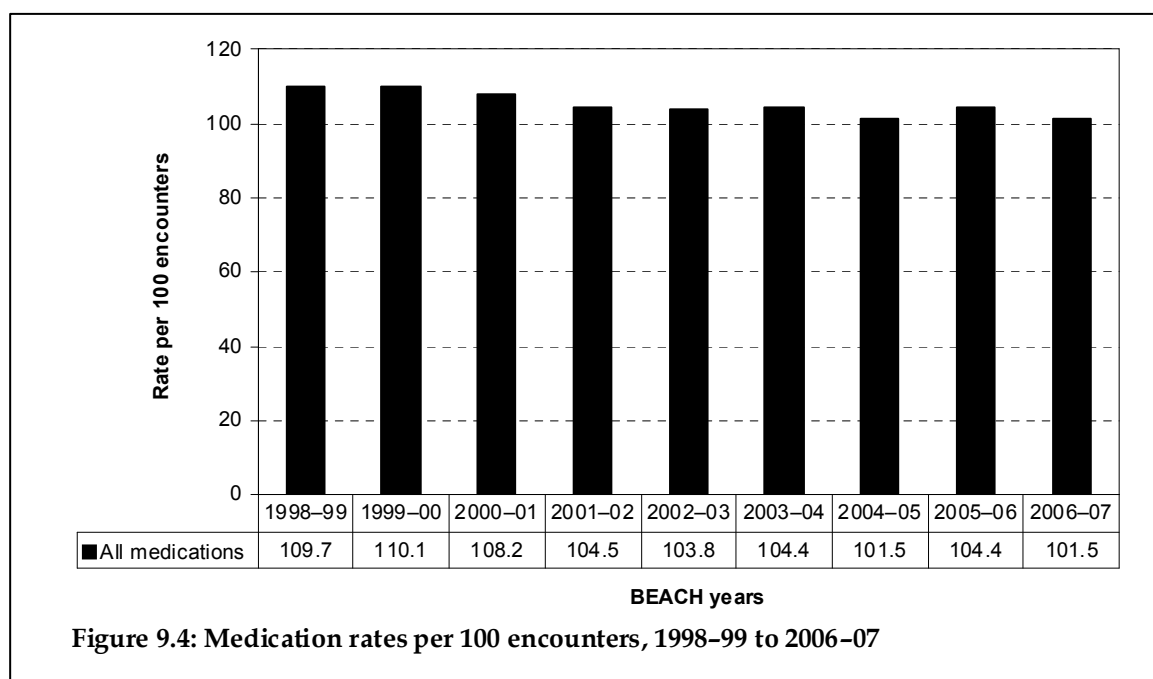
(a) Column will not add to 100 because multiple medications could be given at each encounter and only the medications most frequently advised for over-the-counter purchase are included.

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

9.2 Changes over time, 1998–99 to 2006–07

Changes in medication rates (including prescribed, GP-provided and OTC advised) demonstrate a decrease from 109.7 (95% CI: 107.4–112.0) per 100 encounters in 1998–99 to 101.5 (95% CI: 99.2–103.9) per 100 in 2006–07 (Figure 9.4 and Table 9.5).

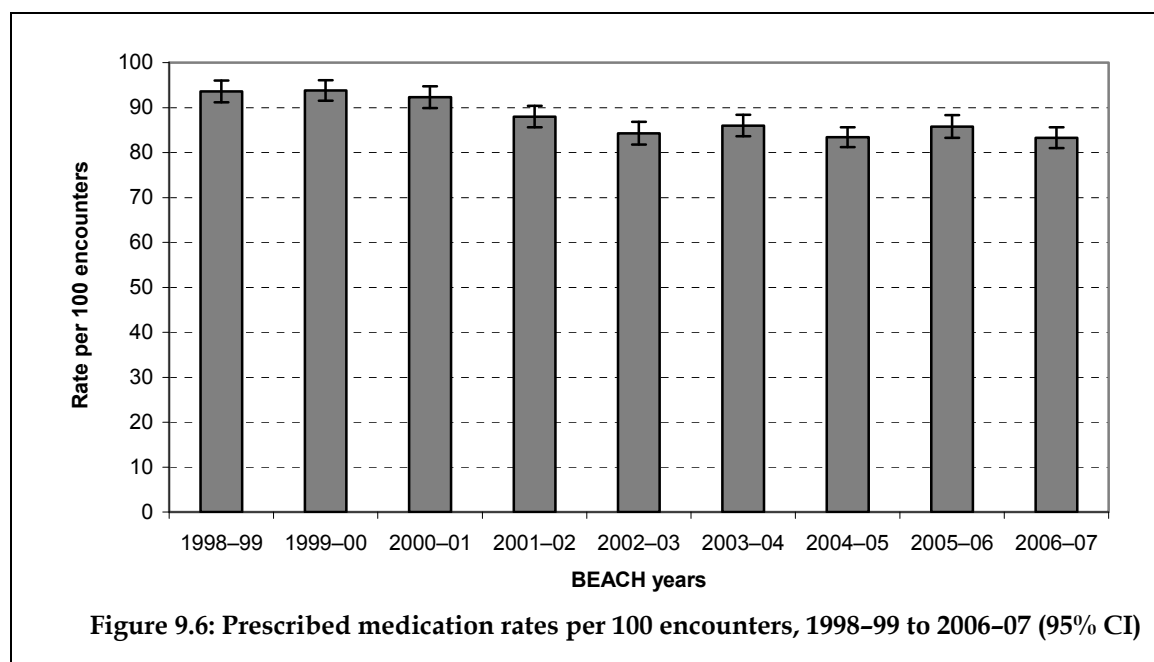
It has already been shown that the number of problems managed at encounter did not change over the period (Table 7.9). Therefore, the decrease in medications per 100 encounters is not due to a decrease in the number of problems being managed. Figure 9.5 summarises the changes in total medication rates per 100 problems managed over time.



Note: CI—confidence interval; OTC—over-the-counter medication.

Prescribed medications

The rate of prescribed medications fell from 93.6 per 100 encounters in 1998–99 to 83.3 per 100 in 2006–07. This significant decrease in prescription rate means that 10 fewer prescriptions are being written on average for every 100 GP–patient encounters in 2006–07 than 9 years earlier. The extrapolated national effect of this change is over 11 million fewer prescriptions given by GPs in 2006–07 than in 1998–99 (Table 9.5). Figure 9.6 shows the change graphically, with the 95% confidence intervals around the estimates. It suggests that the decrease in prescriptions largely occurred between 2000 and 2002, and has stayed steady since that time.



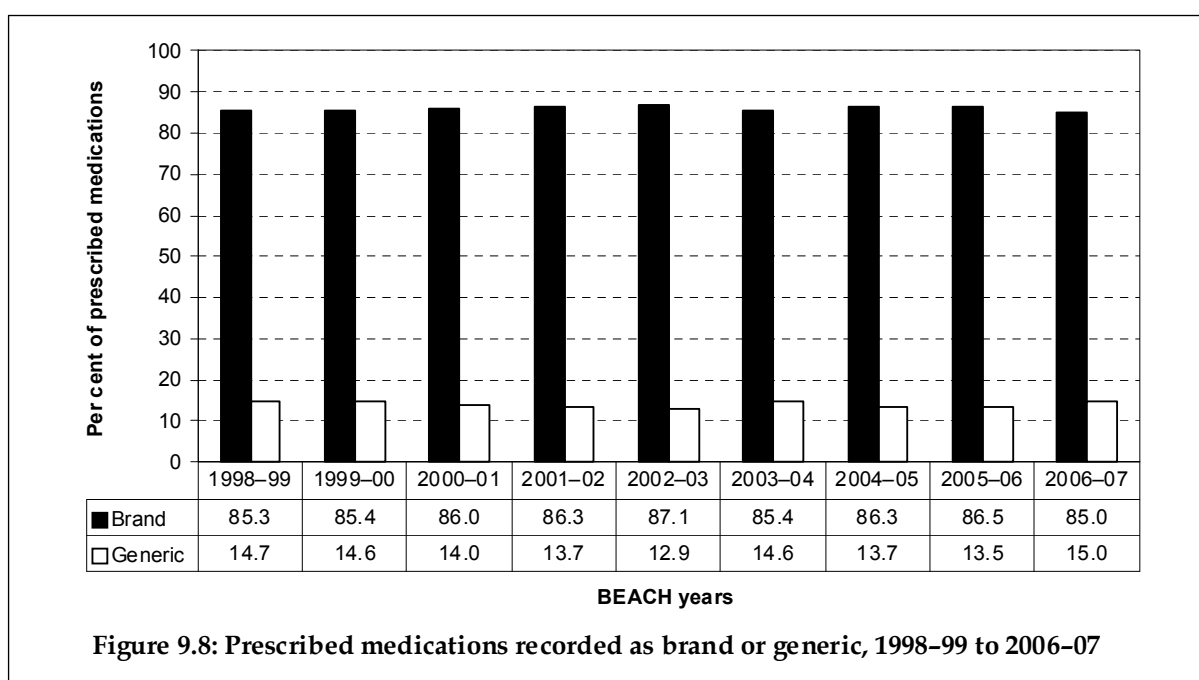
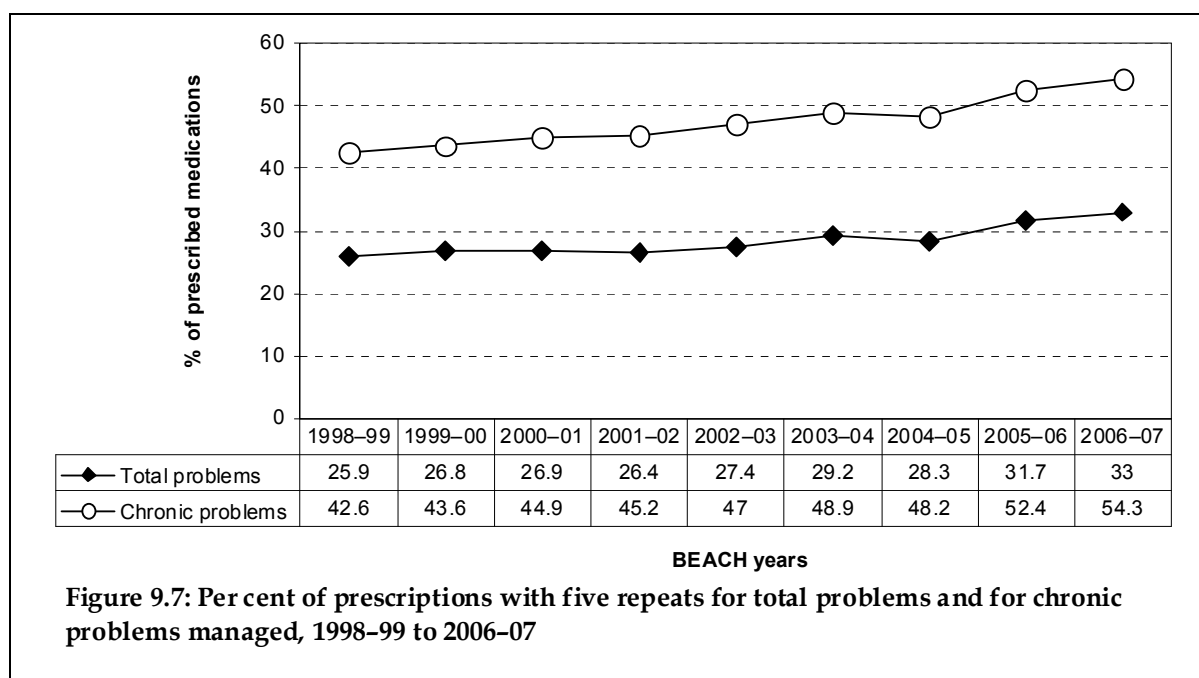
Number of repeats ordered

The pattern of the number of repeat prescriptions recorded by GPs changed between 1998–99 and 2006–07. Table 9.6 shows that there has been a significant increase in the proportion of prescribed medications for which no repeats were ordered (from 29.6%, 95% CI: 27.4–31.9, of prescriptions to 35.2%, 95% CI: 33.7–36.7) and a significant move away from ordering one repeat (from 21.3% to 16.4%) or two repeats (from 18.4% to 16.4%).

There was a significant and large increase in the proportion of prescriptions for which five repeats were recorded. In 1998–99, 25.9% (95% CI: 24.5–27.3) of prescriptions were given five repeats whereas, in 2006–07, 33.0% (95% CI: 31.7–34.4) of prescribed medications had five repeats. This trend was apparent for all prescriptions, not just those for chronic conditions (which make up about one-third of all problems). The change in frequency of recording five repeats is presented graphically in Figure 9.7, for all medications prescribed, and for those prescribed in the management of chronic problems.

Brand versus generic

The manner in which GPs recorded prescribed medications, whether by brand (proprietary) or by generic (non-proprietary) name, remained stable over time. From 1998–99 to 2006–07 it fluctuated by only 2%, with 85.0% to 87.0% of prescribed medications recorded by brand name (Figure 9.8).



Prescribed medication changes over time—drug groups and generics

Table 9.7 shows prescribing rates of common drug groups from 1998-99 to 2006-07. The ATC drug group Level 2 has been chosen for the group comparisons over time because it is the most stable level. As new drugs are added to CAPS, which is used to code medications in BEACH, they sometimes have not yet entered the international ATC classification system, and are therefore mapped to a higher ATC group level. When the new ATC code becomes available, the drug is moved from the ATC group code to the new ATC generic code. This means that, in a few cases, comparisons over time at the lower levels of ATC do not give a true picture.

Individual generic medications are reported in Table 9.8 according to CAPS, to ensure the most complete and comparable data are available over time. The effects of the measured changes at a national level are also presented in the right-hand column of this table.

The following statistically significant changes in prescribing rates occurred between 1998–99 and 2006–07.

Increases:

- There was a significant increase in the GP prescribing rate of agents acting on the renin-angiotensin system (Table 9.7), boosted by increases in perindopril and ramipril, candesartan and irbesartan, and the introduction of the irbesartan-hydrochlorothiazide combination (Table 9.8). These increases overrode the decrease in prescriptions for enalapril maleate. We estimate there were about 2.5 million more GP prescriptions for these drugs in 2006–07 than in 1998–99.
- Psychoanaleptics, most of which are antidepressants, showed a significant increase, equating to an estimated increase of 590,000 prescriptions between 1998–99 and 2006–07.
- Rates of lipid modifying agent prescriptions increased steadily until 2004–05. Since then the increase has been marginal. This equates to 1.5 million more GP prescriptions for lipid modifying agents in 2006–07 than in 1998–99. Atorvastatin alone accounted for an increase of over 1 million prescriptions between those years. Simvastatin showed a marginal increase.
- Drugs for acid-related disorders showed a marginal increase, although there was a significant decrease in prescribing rates of ranitidine since 2001 when some brands became available over the counter.
- Rates of diabetes drugs were consistent with last year's results, which were significantly higher than in the early years of the study. The significant rise in rates of metformin would have been a factor in this result.
- Anti-thrombotic agent prescribing rates have more than doubled over the period. A significant rise in rates of warfarin prescribing contributed to this result.
- Prescribing rates of thyroid therapy, almost all of which is thyroxine, increased significantly from the rates recorded during the first 5 years of the study.
- Some individual medications have shown significant changes although the drug groups to which they belong have not demonstrated significant change. There was only marginal movement in the prescribing rates of the analgesic group, but tramadol (with the advent of slow-release presentations) and oxycodone increased significantly since the early years of the study. While drugs for acid-related disorders showed only a marginal increase, esomeprazole rose significantly since it was first recorded in BEACH in 2002–03.

Decreases:

- Systemic antibacterials decreased across the period, indicating that 3 million fewer prescriptions for these drugs were provided by GPs nationally in 2006–07 than in 1998–99. Cefaclor, doxycycline and erythromycin were commonly prescribed antibacterials prescribed significantly less often.
- Drugs for obstructive airway diseases showed a significant decrease in prescribing rates, with an extrapolated 2.6 million fewer prescriptions at the end of the study period than at the beginning. Decreases in salbutamol, budesonide and beclomethasone contributed

to this result, while prescriptions for the combination fluticasone-salmeterol increased significantly since its entry onto the market.

- Prescribing rates of anti-inflammatory and antirheumatic drugs acting on the musculoskeletal system were significantly lower in 2006–07 than in all other years. The peak in prescribing rates of these medications can be seen between 2000 and 2002. Prescriptions for the non-steroid anti-inflammatory drug meloxicam increased significantly since its introduction in 2001–02, although it has decreased marginally since last year. Rates of naproxen prescribing showed a significant decrease between 1998–99 and 2000–01, although rates have been stable over the past 5 years.
- Sex hormone prescription rates have levelled over the past 2 years but still show an estimated 950,000 decrease in prescriptions in 2006–07 compared with the early years of the study. The marginal decrease in rates of the levonorgestrel-ethyloestradiol combination contributed to this result.
- Calcium channel blocker prescribing rates decreased between 1998–99 and 2006–07. The significant decrease can first be seen in 2001–02.
- The decrease in vaccine rates reflects the move towards combined vaccinations, particularly in the case of childhood immunisations. However, the decline in prescribing rates of influenza vaccine has contributed to this result and is linked to an increase in the recording of influenza vaccine as a GP-supplied medication (see Medications supplied by GPs section below).
- Prescribing rates of diuretics and the most commonly recorded diuretic, frusemide, have levelled over the past 3 years. Present rates are significantly lower than they were in the early years of BEACH, before the advent of diuretic-cardiovascular drug combinations.
- Cardiac therapy (glycosides, other stimulants and anti-arrhythmics) prescribing rates follow a similar pattern to diuretics, with an estimated 940,000 fewer prescriptions in 2006–07 than in 1998–99.
- Drugs for functional gastrointestinal disorders (anti-spasmodics and propulsives) decreased significantly in prescribing rates. A number of the medications in this group are no longer on the market.
- Rates of medications from the topical nasal group halved between 1998–88 and 2006–07. Topical nasal budesonide was a factor in this change, with significantly lower rates from 2001 onwards, when a lower dose brand became available over the counter.
- Again, there were changes in individual medication rates although the corresponding drug groups did not demonstrate change. Paracetamol and paracetamol-codeine were prescribed significantly less often from the middle years of the study onwards. These decreases were balanced by the significant rise in rates of tramadol and oxycodone, resulting in overall prescribing rates for analgesics remaining fairly steady.
- Although psycholeptics did not demonstrate significant change, prescriptions for temazepam decreased significantly compared with the first 3 years of the study.

Discussion

These data demonstrate that GPs are providing prescriptions for medications significantly less often than they did in earlier years of this study, and the decrease is considerable.

Data from the PBS suggest that, after previous annual increases in prescriptions dispensed and claimed through the PBS, a relative decrease in volume has occurred. In the 6 months

July–December 2004, there were 88.78 million dispensed medications claimed from the PBS. In the same period in 2005, 86.99 million were claimed (1.8 million fewer).⁵⁹

PBS prescriptions are counted each time the medication is dispensed – but only if the medication is covered by PBS subsidy. Annual increases in patient co-payments for PBS prescriptions, (particularly the increase from \$23.70 to \$28.60 in January, 2005), mean that fewer medications ‘qualify’ for PBS payment because they fall under the payment threshold. The co-payment now stands at \$30.70. A policy was introduced in 2005 to raise the Safety Net threshold each year from 2006 to 2009 in an effort to achieve savings to the PBS. In 2006, the Safety Net allowed co-payments to be reduced or waived for families who exceeded \$960.10 (general) and \$239.20 (concession) in PBS-subsidised medications annually. In 2007, the amounts were \$1,059.00 and \$274.40 respectively.⁶⁰ These increases mean that fewer people will reach the Safety Net Threshold, and gain access to the PBS for medications costing less than the payment threshold (currently \$30.70).

With fewer medications qualifying for PBS coverage and the new Safety Net thresholds being harder to attain the above decrease in PBS claims is not surprising. However, changes in co-payments should not result in a decreased number of prescriptions being given by GPs, unless (as others suggest) the higher co-payment is considered a deterrent by the patient and/or GP.^{61,62}

BEACH results show there are other factors possibly contributing to the decrease in GP prescribing rate.

- The tendency among GPs when ordering repeats to order higher numbers of them would reduce the frequency of prescriptions given to patients (see Table 9.6 and Figure 9.7), so that a new prescription is provided at fewer of the patient’s attendances through the year. This would result in fewer prescriptions per 100 encounters and could explain some of the decrease in prescription rates in BEACH. However, this in itself would not generate a decrease in the number of times the medication was dispensed and counted in the PBS. For example, two visits per year at which a patient received one prescription with five repeats, and three visits a year where the patient received one prescription with three repeats would both generate 12 dispensing occurrences.
- The increased number of combination products available, for example antihypertensives with diuretics, would reduce the number of prescriptions required for those component medications.
- The movement of medications from prescribed to over-the-counter availability could also influence total prescriptions provided. As an example, Figure 9.9 shows the decrease in prescribing rates of ranitidine after some brands became available over the counter in 2000.

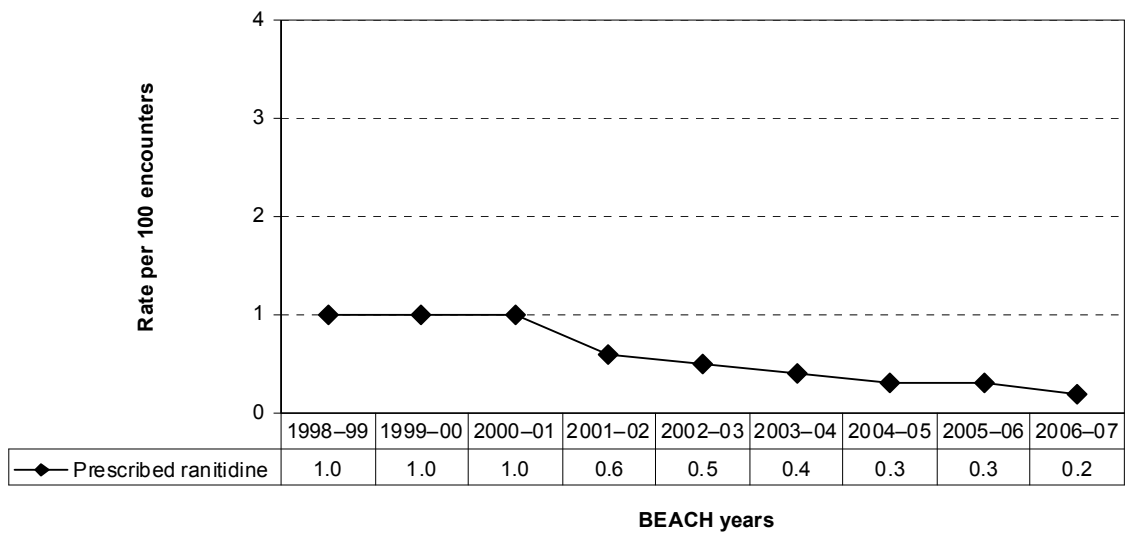


Figure 9.9: Prescriptions for ranitidine per 100 encounters (1998-99 to 2006-07) with change to over-the-counter availability in 2000

Table 9.5: Rates of medications prescribed, advised for over-the-counter purchase, supplied, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	(’000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
Prescribed	93.6 (91.2–96.1)	93.8 (91.5–96.2)	92.3 (89.9–94.7)	88.0 (85.6–90.4)	84.3 (81.8–86.9)	86.0 (83.6–88.5)	83.4 (81.2–85.5)	85.8 (83.3–88.4)	83.3 (81.0–85.5)	↓	–11,210
GP-supplied	7.3 (6.5–8.1)	6.9 (6.0–7.7)	6.9 (5.9–7.9)	7.6 (6.6–8.7)	9.3 (8.0–10.6)	8.6 (7.6–9.6)	8.1 (7.3–8.8)	8.8 (8.2–9.5)	8.9 (8.2–9.6)	↑	+1,590
OTC advised	8.8 (8.1–9.5)	9.4 (8.7–10.1)	9.0 (8.2–9.7)	8.9 (8.2–9.6)	10.2 (9.3–11.1)	9.8 (9.0–10.5)	10.1 (9.2–10.9)	9.8 (9.0–10.5)	9.4 (8.7–10.1)	—	—
Total medications	109.7 (107.4–112.0)	110.1 (107.8–112.4)	108.2 (105.7–110.6)	104.5 (102.2–106.9)	103.8 (101.4–106.2)	104.4 (102.1–106.7)	101.5 (99.3–103.8)	104.4 (101.8–107.0)	101.5 (99.2–103.9)	↓	–9,200

Table 9.6: Number of repeats for prescribed medications, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 prescriptions (95% CI)									Change ^(a)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
No repeats	29.6 (27.4–31.9)	31.9 (30.2–33.7)	33.0 (31.2–34.8)	38.3 (36.7–39.4)	38.0 (36.4–39.6)	37.8 (36.2–39.3)	38.5 (36.8–40.2)	35.9 (34.4–37.5)	35.2 (33.7–36.7)	↑	
One repeat	21.3 (20.2–22.3)	20.4 (19.5–21.3)	20.3 (19.3–21.4)	17.6 (16.8–18.3)	17.7 (16.8–18.6)	16.6 (15.8–17.3)	17.6 (16.7–18.4)	17.6 (16.8–18.4)	16.4 (15.6–17.1)	↓	
Two repeats	18.4 (17.1–19.7)	16.3 (15.2–17.4)	15.2 (14.1–16.3)	13.1 (12.3–14.0)	12.0 (11.0–13.0)	11.4 (10.6–12.1)	10.6 (10.0–11.3)	10.1 (9.4–10.9)	10.5 (9.6–11.4)	↓	
Three or four repeats	4.5 (4.0–4.9)	4.3 (3.7–4.8)	4.4 (4.0–4.8)	4.5 (4.1–4.9)	4.8 (4.4–5.1)	5.0 (4.7–5.4)	4.8 (4.4–5.2)	4.5 (3.8–5.2)	4.8 (4.3–5.3)	—	
Five repeats	25.9 (24.5–27.3)	26.8 (25.3–28.3)	26.9 (25.6–28.2)	26.4 (25.2–27.7)	27.4 (26.0–28.7)	29.2 (27.9–30.4)	28.3 (27.0–29.6)	31.7 (30.3–33.1)	33.0 (31.7–34.4)	↑	
Six or more repeats	0.3 (0.2–0.4)	0.3 (0.0–0.6)	0.1 (0.1–0.2)	0.0 (0.0–0.0)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.3)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	↓	

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

Note: Missing data removed. Rates are reported to one decimal place, a rate of 0.0 indicates that the rate is < 0.05 per 100 prescriptions. CI—confidence interval; OTC—over the counter medication.

Table 9.7: Distribution of prescribed medications by ATC Level 2, summary of annual results, BEACH, 1998–99 to 2006–07

ATC Level 2	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Antibacterials for systemic use	16.8 (16.2–17.4)	15.7 (15.2–16.3)	15.4 (14.8–16.0)	13.9 (13.4–14.4)	13.3 (12.8–13.9)	13.6 (13.1–14.2)	14.0 (13.5–14.6)	14.6 (14.0–15.2)	14.0 (13.4–14.5)	↓	–3,000
Analgesics	9.5 (9.0–10.1)	9.6 (9.1–10.2)	8.9 (8.4–9.4)	8.5 (8.1–9.0)	8.5 (8.0–9.1)	8.5 (8.0–9.0)	8.3 (7.8–8.7)	9.0 (8.4–9.5)	8.6 (8.1–9.0)	§	—
Agents acting on the renin–angiotensin system	4.0 (3.8–4.3)	4.1 (3.8–4.3)	4.6 (4.3–4.8)	5.0 (4.7–5.3)	4.9 (4.6–5.2)	5.5 (5.1–5.8)	5.5 (5.2–5.8)	6.1 (5.7–6.5)	6.5 (6.1–6.9)	↑	+2,540
Psycholeptics	5.4 (5.1–5.7)	5.4 (5.0–5.7)	5.2 (4.9–5.5)	5.1 (4.8–5.5)	4.7 (4.4–5.0)	5.0 (4.7–5.4)	4.9 (4.6–5.2)	5.0 (4.6–5.3)	4.8 (4.5–5.2)	—	—
Drugs for obstructive airway diseases	6.3 (5.9–6.6)	6.6 (6.1–7.0)	5.6 (5.2–5.9)	5.1 (4.8–5.5)	4.6 (4.3–4.9)	4.1 (3.9–4.4)	3.8 (3.6–4.1)	3.9 (3.6–4.1)	3.8 (3.5–4.0)	↓	–2,610
Anti-inflammatory and antirheumatic products	4.5 (4.3–4.8)	4.6 (4.4–4.9)	5.8 (5.5–6.0)	5.3 (5.1–5.6)	4.8 (4.6–5.1)	4.8 (4.5–5.0)	4.5 (4.2–4.7)	3.9 (3.7–4.2)	3.6 (3.3–3.7)	↓	–960
Psychoanaleptics	2.9 (2.7–3.1)	3.0 (2.8–3.1)	3.1 (2.9–3.3)	3.0 (2.8–3.2)	3.0 (2.8–3.2)	3.3 (3.1–3.5)	3.1 (3.0–3.3)	3.3 (3.1–3.5)	3.5 (3.3–3.7)	↑	+600
Serum lipid reducing agents	1.9 (1.8–2.1)	2.2 (2.0–2.4)	2.4 (2.2–2.5)	2.4 (2.3–2.6)	2.4 (2.2–2.6)	2.8 (2.6–3.0)	3.0 (2.8–3.2)	3.3 (3.0–3.6)	3.4 (3.2–3.7)	↑	+1,530
Drugs for acid-related disorders	2.6 (2.5–2.8)	2.6 (2.4–2.8)	2.4 (2.2–2.5)	2.5 (2.4–2.7)	2.5 (2.4–2.7)	2.9 (2.7–3.0)	2.7 (2.5–2.9)	3.1 (2.9–3.2)	3.0 (2.8–3.2)	↑	+390
Sex hormones and modulators of the genital system	3.9 (3.7–4.2)	3.9 (3.7–4.1)	3.9 (3.7–4.1)	3.8 (3.6–4.0)	3.7 (3.5–3.9)	3.5 (3.3–3.7)	3.1 (2.9–3.3)	3.0 (2.8–3.2)	3.0 (2.7–3.3)	↓	–950
Corticosteroids, dermatological preparations	2.8 (2.7–3.0)	2.8 (2.7–3.0)	3.1 (2.8–3.3)	2.8 (2.7–3.0)	2.6 (2.5–2.8)	2.6 (2.4–2.7)	2.8 (2.6–2.9)	2.5 (2.4–2.7)	2.6 (2.4–2.8)	—	—
Drugs used in diabetes	1.8 (1.6–2.0)	1.8 (1.6–2.0)	2.0 (1.8–2.2)	2.2 (2.0–2.4)	1.9 (1.7–2.1)	2.2 (2.0–2.4)	2.1 (1.9–2.2)	2.5 (2.2–2.7)	2.4 (2.2–2.6)	↑	+600

(continued)

Table 9.7 (continued): Distribution of prescribed medications by ATC Level 2, summary of annual results, BEACH, 1998–99 to 2006–07

ATC Level 2	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Calcium channel blockers	2.7 (2.5–2.9)	2.5 (2.3–2.7)	2.3 (2.1–2.5)	2.2 (2.0–2.4)	2.0 (1.8–2.1)	2.2 (2.0–2.3)	2.0 (1.8–2.1)	2.2 (2.0–2.4)	2.1 (2.0–2.3)	↓	–640
Beta-blocking agents	1.8 (1.7–2.0)	1.9 (1.7–2.1)	1.7 (1.5–1.8)	1.8 (1.6–1.9)	1.6 (1.5–1.7)	1.8 (1.7–2.0)	1.7 (1.5–1.8)	1.9 (1.8–2.1)	1.8 (1.7–2.0)	—	—
Vaccines	3.8 (3.3–4.2)	4.2 (3.8–4.6)	3.8 (3.5–4.2)	3.9 (3.5–4.2)	4.2 (3.8–4.5)	3.3 (3.0–3.6)	2.9 (2.6–3.3)	2.5 (2.2–2.8)	1.7 (1.5–1.9)	↓	–2,190
Ophthalmologicals	1.7 (1.6–1.8)	1.7 (1.6–1.8)	1.6 (1.5–1.7)	1.5 (1.4–1.6)	1.6 (1.5–1.7)	1.7 (1.5–1.8)	1.7 (1.6–1.8)	1.9 (1.7–2.0)	1.7 (1.6–1.8)	—	—
Anti-thrombotic agents	0.7 (0.6–0.8)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.1 (1.0–1.3)	1.1 (1.0–1.2)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.3 (1.2–1.4)	1.5 (1.3–1.6)	↑	+820
Diuretics	2.3 (2.1–2.4)	2.1 (1.9–2.3)	1.9 (1.7–2.0)	1.7 (1.5–1.9)	1.6 (1.4–1.7)	1.5 (1.4–1.7)	1.4 (1.2–1.5)	1.4 (1.3–1.5)	1.4 (1.3–1.5)	↓	–940
Corticosteroids for systemic use	1.2 (1.1–1.3)	1.4 (1.3–1.5)	1.2 (1.1–1.3)	1.3 (1.2–1.5)	1.1 (1.0–1.2)	1.3 (1.1–1.4)	1.2 (1.1–1.4)	1.3 (1.2–1.4)	1.3 (1.2–1.5)	—	—
Cardiac therapy	1.7 (1.6–1.9)	1.7 (1.5–1.8)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.0 (0.8–1.1)	1.0 (0.9–1.2)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	↓	–940
Drugs used for functional gastrointestinal disorders	1.0 (0.9–1.1)	1.2 (1.1–1.3)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	1.0 (0.9–1.0)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.8)	↓	–210
Thyroid therapy	0.5 (0.5–0.6)	0.5 (0.4–0.5)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.7 (0.6–0.7)	0.7 (0.6–0.7)	0.7 (0.6–0.8)	0.7 (0.7–0.8)	↑	+200
Otologicals	1.0 (0.9–1.1)	0.9 (0.8–1.0)	1.0 (0.9–1.0)	0.9 (0.8–1.0)	0.8 (0.8–0.9)	0.8 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.7–0.8)	0.7 (0.6–0.8)	§	—
Nasal preparations	1.4 (1.3–1.5)	1.6 (1.5–1.7)	1.5 (1.3–1.6)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	↓	–730
Total prescribed medications	93.6 (91.2–96.1)	93.8 (91.5–96.2)	92.3 (89.9–94.7)	88.0 (85.6–90.4)	84.3 (81.8–86.9)	86.0 (83.6–88.5)	83.4 (81.2–85.5)	85.8 (83.3–88.4)	83.3 (81.0–85.5)	↓	–11,210

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter. Also, only the most frequent medications are included.

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

Note: CI—confidence interval.

Table 9.8: Most frequently prescribed medications (CAPS generic), summary of annual results, BEACH, 1998–99 to 2006–07

Generic drug	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Amoxicillin	3.2 (3.0–3.5)	3.1 (2.9–3.4)	3.2 (3.0–3.5)	2.9 (2.7–3.1)	3.1 (2.8–3.4)	3.3 (3.0–3.5)	3.5 (3.2–3.8)	3.6 (3.3–3.8)	3.3 (3.0–3.6)	—	—
Paracetamol	3.9 (3.6–4.2)	4.1 (3.7–4.4)	3.9 (3.6–4.3)	3.1 (2.8–3.4)	3.1 (2.8–3.5)	2.9 (2.5–3.2)	2.7 (2.4–2.9)	3.0 (2.7–3.3)	2.6 (2.3–2.9)	↓	–1,360
Cephalexin	2.1 (1.9–2.3)	2.1 (1.9–2.2)	2.2 (2.0–2.4)	2.0 (1.9–2.2)	1.9 (1.8–2.0)	2.0 (1.9–2.2)	2.4 (2.2–2.6)	2.5 (2.3–2.7)	2.3 (2.2–2.5)	§	—
Paracetamol–codeine	2.7 (2.4–2.9)	2.4 (2.2–2.6)	2.2 (2.0–2.4)	2.2 (2.1–2.4)	2.0 (1.8–2.2)	2.1 (1.9–2.3)	2.0 (1.8–2.2)	2.0 (1.8–2.2)	2.0 (1.8–2.1)	↓	–740
Amoxycillin–potassium clavulanate	1.8 (1.6–2.0)	1.6 (1.5–1.8)	1.7 (1.5–1.9)	1.6 (1.4–1.7)	1.6 (1.4–1.7)	1.7 (1.5–1.8)	1.7 (1.5–1.8)	1.7 (1.5–1.8)	1.7 (1.5–1.9)	—	—
Atorvastatin	0.6 (0.5–0.6)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (1.0–1.2)	1.2 (1.1–1.3)	1.4 (1.3–1.5)	1.6 (1.4–1.8)	1.7 (1.5–1.8)	↑	+1,130
Salbutamol	2.4 (2.2–2.6)	2.4 (2.2–2.6)	2.1 (1.9–2.2)	2.0 (1.8–2.1)	1.7 (1.6–1.9)	1.5 (1.4–1.6)	1.4 (1.3–1.5)	1.5 (1.4–1.6)	1.4 (1.3–1.5)	↓	–1,040
Roxithromycin	1.8 (1.6–2.0)	1.8 (1.7–2.0)	1.6 (1.4–1.8)	1.4 (1.3–1.5)	1.3 (1.2–1.5)	1.1 (1.0–1.2)	1.1 (1.0–1.3)	1.5 (1.3–1.7)	1.4 (1.2–1.5)	§	—
Perindopril	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.7 (0.7–0.8)	0.7 (0.6–0.8)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.2 (1.1–1.3)	↑	+610
Metformin	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.8 (0.8–0.9)	1.0 (0.9–1.1)	1.0 (0.9–1.0)	1.2 (1.0–1.3)	1.1 (1.0–1.3)	↑	+410
Temazepam	1.4 (1.3–1.6)	1.4 (1.3–1.6)	1.4 (1.3–1.6)	1.3 (1.2–1.5)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	↓	–320
Diazepam	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.0 (0.9–1.2)	1.0 (0.9–1.2)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	1.1 (1.0–1.2)	—	—
Simvastatin	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	1.0 (1.0–1.1)	1.1 (1.0–1.2)	1.2 (1.0–1.3)	1.1 (1.0–1.2)	↑	+200

(continued)

Table 9.8 (continued): Most frequently prescribed medications (CAPS generic), summary of annual results, BEACH, 1998–99 to 2006–07

Generic drug	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Warfarin sodium	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.1)	0.9 (0.8–1.0)	1.0 (0.9–1.2)	↑	+300
Irbesartan	0.5 (0.5–0.6)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	↑	+510
Esomeprazole	N/A	N/A	N/A	N/A	0.3 (0.2–0.3)	0.6 (0.5–0.7)	0.7 (0.6–0.8)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	—	New medication ⁺
Chloramphenicol eye	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.9–1.0)	1.1 (1.0–1.1)	1.0 (0.9–1.1)	—	—
Levonorgestrel– ethinylloestradiol	1.2 (1.1–1.4)	1.3 (1.2–1.4)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	↓	–210
Atenolol	1.0 (0.9–1.1)	1.0 (0.9–1.2)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	—	—
Tramadol	0.0 [†] (0.0–0.0)	0.1 (0.0–1.1)	0.2 (0.1–0.2)	0.7 (0.6–0.8)	1.0 (0.9–1.1)	0.9 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.0)	0.9 (0.8–1.1)	↑	+930
Oxycodone	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.4–0.5)	0.5 (0.5–0.6)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	↑	+720
Fluticasone–salmeterol	N/A	N/A	0.2 (0.2–0.3)	0.6 (0.5–0.7)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–0.9)	—	New medication ⁺
Diclofenac sodium systemic	1.3 (1.2–1.4)	1.3 (1.1–1.4)	1.2 (1.0–1.3)	0.9 (0.8–1.0)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	1.0 (0.8–1.1)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	§	—
Ramipril	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.4–0.5)	0.6 (0.5–0.7)	0.7 (0.6–0.7)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	↑	+510
Cefaclor monohydrate	2.2 (1.9–2.4)	1.6 (1.3–2.0)	1.6 (1.4–1.8)	1.1 (1.0–1.2)	1.0 (0.9–1.2)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.8 (0.6–1.0)	0.8 (0.6–0.9)	↓	–1,450
Amlodipine	0.8 (0.7–0.8)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.7)	0.7 (0.6–0.7)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	0.8 (0.7–0.8)	—	—

(continued)

Table 9.8 (continued): Most frequently prescribed medications (CAPS generic), summary of annual results, BEACH, 1998–99 to 2006–07

Generic drug	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Irbesartan–hydrochlorothiazide	N/A	N/A	0.3 (0.2–0.4)	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.7 (0.7–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.8 (0.7–0.8)	↑	New medication ⁺
Doxycycline hydrochloride	1.2 (1.1–1.3)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	0.7 (0.7–0.9)	↓	–520
Meloxicam	N/A	N/A	N/A	0.0 [†] (0.0–0.1)	0.3 (0.3–0.4)	0.4 (0.3–0.5)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.7 (0.7–0.8)	↑	New medication ⁺
Betamethasone topical	0.9 (0.9–1.0)	0.9 (0.8–0.9)	1.0 (0.9–1.2)	0.9 (0.8–1.0)	0.7 (0.6–0.8)	0.8 (0.8–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	—	—
Aspirin	0.7 (0.7–0.8)	0.8 (0.8–1.0)	0.8 (0.7–0.9)	0.7 (0.6–0.7)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.7)	0.7 (0.7–0.8)	0.7 (0.6–0.8)	—	—
Thyroxine	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	↑	+200
Mometasone	0.6 (0.5–0.7)	0.6 (0.6–0.7)	0.7 (0.6–0.7)	0.8 (0.7–0.9)	0.6 (0.6–0.7)	0.5 (0.5–0.6)	0.8 (0.7–0.9)	0.7 (0.6–0.7)	0.7 (0.6–0.7)	—	—
Sertraline	0.6 (0.5–0.7)	0.8 (0.7–0.9)	0.8 (0.7–0.8)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.7)	0.7 (0.6–0.8)	0.7 (0.6–0.7)	—	—
Oxazepam	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	—	—
Influenza virus vaccine	1.7 (1.4–2.1)	1.5 (1.3–1.7)	1.5 (1.3–1.8)	1.5 (1.2–1.7)	1.4 (1.2–1.7)	1.2 (1.0–1.4)	0.9 (0.7–1.1)	1.1 (0.9–1.3)	0.6 (0.5–0.8)	↓	–1,140
Furosemide (furosemide)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.6 (0.5–0.7)	0.6 (0.6–0.7)	0.6 (0.6–0.7)	↓	–420
Celecoxib	N/A	0.2 (0.2–0.3)	2.1 (2.0–2.3)	1.4 (1.3–1.5)	1.1 (1.0–1.2)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.5 (0.5–0.6)	0.6 (0.5–0.7)	§	New medication ⁺
Prednisolone	0.6 (0.5–0.6)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.6 (0.5–0.7)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.6 (0.5–0.7)	—	—

(continued)

Table 9.8 (continued): Most frequently prescribed medications (CAPS generic), summary of annual results, BEACH, 1998–99 to 2006–07

Generic drug	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Candesartan cilexetil	0.0 [‡] (0.0–0.0)	0.1 (0.1–0.1)	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.4 (0.4–0.5)	0.6 (0.5–0.7)	↑	+620
Omeprazole	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.6)	0.8 (0.8–0.9)	0.8 (0.8–0.9)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.6 (0.6–0.7)	0.6 (0.5–0.6)	§	—
Generic medication frequently prescribed in previous years											
Erythromycin	1.1 (0.9–1.2)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	0.6 (0.5–0.6)	0.5 (0.4–0.6)	0.6 (0.5–0.6)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	↓	–620
Naproxen systemic	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.6 (0.5–0.6)	0.4 (0.4–0.5)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.2–0.4)	0.4 (0.3–0.4)	0.3 (0.3–0.4)	↓	–620
Budesonide topical nasal	0.7 (0.6–0.8)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.5 (0.4–0.5)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.3 (0.2–0.4)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	↓	–420
Ranitidine	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	0.6 (0.6–0.7)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	↓	–830
Enalapril maleate	0.7 (0.7–0.8)	0.7 (0.6–0.8)	0.5 (0.5–0.6)	0.4 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	↓	–520
Budesonide	0.7 (0.6–0.8)	0.7 (0.7–0.8)	0.6 (0.5–0.6)	0.5 (0.4–0.5)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	↓	–410
Beclomethasone inhaled	0.7 (0.6–0.8)	0.6 (0.5–0.7)	0.4 (0.3–0.5)	0.3 (0.3–0.4)	0.2 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.0–0.1)	↓	–620
Rofecoxib	N/A	N/A	0.1 (0.1–0.2)	1.2 (1.0–1.4)	1.2 (1.0–1.3)	1.0 (0.9–1.1)	0.3 (0.2–0.3)	N/A	N/A	§	—
Total prescribed medications	93.6 (91.2–96.1)	93.8 (91.5–96.2)	92.3 (89.9–94.7)	88.0 (85.6–90.4)	84.3 (81.8–86.9)	86.0 (83.6–88.5)	83.4 (81.2–85.5)	85.8 (83.3–88.4)	83.3 (81.0–85.5)	↓	–11,240

(a) Column will not add to 100 because multiple prescriptions could be written at each encounter.

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

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

+ Indicates that this medication was introduced during the study period, the change has not been extrapolated because the data from the year the medication was introduced may be incomplete.

Note: CI—confidence interval; N/A—not applicable (i.e. drug was not available at that time).

Medications supplied by GPs or advised for over-the-counter purchase

The rate of medications supplied by the GP rose significantly, from 7.3 per 100 encounters (95% CI: 6.5–8.1) in 1998–99 to 8.9 (95% CI: 8.2–9.6) in 2006–07. The rate of advised OTC medications showed no significant change over this period (Table 9.5).

A number of changes in individual medications supplied by GPs contributed to this rise.

- The move away from prescribing towards GP supply of the influenza vaccine was evident in the significant increase in its GP supply that coincided with the significant decrease in its prescribing rates. The change over time can be seen in Figure 9.10, where the total rates of influenza vaccine per 100 encounters are shown broken down into prescribed and GP-supplied.
- Supply rates of other vaccines have also contributed to the rise in GP-supplied medications. Meningitis vaccine supply rates have increased significantly compared with the first 4 years of the study, while the combination vaccine diphtheria–pertussis–tetanus–polio has increased since it was first recorded in 2004. There was a marginal increase in supply rates of the mumps–measles–rubella vaccine. Supply of poliomyelitis oral sabin/injection on its own showed a marginal decrease probably due to its incorporation in new combined vaccines.
- The rate of GP supply of Vitamin B12 has risen significantly since 1998–99.
- The supply of the non-steroid anti-inflammatory drug meloxicam rose significantly since its introduction in 2001–02.

Among medications advised for over-the-counter purchase, ibuprofen, nasal sodium chloride and cetirizine have shown significant increases since 1998–99 and there was a marginal fall in the rate of advised paracetamol–codeine.

Tables 9.9 and 9.10 show rates of generic medications most frequently supplied or advised by GPs between 1998–99 and 2006–07.

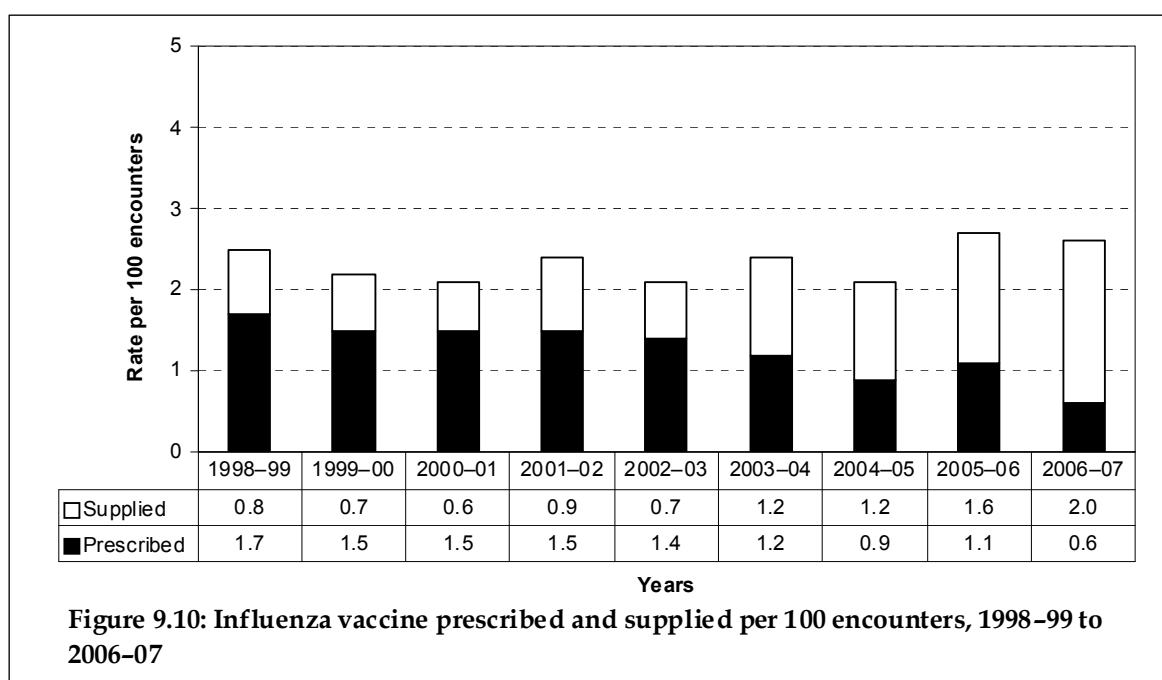


Table 9.9: Medications most frequently supplied by GPs, summary of annual results, BEACH, 1998–99 to 2006–07

Generic medication	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Influenza virus vaccine	0.8 (0.6–1.1)	0.7 (0.5–0.9)	0.6 (0.4–0.7)	0.9 (0.7–1.1)	0.7 (0.5–0.9)	1.2 (0.9–1.4)	1.2 (0.9–1.6)	1.6 (1.3–1.8)	2.0 (1.6–2.3)	↑	+1,230
Pneumococcal vaccine	0.1 (0.1–0.2)	0.1 (0.0–0.1)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.4 (0.3–0.5)	0.9 (0.8–1.0)	0.6 (0.6–0.7)	§	—
Mumps–measles–rubella vaccine	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	↑	+100
Vitamin B12 (cobalamin)	0.1 (0.1–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.0 [†] (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	↑	+200
Polio vaccine oral sabin/injection	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.2–0.4)	0.3 (0.3–0.4)	0.4 (0.4–0.5)	0.5 (0.4–0.5)	0.2 (0.2–0.3)	↓	–210
ADT–CDT vaccine (diphtheria–tetanus)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	—	—
<i>Haemophilus</i> B vaccine	0.3 (0.2–0.4)	0.3 (0.3–0.4)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.3 (0.2–0.4)	0.2 (0.2–0.2)	§	—
Diphtheria–pertussis–tetanus–polio vaccine	N/A	N/A	N/A	N/A	N/A	N/A	0.0 [†] (0.0–0.0)	0.1 (0.0–0.1)	0.2 (0.1–0.2)	↑	New medication ⁺
Meningitis vaccine	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	↑	+210
Meloxicam	N/A	N/A	N/A	0.0 [†] (0.0–0.0)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	↑	New medication ⁺
Total GP-supplied medications	7.3 (6.5–8.1)	6.9 (6.0–7.7)	6.9 (5.9–7.9)	7.6 (6.6–8.7)	9.3 (8.0–10.6)	8.6 (7.6–9.6)	8.1 (7.3–8.8)	8.8 (8.2–9.5)	8.9 (8.2–8.6)	↑	+1,590

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

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

+ Indicates that this medication was introduced during the study period, the change has not been extrapolated because the data from the year the medication was introduced may be incomplete.

Note: CI—confidence interval. N/A—not applicable (i.e. drug was not available at that time).

Table 9.10: Most frequently advised over-the-counter medications, summary of annual results, BEACH, 1998–99 to 2006–07

Generic medication	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Paracetamol	2.4 (2.1–2.7)	2.5 (2.2–2.8)	2.4 (2.0–2.7)	2.1 (1.9–2.4)	2.6 (2.3–2.9)	2.5 (2.1–2.8)	2.3 (2.0–2.6)	2.5 (2.2–2.8)	2.4 (2.1–2.7)	—	—
Ibuprofen	0.2 (0.2–0.3)	0.3 (0.2–0.4)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.7 (0.5–0.8)	0.6 (0.5–0.7)	0.5 (0.4–0.6)	0.6 (0.5–0.7)	0.5 (0.5–0.6)	↑	+310
Sodium/potassium/citric/ glucose	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Loratadine	0.2 (0.2–0.2)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Clotrimazole topical	0.2 (0.2–0.3)	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Diclofenac diethyl topical	0.2 (0.1–0.2)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Aspirin	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Sodium chloride topical nasal	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	↑	+210
Cetirizine	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	↑	+100
Paracetamol–codeine	0.2 (0.2–0.3)	0.3 (0.2–0.4)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	↓	–100
Total advised medications	8.8 (8.1–9.5)	9.4 (8.7–10.1)	9.0 (8.2–9.7)	8.9 (8.2–9.6)	10.2 (9.3–11.1)	9.8 (9.0–10.5)	10.1 (9.2–10.9)	9.8 (9.0–10.5)	9.4 (8.7–10.1)	—	—

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

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

Note: CI—confidence interval.

10 Other treatments

The survey form allowed GPs to record up to two other treatments for each problem managed at the encounter. Other treatments included all clinical and procedural treatments provided. These groups are defined in Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>. Patient observations that were regarded as routine clinical measurements or observations, such as measurements of blood pressure and physical examinations, were not included.

The GPs were also asked to indicate whether the treatment was undertaken by a practice nurse (tick box). In this chapter all 'other treatments' are reported, irrespective of whether they were done by the GP or by the practice nurse. That is, the non-pharmacological management provided in *general practice* patient encounters is described, rather than management provided specifically by the *general practitioner*. Those treatments provided by the practice nurse are reported separately in Chapter 13.

10.1 Annual results, 2006–07

Number of other treatments

Other treatments were commonly provided in the management of patient morbidity. In 2006–07, a total of 41,011 other treatments were recorded, at a rate of 44.7 per 100 encounters. Two-thirds of these were clinical treatments (Table 10.1).

Table 10.1: Summary of other treatments, 2006–07

	Number	Rate per 100 encs (<i>n</i> = 91,805)	95% LCL	95% UCL	Rate per 100 problems (<i>n</i> = 136,333)	95% LCL	95% UCL
Other treatments	41,011	44.7	42.3	47.0	30.1	28.6	31.5
Clinical treatments	27,084	29.5	27.6	31.4	19.9	18.7	21.1
Procedural treatments	13,927	15.2	14.4	16.0	10.2	9.7	10.7
At least one other treatment	32,424	35.3	33.8	36.9	—	—	—

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

Table 10.2 shows the proportion of problems for which at least one other treatment was given. In summary:

- in nearly two-thirds of the problems that were managed with an other treatment, no concurrent pharmacological treatment was provided
- nearly one in five problems were managed with a clinical treatment. Of these, three in five were not provided with medication for that problem
- a procedure was undertaken in the management of 9.6% of problems, with no pharmacological management given for two-thirds of these problems.

Table 10.2: Relationship between other treatments and pharmacological treatments, 2006–07

Co-management of problems with other treatments	Number of problems	Per cent within class	Per cent of problems (<i>n</i> = 136,333)	95% LCL	95% UCL
At least one other treatment	36,786	100.0	27.0	25.8	28.2
Without pharmacological treatment	23,558	64.0	17.3	16.5	18.0
At least one clinical treatment	24,568	100.0	18.0	17.0	19.1
Without pharmacological treatment	15,305	62.3	11.2	10.6	11.9
At least one procedural treatment	13,139	100.0	9.6	9.2	10.1
Without pharmacological treatment	8,744	66.5	6.4	6.1	6.8

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

Clinical treatments

Clinical treatments include general and specific advice, counselling or education, family planning, and administrative processes. During 2006–07, there were 27,084 clinical treatments recorded at a rate of 30 per 100 encounters, or 20 per 100 problems managed (Table 10.1).

Most frequent clinical treatments

Table 10.3 lists the most common clinical treatments provided. Each treatment is expressed as a percentage of all other treatments and as a rate per 100 encounters with 95% confidence limits.

General advice and education was the most frequently provided clinical treatment, at a rate of 5.7 per 100 encounters. Psychological counselling was provided at a rate of 2.9 per 100 encounters. The most common preventive activity was counselling about nutrition and weight (3.4 per 100 encounters). There were a number of other groups that also could be considered preventive in nature, including counselling/advice for exercise, smoking, lifestyle, alcohol, relaxation and 'prevention'. Together, preventive treatments accounted for 14.1% of all clinical treatments, provided at a rate of 6.4 per 100 encounters (Table 10.3).

Table 10.3: Most frequent clinical treatments, 2006–07

Treatment	Number	Per cent of other treatments (n = 41,011)	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Advice/education*	5,257	12.8	5.7	5.0	6.5
Counselling—problem*	4,017	9.8	4.4	3.7	5.0
Counselling/advice—nutrition/weight*	3,077	7.5	3.4	3.0	3.7
Counselling—psychological*	2,620	6.4	2.9	2.6	3.1
Advice/education—treatment*	2,564	6.3	2.8	2.5	3.1
Advice/education—medication*	1,620	4.0	1.8	1.6	2.0
Sickness certificate*	1,434	3.5	1.6	1.3	1.8
Other admin/document*	1,125	2.7	1.2	1.1	1.4
Counselling/advice—exercise*	1,025	2.5	1.1	1.0	1.3
Reassurance, support	998	2.4	1.1	0.9	1.3
Counselling/advice—smoking*	506	1.2	0.6	0.5	0.6
Counselling/advice—lifestyle*	345	0.8	0.4	0.3	0.5
Counselling/advice—alcohol*	310	0.8	0.3	0.3	0.4
Family planning*	306	0.8	0.3	0.3	0.4
Counselling/advice—relaxation*	269	0.7	0.3	0.2	0.4
Counselling/advice—prevention*	257	0.6	0.3	0.2	0.3
Counselling/advice—pregnancy*	239	0.6	0.3	0.2	0.3
Observe/wait*	236	0.6	0.3	0.2	0.4
<i>Subtotal</i>	<i>26,206</i>	<i>63.9</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total clinical treatments	27,084	66.0	29.5	27.6	31.4

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: Includes the most common clinical treatments, those accounting for > 0.5% of all other treatments. LCL—lower confidence limit; UCL—upper confidence limit.

Problems managed with clinical treatments

Table 10.4 lists the top 10 problems managed with a clinical treatment. It also shows the extent to which a clinical treatment was used for that problem and the relationship between the use of a clinical treatment and a medication for individual problems.

- Clinical treatments were provided in the management of 24,568 problems (18.0% of all problems).
- The 10 most common problems managed with a clinical treatment accounted for almost one-third of all problems for which a clinical treatment was provided.
- Depression was the problem most often managed with a clinical treatment, and a clinical treatment was provided at 40.8% of all contacts with depression. Almost half the contacts with depression which involved management with a clinical treatment were not concurrently managed with a medication.
- One-quarter of upper respiratory tract infection contacts involved a clinical treatment, with over half of these encounters managed without medication.
- One in 10 hypertension contacts resulted in a clinical treatment. For half of these a medication was also prescribed, supplied or advised.

- A clinical treatment was used at one-fifth of lipid disorder and diabetes contacts, and approximately two-thirds of these did not involve medication.

Table 10.4: The 10 most common problems managed with a clinical treatment, 2006–07

Problem managed	Number	Per cent of problems with clinical treatment	Rate per 100 encounters ^(a) (<i>n</i> = 91,805)	95% LCL	95% UCL	Per cent of this problem ^(b)	Per cent of treated problems no meds ^(c)
Depression*	1,378	5.6	1.5	1.4	1.6	40.8	48.7
Upper respiratory tract infection	1,330	5.4	1.5	1.3	1.6	25.2	54.8
Hypertension*	832	3.4	0.9	0.8	1.0	9.5	49.5
Diabetes—all*	760	3.1	0.8	0.7	0.9	22.4	64.2
Lipid disorders	693	2.8	0.8	0.7	0.8	21.8	69.5
Anxiety*	682	2.8	0.7	0.7	0.8	42.8	65.5
Gastroenteritis*	598	2.4	0.7	0.6	0.7	39.1	61.3
Back complaint*	444	1.8	0.5	0.4	0.5	18.5	53.2
Obesity	411	1.7	0.5	0.4	0.5	58.6	86.6
Acute stress reaction	396	1.6	0.4	0.4	0.5	72.1	82.7
<i>Subtotal</i>	<i>7,524</i>	<i>30.6</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total problems	24,568	100.0	26.8	25.1	28.4	—	—

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

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Procedural treatments

Procedural treatments included therapeutic actions and diagnostic procedures undertaken at the encounter. Injections for immunisations/vaccinations are not counted here as procedures, as these have already been reported as medications (see Chapter 9). There were 13,927 procedural treatments provided in these general practice encounters during 2006–07 (Table 10.1).

Most frequent procedures

Table 10.5 lists the most common procedural treatments provided by GPs. Each treatment is expressed as a percentage of all other treatments and as a rate per 100 encounters with 95% confidence limits. To find the total number of diagnostic procedures ordered or performed, the numbers of investigations in Table 10.5 need to be added to those in Table 12.6, which reports the most common other investigations ordered by GPs.

Table 10.5: Most frequent procedural treatments, 2006–07

Treatment	Number	Per cent of other treatments (n = 41,011)	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	3,072	7.5	3.4	3.0	3.7
Dressing/pressure/compression/tamponade*	2,072	5.1	2.3	2.1	2.4
Local injection/infiltration ^(a)	1,746	4.3	1.9	1.7	2.1
Incision/drainage/flushing/aspiration/removal body fluid*	1,159	2.8	1.3	1.1	1.4
Physical medicine/rehabilitation*	1,004	2.5	1.1	0.9	1.3
Repair/fixation-suture/cast/prosthetic device (apply/remove)*	914	2.2	1.0	0.9	1.1
Pap smear*	841	2.1	0.9	0.8	1.0
Other therapeutic procedures/surgery NEC*	674	1.6	0.7	0.6	0.9
Physical function test*	523	1.3	0.6	0.4	0.7
Electrical tracings*	422	1.0	0.5	0.4	0.5
Urine test*	300	0.7	0.3	0.3	0.4
Other preventive procedures/high risk medication*	265	0.7	0.3	0.2	0.3
<i>Subtotal</i>	<i>12,990</i>	<i>31.7</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total procedural treatments	13,927	34.0	15.2	14.4	16.0

(a) Excludes all local injection/infiltrations performed for immunisations.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: Includes the most common procedural treatments, those accounting for > 0.5% of all other treatments. LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified.

Problems managed with a procedural treatment

Table 10.6 lists the top 10 problems managed with a procedural treatment. It also demonstrates the proportion of contacts with each problem that was managed with a procedure and the proportion of problems managed with a procedure that had no concomitant medication.

- A total of 13,139 problems involved a procedural treatment in their management (9.6% of all problems).
- The top 10 problems accounted for less than 40% of all problems for which a procedure was used.
- Solar keratosis/sunburn was the most common problem managed with a procedure, with a procedure undertaken for 70% of all contacts.
- Half the malignant skin neoplasm contacts were managed with a procedural treatment, and the vast majority of these did not have a medication prescribed, supplied or advised.

Table 10.6: The 10 most common problems managed with a procedural treatment, 2006–07

Problem managed	Number	Per cent of problems with procedure	Rate per 100 encs ^(a) (<i>n</i> = 91,805)	95% LCL	95% UCL	Per cent of this problem ^(b)	Per cent of treated problems no meds ^(c)
Solar keratosis/sunburn	826	6.3	0.9	0.8	1.0	69.9	96.1
Female genital check-up*	712	5.4	0.8	0.7	0.9	45.1	97.3
Laceration/cut	675	5.1	0.7	0.6	0.8	78.4	74.7
Excessive ear wax	525	4.0	0.6	0.5	0.6	73.6	94.1
Malignant neoplasm skin	521	4.0	0.6	0.5	0.7	50.0	93.8
Warts	510	3.9	0.6	0.5	0.6	73.3	96.6
Chronic ulcer skin (incl varicose ulcer)	393	3.0	0.4	0.4	0.5	72.4	76.9
General check-up*	255	1.9	0.3	0.2	0.3	11.4	83.8
Sprain/strain*	253	1.9	0.3	0.2	0.3	17.8	47.9
Skin symptom/complaint	244	1.9	0.3	0.2	0.3	46.6	95.5
<i>Subtotal</i>	<i>4,914</i>	<i>37.4</i>	—	—	—	—	—
Total problems	13,139	100.0	14.3	13.6	15.0	—	—

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

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

10.2 Changes over time, 1998–99 to 2006–07

Clinical treatments

Overall, there has been no change in the rate of clinical treatments provided by GPs when comparing 1998–99 and 2006–07 data. However, comparing the clinical treatment rates for each year demonstrates changes within this period. As the data show (Table 10.7), there was a significant rise between 1998–99 and 2004–05 in the rate of clinical treatments provided. A considerable decrease followed in 2005–06, equating to a 25% decline in clinical treatments provided (from 39.2 per 100 encounters in 2004–05 to 29.2 per 100 in 2005–06). The 2006–07 result has remained consistent with the figures for 2005–06, at a rate of 29.5 per 100 encounters.

The decrease in clinical treatments demonstrated in 2005–06 is reflected in some of the specific types of clinical treatments given. For example, the provision of general advice and education increased overall from 3.5 per 100 encounters in 1998–99 to 5.7 per 100 encounters in 2006–07, but it had peaked at a rate of 7.0 per 100 encounters in 2004–05. In the same way, the provision of advice and education about medication increased significantly between 1998–99 and 2004–05, but then decreased (Table 10.7).

The rate of counselling about a problem increased overall between 1998–99 and 2006–07, from 2.9 per 100 encounters to 4.4 per 100 encounters, but the rate has declined since 2002–03, when it peaked at 5.5 per 100 encounters (Table 10.7).

Some linear changes have occurred in the rates of clinical treatments over time. The provision of advice and education about treatment steadily declined, from a rate of 6.2 per 100 encounters in 1998–99 to a rate of 2.8 per 100 encounters in 2006–07. This equates to more than 3.5 million fewer encounters nationally where this type of advice and education was recorded in 2006–07 than in 1998–99. Reassurance and support also decreased in frequency, equating to 530,000 fewer encounters in 2006–07 where reassurance was recorded than in 1998–99. Other areas where the provision of counselling and advice declined over time include counselling related to health and the body (830,000 fewer encounters in 2006–07 nationally) and counselling about relationships (310,000 fewer encounters nationally in 2006–07 than in 1998–99) (Table 10.7).

There has been a linear increase in the rate of provision of sickness certificates over time, from 0.7 per 100 encounters in 1998–99 to 1.6 per 100 encounters in 2006–07. This equates to an additional 920,000 sickness certificates provided by GPs in 2006–07 than in 1998–99 throughout Australia (Table 10.7).

Some changes have occurred in the rates of use of clinical treatments for specific problems. Gastroenteritis was managed with a clinical treatment less frequently in 2006–07 than in 1998–99. The decrease in rate equates to 210,000 fewer occasions where clinical treatments were recorded in the management of gastroenteritis. There has been no change in the overall management rate of gastroenteritis between 1998–99 and 2006–07 (Table 7.11), so this represents a true decrease in the likelihood of a clinical treatment being given for this problem. Asthma demonstrated a similar trend, with 310,000 fewer occasions nationally where clinical treatments were provided in its management in 2006–07 than in 1998–99. However, an overall decrease of 950,000 encounters at which asthma was managed over this time (Table 7.11) suggests that the likelihood of receiving a clinical treatment when seeing the GP about asthma was higher in 2006–07 than in 1998–99. The management of sprains and strains with clinical treatments also decreased over time, with 110,000 fewer encounters in 2006–07 at which a clinical treatment was provided for the management of this problem than in 1998–99 (Table 10.8).

Clinical treatments were more often provided during a general check-up in 2006–07 than in 1998–99, with 100,000 more encounters with clinical treatments provided nationally in 2006–07. However, there has been a considerable increase in the rate of general check-ups performed over this time (Table 7.11), so this result indicates that the likelihood of a clinical treatment being given at a general check-up encounter has actually dropped. Marginal increases in the provision of clinical treatments were related to the management of tobacco abuse, oesophageal disease, pregnancy and adverse effects of medical agents (Table 10.8).

Procedural treatments

Overall, the rate at which procedural treatments were provided by GPs increased significantly over time, from 11.8 per 100 encounters in 1998–99 to 15.2 per 100 encounters in 2006–07. This equates to an additional 3.4 million encounters at which a procedure was performed in 2006–07 compared with 1998–99 (Table 10.9).

The most marked increase was for local injection/infiltration. The rate for this procedure increased from 0.3 per 100 encounters in 1998–99 to 1.9 per 100 encounters in 2006–07. This equates to an additional 920,000 encounters at which an injection was given in 2006–07. Significant increases also occurred in the recorded rates of physical function tests (performed at 310,000 additional encounters in 2006–07) and urine tests (performed at an additional 100,000 encounters in 2006–07 than in 1998–99) (Table 10.9).

The rate at which pap smears were recorded increased significantly over time, from 0.6 per 100 encounters in 1998–99 to 0.9 per 100 encounters in 2006–07. This equates to an additional 300,000 encounters in 2006–07 at which pap smears were performed compared with 1998–99 (Table 10.9).

There were some procedures performed at marginally higher rates in 2006–07 than in 1998–99 that are of note. The rate of excisions was marginally higher in 2006–07, increasing from a rate of 2.8 per 100 encounters in 1998–99 to 3.4 per 100 encounters in 2006–07. Similarly, the rate of incisions/drainage/flushing/aspiration/removal of body fluids also increased marginally, from 1.0 per 100 encounters to 1.3 per 100 encounters (Table 10.9). The increase in the rate of excisions possibly reflects the increases in the management rates of solar keratosis and malignant skin neoplasms from 1998–99 to 2006–07.

A number of changes were apparent in the most common problems managed with a procedural treatment between 1998–99 and 2006–07 (Table 10.10). Solar keratosis, the problem most often managed with a procedure, has shown a marginal increase in the rate at which a procedure was performed, equating to an additional 200,000 occasions of service nationally at which solar keratosis was managed with a procedure in 2006–07. The likelihood of having a procedure at encounters for solar keratosis/sunburn has not changed over time, with the management and procedure rates increasing at similar levels (Table 7.11). Female genital check-ups were significantly more likely to involve a procedure in 2006–07 than in 1998–99, with an estimated additional 510,000 procedures performed nationally in 2006–07. The likelihood of having a procedure during a female genital check-up also increased. The rate of procedures performed during general check-ups increased significantly, equating to an additional 200,000 procedures performed at general check-ups. However, the likelihood of having a procedure done at a general check-up decreased, because the management rate of general check-ups increased over time at a far greater rate than the rate of procedures performed for this problem (Table 7.11).

Significantly more procedures were performed in the management of vitamin/nutritional deficiency over time, with an additional 100,000 procedures performed nationally for this problem in 2006–07 than in 1998–99 (Table 10.10).

There were fewer procedures performed at encounters for sprains and strains in 2006–07 compared with 1998–99. The decrease equated to 210,000 fewer procedures performed for sprains and strains in 2006–07 than in 1998–99. As discussed previously, the clinical treatment rate for sprains and strains also decreased over time, indicating that the likelihood of having any form of other treatment for a sprain/strain has declined. This may reflect the increasing role of practice nurses, suggesting they are taking over some of the management of sprains and strains independent of the GP–patient encounter (Table 10.10).

Table 10.7: The most frequent clinical treatments, summary of annual results, BEACH, 1998–99 to 2006–07

Treatment	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Advice/education*	3.5 (3.0–4.0)	4.2 (3.7–4.7)	5.8 (5.2–6.4)	6.3 (5.6–7.0)	6.9 (6.1–7.7)	6.8 (6.1–7.6)	7.0 (6.2–7.8)	4.8 (4.1–5.4)	5.7 (5.0–6.5)	§	—
Counselling—problem*	2.9 (2.6–3.3)	3.4 (3.0–3.9)	3.4 (3.0–3.8)	4.7 (4.0–5.3)	5.5 (4.8–6.1)	4.7 (4.1–5.3)	4.2 (3.3–5.0)	4.8 (4.1–5.4)	4.4 (3.7–5.0)	§	—
Counselling/advice— nutrition/weight*	3.8 (3.4–4.1)	4.2 (3.8–4.6)	5.6 (5.0–6.1)	5.5 (5.0–5.9)	5.2 (4.7–5.8)	4.6 (4.2–5.1)	5.3 (4.7–5.9)	3.6 (3.2–4.0)	3.4 (3.0–3.7)	—	—
Advice/education— treatment*	6.2 (5.6–6.8)	6.2 (5.6–6.8)	5.9 (5.3–6.5)	5.1 (4.6–5.6)	4.2 (3.8–4.7)	4.4 (3.8–4.9)	4.6 (4.0–5.1)	3.1 (2.6–3.5)	2.8 (2.5–3.1)	↓	–3,540
Counselling— psychological*	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.8 (2.6–3.1)	3.2 (2.8–3.5)	2.9 (2.6–3.1)	2.9 (2.6–3.1)	3.2 (2.9–3.5)	3.1 (2.8–3.3)	2.9 (2.6–3.1)	—	—
Advice/education— medication*	2.4 (2.2–2.6)	2.9 (2.6–3.2)	2.6 (2.3–2.9)	2.8 (2.6–3.1)	2.5 (2.2–2.7)	3.4 (3.1–3.7)	3.4 (2.9–3.8)	1.6 (1.4–1.7)	1.8 (1.6–2.0)	§	—
Sickness certificate*	0.7 (0.6–0.9)	0.6 (0.5–0.7)	1.1 (0.9–1.3)	1.1 (0.9–1.3)	1.3 (1.1–1.5)	1.0 (0.9–1.2)	1.7 (1.3–2.1)	1.6 (1.4–1.9)	1.6 (1.3–1.8)	↑	+920
Counselling/advice— exercise*	1.4 (1.1–1.6)	1.6 (1.4–1.8)	2.2 (1.9–2.4)	2.1 (1.8–2.3)	1.6 (1.4–1.8)	1.5 (1.3–1.7)	1.9 (1.4–2.3)	1.1 (0.9–1.2)	1.1 (1.0–1.3)	—	—
Reassurance, support	1.6 (1.4–1.8)	1.6 (1.4–1.8)	1.5 (1.3–1.8)	1.5 (1.3–1.7)	1.4 (1.2–1.5)	1.5 (1.3–1.7)	1.6 (1.2–1.9)	1.0 (0.8–1.2)	1.1 (0.9–1.3)	↓	–530
Counselling/advice— smoking*	0.6 (0.5–0.7)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.6 (0.6–0.7)	0.8 (0.6–1.0)	0.5 (0.4–0.6)	0.6 (0.5–0.6)	—	—
Counselling/advice— lifestyle*	0.3 (0.2–0.4)	0.3 (0.2–0.4)	0.3 (0.2–0.4)	0.4 (0.3–0.5)	0.5 (0.3–0.7)	0.3 (0.2–0.4)	0.4 (0.0–1.0)	0.5 (0.3–0.6)	0.4 (0.3–0.5)	—	—
Counselling/advice— alcohol*	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.5 (0.2–0.7)	0.3 (0.3–0.3)	0.3 (0.3–0.4)	—	—
Observe/wait*	1.0 (0.8–1.2)	0.6 (0.5–0.7)	0.7 (0.4–1.0)	0.3 (0.2–0.4)	0.3 (0.2–0.3)	0.3 (0.2–0.4)	0.4 (0.0–0.7)	0.3 (0.2–0.4)	0.3 (0.2–0.4)	↓	–730

(continued)

Table 10.7 (continued): The most frequent clinical treatments, summary of annual results, BEACH, 1998–99 to 2006–07

Treatment	Rate per 100 encounters ^(a) (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Family planning*	0.3 (0.2–0.4)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.2–0.6)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	—	—
Counselling/advice— prevention*	0.4 (0.3–0.5)	0.3 (0.3–0.4)	0.3 (0.2–0.4)	0.3 (0.2–0.4)	0.3 (0.2–0.4)	0.4 (0.3–0.5)	0.4 (0.1–0.8)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	—	—
Counselling/advice— health/body*	0.8 (0.7–1.0)	0.6 (0.4–0.7)	0.4 (0.3–0.5)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.4 (0.1–0.6)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	↓	–830
Other admin/document*	0.9 (0.8–1.0)	1.0 (0.9–1.2)	1.5 (1.3–1.6)	1.5 (1.4–1.7)	1.6 (1.4–1.7)	1.8 (1.6–2.0)	1.3 (1.1–1.5)	1.0 (0.9–1.1)	1.2 (1.1–1.4)	§	—
Counselling/advice— pregnancy*	0.1 (0.1–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.4)	0.3 (0.2–0.3)	§	—
Counselling/advice— relaxation*	0.4 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.4)	—	—
Counselling/advice—drug abuse*	0.2 (0.1–0.2)	0.4 (0.1–0.6)	0.3 (0.2–0.5)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.3)	0.2 (0.1–0.3)	0.1 (0.1–0.1)	§	—
Counselling/advice— relationship*	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	↓	–310
Counselling/advice— STDs*	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Total clinical treatments	31.4 (29.7–33.0)	33.5 (31.8–35.2)	37.2 (35.1–39.3)	38.1 (36.1–40.1)	37.2 (35.0–39.4)	36.6 (34.5–38.8)	39.2 (37.1–41.4)	29.2 (27.3–31.1)	29.5 (27.6–31.4)	§	—

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; admin—administration; STD—sexually transmitted disease.

Table 10.8: The most common problems managed with a clinical treatment, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate at which a clinical treatment was given, per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Depression*	1.6 (1.5–1.8)	1.6 (1.5–1.8)	1.8 (1.6–2.0)	1.7 (1.6–1.9)	1.7 (1.6–1.9)	1.7 (1.6–1.9)	1.8 (1.7–2.0)	1.7 (1.5–1.8)	1.5 (1.4–1.6)	—	—
Upper respiratory tract infection	1.2 (1.1–1.4)	1.4 (1.2–1.6)	1.7 (1.5–1.9)	2.0 (1.7–2.2)	1.8 (1.6–2.0)	1.6 (1.4–1.8)	1.8 (1.5–2.0)	1.6 (1.3–1.8)	1.5 (1.3–1.6)	—	—
Hypertension*	0.9 (0.8–1.1)	1.1 (0.9–1.2)	1.4 (1.2–1.6)	1.4 (1.2–1.5)	1.5 (1.3–1.7)	1.3 (1.1–1.4)	1.3 (1.2–1.5)	1.0 (0.9–1.2)	0.9 (0.8–1.0)	—	—
Diabetes—all*	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	—	—
Lipid disorders*	0.7 (0.6–0.8)	0.8 (0.7–0.9)	1.0 (0.9–1.2)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	0.8 (0.7–0.9)	0.8 (0.7–0.8)	—	—
Anxiety*	0.8 (0.7–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.7 (0.7–0.8)	—	—
Gastroenteritis*	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.7 (0.6–0.7)	0.7 (0.6–0.7)	↓	–210
Back complaint*	0.5 (0.4–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	—	—
Sprain/strain*	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.4 (0.4–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	↓	–110
Test results*	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.4 (0.3–0.4)	0.3 (0.2–0.4)	0.4 (0.3–0.5)	0.5 (0.4–0.6)	0.5 (0.3–0.6)	0.4 (0.3–0.4)	§	—
Obesity	0.4 (0.3–0.4)	0.4 (0.3–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.4 (0.3–0.4)	0.5 (0.4–0.5)	§	—
Acute stress reaction	0.5 (0.4–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.4 (0.4–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.4–0.5)	—	—
Asthma	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.7 (0.6–0.8)	0.6 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.4–0.6)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	↓	–310

(continued)

Table 10.8 (continued): The most common problems managed with a clinical treatment, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate at which a clinical treatment was given, per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Acute bronchitis/ bronchiolitis	0.3 (0.3–0.4)	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.5 (0.4–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	—	—
Osteoarthritis*	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.5 (0.4–0.5)	0.3 (0.3–0.4)	0.3 (0.2–0.4)	—	—
General check-up*	0.2 (0.2–0.2)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.3)	0.3 (0.2–0.4)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	↑	+100
Tobacco abuse	0.2 (0.2–0.2)	0.1 (0.1–0.2)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	↑	—
Oesophageal disease	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	↑	—
Pregnancy*	0.2 (0.1–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	↑	—
Adverse effect medical agent	0.2 (0.2–0.2)	0.3 (0.2–0.3)	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	↑	—
Urinary tract infection*	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	§	—
Menopausal complaint	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.4 (0.3–0.5)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	§	—
Total problems	28.7 (27.3–30.2)	30.4 (28.9–31.9)	32.8 (31.1–34.5)	33.6 (31.9–35.2)	32.8 (31.0–34.7)	32.4 (30.7–34.2)	34.4 (32.6–36.2)	26.7 (25.1–28.3)	26.8 (25.1–28.4)	—	—

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval. This table includes individual problems which had clinical treatments given at a rate of ≥ 0.5 per 100 encounters in any year, and any other statistically significant differences of interest.

Table 10.9: The most frequent procedural treatments, summary of annual results, BEACH, 1998–99 to 2006–07

Treatment	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Excision/removal tissue/ biopsy/destruction/ debridement/cauterisation*	2.8 (2.6–3.0)	3.0 (2.8–3.2)	2.6 (2.4–2.9)	2.7 (2.5–3.0)	2.9 (2.6–3.1)	3.1 (2.7–3.6)	3.3 (3.0–3.6)	3.0 (2.7–3.2)	3.4 (3.0–3.7)	↑	+600
Dressing/pressure/ compression/tamponade*	2.0 (1.8–2.2)	2.2 (2.0–2.3)	1.8 (1.6–1.9)	1.8 (1.7–1.9)	2.0 (1.8–2.1)	1.8 (1.7–2.0)	2.0 (1.8–2.1)	2.1 (1.9–2.3)	2.3 (2.1–2.4)	—	—
Local injection/ infiltration ^(b)	0.3 (0.1–0.5)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	1.2 (0.9–1.4)	1.5 (1.3–1.7)	1.6 (1.4–1.8)	2.0 (1.7–2.2)	2.0 (1.8–2.2)	1.9 (1.7–2.1)	↑	+920
Physical medicine/ rehabilitation*	1.8 (1.5–2.1)	1.7 (1.5–1.8)	2.0 (1.8–2.3)	2.2 (1.9–2.4)	2.1 (1.8–2.4)	1.7 (1.5–1.9)	2.0 (1.7–2.3)	1.4 (1.1–1.6)	1.1 (0.9–1.3)	§	—
Incision/drainage/flushing/ aspiration/removal body fluid*	1.0 (0.9–1.1)	1.1 (1.0–1.2)	1.1 (1.0–1.1)	1.2 (1.0–1.2)	1.1 (1.0–1.2)	1.2 (1.1–1.3)	1.0 (1.0–1.1)	1.3 (1.2–1.4)	1.3 (1.1–1.4)	↑	+300
Pap smear*	0.6 (0.5–0.7)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.1 (0.9–1.2)	1.1 (0.9–1.3)	1.0 (0.8–1.1)	1.0 (0.8–1.1)	0.9 (0.8–1.0)	↑	+300
Repair/fixation—suture/ cast/prosthetic device (apply/remove)*	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	0.8 (0.7–0.9)	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	—	—
Other therapeutic procedures/surgery NEC*	0.9 (0.7–1.1)	1.1 (0.8–1.3)	1.1 (0.9–1.4)	1.4 (1.2–1.7)	1.2 (1.0–1.4)	1.1 (0.9–1.3)	1.2 (0.9–1.5)	0.8 (0.6–0.9)	0.7 (0.6–0.9)	—	—
Physical function test*	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.5 (0.3–0.6)	0.4 (0.3–0.5)	0.5 (0.4–0.7)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.6 (0.4–0.7)	↑	+310
Electrical tracings*	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.3–0.5)	0.5 (0.4–0.5)	—	—
Urine test*	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.2–0.4)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	↑	+100
Glucose test*	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.1–0.2)	0.1 (0.1–0.2)	↓	–210

(continued)

Table 10.9 (continued): The most frequent procedural treatments, summary of annual results, BEACH, 1998–99 to 2006–07

Treatment	Rate per 100 encounters (95% CI)									Change ^(a)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Other diagnostic procedures*	0.0 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.2 (0.1–0.3)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.3)	↑	+210
Total procedural treatments	11.8 (11.2–12.5)	12.5 (11.9–13.0)	12.2 (11.6–12.8)	13.8 (13.1–14.5)	14.6 (13.9–15.3)	14.7 (14.0–15.5)	15.5 (14.6–16.4)	14.4 (13.7–15.1)	15.2 (14.4–16.0)	↑	+3,410

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

(b) Excludes all local injection/infiltrations performed for immunisations.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: Rates are reported to one decimal place, a rate of 0.0 indicates that the rate is < 0.05 per 100 encounters. CI—confidence interval; NEC—not elsewhere classified.

Table 10.10: The most common problems managed with a procedural treatment, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate at which a procedural treatment was given, per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Solar keratosis/sunburn	0.7 (0.6–0.8)	0.8 (0.7–0.8)	0.7 (0.6–0.8)	0.8 (0.6–0.9)	0.8 (0.7–0.9)	0.9 (0.8–1.1)	0.9 (0.7–1.1)	0.9 (0.8–1.0)	0.9 (0.8–1.0)	↑	+200
Female genital check-up*	0.3 (0.3–0.4)	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.7)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	↑	+510
Excessive ear wax	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.6 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.4–0.6)	0.6 (0.5–0.6)	0.7 (0.6–0.8)	0.6 (0.5–0.6)	§	—
Malignant neoplasm skin	0.4 (0.2–0.6)	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.5 (0.4–0.6)	0.6 (0.4–0.7)	0.6 (0.5–0.6)	0.6 (0.5–0.7)	—	—
Laceration/cut	0.7 (0.6–0.7)	0.7 (0.6–0.7)	0.5 (0.5–0.6)	0.5 (0.4–0.5)	0.6 (0.5–0.7)	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.7 (0.6–0.8)	—	—

(continued)

Table 10.10 (continued): The most common problems managed with a procedural treatment, summary of annual results, BEACH, 1998–99 to 2006–07

Problem managed	Rate at which a procedural treatment was given, per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Back complaint*	0.4 (0.3–0.6)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.5 (0.4–0.5)	0.4 (0.3–0.6)	0.4 (0.3–0.5)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.3 (0.2–0.3)	§	—
Warts	0.5 (0.4–0.5)	0.5 (0.5–0.6)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.4–0.5)	0.6 (0.5–0.6)	§	—
Chronic ulcer skin (incl varicose ulcer)	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.3 (0.2–0.4)	0.4 (0.4–0.5)	—	—
Sprain/strain*	0.5 (0.4–0.7)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.5 (0.4–0.6)	0.4 (0.3–0.4)	0.5 (0.4–0.6)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	↓	–210
Asthma	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.3 (0.3–0.4)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.2)	0.3 (0.2–0.3)	↑	+200
Skin complaint	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	↑	+200
General check-up*	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.3 (0.2–0.3)	↑	+200
Hypertension*	0.0 [†] (0.0–0.1)	0.1 (0.0–0.1)	0.2 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	↑	+210
Vitamin/nutritional deficiency	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.0 [†] (0.0–0.0)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	↑	+100
Total problems	11.2 (10.6–11.7)	11.8 (11.3–12.3)	11.5 (10.9–12.1)	13.1 (12.4–13.7)	13.6 (13.0–14.2)	13.7 (13.1–14.4)	14.3 (13.5–15.0)	13.6 (12.9–14.2)	14.3 (13.6–15.0)	↑	+3,110

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

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Note: CI—confidence interval; incl—including; UTI—urinary tract infection. This table includes individual problems which had procedural treatments done at a rate of ≥ 0.5 per 100 encounters in any year, and any other statistically significant differences of interest.

11 Referrals and admissions

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

11.1 Annual results, 2006–07

Number of referrals and admissions

Table 11.1 provides a summary of referrals and admissions, and the rates per 100 encounters and per 100 problems for which referrals were provided. The patient was given at least one referral at 11.5% of all encounters, and for 8.3% of all problems managed. The most frequent referrals were to specialists, followed by referrals to allied health services. Very few patients were referred to hospitals, to the hospital emergency department or to other medical services.

Table 11.1: Summary of referrals and admissions, 2006–07

Variable	Number	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL	Rate per 100 problems (n = 136,333)	95% LCL	95% UCL
At least one referral ^(a)	10,541	11.5	11.0	11.9	8.3	8.0	8.6
Referrals	11,224	12.2	11.7	12.7	8.2	7.9	8.5
Specialist	7,387	8.0	7.7	8.4	5.4	5.2	5.7
Allied health service	2,819	3.1	2.9	3.3	2.1	1.9	2.2
Hospital	367	0.4	0.3	0.5	0.3	0.2	0.3
Emergency department	149	0.2	0.1	0.2	0.1	0.1	0.1
Other medical services	89	0.1	0.1	0.1	0.1	0.0	0.1
Other referrals	413	0.4	0.4	0.5	0.3	0.3	0.3

(a) Rate per 100 problems for at least one referral is calculated using a numerator of number of individual problems with a referral (n = 11,277).

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

Most frequent referrals

Table 11.2 shows the specialists and allied health service groups to whom GPs most often referred. The most common referrals were to surgeons, ophthalmologists and orthopaedic surgeons. Approximately 36% of referrals to allied health services were to physiotherapists, 14% to psychologists, 10% to podiatrists/chiropractors and 8% to dietitians/nutritionists.

Table 11.2: The most frequent referrals by type, 2006–07

Professional/organisation	Number	Per cent of referrals ^(a)	Per cent of referral group	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Medical specialist	7,387	72.0	100.0	8.0	7.7	8.4
Surgeon	766	7.4	10.4	0.8	0.8	0.9
Ophthalmologist	714	6.9	9.7	0.8	0.7	0.9
Orthopaedic surgeon	687	6.7	9.3	0.8	0.7	0.8
Dermatologist	558	5.4	7.5	0.6	0.5	0.7
Cardiologist	538	5.2	7.3	0.6	0.5	0.7
Gynaecologist	469	4.6	6.3	0.5	0.5	0.6
Ear, nose and throat	459	4.5	6.2	0.5	0.4	0.6
Gastroenterologist	396	3.9	5.4	0.4	0.4	0.5
Urologist	304	3.0	4.1	0.3	0.3	0.4
Neurologist	209	2.0	2.8	0.2	0.2	0.3
<i>Subtotal: top 10 specialist referrals</i>	<i>5,100</i>	<i>50.0</i>	<i>69.0</i>	—	—	—
Allied health and other professionals	2,819	28.0	100.0	3.1	2.9	3.3
Physiotherapy	1,010	9.8	35.8	1.1	1.0	1.2
Psychologist	381	3.7	13.5	0.4	0.4	0.5
Podiatrist/chiropract	290	2.8	10.3	0.3	0.3	0.4
Dietitian/nutritionist	210	2.0	7.5	0.2	0.2	0.3
Dentist	148	1.4	5.3	0.2	0.1	0.2
Optometrist	67	0.7	2.4	0.1	0.1	0.1
Diabetes education	61	0.6	2.2	0.1	0.0	0.1
Audiologist	59	0.6	2.1	0.1	0.0	0.1
Counsellor	53	0.5	1.9	0.1	0.0	0.1
Mental health team	46	0.4	1.6	0.1	0.0	0.1
<i>Subtotal: top 10 allied health referrals</i>	<i>2,325</i>	<i>22.8</i>	<i>82.6</i>	—	—	—
Total specialist and allied health referrals	10,206	100.0	—	11.1	10.6	11.6

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

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

Problems most often referred

A referral to a specialist was provided in the management of 7,594 problems. The 10 problems most commonly referred to a specialist accounted for 17.7% of all problems referred to a specialist. The problems most often referred were pregnancy (2.8% of problems referred to a specialist), diabetes, malignant skin neoplasm and ischaemic heart disease (Table 11.3).

Table 11.3 also shows the rate of referral per 100 contacts for each problem. Although pregnancy accounted for the greatest proportion of problems referred, the problem most likely to result in a referral to a specialist was cataract, with GPs referring more than two out of every three contacts with a cataract problem.

Table 11.3: The 10 problems most frequently referred to a medical specialist, 2006–07

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n = 91,805)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Pregnancy*	213	2.8	0.2	0.2	0.3	18.4
Diabetes—all*	176	2.3	0.2	0.2	0.2	5.2
Malignant skin neoplasm	169	2.2	0.2	0.2	0.2	16.2
Ischaemic heart disease*	142	1.9	0.2	0.1	0.2	12.0
Osteoarthritis*	130	1.7	0.1	0.1	0.2	5.4
Back complaint*	121	1.6	0.1	0.1	0.2	5.0
Depression*	108	1.4	0.1	0.1	0.2	3.2
Hypertension*	105	1.4	0.1	0.1	0.2	1.2
Cataract	90	1.2	0.1	0.1	0.1	71.2
Abnormal test results*	88	1.2	0.1	0.1	0.1	10.6
<i>Subtotal: top 10 problems referred to a specialist</i>	<i>1,342</i>	<i>17.7</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total problems referred to specialist	7,594	100.0	8.3	7.9	8.7	—

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

There were 2,911 problems referred to an allied health professional or service. The 10 most common of these accounted for 43.7% of all problems referred to allied health services, with depression the most common. However, the problem most likely to result in a referral to an allied health service was teeth/gum disease, with more than one in four contacts resulting in referral (Table 11.4).

Table 11.4: The 10 problems most frequently referred to allied health services, 2006–07

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n = 91,805)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Depression*	230	7.9	0.3	0.2	0.3	6.8
Back complaint*	220	7.5	0.2	0.2	0.3	9.1
Sprain/strain*	177	6.1	0.2	0.2	0.2	12.4
Diabetes—all*	173	6.0	0.2	0.2	0.2	5.1
Teeth/gum disease	98	3.4	0.1	0.1	0.1	27.0
Anxiety*	90	3.1	0.1	0.1	0.1	5.7
Osteoarthritis*	83	2.9	0.1	0.1	0.1	3.5
Musculoskeletal injury NOS	76	2.6	0.1	0.1	0.1	9.6
Bursitis/tendonitis/synovitis NOS	64	2.2	0.1	0.1	0.1	8.8
Shoulder syndrome	58	2.0	0.1	0.0	0.1	13.2
<i>Subtotal: top 10 problems referred to AHS</i>	<i>1,269</i>	<i>43.7</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total problems referred to AHS	2,911	100.0	3.2	3.0	3.4	—

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

The 10 problems most frequently referred to hospital are shown in Table 11.5. Fracture was the most common. However, the problem most likely to result in referral was appendicitis.

Table 11.5: The 10 problems most frequently referred to hospital, 2006–07

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n = 91,805)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Fracture*	18	4.7	0.02	0.01	0.03	1.9
Pregnancy*	16	4.2	0.02	0.01	0.03	1.4
Pneumonia	15	3.8	0.02	0.01	0.03	5.2
Appendicitis	14	3.7	0.02	0.01	0.02	31.4
Ischaemic heart disease*	11	2.9	0.01	0.00	0.02	1.0
Disease digestive system, other	10	2.7	0.01	0.00	0.02	4.2
Heart failure	10	2.6	0.01	0.00	0.02	1.6
Anaemia*	8	2.2	0.01	0.00	0.02	1.4
Infectious disease, other/NOS	8	2.1	0.01	0.00	0.02	2.5
Chronic obstructive pulmonary disease	7	1.9	0.01	0.00	0.01	1.0
<i>Subtotal: top 10 problems referred for admission</i>	<i>117</i>	<i>30.8</i>	—	—	—	—
Total problems referred to hospital	387	100.0	0.4	0.4	0.5	—

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

11.2 Changes over time, 1998–99 to 2006–07

Table 11.6 shows there was an increasing likelihood that the patient would be referred at the encounters (at 10.6% of encounters in 1998–99 compared with 11.5% in 2006–07), suggesting that the patient was referred to at least one other provider on about 850,000 more occasions in 2006–07 than in 1998–99. There was a significant increase in the overall number of referrals per 100 encounters, from 11.1 in 1998–99 to 12.2 in 2006–07, reflecting both the increased likelihood of referral and a slight increase in the likelihood of multiple referrals at the encounter once the decision to refer has been made.

There were more referrals made to specialists in 2006–07 than in 1998–99. In 1998–99 referrals to specialists were made at a rate of 7.3 per 100 encounters, and increased to 8.0 per 100 in 2006–07. Of the specialist referrals, rates to cardiologists increased significantly and rates to orthopaedic surgeons increased marginally (Table 11.6).

The likelihood of a referral to an allied health service has changed significantly since 1998–99, but not in a linear manner. It decreased from referral at 3.0% of all encounters in 1998–99 to a low of 2.3% in 2001–02, and then steadily increased to 3.1% in 2006–07, the same proportion as in 1999–00. The rate of referrals to psychologists, podiatrist/chiropractists and dietitians/nutritionists all significantly increased between 1998–99 and 2006–07, and referral rates to physiotherapists showed a marginal increase (Table 11.6).

In 2006–07 there were significantly fewer referrals/admissions to hospitals compared with 1998–99 but the numbers were very small in all years (Table 11.6).

Table 11.6: The most frequent referrals, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
At least one referral	10.6 (10.2–11.0)	10.4 (10.0–10.8)	9.9 (9.6–10.3)	10.0 (9.6–10.4)	10.6 (10.2–11.0)	11.0 (10.5–11.5)	10.9 (10.5–11.3)	11.3 (10.9–11.8)	11.5 (11.0–11.9)	↑	+850
Specialist	7.4 (7.1–7.7)	7.3 (7.0–7.6)	7.4 (7.1–7.7)	7.3 (7.0–7.6)	7.7 (7.3–8.0)	7.9 (7.5–8.2)	7.7 (7.4–8.0)	8.2 (7.8–8.5)	8.0 (7.7–8.4)	↑	+570
Ophthalmologist	0.7 (0.7–0.8)	0.7 (0.6–0.7)	0.7 (0.6–0.7)	0.8 (0.7–0.8)	0.7 (0.7–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	—	—
Surgeon	0.8 (0.7–0.9)	0.8 (0.7–0.8)	0.7 (0.7–0.8)	0.8 (0.7–0.8)	0.7 (0.7–0.8)	0.8 (0.8–0.9)	0.8 (0.7–0.9)	0.8 (0.7–0.8)	0.8 (0.8–0.9)	—	—
Orthopaedic surgeon	0.6 (0.5–0.7)	0.7 (0.6–0.7)	0.7 (0.6–0.7)	0.7 (0.7–0.8)	0.8 (0.7–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.8 (0.7–0.8)	↑	+200
Dermatologist	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.6 (0.6–0.7)	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.6 (0.5–0.7)	—	—
Cardiologist	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.3–0.4)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	↑	+200
Gynaecologist	0.6 (0.5–0.6)	0.5 (0.5–0.6)	0.6 (0.5–0.6)	0.5 (0.5–0.6)	0.6 (0.6–0.7)	0.6 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	—	—
Ear, nose and throat	0.5 (0.5–0.6)	0.5 (0.4–0.5)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.5–0.6)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	—	—
Gastroenterologist	0.4 (0.4–0.5)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	0.4 (0.3–0.5)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.5 (0.5–0.6)	0.4 (0.4–0.5)	—	—
Urologist	0.3 (0.3–0.4)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.3–0.3)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4)	—	—
Neurologist	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.2)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	—	—
Psychiatrist	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	—	—

(continued)

Table 11.6 (continued): The most frequent referrals, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	('000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
Allied health service	3.0 (2.8–3.2)	3.1 (2.9–3.3)	2.3 (2.2–2.5)	2.3 (2.1–2.4)	2.5 (2.3–2.7)	2.6 (2.4–2.8)	2.7 (2.5–2.9)	2.9 (2.7–3.1)	3.1 (2.9–3.3)	§	—
Physiotherapy	0.9 (0.8–1.0)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	0.9 (0.8–1.0)	1.1 (0.9–1.2)	1.0 (0.9–1.1)	1.1 (0.9–1.1)	1.1 (1.0–1.3)	1.1 (1.0–1.2)	↑	+200
Psychologist	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.4 (0.4–0.5)	↑	+200
Podiatrist/chiropracist	0.2 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.3–0.4)	↑	+100
Dietitian/nutritionist	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	↑	+100
Dentist	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	—	—
Optometrist	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	—	—
Counsellor	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	—	—
Audiologist/acoustic testing	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.0 [‡] (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.0 [‡] (0.0–0.0)	—	—
Diabetes education	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.1 (0.0–0.1)	0.0 [‡] (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	—	—
Mental health team	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	—	—
Drug and alcohol	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.0 [‡] (0.0–0.0)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.1)	—	—
Aged care assessment	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.0)	—	—

(continued)

Table 11.6 (continued): The most frequent referrals, summary of annual results, BEACH, 1998–99 to 2006–07

	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Chiropractor	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.1)	0.1 (0.0–0.1)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.0)	—	—
Breast clinic	NAv	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.1)	0.1 (0.0–0.1)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.1)	—	—
Hospital	0.7 (0.6–0.8)	0.7 (0.6–0.8)	0.5 (0.4–0.6)	0.4 (0.4–0.5)	0.6 (0.5–0.6)	0.6 (0.5–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.4)	0.4 (0.3–0.5)	↓	–310
Emergency department	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.2)	0.2 (0.1–0.2)	↑	+100
Other referrals/other medical services^(c)	0.0[‡] (0.0–0.0)	0.0[‡] (0.0–0.0)	0.2 (0.1–0.2)	0.4 (0.3–0.4)	0.3 (0.2–0.3)	0.4 (0.4–0.5)	0.4 (0.4–0.5)	0.4 (0.3–0.4)	0.5 (0.5–0.6)	↑	+510
Total referrals	11.1 (10.7–11.6)	11.1 (10.7–11.6)	10.4 (10.0–10.8)	10.5 (10.1–10.9)	11.1 (10.7–11.6)	11.6 (11.1–12.1)	11.5 (11.1–12.0)	12.0 (11.5–12.5)	12.2 (11.7–12.7)	↑	+1050

(a) Column will not add to 100 because multiple referrals could be written at each encounter.

(b) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, § indicates a non-linear significant or marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

(c) Other referrals and other medical services have been reported together for comparability. The 'other medical services' group was introduced in 2003–04, previously these were grouped with 'other referrals'.

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

Note: CI—confidence interval; NAv—not available.

12 Investigations

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

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

12.1 Annual results, 2006–07

Numbers of investigations

Table 12.1 shows the number of encounters and problems at which a pathology or imaging test was ordered. There were no tests recorded at a large majority (77.0%) of encounters.

At least one pathology test order was recorded at 17.4% of encounters (for 13.4% of problems managed) and at least one imaging test was ordered at 7.9% of encounters (for 5.5% of problems managed).

Table 12.1: Number of encounters and problems for which pathology or imaging ordered, 2006–07

Variable	Number of encounters	Per cent of encounters (<i>n</i> = 91,805)	95% LCL	95% UCL	Number of problems	Per cent of problems (<i>n</i> = 136,333)	95% LCL	95% UCL
Pathology and imaging ordered	2,032	2.2	2.1	2.4	1,477	1.1	1.0	1.2
Pathology only ordered	13,906	15.1	14.6	15.7	16,819	12.3	11.9	12.7
Imaging only ordered	5,178	5.6	5.4	5.9	5,982	4.4	4.2	4.6
No tests ordered	70,688	77.0	76.3	77.7	112,055	82.2	81.7	82.7
At least one pathology ordered	15,939	17.4	16.8	18.0	18,296	13.4	13.0	13.9
At least one imaging ordered	7,210	7.9	7.6	8.2	7,459	5.5	5.3	5.7
At least one other investigation ordered	929	1.0	0.9	1.1	945	0.7	0.6	0.8

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

Pathology ordering

A comprehensive report on pathology ordering by GPs in Australia in 1998, written by the then General Practice Statistics and Classification Unit (GPSCU) using BEACH data, was published on the Internet by the Diagnostics and Technology Branch of the Department of Health and Aged Care during 2000.⁶³ A report on changes in pathology ordering by GPs

from 1998 to 2001 was also produced by the GPSCU as an AIHW – University of Sydney book in the GP series in 2003.⁶⁴ Readers may wish to compare those results with the information presented below.

Nature of pathology orders at encounter

The distribution of pathology tests by MBS group and the most common tests within each group are presented in Table 12.2. Each group and individual test is expressed as a percentage of all pathology tests, as a percentage of the group and as a rate per 100 encounters with 95% confidence limits.

The pathology tests recorded were grouped according to the categories set out in Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>. The main pathology groups reflect those used in previous analyses by Medicare Australia of pathology tests (MBS groups).⁶⁵

Test orders classed as 'Chemistry' accounted for more than half of all pathology test orders, the most common being Lipids for which there were 4.3 orders per 100 encounters, EUC (3.3), Liver function (2.9) and Glucose tolerance (2.7 per 100 encounters).

Table 12.2: Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group, 2006–07

Pathology test ordered	Number	Per cent of all pathology	Per cent of group	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Chemistry*	22,502	57.8	100.0	24.5	23.3	25.7
Lipids*	3,959	10.2	17.6	4.3	4.0	4.6
EUC*	2,983	7.7	13.3	3.3	3.0	3.5
Liver function*	2,679	6.9	11.9	2.9	2.7	3.2
Glucose/tolerance*	2,441	6.3	10.8	2.7	2.4	2.9
Thyroid function*	2,138	5.5	9.5	2.3	2.1	2.5
Multibiochemical analysis*	1,699	4.4	7.5	1.9	1.6	2.1
Chemistry; other*	1,084	2.8	4.8	1.2	1.1	1.3
Ferritin*	1,032	2.7	4.6	1.1	1.0	1.2
HbA1c*	992	2.6	4.4	1.1	1.0	1.2
Prostate specific antigen*	719	1.9	3.2	0.8	0.7	0.9
Hormone assay*	704	1.8	3.1	0.8	0.6	0.9
C reactive protein	563	1.4	2.5	0.6	0.5	0.7
Haematology*	7,217	18.5	100.0	7.9	7.5	8.3
Full blood count*	5,289	13.6	73.3	5.8	5.5	6.1
ESR	860	2.2	11.9	0.9	0.8	1.0
Coagulation*	805	2.1	11.2	0.9	0.8	1.0
Microbiology*	5,368	13.8	100.0	5.9	5.4	6.3
Urine M,C&S*	1,651	4.2	30.8	1.8	1.7	1.9
Microbiology; other*	716	1.8	13.3	0.8	0.7	0.9
Hepatitis serology*	540	1.4	10.1	0.6	0.5	0.7
HIV*	348	0.9	6.5	0.4	0.3	0.5

(continued)

Table 12.2 (continued): Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group, 2006–07

Pathology test ordered	Number	Per cent of all pathology	Per cent of group	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Chlamydia*	313	0.8	5.8	0.3	0.3	0.4
Faeces M,C&S*	303	0.8	5.6	0.3	0.3	0.4
Vaginal swab and M,C&S	296	0.8	5.5	0.3	0.3	0.4
Cytology*	1,557	4.0	100.0	1.7	1.5	1.9
Pap smear*	1,514	3.9	97.3	1.7	1.5	1.8
Other NEC*	748	1.9	100.0	0.8	0.7	1.0
Blood test	299	0.8	39.9	0.3	0.2	0.4
Tissue pathology*	663	1.7	100.0	0.7	0.6	0.8
Histology; skin	631	1.6	95.0	0.7	0.6	0.8
Immunology*	566	1.5	100.0	0.6	0.5	0.7
Immunology, other*	280	0.7	49.5	0.3	0.3	0.4
Antinuclear antibodies	139	0.4	24.5	0.2	0.1	0.2
Infertility/pregnancy*	188	0.5	100.0	0.2	0.2	0.3
Simple basic tests*	153	0.4	100.0	0.2	0.1	0.2
Total pathology tests	38,963	100.0	—	42.4	40.7	44.2

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Problems for which pathology tests were ordered

Table 12.3 describes, in decreasing frequency order of problem–pathology combinations, the most common problems for which pathology was ordered. Diabetes, hypertension, lipid disorders and general check-ups were the most common problems for which pathology tests were ordered. The two right-hand columns show the proportion of each problem that resulted in a pathology order and the rate of pathology orders per 100 specified problems when at least one test is ordered. For example, 30.8% of contacts with diabetes resulted in pathology orders, and when at least one pathology test was ordered for diabetes, 277 tests were ordered per 100 diabetes contacts that resulted in a pathology test order. In contrast, only 11.6% of contacts with hypertension problems resulted in a pathology test, but the resulting test orders accounted for almost as many tests (6.7%) as did diabetes.

Table 12.3: The 10 problems for which pathology was most frequently ordered, 2006–07

Problem managed	Number of problems	Number of problem–path combinations ^(a)	Per cent of problem–path combinations ^(a)	Per cent of problems with test ^(b)	Rate of path orders per 100 problems with pathology ^(c)
Diabetes—all*	3,387	2,894	7.2	30.8	277.0
Hypertension*	8,768	2,717	6.7	11.6	266.5
Lipid disorders	3,176	2,137	5.3	30.3	221.8
General check-up*	2,236	2,093	5.2	29.8	314.4
Female genital check-up*	1,580	1,441	3.6	75.1	121.4
Weakness/tiredness general	562	1,408	3.5	66.0	379.6

(continued)

Table 12.3 (continued): The 10 problems for which pathology was most frequently ordered, 2006–07

Problem managed	Number of problems	Number of problem–path combinations ^(a)	Per cent of problem–path combinations ^(a)	Per cent of problems with test ^(b)	Rate of path orders per 100 problems with pathology ^(c)
Urinary tract infection*	1,512	959	2.4	54.1	117.2
Pregnancy*	1,156	891	2.2	36.9	208.9
Blood test NOS	311	877	2.2	86.8	324.7
Abnormal test results*	835	692	1.7	49.8	166.4
<i>Subtotal</i>	23,523	16,109	40.0	—	—
Total	136,333	40,458	100.0	13.4	221.1

(a) A test was counted more than once if it was ordered for the management of more than one problem at an encounter. There were 38,963 pathology test orders and 40,458 problem–pathology combinations.

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

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

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Imaging ordering

Readers wanting a more detailed study of imaging orders should consult the comprehensive report on imaging orders by GPs in Australia in 1999–00, written by the GPSCU using BEACH data, published by the AIHW and the University of Sydney in 2001.⁶⁶

Nature of imaging orders at encounter

The distribution of imaging tests by MBS group and the most common tests within each group are presented in Table 12.4. Each group and individual test is expressed as a percentage of all imaging tests, as a percentage of the group and as a rate per 100 encounters with 95% confidence limits. Diagnostic radiology accounted for half of all imaging test orders while ultrasound accounted for a further 35.2%.

Table 12.4: The most frequent imaging tests ordered, by MBS group, 2006–07

Imaging test ordered	Number	Per cent of all imaging	Per cent of group	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Diagnostic radiology*	4,199	51.0	100.0	4.6	4.4	4.8
X-ray; chest	960	11.7	22.9	1.1	1.0	1.1
X-ray; knee	385	4.7	9.2	0.4	0.4	0.5
Mammography; female	315	3.8	7.5	0.3	0.3	0.4
X-ray; shoulder	221	2.7	5.3	0.2	0.2	0.3
X-ray; hip	203	2.5	4.8	0.2	0.2	0.3
X-ray; foot/feet	191	2.3	4.6	0.2	0.2	0.2
X-ray; ankle	187	2.3	4.4	0.2	0.2	0.2
Test; densitometry	164	2.0	3.9	0.2	0.1	0.2
X-ray; spine; lumbosacral	141	1.7	3.4	0.2	0.1	0.2

(continued)

Table 12.4 (continued): The most frequent imaging tests ordered, by MBS group, 2006–07

Imaging test ordered	Number	Per cent of all imaging	Per cent of group	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
X-ray; wrist	136	1.7	3.2	0.2	0.1	0.2
X-ray; hand	113	1.4	2.7	0.1	0.1	0.1
X-ray; finger(s)/thumb	103	1.3	2.5	0.1	0.1	0.1
X-ray; spine; cervical	101	1.2	2.4	0.1	0.1	0.1
X-ray; spine; lumbar	97	1.2	2.3	0.1	0.1	0.1
X-ray; spine; thoracic	66	0.8	1.6	0.1	0.1	0.1
Ultrasound*	2,898	35.2	100.0	3.2	3.0	3.3
Ultrasound; pelvis	479	5.8	16.5	0.5	0.5	0.6
Ultrasound; abdomen	321	3.9	11.1	0.4	0.3	0.4
Ultrasound; obstetric	270	3.3	9.3	0.3	0.2	0.3
Ultrasound; shoulder	265	3.2	9.1	0.3	0.2	0.3
Ultrasound; breast; female	255	3.1	8.8	0.3	0.2	0.3
Ultrasound; renal tract	128	1.6	4.4	0.1	0.1	0.2
Echocardiography	108	1.3	3.7	0.1	0.1	0.1
Test; doppler	103	1.3	3.6	0.1	0.1	0.1
Ultrasound; abdomen upper	88	1.1	3.0	0.1	0.1	0.1
Ultrasound; leg	68	0.8	2.3	0.1	0.1	0.1
Test; doppler carotid	66	0.8	2.3	0.1	0.0	0.1
Computerised tomography*	1,009	12.3	100.0	1.1	1.0	1.2
CT scan; brain	185	2.3	18.3	0.2	0.2	0.2
CT scan; abdomen	122	1.5	12.1	0.1	0.1	0.2
CT scan; spine; lumbar	107	1.3	10.6	0.1	0.1	0.1
CT scan; head	95	1.2	9.4	0.1	0.1	0.1
Nuclear medicine imaging*	86	1.0	100.0	0.1	0.1	0.1
Scan; bone(s)	61	0.7	70.9	0.1	0.0	0.1
Magnetic resonance imaging	36	0.4	100.0	0.0	0.0	0.1
Total imaging tests	8,229	100.0	—	9.0	8.6	9.3

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Problems for which imaging tests were ordered

Table 12.5 describes, in decreasing frequency order of problem–imaging combinations, the most common problems for which imaging was ordered. The most common problem for which imaging was ordered was back complaint at 5.1% of orders, followed by fracture (4.9%), and osteoarthritis (4.7% of orders). The two right-hand columns show the proportion of each problem that resulted in an imaging test and the rate of imaging tests per 100 specified problems when at least one test is ordered—for example, 39.7% of contacts with fractures resulted in an imaging test and 107.6 tests were ordered per 100 fracture contacts when at least one test was ordered.

Table 12.5: The 10 problems for which an imaging test was most frequently ordered, 2006–07

Problem managed	Number of problems	Number of problem–imaging combinations ^(a)	Per cent of problem–imaging combinations	Per cent of problems with test ^(b)	Rate of imaging orders per 100 problems with imaging ^(c)
Back complaint*	2,403	421	5.1	15.7	111.9
Fracture*	960	410	4.9	39.7	107.6
Osteoarthritis*	2,403	388	4.7	14.2	113.4
Sprain/strain*	1,423	304	3.6	18.9	113.1
Injury musculoskeletal NOS	792	278	3.3	31.1	112.5
Pregnancy*	1,156	257	3.1	19.6	113.7
Abdominal pain*	539	204	2.4	34.7	108.6
Breast lump/mass (female)	193	197	2.4	69.2	147.5
Shoulder syndrome	442	170	2.0	27.5	139.9
Bursitis/tendonitis/synovitis NOS	723	155	1.9	18.1	118.4
<i>Subtotal</i>	<i>11,034</i>	<i>2,784</i>	<i>33.4</i>	<i>—</i>	<i>—</i>
Total	136,333	8,323	100.0	5.4	112.1

(a) A test was counted more than once if it was ordered for the management of more than one problem at an encounter. There were 8,229 imaging test orders and 8,323 problem–imaging combinations.

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

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

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: NOS—not otherwise specified.

Other investigations ordered

Other investigations include diagnostic procedures ordered by the GP at the encounter. There were a total of 971 other investigations ordered by GPs during the study year (Table 12.6).

Most frequent procedures

Table 12.6 lists the most common other investigations ordered by GPs. Each investigation is expressed as a percentage of all ‘other investigations’ and as a rate per 100 encounters with 95% confidence limits.

To find the total number of these investigations ordered or performed by the GP, the numbers of investigations in Table 12.6 need to be added to those in Table 10.5, which reports the diagnostic procedures performed by the GP at the encounter.

Table 12.6: Most frequent other investigations, 2006–07

Treatment	Number	Per cent of other investigations	Rate per 100 encounters (n = 91,805)	95% LCL	95% UCL
Electrical tracings*	484.6	49.9	0.5	0.5	0.6
Diagnostic endoscopy*	315.3	32.5	0.3	0.3	0.4
Physical function test*	159.1	16.4	0.2	0.1	0.2
<i>Subtotal</i>	<i>959.0</i>	<i>98.8</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total other investigations	970.8	100.0	1.1	1.0	1.2

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

12.2 Changes over time, 1998–99 to 2006–07

Numbers of encounters where pathology/imaging was ordered

Table 12.7 shows that there has been an increase in the proportion of encounters at which pathology and/or imaging was ordered, from 18.1% in 1998–99 to 23.0% in 2006–07, equating to an increase of over 4.9 million encounters at which tests were ordered in 2006–07. The likelihood of ordering at least one pathology test increased from 13.2% of encounters in 1998–99 to 17.4% in 2006–07, which is just over 4.2 million additional encounters at which pathology was ordered in 2006–07. The proportion of encounters generating imaging orders increased from 6.3% in 1998–99 to 7.9% in 2006–07, resulting in an estimated 1.6 million more encounters nationally at which imaging was ordered in 2006–07.

Pathology test orders by MBS groups

Table 12.8 shows the changes in the total number of pathology test orders, and in the distribution of these by MBS pathology groups. These can only be compared from 2000–01 onwards because of the change in coding methodology introduced in 2000–01. The number of tests ordered increased from 29.7 tests (or battery of tests) per 100 encounters in 2000–01 to 42.4 in 2006–07, which extrapolates to approximately 13.5 million more test orders in 2006–07 than in 2000–01 nationally.

The largest increase was in orders for chemical pathology, which increased from 15.6 per 100 encounters in 2000–01 to 24.5 in 2006–07. This extrapolates to an estimated 9.4 million additional chemistry test orders in 2006–07 than 8 years earlier. Haematology increased at a slower rate, rising from 5.8 tests per 100 encounters in 2000–01 to 7.9 in 2006–07, a national increase of approximately 2.3 million tests. Microbiology test orders increased from 4.6 per 100 encounters in 2000–01 to 5.9 in 2006–07, extrapolating to an increase of about 1.4 million additional test orders in 2006–07. There were far smaller increases in order rates for tissue pathology and simple tests, and there were no increases in the other test groups.

As shown in Figure 12.1, both the likelihood of ordering pathology and the total number of tests ordered have significantly increased over the last 7 years. However, the growth in the number of tests/batteries ordered has been larger than the growth in likelihood of ordering at the encounter, because the number of tests ordered, once a decision to order has been made, has increased from an average of 2.15 tests/batteries per tested encounter to 2.45.

Imaging test orders by MBS group

Table 12.9 shows the changes in imaging orders by imaging group from 2000–01 to 2006–07. The first 2 years of imaging group data cannot be compared with subsequent years because of coding changes introduced in 2000.

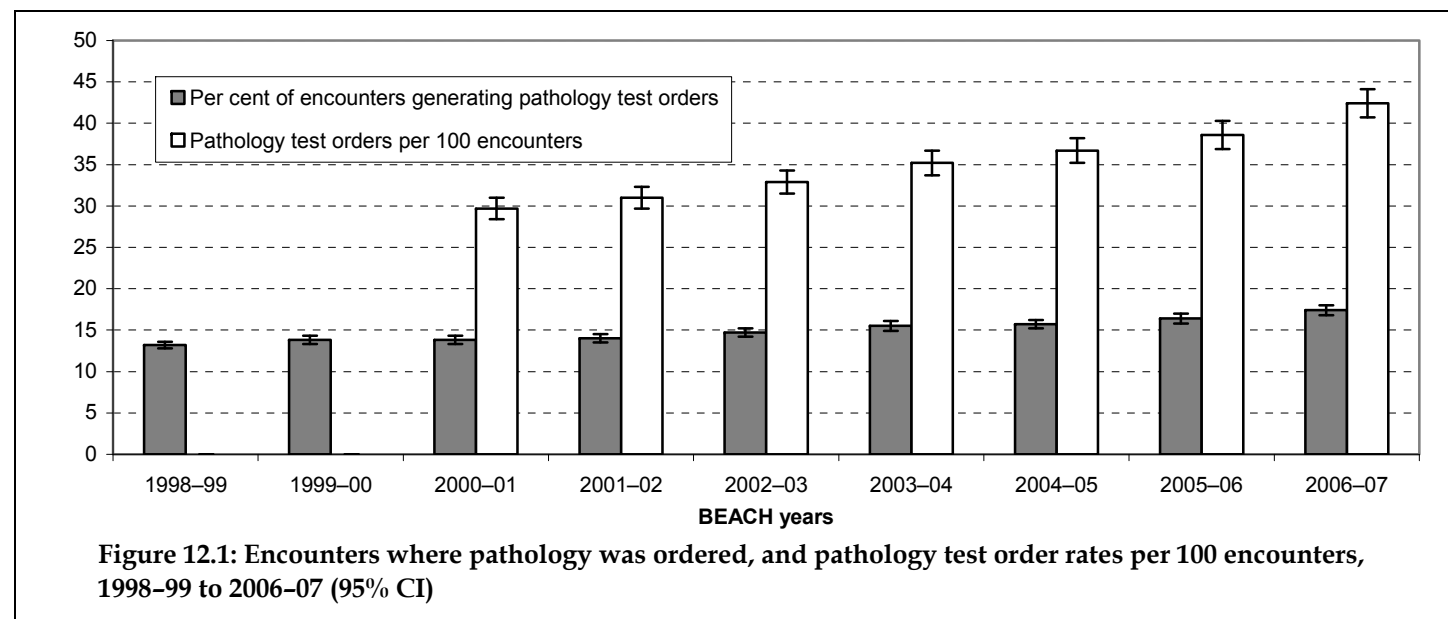
Total test orders increased significantly from 7.7 per 100 encounters in 2000–01 to 9.0 in 2006–07, suggesting a national increase of almost 1.5 million encounters with imaging. Ultrasound imaging increased from 2.1 tests per 100 encounters in 2000–01 to 3.2 per 100 in 2006–07, an increase of over 1 million encounters nationally with ultrasound orders. Computerised tomography increased from 0.7 per 100 encounters in 2000–01 to 1.1 in 2006–07, equating to 420,000 encounters. Diagnostic radiology, nuclear medicine imaging and magnetic resonance imaging did not change significantly during this period.

Table 12.7: Number of encounters where pathology/imaging ordered, summary of annual results, BEACH, 1998–99 to 2006–07

	Per cent of encounters (95% CI)									Change ^(a)	
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓	(‘000)
	(n = 96,901)	(n = 104,856)	(n = 99,307)	(n = 96,973)	(n = 100,987)	(n = 98,877)	(n = 94,386)	(n = 101,993)	(n = 91,805)		
At least one test ordered	18.1 (17.5–18.7)	18.9 (18.3–19.5)	19.3 (18.7–19.9)	19.2 (18.6–19.8)	20.3 (19.7–21.0)	20.8 (20.1–21.5)	21.2 (20.6–21.8)	22.1 (21.4–22.7)	23.0 (22.3–23.7)	↑	+4,910
At least one pathology test ordered	13.2 (12.8–13.7)	13.8 (13.3–14.3)	13.8 (13.3–14.3)	14.0 (13.5–14.5)	14.7 (14.2–15.3)	15.5 (14.9–16.1)	15.7 (15.2–16.3)	16.4 (15.8–16.9)	17.4 (16.8–18.0)	↑	+4,230
At least one imaging test ordered	6.3 (6.0–6.6)	6.7 (6.4–7.0)	6.8 (6.5–7.1)	6.9 (6.6–7.2)	7.5 (7.1–7.8)	7.2 (6.9–7.5)	7.3 (7.0–7.6)	7.8 (7.4–8.1)	7.9 (7.6–8.2)	↑	+1,600

(a) The direction and type of change from 1998–99 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

Note: CI—confidence interval.



Note: Data collection method and coding system changed in 2000–01. Data from 1998–99 and 1999–00 are not comparable with data from 2000–01 to 2006–07 in regard to pathology test orders.

Table 12.8: Distribution of pathology orders across pathology groups, summary of annual results, BEACH, 2000–01 to 2006–07

Pathology test ordered	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,804)	↑ ↓	('000)
Chemistry*	NAv	NAv	15.6 (14.8–16.5)	16.5 (15.6–17.3)	17.7 (16.8–18.6)	19.1 (18.1–20.1)	20.4 (19.5–21.4)	21.8 (20.6–22.9)	24.5 (23.3–25.7)	↑	+9,400
Haematology*	NAv	NAv	5.8 (5.5–6.1)	6.2 (5.8–6.5)	6.3 (5.9–6.6)	6.8 (6.4–7.2)	7.0 (6.6–7.3)	7.3 (6.9–7.7)	7.9 (7.5–8.3)	↑	+2,250
Microbiology*	NAv	NAv	4.6 (4.3–4.9)	4.9 (4.5–5.2)	5.1 (4.8–5.5)	5.3 (4.9–5.7)	5.2 (4.9–5.6)	5.6 (5.2–5.9)	5.9 (5.4–6.3)	↑	+1,410
Cytology*	NAv	NAv	1.5 (1.3–1.7)	1.6 (1.4–1.7)	1.7 (1.5–1.8)	1.8 (1.5–2.0)	1.6 (1.5–1.8)	1.7 (1.6–1.9)	1.7 (1.5–1.9)	—	—
Other NEC*	NAv	NAv	0.8 (0.7–0.9)	0.7 (0.6–0.8)	0.8 (0.6–0.9)	0.8 (0.7–0.9)	0.8 (0.7–1.0)	0.7 (0.6–0.8)	0.8 (0.7–1.0)	—	—
Tissue pathology*	NAv	NAv	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.7 (0.5–0.8)	0.8 (0.6–0.9)	0.6 (0.5–0.7)	0.7 (0.6–0.8)	↑	+210
Immunology*	NAv	NAv	0.5 (0.4–0.6)	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.5 (0.4–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	—	—
Infertility/pregnancy*	NAv	NAv	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.3 (0.2–0.3)	0.2 (0.2–0.3)	0.2 (0.2–0.3)	—	—
Simple test; other*	NAv	NAv	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.2 (0.1–0.2)	↑	+100
Total pathology tests	NAv	NAv	29.7 (28.4–30.9)	31.0 (29.7–32.4)	32.9 (31.5–34.4)	35.2 (33.7–36.7)	36.7 (35.2–38.2)	38.6 (36.9–40.3)	42.4 (40.7–44.2)	↑	+13,530

(a) Data collection method and coding system changed at the end of the second year of BEACH. Years 1 and 2 are not comparable with years 3 to 9 in regard to pathology groups.

(b) The direction and type of change from 2000–01 to 2006–07 is indicated for each variable: ↑/↓ indicates a statistically significant change, ↑/↓ indicates a marginal change, and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; NAv—not available; NEC—not elsewhere classified.

Table 12.9: Most frequent imaging tests ordered, summary of annual results, BEACH, 1998–99 to 2006–07

Imaging test ordered	Rate per 100 encounters ^(a) (95% CI)									Change ^(b)	
	1998–99 (n = 96,901)	1999–00 (n = 104,856)	2000–01 (n = 99,307)	2001–02 (n = 96,973)	2002–03 (n = 100,987)	2003–04 (n = 98,877)	2004–05 (n = 94,386)	2005–06 (n = 101,993)	2006–07 (n = 91,805)	↑ ↓	('000)
Diagnostic radiology*	NAv	NAv	4.7 (4.5–5.0)	4.5 (4.3–4.7)	5.0 (4.8–5.3)	4.6 (4.3–4.8)	4.5 (4.3–4.7)	4.8 (4.5–5.0)	4.6 (4.4–4.8)	—	—
Ultrasound*	NAv	NAv	2.1 (2.0–2.3)	2.5 (2.3–2.6)	2.6 (2.5–2.8)	2.7 (2.5–2.8)	2.7 (2.5–2.8)	2.9 (2.7–3.1)	3.2 (3.0–3.3)	↑	+1,160
Computerised tomography*	NAv	NAv	0.7 (0.6–0.7)	0.8 (0.7–0.8)	0.8 (0.7–0.9)	0.8 (0.7–0.9)	1.0 (0.9–1.1)	1.0 (0.9–1.1)	1.1 (1.0–1.2)	↑	+420
Nuclear medicine imaging*	NAv	NAv	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	0.1 (0.1–0.1)	—	—
Magnetic resonance imaging*	NAv	NAv	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.0)	0.0 [‡] (0.0–0.1)	0.0 [‡] (0.0–0.0)	0.1 (0.0–0.1)	0.0 [‡] (0.0–0.1)	—	—
Total imaging tests	NAv	NAv	7.7 (7.3–8.0)	7.9 (7.6–8.2)	8.6 (8.2–9.0)	8.2 (7.8–8.6)	8.3 (8.0–8.6)	8.8 (8.4–9.2)	9.0 (8.6–9.3)	↑	+1,460

(a) Data collection method and coding system changed at the end of the second year of BEACH. Years 1 and 2 are not comparable with years 3 to 9 in regard to imaging groups.

(b) The direction and type of change from 2000–01 to 2006–07 for imaging is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change. Statistically significant linear changes have been extrapolated to estimate the national average annual change and are reported in thousands in the far right column.

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

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; NAv—not available.

13 Practice nurse activity

This section describes the activities of practice nurses recorded in association with the GP-patient encounters recorded by the GPs in BEACH.

In November 2004 four Medicare item numbers were introduced into the MBS that allowed GPs to claim for specified tasks undertaken by a practice nurse under the direction of the GP. The recording form for the 2005–06 BEACH year was amended to allow the capture of this information. The changes in the form, and the methods of reporting, are described in Chapter 2. In summary:

- (a) GPs were allowed to record multiple (up to three) Medicare item numbers where appropriate, rather than be limited to one item number
- (b) in the 'other treatments' section, for each problem managed, GPs were asked to tick the 'practice nurse' box if the treatment recorded was provided by the practice nurse rather than by the GP. If the box was not ticked it was assumed that the GP gave the 'other treatment'.

The survey form allowed GPs to record up to two other treatments for each problem managed at the encounter. Other treatments include all clinical and procedural treatments provided at the encounters. These groups are defined in Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>.

In November 2006 two additional Medicare item numbers were added for practice nurse services. The six items available during the 2006–07 BEACH data period are listed with a short description in Table 13.1.⁶⁷ Note that items 10994 and 10995 (introduced in November 2006) were only available to BEACH 2006–07 participants between November 2006 and March 2007 inclusive. There were also concurrent changes to items 10998 and 10999 when they were broadened from use in rural areas only to use in all areas.⁶⁷ This change also only applied to 5 months of the BEACH 2006–07 data period.

This section investigates:

- the distribution of the Medicare items claimed for practice nurses (the total number of these items was reported as one group in Table 5.5)
- treatments provided by practice nurses in association with the GP-recorded encounters
- problems for which the practice nurse provided the treatment in direct association with the GP-recorded encounters.

In Chapter 10, all treatments (other than medications) recorded by the GPs were reported, irrespective of whether they were provided by the GP or by a practice nurse. As in previous years, 'injections' recorded in the provision of immunisations and vaccinations were not included, as these are already counted as pharmacological management. In contrast, this section, being a description of practice nurse activity, reports only the activities ticked as being conducted by a practice nurse and includes the injections for immunisation/vaccination that were not counted in Chapter 10. GPs are also instructed not to record their taking of routine clinical measurements, such as blood pressure. However, where the practice nurse undertook these activities at the consultation and it was recorded as a practice nurse activity, they have been included in the analysis in this chapter.

When viewing these results, it must be remembered that these 'practice nurse' data will not include activities undertaken by the practice nurse during the GP's BEACH recording period

that were outside (not associated with) the recorded encounter. Such activities could include Medicare-claimable activities (for example immunisations/ vaccinations) provided under instruction from the GP but not at the time of the encounter recorded in BEACH, or provision of other services not currently claimable from Medicare (for example dietary advice on a one-to-one basis, or in a group situation).

13.1 Annual results, 2006–07

Practice nurse Medicare claims versus practice nurse activity

Practice nurses were involved in 4,710 GP–patient encounters, assisting in the management of 4,922 problems. However, only 1,835 practice nurse item numbers were recorded as claimable from Medicare and practice nurse items accounted for 1.9% of all Medicare items recorded in 2006–07 (Table 5.5). At two-thirds (62.5%) of encounters at which the practice nurse performed a clinical or procedural activity, no practice nurse item number was recorded as claimable (results not tabled).

Distribution of practice nurse item numbers claimed at encounters

GPs recorded 1,835 practice nurse item numbers at 1,823 encounters (Table 5.5). Almost all the practice nurse item numbers recorded for the BEACH encounters were for immunisations/ vaccinations (66.8%) and wound treatments (32.6%). Items claimed for practice nurse conduct of cervical smears and/or preventive checks were very few ($n = 11$ in total), accounting for less than 1% of all recorded practice nurse item numbers (Table 13.1).

Table 13.1: Distribution of practice nurse item numbers recorded at encounter, 2006–07

Medicare item number	Short descriptor	Number	Per cent of total
10993	Immunisation	1,227	66.8
10994 ^(a)	Cervical smear and preventive checks	4	0.2
10995 ^(a)	Cervical smear and preventive checks—women 20–69 years, no smear in past 4 years	1	0.1
10996	Wound treatment (other than normal aftercare)	598	32.6
10998 ^(b)	Cervical smear	2	0.1
10999 ^(b)	Cervical smear—women 20–69 years, no smear in past 4 years	4	0.2
Total	All Medicare practice nurse item numbers	1,835	100.0

(a) Item number introduced in November 2006.

(b) Item numbers introduced in November 2004 but broadened in 2006, so they are now not limited to services in rural areas.

Treatments provided by practice nurses

There were 41,011 other treatments recorded by the GP that were reported in Chapter 10. There were a further 3,038 injections given in the provision of immunisation (not reported in Chapter 10). In total there were 44,049 other treatments recorded.

At least one practice nurse activity was recorded at 4,710 encounters—5.1% of all encounters. They were involved in the management of 4,922 problems (3.6% of all problems managed by the participating GPs). Total other treatments given by practice nurses numbered 5,191 representing 11.8% of all other treatments recorded at BEACH encounters. The majority (91.9%) of the practice nurse activity was procedural in nature. These procedures

represented more than a quarter (28.1%) of all procedures recorded. In contrast, the practice nurse undertook less than 2% of all clinical treatments recorded (Table 13.2).

Table 13.2: Summary of treatments given by practice nurse, 2006–07

Treatment	Performed by the practice nurse		Performed by the GP		Total number recorded ^(a)
	Number	Per cent of total	Number	Per cent of total	
Procedural treatments ^(a)	4,773	28.1	12,192	71.9	16,965
Clinical treatments	418	1.5	26,666	98.5	27,084
All other treatments	5,191	11.8	38,858	88.2	44,049

(a) Procedural treatments here include all injections given by practice nurses in provision of immunisations/vaccinations ($n = 3,038$). These are not included in the summary of the content of encounter in Table 5.1, summary of management in Table 8.1 or in the analyses of other treatments in Chapter 10 because the immunisation/vaccination is already counted as a prescription or GP-supplied medication.

As previously stated, procedures made up the vast majority of the practice nurse activity. Of the 5,191 procedures recorded, 36.8% were injections (which were mainly for immunisations/vaccinations) and a further 22.1% were dressing/pressure/compression/tamponade. Together these accounted for more than half of all procedures undertaken by practice nurses. Incision/drainage/aspirations made up 8.7%, and repair/fixations 5.9% of procedures done by the nurse. Practice nurses also undertook a wide range of other procedural activities in association with the GP encounters. The most common are listed in Table 13.3.

Clinical treatments (such as advice and counselling) accounted for only 9% of the practice nurse activity. General advice/education was most commonly recorded, accounting for 16.8% of the clinical treatments provided by the nurse, followed by counselling about nutrition/weight (13.0%), other administrative and documentation work (13.0%), advice about treatment (10.1%) or counselling about the problem (9.3%).

Table 13.3: Most frequent treatments provided by practice nurses, 2006–07

Treatment	Number	Per cent of group ^(a)	Rate per 100 encs involving practice nurse ($n = 4,710$) ^(a)	95% LCL	95% UCL
Procedural treatments	4,773	100.0	101.3	99.2	103.5
Local injection/infiltration*	1,757	36.8	37.3	33.0	41.6
Dressing/pressure/compression/tamponade*	1,053	22.1	22.4	19.8	24.9
Incision/drainage/flushing/aspiration/removal body fluid*	416	8.7	8.8	6.7	11.0
Repair/fixation-suture/cast/prosthetic device (apply/remove)*	281	5.9	6.0	5.0	7.0
Excision/removal issue/biopsy/destruction/debride/cauterise*	267	5.6	5.7	4.2	7.2
Electrical tracings*	210	4.4	4.5	3.7	5.2
Physical function test*	200	4.2	4.3	2.8	5.7
Check-up—practice nurse*	186	3.9	4.0	2.3	5.6
INR test	84	1.8	1.8	1.0	2.6
Other diagnostic procedures*	66	1.4	1.4	0.0	2.9
Urine test*	65	1.4	1.4	0.8	2.0
Other therapeutic procedures/surgery NEC*	48	1.0	1.0	0.7	1.4

(continued)

Table 13.3 (continued): Most frequent treatments provided by practice nurses, 2006–07

Treatment	Number	Per cent of group ^(a)	Rate per 100 encls involving practice nurse (n = 4,710) ^(a)	95% LCL	95% UCL
Clinical treatments	418	100.0	8.9	5.6	12.1
Advice/education*	70	16.8	1.5	0.6	2.4
Counselling/advice—nutrition/weight*	54	13.0	1.2	0.2	2.1
Other admin/document*	54	13.0	1.1	0.7	1.6
Advice/education—treatment*	42	10.1	0.9	0.5	1.3
Counselling—problem*	39	9.3	0.8	0.3	1.3
Total other treatments	5,191	—	110.2	107.7	112.8

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Problems managed with practice nurse involvement

The problems managed most often with the assistance of a practice nurse at the consultation were immunisation/vaccination (29.5% of all problems managed with the involvement of a practice nurse), followed by laceration/cut (5.9%) and chronic skin ulcer (5.7%) (Table 13.4).

Table 13.4: The most common problems managed with the involvement of practice nurse, 2006–07

Problem managed	Number	Per cent of problems involving practice nurse (n = 4,922)	Rate per 100 encls involving practice nurse ^(a) (n = 4,710)	95% LCL	95% UCL
Immunisation/vaccination—all*	1,450	29.5	30.8	26.5	35.0
Laceration/cut	292	5.9	6.2	5.2	7.2
Chronic ulcer skin (incl varicose ulcer)	282	5.7	6.0	4.9	7.1
General check-up*	144	2.9	3.1	2.2	3.9
Excessive ear wax	142	2.9	3.0	2.4	3.6
Malignant neoplasm skin	139	2.8	2.9	2.1	3.8
Diabetes—all*	117	2.4	2.5	1.8	3.1
Asthma	108	2.2	2.3	1.6	3.0
Skin infection, post-traumatic	82	1.7	1.7	1.2	2.2
Hypertension*	76	1.5	1.6	1.0	2.2
Atrial fibrillation/flutter	65	1.3	1.4	0.8	2.0
Skin symptom/complaint	59	1.2	1.2	0.8	1.7
Burns/scalds	58	1.2	1.2	0.8	1.7
Repair/fixate-suture/cast/prosthetic device (apply/remove)	55	1.1	1.2	0.7	1.6
Fracture*	49	1.0	1.0	0.6	1.5
Total problems	4,922	100.0	104.5	103.3	105.8

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

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

Discussion

These results suggest that many GPs have utilised practice nurses for provision of immunisations/vaccinations and, to a lesser degree, for dressings. However, they also suggest very little utilisation of the cervical smear/preventive check practice nurse item numbers.

If we extrapolate the 1,823 encounters at which a practice nurse item number was recorded as claimable (making up 2.3% of Medicare-claimable encounters in BEACH) (see Table 5.5) to the 103 million general practice Medicare items claimed through Medicare,²⁶ we estimate that about 2.3 million claims were made from Medicare for practice nurse services associated with the GP consultations. The MBS claims data for practice nurse item numbers for the 2006–07 financial year show there were 3.66 million practice nurse claims for that period.²⁶ This suggests that a further 1.3 million (approximately) such services were provided and claimed for practice nurse activities conducted independently of direct GP–patient consultations. The MBS data suggests that 59% of the claims were for immunisation/vaccinations (item 10993), 40% were for wound dressings (item 10996) and only 1% were for the cervical smear/preventive check items (10994, 10995, 10998, 10999). This compares with BEACH data of 67% being for immunisations/vaccinations, 33% for wound dressings and 0.6% well cervical smear/preventive check items. This suggests that more of the wound management and cervical smear/preventive checks are being done (and claimed for) through direct appointments with the practice nurse, as directed by the GP.

Last year (2005–06) the research team suggested that the low uptake of practice nurse items covering cervical smears may have been partly due to the geographic limitations placed on these item numbers at that time, and on the difficulty of separating the cervical smear from the total clinical activity of a well woman check. These checks often involve (in addition to a cervical smear) a pelvic examination and a breast check, and may also involve discussion of sexual issues and contraception, which in turn may result in prescription of medication. Practice nurses cannot prescribe medication.

The geographic limitations and the broadening of the cervical smear item numbers in November 2006 removed some of these limitations. However, in the 5 months November 2006 – March 2007 covered in this BEACH data year, there has been no apparent change in uptake rate. It will be interesting to see the results in the next full BEACH year, 2007–08.

Comparison of the services provided by practice nurses (Table 13.3) with the common problems for which these services were provided (Table 13.4) suggests that about 82% of the local injections/infiltrations recorded for practice nurses were given for immunisation/vaccinations and about 18% were for other types of injections and therefore not eligible to be claimed through Medicare. Table 13.1 suggests that only 1,227 (70%) of the estimated 1,450 immunisations/vaccinations recorded for practice nurses were actually claimed through Medicare. Table 13.3 shows that nurses dealt with 1,053 dressing/pressure/compression/tamponades in conjunction with the GP encounter, but only 598 claims were made for Medicare payment for wound treatment (Table 13.1). This suggests that about 53% of the work recorded for practice nurses was claimable under Medicare. Some of the dressings may be follow-up encounters where the follow-up treatment (aftercare) is included in the initial Medicare claim (claimed in the past), and may therefore not be claimable for the practice nurse.

13.2 Changes over time

Practice nurse Medicare item numbers were only introduced in November 2004. Space for GPs to record these was provided on BEACH encounter forms from April 2005. Therefore there are only 2 years of data from BEACH which can be compared in this area.

Table 13.5 provides the comparative results. There has been a significant increase in the rate at which practice nurse activities were provided in conjunction with the GP consultation, from 4.2 to 5.7 per 100 encounters. This increase was apparent in the rates of both procedures and provision of clinical treatments.

Table 13.5: Practice nurse item numbers claimable at GP-patient encounters, 2005–06 and 2006–07

Treatment	2005–06	2006–07
	Rate per 100 encounters ^(a) (95% CI) (n = 101,993)	Rate per 100 encounters ^(a) (95% CI) (n = 91,805)
Procedural treatments	4.0 (3.5–4.5)	5.2 (4.6–5.8)
Local injection/infiltration*	1.6 (1.3–1.9)	1.9 (1.6–2.2)
Dressing/pressure/compression/tamponade*	0.9 (0.8–1.1)	1.1 (1.0–1.3)
Incision/drainage/flushing/aspiration/removal body fluid*	0.3 (0.2–0.4)	0.5 (0.3–0.6)
Repair/fixation-suture/cast/prosthetic device (apply/remove)*	0.3 (0.2–0.3)	0.3 (0.2–0.4)
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	0.3 (0.2–0.4)	0.3 (0.2–0.4)
Electrical tracings*	0.2 (0.2–0.3)	0.2 (0.2–0.3)
Physical function test*	0.2 (0.1–0.2)	0.2 (0.1–0.3)
Check-up—practice nurse*	NAv	0.2 (0.1–0.3)
INR test	NAv	0.1 (0.0–0.1)
Other diagnostic procedures*	0.0 (0.0–0.1)	0.1 (0.0–0.1)
Urine test*	0.1 (0.0–0.1)	0.1 (0.0–0.1)
Other therapeutic procedures/surgery NEC*	0.0 (0.0–0.1)	0.1 (0.0–0.1)
Clinical treatments	0.2 (0.1–0.3)	0.4 (0.3–0.6)
Advice/education*	0.0 (0.0–0.1)	0.1 (0.0–0.1)
Counselling/advice—nutrition/weight*	0.0 (0.0–0.0)	0.1 (0.0–0.1)
Other admin/document*	0.0 (0.0–0.0)	0.1 (0.0–0.1)
Advice/education—treatment*	0.0 (0.0–0.0)	0.0 (0.0–0.1)
Counselling—problem*	0.0 (0.0–0.1)	0.0 (0.0–0.1)
Total other treatments	4.2 (3.7–4.8)	5.7 (4.9–6.4)

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm>).

Note: CI—confidence interval; NEC—not elsewhere classified; NAv—not available.

14 Changes in policy and practice: type 2 diabetes and depression

In this chapter changes in the management of type 2 diabetes and depression between 1998–99 and 2006–07 are investigated, and considered in relation to changes in policy that have occurred during the same period. Analysis of diabetes mellitus was restricted to type 2 diabetes because it forms the vast majority of all diabetes managed in general practice, and it is the diabetes type most often targeted by policy and incentive programs.

14.1 Background

Over the past decade there have been numerous measures taken by federal and state governments, general practice divisions and international bodies to improve health care. The importance of these influences should be taken into account when observing changes over time in BEACH. In some cases, changes can be seen to follow policy; in others, policy seems to have no discernible effect on activity. Some changes appear to occur independently and sometimes policy follows general practice trends already taking place.

General policies and initiatives

There were two initiatives which formed the basis for much of the public health planning that subsequently took place in Australia.

- In 1994, Australian states and territories endorsed the National Health Goals and Targets, which identified cardiovascular health, cancer control, injury prevention and mental health as the four national priority areas.⁶⁸
- By 1996 emphasis had moved to National Health Priority Areas and diabetes mellitus was added as the fifth priority area.⁶⁹

Some of the plans and incentives that followed are noted below.

- Asthma was included among the National Health Priority Areas in 1999, and arthritis/musculoskeletal conditions were added in 2002.⁷⁰
- New Medicare item incentives that became available in 1999 and 2000 aimed to improve the health of at-risk general practice patients. These included annual health checks for people aged 75 years and over (55 years and over for Aboriginal and Torres Strait Islander people), multidisciplinary care plans and case conferences.
- New Medicare items in 2004–2006 were attached to bulk-billing for Commonwealth concession card (for example health care card) holders and patients from certain areas; chronic disease management plans; health checks for Aboriginal and Torres Strait Islander patients, residential aged care facility patients and patients aged 45–49 years.

14.2 Type 2 diabetes

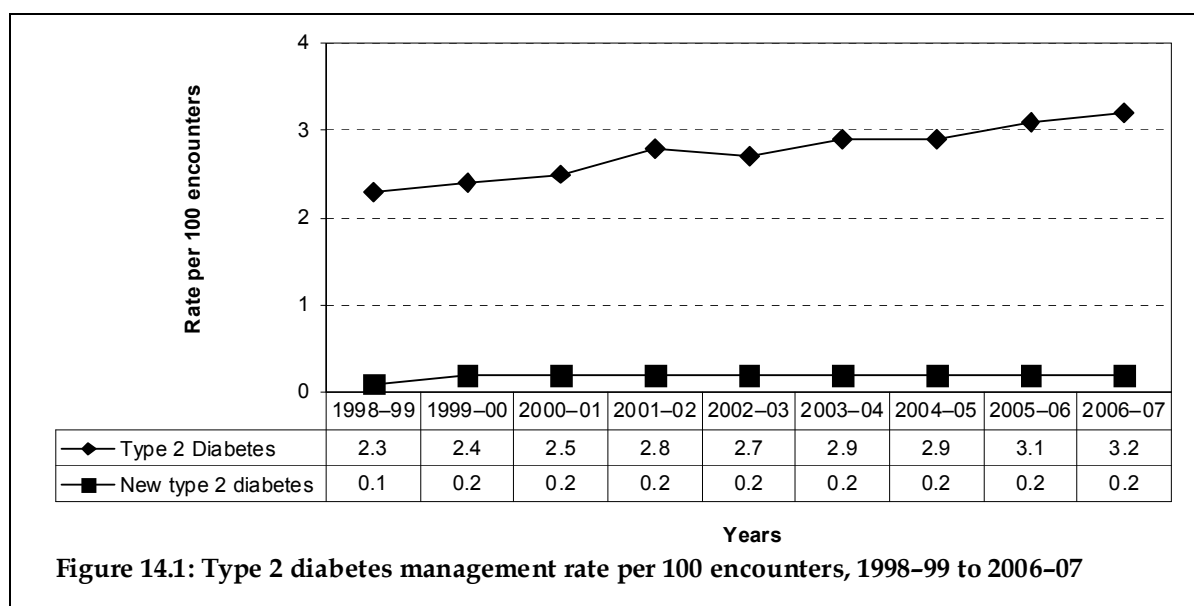
Specific policies and initiatives

- In June, 2000 the WHO lowered the diagnostic value for fasting plasma/blood glucose concentrations, which had the effect of raising the number of patients diagnosed with diabetes.⁷¹
- An initiative by the Queensland government, 'Diabetes mellitus 2000–04', was followed by the Federal government's \$76 million program that included incentives to GPs and GP Divisions for programs aiming to improve diabetes care in general practice.⁷² During this period, all other states and territories initiated their own diabetes strategic plans.
- In 2001, a Medicare item number for Diabetes Annual Cycle of Care, which also attracted Practice Incentive Program (PIP) points, was introduced.⁷³
- In 2004, the multidisciplinary care plan for chronic disease management (1999) was superseded by the Allied Health and Dental Care Initiative, allowing patients with a care plan to access Medicare rebates for five allied health or dental services a year. This led to a doubling in the number of claims for care plan items from the MBS. At the same time the government launched its Action Plan on diabetes. The National Primary Care Collaboratives, a \$14.6 million, 3-year program to help GPs improve patient clinical outcomes, was also launched and the subjects of the program included diabetes.¹⁷

Management rate in general practice

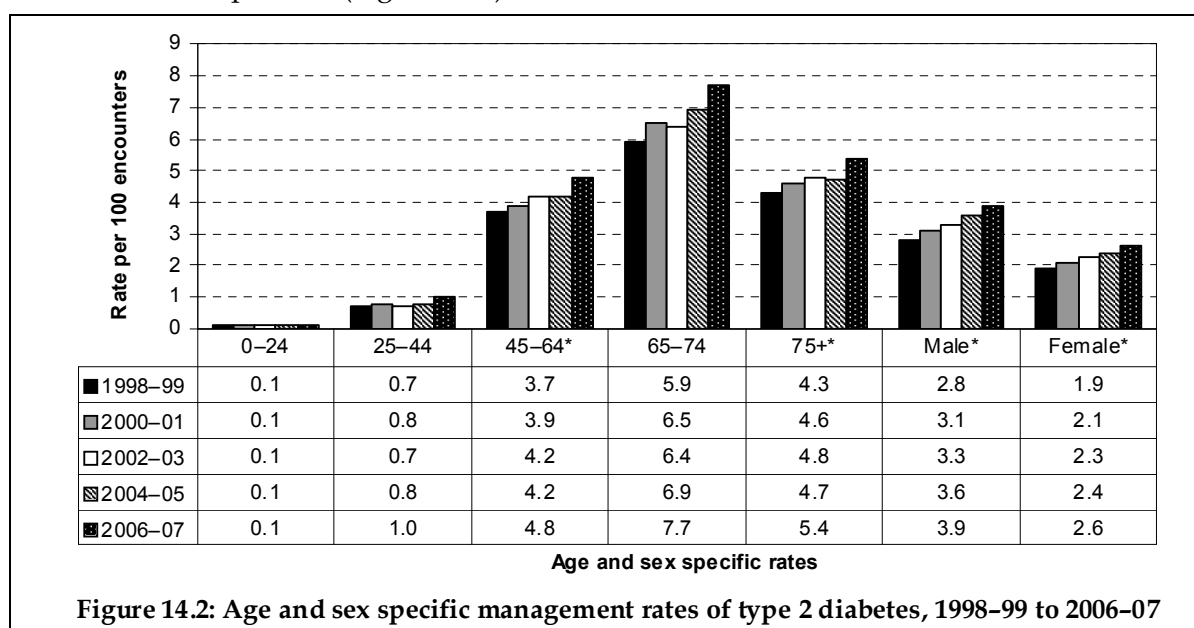
As shown in Figure 14.1, since 1998–99 there has been an almost 40% increase in the management rate of type 2 diabetes in general practice, from 2.3 per 100 encounters in 1998–99 (95% CI: 2.1–2.4) to 3.2 per 100 encounters in 2006–07 (95% CI: 3.0–3.4). There has also been a significant increase in the rate of new diagnoses of type 2 diabetes, from 0.11 per 100 encounters in 1998–99 (95% CI: 0.09–0.14) to 0.18 per 100 encounters in 2006–07 (95% CI: 0.15–0.21).

Policies that may have influenced the increase in type 2 diabetes would be the lowering of the diagnostic value for fasting plasma/blood glucose concentrations in 2000, the National Integrated Diabetes Program and the Annual Cycle of Care initiative of 2001, and two major initiatives in 2004: the government action plan on diabetes and the Australian Primary Care Collaboratives Program.



The patients

The rate at which type 2 diabetes was managed steadily increased over the study period for patients aged 45 years and older. There was no change for patients younger than 45 years of age. The 40% measured increase in the rate of type 2 diabetes management applied to both male and female patients (Figure 14.2).



* Indicates a statistically significant change from 1998-99 to 2006-07.

Medications prescribed, supplied, advised

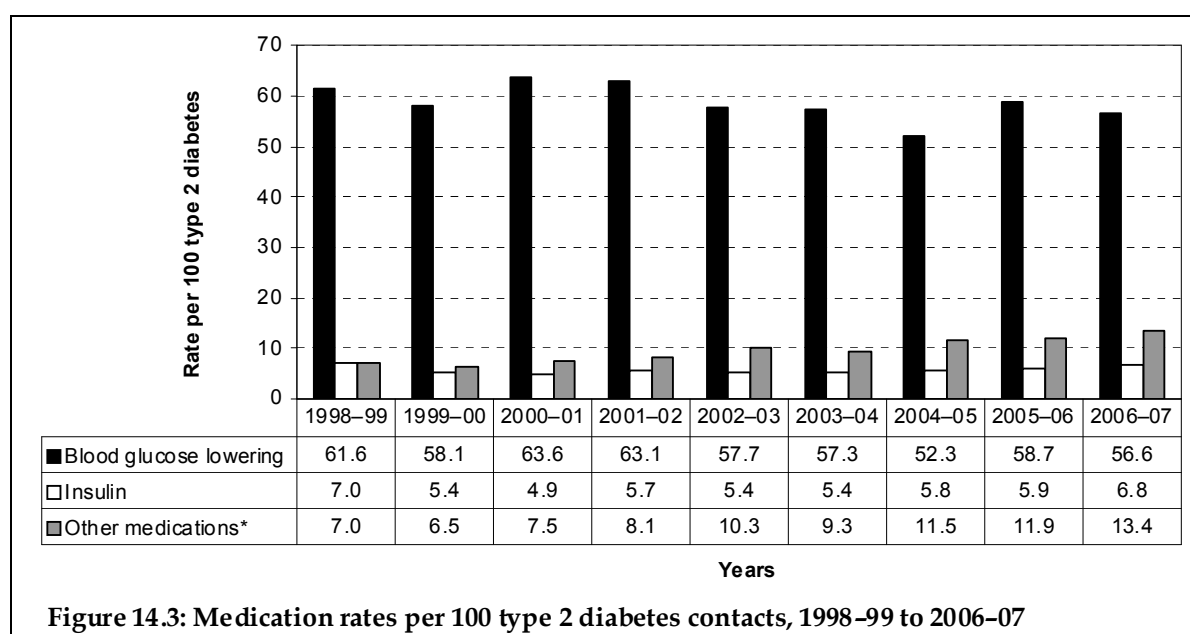
There was no significant change in total medication rates per 100 type 2 diabetes problems managed between 1998-99 (75.6, 95% CI: 70.5-80.8) and 2006-07 (76.8, 95% CI: 71.9-81.8). The majority of medications recorded for the management of patients' type 2 diabetes were oral blood glucose lowering agents. The second most frequently recorded medication group was insulin. Prescriptions for both oral blood glucose lowering medications and insulin, per

100 type 2 diabetes problems managed, remained relatively constant from 1998–99 to 2006–07. Other medications increased significantly from 7.0 (95% CI: 5.5–8.4) per 100 type 2 diabetes problems managed in 1998–99 to 13.4 (95% CI: 11.5–15.4) in 2006–07 (Figure 14.3).

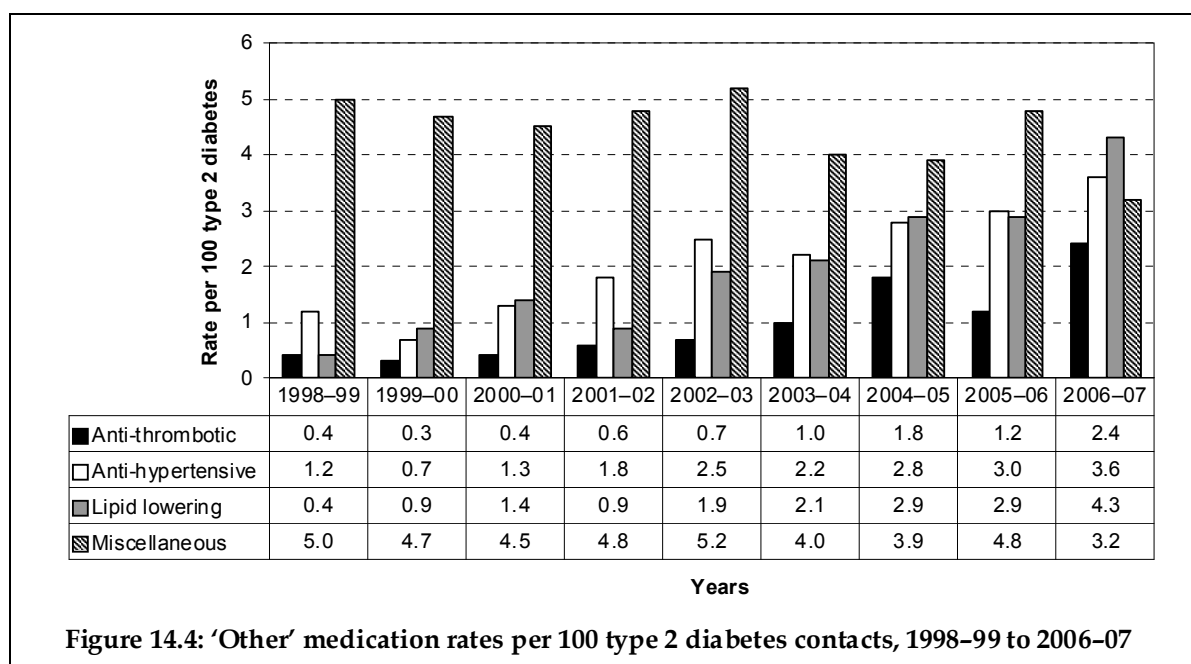
A breakdown of the changes over time in the ‘other medication’ group is shown in Figure 14.4.

- Rates of anti-thrombotic agents, mainly aspirin antiplatelet therapy, rose significantly in 2004–05, fell back in 2005–06, then showed a significant increase again in 2006–07 compared with rates in the early years of the study.
- The rate of anti-hypertensive prescription/supply for type 2 diabetes increased significantly from 2004–05 onwards compared with the period from 1998–2001. In 1998–99, anti-hypertensives were prescribed at a rate of 1.2 (95% CI: 0.6–1.8) per 100 type 2 diabetes problems managed, while in 2006–07 the rate was 3 times higher, at 3.6 (95% CI 2.8–4.4).
- Lipid lowering agent prescription/supply for type 2 diabetes followed a similar pattern, with a significantly higher rate apparent from 2002–03 onwards. In 1998–99, lipid medication was prescribed at a rate of 0.4 (95% CI: 0.1–0.7) per 100 type 2 diabetes problems managed, while in 2006–07 the rate was 10 times higher, at 4.3 (95% CI 3.4–5.2).
- The miscellaneous group includes blood glucose monitoring agents and influenza vaccine, which together accounted for almost half of this group. Prescription/supply rates did not change over time.

Although the overall prescribing rate for lipid lowering and antithrombotic agents, and some types of antihypertensives, increased significantly in the total BEACH sample, they did not show such a large increase as these results for type 2 diabetes. The increase is probably due to the initiatives encouraging GPs to manage hypertension and hyperlipidaemia at a lower clinical threshold for patients with diabetes⁷⁴⁻⁷⁶ and to provide antiplatelet therapy for those with added cardiovascular risk.^{74,77}



* Indicates a statistically significant change from 1998–99 to 2006–07.

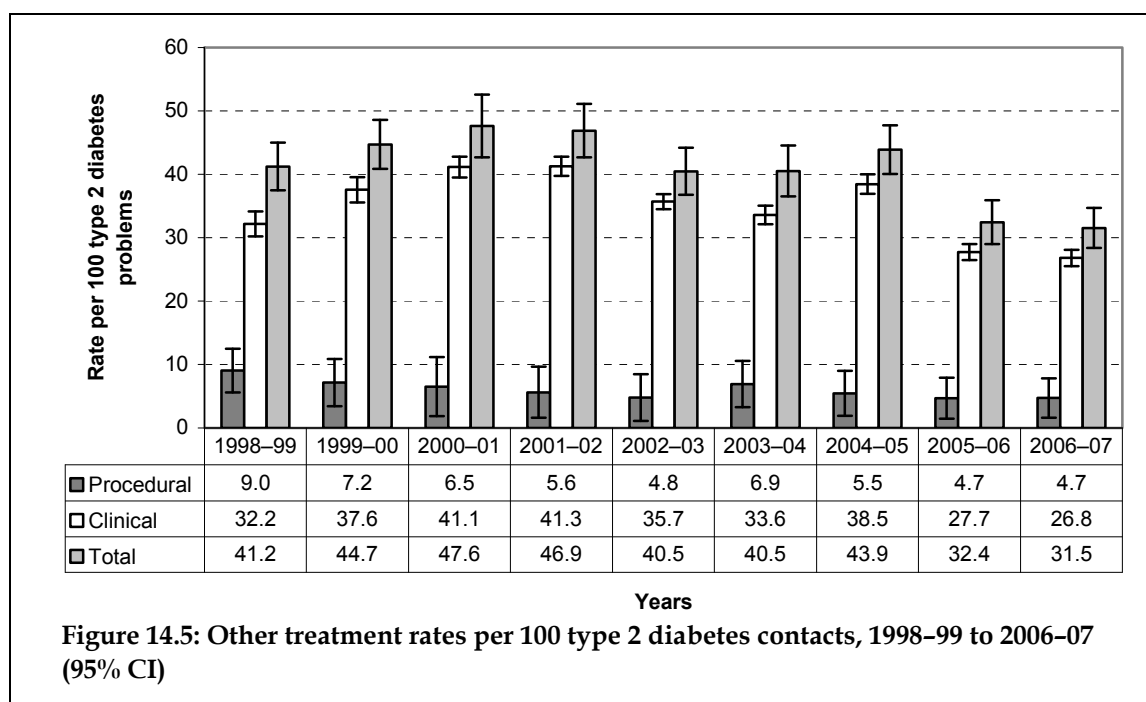


Other treatments

The rate at which other treatments (including procedures, and clinical treatments such as advice, education and counselling) were recorded for the management of type 2 diabetes remained fairly constant from 1998-99 to 2004-05. Between 2004-05 and 2005-06 the rate dropped significantly from 43.9 (95% CI: 40.1-47.7) per 100 type 2 diabetes problems to 32.4 (95% CI: 29.0-35.9).

- Clinical treatments rose significantly from 32.2 (95% CI: 28.7-35.6) per 100 type 2 diabetes problems managed in 1998-99 to 41.1 (95% CI: 36.5-45.8) in 2000-01, then decreased to 33.6 (95% CI: 30.0-37.2) in 2003-04 and again to 27.7 (95% CI: 24.5-31.0) in 2005-06.
- The rate of procedural treatments for type 2 diabetes decreased from 9.0 in 1998-99 (95% CI: 7.1-11.0) to 4.8 (95% CI: 3.6-5.9) in 2002-03 and then stayed relatively stable (Figure 14.5).

While the sudden decrease in other treatments between 2004-05 and 2005-06 coincided with several new major diabetes initiatives, GPs overall were recording fewer other treatments. The research team believes that the decrease may reflect the increasing use of practice nurses to provide advice and education, and to undertake procedures (such as treating leg ulcers) independent of the GP-patient encounter. This issue is further discussed in Chapter 13.

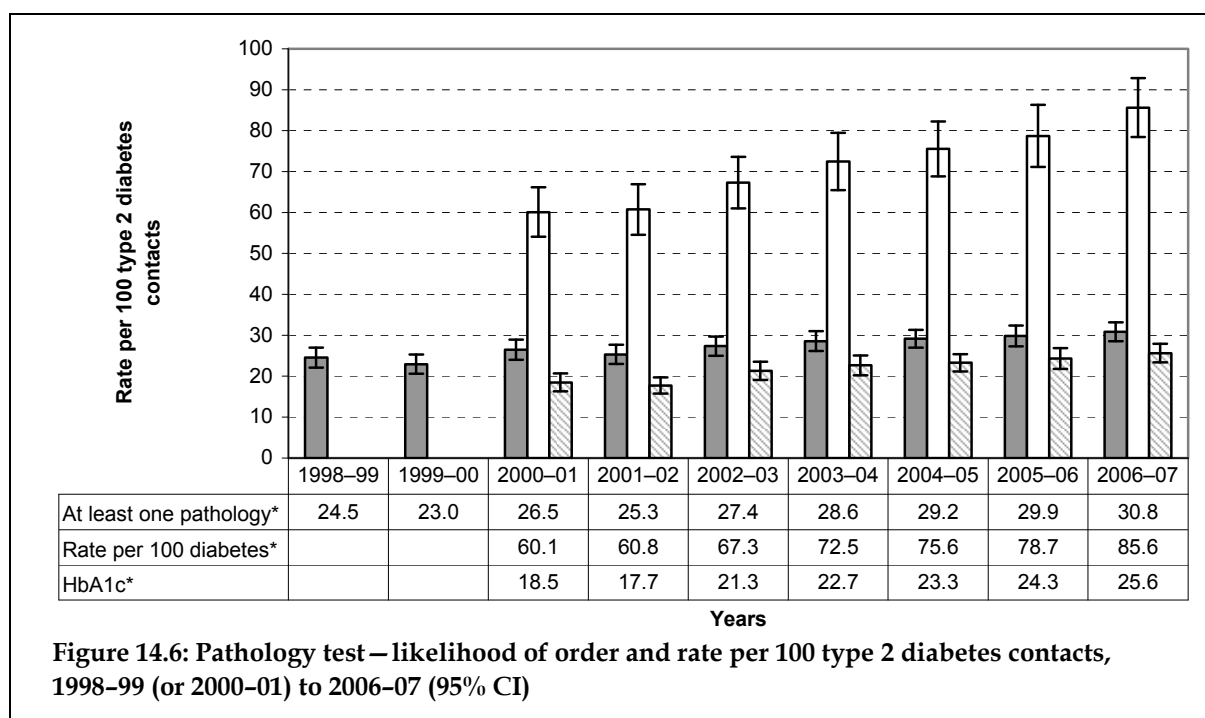


Pathology test ordering

Between 1998-99 and 2006-07, there was a significant increase in the likelihood of the GP ordering pathology tests for type 2 diabetes. In 1998-99, 24.5% (95% CI: 22.1-27.0) of type 2 diabetes problem contacts generated at least one pathology test order compared with 30.8% (95% CI: 28.6-33.1) in 2006-07.

The number of pathology tests ordered per 100 type 2 diabetes problems managed also increased from 60.1 (95% CI: 54.0-66.1) in 2000-01 to 85.6 (95% CI: 78.4-92.8) per 100 problem contacts in 2006-07. The rate at which HbA1c tests were ordered for type 2 diabetes reflected the change in the overall test order rate, increasing by about 44%, from 17.7 (95% CI: 15.7-19.7) in 2001-02 to 25.6 (95% CI: 23.4-27.9) in 2006-07 (Figure 14.6).

The increase in the likelihood of ordering pathology tests for type 2 diabetes, and in the number of tests ordered on ordering occasions, could both be due to the introduction of the Annual Cycle of Care initiative in 2001, which required GPs to measure diabetes patients' HbA1c, cholesterol, triglycerides and HDL cholesterol levels at least once each year, to be able to claim the incentive.

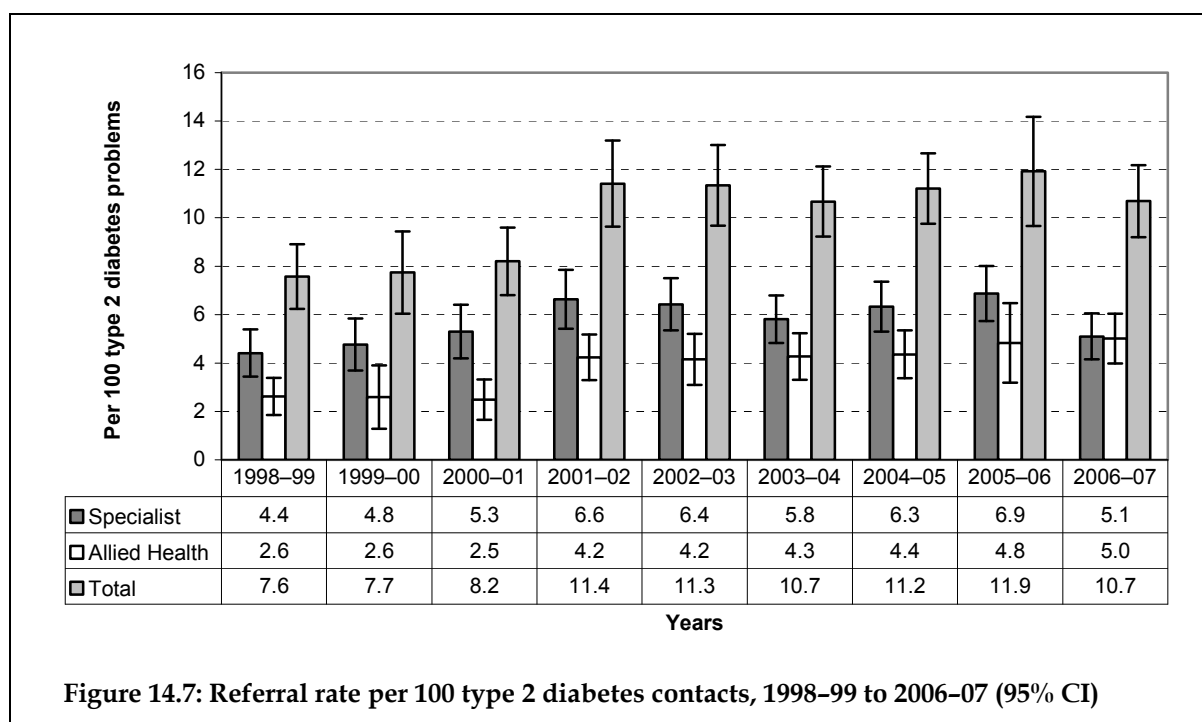


* Indicates a statistically significant change from 1998-99 (or 2000-01) to 2006-07.

Referrals

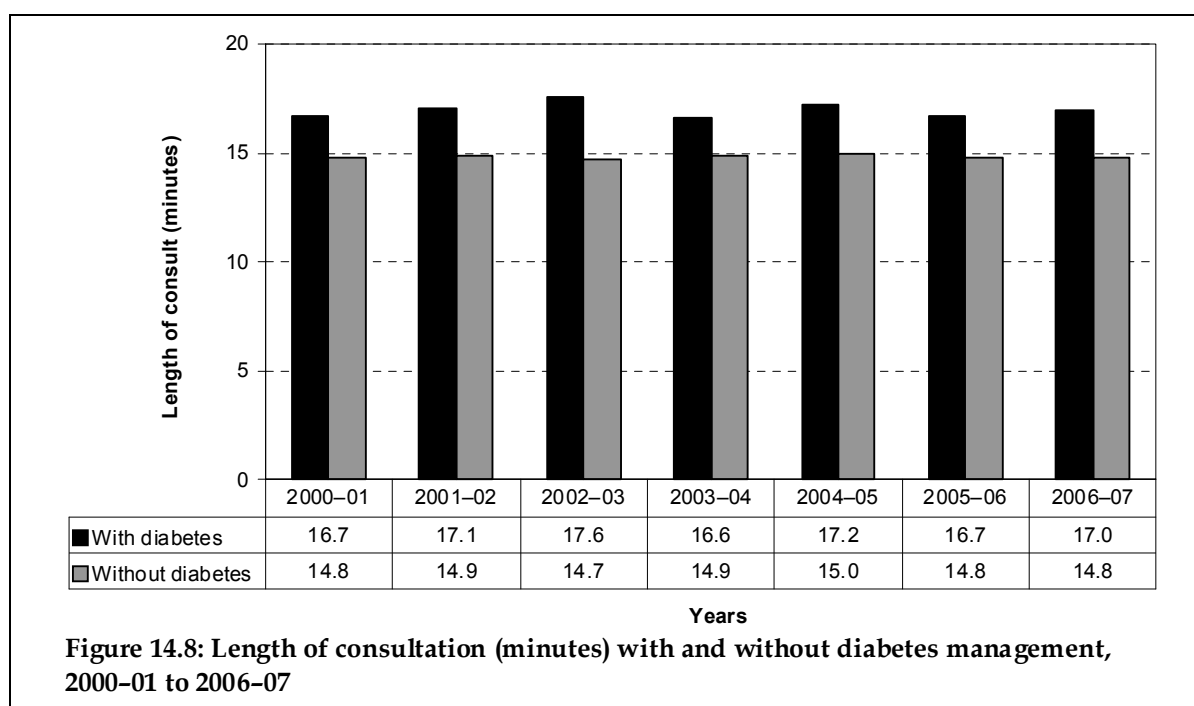
There was a significant increase in the rate at which patients were referred for type 2 diabetes, from 7.6 per 100 (95% CI: 6.2-8.9) in 1998-99 to 10.7 per 100 (95% CI: 9.2-12.2) in 2006-07. The major increase occurred between 2000-01 (8.2, 95% CI: 6.8-9.6) and 2001-02 (11.4, 95% CI: 9.6-13.2). This increase may have been due to the national integrated diabetes program (2001), which encouraged partnerships with other health care professionals and gave support for the divisions of general practice to work with GPs and other health professionals to improve access to better care for people with diabetes. The level has been maintained through subsequent years.

- This pattern of referrals was reflected in changes to referrals to specialists for type 2 diabetes, which increased from 4.4 (95% CI: 3.4-5.4) per 100 type 2 diabetes problems in 1998-99 to 6.6 (95% CI: 5.4-7.8) in 2001-02. The rate did not change significantly between 2001-02 and 2006-07.
- The rate of referrals to allied health professionals nearly doubled from 2.6 (95% CI: 1.8-3.4) per 100 type 2 diabetes problems in 1998-99 to 5.0 (95% CI: 4.0-6.0) per 100 in 2006-07. The increase began in 2001-02, again perhaps in response to the national program (Figure 14.7).



Length of consultation

Measured length of consultation (recorded finish time minus start time in minutes) was introduced to BEACH in 2000-01 for a subsample of 40% of the GP-patient encounters. In all years (2000-01 to 2006-07) consultations where type 2 diabetes was managed were, on average, significantly longer (by 2 minutes) than encounters where type 2 diabetes was not managed. Between 2000-01 and 2006-07 there was no significant change in the average lengths of consultation for encounters with or without type 2 diabetes (Figure 14.8).



14.3 Mental health

Specific policies and initiatives

- The first National Mental Health Plan was put in place in 1993 to strengthen the mental health system and improve general understanding of mental illness. This was followed by the 1998–2003 Plan. Both plans relied on bilateral funding agreements between the Commonwealth and state and territory governments.⁷⁸
- The National Mental Health Plan 2003–2008 built on the earlier mental health plans and focused on prevention, responsiveness, quality and research, embodying the United Nations' resolution on the protection of rights of people with mental illness.⁷⁹
- Another feature of this emphasis on mental health was the establishment in 2000 of 'beyondblue', an organisation focusing on prevention and treatment of depression. In 2006 it went into its second 5-year phase, with funding of \$36 million from the federal government and a similar contribution from state governments.⁸⁰
- In 2001 government funding of \$120 million in the form of Medicare payments and Practice Incentive Program points was provided over 4 years for Better Outcomes in Mental Health Care (BOIMHC). This initiative had four components relevant to GPs: education and training; access to MBS items for focused psychological strategies; MBS items covering a three-step mental health process; funding to divisions of general practice to operate an access to allied psychological services program.⁸¹
- The three-step mental health process component was withdrawn in 2007, superseded in 2006 by the GP Mental Health Care Plan as part of the 'Better Access to Psychiatrists, Psychologists and General Practitioners through MBS' initiative, worth \$1.9 billion, to provide Medicare rebates encouraging team-based mental health care.⁸² This followed a COAG (Council of Australian Governments) pledge of \$4 billion over 5 years for a National Action Plan on Mental Health.⁸³

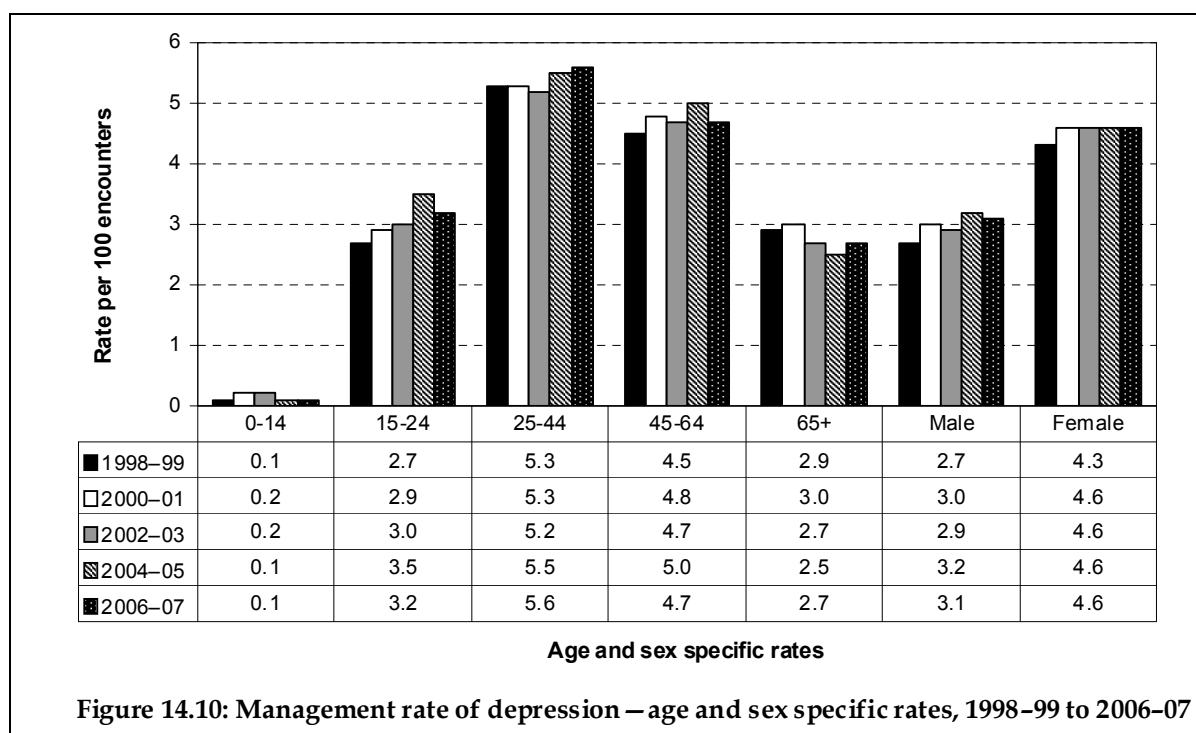
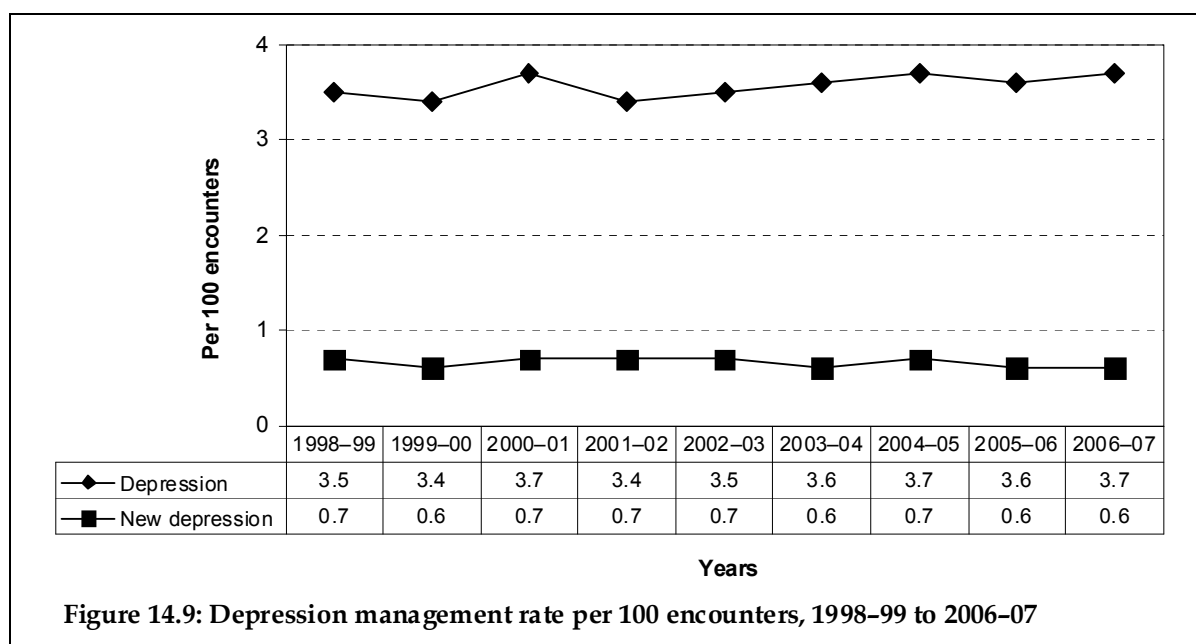
Management rate in general practice

The research team chose depression as an example of mental health problems for two reasons: it is the most common psychological problem managed, and a number of the initiatives, such as beyondblue, are aimed mainly at depression.

From 1998–99 to 2006–07, the management rate of depression per 100 encounters remained steady. The rate at which new cases of depression were diagnosed also remained stable (Figure 14.9).

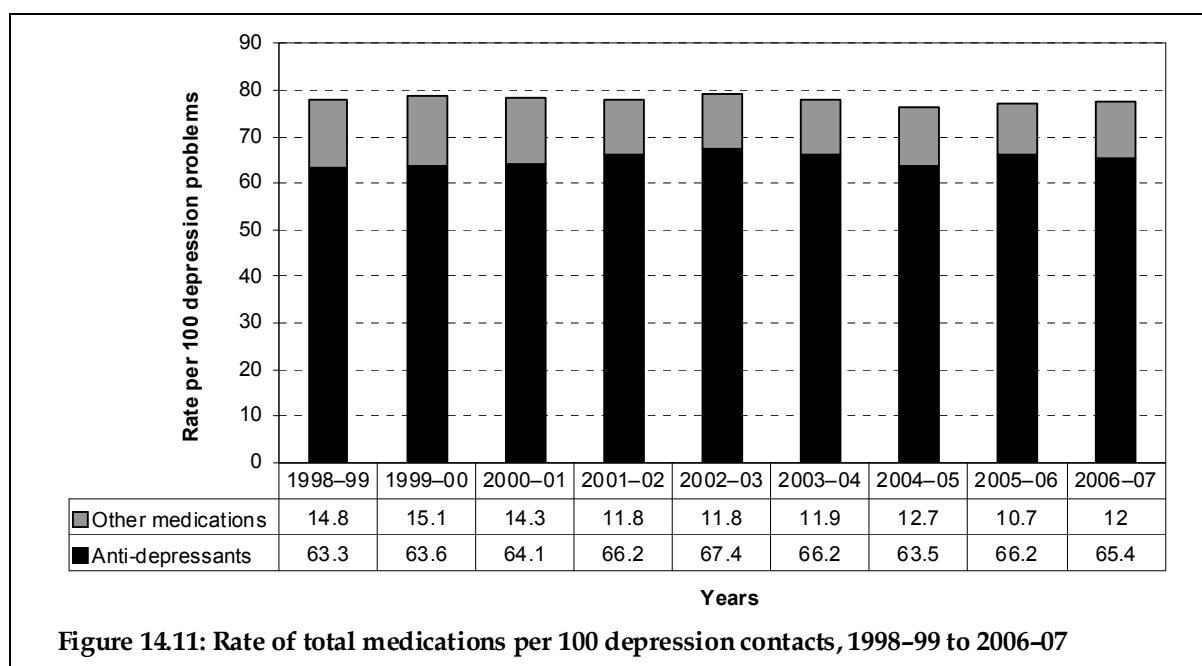
The patients

There was no significant change in the management rate of depression in Australian general practice across all age groups and both sexes between 1998–99 and 2006–07. Patients aged 25–44 and 45–64 were managed for depression at a significantly higher rate than other age groups in all years of the study. Female patients were managed for depression more often than were male patients across all years (Figure 14.10).

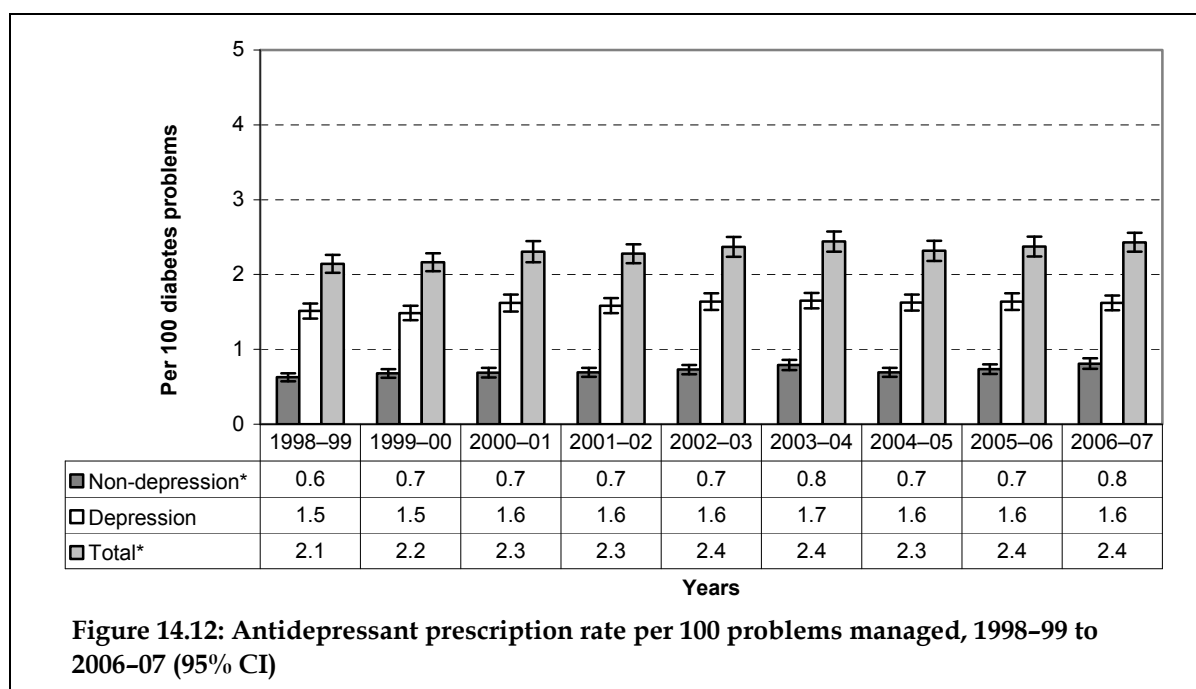


Medications prescribed, supplied, advised

There was no significant change in total medication rates per 100 depression problems managed between 1998-99 and 2006-07. The majority of medications were antidepressants and their rate stayed relatively constant between 1998-99 and 2006-07. The rates of all other medications for depression also remained constant across this period (Figure 14.11).



It was reported earlier (Chapter 9) that the prescribing rate of psychoanaleptic drugs had increased significantly over time. The majority of psychoanaleptics are antidepressants so it is not surprising that the rate of antidepressant prescriptions increased from 2.1 per 100 problems in 1998-99 (95% CI: 2.0-2.3) to 2.4 per 100 problems in 2006-07 (95% CI: 2.3-2.6). However, the rate of antidepressants prescribed per 100 depression problems during this period remained constant (at about 2 per 100 depression problems). The increase in total antidepressant prescriptions was due to an increase in the rate at which they were prescribed for problems other than depression, from 0.6 per 100 total problems managed (95% CI: 0.6-0.7) to 0.8 per 100 total problems managed (95% CI: 0.7-0.9) (Figure 14.12).

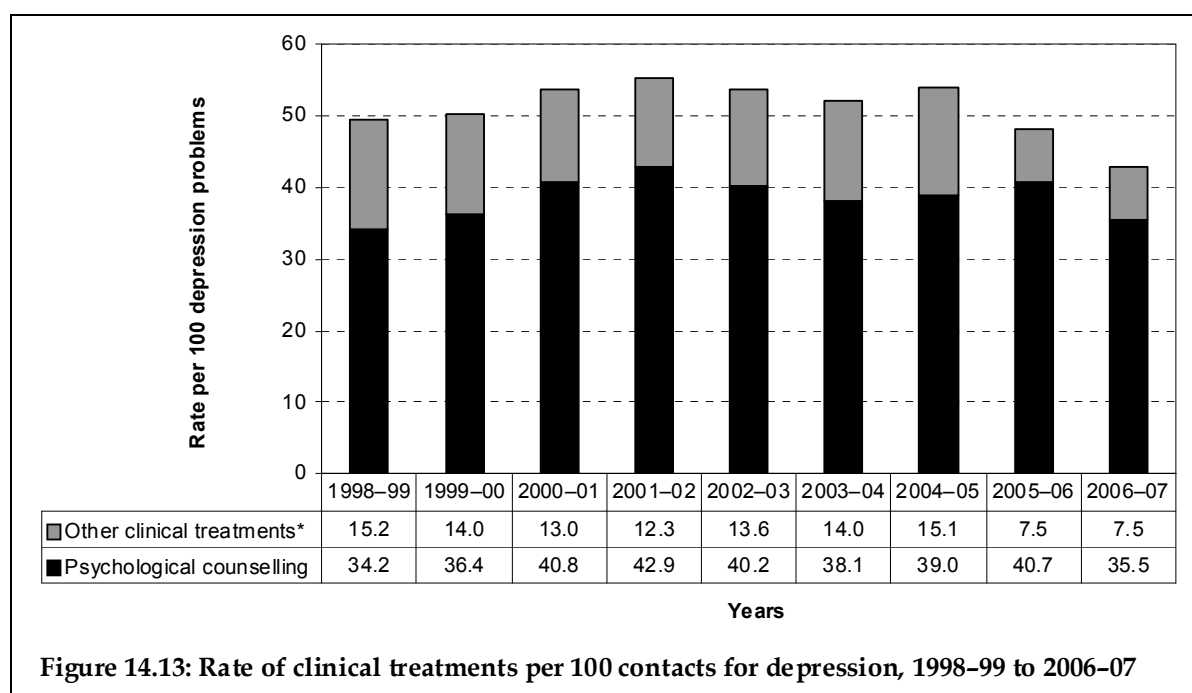


* Indicates a significant change from 1998-99 to 2006-07.

Other treatments

Between 1998 and 2007, clinical treatments (such as counselling and advice) accounted for 97.3% to 99.7% of all other treatments for depression. The rates at which clinical treatments were used in the management of depression remained steady between 1998–99 and 2004–05. Rates then decreased significantly from 54.1 per 100 depression contacts (95% CI: 51.1–57.2) in 2004–05 to 43.0 per 100 (95% CI: 40.1–45.9) in 2006–07 (Figure 14.13).

- The majority of clinical treatments were psychological counselling, accounting for 69% to 84% of all clinical treatments provided for depression across the study period. The rate of psychological counselling for depression increased significantly from 34.2 (95% CI: 31.4–37.0) per 100 depression contacts in 1998–99 to 40.8 (95% CI: 37.7–43.9) per 100 in 2000–01, and remained at this level until 2006–07. It then decreased to 35.5 per 100 (95% CI: 32.9–38.2), a change that has not yet reached statistical significance. The significant increase was sustained by the introduction in 2001 of the BOIMHC training for GPs and the three-step mental plan. The sharp decrease coincided with the advent of the Better Access program which encouraged more team-based mental health care (see Referrals below).
- The rate of all other clinical treatments for depression, such as advice and education, stayed relatively constant between 1998–99 and 2004–05 but halved between 2004–05 and 2005–06. This decrease was seen across general practice as a whole and the research team believes that it may be a result of reliance on practice nurses for provision of such advice and education, outside the confines of the GP–patient encounter.



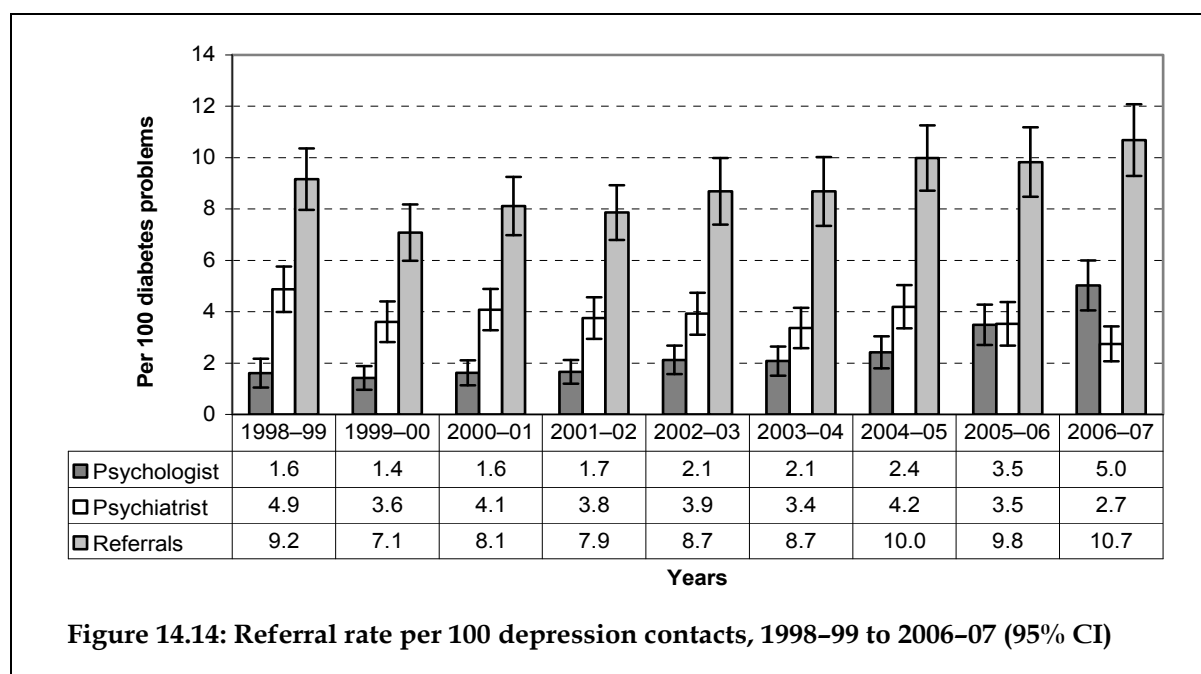
* Indicates a statistically significant change from 1998–99 to 2006–07.

Referrals

The rate at which patients were referred for depression steadily increased from 1999–00 to 2006–07, and the pattern of referrals changed markedly (Figure 14.14).

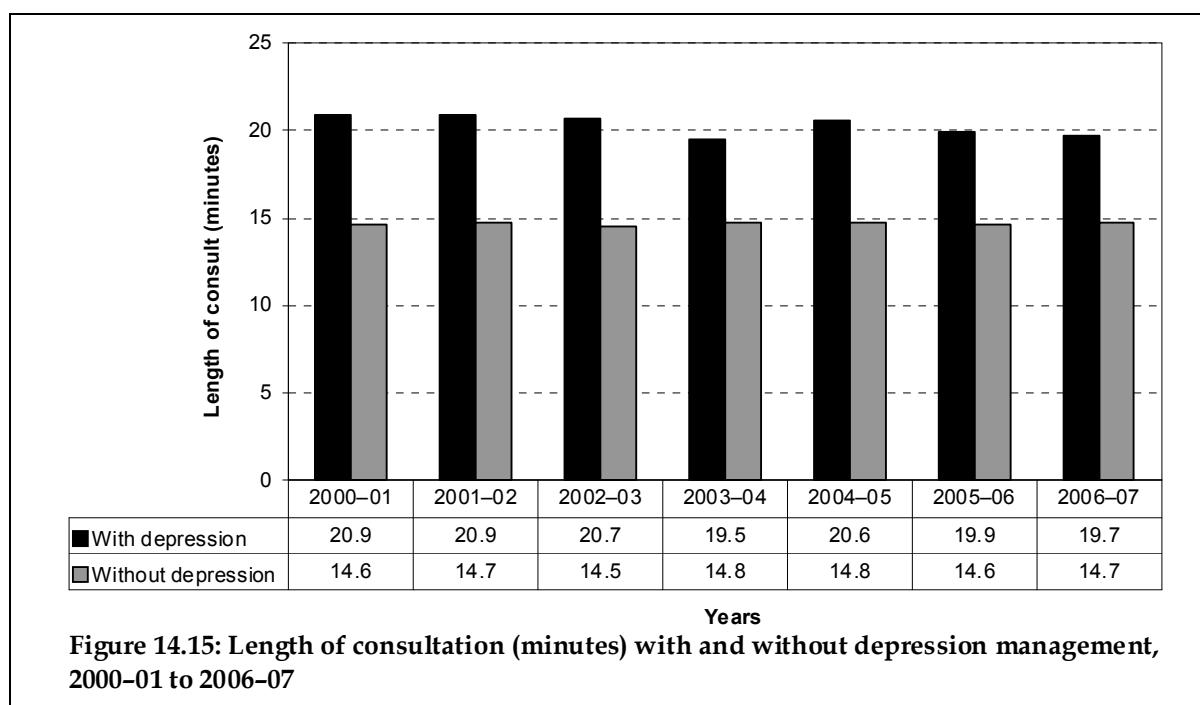
- Referrals for depression to psychiatrists almost halved from 4.9 per 100 depression problems (95% CI: 4.0–5.8) in 1998–99 to 2.7 (95% CI: 2.1–3.4) in 2006–07.
- In contrast, the referral rate for depression to psychologists doubled between 2004–05 (2.4 per 100 depression problems, 95% CI: 1.8–3.0) and 2006–07 (5.0, 95% CI: 4.1–6.0) (Figure 14.14).

The early increase in the rates of referrals to psychologists may be due to the introduction of the access to allied psychological services initiative as part of BOIMHC in 2001. The later increase, probably due to the Better Access initiative of November 2006, is all the more remarkable when one considers that the study period ends in March 2007 and therefore shows only 6 months of data since the initiative was launched.



Depression—length of consultation

Across all the years of the study, consultations where depression was managed were significantly longer, by 5–6 minutes on average, than those where depression was not managed. Between 2000–01 and 2006–07 there was no significant change in the lengths of consultation where depression was managed or where it was not managed (Figure 14.15).



14.4 Discussion

By examining the BEACH data in conjunction with policy changes and the introduction of initiatives, one can see interesting associations between them. Looking at the changes in the rates and management of type 2 diabetes it appears that the initiatives introduced have been associated with desired effects:

- increased identification rate of new cases
- increased management rates in patients aged 45 and over of both sexes
- increased management rates of blood pressure and lipids as part of diabetes management
- increased number of pathology tests
- higher referral rates, suggesting improved patient access to other health professionals, particularly allied health.

The rate of provision of advice and education to patients with diabetes has significantly decreased, perhaps reflecting a greater role for practice nurses in the provision of education on occasions separate from the GP-patient encounter. The higher management rate of diabetes in recent years could also suggest more regular visits to the GP for its management, and this would lead to a decrease in the rate of provision of advice and education relative to the number of visits as it is unlikely to be given at every visit for diabetes.

The programs promoting better management of depression in Australian general practice have not been associated with significant change in either management or treatment, with the exception of a change in referral patterns. Major initiatives introduced between 1998 and 2007 were the beyondblue foundation in 2000, further GP training for the BOIMHC initiative in 2001, the subsequent introduction of the three-step mental care plans and the focused psychological strategies Medicare items in 2002, the implementation of the National Mental Health Plan in 2003, the establishment of the COAG Mental Health Group in each state and

territory in 2006, as well the 'Better Access' initiative in the same year with its new mental health care plan Medicare items.

The 2001 initiatives were designed to create a core of GPs specialising in the management of psychological problems. However, the MBS data show, from the uptake rates of the item numbers, that while MBS items for diabetes management had a high uptake, the item numbers for the BOIMHC were used relatively less often. It can also be seen from this study that the 2001 initiatives were implemented after a significant increase in psychological counselling had already taken place.

In 2005–06 there were 67,204 item numbers claimed under BOIMHC and in 2006–07 there were 59,950. However, as part of the Better Access initiative, there have been claims for 301,076 GP Mental Health Care Plan item numbers in the first 5 months since they were introduced (November 2006 to March 2007). It will be interesting to see if this increase has an association with GP management of depression in the coming years.²⁶

Another major difference found over time in the management of depression was the increase in the rate that depressed patients were referred, with a significant shift in referral patterns from psychiatrists to psychologists associated with the introduction of the MBS items for psychologist services. This results shows that patients are getting greater access to psychologists, a focus of the BOIMHC initiative and the continuing focus of the Better Access initiative. The results in this report demonstrate that encounters involving the management of depression are, on average, 5–6 minutes longer than those where it is not managed. The increased referral rate to psychologists may therefore also reflect GP acknowledgement that counselling and therapy are important in the management of depression, but are too time-consuming in the current general practice setting.

It should also be noted that the marked decrease in psychological counselling by GPs in 2006–07, which coincided with the significant increase in referral rates to psychologists, is also derived from only 6 months of data, until March 2007 when this data period ended. The effects of this transfer of care of patients with depression to psychologists could be expected to be far greater in a full year's data.

15 Patient risk factors

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

Since April 1998, a section on the bottom of each encounter form has been used to investigate aspects of patient health or health care delivery not covered by general practice consultation-based information. These additional substudies are referred to as SAND (Supplementary Analysis of Nominated Data). The SAND methods are described in Section 2.5. The methods used in the substudies reported here are described below. The patient risk factors measured include self-reported height and weight (for calculation of body mass index, BMI), alcohol consumption and smoking status. Patient risk factors are investigated for a subsample of 40 of the 100 patient encounters recorded by each GP. See Appendix 1 for the form containing the SAND questions used to collect these data.

Summaries of results from all SAND substudies 1999–2006 inclusive can be found in a recently published report, *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*.¹²

15.1 Annual results, 2006–07

Body mass index

It is estimated that overweight and obesity account for 7.5% of the total burden of disease in Australia in 2003, ranked third⁸⁴, an increase from 4.3% of total burden and sixth rank in 1999.⁸⁵ The 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) estimated that 60% of Australians aged over 25 years were overweight or obese (BMI > 25). Men were more likely to be overweight or obese than women (67% compared with 52%).⁸⁶

Method

Patient BMI was investigated for a subsample of 40 of 100 patient encounters. Each GP was instructed to ask the patient (or their carer in the case of children):

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

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

The BMI for an individual was calculated by dividing weight (kilograms) by height (metres) squared. The recent WHO recommendations⁸⁷ for BMI groups have been adopted, which specify that an adult (18 years or more) with a BMI:

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

The division between underweight and normal was, in reports prior to 2005–06, set at a BMI of 20. Changes over time in patient BMI were re-calculated in the 2005–06 report for all years and are now reported according to the WHO criteria.

The reported height for adult patients was checked against sex-appropriate upper and lower height limits from the Australian Bureau of Statistics (ABS).⁸⁸ Encounters with adults whose reported heights were outside the sex appropriate limits were excluded from the analysis.

The standard BMI cut-offs described above are not appropriate in the case of children. Cole et al. developed a method which calculates the age–sex-specific BMI cut-off levels for overweight and obesity specific to children aged 2–17 years.⁸⁹ There are three categories defined for childhood BMI: underweight/normal, overweight and obese. This method, based on international data from developed Western cultures, is applicable in the Australian setting. The reported height of children was checked against age–sex-appropriate upper and lower height limits from the ABS⁸⁸ and the United States Centers for Disease Control and Prevention (CDC).⁹⁰ Encounters with children whose reported heights were outside either of the age–sex-appropriate limits were excluded from the analysis. In this report, the rates of overweight and obesity reported in the changes over time for children have been re-calculated for all years to incorporate the new exclusions detailed above.

The BEACH data on BMI are presented separately for adults (aged 18 years and over) and children (aged 2–17 years). The standard BMI cut-offs have been applied for the adult sample, and the method described by Cole et al. has been used for defining overweight and obesity in children (aged 2–17 years).⁸⁹

Results

Body mass index of adults

The sample size was 32,334 patients aged 18 years and over at encounters with 928 GPs.

- More than half (58.5%) of the patients were overweight or obese – 23.5% obese and 35.0% overweight.
- Only 2.6% of patients were underweight.
- Only 4 out of 10 patients had a BMI that was in the normal range (Table 15.1).
- Males were more likely to be overweight or obese (64.8%, 95% CI: 63.7–65.9) than females (54.3%, 95% CI: 53.3–55.4) (Table 15.1).
- Two-thirds of women aged 45–74 were overweight or obese (Figure 15.1).
- Overweight/obesity was most prevalent among male patients aged 45–64 years (72.4%) and aged 65–74 years (71.9%) (Figure 15.1).
- In the 18–24 years age group, 6.8% of women and 2.5% of men were underweight, as were 5.3% of women and 2.1% of men aged 75 years or more (Figure 15.2).

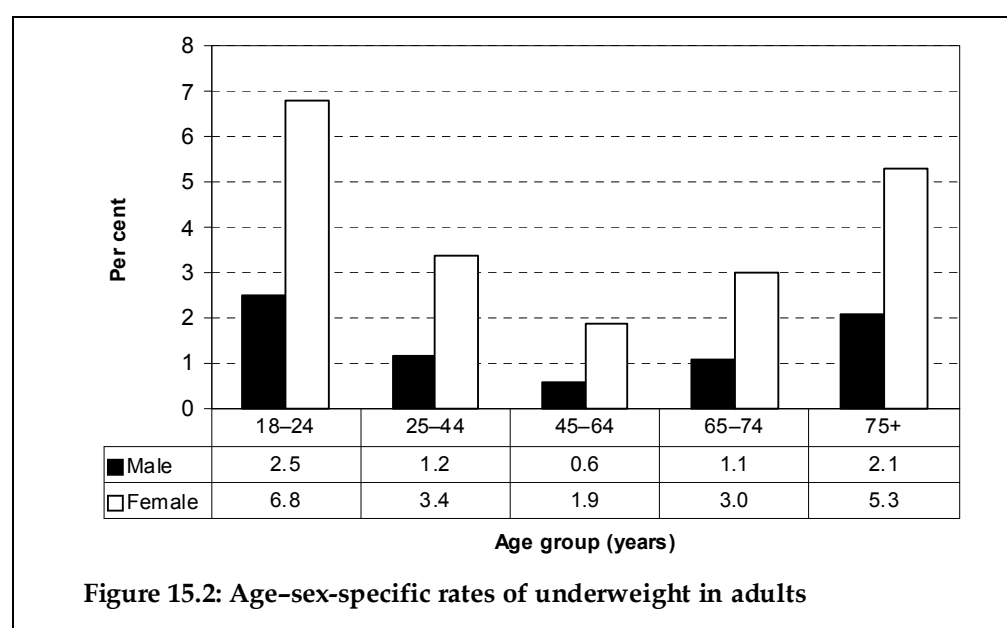
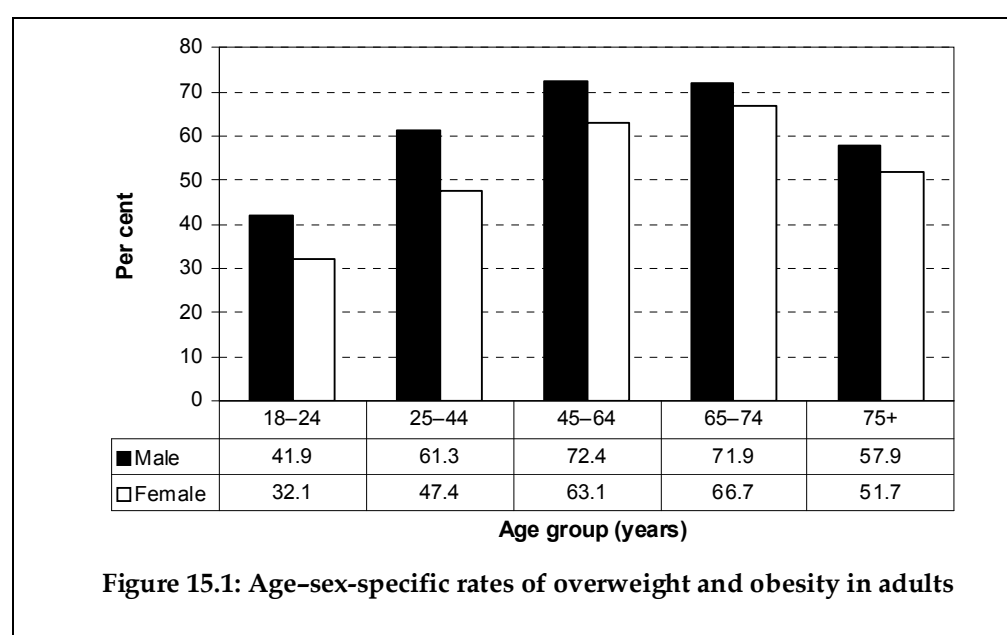
These results are consistent with those of the 1999–00 AusDiab study⁸⁶ and with the ABS 2004–05 figures from the National Health Survey, which suggest that 53% of adults aged 18 or more are overweight or obese.⁹¹

Table 15.1: Patient body mass index (aged 18 years and over), 2006–07

BMI class	Male ^(a)			Female ^(a)			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
Obese	22.4	21.6	23.3	24.2	23.3	25.1	23.5	22.7	24.2
Overweight	42.3	41.4	43.3	30.1	29.4	30.9	35.0	34.3	35.6
Normal	34.0	32.9	35.1	42.2	41.2	43.2	39.0	38.1	39.8
Underweight	1.2	1.0	1.4	3.5	3.2	3.8	2.6	2.4	2.8
Total (n, %)	12,715	100.0	—	19,410	100.0	—	32,334	100.0	—

(a) Patient sex was unknown for 209 respondents.

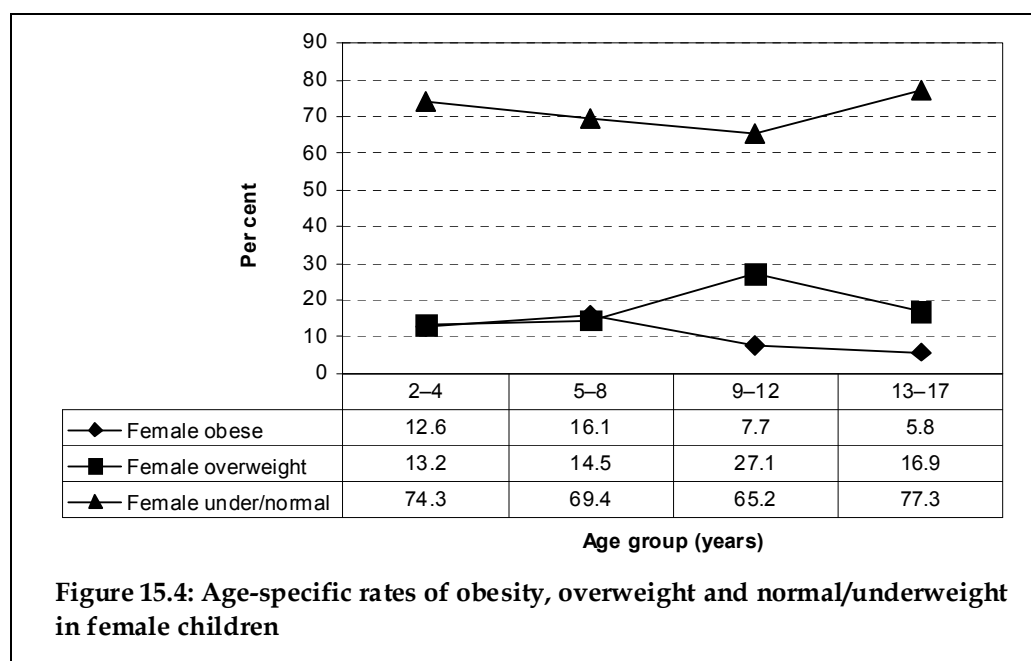
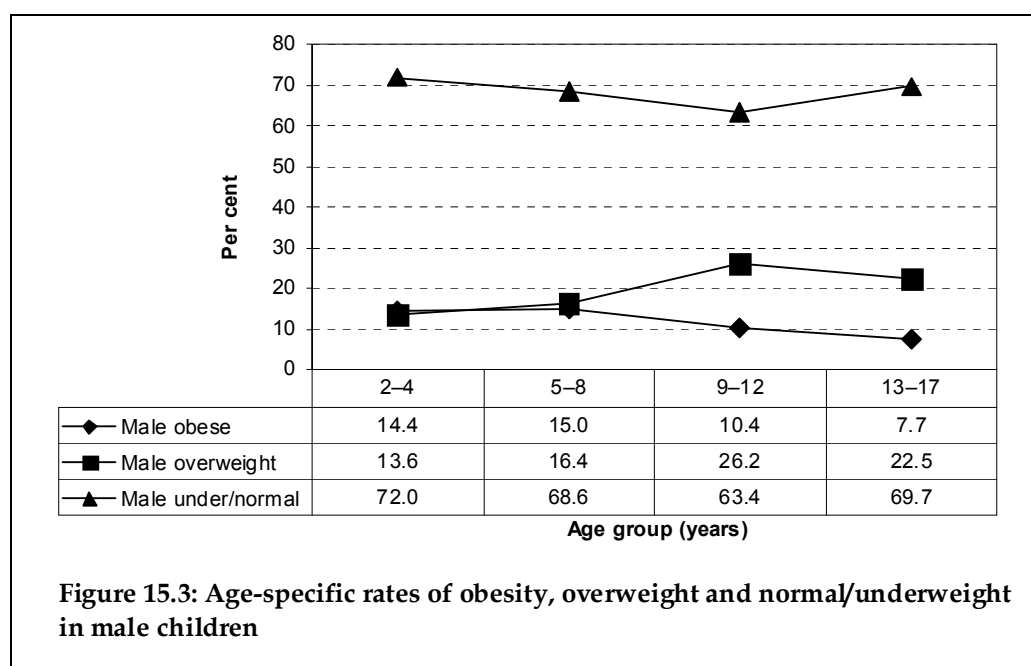
Note: BMI—body mass index; LCL—lower confidence limit; UCL—upper confidence limit.



Body mass index of children

BMI was calculated for 3,087 patients aged 2–17 years at encounters with 776 GPs.

- Three in 10 children (29.2%, 95% CI: 27.4–31.1) were classed as overweight or obese; 10.6% (95% CI: 9.3–11.9) were considered obese and 18.6% (95% CI: 17.2–20.0) were defined as overweight (results not tabulated).
- There was no difference in prevalence of overweight/obesity among male (31.4%, 95% CI: 28.9–33.8) and female children (27.2%, 95% CI: 24.7–29.6) (results not tabulated).
- The age-specific rates of obesity followed similar patterns for both sexes until teenage years, when the prevalence of overweight/obesity decreased more sharply among females than among males (figures 15.3 and 15.4).



Smoking (patients aged 18 years and over)

Tobacco smoking is the leading cause of drug-related death and hospital separations in Australia.⁹² It has been identified as the risk factor associated with the greatest disease burden, accounting for 7.8% of the total burden of disease in Australia in 2003⁸⁴, a decrease from 9.7% of total burden in 1999.⁸⁵ According to the 2004 National Drug Strategy Household Survey (NDSHS), 17.4% of Australians aged 14 years and over smoked daily: 18.6% of males and 16.3% of females.⁹³

Method

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

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

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

Results

The smoking status of 31,176 adult patients was established at encounters with 929 GPs. Table 15.2 shows that:

- 16.1% of adult patients were daily smokers
- significantly more male (19.4%) than female patients (14.0%) were daily smokers
- only 3.8% of adult patients were occasional smokers
- more than a quarter of the adults (28.8%) were previous smokers.

Daily smoking was most prevalent among younger adult patients (aged 18–24 and 25–44), with about one in four of these patients reporting daily smoking. Almost 60% of male and 26% of female patients aged 75 years and over were previous smokers but only 5% of males and 4% of females in this age group were daily smokers (figures 15.5 and 15.6).

Table 15.2: Patient smoking status (aged 18 years and over), 2006–07

Smoking status	Male ^(a)			Female ^(a)			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
Daily	19.4	18.3	20.5	14.0	13.3	14.8	16.1	15.4	16.9
Occasional	3.8	3.4	4.2	2.7	2.5	3.0	3.2	2.9	3.4
Previous	37.1	35.8	38.4	23.3	22.5	24.2	28.8	28.0	29.6
Never	39.7	38.5	41.0	59.9	58.8	61.0	51.9	50.9	52.9
Total (n, %)	12,257	100.0	—	18,718	100.0	—	31,176	100.0	—

(a) Patient sex was unknown for 201 respondents.

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

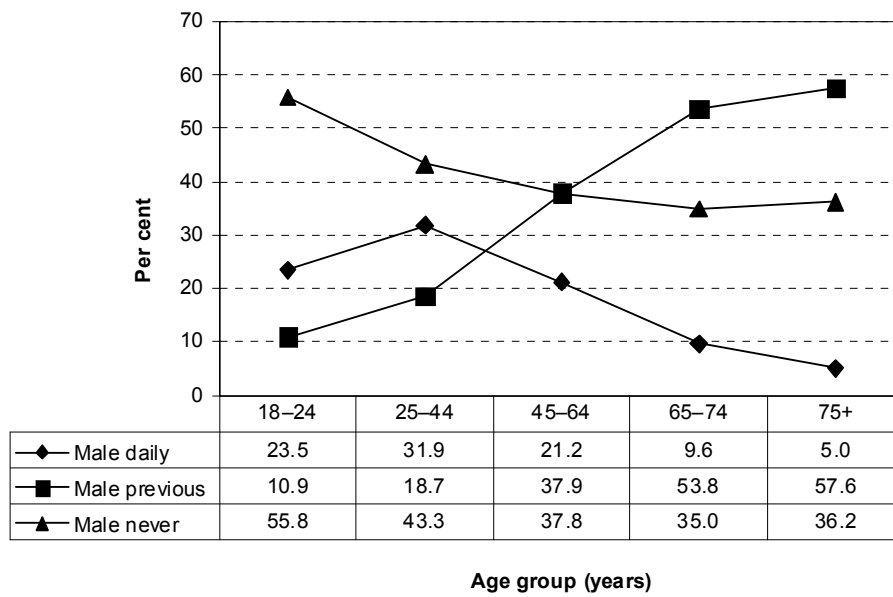


Figure 15.5: Smoking status – male age-specific rates

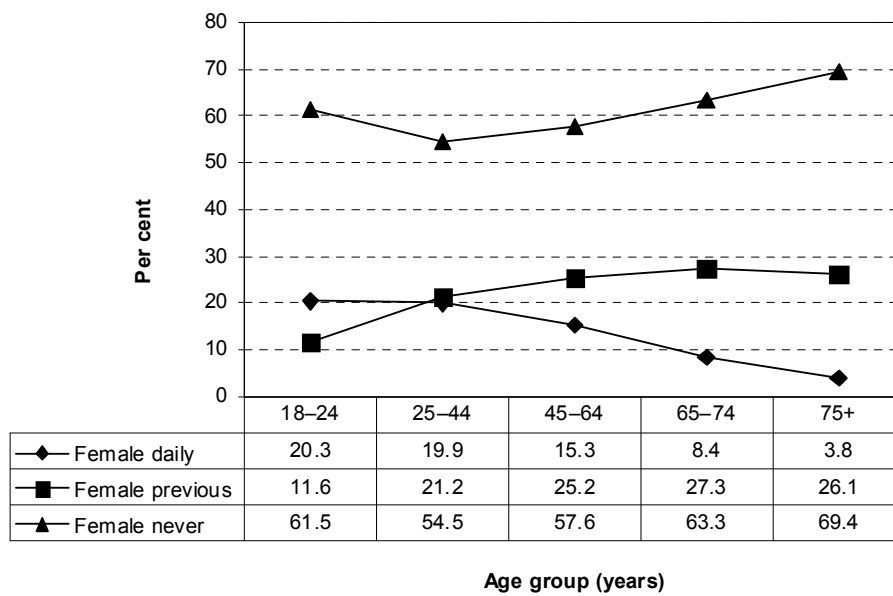


Figure 15.6: Smoking status – female age-specific rates

Alcohol consumption (patients aged 18 years and over)

In people aged 65 years and over, low to moderate consumption of alcohol has been found to have a preventive effect against selected causes of morbidity and mortality (for example cardiovascular disease).⁹² The beneficial impact of low alcohol consumption has been found to prevent more mortality than is caused by harmful alcohol consumption.⁹² In 2003 alcohol consumption accounted for 3.3% of the total burden of disease in Australia; however, after taking into account the benefit derived from low to moderate alcohol consumption, this fell to 2.3%.⁸⁴

The 2004 NDSHS found that 9.8% of people aged 14 years and over (10.1% of males and 9.6% of females) drank at levels considered to be risky or high risk for their health in the long term.⁹³ This risk level of alcohol consumption was based on the NHMRC 2001 guidelines.⁹⁴ The 2004 NDSHS also found that 35.4% of people aged 14 years and over (40.3% of males and 30.7% of females) drank alcohol during the preceding 12 months at levels that put their health at risk in the short term.⁹³

Method

To measure alcohol consumption, BEACH uses three items from the WHO Alcohol Use Disorders Identification Test (AUDIT)⁹⁵, with scoring for an Australian setting.⁹⁶ Together, these three questions assess 'at-risk' alcohol consumption. The scores for each question range from zero to four. A total (sum of all three questions) score of five or more for males or four or more for females suggests that the person's drinking level is placing him or her at risk.⁹⁶

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

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

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

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

Results

Patients' self-reported alcohol consumption was recorded at 30,347 adult patient (18 years and over) encounters with 929 GPs.

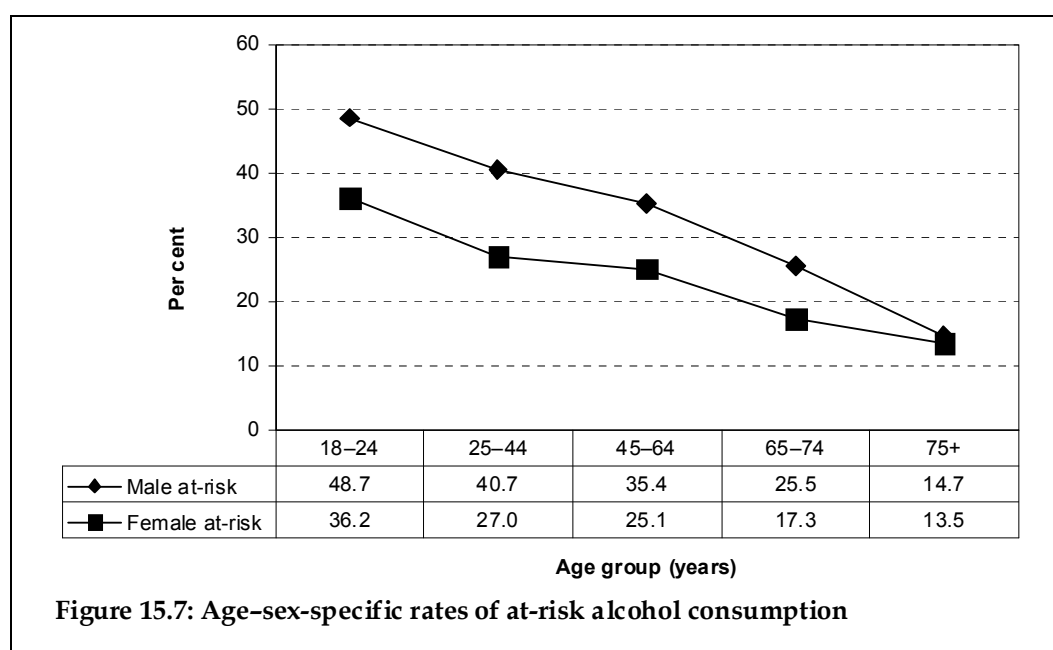
- Just over one-quarter of these respondents reported drinking alcohol at at-risk levels (Table 15.3).
- At-risk drinking was more prevalent among male patients (32.5%) than female patients (22.5%) (Table 15.3).
- At-risk drinking was most prevalent in the 18–24 year age group, among whom almost half of the males and more than a third of the females reported at-risk alcohol consumption (Figure 15.7).
- The proportion of patients who were at-risk drinkers decreased with age for both males and females (Figure 15.7).

These estimates are a little lower than those for short-term risk from the NDSHS.⁹⁷ This is likely to be due to the difference in the age ranges studied (14 and over in NDSHS and 18 and over in BEACH), and to differences in the age-sex distributions of the study populations. As older people attend a GP more often than young adults do, they have a greater chance of being selected in the subsample and this leads to a greater proportion of older people, the group least likely to report drinking alcohol at at-risk levels.

Table 15.3: Patient alcohol consumption (aged 18 years and over), 2006–07

Alcohol consumption	Male			Female			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
At-risk drinker	32.5	31.2	33.8	23.5	22.5	24.5	27.0	26.1	28.0
Responsible drinker	48.0	46.7	49.2	42.4	41.3	43.5	44.6	43.7	45.5
Non-drinker	19.5	18.5	20.6	34.1	32.8	35.4	28.3	27.3	29.4
Total (n, %)	12,005	100.0	—	18,342	100.0	—	30,347	100.0	—

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



Risk factor profile of adult patients

From 2001–02 onwards, all patient risk factor questions (BMI, smoking and alcohol consumption) were asked of the same subsample of patients. This allows us to build a risk profile of this sample of adult patients. For the purposes of this analysis, being overweight or obese, a daily smoker or an at-risk drinker are considered risk factors. A risk factor profile was prepared for 29,386 adult patients (aged 18 or more) (Table 15.4).

- Almost half of the adult respondents had one risk factor. Being overweight or obese accounted for three-quarters of these patients.
- One in five patients had two risk factors, the most common combinations being:
 - overweight + at-risk alcohol consumption—7.4% of surveyed patients
 - obesity + at-risk alcohol consumption—4.4% of surveyed patients
 - daily smoking + at-risk alcohol consumption—3.5% of surveyed patients.
- A small minority (3.7%) of patients reported having all three risk factors.

Table 15.5 shows the number of risk factors by patient sex.

- Females were significantly more likely to have no risk factors (29.8%) than males (20.3%).
- One-third of males (31.7%) had two or three risk factors compared with one in five (19.2%) females.

Table 15.4: Risk factor profile of patients (aged 18 years and over), 2006–07

Number of risk factors	Number	Per cent of patients (n = 29,386)	95% LCL	95% UCL
No risk factors	7,646	26.0	25.2	26.8
One risk factor	14,640	49.8	49.1	50.6
Overweight only	6,525	22.2	21.6	22.8
Obese only	4,623	15.7	15.1	16.3
At-risk alcohol level only	2,434	8.3	7.8	8.8
Current daily smoker only	1,058	3.6	3.3	3.9
Two risk factors	6,002	20.4	19.8	21.1
Overweight and at-risk alcohol level	2,186	7.4	7.1	7.8
Obese and at-risk alcohol level	1,277	4.4	4.1	4.6
Daily smoker and at-risk alcohol level	1,019	3.5	3.2	3.7
Overweight and current daily smoker	886	3.0	2.8	3.3
Obese and current daily smoker	634	2.2	2.0	2.4
Three risk factors	1,098	3.7	3.5	4.0
Overweight and current daily smoker and 'at-risk' alcohol level	720	2.5	2.2	2.7
Obese and current daily smoker and 'at-risk' alcohol level	378	1.3	1.2	1.4

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

Table 15.5: Number of risk factors, by patient sex, 2006–07

Number of risk factors	Number	Per cent within sex	95% LCL	95% UCL
Male patients	11,662	100.0	—	—
No risk factors	2,365	20.3	19.4	21.2
One risk factor	5,601	48.0	47.0	49.1
Two risk factors	3,059	26.2	25.2	27.2
Three risk factors	637	5.5	5.0	6.0
Female patients	17,724	100.0	—	—
No risk factors	5,281	29.8	28.9	30.8
One risk factor	9,039	51.0	50.1	51.9
Two risk factors	2,943	16.6	15.9	17.3
Three risk factors	461	2.6	2.3	2.9

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

15.2 Changes over time, 1998–99 to 2006–07

The results for each year of the BEACH program are presented in tables 15.6 to 15.8. These are graphically summarised in figures 15.8 to 15.12.

There has been a significant increase in the prevalence of overweight and obesity in adults attending general practice, from 32.8% and 18.3% respectively in 1998–98 to 35.0% and 23.5% in 2006–07 (Table 15.6 and Figure 15.8). This significant increase is apparent in both male and female patients. The increase in both sexes is largely due to an increase in prevalence of obesity; rates of overweight increased but by a much smaller amount (tables 15.7 and 15.8, and figures 15.9 and 15.10).

In contrast, the rates of overweight and obesity in children aged 2–17 years have remained static over this period, about 11% of children being obese and about 18% overweight. The new method using the unbiased prevalence estimates described by Cole⁸⁹ and the exclusion of children for whom an impossible height (per ABS and CDC) was supplied has given more precise estimates that show no difference over time. This is in contrast to previous results (using the biased prevalence estimate and not excluding biologically impossible heights) that suggested an increase in rates of overweight and obesity in children (Table 15.6).

There has been a significant decrease in the rates of current daily and occasional smoking in all adults aged 18 years or more, from 19.2% and 5.6% respectively in 1998–98 to 16.1% and 3.2% in 2006–07. This decrease was apparent in both male and female patients (Figure 15.11).

The rates of at-risk levels of alcohol consumption for adults attending general practice have remained static over this period at 26–27% (Table 15.6 and Figure 15.12).

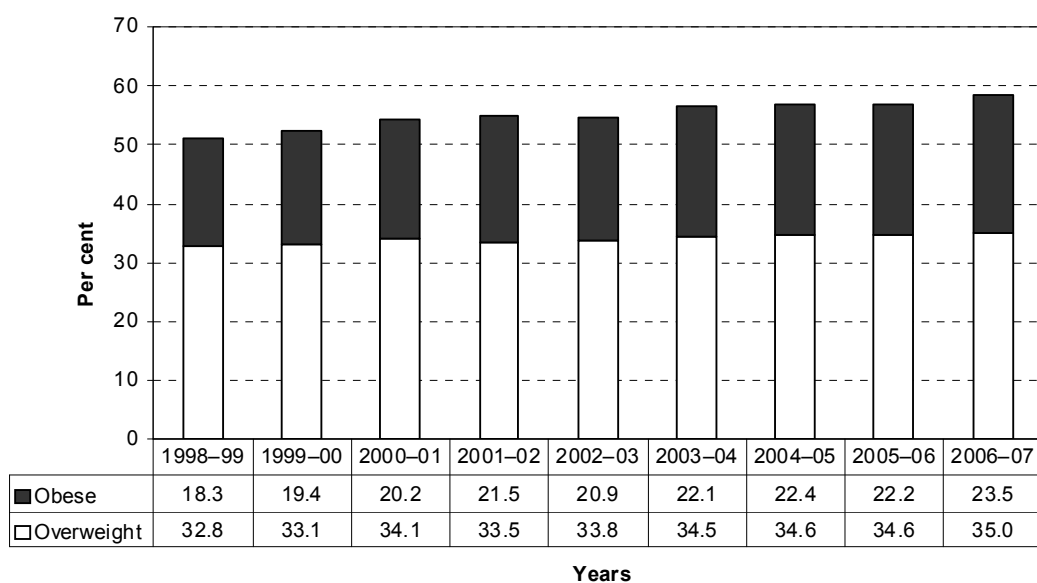


Figure 15.8: Rates of overweight & obesity among adults (aged 18 years and over), 1998-99 to 2006-07

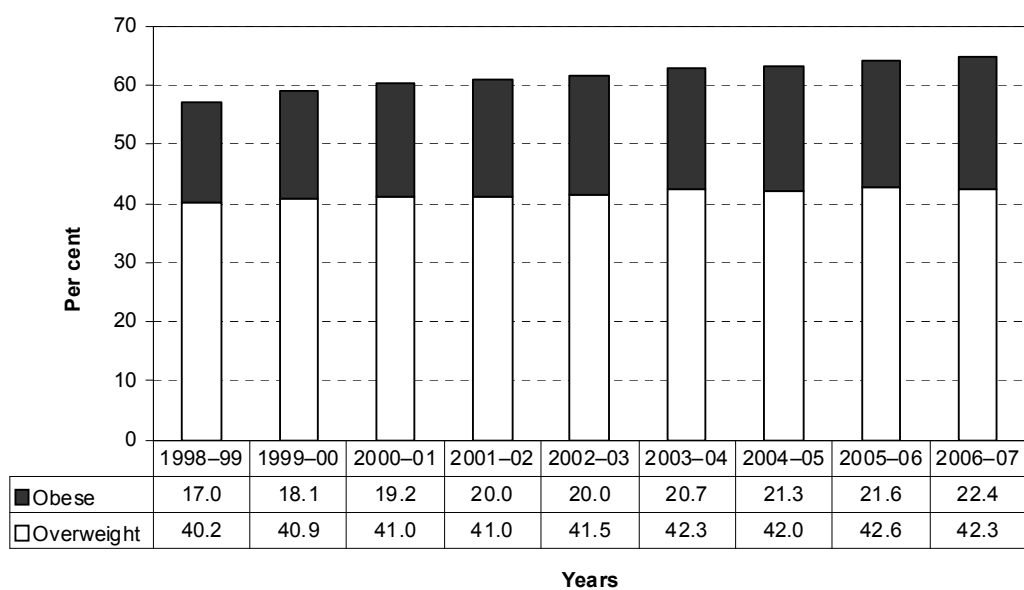


Figure 15.9: Rates of overweight and obesity among male adults (aged 18 years and over), 1998-99 to 2006-07

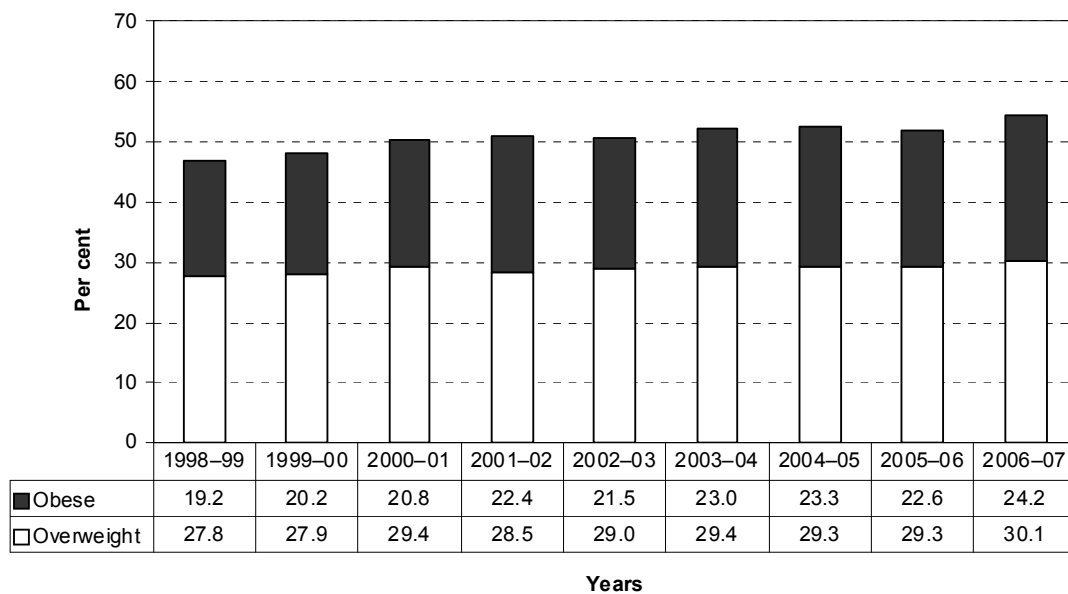


Figure 15.10: Rates of overweight and obesity among female adults (aged 18 years and over), 1998-99 to 2006-07

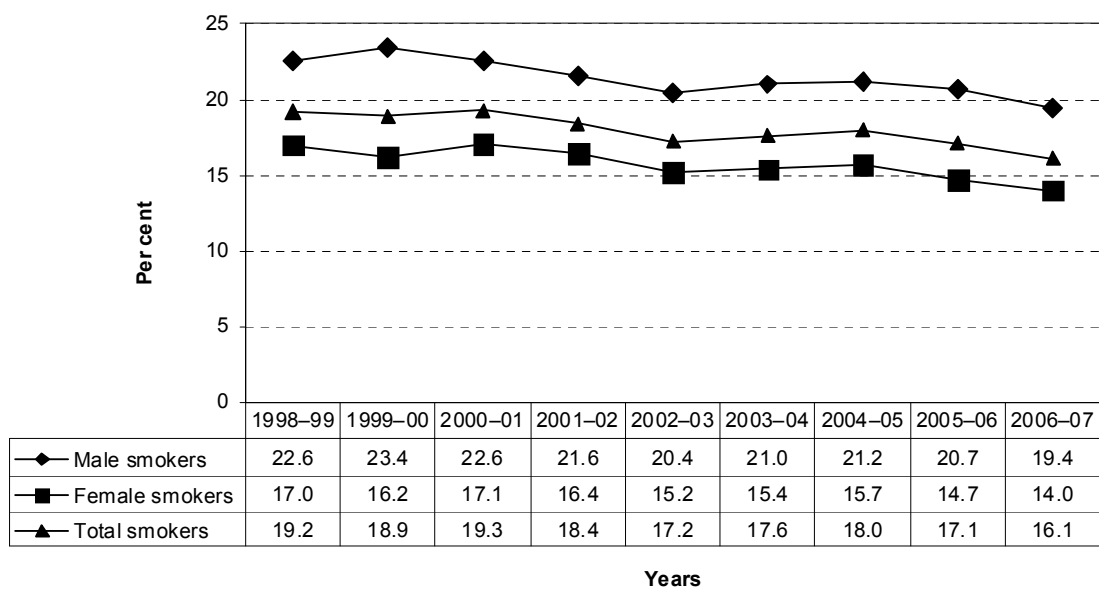


Figure 15.11: Rates of daily smoking among adults (aged 18 years and over), 1998-99 to 2006-07

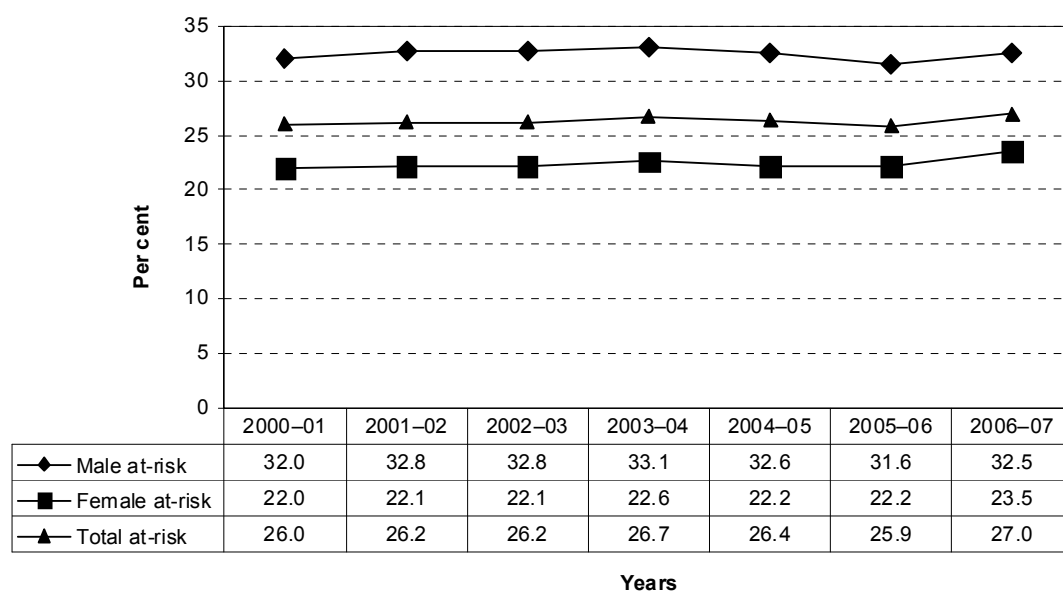


Figure 15.12: Rates of at-risk alcohol consumption among adults (aged 18 years and over), 1998-99 to 2006-07

Table 15.6: Comparative results for all patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07

Risk factor	Per cent (95% CI)									Change ^(a)
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓
Adults (aged 18 years and over)										
BMI class^(b) (n)	(30,485)	(33,069)	(31,957)	(31,789)	(32,367)	(31,890)	(30,476)	(33,101)	(32,334)	
Obese	18.3 (17.7–18.9)	19.4 (18.8–20.0)	20.2 (19.5–20.8)	21.5 (20.8–22.2)	20.9 (20.2–21.5)	22.1 (21.4–22.7)	22.4 (21.7–23.2)	22.2 (21.5–22.9)	23.5 (22.7–24.2)	↑
Overweight	32.8 (32.1–33.4)	33.1 (32.5–33.8)	34.1 (33.4–34.7)	33.5 (32.9–34.1)	33.8 (33.2–34.5)	34.5 (33.8–35.1)	34.6 (33.9–35.2)	34.6 (33.9–35.2)	35.0 (34.3–35.6)	↑
Normal	45.5 (44.7–46.4)	44.3 (43.5–45.1)	42.8 (42.0–43.7)	42.1 (41.3–42.9)	42.4 (41.6–43.3)	40.7 (39.9–41.6)	40.3 (39.5–41.2)	40.5 (39.7–41.4)	39.0 (38.1–39.8)	↓
Underweight	3.4 (3.1–3.6)	3.2 (3.0–3.5)	2.9 (2.7–3.1)	3.0 (2.8–3.2)	2.9 (2.7–3.1)	2.8 (2.6–3.0)	2.7 (2.5–2.9)	2.8 (2.5–3.0)	2.6 (2.4–2.8)	↓
Smoking status (n)	(30,265)	(32,483)	(32,124)	(31,966)	(32,651)	(32,718)	(31,295)	(33,558)	(31,176)	
Daily	19.2 (18.4–20.0)	18.9 (18.1–19.6)	19.3 (18.5–20.1)	18.4 (17.7–19.2)	17.2 (16.5–17.9)	17.6 (16.8–18.3)	18.0 (17.2–18.7)	17.1 (16.3–17.8)	16.1 (15.4–16.9)	↓
Occasional	5.6 (5.2–6.0)	5.2 (4.9–5.6)	4.4 (4.0–4.7)	4.1 (3.8–4.4)	4.1 (3.8–4.4)	4.3 (4.0–4.7)	3.7 (3.4–4.0)	3.6 (3.4–3.9)	3.2 (2.9–3.4)	↓
Previous	27.0 (26.2–27.8)	27.1 (26.3–27.8)	27.3 (26.5–28.1)	27.8 (27.0–28.6)	27.2 (26.5–28.0)	28.0 (27.3–28.8)	28.0 (27.2–28.8)	27.1 (26.3–27.8)	28.8 (28.0–29.6)	↑
Never	48.2 (47.2–49.2)	48.8 (47.9–49.7)	49.1 (48.1–50.1)	49.7 (48.7–50.7)	51.4 (50.4–52.4)	50.1 (49.1–51.0)	50.3 (49.4–51.3)	52.3 (51.3–53.2)	51.9 (50.9–52.9)	↑
Alcohol consumption^(c) (n)	—	—	—	(31,559)	(32,140)	(31,721)	(30,414)	(32,753)	(30,347)	
At-risk alcohol level	NAv	NAv	NAv	26.0 (25.1–26.8)	26.2 (25.3–27.1)	26.7 (25.8–27.6)	26.4 (25.5–27.3)	25.9 (25.0–26.8)	27.0 (26.1–28.0)	—
Responsible drinker	NAv	NAv	NAv	44.1 (43.3–45.0)	44.2 (43.4–45.1)	44.9 (44.1–45.8)	44.9 (44.0–45.7)	44.8 (44.0–45.7)	44.6 (43.7–45.5)	—
Non-drinker	NAv	NAv	NAv	29.9 (28.9–30.9)	29.5 (28.5–30.6)	28.4 (27.3–29.4)	28.7 (27.7–29.8)	29.3 (28.2–30.4)	28.3 (27.3–29.4)	—

(continued)

Table 15.6 (continued): Comparative results for all patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07

Risk factor	Per cent (95% CI)									Change ^(a)
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓
Children (aged 2–17 years)^(d) (n)	(4,019)	(4,053)	(3,610)	(3,518)	(3,380)	(3,189)	(3,018)	(3,338)	(3,087)	—
Obese	11.0 (9.8–12.1)	10.4 (9.3–11.5)	11.4 (10.1–12.6)	10.9 (9.7–12.1)	11.9 (10.5–13.2)	11.8 (10.5–13.2)	10.8 (9.5–12.2)	10.9 (9.7–12.1)	10.6 (9.3–11.9)	—
Overweight	17.1 (15.9–18.4)	17.4 (16.3–18.6)	17.8 (16.5–19.2)	17.9 (16.5–19.3)	18.3 (16.9–19.6)	19.2 (17.7–20.7)	17.7 (16.3–19.1)	17.9 (16.5–19.2)	18.6 (17.2–20.0)	—

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change.

(b) Adult patients aged 18+ with a recorded height outside the ABS height range based on age and sex were excluded. WHO BMI criteria for normal (BMI 18.5 to < 25) and underweight (BMI < 18.5) have been applied.

(c) From 2001–02 onwards the wording of the responses to the first and third alcohol questions was amended to exactly reflect the AUDIT instrument from which they are derived. Therefore 1998–99 to 2000–01 are not directly comparable with data from 2001–02 onwards and as such are not listed.

(d) Children with height outside the ABS/CDC height range based on age and sex were excluded. Child BMI has been re-calculated for 1998–99 to 2005–06 and will differ from data previously published to incorporate this exclusion and to apply a more precise methodology for calculating child BMI.

Note: CI—confidence interval; BMI—body mass index; NAv —not available.

Table 15.7: Comparative results for male patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07

Risk factor	Per cent (95% CI)									Change ^(a)
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓
BMI class^(b) (n)	(12,030)	(13,062)	(12,800)	(12,512)	(12,450)	(12,434)	(12,288)	(12,882)	(12,715)	
Obese	17.0 (16.2–17.8)	18.1 (17.3–19.0)	19.2 (18.4–20.1)	20.0 (19.1–20.9)	19.9 (19.1–20.8)	20.7 (19.8–21.5)	21.3 (20.4–22.3)	21.6 (20.7–22.5)	22.4 (21.6–23.3)	↑
Overweight	40.2 (39.2–41.2)	40.9 (39.9–41.8)	41.0 (39.9–41.8)	41.0 (40.0–42.0)	41.5 (40.5–42.4)	42.3 (41.3–43.2)	42.0 (41.0–43.0)	42.6 (41.6–43.6)	42.3 (41.4–43.3)	↑
Normal	41.0 (39.9–42.2)	39.4 (38.3–40.4)	38.2 (37.0–39.3)	37.4 (36.3–38.6)	37.2 (36.2–38.3)	35.6 (34.5–36.7)	35.3 (34.2–36.5)	34.3 (33.3–35.4)	34.0 (32.9–35.1)	↓
Underweight	1.8 (1.5–2.0)	1.6 (1.4–1.9)	1.6 (1.4–1.9)	1.5 (1.3–1.8)	1.4 (1.1–1.6)	1.5 (1.3–1.7)	1.4 (1.1–1.6)	1.5 (1.3–1.7)	1.2 (1.0–1.4)	↓
Smoking status (n)	(11,797)	(12,230)	(12,869)	(12,547)	(12,521)	(12,692)	(12,613)	(13,016)	(12,257)	
Current daily smoker	22.6 (21.5–23.7)	23.4 (22.3–24.5)	22.6 (21.5–23.7)	21.6 (20.5–22.6)	20.4 (19.4–21.4)	21.0 (20.0–22.0)	21.2 (20.2–22.3)	20.7 (19.7–21.8)	19.4 (18.3–20.5)	↓
Occasional	6.2 (5.6–6.8)	5.4 (4.9–5.9)	4.4 (4.0–4.9)	4.6 (4.1–5.1)	4.5 (4.0–5.0)	4.5 (4.0–4.9)	4.3 (3.9–4.7)	4.1 (3.7–4.6)	3.8 (3.4–4.2)	↓
Previous	36.8 (35.5–38.0)	36.3 (35.1–37.4)	36.5 (35.2–37.8)	36.6 (35.4–37.9)	36.4 (35.2–37.6)	37.3 (36.2–38.5)	36.5 (35.3–37.6)	35.7 (34.5–36.9)	37.1 (35.8–38.4)	—
Never	34.5 (33.3–35.7)	35.0 (33.9–36.1)	36.5 (35.3–37.7)	37.2 (36.0–38.4)	38.7 (37.5–40.0)	37.2 (36.0–38.4)	38.0 (36.8–39.2)	39.5 (38.2–40.7)	39.7 (38.5–41.0)	↑
Alcohol consumption^(c) (n)	—	—	—	(12,464)	(12,391)	(12,334)	(12,294)	(12,792)	(12,005)	
At-risk alcohol level	NAv	NAv	NAv	32.0 (30.8–33.2)	32.8 (31.6–34.1)	33.1 (31.9–34.3)	32.6 (31.3–33.8)	31.6 (30.3–32.8)	32.5 (31.2–33.8)	—
Responsible drinker	NAv	NAv	NAv	46.8 (45.7–48.0)	46.6 (45.5–47.8)	47.3 (46.1–48.5)	47.7 (46.4–48.9)	47.9 (46.7–49.1)	48.0 (46.7–49.2)	—
Non-drinker	NAv	NAv	NAv	21.2 (20.1–22.2)	20.5 (19.5–21.5)	19.6 (18.5–20.7)	19.8 (18.7–20.9)	20.5 (19.4–21.6)	19.5 (18.5–20.6)	—

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change.

(b) Adult patients aged 18+ with a recorded height outside the ABS height range based on age and sex were excluded. WHO BMI criteria for normal (BMI 18.5 to < 25) and underweight (BMI < 18.5) have been applied.

(c) From 2001–02 onwards the wording of the responses to the first and third alcohol questions was amended to exactly reflect the AUDIT instrument from which they are derived. Therefore 1998–99 to 2000–01 are not directly comparable with data from 2001–02 onwards and as such are not listed.

Note: CI—confidence interval; BMI—body mass index; NAv—not available.

Table 15.8: Comparative results for female patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07

Risk factor	Per cent (95% CI)									Change ^(a)
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓
BMI class^(b) (n)	(18,092)	(19,655)	(18,820)	(19,039)	(19,670)	(19,214)	(17,976)	(19,976)	(19,410)	
Obese	19.2 (18.4–19.9)	20.2 (19.5–21.0)	20.8 (20.0–21.6)	22.4 (21.6–23.2)	21.5 (20.7–22.3)	23.0 (22.1–23.8)	23.2 (22.4–24.1)	22.6 (21.7–23.4)	24.2 (23.3–25.1)	↑
Overweight	27.8 (27.1–28.6)	27.9 (27.2–28.7)	29.4 (28.6–30.1)	28.5 (27.8–29.3)	29.0 (28.2–29.8)	29.4 (28.6–30.1)	29.3 (28.6–30.1)	29.3 (28.6–30.0)	30.1 (29.4–30.9)	↑
Normal	48.6 (47.6–49.5)	47.6 (46.6–48.5)	46.0 (45.0–47.0)	45.2 (44.2–46.1)	45.7 (44.7–46.8)	44.1 (43.1–45.1)	43.8 (42.7–44.8)	44.6 (43.6–45.6)	42.2 (41.2–43.2)	↓
Underweight	4.5 (4.1–4.8)	4.3 (4.0–4.6)	3.8 (3.5–4.1)	3.9 (3.6–4.2)	3.8 (3.5–4.2)	3.6 (3.3–3.9)	3.6 (3.3–4.0)	3.5 (3.2–3.8)	3.5 (3.2–3.8)	↓
Smoking status (n)	(18,073)	(19,930)	(18,920)	(19,182)	(19,875)	(19,780)	(18,468)	(20,288)	(18,718)	
Current daily smoker	17.0 (16.2–17.7)	16.2 (15.4–16.9)	17.1 (16.3–17.9)	16.4 (15.6–17.2)	15.2 (14.4–15.9)	15.4 (14.6–16.1)	15.7 (15.0–16.5)	14.7 (14.0–15.4)	14.0 (13.3–14.8)	↓
Occasional	5.2 (4.8–5.7)	5.1 (4.7–5.4)	4.3 (4.0–4.7)	3.8 (3.4–4.1)	3.9 (3.5–4.3)	4.2 (3.9–4.6)	3.3 (3.0–3.7)	3.3 (3.0–3.6)	2.7 (2.5–3.0)	↓
Previous	20.6 (19.8–21.4)	21.4 (20.7–22.2)	20.9 (20.0–21.7)	22.0 (21.2–22.9)	21.5 (20.7–22.3)	22.0 (21.2–22.8)	22.2 (21.3–23.0)	21.5 (20.7–22.3)	23.3 (22.5–24.2)	↑
Never	57.2 (56.1–58.4)	57.4 (56.3–58.4)	57.7 (56.6–58.8)	57.8 (56.7–58.9)	59.4 (58.3–60.5)	58.4 (57.3–59.5)	58.8 (57.7–59.9)	60.5 (59.5–61.6)	59.9 (58.8–61.0)	↑
Alcohol consumption^(c) (n)	—	—	—	(19,095)	(19,749)	(19,387)	(18,120)	(19,961)	(18,342)	
At-risk alcohol level	NAv	NAv	NAv	22.0 (21.1–22.9)	22.1 (21.2–23.0)	22.6 (21.7–23.6)	22.2 (21.3–23.2)	22.2 (21.3–23.2)	23.5 (22.5–24.5)	—
Responsible drinker	NAv	NAv	NAv	42.4 (41.3–43.4)	42.7 (41.7–43.8)	43.5 (42.4–44.5)	43.0 (41.9–44.0)	42.8 (41.8–43.9)	42.4 (41.3–43.5)	—
Non-drinker	NAv	NAv	NAv	35.6 (34.4–36.9)	35.2 (33.9–36.5)	33.9 (32.7–35.2)	34.8 (33.4–36.2)	35.0 (33.6–36.3)	34.1 (32.8–35.4)	—

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change.

(b) Adult patients aged 18+ with a recorded height outside the ABS height range based on age and sex were excluded. WHO BMI criteria for normal (BMI 18.5 to < 25) and underweight (BMI < 18.5) have been applied.

(c) From 2001–02 onwards the wording of the responses to the first and third alcohol questions was amended to exactly reflect the AUDIT instrument from which they are derived. Therefore 1998–99 to 2000–01 are not directly comparable with data from 2001–02 onwards and as such are not listed.

Note: CI—confidence interval; BMI—body mass index; NAv—not available.

16 SAND abstracts and research tools

Since BEACH began in April 1998, a section on the bottom of each encounter form has been used to investigate aspects of patient health or health care delivery not covered by general practice consultation-based information. These additional substudies are referred to as SAND (Supplementary Analysis of Nominated Data). The SAND methods are described in Section 2.5. All substudies have been approved by the AIHW Ethics Committee (on behalf of the AIHW and the University of Sydney).

The AGPSCC and participating stakeholders of the BEACH program select topics for investigation in each of the SAND studies. In each BEACH year up to 20 substudies can be conducted in addition to the study of patient risk behaviours (see Chapter 15). Topics are often repeated to increase the size of the sample and its statistical power.

Data from the SAND substudies conducted in the first year of BEACH (1998–99) were published in *Measures of health and health care delivery in general practice in Australia*.⁹⁸ Abstracts of results and research tools for the SAND studies undertaken in 1999–2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006* in July 2007.¹² Abstracts and research tools for substudies conducted in 2006–07 that were not included in that report are presented in this chapter. The subjects covered in the abstracts from 2006–07 BEACH year are listed in Table 16.1 with the sample size for each topic.

Abstracts of results from all SAND studies are also available from the FMRC's website <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Table 16.1: SAND abstracts for 2006–07 and sample size for each

Abstract number	Subject	Number of respondents	Number of GPs
95	Cultural background of patients attending general practice ^(a)	6,035	202
96	Inhaled corticosteroid use for asthma management ^(a)	5,911	201
97	Statin medication use among high CHD risk patients attending general practice ^(a)	2,707	94
98	Management of hypertension and angina in general practice patients ^(a)	2,919	98
99	Lipid management in patients with high-risk conditions ^(a)	5,372	183
100	Gastrointestinal symptoms in patients attending general practice ^(a)	2,801	97
101	Types of medicine use and patient use of medicines list ^(a)	5,528	187
102	Alzheimer's disease or dementia in patients attending general practice ^(a)	2,863	99
103	Cardiovascular risk in patients attending general practice ^(a)	2,618	99
104	Asthma management and medication use among patients attending general practice ^(a)	2,862	97
105	Measurement of severity of illness in general practice	4,982	166
106	Weight loss attempts and methods	2,164	76
107	Type 2 diabetes and dyslipidaemia	2,331	89
108	Type 2 diabetes among patients attending general practice	2,832	96
109	Secondary prevention of heart attack and stroke	2,471	84
110	Erectile dysfunction	1,930	82

(a) The abstract of results and research tool for this study was published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006* and is therefore not included in this chapter.

SAND abstract 105: Measurement of severity of illness in general practice

Organisation supporting this study: Australian General Practice Statistics and Classification Centre.

Issues: Severity of illness of each problem managed at the general practice encounter; length of the consultation and the GP consultation rate in the previous year; the relationship between the total severity score, consultation length and consultation rate.

Sample: 4,982 encounters from 166 GPs; data collection period: 24/10/2006 – 15/01/2007.

Method: Detailed in the paper entitled 'SAND Method 2006–07' on this website: <www.fmrc.org.au/publications/SAND_abstracts.htm>. The Duke University Severity of Illness (DUSOI) scale was used to assess the severity of each problem managed at the encounter and to calculate a total score for each encounter.¹

Summary of results

The age–sex distribution of respondents was similar to the distribution for all BEACH encounters, with the majority (58.5%) of patients being female.

The mean total DUSOI score was 5.2 (95% CI: 5.0–5.5) based on 4,187 scored encounters. Encounters with patients aged 45 years and over had a significantly higher mean total DUSOI score than those aged less than 45. There was a significant positive linear relationship between total DUSOI score and number of GP visits reported in the previous 12 months ($p < 0.001$). Patients reporting 11 or more GP visits had the highest mean total score of 6.4, and those reporting nil GP visits had the lowest total mean score of 3.6. The number of visits increased by 0.6 for every one point increase in total DUSOI score for the encounter.

There was a significant positive linear relationship between mean total DUSOI score and the length of consultation, with the consultation length increasing by 0.55 of a minute for each one unit increase in DUSOI ($p = <0.001$). The DUSOI range was 4.0 for consultations of less than 5 minutes to 7.3 for consultations of more than 25 minutes.

For 4,187 respondents, the mean total DUSOI score of encounters with at least one chronic problem managed was 6.7 (95% CI: 6.3–7.1), significantly higher than encounters with no chronic problems (4.1, 95% CI: 3.9–4.2). Linear regression demonstrated a significant positive linear relationship between total DUSOI score and the number of chronic problems managed ($p < 0.001$). The total DUSOI increased by 2.4 points for each chronic problem managed.

The DUSOI from the 6,133 scored problems had a mean score of 3.7 (95% CI: 3.6–3.9). Significantly higher DUSOI scores were recorded for back complaint (5.1, 95% CI: 4.7–5.4), depression (4.9, 95% CI: 4.6–5.2), acute stress reaction (4.9, 95% CI: 4.4–5.4), osteoarthritis (4.8, 95% CI: 4.5–5.1), anxiety (4.6, 95% CI: 4.2–4.9) and fracture (4.5, 95% CI: 3.9–5.1).

Significantly lower DUSOI scores were recorded for acute upper respiratory infection (2.9, 95% CI: 2.7–3.2), hypertension (2.6, 95% CI: 2.4–2.9), solar keratosis/sunburn (2.4, 95% CI: 2.1–2.8), lipid disorder (2.3, 95% CI: 2.0–2.6) and pregnancy (1.3, 95% CI: 0.8–1.8).

1 Parkerson GR, Jr, Broadhead WE, Tse CK 1993. The Duke Severity of Illness Checklist (DUSOI) for measurement of severity and comorbidity. *J Clin Epidemiol* 46:379–93.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **PATIENT SEVERITY OF ILLNESS**

You may tear out this page as a guide to completing the following section of forms.

INSTRUCTIONS

START Time

:
AM / PM
(please circle)

START time

Record the time the consultation STARTED in hours and mins and circle whether the time was AM or PM.

eg. 9:10

AM PM

SEVERITY OF ILLNESS - GP estimates for each patient*.

Estimate the severity of illness for **EACH** problem managed at **this encounter**. Using the score key below, circle ONE number for each of: **Symptoms**, **Complications**, **Prognosis**, and **Treatability**.

SEVERITY OF ILLNESS SCORING KEY*

	None	Questionable	Mild	Moderate	Major
SYMPTOMS (past week)	0	1	2	3	4
COMPLICATIONS (past week)	0	1	2	3	4
PROGNOSIS (next 6 months if untreated)	Disability		Threat to life		
	None	Mild	Moderate	Major	
	0	1	2	3	4
TREATABILITY	Need for treatment		Expected response to treatment		
	No	Questionable	If yes → Good	Questionable	Poor
	0	1	2	3	4

*Copyright 1990 Dept of Community and Family Medicine Duke University Medical Centre, Durham, NC, USA.

FINISH time

Record the time the consultation FINISHED in hours and mins and circle whether the time was AM or PM.

eg. 9:15

AM PM

GP consultations in the previous year.

Please check with the patient and write in the approximate number of times this patient has consulted you or any other GP at this or any other practice within the past 12 months.

How many times (approximately) has this patient consulted a GP at any practice in the last 12 months? _____	Severity of Illness - Please circle ONE number for each of: Symptoms, Complications, Prognosis and Treatability using the severity scoring key on the green instruction sheet to estimate the patient's overall severity of illness during the past week for each problem managed at today's encounter .	Diagnosis/Problem 1 Symptoms 0 1 2 3 4 Complications 0 1 2 3 4 Prognosis 0 1 2 3 4 Treatability 0 1 2 3 4	Diagnosis/Problem 2 Symptoms 0 1 2 3 4 Complications 0 1 2 3 4 Prognosis 0 1 2 3 4 Treatability 0 1 2 3 4	Diagnosis/Problem 3 Symptoms 0 1 2 3 4 Complications 0 1 2 3 4 Prognosis 0 1 2 3 4 Treatability 0 1 2 3 4	Diagnosis/Problem 4 Symptoms 0 1 2 3 4 Complications 0 1 2 3 4 Prognosis 0 1 2 3 4 Treatability 0 1 2 3 4	FINISH Time : AM / PM (please circle) BL87B
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SAND abstract 106: Weight loss attempts and methods

Organisation supporting this study: Abbott Australasia.

Issues: BMI of child and adult general practice patients (calculated separately); prevalence of selected, related morbidities: hypertension, other cardiovascular disease, diabetes type 2 and depression; proportion taking selected medication groups: anti-hypertensives, statins/fibrates, antidepressants and antipsychotics; proportion who had tried to lose weight in past 12 months and methods used.

Sample: 2,164 encounters with patients aged 2 years or more from 76 GPs. Data collection period: 24/10/2006 – 27/11/2006.

Method: Detailed in the paper entitled 'SAND Method 2006-07' on this website: <www.fmrc.org.au/publications/SAND_abstracts.htm>. An international standard was employed to calculate BMI cut-off levels in children.¹ A card listing weight loss methods was provided to patients.

Summary of results

The age and sex distributions were similar to all 2004–05 BEACH encounters with patients aged 2 years and over. Female patients accounted for 62.3% of the sample. Patients were divided into children (2–17 years) and adults (18 years and over) because the BMI cut-off levels for children differ from those used for adults. Of 212 child patients, 20.8% were overweight and 13.2% were obese. Of 1,862 adult patients, 34.4% were overweight and a further 22.5% were obese. Combining adult and child general practice patients, over half (54.6%; 95% CI: 51.4–57.7) were defined as overweight or obese.

Only six child patients had any of the listed comorbidities. Of 1,907 adult patients, 54.8% had at least one of the comorbidities. At least one of the comorbidities was indicated for a significantly greater proportion of overweight (58.0%; 95% CI: 53.1–62.9) and obese adult patients (66.2%; 95% CI: 60.8–71.6) than patients of normal weight (45.4%; 95% CI: 40.4–50.3).

Only one child was taking any of the medications. Of 1,893 adult respondents, 48.4% were taking at least one. The proportion of adult patients taking at least one medication rose significantly as weight increased, from 38.0% (95% CI: 33.3–42.8) of normal weight to 50.7% (95% CI: 46.2–55.3) of overweight and 61.5% (95% CI: 56.1–67.0) of obese patients.

Of 223 child respondents, only nine had attempted weight loss in the previous 12 months. Of 1,927 adult patients, 35.8% had made at least one attempt to lose weight in the previous 12 months. The proportion of adult patients attempting weight loss rose significantly by weight category, with 42.6% (95% CI: 36.6–48.5) of overweight and 67.6% (95% CI: 62.1–73.2) of obese patients attempting weight loss at least once during the previous 12 months. Female patients were significantly more likely to have attempted weight loss (41.8%; 95% CI: 37.5–46.1) than male patients (25.3%; 95% CI: 21.1–29.4). The majority (66.8%) of 689 adult respondents indicated exercise among weight loss methods tried, 38.6% had used a self-structured reducing diet, 30.8% indicated GP advice, 26.9% had used meal plans and 23.1% had used a weight loss program. Over-the-counter medications were indicated by 9.7% of these patients, specialist/dietitian advice by 8.6% and prescribed medications by 6.1% of patients.

1 Cole TJ, Bellizzi MC et al. 2000. Establishing a standard definition for child overweight and obesity worldwide; international survey. *BMJ* 320 (7244):1240–3.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **PATIENT WEIGHT LOSS ATTEMPTS** and **METHODS**.
You may tear out this page as a guide to completing the following section of forms.

INSTRUCTIONS

***These questions are for
ALL PATIENTS***

Weight loss attempts

How often in the past 12 months has this patient **attempted** to lose weight? This includes commencing new diets, meal replacement programs, exercise programs, joining organisations, or seeking specific advice **with the objective of losing weight**.

Patient height & weight

What is the patient's **height** (without shoes)?
What is their **weight** (unclothed)?

*(You are **NOT REQUIRED** to weigh or measure the patient, but if the patient is unsure, you may either do so or take information from the medical records.)*

Morbidity *(tick all that apply)*

Please use the tick boxes to advise whether the patient has **ever been diagnosed** with any of the listed conditions.

Medications

(tick all that apply)

Please use the tick boxes to advise whether the patient is **currently taking** any of the listed medications.

Weight loss methods *(tick as many as apply)*

Please tick the box beside any **weight loss methods** the patient has tried in the past 12 months in an attempt to lose weight.

Tick as many boxes as apply.

* **Weight loss programs** e.g. Jenny Craig, Weight Watchers, Gutbusters, Gloria Marshall etc.

* **Meal Plans** e.g. Lite N Easy, Easy Slim, Nu-Shape etc.

* **Over-the-counter (OTC) Products** available from pharmacies, supermarkets, health food stores etc, e.g. Xenical, Slimfast, Optifast, Cenovis NutriPlan, Fat Blaster, Trim It, Opti Slim, Sure Slim, Exo Fat, Chitosan etc. (NB. Xenical S3 since 1st May 2004).

* **Other reducing diet** e.g. commencing a structured diet plan other than those listed above (self-structured).

* **Exercise program** e.g. commencing an exercise program not usually undertaken such as walking, joining a gym, jogging, or participating in some other physical activity for the purpose of losing weight.

* **Specific advice sought from the GP** to help with weight loss or acting on advice offered by the GP.

* **Prescribed medication** e.g. Reductil, Duromine, Tenuate etc prescribed for weight loss.

* **Specific advice sought from a Specialist or Dietitian** for the purpose of losing weight.

* **Any other method** not listed e.g. seeking advice from a pharmacist, herbalist etc, for the purpose of losing weight.

Prescribed medications

Please advise whether the patient has **ever used a prescribed medication** (e.g. Duromine, Reductil, Tenuate) **for weight loss?** (NB. Prior to 1st May 2004 Xenical (orlistat) was a prescribed medication - classified as S3 since. If this medication was used **prior** to 1st May 2004 please **count it as a prescribed medication**).

If a prescribed medication has **never been required**, please tick the 'No - never required' option and **end the questions here**. For other responses please continue on to the last question.

Prescribed medication

If a **prescribed medication** has **never been tried**, or **use was intermittent or discontinued**, please advise the **three most important reasons**. Write the number **1** beside the most important reason, **2** beside the second reason, and **3** beside the third (i.e. **rank the top 3 reasons**).

Ask the patient their Height: _____ cm Weight: _____ kg BL87C	Has the patient ever been diagnosed with? <input type="checkbox"/> Hypertension <input type="checkbox"/> Other cardiovascular disease <input type="checkbox"/> Diabetes T2 <input type="checkbox"/> Depression / mood disorder <input type="checkbox"/> None of the above	Is the patient currently taking? <input type="checkbox"/> Anti-hypertensives <input type="checkbox"/> Statins / fibrates <input type="checkbox"/> Anti-depressants <input type="checkbox"/> Anti-psychotics <input type="checkbox"/> None of the above	Ask the patient... In the past 12 months how often have you attempted to lose weight? <input type="checkbox"/> Never <input type="checkbox"/> Once <input type="checkbox"/> 2-4 times <input type="checkbox"/> 5 or more times	In the past 12 months which weight loss methods have you tried? <input type="checkbox"/> None <input type="checkbox"/> Weight loss programs <input type="checkbox"/> Meal Plans <input type="checkbox"/> OTC products (pharmacy/retail) <input type="checkbox"/> Other reducing diet <input type="checkbox"/> Exercise program <input type="checkbox"/> GP advice <input type="checkbox"/> Prescribed medication <input type="checkbox"/> Specialist/dietitian advice <input type="checkbox"/> Other _____	Have you ever used a prescribed medication to lose weight? <input type="checkbox"/> Yes - intermittently <input type="checkbox"/> Yes - continuously <input type="checkbox"/> Yes - but discontinued use <input type="checkbox"/> No - never required <input type="checkbox"/> No - other reason	Reasons for non / interrupted / discontinued use of a prescribed medication for weight loss are: <i>(please rank the top 3 reasons by numbering 1 to 3)</i> ____ cost ____ advice from health professional ____ not suitable or contra-indicated ____ prefer non-drug option ____ unsatisfactory outcome ____ side effects ____ satisfactory weight loss achieved
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Weight loss methods

Please tick the box beside any **weight loss methods** the patient has tried in the past 3 years in an attempt to lose weight.

Tick as many boxes as apply.

* **Weight loss programs** e.g. Jenny Craig, Weight Watchers, Gutbusters, Gloria Marshall etc.

* **Meal Plans** e.g. Lite N Easy, Easy Slim, Nu-Shape etc.

* **Over-the-counter (OTC) Products** available from pharmacies, supermarkets, health food stores etc, e.g. Xenical, Slimfast, Optifast, Cenovis, NutriPlan, Fat Blaster, Trim It, Opti Slim, Sure Slim, Exo Fat, Chitosan etc. (NB. Xenical S3 since 1st May 2004).

* **Other reducing diet** e.g. commencing a structured diet plan other than those listed above (self-structured).

* **Exercise program** e.g. commencing an exercise program not usually undertaken such as walking, joining a gym, jogging, or participating in some other physical activity for the purpose of losing weight.

* **Specific advice sought from the GP** to help with weight loss or acting on advice offered by the GP.

* **Prescribed medication** e.g. Reductil, Duromine, Tenuate etc prescribed for weight loss.

* **Specific advice sought from a Specialist or Dietitian** for the purpose of losing weight.

* **Any other method not listed** e.g. seeking advice from a pharmacist, herbalist etc, for the purpose of losing weight.

SAND abstract 107: Type 2 diabetes and dyslipidaemia

Organisation supporting this study: Merck, Sharp and Dohme (Australia) Pty Ltd.

Issues: The prevalence of type 2 diabetes, dyslipidaemia and related morbidities among general practice patients; comorbidities and smoking status of patients with type 2 diabetes and/or dyslipidaemia; HbA1c and cholesterol levels of these patients; current management of blood glucose.

Sample: 2,331 patient encounters with 89 GPs. Data period: 28/11/2006 – 15/01/2007.

Method: Detailed in the paper entitled 'SAND Method 2006–07' on this website: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age and sex distributions were similar to all 2005–06 BEACH encounters. Of the 2,331 respondents, 204 (8.8%; 95% CI: 7.1–10.4) had diagnosed diabetes, and 388 (16.7%; 95% CI: 14.2–19.1) had diagnosed dyslipidaemia. There were 478 respondents (20.5%; 95% CI: 18.1–22.9) who had diagnosed diabetes and/or dyslipidaemia.

Of the 2,331 patients, 569 (24.4%) had hypertension, 51 (2.2%) had congestive heart failure, 126 (5.4%) had coronary heart disease, and 42 (1.8%) had moderate or severe renal insufficiency. Of the 478 patients with diagnosed diabetes and/or dyslipidaemia, 56.9% had at least one of these conditions as a comorbidity: 52.7% had diagnosed hypertension, 4.6% had congestive heart failure, 14.4% had coronary heart disease and 4.0% had moderate/severe renal insufficiency. Of 437 respondents with diabetes and/or dyslipidaemia, 56 (12.8%) were current smokers and 25 of these smokers also had at least one comorbidity.

Of patients with type 2 diabetes and/or dyslipidaemia for whom HbA1c levels were known ($n = 206$), 49.5% had a level of ≤ 7 and 50.5% had a HbA1c level > 7 . Of 459 patients for whom total cholesterol levels were known, 42.5% had a level of > 5.0 .

Of 201 diabetes patients who responded, 172 (85.6%) were taking at least one medication to manage blood glucose. Of 285 individual medications, 46.0% were metformin and 32.6% were sulphonylureas. Of 172 blood glucose medications for which details of duration of use were available, 47.1% had been taken for 1–4 years. Four-fifths (79.2%) of the 245 blood glucose medications for which data were available were initiated by a GP and one-fifth (20.8%) were initiated by a specialist. Only insulin was more commonly initiated by a specialist (66.7% of insulin medications) than by a GP (33.3%).

Information on diet and exercise was provided for 115 patients with type 2 diabetes, 90.4% of whom were using diet/exercise for blood glucose management. These patients can be divided into the 70.4% who were using diet/exercise and taking at least one medication, 20.0% who were using diet/exercise but were not taking medication, and 9.6% of patients who were not using diet/exercise but were taking medication.

Of the total 285 medications, there were 39 for which change was indicated for patients whose blood glucose target had not been reached. The plan was to stop four of the medications, increase the dose for 31 and decrease the dose for four.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **DIABETES TYPE 2** and **HYPER/DYSLIPIDAEMIA**.
You may tear out this page as a guide to completing the following section of forms.

INSTRUCTIONS

Ask **ALL** of the next 30 **PATIENTS** the following questions
in the order in which the patients are seen.
Please **DO NOT** select patients to suit the topic being investigated.

Morbidity

Please use the tick boxes to advise whether the patient has **ever been diagnosed** with any of the listed **conditions**.

Please respond for **all** conditions, and **continue** with further questions if the patient has either **Diabetes Type 2** and/or **hyper/dyslipidaemia**.

If the patient **does not have** either Diabetes Type 2 and/or hyper/dyslipidaemia you should **end the questions here**.

NB - moderate/severe renal insufficiency defined as creatinine \leq 50ml/min.

Patient smoking status (if 18+ years)

Please use the tick boxes to advise whether or not the patient is a **current smoker**.

Test levels

Please advise the patient's **levels** at the **most recent testing**, of **HbA1c; total cholesterol; LDL cholesterol; HDL cholesterol**.

If you **do not know** one of these levels, or if the patient has **never had** one or more of these levels tested, please tick the box labelled '**don't know / never tested**'.

Medication / management for blood glucose levels

Please advise the **name and regimen** of any **medication/s** currently being taken by the patient for **management of their blood glucose levels**. NB - if insulin is used, write the name only - regimen details are not required.

Duration of use - Please **write a number** in the space provided, and **circle an option** to indicate **months or years**, to advise the approximate **length of time** the medication has been taken by the patient.

Initiation of medication - **Circle an option** to advise whether the medication was **initiated by a GP** or a **specialist**.

Management plan - If the target blood glucose level for this patient has **not yet been achieved**, please **circle an option** to advise the **next step** you plan to take in relation to the patient's **medication**.

If you plan to **add** a medication to the current regimen, please **write the name of the medication** in the space provided.

If **no medication** is currently being taken for blood glucose management, please tick the box labelled '**no medication**'

Please **circle an option** to advise whether **diet and/or exercise** are part of the patient's blood glucose management.

Does this patient have diagnosed:	Is the patient a current smoker?	At the most recent test what were the patient's levels of:	Don't know/never tested	The current medication / management for this patient's BLOOD GLUCOSE levels is / are: <small>(please circle selected options)</small>						
				Name & Form	Strength	Dose	Freq	Duration of use	Initiated by	Management plan* (if target for patient not yet reached)
<input type="checkbox"/> Diabetes type 2 <input type="checkbox"/> Hyper/dyslipidaemia <input type="checkbox"/> Hypertension <input type="checkbox"/> Cong. heart failure <input type="checkbox"/> Cor. heart disease <input type="checkbox"/> Mod/severe renal insuff. <input type="checkbox"/> None of the above	<input type="checkbox"/> yes <input type="checkbox"/> no	HbA1c _____ % Total chol _____ mmol/L LDL-C _____ mmol/L HDL-C _____ mmol/L	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1. _____				_____ (mths/yrs)	GP / Spec'st	no change/ stop / ↑ dose/ ↓ dose
				2. _____				_____ (mths/yrs)	GP / Spec'st	no change/ stop / ↑ dose/ ↓ dose
				3. _____				_____ (mths/yrs)	GP / Spec'st	no change/ stop / ↑ dose/ ↓ dose
				4. _____				_____ (mths/yrs)	GP / Spec'st	no change/ stop / ↑ dose/ ↓ dose
				<input type="checkbox"/> No medication Diet / exercise? Yes/No *If adding a medication, addition would be?						

SAND abstract 108: Type 2 diabetes among patients attending general practice

Organisations supporting this study: Pfizer (Australia) Pty Ltd.

Issues: The prevalence of type 2 diabetes in patients attending general practice; time since diagnosis of type 2 diabetes; current management; prevalence of sequelae of type 2 diabetes; HbA1c level of patients.

Sample: 2,832 respondents from 96 GPs; data collection period: 16/01/2007–19/02/2007.

Method: Detailed in the paper entitled 'SAND Method 2006–07' on this website: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age–sex distribution of the respondents was similar to the distribution for all BEACH encounters, with the majority of patients (60.1%) being female.

Of the 2,832 respondents, 212 (7.5%; CI: 6.1–8.9) had diagnosed type 2 diabetes. There was no significant difference in the sex-specific rates, with 8.9% of male and 6.6% of female having diabetes. Prevalence was highest among patients aged 65–74 years at 16.9% (95% CI: 13.2–20.6). For 180 respondents from the 212 patients with type 2 diabetes, the median time since diagnosis was 6 years.

Diabetes management information was available for 209 patients. Management included diet and exercise for 64.1% of patients, metformin for 54.6% of patients, sulfonylurea for 30.6% and insulin for 20.6%. Glitazone and acarbose were each part of the management for 6.2% of patients. All patients were using at least one management type. Of 209 respondents, 55 (26.3%) were taking no medication and using diet and exercise only, 39.7% were taking one therapy, 27.3% were taking two and 6.7% were taking three therapies.

Sequelae information was available for 188 patients. Twenty-two per cent of respondents had no sequelae resulting from diabetes. Hypertension was a sequela of type 2 diabetes for 65.4% of respondents, other cardiovascular disease was a sequela for 28.2%, renal disease for 13.8%, and eye complications a sequela for 8.0%. Neuropathy, foot complications and skin complications each affected 10.6% of diabetes patients. Gastroparesis was a sequela for 8 patients (4.3%), depression for 2 patients (1.1%) and other sequelae of diabetes were recorded for 7 patients (3.7%).

HbA1c test levels were recorded for 209 patients. There were 8.2% of patients who did not know their level or had never been tested. Two-fifths of patients (38.9%) had a level $\geq 6\%$ to $\leq 7\%$, and 89 patients (42.6%) had a level $> 7\%$. For the 89 patients with a HbA1c level $> 7\%$, 69 specified the duration their HbA1c level had been $> 7\%$: median duration was 10 months. Of the patients with a level HbA1c $> 7\%$ and who were not using insulin, 56 gave reason(s) for not using insulin. Three-quarters (75.0%) responded that insulin was 'not yet necessary', for 7.1% the reason was 'needle phobia' and for 12.5% it was 'other patient resistance'.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **TYPE 2 DIABETES**.
You may tear out this page as a guide to completing the following section of forms.

INSTRUCTIONS

Ask **ALL** of the next 30 **PATIENTS** the following questions in the order in which the patients are seen.
Please **DO NOT** select patients to suit the topic being investigated.

Diabetes

Has this patient been diagnosed with **Type 2 diabetes**.

If **No** you should **end the questions** here.

Diabetes management

Please use the tick boxes to advise how the patient is managing their type 2 diabetes.

Beside each medication ticked, please **write** the approximate **length of time** the medication has **been taken** by the patient, and **circle an option** to indicate whether the number written refers to **weeks, months or years**.

Time since diabetes diagnosis

Please advise the approximate length of **time since** the patient's diabetes was **initially diagnosed**. Please **write a number** on the line and **circle an option** to advise whether months or years.

e.g. 6 mths / yrs

Sequelae of diabetes

Please use the tick boxes to advise whether the patient has any of the listed **sequelae** of diabetes.

HbA1c level

Please write in the space provided, the patient's **HbA1c level** from the **most recent test**.

If you **do not know**, or the patient has **never been tested**, please tick the box labelled '**don't know/never tested**'.

NB. If the patient's HbA1c is $\leq 7.0\%$ you should **end the questions here**.

For patients with HbA1c $>7.0\%$

If the patient's HbA1c level was $>7.0\%$ at the most recent test, please use the tick boxes to advise the approximate length of **time since the last test**.

Please advise (approximately) **how long** the patient's HbA1c level has been at $>7.0\%$.

If the patient is **not on insulin**, please advise the **main reason for not using insulin** for diabetes management e.g. the patient fears needles; is resistant for other reasons; in your clinical opinion it is not yet necessary, or for another reason. Please **advise** this reason in the space labelled 'other'.

Does this patient have Type 2 Diabetes? <input type="checkbox"/> Yes → <input type="checkbox"/> No ↴ End questions	Approx. time since initial diagnosis _____ mths / yrs (please circle)	If 'Yes', the diabetes is currently managed with: (please tick all that apply) BL89C <input type="checkbox"/> Diet and exercise <input type="checkbox"/> Metformin <input type="checkbox"/> Sulfonylurea <input type="checkbox"/> Glitazone <input type="checkbox"/> Acarbose <input type="checkbox"/> Insulin <input type="checkbox"/> Other _____ <input type="checkbox"/> None of the above	Management <input type="checkbox"/> Diet and exercise <input type="checkbox"/> Metformin <input type="checkbox"/> Sulfonylurea <input type="checkbox"/> Glitazone <input type="checkbox"/> Acarbose <input type="checkbox"/> Insulin <input type="checkbox"/> Other _____ <input type="checkbox"/> None of the above	Duration of use _____ wks/mths/yrs _____ wks/mths/yrs _____ wks/mths/yrs _____ wks/mths/yrs _____ wks/mths/yrs (please circle)	Does the patient have any of the listed sequelae of diabetes? (please tick all that apply) <input type="checkbox"/> Hypertension <input type="checkbox"/> Other CVD <input type="checkbox"/> Renal disease <input type="checkbox"/> Eye complications <input type="checkbox"/> Neuropathy / nerve damage <input type="checkbox"/> Foot complications <input type="checkbox"/> Skin complications <input type="checkbox"/> Gastroparesis <input type="checkbox"/> Depression <input type="checkbox"/> Other _____ <input type="checkbox"/> None of the above	What was the patient's HbA1c level at the most recent test? _____ % <input type="checkbox"/> Don't know/never tested	For patients with HbA1c level $>7.0\%$ - How long since the most recent HbA1c test? <input type="checkbox"/> < 6 mths <input type="checkbox"/> 6 - 12 mths <input type="checkbox"/> > 12 mths HbA1c has been $>7.0\%$ for approx. _____ wks / mths (please circle) If the patient is not on insulin, why not? <input type="checkbox"/> 'Needle phobia' <input type="checkbox"/> Other patient resistance <input type="checkbox"/> Not yet necessary <input type="checkbox"/> Other (please specify) _____
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SAND abstract 109: Secondary prevention of heart attack and stroke

Organisations supporting this study: National Prescribing Service.

Issues: The proportion of patients attending general practice who have risk factors or comorbidities associated with heart attack or stroke; the proportion of these patients currently taking an antiplatelet or anticoagulant medication and which medications patients are taking; reasons given by patients with risk factors or comorbidities for not taking anticoagulant/antiplatelet medications.

Sample: 2,471 patient encounters with 84 GPs data collection period: 20/02/2007 – 26/03/2007.

Method: Detailed in the paper entitled 'SAND Method 2006–07' on this website: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The age and sex distributions were similar to all 2005–06 BEACH encounters. One-third ($n = 841$) of the sample of 2,471 patients (34.0%; 95% CI: 29.8–38.2) had at least one of the risk factors or comorbidities associated with heart attack or stroke and a high proportion of these patients were aged 65 years and over. Of 832 patients for whom age and sex was known, 27.5% were aged 65–74 and 32.7% were aged 75 years and over.

Of the 2,471 patients, 26.8% had hypertension, 4.4% had atrial fibrillation, and 3.6% had had an acute myocardial infarction. Stroke/transient ischaemic attack was recorded for 3.2% of patients, stable/unstable angina for 2.5% and peripheral vascular disease for 1.7%. There were 2.2% of patients who had a previous coronary artery bypass graft, and 1.1% who had a previous percutaneous transluminal coronary angioplasty. Other risk factors were indicated 211 times for 8.5% of patients, with diabetes the most common, followed by lipid disorders.

Of 779 respondents with at least one cardiac risk factor, 479 (61.5%) were taking antiplatelet/anticoagulant medication. Aspirin was being taken by 43.1% of respondents, warfarin by 11.7%, clopidogrel by 7.5%, and dipyridamole/aspirin by 1.5% of respondents. Herbal preparations with anti-coagulant effect were taken by 17 (2.2%) patients.

In terms of combinations of medications taken by the 479 patients taking at least one medication, 61.8% were taking only aspirin. Warfarin (only) was taken by 17.3%, clopidogrel (only) by 7.1% and a combination of aspirin and clopidogrel by 4.8% of these patients. Herbal preparations only were taken by 2.5% of patients and the dipyridamole/aspirin combination therapy was taken by 2.1%. Seven patients (1.5%) were taking a combination of aspirin and warfarin.

Of 300 (38.5%) patients with at least one cardiac risk factor who were not taking medications, 274 gave reasons for not taking them. For 54.4% of these respondents, the reason was stated as 'not clinically indicated'. For 20.8%, the reason was a history of peptic ulcer or gastro-oesophageal reflux disease, and for 9.5% it was an expected adverse effect on the gastro-intestinal tract. Concurrent NSAID therapy was cited as a reason for 5.5% of patients. Other reasons (14.2%) included new patient/newly diagnosed and patient resistance.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **SECONDARY PREVENTION OF HEART DISEASE & STROKE**
You may tear out this page as a guide to completing the following section of forms.

INSTRUCTIONS

INSTRUCTIONS

Ask **ALL** of the next 30 **PATIENTS** of any age the following questions in the order in which the patients are seen.
Please **DO NOT** select patients to suit the topic being investigated.

These questions relate to the use of aspirin and other anti-coagulation therapy for the secondary prevention of heart attack and stroke in high-risk patients. Our aim is to identify patients with risk factors; estimate the prevalence of patients taking aspirin, aspirin like medications or herbal preparations with similar anti-coagulant effects; and to estimate the proportion of patients with stated intolerance or allergy to aspirin or similar medications.

Patient risk factors for heart attack or stroke.

Please use the tick boxes to indicate whether or not this patient has any of the listed risk factors or comorbidities for heart attack or stroke.

Tick as many boxes as apply.

If the patient has **NONE** of the listed risk factors, please **END the QUESTIONS HERE.**

Medications

Please tick the box beside any anti-platelet or anti-coagulant medications currently being taken by this patient for secondary prevention of heart attack or stroke. Include prescribed and over the counter medications such as aspirin or herbal preparations used for anti-coagulant effects eg garlic, ginger, ginseng, feverfew, ginkgo, chamomile, bromelain (ask the patient about any over the counter preparations so that these may be included).

Tick as many boxes as apply.

Reasons for non-use of anti-platelet or anti-coagulant medication for secondary prevention

If the patient is not currently taking an anti-platelet / anti-coagulant medication or other preparation for secondary prevention, please use the tick boxes to indicate the main reason/s for non-use by this patient.

If you tick the 'other' box, please write the reason beside it in the space provided.

Does this patient have any of these risk factors for heart attack/stroke?

- | | |
|--|---|
| <input type="checkbox"/> Hypertension | <input type="checkbox"/> Previous CABGs |
| <input type="checkbox"/> Atrial fibrillation | <input type="checkbox"/> Previous PTCA |
| <input type="checkbox"/> AMI | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Stroke/TIA | (please specify risk factor) |
| <input type="checkbox"/> Stable/unstable angina | <input type="checkbox"/> None of above ⇒ END QUESTIONS |
| <input type="checkbox"/> Peripheral vascular disease | |

BL90B

Which medications are currently being taken?

- | | |
|--|--|
| <input type="checkbox"/> Aspirin | <input type="checkbox"/> Warfarin |
| <input type="checkbox"/> Dipyridamole | <input type="checkbox"/> Heparin |
| <input type="checkbox"/> Dipyridamole with aspirin | <input type="checkbox"/> Low mol. weight heparin |
| <input type="checkbox"/> Clopidogrel | <input type="checkbox"/> Danaparoid |
| <input type="checkbox"/> Ticlopidine | <input type="checkbox"/> Herbal prep. _____ |
| | <input type="checkbox"/> None of the above |

Despite presence of risk factors, aspirin or anti-coagulants are not taken because of:-

- | |
|--|
| <input type="checkbox"/> History of PUD or GORD |
| <input type="checkbox"/> Expected adverse effect on GIT |
| <input type="checkbox"/> Concurrent NSAID therapy |
| <input type="checkbox"/> Other adverse effect including hypersensitivity |
| <input type="checkbox"/> Not clinically indicated |
| <input type="checkbox"/> Other _____ |

SAND abstract 110: Erectile dysfunction

Organisation supporting this study: Pfizer Australia Pty Ltd.

Issues: Prevalence of erectile dysfunction (ED) in general practice patients/their partners (18 years and over); sources of advice utilised by patients/partners experiencing ED; remedies tried as management of ED; effectiveness of the remedies tried.

Sample: 1,930 patient encounters from 82 GPs; data collection period: 20/02/2007 – 26/03/2007.

Method: Detailed in the paper entitled 'SAND Method 2006–07' on this website: www.fmrc.org.au/publications/SAND_abstracts.htm. Participating GPs were provided with a card that contained information about ED and a clinical definition.

Summary of results

Females were over-represented in this sample (65.0%) of adults when compared with all BEACH encounters with adults in 2005–06 (60.1%). The age distribution within adults paralleled that of patients at all BEACH encounters.

There were 1,930 patients aged 18 years and older, who responded to one or more questions. Of these, almost two-thirds (63.2%; $n = 1,219$) were currently sexually active, 31.9% ($n = 615$) were not, and 5.0% had never been sexually active. Patients aged 25 to 44 years were the most likely to be sexually active (82.7%, 95% CI: 77.4–88.0) and the proportion decreased with age to 11.6% (95% CI: 7.0–16.3) among patients aged 75 years or more. The proportion of patients who were either currently or previously sexually active was similar in males (94.5%) and females (95.4%).

Of the 1,834 (95.1%) patients who were currently/previously sexually active, 160 (8.7%) did not respond to the questions about their/their partner's experience of ED. Of the 1,674 respondents, 20.3% (95% CI: 17.0–23.6, $n = 340$) stated that they/their partner had experienced ED. A significantly smaller proportion of female patients (16.2%, 95% CI: 12.7–19.7) reported their partner's having ED than male patients (27.5%, 95% CI: 22.6–32.4) reported having ED. The proportion of patients experiencing ED increased significantly with age from 2.3% among patients aged 18–24 years, to 35.5% among patients aged 65 years and over.

Of the 340 respondents who had experienced ED themselves or in their partner, 333 reported frequency of ED. Of these, 39.9% experienced ED on 1–25% of occasions, 22.5% on 26–50% of occasions, and the remainder (37.5%) on 51% or more of occasions.

Almost half ($n = 158$) of the 332 respondents to the question on help-seeking had sought help for ED: 44.3% ($n = 147$) from the GP and 6.0% from another health professional.

Of the 145 respondents who had sought help from their GP and who responded to the question about initiation of help, 72.4% stated that they/their partner initiated the discussion about ED, 21.4% indicated that their/their partner's GP raised this topic, and the remainder (6.2%) did not know/could not remember who initiated it.

Of the 340 patients/partners who had experienced ED, 210 responded to the question about remedies for ED (multiple responses allowed). Of these, 60% had tried at least one of the listed remedies. The most common remedy was prescribed medications (84.1%, $n = 106$), followed by behavioural treatment (10.3%) and over-the-counter products (7.1%).

The following page contains the recording form and instructions with which the data in this abstract were collected.

The shaded section of the following forms asks questions about **SEXUAL DYSFUNCTION - ERECTILE DYSFUNCTION**.
You may tear out this page as a guide to completing the following section of forms.

The next 30 forms are for the next 30 PATIENTS in the order in which the patients are seen. However, the questions at the bottom are only for those among the 30 who are aged 18 years or older. If the patient is younger than 18 years please complete the top section and leave the shaded section blank. Please **DO NOT** select patients to suit the topic being investigated.

If the patient has **never** been sexually active you should **end the questions here** for this patient.

If 'yes', please ask the patient **how often** they have had this problem.

If **'yes'** please use the tick boxes to advise **where** help and/or advice was sought.
Tick as many options as apply.

***Clinical definition:** Erectile Dysfunction (ED) is defined as the persistent inability to obtain or maintain sufficient rigidity of the penis to allow satisfactory sexual performance.¹² *For the purposes of this study, ED does not include premature ejaculation.*

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2. Holden CA, Jolley DJ, McLachlan RI, Pitts M, Cumming R, Wittert G, Handelman DJ, de Kester DM. Men in Australia Telephone Survey (MATEs): predictors of men's help-seeking behaviour for reproductive health disorders. MJA 2006 16 Oct; 185(8):418-22.

NB. 'Script from Dr' = a prescribed medication specifically for treating ED, or any other prescribed medication being used in this instance to treat ED.

Where help was sought from/provided by the GP, please advise whether the **initial discussion** was raised by the patient or the GP

[illegible]

For the Doctor...

Erectile Dysfunction (ED) is a common type of male sexual dysfunction. Epidemiological studies from various countries have found that 30-50% of men aged 40-70 years report some degree of erectile dysfunction.¹ A 2003 Australian study found that 21% of men in this age group reported moderate-severe erectile dysfunction.²

The personal nature of the condition and the reluctance of both patients and clinicians to raise the topic means that only a small proportion of those affected seek or receive help.³ In recent years the internet has allowed the direct sale of medications to patients without the safeguard of supervision by a doctor or pharmacist, increasing the potential risks from contraindications or drug interactions.⁴

The purpose of this research is to determine the prevalence of ED in general practice patients, whether patients have sought help for the problem, what remedies, if any, have been tried, and the effectiveness of these.

It is important to capture this information for general practice patients. We recommend that you explain to the patient from the outset that these questions are about sexual dysfunction and not about other sexual health issues such as sexually transmitted diseases.

However, if you feel at any stage that these questions are too intrusive on your relationship with this patient, please omit these questions and just return the form with the shaded section incomplete for this topic.

Thank you for your generosity.

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Glossary

A1 Medicare items: Medicare item numbers 1, 2, 3, 4, 13, 19, 20, 23, 24, 25, 33, 35, 36, 37, 38, 40, 43, 44, 47, 48, 50, 51, 601, 602.

Aboriginal: The patient identifies himself or herself as an Aboriginal person.

Activity level: The number of general practice A1 Medicare items claimed during the previous 3 months by a participating GP.

Allied and other health professionals: Those who provide clinical and other specialised services in the management of patients, including physiotherapists, occupational therapists, dietitians, dentists and pharmacists.

Chapters (ICPC-2): The main divisions within ICPC-2. There are 17 chapters primarily representing the body systems.

Chronic problem: see *Diagnosis/problem*, *Chronic problem*.

Commonwealth concession card: An entitlement card provided by the Commonwealth Government that entitles the holder to reduced cost medicines under the Pharmaceutical Benefits Scheme and a limited number of other concessions from state and local government authorities.

Complaint: A symptom or disorder expressed by the patient when seeking care.

Component (ICPC-2): In ICPC-2 there are seven components which act as a second axis across all chapters.

Consultation: See *Encounter*.

Diagnosis/problem: A statement of the provider's understanding of a health problem presented by a patient, family or community. GPs are instructed to record at the most specific level possible from the information available at the time. It may be limited to the level of symptoms.

- *New problem:* The first presentation of a problem, including the first presentation of a recurrence of a previously resolved problem but excluding the presentation of a problem first assessed by another provider.
- *Old problem:* A previously assessed problem that requires ongoing care. Includes follow-up for a problem or an initial presentation of a problem previously assessed by another provider.
- *Chronic problem:* A medical condition characterised by a combination of the following characteristics: duration that has lasted or is expected to last 6 months or more, a pattern of recurrence or deterioration, a poor prognosis, and consequences or sequelae that impact on an individual's quality of life.⁵⁸
- *Work-related problem:* Irrespective of the source of payment for the encounter, it is likely in the GP's view that the problem has resulted from work-related activity or workplace exposures or that a pre-existing condition has been significantly exacerbated by work activity or workplace exposure.

Encounter (enc): Any professional interchange between a patient and a GP.

- *Indirect:* Encounter where there is no face-to-face meeting between the patient and the GP but a service is provided (for example prescription, referral).
- *Direct:* Encounter where there is a face-to-face meeting of the patient and the GP.

Direct encounters can be further divided into:

- *Medicare-claimable*
 - *Surgery consultations*: Encounters identified by any one of MBS item numbers 3, 23, 36, 44, 52, 53, 54, 57, 5000, 5020, 5040, 5060, 5200, 5203, 5207, 5208.
 - *Home visits*: Encounters identified by any one of MBS item numbers 4, 24, 37, 47, 58, 59, 60, 65, 5003, 5023, 5043, 5063, 5220, 5223, 5227, 5228.
 - *Hospital encounters*: Encounters identified by any one of MBS item numbers 19, 33, 40, 50, 87, 89, 90, 91.
 - *Residential aged care facility*: Encounters identified by any one of MBS item numbers 20, 35, 43, 51, 92, 93, 95, 96, 5010, 5028, 5049, 5067, 5260, 5263, 5265, 5267.
 - *Health assessments*: Encounters identified by any one of MBS item numbers 700, 702, 704, 706, 708, 710, 712.
 - *Chronic disease management items*: Encounters identified by any one of MBS item numbers 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731.
 - *Case conferences*: 734, 736, 738, 740, 742, 744, 746, 749, 757, 759, 762, 765, 768, 771, 773, 775, 778, 779.
 - *Incentive payments*: 2497, 2501, 2503, 2504, 2506, 2507, 2509, 2517, 2518, 2521, 2522, 2525, 2526, 2546, 2547, 2552, 2553, 2558, 2559, 2574, 2575, 2577, 2578, 2598, 2600, 2603, 2606, 2610, 2613, 2616, 2620, 2622, 2624, 2631, 2633, 2635, 2664, 2666, 2668, 2673, 2675, 2677, 2704, 2705, 2707, 2708.
 - *Other MBS encounters*: Encounters identified by an MBS item number that does not identify place of encounter (see *A1 Medicare items*).
- *Workers compensation*: Encounters paid by workers compensation insurance.
- *Other paid*: Encounters paid from another source (for example state).

General practitioner (GP): A medical practitioner who provides primary comprehensive and continuing care to patients and their families within the community (Royal Australian College of General Practitioners).

Medication: Medication that is prescribed, provided by the GP at the encounter or advised for over-the-counter purchase.

Medication rates: The rate of use of all medications including medications that were prescribed, supplied by the GP and advised for over-the-counter purchase.

Medication status:

- *New*: The medication prescribed/provided at the encounter/advised is being used for the management of the problem for the first time.
- *Continuation*: The medication prescribed/provided at the encounter/advised is a continuation or repeat of previous therapy for this problem.
- *Old*: See *Continuation*.

Morbidity: Any departure, subjective or objective, from a state of physiological wellbeing. In this sense, sickness, illness and morbid conditions are synonymous.

Patient status: The status of the patient to the practice.

- *New patient*: The patient has not been seen before in the practice.
- *Old patient*: The patient has attended the practice before.

Prescribed rates: The rate of use of prescribed medications (that is, does not include medications that were GP-supplied or advised for over-the-counter purchase).

Problem managed: See *Diagnosis/problem*.

Provider: A person to whom a patient has access when contacting the health care system.

Reasons for encounter (RFEs): The subjective reasons given by the patient for seeing or contacting the general practitioner. These can be expressed in terms of symptoms, diagnoses or the need for a service.

Recognised GP: A medical practitioner who is:

- vocationally recognised under Section 3F of the *Health Insurance Act*, *or*
- a holder of the Fellowship of the Royal Australian College of General Practitioners who participates in, and meets the requirements for, quality assurance and continuing medical education as defined in the RACGP Quality Assurance and Continuing Medical Education Program, *or*
- undertaking an approved placement in general practice as part of a training program for general practice leading to the award of the Fellowship of the Royal Australian College of General Practitioners or undertaking an approved placement in general practice as part of some other training program recognised by the RACGP as being of equivalent standard.⁷³

Referral: The process by which the responsibility for part or all of the care of a patient is temporarily transferred to another health care provider. Only new referrals to specialists and allied health professionals and for hospital and residential aged care facility admissions arising at a recorded encounter are included. Continuation referrals are not included. Multiple referrals can be recorded at any one encounter.

Repatriation health card: An entitlement card provided by the Department of Veterans' Affairs that entitles the holder to access a range of Repatriation health care benefits, including access to prescription and other medications under the Pharmaceutical Benefits Scheme.

Rubric: The title of an individual code in ICPC-2.

Torres Strait Islander: The patient identifies himself or herself as a Torres Strait Islander person.

Work-related problem: See *Diagnosis/problem*.

Appendices

Appendix 1: Example of a 2006–07 recording form

BEACH (Bettering the Evaluation And Care of Health) - Morbidity and Treatment Survey - National

© BEACH General Practice & Statistics Classification Unit University of Sydney 1996

DOC ID

Encounter Number	Date of encounter ____/____/____	Date of Birth ____/____/____	Sex M <input type="checkbox"/> F <input type="checkbox"/>	Patient Postcode _____	Yes / No	PATIENT SEEN BY GP <input type="checkbox"/> PATIENT NOT SEEN BY GP <input type="checkbox"/> Medicare Item Nos: (if applicable) 1. _____ 2. _____ 3. _____
START Time ____:____ AM / PM (please circle)	Patient Reasons for Encounter	1. _____ 2. _____ 3. _____			New Patient <input type="checkbox"/> <input type="checkbox"/> Health Care/Benefits Card <input type="checkbox"/> <input type="checkbox"/> Veterans Affairs Card <input type="checkbox"/> <input type="checkbox"/> NESB <input type="checkbox"/> <input type="checkbox"/> Aboriginal <input type="checkbox"/> <input type="checkbox"/> Torres Strait Islander <input type="checkbox"/> <input type="checkbox"/>	Workers comp paid ... <input type="checkbox"/> State Govt/Other paid <input type="checkbox"/> No charge <input type="checkbox"/>

Diagnosis/ Problem ① : <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:30%;">Drug Name AND Form for this problem</th> <th style="width:10%;">Strength of product</th> <th style="width:10%;">Dose</th> <th style="width:10%;">Frequency</th> <th style="width:10%;">No. of Rpts</th> <th style="width:10%;">OTC</th> <th style="width:10%;">GP Supply</th> <th style="width:10%;">Drug status New Cont</th> </tr> <tr><td>1. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New Cont	1. _____								2. _____								3. _____								4. _____								Problem Status New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/> Diagnosis/ Problem ② : <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:30%;">Drug Name AND Form for this problem</th> <th style="width:10%;">Strength of product</th> <th style="width:10%;">Dose</th> <th style="width:10%;">Frequency</th> <th style="width:10%;">No. of Rpts</th> <th style="width:10%;">OTC</th> <th style="width:10%;">GP Supply</th> <th style="width:10%;">Drug status New Cont</th> </tr> <tr><td>1. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New Cont	1. _____								2. _____								3. _____								4. _____							
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NEW REFERRALS, ADMISSIONS Problem(s) 1. _____ 1 2 3 4 2. _____ 1 2 3 4	IMAGING/Other tests Body site Problem(s) 1. _____ - _____ 1 2 3 4 2. _____ - _____ 1 2 3 4	PATHOLOGY Problem(s) 1. _____ 1 2 3 4 2. _____ 1 2 3 4 3. _____ 1 2 3 4
PATHOLOGY(cont) Problem(s) 4. _____ 1 2 3 4 5. _____ 1 2 3 4		

Patient reported Height ____ cm	Weight ____ kg	To the patient if 18+: Which best describes your smoking status? Smoke daily <input type="checkbox"/> Smoke occasionally <input type="checkbox"/> Previous smoker <input type="checkbox"/> Never smoked <input type="checkbox"/>	To the patient if 18+: How often do you have a drink containing alcohol? Never <input type="checkbox"/> Monthly or less <input type="checkbox"/> Once a week/fortnight <input type="checkbox"/> 2-3 times a week <input type="checkbox"/> 4+ times a week <input type="checkbox"/>	How many 'standard' drinks do you have on a typical day when you are drinking? _____	How often do you have 6 or more standard drinks on one occasion? Never <input type="checkbox"/> Less than monthly <input type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Daily or almost daily <input type="checkbox"/>	FINISH Time _____ : _____ AM / PM (please circle)
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Appendix 2: GP characteristics questionnaire, 2006–07



The University of Sydney
at Westmead Hospital

Australian General Practice
Statistics and
Classification Centre



a collaborating unit of the

Australian Institute of Health and Welfare

Doctor Identification Number

--	--	--	--	--

Please fill in boxes or circle answers

1. Sex Male / Female
2. Age.....
3. How many years have you spent in general practice?.....
4. How many GPs work with you at this practice?
(Practice = shared medical records)
5. Postcode of major practice address ..
6. In which GP Division is this practice
.....
7. Year of graduation
8. Place of graduation (primary medical degree):
Aust 1
NZ 2
Asia 3
UK / Ireland..... 4
Other: (specify) 5
9. Do you conduct any of your consultations in a language other than English?
No..... 1
Yes - <25%..... 2
Yes - 25 to 50%..... 3
Yes - >50%..... 4
10. Are you a GP registrar (i.e. in training)?... Yes / No
11. Are you DVA registered? Yes / No
12. Do you hold FRACGP ?..... Yes / No
13. Is your major practice accredited ? Yes / No
14. Is there a practice nurse at your major practice address ? Yes / No
15. Number of general practice sessions you usually work per week?
(1 session = ~4 hrs eg a morning session)
16. Direct patient care hours worked per week?
(Include hours of direct patient care, instructions, counselling etc and other services such as referrals, prescriptions, phone calls etc.)

17. Over the past four weeks have you provided any patient care(Circle all that apply)

- As a locum 1
- In a deputising service 2
- In a residential aged care facility 3
- As a salaried/sessional hospital medical officer..... 4
- None of the above 5

18. What are the normal after-hours arrangements for your practice? (Circle all that apply)

- Practice does its own.....1
- Co-operative with other practices2
- Deputising service.....3
- Referral to other service (eg A&E)4
- Other5
- None6

19. Do you bulk bill ALL patients?..... Yes / No

If No, which groups are bulk billed?

(Tick those that apply)

- | | All | Some |
|---------------------------------------|--------------------------|--------------------------|
| Pensioner/Healthcare Card holders ... | <input type="checkbox"/> | <input type="checkbox"/> |
| Children <16 years..... | <input type="checkbox"/> | <input type="checkbox"/> |
| Selected other patients | <input type="checkbox"/> | <input type="checkbox"/> |

20. To what extent are computers used -

(i) at your major practice? (ii) by you (at work)?

- | | |
|------------------------|-------------------------|
| Not at all.....1 | Not at all 1 |
| Billing.....2 | Test ordering 2 |
| Prescribing.....3 | Prescribing3 |
| Medical Records.....4 | Medical Records 4 |
| Other Admin.....5 | Internet 5 |
| Internet / Email.....6 | Email6 |

(iii) Prescribing / Health record software used is -

21. Is your major practice site a teaching practice?

(Circle all that apply)

- for undergraduates..... 1
- for GP registrars..... 2
- No..... 3

22. Did any of your BEACH consultations take place in an Aboriginal Community Controlled Health Service (ACCHS)?

- No.....1
- Yes - all.....2
- Yes - some (which dates?) 3

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Thank you for participating in the BEACH PROGRAM.

AGPSCC, Acacia House, Westmead Hospital, WESTMEAD, 2145.
Ph: 02 98458151 fax: 02 98458155 email: janc@med.usyd.edu.au Web http://www.fimrc.org.au

Appendix 3: Dissemination of results from the BEACH program

Available from

<www.aihw.gov.au/publications/index.cfm/subject/19>

A full list of BEACH publications is also available from the Family Medicine Research Centre website: < www.fmrc.org.au/publications/>.

Appendix 4: Code groups from ICPC-2 and ICPC-2 PLUS

Available from

<www.aihw.gov.au/publications/index.cfm/subject/19>

Appendix 5: Chronic code groups from ICPC-2 and ICPC-2 PLUS

Available from

<www.aihw.gov.au/publications/index.cfm/subject/19>

List of tables

Table 2.1: Number of general practice Medicare items claimed in Australia, 1998–99, 2000–01 and 2006–07	14
Table 3.1: Recruitment and participation rates, 2006–07	24
Table 3.2: Comparison of BEACH participants and all active recognised GPs in Australia (the sample frame), 2006–07.....	25
Table 3.3: Activity level of participating and non-participating GPs, 2006–07.....	26
Table 3.4: Age–sex distribution of patients at BEACH and MBS A1 services, 2006–07.....	27
Table 3.5: The BEACH data set, 2006–07.....	28
Table 3.6: Annual summary of data sets, 1998–2007 (final weighted data)	29
Table 4.1: Characteristics of participating GPs and their practices, 2006–07	31
Table 4.2: Computer use at major practice address, 2006–07	33
Table 4.3: Top 10 combinations of computer use for GPs, 2006–07.....	34
Table 4.4: GP characteristics, summary of annual results, BEACH, 1998–99 to 2006–07	37
Table 5.1: Summary of morbidity and management, 2006–07.....	42
Table 5.2: Overview of MBS items recorded, 2006–07.....	42
Table 5.3: Type of encounter, 2006–07	43
Table 5.4: Summary of MBS/DVA items recorded (counting one item number per encounter only), 2006–07	44
Table 5.5: Medicare item number distribution across item number groups, 2006–07	45
Table 5.6: Content of encounters, summary of annual results, BEACH, 1998–99 to 2006–07.....	48
Table 5.7: Type of encounter, summary of annual results (most frequent events), BEACH, 1998–99 to 2006–07	50
Table 5.8: Consultation length (minutes), summary of annual results, BEACH, 2000–01 to 2006–07.....	50
Table 6.1: Characteristics of the patients at encounters, 2006–07	53
Table 6.2: Number of patient reasons for encounter, 2006–07	54
Table 6.3: Distribution of patient reasons for encounter, by ICPC-2 chapter and most frequent individual reasons for encounter within chapter, 2006–07.....	54
Table 6.4: Distribution of RFEs by ICPC-2 component, 2006–07	57
Table 6.5: Most frequent patient reasons for encounter, 2006–07.....	57
Table 6.6: Characteristics of the patients at encounters, summary of annual results, BEACH, 1998–99 to 2006–07	60
Table 6.7: Number of patient reasons for encounter, summary of annual results, BEACH, 1998–99 to 2006–07	64
Table 6.8: Rate of patient reasons for encounter by ICPC-2 chapter, summary of annual results, BEACH, 1998–99 to 2006–07	64
Table 6.9: Rate of patient reasons for encounter by ICPC-2 component, summary of annual results, BEACH, 1998–99 to 2006–07	66
Table 6.10: Most frequent patient reasons for encounter, summary of annual results, BEACH, 1998–99 to 2006–07	67

Table 7.1: Number of problems managed at an encounter, 2006–07.....	70
Table 7.2: Distribution of problems managed, by ICPC-2 chapter and most frequent individual problems within chapter, 2006–07.....	72
Table 7.3: Distribution of problems managed, by ICPC-2 component, 2006–07	74
Table 7.4: Most frequently managed problems, 2006–07	74
Table 7.5: Most frequently managed new problems, 2006–07	76
Table 7.6: Most frequently managed chronic problems, 2006–07	77
Table 7.7: Work-related problems by type and most frequently managed individual problems, 2006–07	79
Table 7.8: Number of problems managed at an encounter, summary of annual results, BEACH, 1998–99 to 2006–07	83
Table 7.9: Distribution of problems managed, by ICPC-2 component, summary of annual results, BEACH, 1998–99 to 2006–07	83
Table 7.10: Distribution of problems managed, by ICPC-2 chapter summary of annual results, BEACH, 1998–99 to 2006–07	84
Table 7.11: Most frequently managed problems, summary of annual results, BEACH, 1998–99 to 2006–07	86
Table 7.12: Most frequently managed new problems, summary of annual results, BEACH, 1998–99 to 2006–07	91
Table 7.13: Most frequently managed chronic problems, summary of annual results, BEACH, 1998–99 to 2006–07	93
Table 8.1: Summary of management, 2006–07	95
Table 8.2: Encounters and problems for which management was recorded, 2006–07	96
Table 8.3: Most common management combinations, 2006–07	97
Table 8.4: Summary of management, summary of annual results, BEACH, 1998–99 to 2006–07	100
Table 8.5: Encounters and problems for which at least one management was recorded.....	102
Table 9.1: Distribution of prescribed medications, by ATC Levels 1, 3 and 5, 2006–07.....	107
Table 9.2: Most frequently prescribed medications (CAPS generic level), 2006–07	110
Table 9.3: Medications most frequently supplied by GPs, 2006–07	111
Table 9.4: Most frequently advised over-the-counter medications, 2006–07	112
Table 9.5: Rates of medications prescribed, advised for over-the-counter purchase, supplied, summary of annual results, BEACH, 1998–99 to 2006–07	120
Table 9.6: Number of repeats for prescribed medications, summary of annual results, BEACH, 1998–99 to 2006–07	120
Table 9.7: Distribution of prescribed medications by ATC Level 2, summary of annual results, BEACH, 1998–99 to 2006–07	121
Table 9.8: Most frequently prescribed medications (CAPS generic), summary of annual results, BEACH, 1998–99 to 2006–07	123
Table 9.9: Medications most frequently supplied by GPs, summary of annual results, BEACH, 1998–99 to 2006–07	128
Table 9.10: Most frequently advised over-the-counter medications, summary of annual results, BEACH, 1998–99 to 2006–07	129
Table 10.1: Summary of other treatments, 2006–07	130

Table 10.2: Relationship between other treatments and pharmacological treatments, 2006–07	131
Table 10.3: Most frequent clinical treatments, 2006–07	132
Table 10.4: The 10 most common problems managed with a clinical treatment, 2006–07	133
Table 10.5: Most frequent procedural treatments, 2006–07	134
Table 10.6: The 10 most common problems managed with a procedural treatment, 2006–07	135
Table 10.7: The most frequent clinical treatments, summary of annual results, BEACH, 1998–99 to 2006–07	138
Table 10.8: The most common problems managed with a clinical treatment, summary of annual results, BEACH, 1998–99 to 2006–07	140
Table 10.9: The most frequent procedural treatments, summary of annual results, BEACH, 1998–99 to 2006–07	142
Table 10.10: The most common problems managed with a procedural treatment, summary of annual results, BEACH, 1998–99 to 2006–07	143
Table 11.1: Summary of referrals and admissions, 2006–07	145
Table 11.2: The most frequent referrals by type, 2006–07	146
Table 11.3: The 10 problems most frequently referred to a medical specialist, 2006–07	147
Table 11.4: The 10 problems most frequently referred to allied health services, 2006–07	147
Table 11.5: The 10 problems most frequently referred to hospital, 2006–07	148
Table 11.6: The most frequent referrals, summary of annual results, BEACH, 1998–99 to 2006–07	149
Table 12.1: Number of encounters and problems for which pathology or imaging ordered, 2006–07	152
Table 12.2: Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group, 2006–07	153
Table 12.3: The 10 problems for which pathology was most frequently ordered, 2006–07	154
Table 12.4: The most frequent imaging tests ordered, by MBS group, 2006–07	155
Table 12.5: The 10 problems for which an imaging test was most frequently ordered, 2006–07	157
Table 12.6: Most frequent other investigations, 2006–07	157
Table 12.7: Number of encounters where pathology/imaging ordered, summary of annual results, BEACH, 1998–99 to 2006–07	159
Table 12.8: Distribution of pathology orders across pathology groups, summary of annual results, BEACH, 2000–01 to 2006–07	160
Table 12.9: Most frequent imaging tests ordered, summary of annual results, BEACH, 1998–99 to 2006–07	161
Table 13.1: Distribution of practice nurse item numbers recorded at encounter, 2006–07	163
Table 13.2: Summary of treatments given by practice nurse, 2006–07	164
Table 13.3: Most frequent treatments provided by practice nurses, 2006–07	164
Table 13.4: The most common problems managed with the involvement of practice nurse, 2006–07	165
Table 13.5: Practice nurse item numbers claimable at GP–patient encounters, 2005–06 and 2006–07	167
Table 15.1: Patient body mass index (aged 18 years and over), 2006–07	185
Table 15.2: Patient smoking status (aged 18 years and over), 2006–07	187

Table 15.3: Patient alcohol consumption (aged 18 years and over), 2006–07	190
Table 15.4: Risk factor profile of patients (aged 18 years and over), 2006–07	191
Table 15.5: Number of risk factors, by patient sex, 2006–07	192
Table 15.6: Comparative results for all patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07	196
Table 15.7: Comparative results for male patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07	198
Table 15.8: Comparative results for female patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07	199
Table 16.1: SAND abstracts for 2006–07 and sample size for each.....	200

List of figures

Figure 2.1: The BEACH relational database	12
Figure 2.2: The structure of the International Classification of Primary Care – Version 2 (ICPC-2).....	16
Figure 4.1: Summary of changes in GP characteristics, 1998–99 to 2006–07	35
Figure 6.1: Age–sex distribution of patients at encounter	52
Figure 6.2: Age distribution with 95% confidence limits.....	59
Figure 7.1: Age–sex-specific rates of problems managed per 100 encounters with 95% confidence intervals	71
Figure 7.2: Changes in management rate of selected chronic problems, 1998–99 to 2006–07	82
Figure 7.3: Changes in management rate of selected acute problems, 1998–99 to 2006–07	82
Figure 9.1: Number of medications prescribed per problem	105
Figure 9.2: Number of repeats ordered per prescription.....	105
Figure 9.3: Age–sex-specific prescription rates per 100 problems managed	106
Figure 9.4: Medication rates per 100 encounters, 1998–99 to 2006–07	113
Figure 9.5: Medication rates per 100 problems managed, by type of provision, 1998–99 to 2006–07 (95% CI).....	113
Figure 9.6: Prescribed medication rates per 100 encounters, 1998–99 to 2006–07 (95% CI)	114
Figure 9.7: Per cent of prescriptions with five repeats for total problems and for chronic problems managed, 1998–99 to 2006–07	115
Figure 9.8: Prescribed medications recorded as brand or generic, 1998–99 to 2006–07.....	115
Figure 9.9: Prescriptions for ranitidine per 100 encounters (1998–99 to 2006–07) with change to over-the-counter availability in 2000	119
Figure 9.10: Influenza vaccine prescribed and supplied per 100 encounters, 1998–99 to 2006–07	127
Figure 12.1: Encounters where pathology was ordered and pathology test order rates per 100 encounters, 1998–99 to 2006–07 (95% CI)	159
Figure 14.1: Type 2 diabetes management rate per 100 encounters, 1998–99 to 2006–07.....	170
Figure 14.2: Age and sex specific management rates of type 2 diabetes, 1998–99 to 2006–07	170
Figure 14.3: Medication rates per 100 type 2 diabetes contacts, 1998–99 to 2006–07	171
Figure 14.4: ‘Other’ medication rates per 100 type 2 diabetes contacts, 1998–99 to 2006–07	172
Figure 14.5: Other treatment rates per 100 type 2 diabetes contacts, 1998–99 to 2006–07 (95% CI).....	173
Figure 14.6: Pathology test – likelihood of order and rate per 100 type 2 diabetes contacts, 1998–99 (or 2000–01) to 2006–07 (95% CI)	174
Figure 14.7: Referral rate per 100 type 2 diabetes contacts, 1998–99 to 2006–07 (95% CI).....	175
Figure 14.8: Length of consultation (minutes) with and without diabetes management, 2000–01 to 2006–07	175
Figure 14.9: Depression management rate per 100 encounters, 1998–99 to 2006–07	177
Figure 14.10: Management rate of depression – age and sex specific rates, 1998–99 to 2006–07	177
Figure 14.11: Rate of total medications per 100 depression contacts, 1998–99 to 2006–07	178

Figure 14.12: Antidepressant prescription rate per 100 problems managed, 1998–99 to 2006–07 (95% CI).....	178
Figure 14.13: Rate of clinical treatments per 100 contacts for depression, 1998–99 to 2006–07	179
Figure 14.14: Referral rate per 100 depression contacts, 1998–99 to 2006–07 (95% CI).....	180
Figure 14.15: Length of consultation (minutes) with and without depression management, 2000–01 to 2006–07	181
Figure 15.1: Age–sex-specific rates of overweight and obesity in adults	185
Figure 15.2: Age–sex-specific rates of underweight in adults	185
Figure 15.3: Age-specific rates of obesity, overweight and normal/underweight in male children.....	186
Figure 15.4: Age-specific rates of obesity, overweight and normal/underweight in female children	186
Figure 15.5: Smoking status – male age-specific rates.....	188
Figure 15.6: Smoking status – female age-specific rates	188
Figure 15.7: Age–sex-specific rates of at-risk alcohol consumption.....	190
Figure 15.8 Rates of overweight & obesity among adults (aged 18 years and over), 1998–99 to 2006–07	193
Figure 15.9: Rates of overweight and obesity among male adults (aged 18 years and over), 1998–99 to 2006–07	193
Figure 15.10: Rates of overweight and obesity among female adults (aged 18 years and over), 1998–99 to 2006–07	194
Figure 15.11: Rates of daily smoking among adults (aged 18 years and over), 1998–99 to 2006–07.....	194
Figure 15.12: Rates of at-risk alcohol consumption among adults (aged 18 years and over), 1998–99 to 2006–07	195