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# General practice activity in Australia 2009–10

## *BEACH*
## *Bettering the Evaluation And Care of Health*

**Helena Britt, Graeme C Miller, Jan Charles, Joan Henderson, Clare Bayram, Ying Pan, Lisa Valenti, Christopher Harrison, Julie O'Halloran, Salma Fahridin**

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# Foreword

This report, *General practice activity in Australia 2009–10,* and its companion document *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables* continue their strong and unique contribution to our understanding of the clinical, diagnostic and treatment mix seen within the Australian general practice sector. Details of approximately 100,000 consultations from about 1,000 different general practitioners (GPs) across all states and territories each year, provide a critical 'snap shot' of general practice's contribution to Australian health care delivery. This is not only of pivotal importance for Australian consumers, clinicians, and planners, but allows credible comparison for international stakeholders within a sector growing in policy interest. In Australia, accessible BEACH data has become an integral part of the healthcare reporting 'woodwork', yet in many other countries there is little information about what primary care physicians do for the community and what role they play in overall health care provision within their country.

These latest reports carry much of interest for all such groups in understanding the contribution of the Australian general practice sector currently, and within the future reform agenda. In 2009–10, 83% of the Australian population consulted a GP at least once and together used approximately 116.8 million general practice services paid by Medicare. The growing focus on teamwork within the practice is demonstrated by the increasing number of encounters involving a practice nurse—the proportion more than doubled from 4.2% in 2005–06 to 9.0% in 2008–09.

Opportunity for at-risk lifestyle intervention within general practice is clearly considerable. One of the BEACH SAND studies shows that 60% of the 31,932 sampled adults and 28% of 3,183 sampled children were overweight or obese, an estimated 15% of the adults were daily smokers, and 27% reported drinking at-risk levels of alcohol. General practices have excellent access to 'at-risk' Australians—building their potential to successfully support effective national interventions should be a priority.

General practice continues to grow in use of computers for clinical purposes with almost two-thirds (64%) BEACH GPs using electronic records exclusively, 85% producing prescriptions electronically, and 72% receiving pathology results on line. Over the past 10 years, the trend to larger practices also continued.

Patients are bringing more issues for attention to the encounter, and GPs are managing more problems at patient encounters, including more newly diagnosed problems, and more chronic problems. This is hardly surprising considering our ageing population, our rising population-based visit rate to GPs, and the recent emphasis on primary prevention and early diagnosis of disease.

These results confirm the impression that GP's consultations are becoming increasingly complex, as the population ages and prevalence of co-morbidity increases. Government policy may have contributed to some of this change. The introduction of programs such as Beyond Blue and of Medicare items for the management of diabetes, have allowed general practice much more scope in the management of depression and diabetes over the decade. General practice continues to be the first point of contact for chronic disease management for an increasing number of Australians.

Prescribing rates reported here indicate that on average 10 fewer scripts were written for every 100 problems managed in 2009–10 than 10 years earlier. At the same time, prescribing

rates of several drug groups increased significantly, including drugs used to treat high blood pressure and high cholesterol, and blood thinning agents like aspirin, warfarin and clopidogrel, used increasingly in the prevention of coronary and cerebrovascular disease.

Over the decade, orders for pathology tests increased by 43%, and imaging requests by 21%. Some of this is explained by the growing involvement of general practice in best-practice chronic disease management, and likely to be related to changes in policy regarding diabetes care payments, older people's annual heath checks, the 45–49 year old health check, and chronic disease risk screening.

The data in this report are invaluable in describing a sector with profound population reach, significant opportunities for broad-based preventive medicine, a growing focus on chronic disease management and multiple co-morbidity, and an increased reliance on prescribing and pathology review within such treatment paradigms. From the profession's perspective, BEACH offers us the opportunity to regularly reassess our service delivery role using independent, highly reliable data.

Our health care system is paused at a time of significant reform and re-moulding. The information in this report will be of far-reaching significance for policy makers (allowing evidence-based policy development) and the community (building an understanding of the contribution general practice makes to their health care). This is critical if we are to frame an effective, capable and expanding primary care sector in the years ahead

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# Acknowledgments

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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 |
| ACE | angiotensin-converting enzymes |
| ACRRM | Australian College of Rural and Remote Medicine |
| AGPSCC | Australian General Practice Statistics and Classification Centre |
| AHP | allied health professional |
| AIHW | Australian Institute of Health and Welfare |
| ATC | Anatomical Therapeutic Chemical (classification) |
| BEACH | Bettering the Evaluation And Care of Health |
| BMI | body mass index |
| BP | blood pressure |
| CAPS | Coding Atlas for Pharmaceutical Substances |
| CI | confidence interval (in this report 95% CI is used) |
| COPD | chronic obstructive pulmonary disease |
| CT | computerised tomography |
| CT-LS | computerised tomography scans of the lumbar and lumbosacral spine |
| DoHA | Australian Government Department of Health and Ageing |
| DVA | Australian Government Department of Veterans' Affairs |
| FBC | full blood count |
| FMRC | Family Medicine Research Centre |
| ESR | erythrocyte sedimentation rate |
| EUC | electrolytes, urea and creatinine |
| FRACGP | Fellow of the Royal Australian College of General Practitioners |
| FTE | full-time equivalent |
| GP | general practitioner |
| 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 |
| LABA | long-acting beta-agonist |
| LCL | lower confidence limit |

| | |
|---|---|
| LDL | low-density lipoprotein |
| MBS | Medicare Benefits Schedule |
| M,C&S | microscopy, culture and sensitivity |
| MRI | magnetic resonance imaging |
| NDSHS | National Drug Strategy Household Survey |
| NESB | non-English-speaking background |
| NHMRC | National Health and Medical Research Council |
| NHS | National Health Survey |
| OTC | over-the-counter (medications advised for over-the-counter purchase) |
| PBS | Pharmaceutical Benefits Scheme |
| RACGP | Royal Australian College of General Practitioners |
| RFE | reason for encounter |
| RRMA | Rural, Remote and Metropolitan Area classification |
| SAND | Supplementary Analysis of Nominated Data |
| SAS | Statistical Analysis System |
| UCL | upper confidence limit |
| URTI | upper respiratory tract infection |
| WHO | World Health Organization |
| Wonca | World Organization of Family Doctors |

# Symbols

| | |
|---|---|
| – | not applicable |
| < | less than |
| > | more than |
| NEC | not elsewhere classified |
| *n* | number |
| NOS | not otherwise specified |

# Summary

This report describes clinical activity at, or associated with, general practitioner (GP) encounters, from April 2009 to March 2010 inclusive. It summarises results from the 12th year of the Bettering the Evaluation And Care of Health (BEACH) program, using a sample of 98,800 patient encounters with 988 GPs. After weighting for GP Medicare Benefits Schedule (MBS) claims activity and variations in GP characteristics of the final sample compared with the sample frame, 101,349 encounters were analysed in this report.

BEACH is a continuous cross-sectional national study of general practice activity that began in April 1998. Every year approximately 1,000 randomly selected GPs participate. Each GP records details of 100 consecutive patient encounters on structured paper recording forms, and provides information about themselves and their practice. The age–sex distribution of patients at the weighted encounters has excellent precision with that of patients at all Medicare GP-claimed encounters.

Smaller studies are done in subsamples of encounters. Results for patient body mass index, smoking status and alcohol consumption are reported and abstracts are provided with results of other substudies finalised in 2009–10.

A web-based summary report of data from the past 10 years of BEACH highlighting major changes over that time, *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables,* is available at <www.aihw.gov.au/publications/index.cfm/subject/19>.

## The general practitioners

Of the 988 GP participants in 2009–10:

- 44% were female; 35% were aged 55 years and over and 7% were aged less than 35 years
- 71% had graduated in Australia
- 11% averaged less than 21 hours per week in direct clinical patient care, 56% 21–40 hours and 33% more than 40 hours per week
- 54% were Fellows of the Royal Australian College of General Practitioners
- 24% conducted some consultations in a language other than English
- 98% used a computer for some clinical purpose(s); 85% produced prescriptions electronically, and 72% were receiving pathology results on line; almost two-thirds (64%) reported having paperless medical records
- 91% worked in an accredited practice and 65% in a teaching practice
- 41% worked in a practice with 5–9 individual GPs—the most common practice size—and 29% in a practice with 5–9 full-time equivalent GPs
- 79% worked in a practice that employed one or more practice nurses
- 49% had a pathology collection centre, 44% a psychologist, and 29% a physiotherapist, located within 50 metres of the practice
- 45% worked in a practice providing its own/cooperative after-hours patient care.

## The encounters

- Direct encounters (patient was seen by the GP) accounted for 98% of all encounters, and the vast majority (97%) of direct encounters were claimable through either Medicare or the Department of Veterans' Affairs (DVA).
- Surgery consultations accounted for 93% of all MBS/DVA-claimable GP encounters, standard consultations being most common (82% of GP consultations). Home, residential aged care and hospital visits were few.
- About 1% of encounters were claimable as GP mental health care items, and 1% as chronic disease management items. Health assessment and case conference were rare.
- The measured mean length of MBS/DVA-claimable encounters was 15.3 minutes, and the median length was 14.0 minutes.

## Who goes to see the GP?

- Patients aged less than 25 years accounted for 21% of encounters, those aged 25–44 years for 23%, 45–64 years for 28%, and 65 years and over for 28%.
- Females accounted for 57% of encounters.
- At 8% of encounters the patient was new to the practice.
- Almost half the encounters were with patients who held either a Commonwealth concession card (46%) or a Repatriation health card (3%).
- At just over 1% of encounters the patient identified as an Aboriginal and/or Torres Strait Islander person, and at 9% the patient was from a non-English-speaking background.
- For every 100 encounters, patients gave 155 reasons for encounter (RFEs): 65 symptoms/complaints; 31 diagnoses/diseases; and 59 requests for services (such as, prescription).
- The most common RFEs were requests for a check-up, prescriptions, and test results.

## What problems do GPs manage at patient encounters?

On average, GPs managed 153 problems per 100 encounters, the number increasing with patient age, and being higher for females than males.

- Problems managed most often were respiratory (22 per 100 encounters), of a general or unspecified nature (19), musculoskeletal (17) and cardiovascular (17).
- The most common individual problems managed were hypertension (9 per 100 encounters), immunisation/vaccination (7), check-ups (7), upper respiratory tract infection (6), depression (4), arthritis (4) and diabetes (4).
- New problems (39% of all problems) were managed at a rate of 59 per 100 encounters, the most frequently managed being upper respiratory tract infection (URTI), immunisation/vaccination and acute bronchitis.
- Chronic conditions made up 35% of all problems managed, the most common being non-gestational hypertension (17% of chronic conditions), depressive disorder (8%), chronic arthritis (7%), non-gestational diabetes (7%), and lipid disorders (6%).
- Work-related problems (1.6% of all problems) were managed at a rate of 2.5 per 100 encounters, with more than half of these related to the musculoskeletal system.

An example of the relationship between a problem managed and other data fields is given for GP management of back problems in 2009–10.

## Management actions

For an 'average' 100 encounters, GPs recorded 107 medications (83 prescribed), 35 clinical treatments, 18 procedures, 8 referrals to specialists, 4 referrals to allied health services, and ordered 45 pathology tests/batteries and 10 imaging tests.

### Medications

- For every 100 problems managed, on average, 54 medications were prescribed, 9 were supplied by the GP and 6 were advised for over-the-counter purchase.
- No prescription was given for 57% of all problems managed, one was given for 35%, two for 6%, and more than two for 2%.
- Medications most often prescribed were: the antibiotics amoxycillin (4% of all prescriptions), cephalexin (3%) and amoxycillin with potassium clavulanate (2%); the analgesics paracetamol (3%) and paracetamol/codeine (2%); and the lipid modifying agent atorvastatin (2%).
- Of the 64,718 prescriptions (77% of all prescriptions) where number of repeats was recorded, the GP specified no repeats for 34%, and five repeats for 36%.
- Medications were supplied by the GP at a rate of 14 per 100 encounters, with vaccines accounting for almost two-thirds of these medications.
- Medications were advised for over-the-counter purchase at a rate of 10 per 100 encounters; the most common were paracetamol and ibuprofen.

The pattern of GP prescribing of systemic antibiotics for the common cold (also known as URTI), other respiratory infections and other problems is presented as an example of pharmaco-epidemiological analysis of BEACH data.

### Other treatments

There were 53 other treatments given by the GP per 100 encounters, or 34 per 100 problems managed, two-thirds being clinical treatments (35 per 100 encounters), and one-third being procedures (18 per 100).

**Clinical treatments:** The most frequently recorded clinical treatments were: general advice and education (4 per 100 problems); counselling about the problem (3 per 100); and advice and education about treatment (3 per 100).

**Procedural treatments:** The most frequently recorded procedures were excisions (2 per 100 problems), local injections (2 per 100), dressings (2 per 100) and incisions (1 per 100).

### Referrals and admissions

There were 13 referrals made per 100 encounters, or 9 per 100 problems managed. Two-thirds (64%) of the referrals were to specialists, 29% to allied health services and less than 5% to hospitals or emergency departments.

- Referrals to specialists (6 per 100 problems managed) were most often to surgeons (10%), orthopaedic surgeons (9%) ophthalmologists (8%) and dermatologists (8%).
- Referrals to allied health services (3 per 100 problems managed) were most often to physiotherapists (29%), psychologists (20%), podiatrists (9%) and dentists (8%).

### Tests and investigations

**Pathology tests ordered:** Tests were ordered at a rate of 45 per 100 encounters or 29 per 100 problems. Chemistry tests (17 tests/batteries per 100 problems) accounted for 58% of all orders. The most common individual tests were: full blood count, lipids, electrolytes, urea and creatinine; liver function; and glucose/glucose tolerance.

**Imaging ordered:** Imaging was ordered at a rate of 10 per 100 encounters and 6 per 100 problems managed. Diagnostic radiology accounted for 47% of these, and ultrasound 38%.

An example of the relationship of tests and investigations to other data elements is provided for computerised tomography scans of the lumbar and lumbosacral spine.

## Practice nurse activity

- Practice nurses were involved in 9% of encounters and 6% of all problems managed.
- The majority of practice nurse activities were procedural (93%), and these procedures represented 40% of all procedures recorded. Clinical treatments accounted for 7% of practice nurse activity, but only 2% of all recorded clinical treatments.
- The most common procedures done by practice nurses were injections (48% of their recorded procedures), dressings (15%), incisions (7%) and check-ups (7%).
- For only 46% of encounters involving practice nurses was a practice nurse item number recorded as claimable, the most common item being for immunisation (75%).

## Patient risk factors

**Overweight and obesity in adults (18 years and over):** In 31,932 sampled adults, 26% were obese and 34% overweight. After adjusting for age–sex attendance rates, prevalence in the attending adult population was 25% obese, 34% overweight, 2% underweight, and 38% normal.

**Overweight and obesity in children (2–17 years):** Of 3,183 sampled children, 28% were overweight (18%) or obese (10%). There was no difference in prevalence among male (28%) and female children (27%).

**Smoking status (adults 18 years and over):** Of 32,744 adult patients, 15% (18% of men and 13% of women) were daily smokers. After adjusting for age–sex attendance rates, an estimated 18% of the population attending general practice were daily smokers.

**Alcohol consumption (adults 18 years and over):** Of 31,771 adult patients 27% (32% of men and 23% of women) reported drinking at-risk levels of alcohol. After adjusting for attendance rates, prevalence of at-risk drinking among the adult population attending general practice was 30%.

# 1 Introduction

This publication is the 12th annual report and the 27th 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 the annual results for the period April 2009 to March 2010 inclusive, using details of 98,800 encounters between general practitioners (GPs) and patients (almost a 0.1% sample of all general practice encounters) from a random sample of 988 practising GPs across the country. In parallel with the release of this report, a summary of results from the most recent 10 years of the BEACH program is published on the web in a report called *General practice activity in Australia 2000–00 to 2009–10: 10 year data tables*, at <www.aihw.gov.au/publications/index.cfm/subject/19> (AIHW catalogue number GEP 28).[1]

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 (FMRC) 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 (see 'Acknowledgments').

The BEACH program 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 almost 1.2 million encounters from 11,873 participants representing about 8,384 individual GPs, almost half the sample frame from which the GP samples are drawn.

## 1.1 Background

In December 2009, the population of Australia was estimated to be 22.16 million people.[2]

Health expenditure during the 2007–08 financial year was $103.6 billion (accounting for 9.1% of gross domestic product. The Australian Government contribution made up 43.2%, the contributions for state/territory and local governments 25.5%, with the remainder (31.1%) being paid by the non-government sector.[3]

GPs are usually the first port of call in the Australian health care system. Payment for GP visits is largely on a fee-for-service system, there being no patient lists or registration. People are free to see multiple practitioners and visit multiple practices of their choice. There is a universal medical insurance scheme (managed by Medicare Australia), which covers all or most of a person's costs for a GP visit.

In 2007 in Australia, there were 20,134 practising primary care practitioners (vocationally recognised GPs and other medical practitioners), making up 19,999 full-time equivalents (based on a 45 hour week), or 99 per 100,000 people.[3]

In 2009–10, about 83% of the Australian population claimed at least one GP service from Medicare (personal communication, Department of Health and Ageing (DoHA), June 2010). From March 2009 to April 2010, about 116.8 million general practice services (excluding practice nurse items) were paid through Medicare, at an average of about 5.3 GP visits per head of population[4], or 6.4 visits per person who visited at least once. This equates to about 320,000 services per day, or more than 2.2 million per week.

From April 2009 to March 2010, the 116.8 million GP service items claimed accounted for $4.85 billion, and more than 7 million practice nurse services accounted for a further $83 million. Together these services accounted for 32% of total Australian Government expenditure on medical and allied health services.[5] We estimate that in 2009–10 an additional 5.5 million (see Chapter 4) GP services were paid for by other funders (such as the Department of Veterans' Affairs, workers compensation, state/territory governments) or for which no charge was made by the GP.

While Medicare statistics provide information about frequencies and costs of visits claimed from Medicare for GP services, they cannot tell us about the content of these visits. The BEACH program fills this gap.

## 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 from a random sample of approximately 1,000 recognised practising GPs from across the country. The BEACH methods are described 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 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 also provide information about themselves and their major practice (Appendix 2).

### Aims

The three main aims of the BEACH program are to:

- provide a reliable and valid data collection process for general practice that is responsive to the ever-changing needs of information users, and provides insight into the evolving character of GP–patient encounters in Australia
- establish an ongoing database of GP–patient encounter information
- 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 13th year. The database for the past 10 data years includes data for 984,200 GP–patient encounters from 9,842 participating GPs. Each year the AGPSCC publishes an annual report of BEACH results through the AIHW. This current publication reports results from the previous BEACH data year (that is, April 2009 to March 2010) on a national basis to provide an overview of general practice activity.

A companion publication *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*[1], provides summaries of changes measured in the most frequent events over the decade.

## The strengths of the BEACH program

- BEACH is the only national study of general practice activity in the world that is continuous, relying on a random ever-changing sample of GPs, and directly linking management actions to the morbidity under management.
- The sheer size of the GP sample (1,000 per year) and the relatively small cluster of encounters around each GP provide more reliable estimates than a smaller number of GPs with large clusters of patients and/or encounters.[6] Our access to a regular random sample of recognised GPs in active practice, through DoHA, ensures that the GP sample is drawn from a very reliable sample frame of currently active GPs.
- There are sufficient details about the characteristics of all GPs in the sample frame to test the representativeness of the final sample, and to apply post-stratification weighting to correct for any under-representation or over-representation in the sample compared with the original sample frame. The ever-changing nature of the sample (where each GP can participate only once per triennium) ensures reliable representation of what is happening in general practice across the country. The sampling methods ensure that new entrants to the profession are available for selection because the sample frame is based on the most recent Medicare Australia data.
- Where data collection programs use a fixed set of GPs over a long period, they are measuring what that group is doing at any one time, or how that group has changed over time, and there may well be a 'training effect' inherent in longer-term participation in such programs. Such measures cannot be generalised to the whole of general practice. Further, where GPs in the groups have a particular characteristic in common (for example, all belong to a professional organisation to which not all GPs belong; all use a selected software system which is not used by all GPs), the group is biased and cannot represent all GPs.
- Each GP records for a set number of encounters (100), but there is wide variance among them in the number of patient consultations they conduct in any one year. DoHA therefore provides an individual count of activity level (that is, number of A1 Medicare item numbers claimed in the previous period) for all randomly sampled GPs, allowing us to give a weighting to each GP's set of encounters commensurate with his or her contribution to total general practice encounters. This ensures that the final encounters represent encounters with all GPs.
- The structured paper encounter form leads the GP through each step in the encounter, encouraging entry of data for each element (see Appendix 1), with instructions and an example of a completed form. In contrast, systems such as electronic health records rely on the GP to complete fields of interest without guidance.
- The activities described in BEACH include all patient encounters, not just those covered by Medicare.
- The medication data include all prescriptions, rather than being limited to those prescribed medications covered by the Pharmaceutical Benefits Scheme (PBS) (as are PBS data).
- BEACH is the only source of information on medications supplied directly to the patient by the GP, and about the medications GPs advise for over-the-counter (OTC) purchase, the patients to whom they provide such advice and the problems managed in this way.

- The inclusion of other (non-pharmacological) treatments such as clinical counselling and procedural treatments provides a broader view of the interventions used by GPs in the care of their patients than other data sources.
- The link from all management actions (for example, prescribing, ordering tests) to the problem under management provides a measure of the 'quality' of care rather than just a count of the number of times an action has occurred (for example, how often a specific drug has been prescribed).
- The use of an internationally standard well-structured classification system (ICPC-2)[7] designed specifically for general practice, together with the use of an extended vocabulary of terms which facilitates reliable classification of the data by trained secondary coders, removes the guesswork often applied in word searches of available records (in free text format) and in classification of a concept.
- The use of the World Health Organization's (WHO) Anatomical Therapeutic Chemical Classification for pharmaceuticals at the generic level ensures reporting of medications data is in terms of the international standard.
- The analytical techniques applied to the BEACH data ensure that the clustering inherent in the sampling methods is dealt with. Results are reported with 95% confidence intervals. Users are therefore aware of how reliable any estimate might be.
- Reliability of the methods is demonstrated by the consistency of results over time where change is not expected, and by the measurement of change when it might be expected.

## 1.3 Issues when using BEACH data with other national data

Users of the BEACH data might wish to integrate information from multiple national data sources, as this can provide a more comprehensive picture of the health and health care of the Australian community. It is therefore important that readers are aware of how the BEACH data differ from those drawn from others. This section summarises differences between BEACH and other national sources of data about general practice in Australia.

### The Pharmaceutical Benefits Scheme

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

- count the prescription each time it crosses the pharmacist's counter (so that one prescription written by the GP with five repeats in BEACH would be counted by the PBS six times if the patient filled all repeats)
- count only those prescribed medications subsidised by the PBS and costing more than the minimum subsidy (and therefore covered by the PBS for all patients), or medications prescribed for those holding a Commonwealth concession card or for those who have reached the safety net threshold
- will change with each change in the PBS copayment level for non-Commonwealth concession cardholders—when the copayment level increases, those medications that then fall under the new level will no longer be counted in the PBS for non-Commonwealth concession cardholders[8]

- have no record of the problem being managed (with the exception of authority prescriptions, which require an indication and account for a small proportion of PBS data), and the morbidity cannot be reliably assumed on the basis of the prescription type.[9]

In BEACH:

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

These differences have a major impact on the numbers of prescriptions counted and also affect their distribution. For example, the majority of broad spectrum antibiotics such as amoxycillin fall under the PBS minimum subsidy level and would not be counted in the PBS data, except where patients received the medication under the PBS because they are Commonwealth concession cardholders or had reached the annual safety net threshold.[8]

## Medicare Benefits Schedule

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

- Publicly available MBS claims data do not include data about patients and encounters funded through the Department of Veterans' Affairs (DVA).
- The MBS data include GP services that have been billed to Medicare. BEACH includes all consultations, irrespective of whether a charge is made or who pays for them.
- The MBS data reflect the item number charged to Medicare for a service and some patient demographics, but hold no information about the content of the consultation.
- In 2009–10, BEACH participants were limited to recording three Medicare item numbers for each encounter. In contrast, MBS data include all Medicare item numbers claimed. In the BEACH data set this may result in a lower number of 'other' Medicare items than would be counted in the Medicare data.
- In activities of relatively low frequency with a skewed distribution across individual GPs, the relative frequency of the event in the BEACH data may not reflect that reported in the MBS data. For example, a study of early uptake of some enhanced primary care items by GPs demonstrated in 2002 that almost half the enhanced primary care items claimed through the MBS came from about 6% of active GPs.[10] Where activity is so skewed across the practising population, a national random sample will provide an underestimate of activity because the sample reflects the population rather than the minority.
- One of the advantages of BEACH over the MBS is also the relative consistency over time of the data collection form. BEACH is relatively resilient to changes in MBS payment policies, such as the inclusion or removal of items from the MBS.

## Pathology data from the MBS

Pathology tests undertaken by pathologists that are charged to Medicare are recorded by Medicare Australia. However, these Medicare data are not comparable with BEACH data.

- MBS pathology data reflect pathology orders made by specialists and GPs. About 70% of the volume of MBS pathology data are generated by GP orders.[11]
- Each pathology company can respond differently to a specific test order label recorded by the GP. So the tests completed by a pathologist in response to a GP order for a full blood count may differ between companies.
- The pathology companies can charge through the MBS only for the three most expensive items undertaken, even when more were actually done. This is called 'coning' and is part of DoHA pathology payment system. This means that the tests recorded in the MBS include only those charged for, not all those that were done. Coning applies only to GP pathology orders, not to those generated by specialists.
- This means that the MBS pathology data reflect those tests billed to the MBS after interpretation of the order by the pathologist, and after selection of the three most expensive items.
- Pathology MBS items contain pathology tests that have been grouped on the basis of cost (for example, 'any two of the following… tests'). Therefore an MBS item often does not give a clear picture of the precise tests performed.

In BEACH, the pathology data:

- include details of pathology tests ordered by the participating GPs; however, the GP is limited to the recording of five tests or battery of tests at each encounter, and as the number of tests/batteries ordered on any single occasion is increasing,[12] an increasing number of additional tests ordered will be lost
- reflect the terms used by GPs in their orders to pathologists, and for reporting purposes these have been grouped by the MBS pathology groups for comparability.

The distributions of the two data sets will therefore differ, reflecting on the one hand the GP order and on the other the MBS-billed services from the pathologist.

Pathology ordering by GPs is described in Chapter 12 of this report. Those interested in pathology test ordering by GPs should also view the following publications:

- 'GP pathology ordering' chapter in *General practice in Australia, health priorities and policies 1998 to 2008*[12]
- *Evidence-practice gap in GP pathology test ordering: A comparison of BEACH pathology data and recommended testing*[13]
- *Changes in pathology ordering by general practitioners in Australia 1998–2001*[14]

## Imaging data from the MBS

Some of the issues discussed regarding pathology data also apply to imaging data. Although coning (see above) is not an issue for imaging, radiologists can decide whether the test ordered by the GP is the most suitable and whether to undertake other tests of their choosing. The MBS data therefore reflect the tests that are actually undertaken by the radiologist, whereas the BEACH data reflect those ordered by the GP.

Those interested in GP imaging ordering should view Chapter 12 of this report, and the publication *Imaging orders by general practitioners in Australia 1999–00*[15], available at <www.fmrc.org.au/publications/>.

### The National Health Survey

The National Health Survey, conducted by the Australian Bureau of Statistics, provides estimates of population prevalence of specific diseases, and a measure of the problems taken to the GP by people in the 2 weeks before the survey.

- Prevalence estimates are based on self-reported morbidity from a representative sample of the Australian population, using a structured interview to elicit health-related information from participants.[16]
- Community surveys such as the National Health Survey have the advantage of accessing people who do not go to a GP as well as those who do. They can therefore provide an estimate of population prevalence of disease and point estimates of incidence.
- Self-report has been demonstrated to be susceptible to misclassification because of a lack of clinical corroboration of diagnoses.[17]

Management rates of health problems in general practice represent GP workload for a health problem. BEACH can be used to estimate the period incidence of diagnosed disease presenting in general practice through the number of new cases of that disease. The management rates of individual health problems and management actions can be extrapolated to national management rates.

The general practice patient population sits between the more clinical hospital-based population and the general population[18,19], with about 83% of Australians visiting a GP at least once in 2009–10 (personal communication DoHA, June 2010). Disease management rates are a product of both the prevalence of the disease/health problem in the population, and the frequency with which a patient visits a GP for the treatment of that problem. Those who are older and/or have more chronic disease are therefore likely to visit more often, and have a greater chance of being sampled in the encounter data.

There has been a substudy of disease prevalence among patients seen in general practice (using the Supplementary Analysis of Nominated Data method, see Section 2.4). Those interested in disease prevalence should refer to the following papers: *Estimating prevalence of common chronic morbidities in Australia*[20], and *Prevalence and patterns of multimorbidity in Australia*.[21]

## 1.4 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 variety of topics in journals and professional magazines. Appendix 3 lists all published material from BEACH, available at <www.aihw.gov.au/publications/index.cfm/subject/19>.

Since April 1998, a section at 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. Abstracts of results and the research tools used in all SAND substudies from April 1998 to March 2010 have been published. Those from:

- April 1998 to March 1999 were published in *Measures of health and health care delivery in general practice in Australia*[22]
- April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*[23]
- August 2006 to March 2007 were published in *General practice activity in Australia 2006–07*[24]
- April 2007 to January 2008 were published in *General practice activity in Australia 2007–08*[25]
- April 2008 to March 2009 were published in *General practice activity in Australia 2008–09*[26]
- April 2009 to March 2010 are included in Chapter 15 of this report.

Abstracts of results for all SAND substudies are also available on the FMRC website <www.fmrc.org.au/publications/SAND_abstracts.htm>, where you can search the abstracts by topic.

## Participating organisations

Organisations providing funding for the BEACH program receive summary reports of the encounter data quarterly, and standard reports or specifically designed analyses 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 have been further 'de-identified'. Patients' encounter data are not identifiable even from the original forms, 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 provided only in the form of grouped output (for example, GPs aged less than 35 years) to any external organisation.

## External purchasers of reports

Non-contributing organisations may purchase standard reports or other ad hoc analyses. Charges are outlined at: <www.fmrc.org.au/purchase.htm#1>. The AGPSCC should be contacted for specific quotations. 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 and over), 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 at <www.fmrc.org.au/purchase.htm>.

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

# 2 Methods

In summary:

- each year, BEACH involves a random sample of about 1,000 GPs
- each GP records details about 100 doctor–patient encounters of all types
- the GP sample is a rolling (ever-changing) sample, with approximately 20 GPs participating in any 1 week, 50 weeks a year
- each GP can be selected only once per quality assurance (QA) triennium (that is, once every 3 years)
- the encounter information is recorded by the GPs on structured paper encounter forms (Appendix 1)
- GP participants also complete a questionnaire about themselves and their practice (Appendix 2).

## 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 to 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.

The Primary and Ambulatory Care Division of the DoHA updates the sample frame from the Medicare records quarterly, 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, or have already participated or been approached in the current triennium.

## 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 new 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 before the planned start date.

- Each GP receives a telephone reminder early in the agreed recording period—this also provides the GP with an opportunity to ask questions about the recording process.
- GPs can use a 'freecall' (1800) number to ring the research team with any questions during their recording period.
- Non-returns are followed up by regular telephone calls for 3 months.
- Participating GPs earn clinical audit points towards their QA requirements through the Royal Australian College of General Practitioners (RACGP). As part of this QA process, each receives an analysis of his or her results compared with those of nine other de-identified GPs who recorded at approximately the same time. Comparisons with the national average and with targets relating to the National Health Priority Areas are also provided. In addition, GPs receive some educational material related to the identification and management of patients who smoke or consume alcohol at hazardous levels. 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: GP characteristics, encounter data and patient health status. An example of the form 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. The GP characteristic and encounter data collected are summarised below. Patient health status data re described in Section 2.5.

### GP profile form (Appendix 2)

- **GP characteristics:** age and sex, years in general practice, number of direct patient care hours worked per week, country of graduation, postgraduate general practice training status, Fellow of the RACGP status, Fellow of the Australian College of Rural and Remote Medicine status, usual bulk-billing behaviour, use of computers at work, work undertaken in other clinical settings.
- **Practice characteristics:** postcode and GP Division of major practice, number of individual, and number of full-time equivalent GPs working in the practice, number of individual and number of full-time equivalent practice nurses working in the practice, usual after-hours care arrangements, whether the practice is accredited, whether it is a teaching practice.

### Encounter recording form (Appendix 1)

- **Encounter data:** date of consultation, type of consultation (direct/indirect) (tick box options), up to three MBS/DVA item numbers (where applicable), and other payment source (where applicable) (tick boxes).
- **Patient data:** date of birth, sex and postcode of residence. Tick boxes (yes/no options) are provided for Commonwealth concession cardholder, 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 person (self-identification). Space is provided for up to three patient reasons for encounter (RFEs) (see 'Glossary').

- **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 and whether the problem is considered by the GP to be work-related.
- **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 (whether 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 whether the recorded other treatment was provided by practice nurse (tick box)
  - new referrals to medical specialists, allied health professionals, and an emergency department, and hospital admissions
  - investigations, including pathology tests, imaging and other investigations ordered at the encounter.

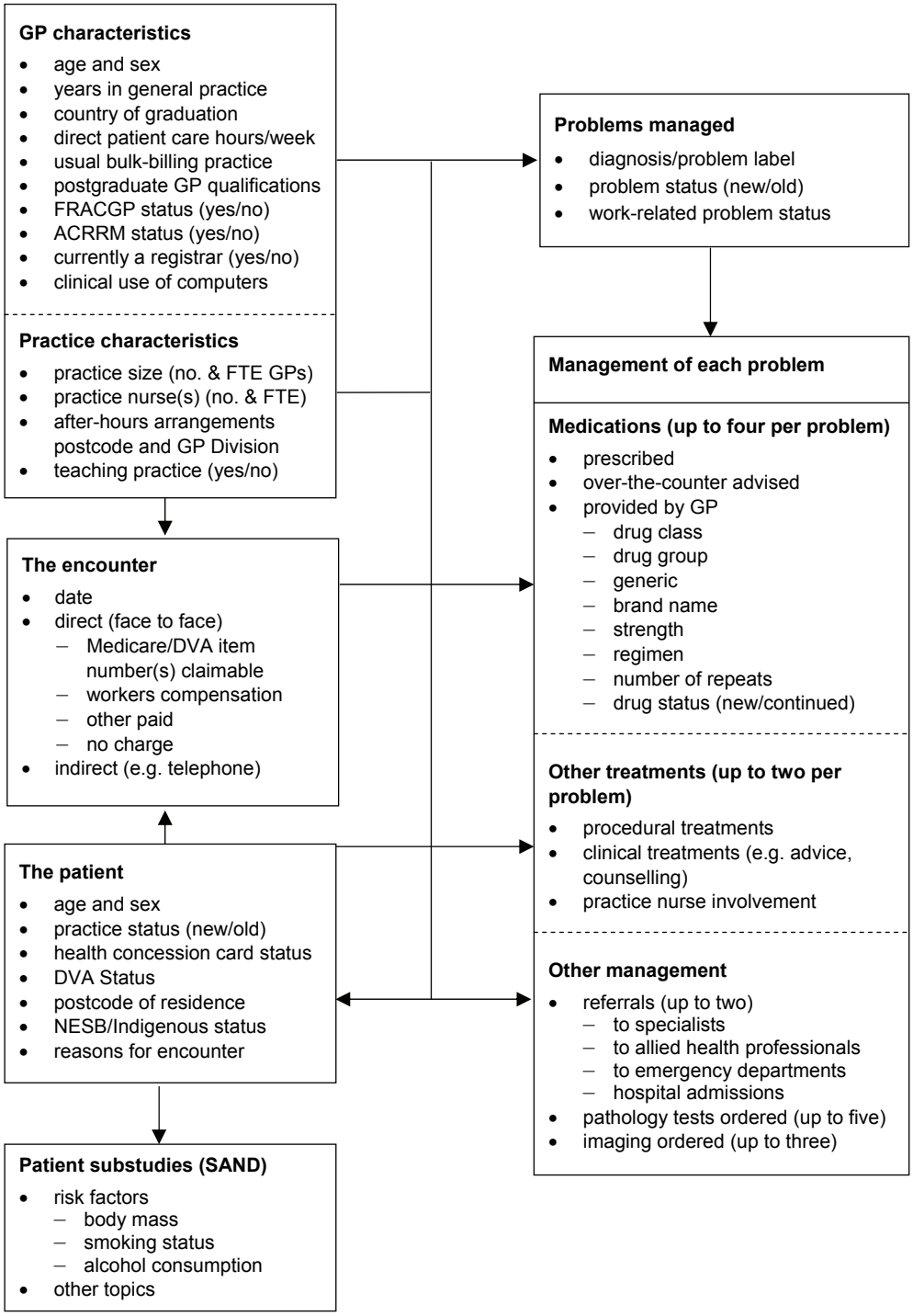
### Patient health status

Described in Section 2.5.

## 2.4 The BEACH relational database

The BEACH relational database is described diagrammatically in Figure 2.1. Note that:

- all variables can be directly related to GP and patient characteristics, and to the encounter
- RFEs have only an indirect relationship with problems managed, 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 (such as upper respiratory tract infection) managed at the encounter (see Section 6.3)
- all types of management are directly related to the problem being managed.




*Note:* FTE—full-time equivalent; FRACGP—Fellow of the Royal Australian College of General practitioners; ACRRM—Fellow of the Australian College of Rural and Remote Medicine; DVA—Department of Veterans' Affairs; NESB—non-English-speaking background; SAND—Supplementary Analysis of Nominated Data.

**Figure 2.1: The BEACH relational database**

## 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 so each SAND topic includes about 3,000 records. Some topics are repeated to increase sample size.
- 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 14. The start and finish times collected on these encounters are used to calculate the length of consultation. The length of consultation for Medicare-claimable encounters is reported in Section 5.3.
- 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 pad. Rotation of ordering ensures there was no order effect on the quality of the information collected.

Abstracts of results and the research tools used in all SAND substudies from April 1998 to March 2010 have been published. Those:

- from April 1998 to March 1999 were published in *Measures of health and health care delivery in general practice in Australia*[22]
- from April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*[23]
- since August 2006 have been published, in each of the general practice activity annual reports[24-26]
- conducted in the 2009–10 BEACH year are provided in Chapter 15 of this publication.

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

## 2.6 Statistical methods

The analysis of the 2009–10 BEACH data was conducted with Statistical Analysis System (SAS) version 9.1.3[27], 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, patient or GP age and 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 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 (in the case of management actions) the rate per 100 problems managed, and the 95% confidence interval.

BEACH is a single stage cluster sample study design, each 100 encounters forming a cluster around each GP participant. In cluster samples, variance needs to be adjusted to account for the correlation between observations within clusters. Procedures in SAS version 9.1.3 were used to calculate the intracluster correlation, and adjust the confidence intervals accordingly.[27]

Post-stratification weighting of encounter data adjusts for: any difference in the age–sex distribution of the participating GPs and those GPs in the sample frame from which the samples were drawn; and for the varying activity level of each GP (measured by number of claims each has made in the previous 12 months from Medicare Australia) (see Chapter 3).

## 2.7 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)[7]:

- 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 is accepted by the World Health Organization (WHO) in the WHO Family of International Classifications[28], and is the declared national standard in Australia for reporting of health data from general practice and patient self-reported health information.[29]

The ICPC-2 has a biaxial 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—it can also be expanded to provide data about infections, injuries, neoplasms, congenital anomalies and 'other' diagnoses.

Component 2 (diagnostic, screening and prevention) is often applied in describing the problem managed (for example, check-up, immunisation). Components 3 to 6 cover other processes of care, including referrals, other (non-pharmacological) treatments and orders for pathology and imaging. The components are standard and independent throughout all chapters. The updated component groupings of ICPC-2 codes, released by the Wonca International Classification Committee in 2004[30] have been used in this report.

The ICPC-2 is an excellent epidemiological tool. The diagnostic and symptom 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. ICPC has 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 for correct classification of a concept 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 clinical terminology classified according to the ICPC, now called ICPC-2 PLUS.[31] This is an interface terminology, developed from all the terms used by GPs in studies such as the Australian Morbidity and Treatment Survey 1990–91 (113,468 encounters)[32], *A comparison of country and metropolitan general practice* 1990–91 (51,277 encounters)[33], the Morbidity and Therapeutic Index 1992–1998 (a clinical audit tool that was available to GPs) (approximately 400,000 encounters), and BEACH 1998–2010 (about 1.2 million encounters), that together make up about 2.7 million encounter records, involving more than 4 million free text descriptions of problems managed and a further 4 million for patient reasons for encounter. 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>.

When the free-text data are received from the GPs, trained secondary coders (who are undergraduate students, code the data in more specific terms using ICPC-2 PLUS. This ensures high coder reliability and automatic classification of the concept, and provides the ability to 'ungroup' such ICPC-2 rubrics as 'other diseases of the circulatory system' and select a specific disease from the terms within it.

| Components | 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

Statistical reporting is almost always at the level of the ICPC-2 classification (for example, acute otitis media/myringitis is 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 morbidity, pathology and imaging codes are defined in Appendix 4, and chronic morbidity groups are provided in Appendix 5. Appendices 4 and 5 are available at <www.aihw.gov.au/publications/index.cfm/subject/19>.

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

When recording problems managed, GPs may not always be very specific. For example, in recording the management of hypertension, they may simply record the problem as 'hypertension'. In ICPC-2, 'hypertension, unspecified' is classified as 'uncomplicated hypertension' (code K86). There is another code for 'complicated hypertension' (K87). In some cases the GP may simply have failed to specify that the patient had hypertension with complications. The research team therefore feels that for national data reporting, it is more reliable to group the codes K86 and K87 and label this 'Hypertension*'—the asterisk indicating that multiple ICPC-2 codes (as in this example) or ICPC-2 PLUS codes (see below) are included. Appendix 4 lists the codes included in these groups.

### 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, such as 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 classified within all the appropriate ICPC-2 codes are grouped. This group is labelled 'Osteoarthritis*'—the asterisk again indicating multiple codes, but in this case they are PLUS codes rather than ICPC-2 codes. Appendix 4 lists the codes included in these groups.

### Reporting chronic morbidity

Chronic conditions are medical conditions 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 affect an individual's quality of life.

To identify chronic conditions, a chronic condition list[34] classified according to ICPC-2 was applied to the BEACH data set. In general reporting, both chronic and non-chronic conditions (for example, diabetes and gestational diabetes) may have been grouped together when reporting (for example, diabetes—all*). When reporting chronic morbidity, only problems regarded as chronic have been included in the analysis. 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 chronic groups are provided in Appendix 5.

### Reporting pathology and imaging test orders

All the pathology and imaging tests are coded very specifically in ICPC-2 PLUS, but 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 regrouped all pathology and imaging ICPC-2 PLUS codes into MBS standard groups. This allows comparison of data between data sources. The groups are marked with an asterisk, and inclusions are provided in Appendix 4.

## 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)[35] classification, which is the Australian standard for classifying medications at the generic level.[29]

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 pharmaceutical 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 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 2009–10 annual results for pharmaceutical data, the CAPS database is used in tables of the 'most frequent medications' (tables 9.2 to 9.4).
- When reporting the annual results for pharmaceuticals in terms of the ATC hierarchy (Table 9.1), ATC levels 1, 3, and 5 are 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.

## 2.8 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.

The quality assurance 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 regularly.

## 2.9 Validity and reliability

A discussion of the reliability and validity of the BEACH program has been published elsewhere.[36] This section touches on some aspects of reliability and validity of active data collection from general practice that should be considered by the reader.

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 2.6. 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.[37] Other studies have reported the degree to which GP-reported patient RFEs and problems managed accurately reflect those recalled by the patient[38], and the reliability of secondary coding of RFEs[39] and problems managed.[32] The validity of ICPC as a tool with which to classify the data has also been investigated in earlier work.[40]

However, the question of the extent to which the GP-recorded data are a reliable and valid reflection of the content of the encounter must also be considered. In many primary care consultations, a clear pathophysiological diagnosis is not reached. Bentsen[41] and Barsky[42] 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.[43] 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.[44,45] 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.[41] Two other factors that might affect GPs' descriptions of patient RFEs have been identified: although individuals may select the same stimuli, some label each stimulus separately, whereas others cluster them under one label; and individuals differ in the number of stimuli they select (selective perception).[46]

The extent to which therapeutic decisions may influence the diagnostic label selected has also been discussed. Howie[47] and Anderson[44] argue that, while it is assumed that the diagnostic process used 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.[44] 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.[48] 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.[49] Differences in the way male and female GPs label problems also appear to be independent of such influences.[50]

These problems are inherent in the nature of general practice. Knottnerus argues that the GP is confronted with a fundamentally different pattern of problems from the specialist, the GP often having to draw up general diagnostic hypotheses related to probability, severity and consequences.[51] 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'.[44] 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 kept in mind, they apply equally to data drawn from medical records, whether paper or electronic, as they do to active data collection methods.[52,53] 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.[54]

## 2.10 Extrapolated national estimates

Extrapolations can be used to estimate the number of GP encounters in Australia involving a selected event at a single time point, or to estimate the total national effect of changes.

In this report, extrapolations using data from a single time point estimate the number of GP encounters in Australia in 2009–10 that involve a selected event. The method of extrapolation described below can be applied to a single time point.

A section in each chapter highlights major changes that have occurred over the decade 2000–01 to 2009–10. Extrapolations used in these sections estimate the national change across total GP Medicare services from 2000–01 to 2009–10. These sections refer to data published in *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] Where the results demonstrate a significant change over time, the estimated national change across total GP Medicare services from 2000–01 to 2009–10 can be calculated using the method described below.

- The national estimates are calculated by dividing the rate per 100 encounters of the selected event for 2000–01 by 100, and then multiplying by the total number of general practitioner services claimed through Medicare in that year (rounded to the nearest 100,000, see Table 2.1) to give the estimated annual number of events in 2000–01. The process is then repeated for 2009–10. The difference between the two estimates gives the estimated national change in the rate of encounters for that event over the period of interest. Estimates are rounded to the nearest 100,000 if more than a million and to the nearest 10,000 if below a million.
- This is expressed as the estimated increase or decrease over the study period (between 2000–01 and 2009–10), in the number of general practice contacts for that event; for example, an increase or decrease in the number of GP management contacts with problem X occurring in Australia in 2009–10 when compared with 2000–01.

Table 2.1 provides the total number of general practice professional service items claimed from Medicare in each financial year from 2000–01 to 2009–10. In this report, extrapolations are calculated using the number of GP Medicare items claimed rounded to the nearest 100,000. The rounded number is also provided in Table 2.1.

**Table 2.1: Number of general practice professional services claimed from Medicare Australia each financial year, 2000–01 to 2009–10 ('000)**

| | 2000–01 | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10[(a)] |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of GP MBS items | 100,645 | 99,921 | 96,919 | 96,330 | 98,180 | 101,095 | 103,433 | 109,518 | 113,045 | 116,832 |
| Rounded number of GP MBS items | 100,600 | 99,900 | 96,900 | 96,300 | 98,200 | 101,100 | 103,400 | 109,500 | 113,000 | 116,800 |

(a) Medicare data for the 2009–10 year included data from the April 2009 to March 2010 quarters because the 2009–10 financial year data were not available at the time of preparation of this report.

*Source:* Medicare statistics, Table B1C: Medicare: Number of services ('000) by quarter of processing by broad type of service; Table B1A: Medicare: Number of services ('000) by financial year of processing by broad type of service. Available at <www.health.gov.au/internet/main/publishing.nsf/Content/medstat-mar10-tables-ba>.

## Examples of extrapolation

### Example A: Change in the number of problems managed by GPs nationally

There was a significant increase in the number of problems managed at encounter, from 144.5 per 100 encounters in 2000–01 to 153.3 in 2009–10 (see Table 7.2 in *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*[1]):

- (144.5/100) x 100.6 million = 145.4 million problems managed nationally in 2000–01, and (153.3/100) x 116.8 million = 179.1 million problems managed nationally in 2009–10.

This suggests there were 33.7 million (179.1 million minus 145.4 million) more problems managed at GP encounters in Australia in 2009–10 than in 2000–01.

**Example B: Change in the number of medication prescriptions by GPs nationally**

As demonstrated in Table 2.1 there has been a 16% increase in the number of GP service items claimed from Medicare per year, from 100.6 million in 2000–01 to 116.8 million in 2009–10.

This increase means that even where there has been a decrease in the rate of a management action per 100 encounters, the overall result may be an increase in the number of those actions. An excellent example of this effect is apparent in the prescribed medications in BEACH.

There was a significant decrease in the number of medications prescribed at encounter, from 92.3 per 100 encounters in 2000–01 to 83.4 per 100 in 2009–10 (see Table 9.1b in *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*[1]):

- (92.3/100) x 100.6 million = 92.9 million GP prescriptions nationally in 2000–01, and (83.4/100) x 116.8 million = 97.4 million prescriptions nationally in 2009–10.

This suggests there were 4.5 million (97.4 million minus 92.9 million) **more** prescriptions written by GP in Australia in 2009–10 than in 2000–01.

This result of an increase in total prescriptions rather than a decrease (that might have been expected from the decreasing prescription rate) is due to the 16% increase in the total number of GP consultations over the period.

## Limitations of extrapolations

The extrapolations to the total encounters occurring nationally in any 1 year are only an estimate. It may 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—an additional 5% or so of BEACH encounters annually include encounters paid by sources other than Medicare, such as DVA, state governments, workers compensation insurance, and employers.
- an underestimate of activities of relatively low frequency with a skewed distribution across individual GPs. For example, a study of early uptake of some enhanced primary care items by GPs demonstrated that almost half the enhanced primary care items claimed through the MBS came from about 6% of active GPs.[10] Where activity is so skewed across the practising population, a national random sample will provide an underestimate of activity because the sample reflects the population rather than the minority.
- 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 one encounter will be counted as two encounters.

Further, the base numbers used in the extrapolations are rounded to the nearest 100,000, and extrapolation estimates are rounded to the nearest 100,000 if more than a million and to the nearest 10,000 if below a million. However, the rounding has been applied to all years, so the effect on measures of change will be very small. Therefore, the extrapolation still provides an indication of the size of the effect of measured change nationally.

# 3 The sample

This chapter describes the GP sample and sampling methods used in the BEACH program. The methods are only summarised in this chapter. A more detailed explanation of the BEACH methods are described in Chapter 2.

A summary of the annual BEACH samples are reported for each year from 2000–01 to 2009–10 in the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 3.1 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 claims data by the Primary and Ambulatory Care Division of DoHA (see Chapter 2).

Contact was attempted with 4,355 GPs—13.8% could not be contacted. More than one-third of these had moved, retired or died, and were untraceable (Table 3.1), although the majority were those with whom contact could not be established after five calls. It is notable that of GPs approached who were aged less than 35 years, 26.6% were no longer at that practice and could not be traced (Table 3.1). These would largely be registrars moving through practices during training. In contrast, 12.6% of GPs aged 35 years and over were not traceable (results not shown).

The final participating sample consisted of 988 practitioners, representing 26.3% of those who were contacted and available, and 22.7% of those with whom contact was attempted (Table 3.1).

**Table 3.1: Recruitment and participation rates**

| Type of contact | Number | Per cent of approached (*n* = 4,355) | Per cent of contacts established (*n* = 3,755) |
|---|---|---|---|
| Letter sent and phone contact attempted | 4,355 | 100.0 | — |
| No contact | 600 | 13.8 | — |
| No phone number | 39 | 0.9 | — |
| Moved/retired/deceased | 235 | 5.4 | — |
| Unavailable (overseas, maternity leave, etc) | 43 | 1.0 | — |
| No contact after five calls | 283 | 6.5 | — |
| Telephone contact established | 3,755 | 86.2 | 100.0 |
| Declined to participate | 2,509 | 57.6 | 66.8 |
| Agreed but withdrew | 258 | 5.9 | 6.9 |
| Agreed and completed | 988 | 22.7 | 26.3 |

## 3.2 Representativeness of the GP sample

Whenever possible, the study group of GPs should be compared with the population from which the GPs were drawn to identify and, if necessary, adjust for any sample bias that may affect the findings of the study. Differences between the final GP sample and the sample frame are provided below. Weightings generated as a result of these comparisons and applied to the data are described in Section 3.3

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

Table 3.2 demonstrates that there were significant differences in GP characteristics between the final sample of BEACH participants and all GPs in the sample frame, in terms of sex, age, and state; male GPs, those aged 55 years and over, and those practising in Victoria and the Northern Territory were under-represented in BEACH, whereas female GPs, those aged 45–54 years, and GPs practising in New South Wales and Queensland were over-represented. Distribution by place of graduation and across *Rural*, *Remote* and *Metropolitan Area* classes did not significantly differ from that of the total sample frame.

However, the BEACH participants in terms of age and location were more closely representative of the sample provided by DoHA than of the sample frame (Table 3.3). The random sampling process has, in this instance, produced a sample with greater proportions of GPs aged 35–44 years and 45–54 years, and in New South Wales and Queensland, and smaller proportions in those aged 55 years and over, and Victoria. While this may provide some explanation for the differences between BEACH participants and the sample frame in some of the age groups and state distributions, the over-representation of female GPs in this BEACH sample reflects a more positive response from female GPs.

**Table 3.2: Comparison of BEACH participants and all active recognised GPs in Australia (the sample frame)**

| | BEACH[a][b] | | Australia[a][c] | |
|---|---|---|---|---|
| Variable | Number | Per cent of GPs (*n* = 988) | Number | Per cent of GPs (*n* = 18,981) |
| Sex ($\chi^2$ = 17.0, $p$ < 0.001) | | | | |
| Males | 557 | 56.4 | 11,938 | 62.9 |
| Females | 431 | 43.6 | 7,043 | 37.1 |
| Age ($\chi^2$ = 10.9, $p$ = 0.012) | | | | |
| < 35 years | 70 | 7.1 | 1,304 | 6.9 |
| 35–44 years | 210 | 21.4 | 3,899 | 20.5 |
| 45–54 years | 360 | 36.7 | 6,205 | 32.7 |
| 55+ years | 342 | 34.8 | 7,573 | 39.9 |
| Missing | 6 | — | 0 | — |
| Place of graduation ($\chi^2$ = 2.76, $p$ = 0.097) | | | | |
| Australia | 697 | 70.6 | 12,925 | 68.1 |
| Overseas | 290 | 29.4 | 6,056 | 31.9 |
| Missing | 1 | — | 0 | — |
| State ($\chi^2$ = 49.5, $p$ < 0.001) | | | | |
| New South Wales | 367 | 37.1 | 6,320 | 33.3 |
| Victoria | 180 | 18.2 | 4,775 | 25.2 |
| Queensland | 238 | 24.1 | 3,625 | 19.1 |
| South Australia | 60 | 6.1 | 1,607 | 8.5 |
| Western Australia | 83 | 8.4 | 1,738 | 9.2 |
| Tasmania | 39 | 3.9 | 503 | 2.7 |
| Australian Capital Territory | 18 | 1.8 | 292 | 1.5 |
| Northern Territory | 3 | 0.3 | 121 | 0.6 |
| RRMA ($\chi^2$ = 9.7, $p$ = 0.14) | | | | — |
| Capital | 616 | 62.3 | 12,556 | 66.2 |
| Other metropolitan | 84 | 8.5 | 1,468 | 7.7 |
| Large rural | 72 | 7.3 | 1,187 | 6.3 |
| Small rural | 70 | 7.1 | 1,301 | 6.9 |
| Other rural | 131 | 13.3 | 2,163 | 11.4 |
| Remote centre | 4 | 0.4 | 146 | 0.8 |
| Other remote | 11 | 1.1 | 160 | 0.8 |

(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 MBS GP consultation services during the most recent 3-month Medicare Australia data period. Data provided by the Primary Care Division of the Department of Health and Ageing.

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

**Table 3.3: Comparison of all active recognised GPs in Australia (the sample frame), GPs in the sample from Medicare claims data (drawn by DoHA), and BEACH participants 2009–10**

| | Sample frame (all Australia)[a] | | Sample from Medicare claims data[b] | | BEACH participants | |
|---|---|---|---|---|---|---|
| Variable | Number | Per cent of GPs | Number | Per cent of GPs | Number | Per cent of GPs |
| Sex (missing) | (0) | | (1) | | (0) | |
| Males | 11,938 | 62.9 | 2,650 | 60.9 | 557 | 56.4 |
| Females | 7,043 | 37.1 | 1,704 | 39.1 | 431 | 43.6 |
| Age (missing) | (0) | | (0) | | (6) | |
| < 35 years | 1,304 | 6.9 | 380 | 8.7 | 70 | 7.1 |
| 35–44 years | 3,899 | 20.5 | 1,047 | 24.0 | 210 | 21.4 |
| 45–54 years | 6,205 | 32.7 | 1,504 | 34.5 | 360 | 36.7 |
| 55+ years | 7,573 | 39.9 | 1,424 | 32.7 | 342 | 34.8 |
| State (missing) | (0) | | (3) | | (0) | |
| New South Wales | 6,320 | 33.3 | 1,523 | 35.0 | 367 | 37.1 |
| Victoria | 4,775 | 25.2 | 931 | 21.4 | 180 | 18.2 |
| Queensland | 3,625 | 19.1 | 931 | 21.4 | 238 | 24.1 |
| South Australia | 1,607 | 8.5 | 341 | 7.8 | 60 | 6.1 |
| Western Australia | 1,738 | 9.2 | 403 | 9.3 | 83 | 8.4 |
| Tasmania | 503 | 2.7 | 114 | 2.6 | 39 | 3.9 |
| Australian Capital Territory | 292 | 1.5 | 86 | 2.0 | 18 | 1.8 |
| Northern Territory | 121 | 0.6 | 23 | 0.5 | 3 | 0.3 |
| **Total** | **18,981** | **100.0** | **4,355** | **100.0** | **988** | **100.0** |

(a) Sample frame—all recognised (see 'Glossary') GPs in Australia who claimed at least 375 general practice service items in the previous quarter (from Medicare claims data).

(b) Random sample of GPs from the sample frame, drawn from Medicare claims data and supplied by DoHA to approach for BEACH participation.

Data on the number of MBS general practice A1 (and if applicable A2) service items claimed in the previous quarter were also provided by DoHA for each GP in the samples drawn, but not for GPs in the sample frame. These data were used to determine the 'activity level' of each GP. There were significant differences between the proportions of BEACH participants and non-participants in the services groups. A greater proportion of participants than non-participants were in the 375–750 services and 750–1,500 services groups, showing a greater proportion of participants who claimed fewer items compared with GPs who did not participate (Table 3.4). This result may be an influence of the over-representation of females in the sample frame, a considerable proportion of whom work part-time.

There was a significant difference ($p < 0.0001$) in the mean number of consultation items claimed by participants (1,179.0 claims for the quarter) compared with the GPs who declined to participate (1,279.5 for the quarter) (Table 3.4). Comparisons of the median number of claims for each group showed a difference of fewer than seven consultations per week (6.7), and a difference of 7.7 consultations per week in the mean number. BEACH 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 is possible that the time required to participate in BEACH may be a greater issue for 'busier' GPs. It cannot be assumed, however, that a GP seeing

20 patients per day 3 days per week is any less 'busy' than a GP seeing 20 patients per day 5 days per week.

As in previous years, only A1 (and if applicable A2) items of service were included for this comparison, as these were the only items available from the sample provided from DoHA throughout the previous year. This will change in future years to include all GP service items used in other comparison tables.

**Table 3.4: Activity level of participating and non-participating GPs**

| | Participants[(a)] (*n* = 988) | | Non-participants[(a)] (*n* = 2,767) | |
|---|---|---|---|---|
| **Variable** | **Number of GPs** | **Per cent** | **Number of GPs** | **Per cent** |
| Activity ($\chi^2$ = 15.4, *p* = 0.0005) | | | | |
| 375–750 services in previous quarter | 284 | 28.7 | 701 | 25.3 |
| 750–1,500 services in previous quarter | 462 | 46.8 | 1,208 | 43.7 |
| > 1,500 services in previous quarter | 242 | 24.5 | 858 | 31.0 |
| | **Number of claims** | | **Number of claims** | |
| Mean activity level (t = 4.17, *p* < 0.0001) | 1,179.0 | — | 1,279.5 | — |
| Median activity level | 1,023.0 | — | 1,110.0 | — |
| Standard deviation | 634.97 | — | 693.04 | — |

(a) Missing data removed.

# 3.3 Weighting the data

## Age–sex weights

As described in Section 3.2, female GPs and those in the 45–54 age group were over-represented, and those aged 55 years and over were under-represented among BEACH participants for 2009–10. To achieve comparable estimates and precision, GP age–sex weights were applied to the data sets in post-stratification weighting.

## Activity weights

In BEACH, each GP provides details of 100 consecutive encounters. There is considerable variation among GPs in the number of services each provides in a given year. Encounters were therefore assigned an additional weight that was directly proportional to the activity level of the recording GP. GP activity level was measured as the number of MBS general practice A1 (and if applicable A2) service items claimed by the GP in the previous 12 months (data supplied by DoHA).

## 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 3.5 shows the precision ratio calculated before and after weighting the data.

## 3.4 Representativeness of the final encounter sample

BEACH aims to gain a representative sample of GP–patient encounters. To assess the representativeness of the final weighted sample of encounters, the age–sex distribution of patients at weighted BEACH encounters with GP consultation service items claimed was compared with that of patients at all encounters claimed as MBS GP consultation service items in the 2009–10 study period (data provided by DoHA).

As shown in Table 3.5, there is an excellent fit of the MBS and BEACH unweighted age–sex distribution with that of the MBS claims distribution, with no age–sex category varying by more than 20% (maximum variance 16% in males <1 year) from the population distribution. The range of raw precision ratios (0.84–1.15) 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, and all were within the 0.89–1.10 range.

The age–sex distribution of patients at BEACH encounters and for MBS GP consultation service item claims is shown graphically for all patients in Figure 3.1, for males in Figure 3.2, and for females in Figure 3.3.

**Table 3.5: Age–sex distribution of patients at BEACH and MBS GP consultation service items**

| | BEACH–raw[a] | | BEACH–weighted[b] | | Australia[c] | Precision ratios | |
|---|---|---|---|---|---|---|---|
| Sex/age | Number | Per cent (*n* = 81,002) | Number | Per cent (*n* = 83,108) | Per cent | Raw[a] | Weighted[c] |
| Male | | | | | | | |
| < 1 year | 1,063 | 1.3 | 1,028 | 1.2 | 1.1 | 0.84 | 0.89 |
| 1–4 years | 2,284 | 2.8 | 2,304 | 2.8 | 2.8 | 0.99 | 1.01 |
| 5–14 years | 2,396 | 3.0 | 2,557 | 3.1 | 3.4 | 1.15 | 1.10 |
| 15–24 years | 2,350 | 2.9 | 2,646 | 3.2 | 3.3 | 1.14 | 1.04 |
| 25–44 years | 6,271 | 7.7 | 7,004 | 8.4 | 8.7 | 1.12 | 1.03 |
| 45–64 years | 9,004 | 11.1 | 10,337 | 12.4 | 11.8 | 1.06 | 0.95 |
| 65–74 years | 4,268 | 5.3 | 4,983 | 6.0 | 5.8 | 1.1 | 0.97 |
| 75+ years | 3,964 | 4.9 | 4,510 | 5.4 | 5.6 | 1.15 | 1.03 |
| Female | | | | | | | |
| < 1 year | 869 | 1.1 | 830 | 1.0 | 1.0 | 0.93 | 1.00 |
| 1–4 years | 1,987 | 2.5 | 1,935 | 2.3 | 2.4 | 0.98 | 1.03 |
| 5–14 years | 2,411 | 3.0 | 2,455 | 3.0 | 3.2 | 1.07 | 1.08 |
| 15–24 years | 4,960 | 6.1 | 4,699 | 5.7 | 5.7 | 0.93 | 1.01 |
| 25–44 years | 12,953 | 16.0 | 12,028 | 14.5 | 14.5 | 0.91 | 1.00 |
| 45–64 years | 13,853 | 17.1 | 13,357 | 16.1 | 15.6 | 0.91 | 0.97 |
| 65–74 years | 5,796 | 7.2 | 5,898 | 7.1 | 6.7 | 0.94 | 0.94 |
| 75+ years | 6,573 | 8.1 | 6,536 | 7.9 | 8.4 | 1.04 | 1.07 |

(a) Unweighted, GP consultation Medicare service 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) MBS claims data provided by the Primary Care Division of the Department of Health and Ageing.

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

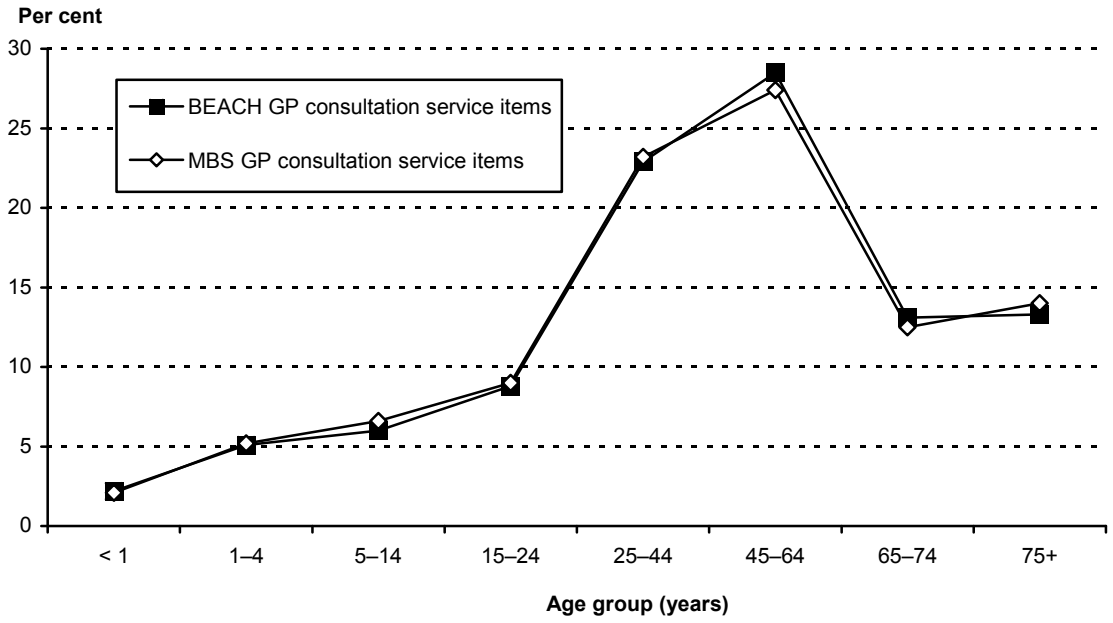



**Figure 3.1: Age distribution of all patients at BEACH and MBS GP consultation services 2009–10**

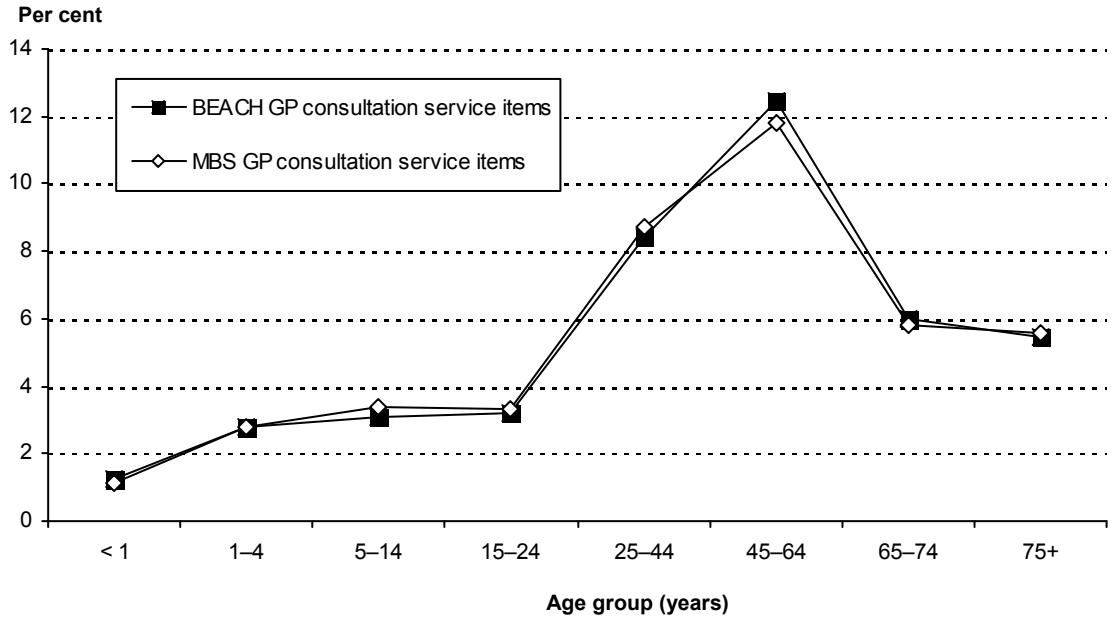



**Figure 3.2: Age distribution of male patients at BEACH and MBS GP consultation services 2009–10**

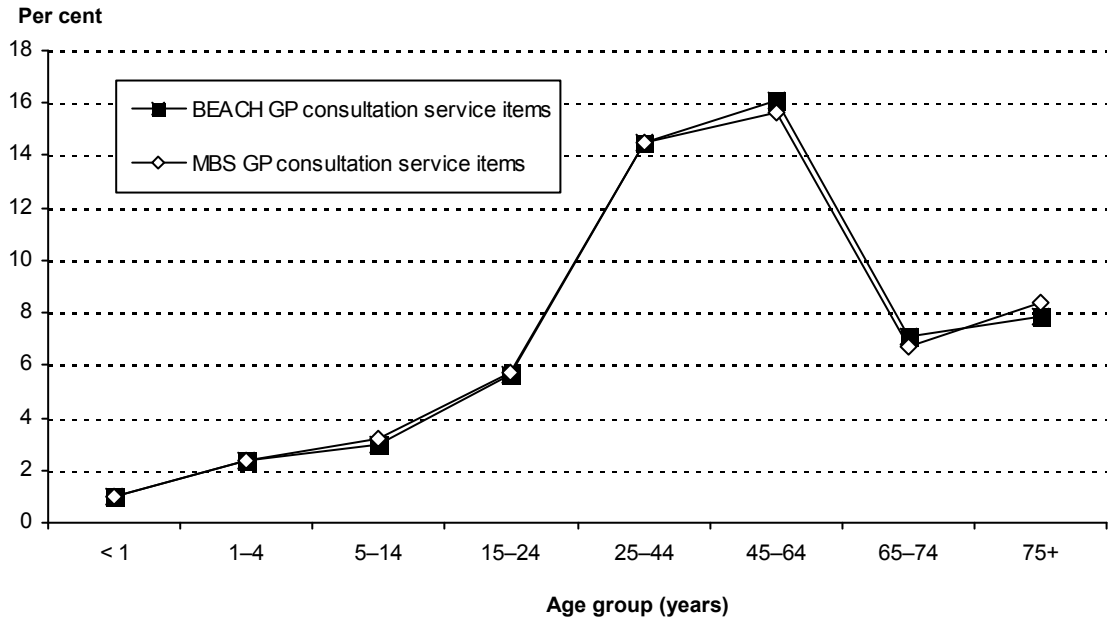



**Figure 3.3: Age distribution of female patients at BEACH and MBS GP consultation services 2009–10**

# 3.5 The weighted data set

The final unweighted data set from the 12th year of collection contained encounters, reasons for encounters, problems and management/treatments. The apparent number of encounters, reasons for encounter and number of medications all increased after weighting, and the number of problems managed, other treatments, referrals, imaging and pathology all decreased after weighting. Raw and weighted totals for each data element are shown in Table 3.6. The weighted data set is used for all analyses in the remainder of this report.

**Table 3.6: The BEACH data set, 2009–10**

| Variable | Raw | Weighted |
|---|---|---|
| General practitioners | 988 | 988.4 |
| Encounters | 98,800 | 101,349.0 |
| Reasons for encounter | 154,199 | 157,070.6 |
| Problems managed | 155,889 | 155,372.6 |
| Medications | 103,232 | 108,000.6 |
| Other treatments[(a)] | 54,817 | 53,242.9 |
| Referrals | 14,281 | 13,481.4 |
| Pathology | 49,564 | 45,594.3 |
| Imaging | 9,943 | 9,876.8 |
| Other investigations | 849 | 753.2 |

(a) Other treatments excludes injections for immunisations/vaccinations (raw *n* = 6,008, weighted *n* = 5,917) (see Chapter 10).

# 4 The participating GPs

This chapter reports data collected between April 2009 and March 2010 about the participating GPs and their practices from the 12th year of the BEACH program. Data on GP and practice characteristics are reported for each year from 2000–01 to 2009–10 in the 10-year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 4.1 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 988 participants:

- 56% were male, and 35% were aged 55 years and over
- more than half had been in general practice for more than 20 years
- 71% had graduated in Australia
- 33% spent more than 40 hours each week on direct patient care services
- 24% conducted some consultations in a language other than English
- More than 50% were Fellows of the RACGP, and 7% were Fellows of the Australian College of Rural and Remote Medicine (ACRRM)
- 25% bulk-billed Medicare for all patients and 74% bulk-billed for selected patients; only 1% did not bulk bill Medicare for any patient consultations
- 54% had provided care in a residential aged care facility in the previous month
- 69% practised in *Major cities* (classified using the Australian Standard Geographical Classification)
- 39% were in practices of fewer than five individual GPs, and 19% were in practices of more than 10 individual GPs
- Two-thirds (64%) were in practices of fewer than five full-time equivalent GPs
- 79% of the GPs worked in a practice that employed practice nursing staff—for almost two-thirds of these, (59.4%) the practice employed less than two full-time equivalents (35–45 hours per week)
- 91% worked in an accredited practice
- almost half had a pathology laboratory or collection centre co-located at the practice
- 45% worked in a practice that provided their own or cooperative after-hours care, and 53% in a practice that used a deputising service for after-hours patient care (multiple responses allowed)
- 65% worked in a teaching practice for undergraduates, junior doctors, registrars, or all three.

Those interested in the clinical activity of overseas-trained doctors will find more information in Bayram et al. (2007) *Clinical activity of overseas-trained doctors practising in general practice in Australia*.[55]

Readers interested in the effects of GP age on clinical practice will find more information in Charles et al. (2006) *The independent effect of age of general practitioner on clinical practice*.[56]

**Table 4.1: Characteristics of participating GPs and their practices**

| GP characteristic | Number[(a)] | Per cent of GPs[(a)] (*n* = 988) |
|---|---|---|
| Sex (missing = 0) | | |
| Male | 557 | 56.4 |
| Female | 431 | 43.6 |
| Age (missing = 6) | | |
| < 35 years | 70 | 7.1 |
| 35–44 years | 210 | 21.4 |
| 45–54 years | 360 | 36.7 |
| 55+ years | 342 | 34.8 |
| Years in general practice (missing = 7) | | |
| < 2 years | 11 | 1.1 |
| 2–5 years | 87 | 8.9 |
| 6–10 years | 121 | 12.3 |
| 11–19 years | 229 | 23.3 |
| 20+ years | 533 | 54.3 |
| Place of graduation (missing = 1) | | |
| Australia | 697 | 70.6 |
| Asia | 87 | 9.8 |
| United Kingdom | 87 | 8.8 |
| Africa | 51 | 5.2 |
| Europe | 20 | 2.0 |
| New Zealand | 19 | 1.9 |
| Other | 16 | 1.6 |
| Direct patient care hours (worked) per week (missing = 15) | | |
| ≤ 10 hours | 3 | 0.3 |
| 11–20 hours | 100 | 10.3 |
| 21–40 hours | 547 | 56.2 |
| 41–60 hours | 300 | 30.8 |
| 61+ hours | 23 | 2.4 |
| Consult in languages other than English (missing = 3) | | |
| < 25% of consultations | 182 | 18.5 |
| 25–50% of consultations | 35 | 3.6 |
| > 50% of consultations | 18 | 1.8 |
| Currently in general practice training program (missing = 6) | 35 | 3.6 |
| Fellow of RACGP (missing = 4) | 526 | 53.5 |
| Fellow of ACRRM (missing = 26) | 71 | 7.4 |

*(continued)*

**Table 4.1 (continued): Characteristics of participating GPs and their practices**

| GP characteristic | Number[(a)] | Per cent of GPs[(a)] (*n* = 988) |
|---|---|---|
| Bulk-billing[(b)] (missing = 4) | | |
| All patients | 245 | 24.9 |
| Some patients | 728 | 74.0 |
| No patients | 11 | 1.1 |
| Patient care provided in previous month[(b)] | | |
| In a residential aged care facility (missing = 5) | 532 | 54.1 |
| As a salaried/sessional hospital medical officer (missing = 20) | 117 | 12.1 |
| Practice location by RRMA (missing = 0) | | |
| Capital | 616 | 62.4 |
| Other metropolitan | 84 | 8.5 |
| Large rural | 72 | 7.3 |
| Small rural | 70 | 7.1 |
| Other rural | 131 | 13.3 |
| Remote central | 4 | 0.4 |
| Other remote, offshore | 11 | 1.1 |
| Practice location by ASGC remoteness structure (missing = 0) | | |
| Major cities | 684 | 69.2 |
| Inner regional | 200 | 20.2 |
| Outer regional | 90 | 9.1 |
| Remote | 11 | 1.1 |
| Very remote | 3 | 0.3 |
| Size of practice—number of individual GPs (missing = 11) | | |
| Solo | 90 | 9.2 |
| 2–4 | 293 | 30.0 |
| 5–9 | 404 | 41.4 |
| 10–14 | 132 | 13.5 |
| 15+ | 58 | 5.9 |
| Size of practice—full-time equivalent GPs (missing = 51) | | |
| 1.0–1.99 | 142 | 15.2 |
| 2.0–2.99 | 153 | 16.3 |
| 3.0–3.99 | 153 | 16.3 |
| 4.0–4.99 | 152 | 16.2 |
| 5.0–9.99 | 270 | 28.8 |
| 10.0–14.99 | 52 | 5.6 |
| 15+ | 15 | 1.6 |

*(continued)*

**Table 4.1 (continued): Characteristics of participating GPs and their practices**

| GP characteristic | Number[a] | Per cent of GPs[a] (*n* = 988) |
|---|---|---|
| Practice nurse at major practice address (missing = 11) | 772 | 79.0 |
| Number of individual practice nurses (missing = 20) | | |
| 1 | 194 | 20.0 |
| 2 | 206 | 21.3 |
| 3 | 160 | 16.5 |
| 4–5 | 151 | 15.6 |
| 6+ | 52 | 5.4 |
| Number of full-time equivalent practice nurses (missing = 61; unspecified = 30)[d] | | |
| < 1[d] | 88 | 9.8 |
| 1.0–1.99 | 323 | 36.0 |
| 2.0–2.99 | 175 | 19.5 |
| 3.0–3.99 | 62 | 6.9 |
| 4.0+ | 44 | 4.9 |
| Accredited practice (missing = 8) | 892 | 91.0 |
| Co-located services[c] (missing = 3) | | |
| Pathology laboratory/collection centre | 479 | 48.6 |
| Psychologist | 433 | 44.0 |
| Physiotherapist | 286 | 29.0 |
| Specialist | 209 | 21.2 |
| Imaging | 147 | 14.9 |
| After-hours arrangements[b] (missing = 2) | | |
| Practice does own and/or cooperative with other practices | 447 | 45.3 |
| Practice does its own | 287 | 29.1 |
| Cooperative with other practices | 175 | 17.8 |
| Deputising service | 524 | 53.1 |
| Other arrangement | 80 | 8.1 |
| Major practice a teaching practice[b] (missing = 2) | | |
| Not a teaching practice | 349 | 35.4 |
| Yes—for undergraduates | 549 | 55.7 |
| Yes—for junior doctors | 77 | 7.8 |
| Yes—for registrars | 354 | 35.9 |

(a) Missing data removed.

(b) Multiple responses allowed.

(c) Services located/available on the same premises, in the same building or within 50 metres, available on a daily or regular basis.

(d) 30 GPs answered '2', '3', '4', '5' or '6' to individual practice nurse but '0' to FTE - these are tabulated as 'unspecified' and not included in the denominator as numerators could not be determined; 36 GPs answered '1' to individuals but '0' to FTE – these were included in the '<1' FTE group.

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

## 4.2 Computer use at GP practices

As computers are increasingly being used by GPs in their clinical activity, the GP profile questionnaire was redesigned in 2008–09 so that more comprehensive information could be collected about the uses to which computers are put in a general practice clinical environment (see Appendix 2). In particular, more specific information was collected about pathology test ordering and receipt of results, and whether the medical records used were paper only, a mix of paper and electronic medical records, or whether the practice was completely paperless in this regard.

Table 4.2 shows the proportion of individual participating GPs who used computers for each of nine listed activities.

- Only 2.2% of GPs did not use a computer at all for clinical purposes.
- Computers were used mainly for prescribing, receiving pathology results electronically and for internet use.
- 84.6% of GPs were producing prescriptions electronically.
- 71.9% were receiving pathology results online, half were producing and printing pathology orders, and 54% were ordering pathology electronically.
- Almost two-thirds (64.2%) had electronic medical records exclusively (that is, were paperless).
- Almost one-third (30.2%) reported maintaining a hybrid record where some patient information is kept electronically and some on paper records (for the same patients).

**Table 4.2: Computer applications available/used at major practice address**

| Computer use | Number | Per cent of GPs (*n* = 988)[(a)] |
|---|---|---|
| Not at all | 22 | 2.2 |
| Internet/email only | 14 | 1.4 |
| Prescribing | 835 | 84.6 |
| Internet | 763 | 77.3 |
| Email | 35 | 3.5 |
| Pathology ordering (online) | 176 | 17.8 |
| Produce/print pathology orders only | 533 | 54.0 |
| Pathology results receipt (on line) | 710 | 71.9 |
| Medical records—complete (paperless) | 634 | 64.2 |
| Partial/hybrid records | 298 | 30.2 |
| Paper records only | 20 | 2.0 |
| Imaging/other tests | 528 | 53.5 |
| Missing | 1 | — |

(a) Missing data removed.

Further information about reported individual GP use of computers at the practice can be found in Henderson et al. (2006) *Extent and utilisation of computerisation in Australian general practice*.[57] Those interested in the effect of computerisation on quality of care in general practice will find more detailed information in Henderson (2007) *The effect of computerisation on the quality of care in Australian general practice*.[58]

## 4.3 Changes in characteristics of the GPs over the decade 2000–01 to 2009–10

Changes over the decade 2000–01 to 2009–10 are described in detail in the accompanying report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] Briefly, the major changes noted were:

- the proportion of GP participants who were female increased over time
- the proportion of GPs who were younger than 44 years decreased, whereas the proportion aged 45 years or more increased over the decade
- reflecting the increase in the age of GP participants, the proportion who had worked in general practice for more than 20 years also increased significantly over time
- the proportion of GPs in solo practice and smaller practices decreased significantly, and the proportion of GPs in practices with five or more practitioners steadily increased
- the proportion of participants holding the Fellowship of the RACGP increased over the decade
- fewer practices are providing after-hours care on their own, or in cooperation with other practices, than a decade earlier.

# 5 The encounters

This chapter describes the content and type of encounters recorded in the 2009–10 BEACH year. Data about the encounters are also reported for each year from 2000–01 to 2009–10 in the 10-year report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 5.1 Content of the encounters

In 2009–10, details of 101,349 encounters (weighted data) were available for 988 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 gave 155 RFEs, and GPs managed about 153 problems per 100 encounters.
- Chronic problems accounted for 35% of all problems managed, being managed at a rate of 54 chronic problems per 100 encounters.
- New problems accounted for 39% of all problems, being managed at a rate of 59 per 100 encounters.
- Work-related problems were managed at a rate of 2.5 per 100 encounters.
- Medications were the most common treatment choice, at a rate of 70 per 100 problems managed. Most of these medications were prescribed (rather than supplied or advised), at a rate of 54 per 100 problems managed.
- Clinical treatments (such as advice and counselling) were provided at a rate of 23 per 100 problems, and procedures undertaken at a rate of 11 per 100 problems.
- For every 100 problems managed there were 9 referrals for care to other providers, most often to medical specialists (6 referrals per 100 problems), and less often to allied health professionals (3 referrals per 100 problems).
- GPs ordered 29 pathology tests/batteries of tests and 6 imaging tests in the management of every 100 problems (Table 5.1).

**Table 5.1: Summary of morbidity and management**

| Variable | Number | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|
| General practitioners | 988 | — | — | — | — | — | — |
| Encounters | 101,349 | — | — | — | — | — | — |
| Reasons for encounter | 157,071 | 155.0 | 153.1 | 156.8 | — | — | — |
| Problems managed | 155,373 | 153.3 | 151.1 | 155.5 | — | — | — |
| New problems | 59,851 | 59.1 | 57.6 | 60.5 | 38.5 | 37.6 | 39.5 |
| Chronic problems | 54,866 | 54.1 | 52.2 | 56.1 | 35.5 | 34.3 | 36.3 |
| Work-related | 2,529 | 2.5 | 2.3 | 2.7 | 1.6 | 1.5 | 1.8 |
| Medications | 108,001 | 106.6 | 103.6 | 109.5 | 69.5 | 67.9 | 71.1 |
| Prescribed | 84,540 | 83.4 | 80.6 | 86.2 | 54.4 | 52.8 | 56.0 |
| GP-supplied | 13,829 | 13.6 | 12.7 | 14.6 | 8.9 | 8.3 | 9.5 |
| Advised OTC | 9,632 | 9.5 | 8.7 | 10.3 | 6.2 | 5.7 | 6.7 |
| Other treatments | 53,243 | 52.5 | 49.8 | 55.3 | 34.3 | 32.6 | 36.0 |
| Clinical* | 35,484 | 35.0 | 32.6 | 37.4 | 22.8 | 21.3 | 24.3 |
| Procedural* | 17,759 | 17.5 | 16.5 | 18.6 | 11.4 | 10.8 | 12.1 |
| Referrals | 13,481 | 13.3 | 12.8 | 13.8 | 8.7 | 8.4 | 9.0 |
| Medical specialist* | 8,562 | 8.4 | 8.1 | 8.8 | 5.5 | 5.3 | 5.7 |
| Allied health services* | 3,971 | 3.9 | 3.7 | 4.2 | 2.6 | 2.4 | 2.7 |
| Hospital* | 362 | 0.4 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Emergency department* | 202 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| Other medical services* | 80 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Other referrals* | 304 | 0.3 | 0.2 | 0.4 | 0.2 | 0.2 | 0.2 |
| Pathology | 45,594 | 45.0 | 43.1 | 46.9 | 29.3 | 28.2 | 30.4 |
| Imaging | 9,877 | 9.8 | 9.3 | 10.1 | 6.4 | 6.1 | 6.6 |
| Other investigations | 753 | 0.7 | 0.7 | 0.8 | 0.5 | 0.4 | 0.5 |

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

# 5.2 Encounter type

During the first 7 years of the BEACH program, where one (or more) MBS/DVA item number was claimable for the encounter, GP participants were 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, GPs were 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 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.

For comparability with earlier years, in tables 5.3, 5.4 and 5.5 only one item number per Medicare/DVA-claimable encounter has been counted. 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. Table 5.6 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.

Table 5.2 provides an overview of the MBS/DVA item numbers recorded in BEACH in 2009–10. At least one MBS/DVA item number was recorded at 89,307 encounters. A single item number was recorded at three-quarters of BEACH encounters said to be claimable from the MBS/DVA (76.2%).

**Table 5.2: Overview of MBS items recorded**

| Variable | Number | Per cent of MBS/DVA encounters (*n* = 89,307) |
|---|---|---|
| Encounters at which one MBS item was recorded | 68,007 | 76.2 |
| Encounters at which two MBS items were recorded | 19,531 | 21.9 |
| Encounters at which three MBS items were recorded | 1,769 | 2.0 |
| **Total encounters at which at least one item was recorded** | **89,307** | **100.0** |

Table 5.3 shows the breakdown of MBS or DVA items of service according to whether the MBS item associated with the encounter was a GP or practice nurse item. Direct encounters are defined as those where the patient was physically seen by the GP. At indirect encounters, the patient was not physically seen by the GP. Of the 89,307 MBS/DVA items of service recorded (counting only one item number per encounter), 94.9% of encounters related to GP items of service.

Practice nurse item numbers were recorded at 0.2% of encounters not accompanied by a GP item of service. This figure is not indicative of all practice nurse item numbers recorded. See Chapter 13 for more information about practice nurse activity.

**Table 5.3 Breakdown of MBS/DVA items of service according to provider (counting one item number per encounter)**

| Type of encounter | Number | Per cent of encounters[(a)] (*n* = 93,862) | 95% LCL | 95% UCL |
|---|---|---|---|---|
| MBS/DVA GP item of service | 89,113 | 94.9 | 94.5 | 95.4 |
| MBS/DVA practice nurse item of service (no related GP item) | 194 | 0.2 | 0.1 | 0.3 |
| Direct encounters | 94 | 0.1 | 0.1 | 0.1 |
| Indirect encounters | 84 | 0.1 | 0.0 | 0.1 |
| Unspecified as direct or indirect | 15 | 0.0 | 0.0 | 0.0 |
| **MBS/DVA item of service (all encounters)[(b)]** | **89,307** | **95.1** | **94.7** | **95.6** |

(a) Missing data removed from analysis (*n* = 7,487).

(b) Includes direct encounters at which either a GP or a practice nurse item was recorded.

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

Table 5.4 reports the breakdown of encounter type (by payment source), counting a single Medicare item number per encounter (where applicable).

- Direct encounters (patient was seen by the GP) accounted for 98.4% of all encounters.
- Indirect encounters (where the patient was not seen by the GP) accounted for 1.6% of all encounters.
- Direct encounters where the GP indicated that no charge was made occurred infrequently, accounting for 0.5% of encounters.
- The vast majority of all direct encounters (95.0%) were claimable either through Medicare or the DVA.
- Encounters payable through workers compensation accounted for 2% of encounters.
- Encounters payable through other sources (including hospital-paid encounters) accounted for 0.9% of encounters.

**Table 5.4: Type of encounter at which a source of payment was recorded for the encounter (counting one item number per encounter)**

| Type of encounter | Number | Per cent of encounters[a] (*n* = 93,862) | 95% LCL | 95% UCL | Per cent of direct encounters (*n* = 92,352) |
|---|---|---|---|---|---|
| Indirect encounters[b] | 1,495 | 1.6 | 1.3 | 1.9 | — |
| Direct encounters | 92,352 | 98.4 | 98.1 | 98.7 | 100.0 |
| MBS/DVA items of service (direct encounters only)[c] | 89,201 | 95.0 | 94.6 | 95.5 | 96.6 |
| Workers compensation | 1,843 | 2.0 | 1.8 | 2.1 | 2.0 |
| Other paid (hospital, state, etc) | 821 | 0.9 | 0.6 | 1.1 | 0.9 |
| No charge | 486 | 0.5 | 0.4 | 0.7 | 0.5 |
| Practice nurse only items (unspecified as direct or indirect) | 15 | 0.0 | 0.0 | 0.0 | — |
| **Total** | **93,862** | **100.0** | **—** | **—** | **—** |

(a) Missing data removed from analysis (*n* = 7,487).

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

(c) Includes direct encounters at which either a GP or a practice nurse item (or both) was recorded.

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

Table 5.5 provides a summary of the MBS items recorded in BEACH, counting one item number per encounter. This provides comparable data about item numbers recorded to those reported in previous years.

- Standard surgery consultations accounted for 82% of MBS/DVA-claimable GP consultations, and for 78% of all encounters for which a payment source was recorded.
- 9% of MBS/DVA claimable encounters were long or prolonged surgery consultations.
- Home visits, residential aged care consultations and hospital consultations were also all relatively rare.
- About 1% of encounters were claimable as GP mental health care items. Chronic disease management items, health assessments and case conference items were not recorded often.

**Table 5.5: Summary of GP only MBS/DVA items recorded (counting one item number per encounter)**

| MBS/DVA item | Number | Rate per 100 encounters[(a)] (*n* = 93,862) | 95% LCL | 95% UCL | Per cent of Medicare-paid GP items (*n* = 89,113) |
|---|---|---|---|---|---|
| Short surgery consultations | 1,987 | 2.1 | 1.8 | 2.4 | 2.2 |
| Standard surgery consultations | 73,075 | 77.9 | 76.6 | 79.1 | 82.0 |
| Long surgery consultations | 7,359 | 7.8 | 7.3 | 8.4 | 8.3 |
| Prolonged surgery consultations | 419 | 0.5 | 0.4 | 0.5 | 0.5 |
| Home visits | 604 | 0.6 | 0.5 | 0.8 | 0.7 |
| Hospital | 254 | 0.3 | 0.2 | 0.4 | 0.3 |
| Residential aged care facility | 1,128 | 1.2 | 0.9 | 1.5 | 1.3 |
| Health assessments | 324 | 0.4 | 0.3 | 0.4 | 0.4 |
| Chronic disease management items | 863 | 0.9 | 0.8 | 1.0 | 1.0 |
| Case conferences | 13 | 0.0 | 0.0 | 0.0 | 0.0 |
| GP mental health care | 1,107 | 1.2 | 1.0 | 1.3 | 1.2 |
| Incentive payments | 150 | 0.2 | 0.1 | 0.2 | 0.2 |
| Other items | 1,829 | 2.0 | 1.2 | 2.7 | 2.1 |
| Surgical operations | 338 | 0.4 | 0.3 | 0.4 | 0.4 |
| Therapeutic procedures | 464 | 0.5 | 0.4 | 0.6 | 0.5 |
| Acupuncture | 88 | 0.1 | 0.0 | 0.2 | 0.1 |
| Other items | 939 | 1.0 | 0.2 | 1.8 | 1.1 |
| **Total MBS/DVA items of service (GPs only)** | **89,113** | **94.9** | **94.5** | **95.4** | **100.0** |

(a) Encounters with missing payment source were removed from analysis (*n* = 7,487). Denominator used for analysis = 93,862.

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

Table 5.6 provides the distribution of all Medicare item numbers recorded across Medicare item number groups. Overall, there were 112,374 MBS item numbers recorded in BEACH in 2009–10. At encounters where at least one MBS item was recorded an average of 1.3 items were written.

Surgery consultations (including short, standard, long and prolonged) were the most commonly recorded type of item number, at 93% of the encounters where at least one item was recorded. They accounted for 74% of all MBS items recorded in BEACH.

The second most commonly recorded were items for bulk-billed incentive payments, which accounted for 14% of all items recorded. Items for hospital, residential aged care and home visits together accounted for 1.8% of all MBS items. Practice nurse items (including items for practice nurses conducting health assessments) accounted for 3.7% of all MBS items, and were recorded at 4.7% of encounters at which at least one MBS item was recorded. For a more detailed breakdown of practice nurse item numbers, and related data on practice nurse activity, refer to Chapter 13.

**Table 5.6: Medicare item number distribution across item number groups**

| | All MBS items[(a)] | | At least one item recorded[(b)] | | | |
|---|---|---|---|---|---|---|
| **Items/encounters** | **Number** | **Per cent** | **Number** | **Per cent** | **95% LCL** | **95% UCL** |
| Surgery consultations | 82,840 | 73.7 | 82,840 | 92.8 | 91.8 | 93.7 |
| Hospital, residential aged care and home visits | 1,987 | 1.8 | 1,987 | 2.2 | 1.8 | 2.7 |
| Health assessments | 406 | 0.4 | 405 | 0.5 | 0.4 | 0.5 |
| Chronic disease management items (including case conferences) | 1,615 | 1.4 | 1,089 | 1.2 | 1.1 | 1.4 |
| Incentive payments | 168 | 0.1 | 168 | 0.2 | 0.1 | 0.2 |
| Acupuncture | 97 | 0.1 | 97 | 0.1 | 0.0 | 0.2 |
| Bulk-billed incentive payment | 15,902 | 14.2 | 15,898 | 17.8 | 15.8 | 19.8 |
| Practice nurse services—health assessments | 14 | 0.0 | 14 | 0.0 | 0.0 | 0.0 |
| Practice nurse services—other | 4,202 | 3.7 | 4,158 | 4.7 | 4.1 | 5.2 |
| Allied health items | 1 | 0.0 | 1 | 0.0 | 0.0 | 0.0 |
| Diagnostic procedures and investigations | 587 | 0.5 | 570 | 0.6 | 0.5 | 0.7 |
| Therapeutic procedures | 578 | 0.5 | 568 | 0.6 | 0.5 | 0.8 |
| Surgical operations | 1,428 | 1.3 | 1,384 | 1.6 | 1.4 | 1.7 |
| Diagnostic imaging services | 10 | 0.0 | 10 | 0.0 | 0.0 | 0.0 |
| Pathology services | 230 | 0.2 | 230 | 0.3 | 0.2 | 0.3 |
| GP mental health care items | 1,274 | 1.1 | 1,272 | 1.4 | 1.3 | 1.6 |
| Other items | 1,035 | 0.9 | 1,033 | 1.2 | 0.3 | 2.0 |
| **Total items** | **112,374** | **100.0** | **—** | **—** | **—** | **—** |

(a) Up to three MBS items could be recorded at each encounter.

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

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

## 5.3 Consultation length

In a subsample of 33,613 BEACH encounters containing start and finish times for all MBS/DVA-claimable encounters, the mean length of consultation in 2009–10 was 15.3 minutes (95% CI: 15.0–15.5). The median length was 14.0 minutes (results not tabled).

For A1 MBS/DVA-claimable encounters, the mean length of consultation in 2009–10 was 15.0 minutes (95% CI: 14.7–15.2), and the median length was 13.0 minutes (results not tabled). Methods describing the substudy from which data on consultation length are collected are described in Section 2.5.

The determinants of consultation length have been investigated by Britt et al. (2004) in *Determinants of GP billing in Australia: content and time*[59] and Britt et al. (2005) in *Determinants of consultation length in Australian general practice*.[60]

## 5.4 Changes in the encounters over the decade 2000–01 to 2009–10

An overview of changes in general practice encounters over the decade to 2009–10 can be found in the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] The major changes between 2000–01 and 2009–10 are summarised below.

- There was a significant increase in the average number of problems managed at encounter, from 145 per 100 encounters in 2000–01 to 153 in 2009–10 and this was reflected in increases in the number of new problems and the number of chronic problems managed per 100 encounters.
- The number of work-related problems managed decreased over the decade from 3.3 to 2.5 per 100 encounters.
- The number of medications prescribed significantly decreased, while the number supplied direct to the patient by the GP significantly increased
- The number of procedures undertaken per 100 encounters rose by almost 50% from 12.2 to 17.5 per 100 encounters.
- There was an increased rate of referrals, which was due to increases in both referrals to specialists and to allied health services
- Pathology test/battery order rates increased by more than 50%, while the increase in imaging test orders was significant but smaller than that in pathology ordering.

Of the encounters claimable from Medicare/DVA:

- short surgery consultations as a proportion of all Medicare/DVA claimed consultations varied considerably over the study period, more than doubling from their low of 1.0% in 2004–05 to 2.2% in 2009–10
- the proportion designated residential aged care visits, chronic disease management items, or health assessments all increased significantly
- home visits halved over the decade from 1.5% of these MBS/DVA claimable encounters to less than 1%.

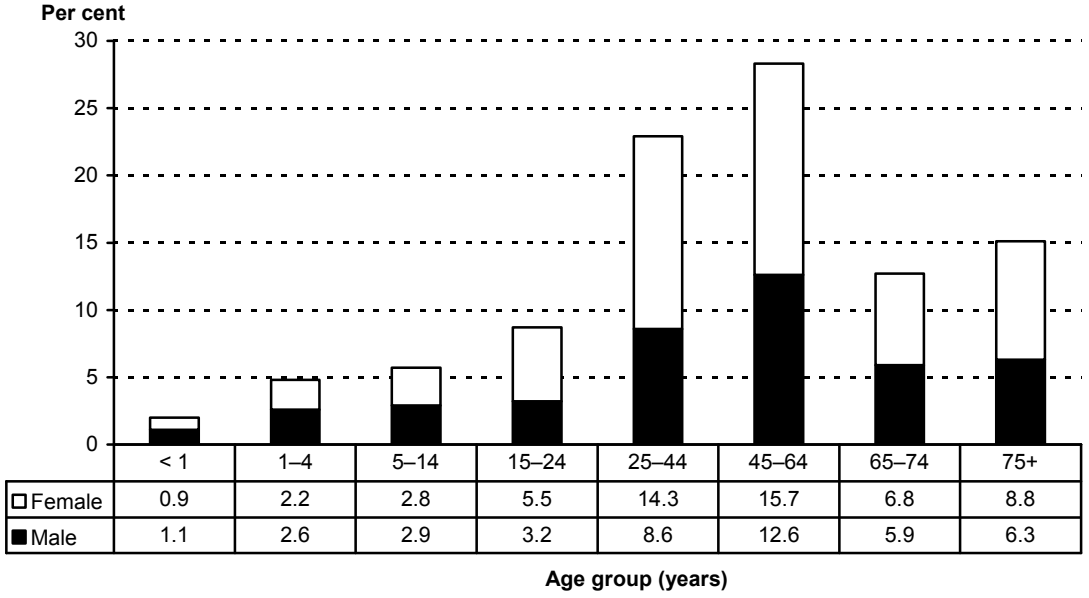
# 6 The patients

This chapter reports data collected between April 2009 and March 2010 about the characteristics of patients and their reasons for encounter from the 12th year of the BEACH program. Data on patient characteristics and reasons for encounter are reported for each year from 2000–01 to 2009–10 in the 10 year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 6.1 Age–sex distribution of patients at encounter

The age–sex distribution of patients at the 101,349 encounters is shown in Figure 6.1. Females accounted for the greater proportion of encounters (56.9%) (Table 6.1). 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 21.1% of encounters; those aged 25–44 years for 22.9%; those aged 45–64 years accounted for 28.2% and those aged 65 years and over for 27.8% of encounters (Table 6.1).




| | < 1 | 1–4 | 5–14 | 15–24 | 25–44 | 45–64 | 65–74 | 75+ |
|---|---|---|---|---|---|---|---|---|
| Female | 0.9 | 2.2 | 2.8 | 5.5 | 14.3 | 15.7 | 6.8 | 8.8 |
| Male | 1.1 | 2.6 | 2.9 | 3.2 | 8.6 | 12.6 | 5.9 | 6.3 |

*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.

**Figure 6.1: Age–sex distribution of patients at encounter**

The relationship between patient age, patient general practice attendance rates and the age distribution of the Australian population is reported in *General practice activity in Australia, health priorities and policies 1998 to 2008*.[12]

## 6.2 Other patient characteristics

In earlier years of BEACH, for patient variables other than age and sex in Table 6.1, the encounter form included only a 'yes' option for GPs to indicate whether the variable applied to the patient. The absence of a 'no' option prevented any differentiation between a 'no' response and no answer at all (that is, 'missing' data). From 2001, the encounter form was redesigned to include both 'yes' and 'no' response options, to allow identification of the proportion of 'missing' data.

For comparison purposes, the reporting of these characteristics with the missing data counted as 'no' responses continued, as footnoted in the relevant table in previous reports. As 9 years of data are now available, these variables will be reported with the missing responses removed. In the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*[1], the results for the 10 years to 2009–10 have been reanalysed and are presented with the 'missing' data removed. The proportion of 'missing' responses was small enough to have not changed the outcome for any variable, but it is important to give as comprehensive and clear a picture as possible of the data, and this change allows for reporting of these variables consistently with all others variables reported.

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

- the patient was new to the practice at 7.7% of encounters
- nearly half the encounters were either with patients who held a Commonwealth concession card (45.9%) or a Repatriation health card (2.9%)
- at 9.0% of encounters the patient was from a non-English-speaking background
- at 1.3% of encounters the patient identified themselves as an Aboriginal or Torres Strait Islander person.

**Table 6.1: Characteristics of the patients at encounters**

| Patient characteristics | Number | Per cent of encounters (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|
| Sex (missing)[(a)] | 931 | — | — | — |
| Males | 43,317 | 43.1 | 42.3 | 43.9 |
| Females | 57,100 | 56.9 | 56.1 | 57.7 |
| Age group (missing)[(a)] | 781 | — | — | — |
| < 1 year | 2,080 | 2.1 | 1.9 | 2.3 |
| 1–4 years | 4,760 | 4.7 | 4.5 | 5.0 |
| 5–14 years | 5,707 | 5.7 | 5.4 | 6.0 |
| 15–24 years | 8,657 | 8.6 | 8.2 | 9.0 |
| 25–44 years | 23,000 | 22.9 | 22.1 | 23.6 |
| 45–64 years | 28,386 | 28.2 | 27.7 | 28.8 |
| 65–74 years | 12,768 | 12.7 | 12.2 | 13.2 |
| 75+ years | 15,209 | 15.1 | 14.3 | 16.0 |
| New patient to practice (missing)[(a)] | 1,307 | — | — | — |
| New patient to practice | 7,710 | 7.7 | 7.1 | 8.3 |
| Patient seen previously | 92,332 | 92.3 | 91.7 | 92.9 |
| Commonwealth concession card status (missing)[(a)] | 8,046 | — | — | — |
| Has a Commonwealth concession card | 42,790 | 45.9 | 44.3 | 47.4 |
| No Commonwealth concession card | 50,513 | 54.1 | 52.6 | 55.7 |
| Repatriation health card status (missing)[(a)] | 9,496 | — | — | — |
| Has a repatriation health card | 2,705 | 2.9 | 2.7 | 3.2 |
| No repatriation health card | 89,148 | 97.1 | 96.8 | 97.3 |
| Language status (missing)[(a)] | 9,528 | — | — | — |
| Non-English-speaking background | 8,230 | 9.0 | 7.3 | 10.6 |
| English-speaking background | 83,591 | 91.0 | 89.4 | 92.7 |
| Indigenous status (missing)[(a)] | 9,499 | — | — | — |
| Aboriginal and/or Torres Strait Islander | 1,166 | 1.3 | 1.0 | 1.6 |
| Non-Indigenous | 90,684 | 98.7 | 98.4 | 99.0 |

(a) Missing data removed.

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

# 6.3 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 use patterns, which may benefit from intervention on a population level.[61]

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 a single RFE that relates to a single problem managed at the encounter, one RFE that relates to multiple problems, multiple RFEs that relate to a single problem managed, or multiple RFEs that relate to multiple problems managed at the encounter.

## Number of reasons for encounter

There were 157,071 RFEs recorded at 101,349 encounters in 2009–10. At 57.7% of encounters only one RFE was recorded, at 29.7% of encounters two RFEs were recorded and at 12.6% of encounters three RFEs were recorded (Table 6.2). Patients presented on average with 155.0 RFEs per 100 encounters, or about 1.5 RFEs per encounter (Table 6.3).

**Table 6.2: Number of patient reasons for encounter**

| Number of RFEs at encounter | Number of encounters (*n* = 101,349) | Per cent of encounters | 95% LCL | 95% UCL |
|---|---|---|---|---|
| One RFE | 58,439 | 57.7 | 56.5 | 58.9 |
| Two RFEs | 30,099 | 29.7 | 29.0 | 30.4 |
| Three RFEs | 12,811 | 12.6 | 11.9 | 13.4 |
| **Total** | **101,349** | **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.

RFEs of a general and unspecified nature were presented at a rate of 42.7 per 100 encounters, with requests for prescriptions and test results most frequently recorded. RFEs related to the respiratory system arose at a rate of 22.8 per 100 encounters, while those related to the musculoskeletal system were recorded at a rate of 15.4 per 100 encounters, and those relating to skin at a rate of 14.8 per 100 encounters (Table 6.3).

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

| Reasons for encounter | Number | Per cent of total RFEs[a] (*n* = 157,071) | Rate per 100 encounters[b] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| **General and unspecified** | **43,291** | **27.6** | **42.7** | **41.5** | **43.9** |
| Prescription—NOS | 8,759 | 5.6 | 8.6 | 8.1 | 9.2 |
| General check-up* | 4,508 | 2.9 | 4.4 | 4.2 | 4.7 |
| Results tests/procedures NOS | 7,085 | 4.5 | 7.0 | 6.6 | 7.4 |
| Immunisation/vaccination NOS | 3,277 | 2.1 | 3.2 | 2.9 | 3.5 |
| Fever | 2,261 | 1.4 | 2.2 | 2.0 | 2.5 |
| Administrative procedure NOS | 2,095 | 1.3 | 2.1 | 1.9 | 2.2 |
| Weakness/tiredness | 1,398 | 0.9 | 1.4 | 1.3 | 1.5 |
| Observation/health education/advice/diet NOS | 1,202 | 0.8 | 1.2 | 1.0 | 1.3 |
| Chest pain NOS | 1,013 | 0.6 | 1.0 | 0.9 | 1.1 |
| Blood test NOS | 1,010 | 0.6 | 1.0 | 0.9 | 1.1 |
| Other referrals NEC | 989 | 0.6 | 1.0 | 0.9 | 1.1 |
| Other reason for encounter NEC | 926 | 0.6 | 0.9 | 0.8 | 1.0 |
| Follow-up encounter unspecified | 857 | 0.5 | 0.8 | 0.7 | 0.9 |
| Trauma/injury NOS | 855 | 0.5 | 0.8 | 0.8 | 0.9 |
| Clarify/discuss patient RFE/demand NOS | 745 | 0.5 | 0.7 | 0.6 | 0.8 |
| **Respiratory** | **23,138** | **14.7** | **22.8** | **21.9** | **23.8** |
| Cough | 6,954 | 4.4 | 6.9 | 6.4 | 7.3 |
| Immunisation/vaccination—respiratory | 3,093 | 2.0 | 3.1 | 2.7 | 3.4 |
| Throat symptom/complaint | 2,980 | 1.9 | 2.9 | 2.7 | 3.2 |
| Upper respiratory tract infection | 2,243 | 1.4 | 2.2 | 1.9 | 2.5 |
| Sneezing/nasal congestion | 1,572 | 1.0 | 1.6 | 1.3 | 1.8 |
| Asthma | 792 | 0.5 | 0.8 | 0.7 | 0.9 |
| Shortness of breath/dyspnoea | 743 | 0.5 | 0.7 | 0.7 | 0.8 |
| **Musculoskeletal** | **15,632** | **10.0** | **15.4** | **14.7** | **16.2** |
| Back complaint* | 3,142 | 2.0 | 3.1 | 2.9 | 3.3 |
| Knee symptom/complaint | 1,381 | 0.9 | 1.4 | 1.2 | 1.5 |
| Shoulder symptom/complaint | 1,157 | 0.7 | 1.1 | 1.0 | 1.3 |
| Foot/toe symptom/complaint | 1,071 | 0.7 | 1.1 | 1.0 | 1.1 |
| Leg/thigh symptom/complaint | 943 | 0.6 | 0.9 | 0.8 | 1.0 |
| Neck symptom/complaint | 839 | 0.5 | 0.8 | 0.7 | 1.0 |
| Injury musculoskeletal NOS | 768 | 0.5 | 0.8 | 0.7 | 0.8 |
| **Skin** | **14,997** | **9.6** | **14.8** | **14.3** | **15.3** |
| Rash* | 2,435 | 1.6 | 2.4 | 2.2 | 2.6 |
| Skin symptom/complaint, other | 1,625 | 1.0 | 1.6 | 1.5 | 1.7 |
| Skin check-up* | 1,294 | 0.8 | 1.3 | 1.0 | 1.5 |
| Swelling* | 988 | 0.6 | 1.0 | 0.9 | 1.1 |
| Laceration/cut | 763 | 0.5 | 0.8 | 0.7 | 0.8 |

*(continued)*

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

| Reasons for encounter | Number | Per cent of total RFEs[(a)] (*n* = 157,071) | Rate per 100 encounters[(b)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| **Cardiovascular** | **10,157** | **6.5** | **10.0** | **9.5** | **10.5** |
| Cardiac check-up* | 4,468 | 2.8 | 4.4 | 4.1 | 4.7 |
| Hypertension* | 2,060 | 1.3 | 2.0 | 1.8 | 2.3 |
| **Digestive** | **9,935** | **6.3** | **9.8** | **9.5** | **10.1** |
| Abdominal pain* | 1,620 | 1.0 | 1.6 | 1.5 | 1.7 |
| Diarrhoea | 1,261 | 0.8 | 1.2 | 1.1 | 1.4 |
| Vomiting | 916 | 0.6 | 0.9 | 0.8 | 1.0 |
| **Psychological** | **8,572** | **5.5** | **8.5** | **8.0** | **8.9** |
| Depression* | 2,189 | 1.4 | 2.2 | 2.0 | 2.3 |
| Anxiety* | 1,109 | 0.7 | 1.1 | 1.0 | 1.2 |
| Sleep disturbance | 1,086 | 0.7 | 1.1 | 1.0 | 1.2 |
| **Endocrine and metabolic** | **6,169** | **3.9** | **6.1** | **5.8** | **6.4** |
| Diabetes (non-gestational)* | 1,168 | 0.7 | 1.2 | 1.0 | 1.3 |
| Prescription—endocrine/metabolic | 903 | 0.6 | 0.9 | 0.8 | 1.0 |
| **Female genital system** | **4,807** | **3.1** | **4.7** | **4.4** | **5.1** |
| Female genital check-up/Pap smear* | 1,776 | 1.1 | 1.8 | 1.6 | 1.9 |
| **Neurological** | **4,424** | **2.8** | **4.4** | **4.1** | **4.6** |
| Headache | 1,515 | 1.0 | 1.5 | 1.4 | 1.6 |
| Vertigo/dizziness | 975 | 0.6 | 1.0 | 0.9 | 1.0 |
| **Ear** | **3,630** | **2.3** | **3.6** | **3.4** | **3.8** |
| Ear pain | 1,274 | 0.8 | 1.3 | 1.2 | 1.4 |
| **Pregnancy and family planning** | **3,478** | **2.2** | **3.4** | **3.2** | **3.7** |
| Pre/post natal check-up* | 896 | 0.6 | 0.9 | 0.7 | 1.0 |
| **Urology** | **2,672** | **1.7** | **2.6** | **2.5** | **2.8** |
| **Eye** | **2,370** | **1.5** | **2.3** | **2.2** | **2.5** |
| **Blood** | **1,385** | **0.9** | **1.4** | **1.2** | **1.5** |
| **Male genital system** | **1,237** | **0.8** | **1.2** | **1.1** | **1.4** |
| **Social** | **1,175** | **0.8** | **1.2** | **1.1** | **1.3** |
| **Total RFEs** | **157,071** | **100.0** | **155.0** | **153.1** | **156.8** |

(a) Only individual RFEs accounting for >= 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/subject/19>).

*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. Table 6.4 uses the updated component groupings of ICPC-2 codes, released by the Wonca International Classification Committee in 2004.[30] The 'diagnosis, disease' group has also been expanded to provide data about infections, injuries, neoplasms, congenital anomalies and 'other' diagnoses. These component groupings are not comparable with those published in previous years. The updated component groupings have been applied to previous years data and are reported in *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

Nearly half (42.0%) of patient RFEs were expressed in terms of symptoms or complaints (for example, 'tired', 'fever'). RFEs were described in diagnostic terms for 17.4% of RFEs (for example, 'about my diabetes', 'for my depression'). The remaining 40.6% of RFEs were described in terms of processes of care, such as requests for a health check, to renew scripts, to get a referral, to find out test results or to get a medical certificate.

**Table 6.4: Distribution of RFEs by ICPC-2 component**

| ICPC-2 component[(a)] | Number | Per cent of total RFEs (*n* = 157,071) | Rate per 100 encounters[(b)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| Symptoms and complaints | 65,909 | 42.0 | 65.0 | 63.1 | 67.0 |
| Diagnosis, diseases | 31,150 | 19.8 | 30.7 | 29.1 | 32.4 |
| Infections | 8,147 | 5.2 | 8.0 | 7.5 | 8.6 |
| Injuries | 4,704 | 3.0 | 4.6 | 4.4 | 4.9 |
| Neoplasms | 1,105 | 0.7 | 1.1 | 1.0 | 1.2 |
| Congenital anomalies | 266 | 0.2 | 0.3 | 0.2 | 0.3 |
| Other diagnoses | 16,927 | 10.8 | 16.7 | 15.6 | 17.8 |
| Diagnostic and preventive procedures | 27,325 | 17.4 | 27.0 | 26.0 | 27.9 |
| Medications, treatments and therapeutics | 14,285 | 9.1 | 14.1 | 13.4 | 14.8 |
| Results | 8,227 | 5.2 | 8.1 | 7.7 | 8.6 |
| Referrals and other RFEs | 7,714 | 4.9 | 7.6 | 7.2 | 8.1 |
| Administrative | 2,461 | 1.6 | 2.4 | 2.2 | 2.6 |
| **Total RFEs** | **157,071** | **100.0** | **155.0** | **153.1** | **156.8** |

(a) This table uses the updated component groupings of ICPC-2 codes released by the Wonca International Classification Committee in 2004. These groupings are not comparable with those reported in previous years. Readers interested in changes should refer to *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

(b) 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, the majority were descriptive of symptoms such as cough, throat complaint, back complaint and rash. However, four of the top five RFEs reflected requests for a process of care (that is, requests for check-up, prescription, test result and immunisation), and together accounted for a quarter of all RFEs (25.9%) (Table 6.5).

**Table 6.5: Most frequent patient reasons for encounter**

| Patient reason for encounter | Number | Per cent of total RFEs (*n* = 157,071) | Rate per 100 encounters[(a)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| Check-up—all* | 14,103 | 9.0 | 13.9 | 13.3 | 14.5 |
| Prescription—all* | 11,757 | 7.5 | 11.6 | 11.0 | 12.2 |
| Test results* | 8,227 | 5.2 | 8.1 | 7.7 | 8.6 |
| Cough | 6,954 | 4.4 | 6.9 | 6.4 | 7.3 |
| Immunisation/vaccination—all* | 6,542 | 4.2 | 6.5 | 5.9 | 7.0 |
| Back complaint* | 3,142 | 2.0 | 3.1 | 2.9 | 3.3 |
| Throat symptom/complaint | 2,980 | 1.9 | 2.9 | 2.7 | 3.2 |
| Rash* | 2,435 | 1.6 | 2.4 | 2.2 | 2.6 |
| Fever | 2,261 | 1.4 | 2.2 | 2.0 | 2.5 |
| Upper respiratory tract infection | 2,243 | 1.4 | 2.2 | 1.9 | 2.5 |
| Depression* | 2,189 | 1.4 | 2.2 | 2.0 | 2.3 |
| Administrative procedure NOS | 2,095 | 1.3 | 2.1 | 1.9 | 2.2 |
| Hypertension* | 2,060 | 1.3 | 2.0 | 1.8 | 2.3 |
| Skin symptom/complaint, other | 1,625 | 1.0 | 1.6 | 1.5 | 1.7 |
| Abdominal pain* | 1,620 | 1.0 | 1.6 | 1.5 | 1.7 |
| Sneezing/nasal congestion | 1,572 | 1.0 | 1.6 | 1.3 | 1.8 |
| Headache | 1,515 | 1.0 | 1.5 | 1.4 | 1.6 |
| Weakness/tiredness | 1,398 | 0.9 | 1.4 | 1.3 | 1.5 |
| Knee symptom/complaint | 1,381 | 0.9 | 1.4 | 1.2 | 1.5 |
| Ear pain/earache | 1,274 | 0.8 | 1.3 | 1.2 | 1.4 |
| Diarrhoea | 1,261 | 0.8 | 1.2 | 1.1 | 1.4 |
| Observation/health education/advice NOS | 1,202 | 0.8 | 1.2 | 1.0 | 1.3 |
| Diabetes—all* | 1,171 | 0.7 | 1.2 | 1.0 | 1.3 |
| Shoulder symptom/complaint | 1,157 | 0.7 | 1.1 | 1.0 | 1.3 |
| Anxiety* | 1,109 | 0.7 | 1.1 | 1.0 | 1.2 |
| Sleep disturbance | 1,086 | 0.7 | 1.1 | 1.0 | 1.2 |
| Foot/toe symptom/complaint | 1,071 | 0.7 | 1.1 | 1.0 | 1.1 |
| Chest pain NOS | 1,013 | 0.6 | 1.0 | 0.9 | 1.1 |
| Blood test NOS | 1,010 | 0.6 | 1.0 | 0.9 | 1.1 |
| Other referrals NEC | 989 | 0.6 | 1.0 | 0.9 | 1.1 |
| *Subtotal* | *88,447* | *56.3* | — | — | — |
| **Total RFEs** | **157,071** | **100.0** | **155.0** | **153.1** | **156.8** |

(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/subject/19>).

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

## 6.4 Changes in patients and reasons for encounter over the past decade (2000–01 to 2009–10)

An overview of changes in referrals over the decade to 2009–10 can be found in Chapter 11 of the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

Major changes identified between 2000–01 and 2009–10 are summarised below.

The proportion of encounters with younger patients significantly decreased in all age groups, except for those aged less than 1 year. Counteracting this, the proportion with patients aged 45 year and over increased in all age groups (45–64 years, 65–74 years and 75 years and over). This increase was largely due to increased attendance by those aged 75 years and over (from 11.3% in 2000–01 to 15.1% in 2009–10).

Extrapolation suggests that, combined with the increasing overall attendance rate, this changing patient distribution resulted nationally in an increase of about 190,000 encounters with younger patients aged less than 45 years, and a national increase of about 16 million encounters with patients aged 45 years and over in 2009–10 compared with 2000–01.

There was a significant increase in the number of RFEs per 100 encounters across the decade, from 151.0 in 2000–01 to 155.0 in 2009–10. Fewer patients were giving single RFEs and more were giving two RFEs. This increase in RFEs is probably related to the increasing proportion of encounters with older people, who are more likely to visit for multiple chronic disease management.

There was a significant decrease in the rate of RFEs described as symptoms and complaints, and increases in rates of patient presentations for check-ups, medications, referrals, tests, test results and administrative procedures. The increase in patients' requests for tests and test results ties in with the increased use of pathology testing over the decade (discussed in Chapter 12).

# 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 at the recorded encounter. Problems that included management by a practice nurse are reported specifically 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 at which problems are managed per 100 encounters. Where groups of problems are reported (for example, cardiovascular problems) it must be remembered that more than one of that 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, 2.4 per 100 encounters) can be regarded as equivalent to 'asthma is managed at 2.4% of encounters', such a statement cannot be made for grouped concepts (ICPC-2 chapters and those marked with asterisks in the tables).

Data on problems managed in Australian general practice from the BEACH study are reported for each year from 2000–01 to 2009–10 in the 10-year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 7.1 Number of problems managed at encounter

There were 155,373 problems managed, at a rate of 153.3 per 100 encounters in 2009–10 (Table 5.1). Table 7.1 shows the number of problems managed at each encounter. Only one problem was managed at more than 60% of encounters, two problems were managed at 25% of encounters, and almost 10% involved the management of three problems. The management of four problems at an encounter was less common (3% of encounters).

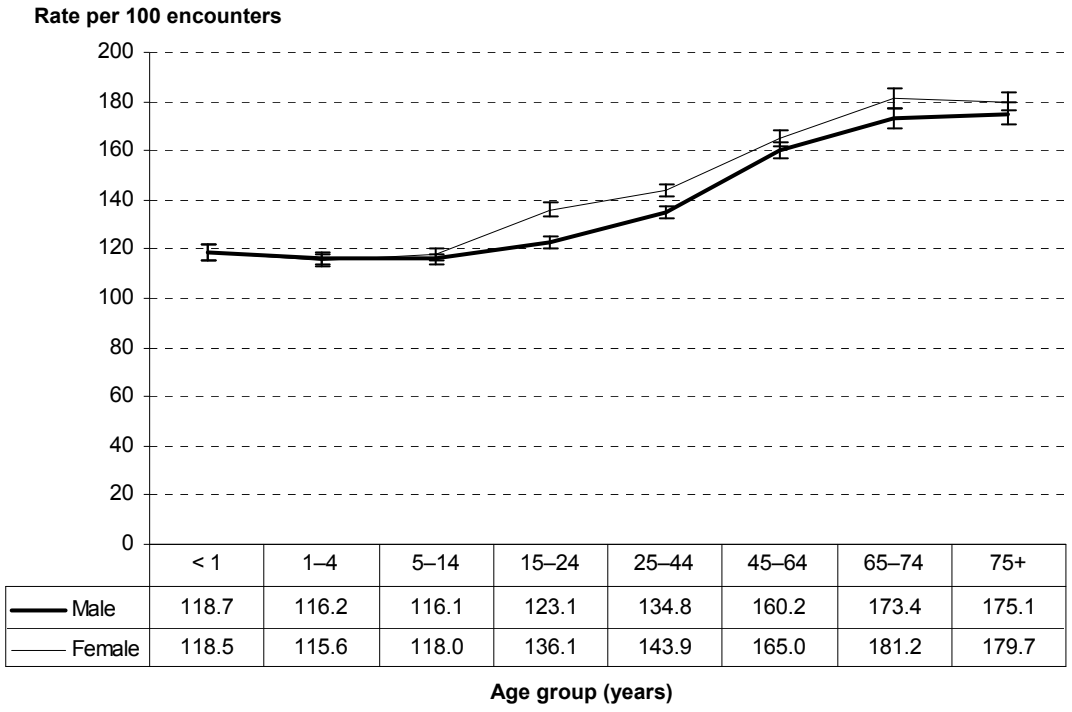
**Table 7.1: Number of problems managed at an encounter**

| Number of problems managed at encounter | Number of encounters | Per cent | 95% LCL | 95% UCL |
|---|---|---|---|---|
| One problem | 63,065 | 62.2 | 60.9 | 63.5 |
| Two problems | 25,744 | 25.4 | 24.7 | 26.1 |
| Three problems | 9,340 | 9.2 | 8.7 | 9.7 |
| Four problems | 3,200 | 3.2 | 2.8 | 3.5 |
| **Total** | **101,349** | **100.0** | **—** | **—** |

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

Figure 7.1 shows the age–sex-specific rates of problems managed. 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 (156.2 per 100 encounters, 95% CI: 153.9–158.6) than at those with male patients (149.7 per 100 encounters, 95% CI: 147.3–152.1) (results not tabled). Figure 7.1 demonstrates that this difference was particularly evident in the 15–24 year age group.




| | < 1 | 1–4 | 5–14 | 15–24 | 25–44 | 45–64 | 65–74 | 75+ |
|---|---|---|---|---|---|---|---|---|
| Male | 118.7 | 116.2 | 116.1 | 123.1 | 134.8 | 160.2 | 173.4 | 175.1 |
| Female | 118.5 | 115.6 | 118.0 | 136.1 | 143.9 | 165.0 | 181.2 | 179.7 |

**Figure 7.1: Age–sex-specific rates of problems managed per 100 encounters with 95% CI**

# 7.2 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.

The most common problems managed were:

- those classified to the respiratory system (22.2 per 100 encounters)—in particular upper respiratory tract infection, respiratory immunisations, acute bronchitis and asthma
- problems of a general and unspecified nature (19.4 per 100 encounters)—such as check-ups, immunisations and prescriptions
- musculoskeletal problems (16.8 per 100 encounters)—particularly arthritis and back complaints
- cardiovascular problems (16.7 per 100 encounters)—such as hypertension and atrial fibrillation
- skin problems (16.5 per 100 encounters)—such as contact dermatitis and malignant skin neoplasms (Table 7.2).

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

| Problem managed | Number | Per cent total problems[(a)] (*n* = 155,373) | Rate per 100 encounters[(b)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| **Respiratory** | **22,449** | **14.5** | **22.2** | **21.4** | **22.9** |
| Upper respiratory tract infection | 6,081 | 3.9 | 6.0 | 5.5 | 6.4 |
| Immunisation/vaccination—respiratory | 4,199 | 2.7 | 4.1 | 3.7 | 4.6 |
| Acute bronchitis/bronchiolitis | 2,467 | 1.6 | 2.4 | 2.2 | 2.6 |
| Asthma | 2,110 | 1.4 | 2.1 | 1.9 | 2.3 |
| Sinusitis | 1,365 | 0.9 | 1.3 | 1.2 | 1.5 |
| Tonsillitis* | 895 | 0.6 | 0.9 | 0.8 | 1.0 |
| Chronic obstructive pulmonary disease | 841 | 0.5 | 0.8 | 0.7 | 0.9 |
| **General and unspecified** | **19,649** | **12.7** | **19.4** | **18.6** | **20.2** |
| General check-up* | 3,013 | 1.9 | 3.0 | 2.7 | 3.2 |
| Immunisation/vaccination—general | 2,926 | 1.9 | 2.9 | 2.7 | 3.1 |
| Prescription NOS | 1,658 | 1.1 | 1.6 | 1.4 | 1.9 |
| Results tests/procedures NOS | 1,456 | 0.9 | 1.4 | 1.3 | 1.6 |
| Viral disease, other/NOS | 1,128 | 0.7 | 1.1 | 1.0 | 1.3 |
| Abnormal results/investigations NOS | 904 | 0.6 | 0.9 | 0.8 | 1.0 |
| Administrative procedures NOS | 895 | 0.6 | 0.9 | 0.8 | 1.0 |
| Observation/health education/advice NOS | 750 | 0.5 | 0.7 | 0.6 | 0.9 |

*(continued)*

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

| Problem managed | Number | Per cent total problems[(a)] (*n* = 155,373) | Rate per 100 encounters[(b)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| **Musculoskeletal** | **17,057** | **11.0** | **16.8** | **16.1** | **17.6** |
| Arthritis—all* | 3,997 | 2.6 | 3.9 | 3.6 | 4.3 |
| Osteoarthritis* | 2,945 | 1.9 | 2.9 | 2.6 | 3.2 |
| Back complaint* | 2,755 | 1.8 | 2.7 | 2.5 | 2.9 |
| Sprain/strain* | 1,469 | 0.9 | 1.4 | 1.3 | 1.6 |
| Bursitis/tendonitis/synovitis NOS | 1,154 | 0.7 | 1.1 | 1.0 | 1.2 |
| Osteoporosis | 883 | 0.6 | 0.9 | 0.8 | 1.0 |
| Fracture* | 877 | 0.6 | 0.9 | 0.8 | 0.9 |
| Injury musculoskeletal NOS | 797 | 0.5 | 0.8 | 0.7 | 0.9 |
| **Cardiovascular** | **16,897** | **10.9** | **16.7** | **16.0** | **17.4** |
| Hypertension* | 9,192 | 5.9 | 9.1 | 8.6 | 9.6 |
| Atrial fibrillation/flutter | 1,184 | 0.8 | 1.2 | 1.1 | 1.3 |
| Ischaemic heart disease* | 1,173 | 0.8 | 1.2 | 1.0 | 1.3 |
| Cardiac check-up* | 991 | 0.6 | 1.0 | 0.8 | 1.1 |
| **Skin** | **16,756** | **10.8** | **16.5** | **15.9** | **17.1** |
| Contact dermatitis | 1,642 | 1.1 | 1.6 | 1.5 | 1.7 |
| Malignant neoplasm skin | 1,285 | 0.8 | 1.3 | 1.1 | 1.4 |
| Solar keratosis/sunburn | 1,269 | 0.8 | 1.3 | 1.1 | 1.4 |
| Laceration/cut | 853 | 0.5 | 0.8 | 0.8 | 0.9 |
| Skin disease, other | 840 | 0.5 | 0.8 | 0.7 | 0.9 |
| **Endocrine and metabolic** | **12,819** | **8.3** | **12.7** | **12.1** | **13.2** |
| Diabetes—non-gestational* | 3,731 | 2.4 | 3.7 | 3.5 | 3.9 |
| Lipid disorders | 3,526 | 2.3 | 3.5 | 3.2 | 3.7 |
| Vitamin/nutritional deficiency | 1,173 | 0.8 | 1.2 | 1.0 | 1.3 |
| **Psychological** | **12,285** | **7.9** | **12.1** | **11.6** | **12.7** |
| Depression* | 4,329 | 2.8 | 4.3 | 4.0 | 4.5 |
| Anxiety* | 1,800 | 1.2 | 1.8 | 1.6 | 1.9 |
| Sleep disturbance | 1,476 | 1.0 | 1.5 | 1.3 | 1.6 |
| Tobacco abuse | 773 | 0.5 | 0.8 | 0.7 | 0.8 |
| **Digestive** | **10,815** | **7.0** | **10.7** | **10.3** | **11** |
| Gastroenteritis* | 1,453 | 0.9 | 1.4 | 1.3 | 1.6 |
| Oesophageal disease | 2,548 | 1.6 | 2.5 | 2.3 | 2.7 |
| **Female genital system** | **5,535** | **3.6** | **5.5** | **5.1** | **5.8** |
| Female genital check-up/Pap smear* | 1,729 | 1.1 | 1.7 | 1.5 | 1.9 |
| Menopausal symptom/complaint | 748 | 0.5 | 0.7 | 0.7 | 0.8 |

*(continued)*

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

| Problem managed | Number | Per cent total problems[(a)] (*n* = 155,373) | Rate per 100 encounters[(b)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| **Pregnancy and family planning** | **3,890** | **2.5** | **3.8** | **3.6** | **4.1** |
| Pregnancy* | 1,467 | 0.9 | 1.4 | 1.3 | 1.6 |
| Oral contraception* | 1,090 | 0.7 | 1.1 | 1.0 | 1.2 |
| **Ear** | **3,733** | **2.4** | **3.7** | **3.5** | **3.8** |
| Acute otitis media/myringitis | 1,021 | 0.7 | 1.0 | 0.9 | 1.1 |
| Excessive ear wax | 771 | 0.5 | 0.8 | 0.7 | 0.8 |
| **Neurological** | **3,506** | **2.3** | **3.5** | **3.3** | **3.6** |
| **Urology** | **3,266** | **2.1** | **3.2** | **3.1** | **3.4** |
| Urinary tract infection* | 1,780 | 1.1 | 1.8 | 1.6 | 1.9 |
| **Eye** | **2,501** | **1.6** | **2.5** | **2.3** | **2.6** |
| **Male genital system** | **1,899** | **1.2** | **1.9** | **1.7** | **2.0** |
| **Blood** | **1,520** | **1.0** | **1.5** | **1.4** | **1.6** |
| **Social** | **796** | **0.5** | **0.8** | **0.7** | **0.9** |
| **Total problems** | **155,373** | **100.0** | **153.3** | **151.1** | **155.5** |

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

# 7.3 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. It uses the updated component groupings of ICPC-2 codes, released by the Wonca International Classification Committee in 2004.[30] The 'diagnosis, disease' group has also been expanded to provide data about infections, injuries, neoplasms, congenital anomalies and 'other' diagnoses. These component groupings are not comparable with those published in previous years. The updated component groupings have been applied to previous years data and are reported in *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

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, two-thirds of problems were expressed as diagnoses or diseases (66.6%), with the majority of other problems described as symptoms or complaints (17.4%), or as diagnostic or preventive procedures (11.0%) such as check-ups. 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 such terms as a 'prescription', 'test result', as a referral or as an administrative procedure.

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

| ICPC-2 component[a] | Number | Per cent of total problems (*n* = 155,373) | Rate per 100 encounters[b] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| Diagnosis, diseases | 103,542 | 66.6 | 102.2 | 100.3 | 104.1 |
| Infections | 25,302 | 16.3 | 25.0 | 24.2 | 25.7 |
| Injuries | 6,999 | 4.5 | 6.9 | 6.6 | 7.2 |
| Neoplasms | 4,731 | 3.0 | 4.7 | 4.3 | 5.0 |
| Congenital anomalies | 687 | 0.4 | 0.7 | 0.6 | 0.7 |
| Other diagnoses | 65,822 | 42.4 | 65.0 | 63.0 | 66.9 |
| Symptoms and complaints | 27,103 | 17.4 | 26.7 | 25.9 | 27.5 |
| Diagnostic and preventive procedures | 17,111 | 11.0 | 16.9 | 16.0 | 17.7 |
| Medications, treatments and therapeutics | 3,493 | 2.3 | 3.5 | 3.1 | 3.8 |
| Results | 1,798 | 1.2 | 1.8 | 1.6 | 2.0 |
| Referrals and other RFEs | 1,284 | 0.8 | 1.3 | 1.1 | 1.4 |
| Administrative | 1,041 | 0.7 | 1.0 | 0.9 | 1.1 |
| **Total problems** | **155,373** | **100.0** | **153.3** | **151.1** | **155.5** |

(a) This table uses the updated component groupings of ICPC-2 codes released by the Wonca International Classification Committee in 2004. These groupings are not comparable with those reported in previous years. Readers interested in changes should refer to *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

(b) 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.

# 7.4 Most frequently managed problems

Table 7.4 shows the most frequently managed individual problems in general practice, in decreasing order of frequency. These 30 problems accounted for more than half of all problems managed.

In this analysis, the specific chapter to which 'across chapter concepts' (for example, 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 vaccinations for influenza, childhood diseases, and hepatitis.

The most common problems managed were hypertension (9.1 per 100 encounters), immunisation/vaccination (7.3 per 100), check-ups (6.6 per 100), upper respiratory tract infection (URTI) (6.0 per 100), and depression (4.3 per 100) (Table 7.4).

The far right-hand column in Table 7.4 lists the percentage of each problem that was new to the patient. The problem is considered new if it is a new problem to the patient or a new episode of a recurrent problem, and the patient has not been treated for that problem by any medical practitioner before. This can provide a measure of general practice incidence. For example, only 5.4% of all contacts with diabetes were new diagnoses. In contrast, more than three-quarters of URTI problems were new to the patient, suggesting that the majority of people attend the GP for URTI only once per episode.

## Table 7.4: Most frequently managed problems

| Problem managed | Number | Per cent of total problems (*n* = 155,373) | Rate per 100 encounters[a] (*n* = 101,349) | 95% LCL | 95% UCL | Per cent new problems[b] |
|---|---|---|---|---|---|---|
| Hypertension* | 9,192 | 5.9 | 9.1 | 8.6 | 9.6 | 5.7 |
| Immunisation/vaccination—all* | 7,354 | 4.7 | 7.3 | 6.7 | 7.8 | 59.4 |
| Check-up—all* | 6,730 | 4.3 | 6.6 | 6.3 | 7.0 | 42.5 |
| Upper respiratory tract infection | 6,081 | 3.9 | 6.0 | 5.5 | 6.4 | 77.3 |
| Depression* | 4,329 | 2.8 | 4.3 | 4.0 | 4.5 | 15.6 |
| Arthritis—all* | 3,997 | 2.6 | 3.9 | 3.6 | 4.3 | 17.6 |
| Diabetes—all* | 3,747 | 2.4 | 3.7 | 3.5 | 3.9 | 5.4 |
| Lipid disorders | 3,526 | 2.3 | 3.5 | 3.2 | 3.7 | 12.5 |
| Back complaint* | 2,755 | 1.8 | 2.7 | 2.5 | 2.9 | 24.5 |
| Oesophageal disease | 2,548 | 1.6 | 2.5 | 2.3 | 2.7 | 16.2 |
| Acute bronchitis/bronchiolitis | 2,467 | 1.6 | 2.4 | 2.2 | 2.6 | 71.1 |
| Prescription—all* | 2,337 | 1.5 | 2.3 | 2.0 | 2.6 | 4.7 |
| Asthma | 2,110 | 1.4 | 2.1 | 1.9 | 2.3 | 17.1 |
| Anxiety* | 1,800 | 1.2 | 1.8 | 1.6 | 1.9 | 20.6 |
| Test results* | 1,798 | 1.2 | 1.8 | 1.6 | 2.0 | 30.1 |
| Urinary tract infection* | 1,780 | 1.1 | 1.8 | 1.6 | 1.9 | 62.1 |
| Contact dermatitis | 1,642 | 1.1 | 1.6 | 1.5 | 1.7 | 46.2 |
| Sleep disturbance | 1,476 | 1.0 | 1.5 | 1.3 | 1.6 | 21.7 |
| Sprain/strain* | 1,469 | 0.9 | 1.4 | 1.3 | 1.6 | 62.0 |
| Pregnancy* | 1,467 | 0.9 | 1.4 | 1.3 | 1.6 | 38.2 |
| Gastroenteritis* | 1,453 | 0.9 | 1.4 | 1.3 | 1.6 | 76.0 |
| Sinusitis acute/chronic | 1,365 | 0.9 | 1.3 | 1.2 | 1.5 | 63.6 |
| Malignant neoplasm skin | 1,285 | 0.8 | 1.3 | 1.1 | 1.4 | 54.5 |
| Solar keratosis/sunburn | 1,269 | 0.8 | 1.3 | 1.1 | 1.4 | 48.7 |
| Atrial fibrillation/flutter | 1,184 | 0.8 | 1.2 | 1.1 | 1.3 | 6.6 |
| Ischaemic heart disease* | 1,173 | 0.8 | 1.2 | 1.0 | 1.3 | 8.4 |
| Vitamin/nutritional deficiency | 1,173 | 0.8 | 1.2 | 1.0 | 1.3 | 33.0 |
| Bursitis/tendonitis/synovitis NOS | 1,154 | 0.7 | 1.1 | 1.0 | 1.2 | 57.3 |
| Viral disease, other/NOS | 1,128 | 0.7 | 1.1 | 1.0 | 1.3 | 77.7 |
| Abnormal test results* | 1,091 | 0.7 | 1.1 | 1.0 | 1.2 | 45.2 |
| *Subtotal* | *80,880* | *52.1* | — | — | — | — |
| **Total problems** | **155,373** | **100.0** | **153.3** | **151.1** | **155.5** | **38.5** |

(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/subject/19>).

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

# 7.5 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. The problem is considered new if it is a new problem to the patient or a new episode of a recurrent problem, and the patient has not been treated for that problem by any medical practitioner before. Table 7.5 lists the most common new problems managed in general practice, in decreasing order of frequency. Overall, 59,851 problems (38.5% of all problems) were specified as being new, being managed at a rate of 59.1 per 100 encounters.

The most common new problems managed were largely acute and included upper respiratory tract infections (4.6 per 100 encounters), immunisations/vaccinations (4.3), acute bronchitis (1.7), general check-ups (1.5) and urinary tract infection (1.1) (Table 7.5).

The far right-hand column of this table shows the new cases of this problem as a proportion of total contacts with this problem. This provides an idea of the incidence of each problem. For example, the 675 new cases of depression represented only 16% of all GP contacts with diagnosed depression, suggesting that by far the majority of contacts for depression were for ongoing management. In contrast, three out of four gastroenteritis cases were first consultations to a medical practitioner for this episode of gastroenteritis, the balance (24%) being 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**

| New problem managed | Number | Per cent of total new problems (*n* = 59,851) | Rate per 100 encounters[(a)] (*n* = 101,349) | 95% LCL | 95% UCL | Per cent of this problem[(b)] |
|---|---|---|---|---|---|---|
| Upper respiratory tract infection | 4,700 | 7.9 | 4.6 | 4.3 | 5.0 | 77.3 |
| Immunisation/vaccination—all* | 4,368 | 7.3 | 4.3 | 3.9 | 4.7 | 59.4 |
| Acute bronchitis/bronchiolitis | 1,754 | 2.9 | 1.7 | 1.6 | 1.9 | 71.1 |
| General check-up* | 1,503 | 2.5 | 1.5 | 1.3 | 1.6 | 49.9 |
| Urinary tract infection* | 1,105 | 1.8 | 1.1 | 1.0 | 1.2 | 62.1 |
| Gastroenteritis* | 1,105 | 1.8 | 1.1 | 1.0 | 1.2 | 76.0 |
| Sprain/strain* | 911 | 1.5 | 0.9 | 0.8 | 1.0 | 62.0 |
| Viral disease, other/NOS | 876 | 1.5 | 0.9 | 0.7 | 1.0 | 77.7 |
| Sinusitis acute/chronic | 869 | 1.5 | 0.9 | 0.8 | 0.9 | 63.6 |
| Female genital check-up/Pap smear* | 778 | 1.3 | 0.8 | 0.7 | 0.9 | 45.0 |
| Contact dermatitis | 760 | 1.3 | 0.7 | 0.7 | 0.8 | 46.2 |
| Acute otitis media/myringitis | 719 | 1.2 | 0.7 | 0.6 | 0.8 | 70.4 |
| Malignant neoplasm skin | 700 | 1.2 | 0.7 | 0.6 | 0.8 | 54.5 |
| Depression* | 675 | 1.1 | 0.7 | 0.6 | 0.7 | 15.6 |
| Back complaint* | 674 | 1.1 | 0.7 | 0.6 | 0.7 | 24.5 |
| Bursitis/tendonitis/synovitis NOS | 662 | 1.1 | 0.7 | 0.6 | 0.7 | 57.3 |
| Tonsillitis* | 658 | 1.1 | 0.6 | 0.6 | 0.7 | 73.5 |
| Solar keratosis/sunburn | 618 | 1.0 | 0.6 | 0.5 | 0.7 | 48.7 |
| Pregnancy* | 560 | 0.9 | 0.6 | 0.5 | 0.6 | 38.2 |

*(continued)*

**Table 7.5 (continued): Most frequently managed new problems**

| New problem managed | Number | Per cent of total new problems (*n* = 59,851) | Rate per 100 encounters[a] (*n* = 101,349) | 95% LCL | 95% UCL | Per cent of this problem[b] |
|---|---|---|---|---|---|---|
| Conjunctivitis, infectious | 552 | 0.9 | 0.5 | 0.5 | 0.6 | 79.0 |
| Test results* | 542 | 0.9 | 0.5 | 0.4 | 0.6 | 30.1 |
| Osteoarthritis* | 528 | 0.9 | 0.5 | 0.4 | 0.6 | 17.9 |
| Hypertension* | 521 | 0.9 | 0.5 | 0.4 | 0.6 | 5.7 |
| Influenza | 495 | 0.8 | 0.5 | 0.3 | 0.6 | 80.3 |
| Abnormal test results* | 493 | 0.8 | 0.5 | 0.4 | 0.5 | 45.2 |
| Skin disease, other | 446 | 0.7 | 0.4 | 0.4 | 0.5 | 53.1 |
| Observation/health education/ advice NOS | 445 | 0.7 | 0.4 | 0.3 | 0.5 | 59.3 |
| Excessive ear wax | 444 | 0.7 | 0.4 | 0.4 | 0.5 | 57.5 |
| Lipid disorders* | 441 | 0.7 | 0.4 | 0.4 | 0.5 | 12.5 |
| Skin infection, post traumatic | 416 | 0.7 | 0.4 | 0.3 | 0.5 | 65.5 |
| *Subtotal* | *29,318* | *49.0* | — | — | — | — |
| **Total new problems** | **59,851** | **100.0** | **59.1** | **57.6** | **60.5** | **—** |

(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/subject/19>).

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

# 7.6 Most frequently managed chronic problems

To identify chronic conditions, a list classified according to ICPC-2, based on work undertaken by O'Halloran et al. in 2004[34] and regularly updated by O'Halloran (see grouper G84 <www.fmrc.org.au/icpc2plus/demonstrator.htm>), was applied to the BEACH data set. More than one-third (35.3%) of the problems managed in general practice were chronic. At least one chronic problem was managed at 40.7% of encounters (95% CI: 39.7–41.8), and chronic problems were managed at an average rate of 54.1 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 chronic group can be found in Appendix 5.

Table 7.6 shows the most frequently managed chronic problems in decreasing order of frequency. These 30 chronic problems together accounted for 79.9% of all chronic problems managed, and for 28.2% of all problems managed. The top six chronic problems made up almost half of all chronic problems managed: non-gestational hypertension (16.7% of chronic conditions), depressive disorder (7.8%), chronic arthritis (7.3%), non-gestational diabetes (6.8%), lipid disorders (6.4%), and oesophageal disease (4.6%) (Table 7.6).

## Table 7.6: Most frequently managed chronic problems

| Chronic problem managed | Number | Per cent of total chronic problems (*n* = 54,866) | Rate per 100 encounters[(a)] (*n* = 101,349) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| Hypertension (non-gestational)** | 9,182 | 16.7 | 9.1 | 8.6 | 9.5 |
| Depressive disorder** | 4,304 | 7.8 | 4.2 | 4.0 | 4.5 |
| Chronic arthritis** | 3,985 | 7.3 | 3.9 | 3.6 | 4.3 |
| Diabetes (non-gestational)** | 3,731 | 6.8 | 3.7 | 3.5 | 3.9 |
| Lipid disorders** | 3,526 | 6.4 | 3.5 | 3.2 | 3.7 |
| Oesophageal disease | 2,548 | 4.6 | 2.5 | 2.3 | 2.7 |
| Asthma | 2,110 | 3.8 | 2.1 | 1.9 | 2.3 |
| Malignant neoplasm of skin | 1,285 | 2.3 | 1.3 | 1.1 | 1.4 |
| Atrial fibrillation/flutter | 1,184 | 2.2 | 1.2 | 1.1 | 1.3 |
| Ischaemic heart disease** | 1,173 | 2.1 | 1.2 | 1.0 | 1.3 |
| Back syndrome with radiating pain** | 1,010 | 1.8 | 1.0 | 0.9 | 1.1 |
| Osteoporosis | 883 | 1.6 | 0.9 | 0.8 | 1.0 |
| Chronic obstructive pulmonary disease | 841 | 1.5 | 0.8 | 0.7 | 0.9 |
| Hypothyroidism/myxoedema | 675 | 1.2 | 0.7 | 0.6 | 0.7 |
| Chronic skin ulcer | 621 | 1.1 | 0.6 | 0.5 | 0.7 |
| Obesity (BMI > 30) | 619 | 1.1 | 0.6 | 0.5 | 0.7 |
| Heart failure | 572 | 1.0 | 0.6 | 0.5 | 0.6 |
| Migraine | 563 | 1.0 | 0.6 | 0.5 | 0.6 |
| Gout | 553 | 1.0 | 0.5 | 0.5 | 0.6 |
| Shoulder syndrome (excluding arthritis)** | 540 | 1.0 | 0.5 | 0.4 | 0.6 |
| Dementia (including senile, Alzheimer's) | 475 | 0.9 | 0.5 | 0.4 | 0.6 |
| Anxiety disorder** | 460 | 0.8 | 0.5 | 0.4 | 0.5 |
| Schizophrenia | 435 | 0.8 | 0.4 | 0.4 | 0.5 |
| Chronic acne** | 431 | 0.8 | 0.4 | 0.4 | 0.5 |
| Chronic back pain** | 387 | 0.7 | 0.4 | 0.3 | 0.4 |
| Malignant neoplasm prostate | 370 | 0.7 | 0.4 | 0.3 | 0.4 |
| Chronic alcohol abuse | 359 | 0.7 | 0.4 | 0.3 | 0.4 |
| Chronic pain NOS | 350 | 0.6 | 0.3 | 0.3 | 0.4 |
| Vertiginous syndrome | 337 | 0.6 | 0.3 | 0.3 | 0.4 |
| Epilepsy | 309 | 0.6 | 0.3 | 0.3 | 0.3 |
| *Subtotal* | *43,818* | *79.9* | — | — | — |
| **Total problems** | **54,866** | **100.0** | **54.1** | **52.2** | **56.1** |

(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 and 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 for codes included in analysis of chronic conditions <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

## 7.7 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 or workplace exposure, or a pre-existing condition that has been significantly exacerbated by work activity or workplace exposure. Work-related problems accounted for 1.6% of problems and were managed at a rate of 2.5 per 100 general practice encounters in 2009–10 (Table 7.7).

The most common group of work-related problems were musculoskeletal problems, accounting for 57.1% of work-related problems and managed at a rate of 1.4 per 100 general practice encounters. Almost 1 in 10 musculoskeletal problems managed in general practice were work related. The most common musculoskeletal work-related problems were back complaint (16.2% of work-related problems), sprain and strain (10.5%), unspecified musculoskeletal injury (7.9%) and fracture (3.3%).

Work-related psychological problems accounted for 10.9% of total work-related problems, and were managed at a rate of 0.3 per 100 encounters. The most common were depression (4.4% of work-related problems), acute stress reaction (2.2%), anxiety (1.9%) and post-traumatic stress disorder (1.8%). Psychological work-related problems accounted for only 2.2% of total psychological problems managed in general practice.

Check-ups and vaccinations related to the patient's work accounted for 4.3% of work-related problems and were performed at a rate of 0.1 per 100 encounters. The majority of these were check-ups classified in the General and Unspecified chapter of ICPC-2, including pre-employment and employment check-ups.

Other work-related problems accounted for 27.7% of work-related problems, and included skin injuries not elsewhere classified (3.9%) and lacerations (2.8%).

Although back complaint was the most commonly managed individual work-related problem (accounting for 16.2% of work-related problems), it accounted for only 14.9% of the management of all back complaints. In contrast, post-traumatic stress disorder accounted for 1.8% of work-related problems, but represented 31.3% of all post-traumatic stress disorder problems managed (Table 7.7).

**Table 7.7: Work-related problems, by type and most frequently managed individual problems**

| Work-related problem managed | Number | Per cent of total work-related problems (*n* = 2,529) | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Per cent of this problem[(a)] |
|---|---|---|---|---|---|---|
| **Musculoskeletal problems** | **1,443** | **57.1** | **1.4** | **1.3** | **1.6** | **8.5** |
| Back complaint* | 410 | 16.2 | 0.4 | 0.3 | 0.5 | 14.9 |
| Sprain/strain* | 265 | 10.5 | 0.3 | 0.2 | 0.3 | 18.1 |
| Injury musculoskeletal NOS | 200 | 7.9 | 0.2 | 0.2 | 0.2 | 25.1 |
| Fracture* | 84 | 3.3 | 0.1 | 0.1 | 0.1 | 9.5 |
| Shoulder syndrome | 72 | 2.9 | 0.1 | 0 | 0.1 | 13.3 |
| Bursitis/tendonitis/synovitis NOS | 63 | 2.5 | 0.1 | 0 | 0.1 | 5.5 |
| Acute internal knee damage | 58 | 2.3 | 0.1 | 0 | 0.1 | 25.2 |
| **Psychological problems** | **275** | **10.9** | **0.3** | **0.2** | **0.3** | **2.2** |
| Depression* | 112 | 4.4 | 0.1 | 0.1 | 0.1 | 2.6 |
| Acute stress reaction | 55 | 2.2 | 0.1 | 0 | 0.1 | 9.3 |
| Anxiety | 47 | 1.9 | 0 | 0 | 0.1 | 2.6 |
| Post traumatic stress disorder | 45 | 1.8 | 0 | 0 | 0.1 | 31.3 |
| **Check-up—all* and Immunisation/vaccination—all*** | **109** | **4.3** | **0.1** | **0.1** | **0.1** | **0.9** |
| General check-up* | 80 | 3.2 | 0.1 | 0.1 | 0.1 | 2.7 |
| **Other work-related problems** | **701** | **27.7** | **0.7** | **0.6** | **0.8** | **0.6** |
| Injury skin, other | 97 | 3.9 | 0.1 | 0.1 | 0.1 | 16.3 |
| Laceration/cut | 70 | 2.8 | 0.1 | 0 | 0.1 | 8.2 |
| **Total work-related problems** | **2,529** | **100.0** | **2.5** | **2.3** | **2.7** | **—** |

(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/subject/19>).

*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.

# 7.8 Management of back problems in 2009–10

This section uses the example of management of back problems to demonstrate how BEACH data pertaining to a selected problem can be analysed and viewed. In this section back problems is defined as: back symptom/complaint, low back symptom/complaint, back syndrome without radiating pain and back syndrome with radiating pain (ICPC-2 codes L02, L03, L84 and L86 respectively).

Back problems are commonly managed in general practice, with 3,379 recorded contacts with the problem, a management rate of 3.3 per 100 encounters with patients in 2009–10 (Figure 7.2). This represents about 3.9 million encounters at which a back problem was managed in general practice across Australia in that year.

### Patient age

Patients aged 45–64 years were most likely to have back problems managed (4.7 per 100 encounters), followed by patients aged 25–44 years (3.9) and those aged 65–74 years (3.8).

### Reasons for encounter

The most common reasons for encounter given by patients were back problem (66.1 per 100 back encounters), need for a prescription (15.4) or test result (8.0), and leg and thigh symptoms (4.5).

### Other problems managed

Hypertension was the comorbidity most often managed with back problem (7.4 per 100 back problem encounters), followed by depression (4.9), immunisation/vaccination (3.5), oesophageal disease (3.1), and diabetes (2.7).

### Medications

Medications were prescribed significantly more often in the management of back problems (75.3 per 100 problems, 95% CI: 70.0–80.6) than average for all problems (54.4) in the 2009–10 BEACH year.

The medications most often prescribed for back problems were paracetamol/codeine (12.2 per 100 back problems), oxycodone (11.7), paracetamol (8.9), tramadol (8.2), and meloxicam (4.0).

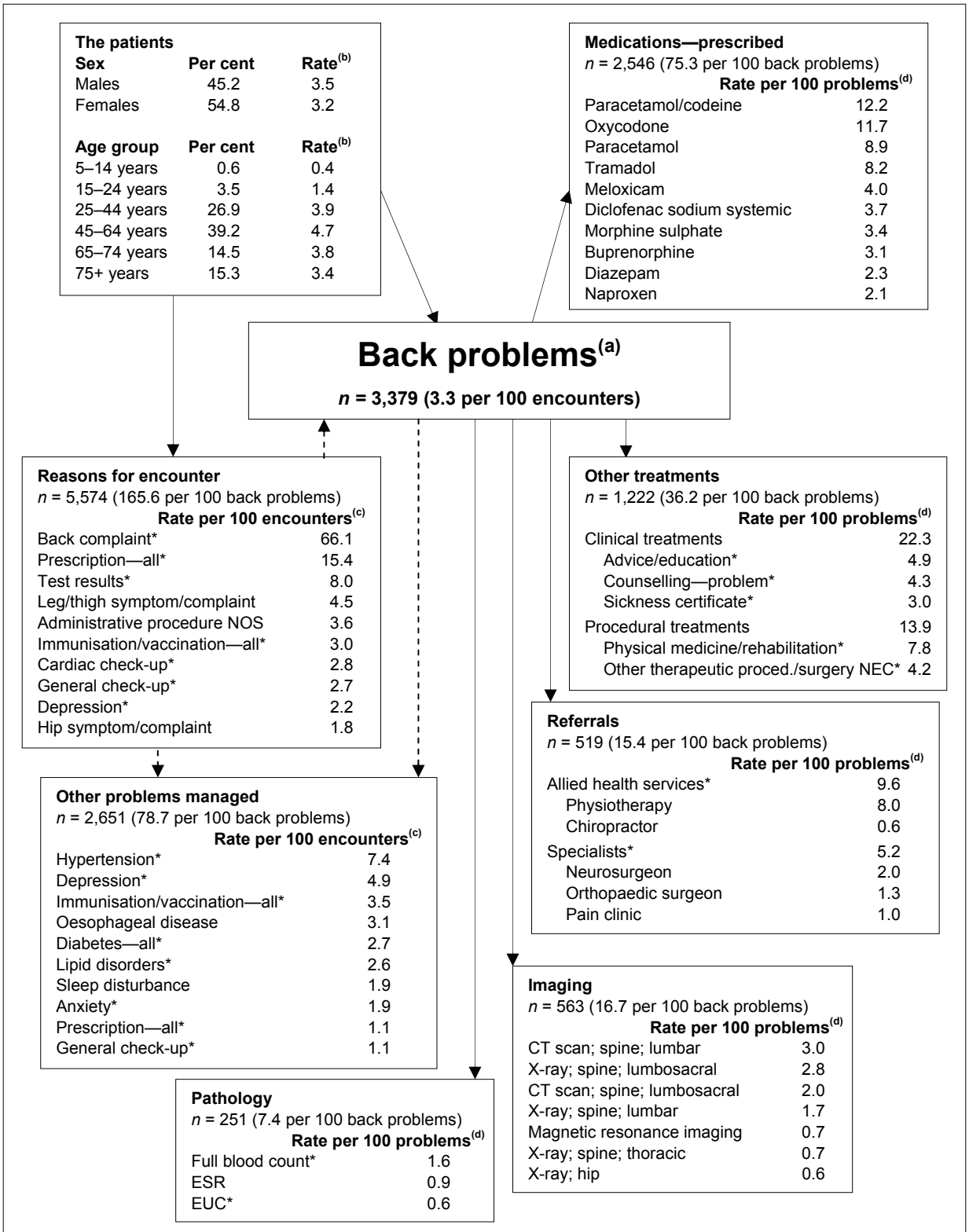
### Other treatments

Other treatments were provided at a rate of 36.2 per 100 back problems. Two-thirds of these treatments were clinical treatments (22.3 per 100 back problems), of which general advice and education (4.9), counselling about the back problem (4.3), and the provision of medical certificates (3.0) were the most common.

Procedural treatments accounted for one-third of all other treatments provided for back problems (13.9 per 100 problems), of which physical medicine and rehabilitation was the most common (7.8 per 100).

### Referrals

Referrals for back problems were provided at a rate of 15.4 per 100. Referrals to allied health services (9.6 per 100 back problems), mostly to a physiotherapist, were significantly more common than referrals to medical specialists (5.2).




(a) Back problem includes the ICPC-2 rubrics: L02, L03, L84 and L86.
(b) Age and sex-specific rate per 100 encounters in each age/sex group.
(c) Expressed as a rate per 100 encounters at which back problems were managed.
(d) Expressed as a rate per 100 back problems managed.
* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4).
*Note:* NOS—not otherwise specified; proced—procedure; NEC—not elsewhere classified; ESR—erythrocyte sedimentation rate; EUC—electrolytes, urea and creatinine.

**Figure 7.2: Management of back problems in general practice, 2009–10**

### Imaging

Imaging was ordered at a rate of 16.7 per 100 back problems. The most common imaging ordered were lumbar CT scan (3.0 per 100), lumbosacral x-ray (2.8), lumbosacral CT scan (2.0) and lumbar x-ray (1.7).

The ordering of lumbar CT scans is investigated in more detail in Section 12.5.

### Pathology

Pathology was ordered at a rate of 7.4 tests/batteries per 100 back problems. The most common were full blood count (1.6), erythrocyte sedimentation rate (0.9) and electrolytes, urea and creatinine tests (0.6).

## 7.9 Changes in problems managed over the decade 2000–01 to 2009–10

Data about the problems managed in general practice from each of the past 10 years of the BEACH study, 2000–01 to 2009–10 are reported in the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

Major changes that have occurred over the decade are summarised below.

- There was a significant increase in the number of problems managed at encounter, from 144.5 per 100 encounters in 2000–01 to 153.3 in 2009–10. This suggests an additional 33.7 million problems were managed at GP encounters in Australia in 2009–10 than in 2000–01. This was reflected in significant increases in the management rate of new problems (47.4 rising to 59.1 per 100 encounters), and chronic conditions (48.2 rising to 54.1 per 100 encounters) over the decade.
- Changes in the most common individual problems managed in general practice are summarised below.
  - The management rate of immunisation/vaccination increased from 4.6 per 100 encounters in 2000–01 to 7.3 per 100 in 2009–10, about 3.9 million more occasions nationally in 2009–10 than in 2000–01.
  - The management rate of URTI decreased significantly from 6.9 per 100 encounters in 2000–01 to 6.0 in 2009–10. However, the large increase in the number of GP encounters provided in Australia (100.6 million in 2000–01 compared with 116.8 million in 2009–10) outweighed this decrease, resulting in a national increase of about 70,000 GP consultations for URTI in 2009–10 compared with 2000–01.
  - The management rate of depression increased from 3.7 per 100 encounters in 2000–01 to 4.3 in 2009–10, an estimated national increase of 1.3 million occasions of depression management in 2009–10 compared with 2000–01.
  - The management rate of diabetes increased significantly from 2.8 per 100 encounters in 2000–01 to 3.7 in 2009–10, suggesting about 1.5 million more occasions where diabetes was managed in 2009–10 than in 2000–01.
  - Management of lipid disorders increased significantly from 2.9 per 100 encounters in 2000–01 to 3.5 in 2009–10, resulting in about 1.2 million more encounters nationally for lipid disorders in 2009–10 than in 2000–01.

# 8 Overview of management

The BEACH survey form allows 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).

A summary of management at general practice encounters from 2000–01 to 2009–10 is reported for each year in the 10-year report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

At the 101,349 encounters, GPs undertook 230,949 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 more frequent than procedural treatments (Table 8.1).

For an 'average' 100 GP–patient encounters, GPs provided 83 prescriptions, and 35 clinical treatments, undertook 18 procedures, made 8 referrals to medical specialists and 4 to allied health services, and placed 45 pathology test orders and 10 imaging test orders.

**Table 8.1: Summary of management**

| Management type | Number | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|
| Medications | 108,001 | 106.6 | 103.6 | 109.5 | 69.5 | 67.9 | 71.1 |
| Prescribed | 84,540 | 83.4 | 80.6 | 86.2 | 54.4 | 52.8 | 56.0 |
| GP-supplied | 13,829 | 13.6 | 12.7 | 14.6 | 8.9 | 8.3 | 9.5 |
| Advised OTC | 9,632 | 9.5 | 8.7 | 10.3 | 6.2 | 5.7 | 6.7 |
| Other treatments | 53,243 | 52.5 | 49.8 | 55.3 | 34.3 | 32.6 | 36.0 |
| Clinical* | 35,484 | 35.0 | 32.6 | 37.4 | 22.8 | 21.3 | 24.3 |
| Procedural* | 17,759 | 17.5 | 16.5 | 18.6 | 11.4 | 10.8 | 12.1 |
| Referrals | 13,481 | 13.3 | 12.8 | 13.8 | 8.7 | 8.4 | 9.0 |
| Medical specialist* | 8,562 | 8.4 | 8.1 | 8.8 | 5.5 | 5.3 | 5.7 |
| Allied health services* | 3,971 | 3.9 | 3.7 | 4.2 | 2.6 | 2.4 | 2.7 |
| Hospital* | 362 | 0.4 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Emergency department* | 202 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| Other medical services* | 80 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Other referrals* | 304 | 0.3 | 0.2 | 0.4 | 0.2 | 0.2 | 0.2 |
| Pathology | 45,594 | 45.0 | 43.1 | 46.9 | 29.3 | 28.2 | 30.4 |
| Imaging | 9,877 | 9.8 | 9.3 | 10.1 | 6.4 | 6.1 | 6.6 |
| Other investigations[(a)] | 753 | 0.7 | 0.7 | 0.8 | 0.5 | 0.4 | 0.5 |
| **Total management activities** | **230,949** | **227.8** | **—** | **—** | **148.7** | **—** | **—** |

(a) Other investigations reported here include only those ordered by the GP. Other investigations in Chapter 12 include those ordered by the GP and those done by the GP or practice staff.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

Another perspective emerges in analysing 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 91.3% of encounters and for 85.8% of problems managed.

- At least one medication or other treatment was given for nearly three-quarters (72.8%) of the problems managed.
- At least one medication (most commonly prescribed) was prescribed, supplied or advised for more than half (54.2%) of the problems managed.
- At least one other treatment (most commonly clinical) was provided for nearly one-third (30.3%) of problems managed.
- At least one referral (most commonly to a medical specialist) was made for 8.7% of problems managed.
- At least one investigation (most commonly pathology) was requested for 18.1% of problems managed (Table 8.2).

**Table 8.2: Encounters and problems for which management was recorded**

| Management type | Number of encounters | Per cent of total encounters[(a)] (*n* = 101,349) | Number of problems | Per cent of total problems[(a)] (*n* = 155,373) |
|---|---|---|---|---|
| **At least one management type** | **92,543** | **91.3** | **133,241** | **85.8** |
| **At least one medication or other treatment** | **82,711** | **81.6** | **113,157** | **72.8** |
| **At least one medication** | **65,452** | **64.6** | **84,135** | **54.2** |
| At least one prescription | 53,078 | 52.4 | 67,088 | 43.2 |
| At least one GP-supplied | 10,680 | 10.5 | 11,173 | 7.2 |
| At least one OTC advised | 8,373 | 8.3 | 8,633 | 5.6 |
| **At least one other treatment** | **40,800** | **40.3** | **47,133** | **30.3** |
| At least one clinical treatment | 28,027 | 27.7 | 31,938 | 20.6 |
| At least one procedural treatment | 15,868 | 15.7 | 16,577 | 10.7 |
| **At least one referral** | **12,554** | **12.4** | **13,476** | **8.7** |
| At least one referral to a specialist | 8,203 | 8.1 | 8,691 | 5.6 |
| At least one referral to allied health | 3,765 | 3.7 | 3,977 | 2.6 |
| At least one referral to hospital | 362 | 0.4 | 381 | 0.2 |
| At least one referral to emergency department | 202 | 0.2 | 205 | 0.1 |
| At least one referral to other medical services | 80 | 0.1 | 90 | 0.1 |
| At least one referral NOS | 304 | 0.3 | 318 | 0.2 |
| **At least one investigation** | **24,500** | **24.2** | **28,124** | **18.1** |
| At least one pathology order | 17,982 | 17.7 | 20,571 | 13.2 |
| At least one imaging order | 8,625 | 8.5 | 8,912 | 5.7 |
| At least one other investigation[(b)] | 717 | 0.7 | 737 | 0.5 |

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

(b) Other investigations reported here only include those ordered by the GP. Other investigations in Chapter 12 include those ordered by the GP and those done by the GP or practice staff.

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

The combinations of management types related to each problem were 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 (61.9%) of the problems managed
- as a double component for 19.8% of problems managed
- rarely with more than two components (results not tabled).

Table 8.3 lists the most common management combinations. Medication alone was the most common management, followed by a clinical treatment alone, and 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**

| 1+ medication | 1+ clinical treatment | 1+ procedural treatment | 1+ referral | 1+ imaging order | 1+ pathology order | Per cent of total problems (*n* = 155,373) | Per cent of total encounters (*n* = 101,349) |
|---|---|---|---|---|---|---|---|
| **No recorded management** | | | | | | **14.2** | **8.7** |
| **1+ management recorded** | | | | | | **85.8** | **91.3** |
| ✓ | | | | | | 36.5 | 30.6 |
| | ✓ | | | | | 9.4 | 6.7 |
| ✓ | ✓ | | | | | 6.5 | 10.5 |
| | | | | | ✓ | 4.9 | 2.9 |
| | | | ✓ | | | 4.4 | 3.3 |
| | | ✓ | | | | 4.4 | 3.7 |
| ✓ | | | | | ✓ | 3.0 | 4.6 |
| ✓ | | ✓ | | | | 2.9 | 4.6 |
| | | | | ✓ | | 2.3 | 1.8 |
| | | ✓ | | | ✓ | 1.4 | 1.3 |
| ✓ | | | ✓ | | | 1.3 | 2.8 |
| | ✓ | | | | ✓ | 1.1 | 1.2 |
| ✓ | | | | ✓ | | 1.1 | 1.8 |
| | ✓ | | ✓ | | | 1.1 | 1.1 |
| ✓ | ✓ | | | | ✓ | 0.6 | 1.7 |
| | | | | ✓ | ✓ | 0.5 | 0.6 |
| ✓ | ✓ | | ✓ | | | 0.4 | 1.2 |
| ✓ | | ✓ | | | ✓ | 0.3 | 1.1 |
| | ✓ | ✓ | | | | 0.3 | 0.7 |
| | | | ✓ | | ✓ | 0.3 | 0.5 |
| | ✓ | | | ✓ | | 0.3 | 0.4 |

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

# 8.1 Changes in management over the decade 2000–01 to 2009–10

Changes over the decade 2000–01 to 2009–10 are described in detail in the accompanying report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] In that report, changes over time are measured as change in the management of problems (that is, as a rate per 100 problems). This reflects change in how GPs are managing problems and accounts for the significant increase in the number of problems managed per encounter over the decade (see Section 7.9).

The major changes over the 10 years to 2009–10 are summarised below.

- There was a significant decrease in the proportion of problems managed for which one or more medications were prescribed (from 51.2% to 43.2%), and in the total number of medications prescribed (from 63.9 per 100 problems managed to 54.4).
- There was a significant increase in the proportion of problems for which the GP supplied medication direct to the patients (from 3.8% to 7.2% of problems managed), and an increase in the total number of medications supplied in this manner (4.8 medications to 8.9 per 100 problems managed).
- One or more procedures were undertaken in the management of a significantly greater proportion of problems managed in 2009–10 (10.7%) than in 2000–01 (8.0%). So that the rate of procedures undertaken by GPs increased from 8.4 to 11.4 per 100 problems managed over the decade.
- The likelihood of patients being referred for the problem being managed increased significantly (7.2% of the problems managed in 2000–01 and 8.7% in 2009–10 being referred), particularly to specialists (from 5.1% in 2000–01 to 5.6% in 2009–10), and to allied health practitioners (from 1.6% to 2.6%). There was a marginal decrease in the proportion of problems for which the patient was referred to hospital, from 0.4% to 0.2% over the 10 years.
- There was an increase in the likelihood of the GP ordering at least one investigation for the problems managed, 14.9% of problems being sent for investigation in 2000–01 and 18.1% in 2009–10. In 2000–01, at least one pathology test was ordered was 10.6% of problem managed, and at least one imaging test was ordered was 5.2%. By 2009–10 these proportions had significantly increased to 13.2% and 5.7% of problems, respectively.

# 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:
  - record 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 this 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) which is able to capture details of products at the brand and generic level. Every medication in the CAPS coding system is mapped to the international Anatomical Therapeutic Chemical (ATC) classification.[62]
- The reporting of results at drug group, subgroup and generic level uses ATC levels 1, 3 and 5. The most frequently prescribed, supplied or advised individual medications are reported at the CAPS generic level, the equivalent of ATC Level 5, because ATC does not include many over-the-counter medications that arise in BEACH. Further, some ATC level 5 labels are not specific enough for clarity.

Data on medications are reported for each year from 2000–01 to 2009–10 in the 10-year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

Readers interested in adverse drug events will find more detailed information from the BEACH program in Miller et al. (2006) *Adverse drug events in general practice patients in Australia*.[63]

## 9.1 Source of medications

As reported in Chapter 8, a total of 108,001 medications were recorded, at rates of 107 per 100 encounters and 70 per 100 problems managed.

- Almost four out of five of all medications (78.3%) were prescribed.
- One in eight (12.8%) medications was supplied to the patient by the GP.
- There were 8.9% of medications recommended by the GP for OTC purchase.

When these results are extrapolated to the 116.8 million general practice Medicare-claimed encounters in Australia in 2009–10, GPs in Australia:

- prescribed medications more than 97.4 million times
- supplied 15.9 million medications directly to the patient
- recommended medications for OTC purchase 11.1 million times.

## 9.2 Prescribed medications

There were 84,540 prescriptions recorded, at rates of 83 per 100 encounters and 54 per 100 problems managed (Table 8.1). GPs recorded 80.5% of prescribed medications by brand (proprietary) name and 19.5% by their generic (non-proprietary) name (results not tabled).

On a per problem basis:

- no prescription was given for 56.8% of all problems managed
- one prescription was given for 34.7% of problems managed
- two prescriptions were given for 6.3% of problems managed
- three or four prescriptions were given for 2.1% of problems managed (Figure 9.1).

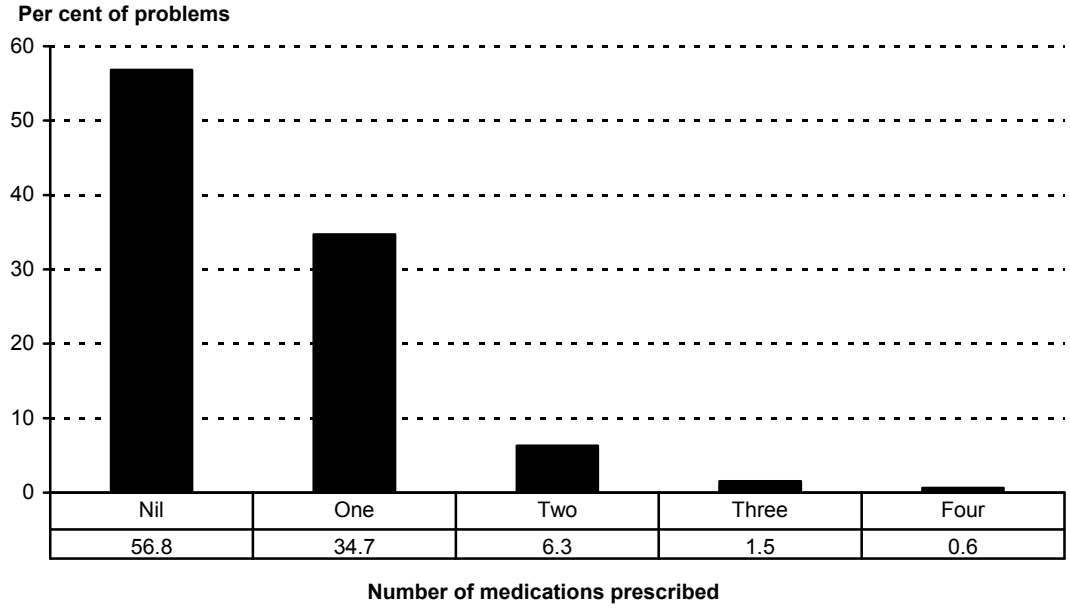



**Figure 9.1: Number of medications prescribed per problem**

### Number of repeats

For 64,718 prescriptions (76.6% of all prescriptions) 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 34.2% of these prescriptions, the GP specified that no repeats had been prescribed, and for 35.8% five repeats were ordered. The latter proportion reflects the PBS provision of 1 month's supply and five repeats for many medications used for chronic conditions such as hypertension. The ordering of one repeat was also quite common (15.9%).

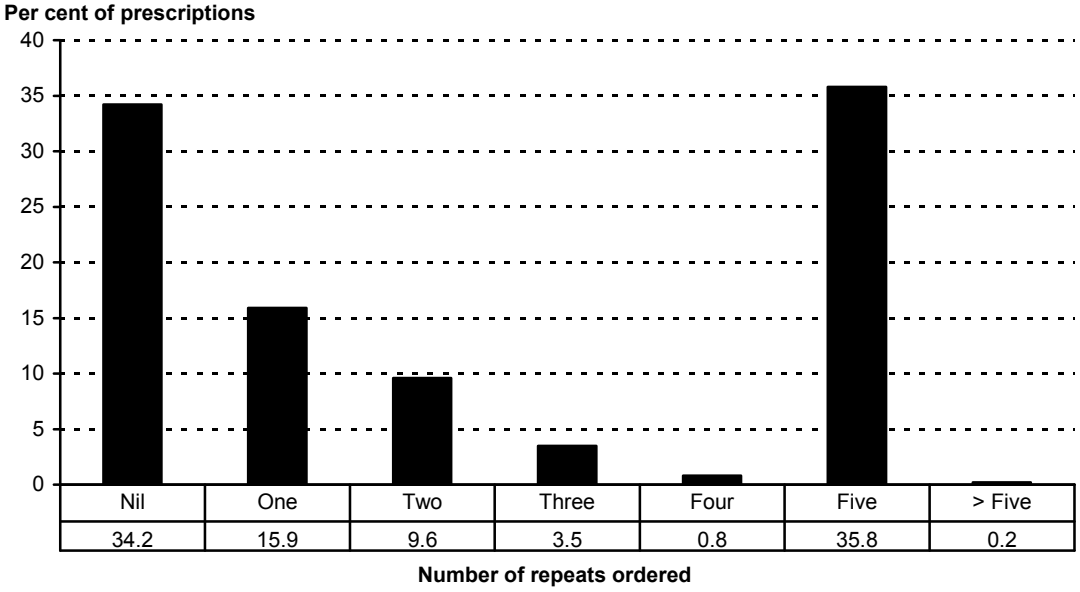



**Figure 9.2: Number of repeats ordered per prescription**

## Age–sex-specific rates of prescribed medications

Age–sex-specific analysis found similar prescription rates per 100 encounters for males and females (84.3 and 82.9 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 the rate of 57 per 100 encounters with patients aged less than 25 years almost doubling to 108 per 100 encounters for patients aged 65 years and over (results not tabled).

Figure 9.3, however, demonstrates that this age-based increase lessens if the prescription rate is considered in terms of the number of problems being managed in each age group. This suggests that a substantial part of the increase in prescription rate for older patients is due to the increased number of health problems they have managed at an encounter. The remaining increase in prescription rate associated with patient age is a reflection of the problems under management, which are more likely to be chronic at encounters with older patients.

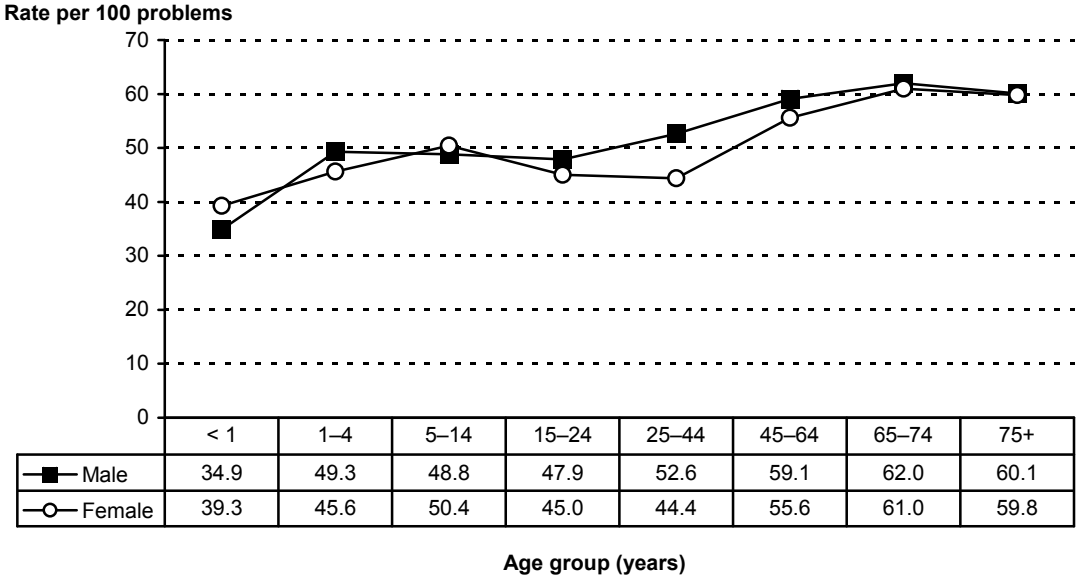



**Figure 9.3: Age–sex-specific prescription rates per 100 problems managed**

## Types of medications prescribed

Table 9.1 shows the distribution of prescribed medications using the WHO ATC classification.[62] 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, as a rate per 100 encounters, and as a rate per 100 problems managed, with 95% confidence intervals.

The high number of opioids shown in this table (compared with BEACH data published previously) is due to a re-classification of some medications. It was decided to recode codeine combinations which contained 30 mg of codeine as opioids in the ATC Index, whereas in the past they were coded as 'other analgesics and antipyretics'. In the ATC classification, either grouping would be correct. The decision was taken to place high-dose codeine products in the opioid group in accordance with MIMS grouping[64] and following the Poisons Regulations of the Therapeutic Goods Administration[65], which stipulates that high-dose codeine combinations are Schedule 4 (prescription only) medications. However, a few combination analgesics containing less than 30mg of codeine but classified as Schedule 4 may be missed because there are other criteria which form part of the scheduling criteria for prescription only codeine. One of these is pack-size, which is not recorded in BEACH.

Similarly, all aspirin (acetylsalicylic acid) was previously classified in the analgesic group of neurological medications. This year, the coding of aspirin has been split depending on dosage. Low-dose (100 mg) plain aspirin has been reclassified as an anti-thrombotic medication in the blood medications group, while higher doses and combinations with other analgesic/antipyretics remain in the neurological group.

If readers are making comparisons with previous BEACH publications, they should note that this change has caused the opioid and anti-thrombotic groups to increase, and 'other analgesics and antipyretics' to decrease. In the companion report to this current publication, *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*[1], medications have been re-analysed to incorporate the adjustment for all 10 years.

**Table 9.1: Distribution of prescribed medications, by ATC levels 1, 3 and 5**

| ATC Level 1 | ATC Level 3 | ATC Level 5 | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|---|---|
| **Nervous system** | | | **18,245** | **21.6** | **18.0 (17.1–18.9)** | **11.7 (11.2–12.3)** |
| | Opioids | | 5,173 | 6.1 | 5.1 (4.8–5.4) | 3.3 (3.1–3.5) |
| | | Codeine, combinations excluding psycholeptics | 1,667 | 2.0 | 1.7 (1.5–1.8) | 1.1 (1.0–1.2) |
| | | Oxycodone | 1,325 | 1.6 | 1.3 (1.2–1.4) | 0.9 (0.8–0.9) |
| | | Tramadol | 878 | 1.0 | 0.9 (0.8–1.0) | 0.6 (0.5–0.6) |
| | Antidepressants | | 3,854 | 4.6 | 3.8 (3.5–4.1) | 2.5 (2.3–2.6) |
| | | Sertraline | 651 | 0.8 | 0.6 (0.6–0.7) | 0.4 (0.4–0.5) |
| | | Venlafaxine | 516 | 0.6 | 0.5 (0.5–0.6) | 0.3 (0.3–0.4) |
| | Other analgesics and antipyretics | | 2,956 | 3.5 | 2.9 (2.6–3.3) | 1.9 (1.7–2.1) |
| | | Paracetamol [plain] | 2,720 | 3.2 | 2.7 (2.3–3.0) | 1.8 (1.5–2.0) |
| | Anxiolytics | | 1,800 | 2.1 | 1.8 (1.6–1.9) | 1.2 (1.1–1.3) |
| | | Diazepam | 1,003 | 1.2 | 1.1 (0.9–1.1) | 0.6 (0.6–0.7) |
| | | Oxazepam | 541 | 0.6 | 0.5 (0.5–0.6) | 0.4 (0.3–0.4) |
| | Hypnotics and sedatives | | 1,489 | 1.8 | 1.5 (1.3–1.6) | 1.0 (0.9–1.0) |
| | | Temazepam | 1,059 | 1.3 | 1.0 (0.9–1.2) | 0.7 (0.6–0.8) |
| | Antipsychotics | | 1,096 | 1.3 | 1.1 (1.1–1.2) | 0.7 (0.6–0.8) |
| | Drugs used in addictive disorders | | 719 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| | Antiepileptics | | 678 | 0.8 | 0.7 (0.6–0.7) | 0.4 (0.4–0.5) |
| **Cardiovascular system** | | | **16,702** | **19.8** | **16.5 (15.6–17.4)** | **10.8 (10.2–11.3)** |
| | Lipid modifying agents, plain | | 3,696 | 4.4 | 3.7 (3.4–3.9) | 2.4 (2.2–2.5) |
| | | Atorvastatin | 1,616 | 1.9 | 1.6 (1.5–1.7) | 1.0 (1.0–1.1) |
| | | Rosuvastatin | 804 | 1.0 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| | | Simvastatin | 784 | 0.9 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |

*(continued)*

**Table 9.1 (continued): Distribution of prescribed medications, by ATC levels 1, 3 and 5**

| ATC Level 1 | ATC Level 3 | ATC Level 5 | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|---|---|
| | ACE inhibitors, plain | | 2,381 | 2.8 | 2.4 (2.2–2.5) | 1.5 (1.4–1.6) |
| | | Perindopril | 1,186 | 1.4 | 1.2 (1.1–1.3) | 0.8 (0.7–0.8) |
| | | Ramipril | 716 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| | Angiotensin II antagonists, plain | | 2,364 | 2.8 | 2.3 (2.2–2.5) | 1.5 (1.4–1.6) |
| | | Irbesartan | 976 | 1.2 | 1.0 (0.9–1.1) | 0.6 (0.6–0.7) |
| | | Candesartan | 716 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| | | Telmisartan | 536 | 0.6 | 0.5 (0.4–0.6) | 0.4 (0.3–0.4) |
| | Beta blocking agents | | 1,667 | 2.0 | 1.6 (1.5–1.8) | 1.1 (1.0–1.2) |
| | | Atenolol | 813 | 1.0 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| | Selective calcium channel blockers with mainly vascular effects | | 1,601 | 1.9 | 1.6 (1.4–1.7) | 1.0 (0.9–1.1) |
| | | Amlodipine | 698 | 0.8 | 0.7 (0.6–0.8) | 0.4 (0.4–0.5) |
| | Angiotensin II antagonists, combinations | | 1,227 | 1.5 | 1.2 (1.1–1.3) | 0.8 (0.7–0.9) |
| | | Irbesartan and diuretics | 706 | 0.8 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| | ACE inhibitors, combinations | | 628 | 0.7 | 0.6 (0.5–0.7) | 0.4 (0.4–0.5) |
| | High-ceiling diuretics | | 580 | 0.7 | 0.6 (0.5–0.6) | 0.4 (0.3–0.4) |
| | | Furosemide | 578 | 0.7 | 0.6 (0.5–0.6) | 0.4 (0.3–0.4) |
| **Anti-infectives for systemic use** | | | **16,470** | **19.5** | **16.3 (15.6–16.9)** | **10.6 (10.1–11.1)** |
| | Beta-lactam antibacterials, penicillins | | 5,889 | 7.0 | 5.8 (5.5–6.1) | 3.8 (3.6–4.0) |
| | | Amoxycillin | 3,271 | 3.9 | 3.2 (3.0–3.5) | 2.1 (1.9–2.3) |
| | | Amoxycillin and enzyme inhibitor | 1,667 | 2.0 | 1.6 (1.5–1.8) | 1.1 (1.0–1.2) |
| | Other beta-lactam antibacterials | | 3,302 | 3.9 | 3.3 (3.1–3.5) | 2.1 (2.0–2.3) |
| | | Cefalexin | 2,671 | 3.2 | 2.6 (2.5–2.8) | 1.7 (1.6–1.8) |
| | | Cefaclor | 539 | 0.6 | 0.5 (0.4–0.6) | 0.3 (0.3–0.4) |

*(continued)*

**Table 9.1 (continued): Distribution of prescribed medications, by ATC levels 1, 3 and 5**

| ATC Level 1 | ATC Level 3 | ATC Level 5 | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|---|---|
| | Macrolides, lincosamides and streptogramins | | 2,720 | 3.2 | 2.7 (2.5–2.9) | 1.8 (1.6–1.9) |
| | | Roxithromycin | 1,333 | 1.6 | 1.3 (1.2–1.5) | 0.9 (0.8–1.0) |
| | | Erythromycin | 687 | 0.8 | 0.7 (0.6–0.8) | 0.4 (0.4–0.5) |
| | Viral vaccines | | 971 | 1.2 | 1.0 (0.8–1.1) | 0.6 (0.5–0.8) |
| | | Influenza vaccine | 596 | 0.7 | 0.6 (0.4–0.7) | 0.4 (0.3–0.5) |
| | Tetracyclines | | 757 | 0.9 | 0.8 (0.7–0.8) | 0.5 (0.4–0.5) |
| | | Doxycycline | 655 | 0.8 | 0.7 (0.6–0.7) | 0.4 (0.4–0.5) |
| | Sulfonamides and trimethoprim | | 665 | 0.8 | 0.7 (0.6–0.7) | 0.4 (0.4–0.5) |
| **Alimentary tract and metabolism** | | | **8,304** | **9.8** | **8.2 (7.7–8.7)** | **5.3 (5.0–5.6)** |
| | Drugs for peptic ulcer and gastro-oesophageal reflux | | 3,209 | 3.8 | 3.2 (2.9–3.4) | 2.1 (1.9–2.2) |
| | | Esomeprazole | 1,287 | 1.5 | 1.3 (1.1–1.4) | 0.8 (0.8–0.9) |
| | | Pantoprazole | 715 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| | Blood glucose lowering drugs, excluding insulins | | 2,175 | 2.6 | 2.2 (1.9–2.4) | 1.4 (1.3–1.6) |
| | | Metformin | 1,301 | 1.5 | 1.3 (1.2–1.4) | 0.8 (0.8–0.9) |
| | | Gliclazide | 535 | 0.6 | 0.5 (0.4–0.6) | 0.3 (0.3–0.4) |
| | Propulsives | | 644 | 0.8 | 0.6 (0.6–0.7) | 0.4 (0.4–0.5) |
| | | Metoclopramide | 578 | 0.7 | 0.6 (0.5–0.6) | 0.4 (0.3–0.4) |
| **Respiratory system** | | | **5,329** | **6.3** | **5.3 (4.8–5.7)** | **3.4 (3.2–3.7)** |
| | Adrenergics, inhalants | | 2,843 | 3.4 | 2.8 (2.5–3.1) | 1.8 (1.7–2.0) |
| | | Salbutamol | 1,388 | 1.6 | 1.4 (1.2–1.5) | 0.9 (0.8–1.0) |
| | | Salmeterol and other drugs for obstructive airways disease | 789 | 0.9 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| | | Formoterol and other drugs for obstructive airways disease | 537 | 0.6 | 0.5 (0.7–0.9) | 0.5 (0.5–0.6) |
| | Decongestants and other nasal preparations for topical use | | 917 | 1.1 | 0.9 (0.8–1.0) | 0.6 (0.5–0.7) |
| | Other drugs for obstructive airway diseases, inhalants | | 809 | 1.0 | 0.8 (0.4–0.6) | 0.4 (0.3–0.4) |

*(continued)*

**Table 9.1 (continued): Distribution of prescribed medications, by ATC levels 1, 3 and 5**

| ATC Level 1 | ATC Level 3 | ATC Level 5 | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|---|---|
| **Musculoskeletal system** | | | **4,309** | **5.1** | **4.3 (3.9–4.6)** | **2.8 (2.6–3.0)** |
| | Anti-inflammatory and antirheumatic products, non-steroid | | 3,204 | 3.8 | 3.2 (2.9–3.4) | 2.1 (1.9–2.2) |
| | | Meloxicam | 877 | 1.0 | 0.9 (0.8–1.0) | 0.6 (0.5–0.6) |
| | | Diclofenac | 766 | 0.9 | 0.8 (0.6–0.9) | 0.5 (0.4–0.6) |
| | | Celecoxib | 533 | 0.6 | 0.5 (0.4–0.6) | 0.3 (0.3–0.4) |
| | Drugs affecting bone structure and mineralisation | | 544 | 0.6 | 0.5 (0.5–0.6) | 0.4 (0.3–0.4) |
| **Dermatologicals** | | | **3,662** | **4.3** | **3.6 (3.4–3.8)** | **2.4 (2.2–2.5)** |
| | Corticosteroids, plain | | 2,184 | 2.6 | 2.2 (2.0–2.3) | 1.4 (1.3–1.5) |
| | | Betamethasone | 711 | 0.8 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| | | Mometasone | 601 | 0.7 | 0.6 (0.5–0.7) | 0.4 (0.3–0.4) |
| **Genitourinary system and sex hormones** | | | **3,100** | **3.7** | **3.1 (2.9–3.2)** | **2.0 (1.9–2.1)** |
| | Hormonal contraceptives for systemic use | | 1,330 | 1.6 | 1.3 (1.2–1.4) | 0.9 (0.8–0.9) |
| | | Levonorgestrel and oestrogen | 753 | 0.9 | 0.7 (0.7–0.8) | 0.5 (0.4–0.5) |
| | Oestrogens | | 539 | 0.6 | 0.5 (0.5–0.6) | 0.4 (0.3–0.4) |
| **Blood and blood forming organs** | | | **2,968** | **3.5** | **2.9 (2.7–3.2)** | **1.9 (1.8–2.1)** |
| | Antithrombotic agents | | 2,272 | 2.7 | 2.2 (2.1–2.4) | 1.5 (1.4–1.6) |
| | | Warfarin | 1,166 | 1.4 | 1.2 (1.0–1.3) | 0.8 (0.7–0.8) |
| | | Acetylsalicylic acid [antithrombotic] | 533 | 0.6 | 0.5 (0.5–0.6) | 0.3 (0.3–0.4) |
| **Sensory organs** | | | **2,381** | **2.8** | **2.4 (2.2–2.5)** | **1.5 (1.4–1.6)** |
| | Anti-infectives | | 989 | 1.2 | 1.0 (0.9–1.1) | 0.6 (0.6–0.7) |
| | | Chloramphenicol | 905 | 1.1 | 0.9 (0.8–1.0) | 0.6 (0.5–0.6) |
| | Corticosteroids and anti-infectives in combination | | 600 | 0.7 | 0.6 (0.5–0.7) | 0.4 (0.3–0.4) |
| **Systemic hormonal preparations, excluding sex hormones** | | | **2,166** | **2.6** | **2.1 (2.0–2.3)** | **1.4 (1.3–1.5)** |
| | Corticosteroids for systemic use, plain | | 1,354 | 1.6 | 1.3 (1.2–1.5) | 0.9 (0.8–1.0) |
| | | Prednisolone | 778 | 0.9 | 0.8 (0.7–0.9) | 0.5 (0.4–0.6) |

*(continued)*

**Table 9.1 (continued): Distribution of prescribed medications, by ATC levels 1, 3 and 5**

| ATC Level 1 | ATC Level 3 | ATC Level 5 | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|---|---|
| | Thyroid preparations | | 631 | 0.8 | 0.6 (0.6–0.7) | 0.4 (0.4–0.5) |
| | | Levothyroxine sodium | 628 | 0.7 | 0.6 (0.6–0.7) | 0.4 (0.4–0.4) |
| **Antineoplastic and immunomodulating agents** | | | **435** | **0.5** | **0.4 (0.4–0.5)** | **0.3 (0.2–0.3)** |
| **Various** | | | **302** | **0.4** | **0.3 (0.2–0.4)** | **0.2 (0.1–0.3)** |
| **Antiparasitic products, insecticides and repellent** | | | **167** | **0.2** | **0.2 (0.1–0.2)** | **0.1 (0.1–0.1)** |
| **Total prescribed medications** | | | **84,540** | **100.0** | **83.4 (80.6–86.2)** | **54.4 (52.8–56.0)** |

(a) Column will not add to 100, as multiple prescriptions could be written at each encounter and only common Level 3 and Level 5 drugs are included.

*Note:* ATC—Anatomical Therapeutic Chemical classification; CI—confidence interval; ACE—angiotensin-converting enzyme.

## 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 made up 43.3% of all prescribed medications.

**Table 9.2: Most frequently prescribed medications**

| Generic medication | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|
| Amoxycillin | 3,271 | 3.9 | 3.2 (3.0–3.5) | 2.1 (1.9–2.3) |
| Paracetamol plain | 2,720 | 3.2 | 2.7 (2.3–3.0) | 1.8 (1.5–2.0) |
| Cephalexin | 2,671 | 3.2 | 2.6 (2.5–2.8) | 1.7 (1.6–1.8) |
| Paracetamol/codeine [all] | 1,712 | 2.0 | 1.7 (1.5–1.8) | 1.1 (1.0–1.2) |
| Amoxycillin/potassium clavulanate | 1,667 | 2.0 | 1.6 (1.5–1.8) | 1.1 (1.0–1.2) |
| Atorvastatin | 1,616 | 1.9 | 1.6 (1.5–1.7) | 1.0 (1.0–1.1) |
| Salbutamol | 1,421 | 1.7 | 1.4 (1.2–1.6) | 0.9 (0.8–1.0) |
| Roxithromycin | 1,333 | 1.6 | 1.3 (1.2–1.5) | 0.9 (0.8–1.0) |
| Oxycodone | 1,325 | 1.6 | 1.3 (1.2–1.5) | 0.9 (0.8–0.9) |
| Metformin | 1,301 | 1.5 | 1.3 (1.2–1.4) | 0.8 (0.8–0.9) |

*(continued)*

**Table 9.2 (continued): Most frequently prescribed medications**

| Generic medication | Number | Per cent of prescribed medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|
| Esomeprazole | 1,287 | 1.5 | 1.3 (1.2–1.4) | 0.8 (0.8–0.9) |
| Perindopril | 1,186 | 1.4 | 1.2 (1.1–1.3) | 0.8 (0.7–0.8) |
| Warfarin sodium | 1,166 | 1.4 | 1.2 (1.0–1.3) | 0.8 (0.7–0.8) |
| Temazepam | 1,059 | 1.3 | 1.0 (0.9–1.2) | 0.7 (0.6–0.8) |
| Diazepam | 1,003 | 1.2 | 1.0 (0.9–1.1) | 0.7 (0.6–0.7) |
| Irbesartan | 976 | 1.2 | 1.0 (0.9–1.1) | 0.6 (0.6–0.7) |
| Chloramphenicol eye | 905 | 1.1 | 0.9 (0.8–1.0) | 0.6 (0.5–0.6) |
| Tramadol | 878 | 1.0 | 0.9 (0.8–1.0) | 0.6 (0.5–0.6) |
| Meloxicam | 877 | 1.0 | 0.9 (0.8–1.0) | 0.6 (0.5–0.6) |
| Atenolol | 813 | 1.0 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| Rosuvastatin | 804 | 1.0 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| Fluticasone/salmeterol | 789 | 0.9 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| Simvastatin | 784 | 0.9 | 0.8 (0.7–0.9) | 0.5 (0.5–0.6) |
| Levonorgestrel/ethinyloestradiol | 753 | 0.9 | 0.7 (0.7–0.8) | 0.5 (0.4–0.5) |
| Ramipril | 716 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| Candesartan cilexetil | 715 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| Pantoprazole | 715 | 0.9 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| Betamethasone topical | 711 | 0.8 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| Irbesartan/hydrochlorothiazide | 706 | 0.8 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| Amlodipine | 689 | 0.8 | 0.7 (0.6–0.8) | 0.4 (0.4–0.5) |
| *Subtotal* | *36,567* | *43.3* | — | — |
| **Total prescribed medications** | **84,540** | **100.0** | **83.4 (80.6–86.2)** | **54.4 (52.8–56.0)** |

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

*Note:* CI—confidence interval.

# 9.3 Medications supplied by GPs

GPs supplied their patients with 13,829 medications in this study, at a rate of 13.6 medications supplied per 100 encounters. At least one medication was supplied at 10.5% of encounters for 7.2% of problems. Table 9.3 shows the most commonly supplied medications at the CAPS generic level (ATC Level 5 equivalent), with vaccines accounting for almost two-thirds of this group.

**Table 9.3: Medications most frequently supplied by GPs**

| Generic medication | Number | Per cent of GP-supplied medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|
| Influenza virus vaccine | 4,198 | 30.4 | 4.1 (3.7–4.6) | 2.7 (2.4–3.0) |
| Pneumococcal vaccine | 698 | 5.1 | 0.7 (0.6–0.8) | 0.5 (0.4–0.5) |
| Triple antigen (diphtheria/pertussis/tetanus) | 404 | 2.9 | 0.4 (0.3–0.5) | 0.3 (0.2–0.3) |
| Mumps/measles/rubella vaccine | 389 | 2.8 | 0.4 (0.3–0.4) | 0.3 (0.2–0.3) |
| Vitamin B12 (Cobalamin) | 375 | 2.7 | 0.4 (0.3–0.4) | 0.3 (0.2–0.3) |
| Diptheria/pertussis/tetanus/ hepatitis B/polio/Hib vaccine | 316 | 2.3 | 0.3 (0.3–0.4) | 0.2 (0.2–0.2) |
| Polio vaccine oral sabin/injection | 271 | 2.0 | 0.3 (0.2–0.3) | 0.2 (0.1–0.2) |
| Haemophilus B vaccine | 257 | 1.9 | 0.3 (0.2–0.3) | 0.2 (0.1–0.2) |
| Human papillomavirus vaccine | 247 | 1.8 | 0.2 (0.2–0.3) | 0.2 (0.1–0.2) |
| Rotavirus vaccine | 203 | 1.5 | 0.2 (0.2–0.2) | 0.1 (0.1–0.2) |
| Chickenpox (varicella zoster) | 193 | 1.4 | 0.2 (0.2–0.2) | 0.1 (0.1–0.2) |
| ADT/CDT (diphtheria/tetanus) vaccine | 192 | 1.4 | 0.2 (0.2–0.2) | 0.1 (0.1–0.2) |
| Diphtheria/pertussis/tetanus/hepatitis B vaccine | 172 | 1.2 | 0.2 (0.1–0.2) | 0.1 (0.1–0.1) |
| Meningitis vaccine | 170 | 1.2 | 0.2 (0.1–0.2) | 0.1 (0.1–0.1) |
| Meloxicam | 149 | 1.1 | 0.2 (0.1–0.2) | 0.1 (0.1–0.1) |
| Betamethasone systemic | 134 | 1.0 | 0.1 (0.1–0.2) | 0.2 (0.1–0.2) |
| Allergen treatment | 132 | 1.0 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Diphtheria/pertussis/tetanus/polio vaccine | 131 | 0.9 | 0.1 (0.1–0.2) | 0.2 (0.1–0.2) |
| Hepatitis B vaccine | 125 | 0.9 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Lignocaine with/without adrenaline injection | 119 | 0.9 | 0.1 (0.0–0.2) | 0.1 (0.0–0.2) |

*(continued)*

**Table 9.3 (continued): Medications most frequently supplied by GPs**

| Generic medication | Number | Per cent of GP-supplied medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|
| Immunisation unspecified | 118 | 0.9 | 0.1 (0.1–0.2) | 0.1 (0.0–0.1) |
| Metoclopramide | 117 | 0.9 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Hepatitis A vaccine | 107 | 0.8 | 0.1 (0.1–0.1) | 0.1 (0.1–0.1) |
| Local anaesthetic injection | 103 | 0.8 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Esomeprazole | 98 | 0.7 | 0.1 (0.1–0.1) | 0.1 (0.1–0.1) |
| Typhoid vaccine (*Salmonella typhi*) | 94 | 0.7 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Hepatitis A and B vaccine | 91 | 0.7 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Budesonide/Eformoterol | 89 | 0.7 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Hepatitis A/Typhoid vaccine (*Salmonella typhi*) | 86 | 0.6 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Salbutamol | 85 | 0.6 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| *Subtotal* | *9,861* | *71.3* | — | — |
| **Total supplied medications** | **13,829** | **100.0** | **13.6 (12.7–14.6)** | **8.9 (8.3–9.5)** |

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

*Note:* CI—confidence interval.

# 9.4 Medications advised for over-the-counter purchase

The GPs recorded 9,632 medications as recommended for OTC purchase, at rates of 9.5 per 100 encounters and 6.2 per 100 problems managed. At least one OTC medication was recorded as advised at 8.3% of encounters and for 5.6% of problems. Table 9.4 shows the top 30 advised medications at the CAPS generic level (ATC Level 5 equivalent). A wide range of medications were recorded in this group, the most common being paracetamol, which accounted for 26.0% of these medications.

The re-classification of aspirin described in section 9.2 on prescribed medications, also has an impact on the rate of OTC-advised aspirin, which has decreased compared with earlier published BEACH data. Only the higher-dose analgesic aspirin appears in this table. The frequency of OTC-advised low-dose aspirin for anti-thrombotic purposes was too low for inclusion.

**Table 9.4: Most frequently advised over-the-counter medications**

| Generic medication | Number | Per cent of OTC medications (*n* = 84,540) | Rate per 100 encounters[a] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|
| Paracetamol | 2,502 | 26.0 | 2.5 (2.2–2.8) | 1.6 (1.4–1.8) |
| Ibuprofen | 620 | 6.4 | 0.6 (0.5–0.7) | 0.4 (0.3–0.5) |
| Sodium chloride topical nasal | 234 | 2.4 | 0.2 (0.2–0.3) | 0.2 (0.1–0.2) |
| Loratadine | 170 | 1.8 | 0.2 (0.1–0.2) | 0.1 (0.1–0.1) |
| Diclofenac topical | 166 | 1.7 | 0.2 (0.1–0.2) | 0.1 (0.1–0.1) |
| Sodium/potassium/citric/glucose | 144 | 1.5 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Saline bath/solution/gargle | 136 | 1.4 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Clotrimazole topical | 124 | 1.3 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Bromhexine | 123 | 1.3 | 0.1 (0.1–0.2) | 0.1 (0.0–0.1) |
| Ergocalciferol | 122 | 1.3 | 0.1 (0.1–0.2) | 0.1 (0.1–0.1) |
| Hydrocortisone/clotrimazole | 108 | 1.1 | 0.1 (0.1–0.1) | 0.1 (0.1–0.1) |
| Cetirizine | 108 | 1.1 | 0.1 (0.1–0.1) | 0.1 (0.1–0.1) |
| Fexofenadine | 105 | 1.1 | 0.1 (0.1–0.1) | 0.1 (0.1–0.1) |
| Paracetamol/codeine | 100 | 1.0 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Sorbolene/glycerol/cetomacrogol | 96 | 1.0 | 0.1 (0.1–0.1) | 0.1 (0.1–0.1) |
| Hydrocortisone topical | 90 | 0.9 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Folic acid | 88 | 0.9 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Mouthwash/gargle other | 81 | 0.8 | 0.1 (0.0–0.1) | 0.1 (0.0–0.1) |
| Cold and Flu medication NEC | 78 | 0.8 | 0.1 (0.0–0.1) | 0.1 (0.0–0.1) |
| Clotrimazole vaginal | 76 | 0.8 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Cinchocaine/hydrocortisone | 74 | 0.8 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Hyoscine butylbromide | 73 | 0.8 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Simple analgesics NEC | 72 | 0.8 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Ferrous sulfate/sodium ascorbate | 71 | 0.7 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Fish oil | 69 | 0.7 | 0.1 (0.1–0.1) | 0.0 (0.0–0.1) |

*(continued)*

**Table 9.4 (continued): Most frequently advised over-the-counter medications**

| Generic medication | Number | Per cent of OTC medications (*n* = 84,540) | Rate per 100 encounters[(a)] (*n* = 101,349) 95% CI | Rate per 100 problems (*n* = 155,373) 95% CI |
|---|---|---|---|---|
| Calcium carbonate/vitamin D | 68 | 0.7 | 0.1 (0.1–0.1) | 0.1 (0.0–0.1) |
| Loperamide | 68 | 0.7 | 0.1 (0.0–0.1) | 0.0 (0.0–0.1) |
| Cream/ointment/lotion NEC | 64 | 0.7 | 0.1 (0.0–0.1) | 0.0 (0.0–0.1) |
| Aspirin [analgesic] | 61 | 0.6 | 0.1 (0.0–0.1) | 0.0 (0.0–0.1) |
| Sodium bicarbonate/citrate/tartaric acid | 61 | 0.6 | 0.1 (0.0–0.1) | 0.0 (0.0–0.1) |
| *Subtotal* | *5,952* | *61.8* | — | — |
| **Total advised medications** | **9,632** | **100.0** | **9.5 (8.7–10.3)** | **6.2 (5.7–6.7)** |

(a) Column will not add to 100, as 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; CI—confidence interval; NEC—not elsewhere classified.

# 9.5 Antibiotics prescribed or supplied in 2009–10

The relationships between patients, their reasons for encounter and the problems managed with an antibiotic are presented in Figure 9.4. Medications from the Antibacterials for Systemic Use ATC group (J01) were prescribed or supplied by GPs at a rate of 14.3 per 100 encounters, and 9.3 per 100 problems managed. For every 100 problems managed with a systemic antibiotic, 103 antibiotics were prescribed or supplied (100 antibiotics prescribed and 3 supplied).

## Patient age and sex

Patients aged 1–14 years were most likely to be prescribed or supplied an antibiotic, at a rate of 25.4 per 100 encounters, followed by patients aged 15–24 years (19.7 per 100 encounters). Infants aged less than 1 year had the lowest rate (8.8). The sex-specific antibiotic rates were similar for males (15.3 per 100 encounters) and females (13.5).

## Reasons for encounter

The reason for encounter most often given by patients at encounters where an antibiotic was prescribed or supplied was cough (25.0 per 100 antibiotic encounters). The second most common reason was throat symptom/complaint (11.4 per 100 antibiotic encounters).

## Problems managed with an antibiotic

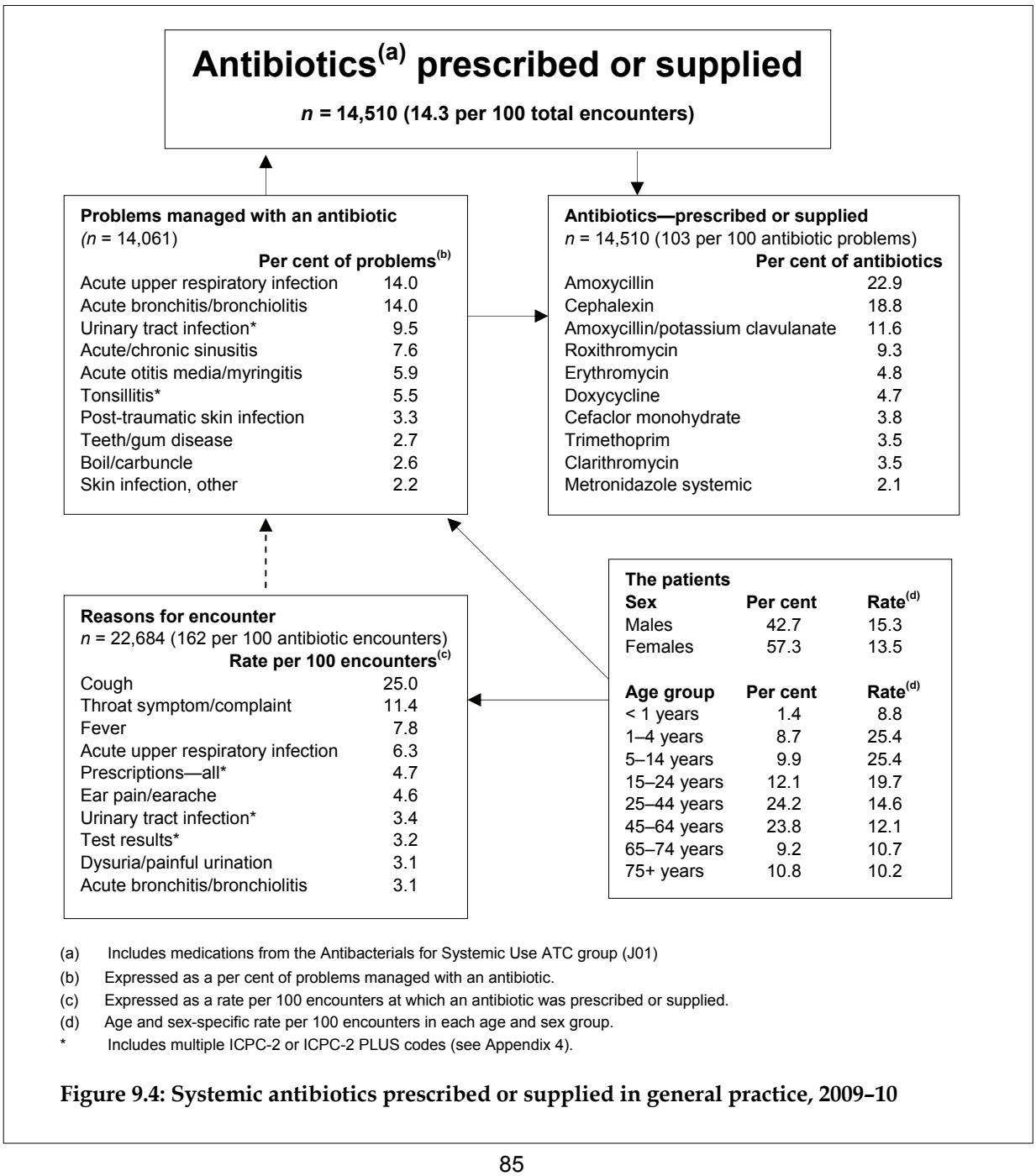
As would be expected with the high proportion of acute problems managed with an antibiotic, there was a high proportion of new problems managed at the encounters (70.9%) (results not shown). More than half (51.7%) of problems managed with an antibiotic were of a respiratory nature, with acute upper respiratory infections and bronchitis each accounting for 14.0% of problems managed with an antibiotic. Skin conditions such as post-traumatic

infections, boils and cellulitis accounted for another 16.8%, while urological problems, mainly urinary tract infections, made up 10.0% of problems managed with an antibiotic.

## Individual antibiotics prescribed or supplied

The most frequently prescribed/supplied antibiotic was amoxycillin, which accounted for 22.9% of all antibiotics recorded. The second most common was cephalexin, accounting for 18.8%. The combination product amoxicillin/potassium clavulanate was also frequently prescribed/supplied, accounting for 11.6% of antibiotics, as was roxithromycin (9.3% of all antibiotics recorded).

Section 9.6 gives a more in-depth investigation of changes in antibiotic prescribing for acute upper respiratory infection (the common cold) and other conditions including sinusitis, tonsillitis and otitis media.




(a) Includes medications from the Antibacterials for Systemic Use ATC group (J01)

(b) Expressed as a per cent of problems managed with an antibiotic.

(c) Expressed as a rate per 100 encounters at which an antibiotic was prescribed or supplied.

(d) Age and sex-specific rate per 100 encounters in each age and sex group.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4).

**Figure 9.4: Systemic antibiotics prescribed or supplied in general practice, 2009–10**

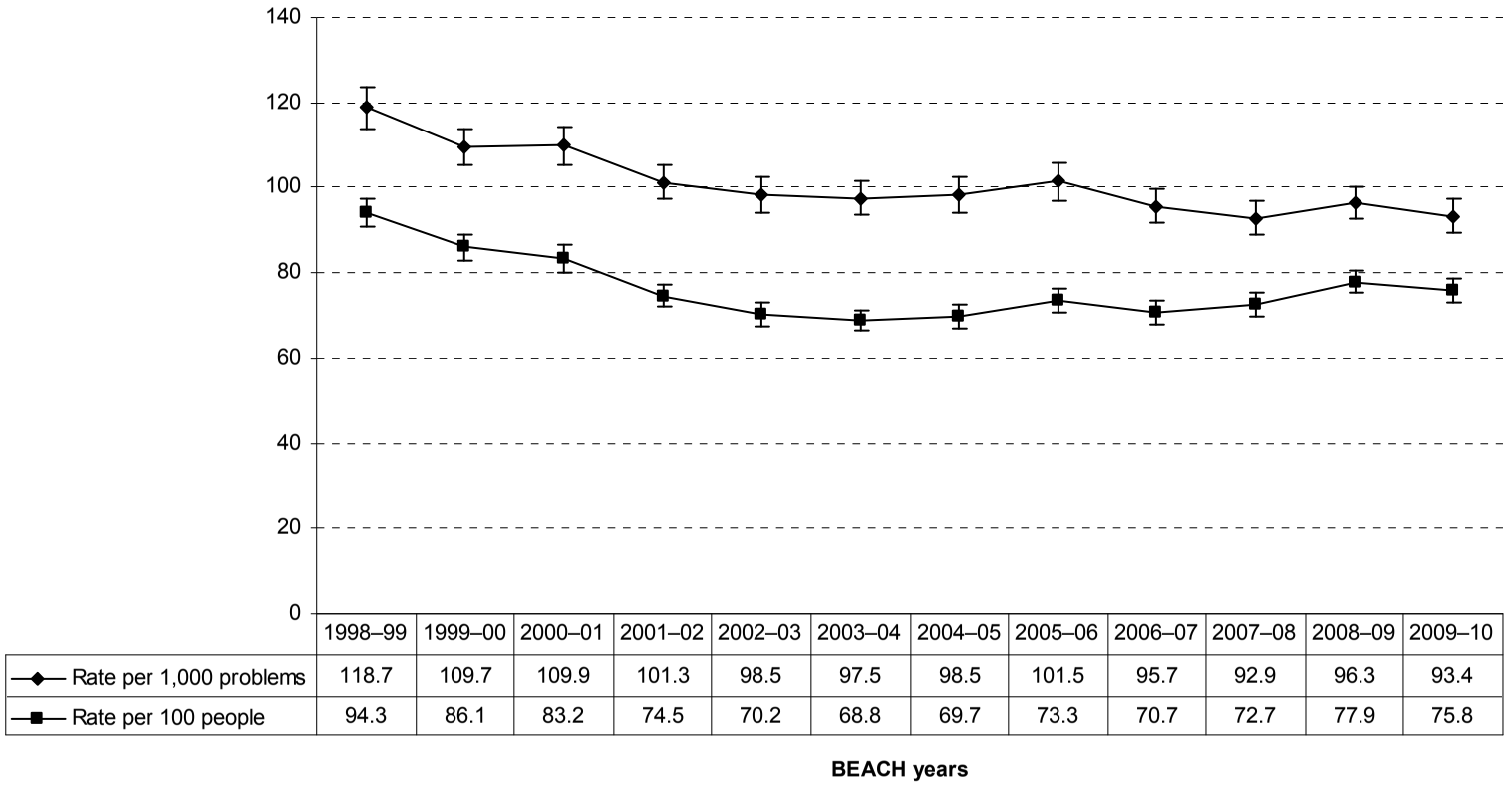
## 9.6 Systemic antibiotic prescribing, 1998–99 to 2009–10

This section examines changes in the prescribing of systemic antibiotics by GPs from 1998–99 to 2009–10. 'Antibiotics' in this text refer to all oral/systemic antibiotic prescriptions recorded in BEACH.

Over the past decade there has been a concerted effort by government agencies and other organisations to encourage decreased use of antibiotics in treatment of upper respiratory infections. This was one of the objectives of the Quality Use of Medicines initiative of the National Medicines Policy 2000[66], which drew on resources from several partners, such as the National Prescribing Service (NPS) and the Pharmaceutical Benefits Advisory Committee. In 2000, the NPS launched the first of its annual 'common colds community campaign'[67] which aimed to reduce inappropriate use of antibiotics for the common cold (known in general practice as acute upper respiratory tract infection, or acute URTI). Public advertising campaigns and therapeutic guidelines for health professionals were used to inform and advise. The Therapeutic Guidelines state that the benefits of antibiotic therapy for a range of respiratory conditions are more limited than previously thought and, consequently, routine use of antibiotics in these conditions should be avoided to limit potential adverse effects and to reduce bacterial resistance in individuals and in the community[68].

Figure 9.5 shows the prescribing rate of antibiotics for all problems (not just respiratory) from 1998–99 to 2009–10. The GP prescribing rate, at its highest in 1998–99 (at 119 per 1,000 problems managed), significantly decreased in 1999–00 to 110 per 1,000 problems managed. This was followed by a slower decline until 2003–04 when it reached 98 per 1,000. Since then, there has been no regular trend from year to year. However, the 2009–10 prescribing rate is significantly lower (at 93.4 per 1,000 problems managed) than it was at the beginning of the study period, though it is not lower than it was in 2002–04.

The prescribing rate per head of population followed a similar pattern, decreasing from 94.3 antibiotic prescriptions per 100 people, to 75.8 per 100 people per year (Figure 9.5).




| | 1998–99 | 1999–00 | 2000–01 | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rate per 1,000 problems | 118.7 | 109.7 | 109.9 | 101.3 | 98.5 | 97.5 | 98.5 | 101.5 | 95.7 | 92.9 | 96.3 | 93.4 |
| Rate per 100 people | 94.3 | 86.1 | 83.2 | 74.5 | 70.2 | 68.8 | 69.7 | 73.3 | 70.7 | 72.7 | 77.9 | 75.8 |

**Figure 9.5: Systemic antibiotic medications prescribed in general practice, 1998–99 to 2009–10, 95% CI**

This measured decrease does not necessarily mean a decrease in the use of antibiotics for acute URTI. Figure 9.6 shows the proportion of total antibiotics that were prescribed in 2009–10 for: acute URTIs (the common cold); 'other upper respiratory tract infections' (including: streptococcal throat, acute/chronic sinusitis, acute tonsillitis, acute laryngitis/tracheitis, influenza and epiglottitis); all other respiratory conditions; otitis media; skin problems; urological problems; and all other problems (see Appendix 4, Table A4.2 for ICPC-2 code inclusions).

Only 14.0% of antibiotics prescribed by GPs were for management of acute URTI, a further 16.0% were for 'other upper respiratory tract infections', and 21.0% for other respiratory conditions—together accounting for only half the antibiotics prescribed (Figure 9.6). Even if the campaigns to reduce systemic antibiotic use for acute URTI were successful, they would have little impact on the overall use of antibiotics since antibiotics for acute URTI only account for 14% of the total prescribed. Therefore the changes demonstrated in Figure 9.5 reflect broader changes in antibiotic prescribing.

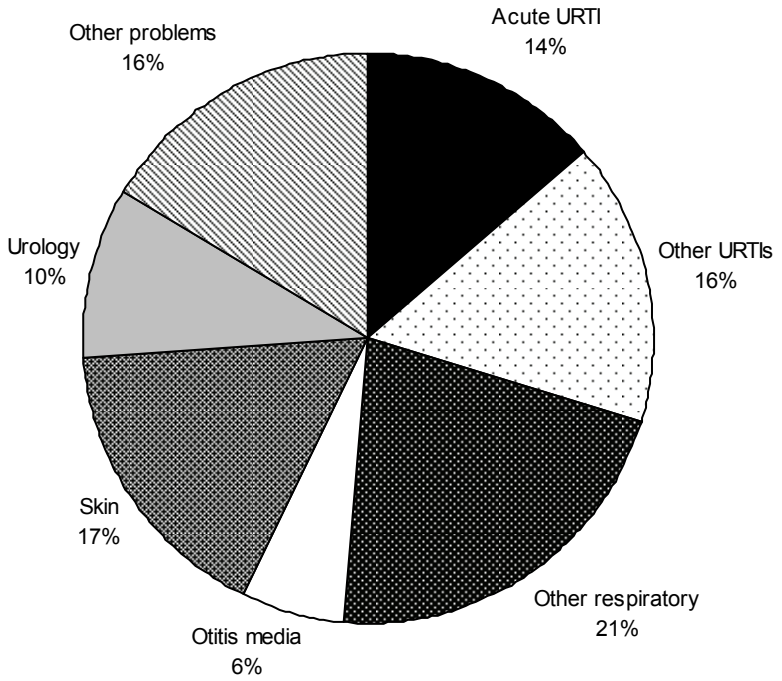



**Figure 9.6: Distribution of problems for which systemic antibiotics were prescribed in 2009–10**

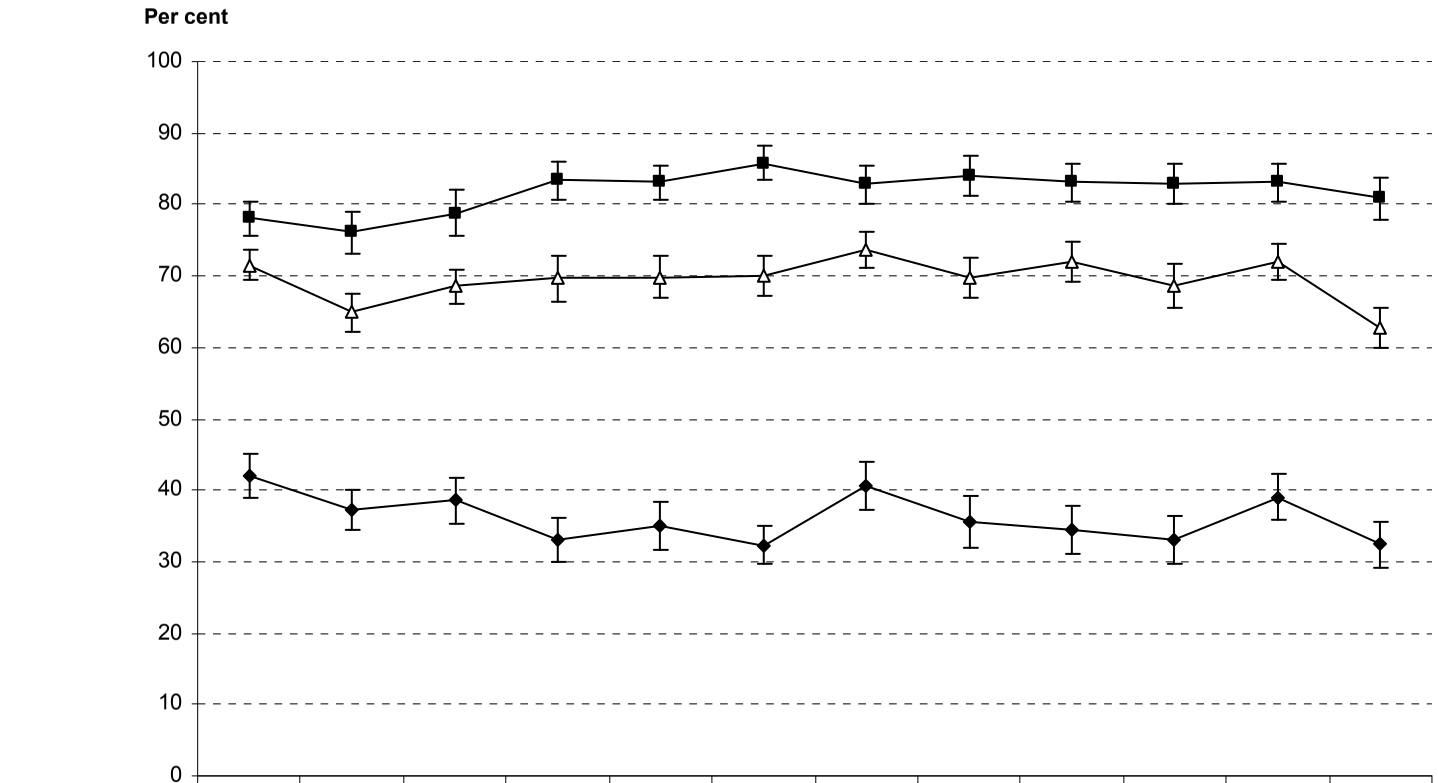
Figure 9.7 shows the proportion of acute URTI, the proportion of 'other upper respiratory infections' and the proportion of otitis media problems managed for which antibiotics were prescribed, from 1998–99 to 2009–10.

- The proportion of acute URTI problems for which the GP prescribed an antibiotic decreased significantly from 42.0% in 1998–99 to 33.0% in 2001–02, then increased to peak at 40.6% in 2004–05. Another peak in 2008–09 (39.0%) was followed by a significant decrease to 32.4% in 2009–10.
- The proportion of 'other upper respiratory infections' problems managed with antibiotics significantly decreased from 71.6% in 1998–99 to 64.9% in 1999–2000 but then rose to peak in 2004–05 at 73.6%. The proportion decreased between 2008–09 (72.0%) and 2009–10 (62.6%).
- A total of 78% of otitis media contacts were managed with antibiotics in 1998–99. This proportion increased in 2001–02 (to 83.4%) and remained significantly higher than the 1999–00 levels for all years until 2009–10.

If the public education campaigns were successful, one would assume they would have an effect of lowering presentation rates of acute URTI, with patients opting not to see the GP. If this were true, it may mean that the infections being presented on average would be more severe. It is possible that the prescribing of antibiotics may to some degree be dependent on the severity of the infection being presented. Therefore the management rate of these conditions over the years was investigated to see whether there had been a change in the number of presentations of the selected problems over time (Figure 9.8).

- The management rate of acute URTI began to decrease in 2000–01 from its highest rate (7.2 per 100 encounters) in 1999–00 to the significantly lower rate of 5.5 per 100 encounters in 2003–04. The management rate of acute URTI has not changed significantly since then.
- The management rate of 'other upper respiratory tract infections' also peaked in 1999–00 (11.6 per 100 encounters), then declined significantly to 8.6 per 100 encounters by 2004–05. However, the management rate significantly increased to 9.7 per 100 in 2005–06, and has since remained stable. In 2009–10, it was lower than the 1999–00 peak rate but higher than the lowest rate in 2004–05.
- The management rate of otitis media steadily decreased from the highest point of 1.8 per 100 encounters in 1998–99 to the significantly lower rate of 1.0 per 100 encounters in 2009–10.

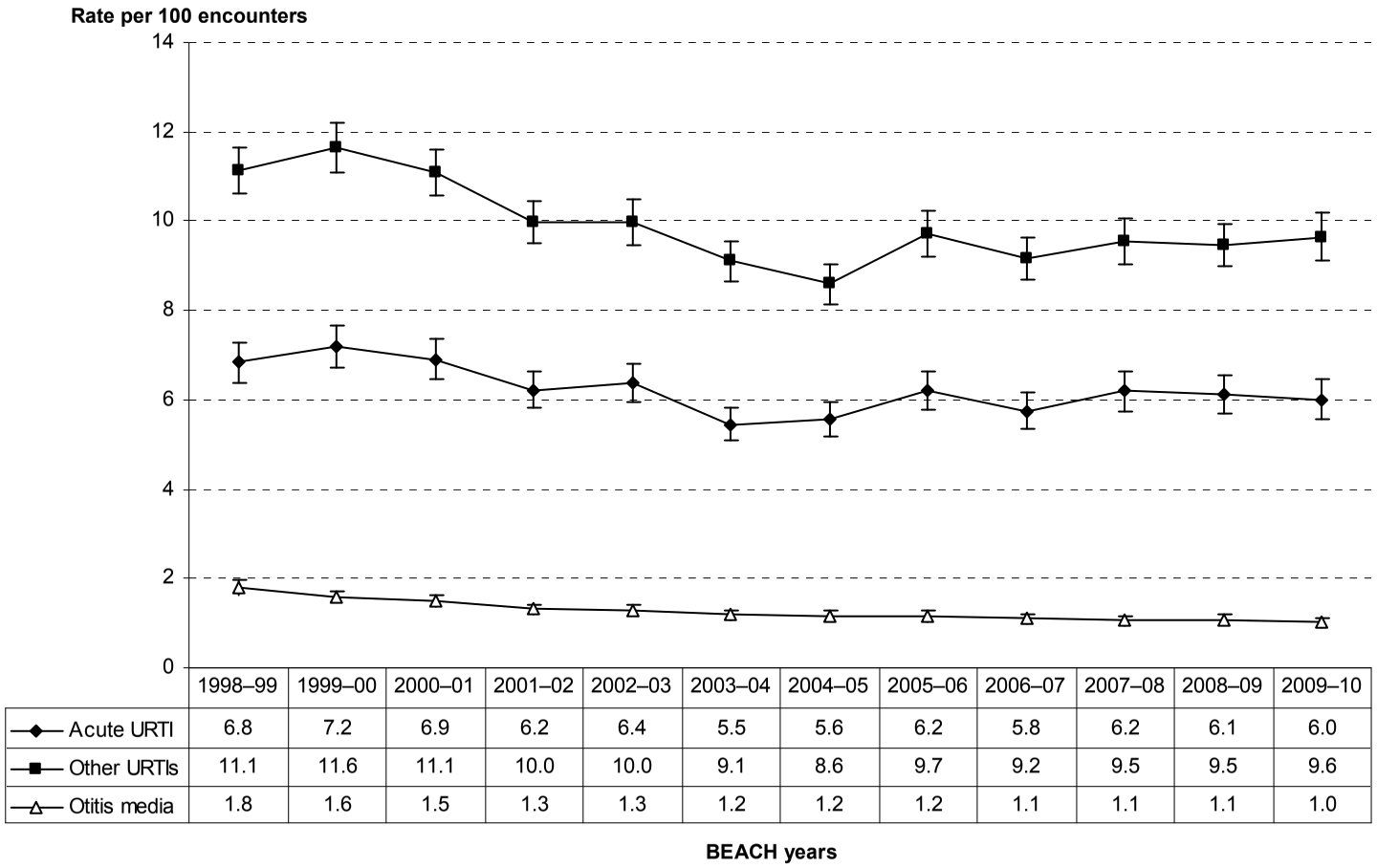
It can therefore be concluded that from the introduction of the 'common cold campaign'[67] in 2000 to about 2003–04 there was a reduction in not only the management rate of acute URTI, but also in the management rate of 'other upper respiratory tract infections' and otitis media. However, the management rate did not change in the second half of the decade.




| | 1998–99 | 1999–00 | 2000–01 | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acute URTI | 42.0 | 37.2 | 38.5 | 33.0 | 35.0 | 32.3 | 40.6 | 35.5 | 34.4 | 33.0 | 39.0 | 32.4 |
| Otitis media | 78.0 | 76.1 | 78.8 | 83.4 | 83.1 | 85.8 | 82.8 | 84.1 | 83.1 | 82.9 | 83.1 | 80.8 |
| Other URTIs | 71.6 | 64.9 | 68.6 | 69.6 | 69.8 | 70.0 | 73.6 | 69.7 | 72.0 | 68.5 | 72.0 | 62.6 |

BEACH years

**Figure 9.7: Proportion of problems that have a systemic antibiotic prescription recorded, 1998–99 to 2009–10, 95% CI**




| | 1998–99 | 1999–00 | 2000–01 | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acute URTI | 6.8 | 7.2 | 6.9 | 6.2 | 6.4 | 5.5 | 5.6 | 6.2 | 5.8 | 6.2 | 6.1 | 6.0 |
| Other URTIs | 11.1 | 11.6 | 11.1 | 10.0 | 10.0 | 9.1 | 8.6 | 9.7 | 9.2 | 9.5 | 9.5 | 9.6 |
| Otitis media | 1.8 | 1.6 | 1.5 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.0 |

**Figure 9.8: Management rates of systemic antibiotic related problems, 1998–99 to 2009–10, 95% CI**

Figure 9.9 shows the national estimated annual number of antibiotics prescribed (not counting repeats if given) by GPs for each problem managed (often referred to as 'indication') for the antibiotic. This calculation considers:

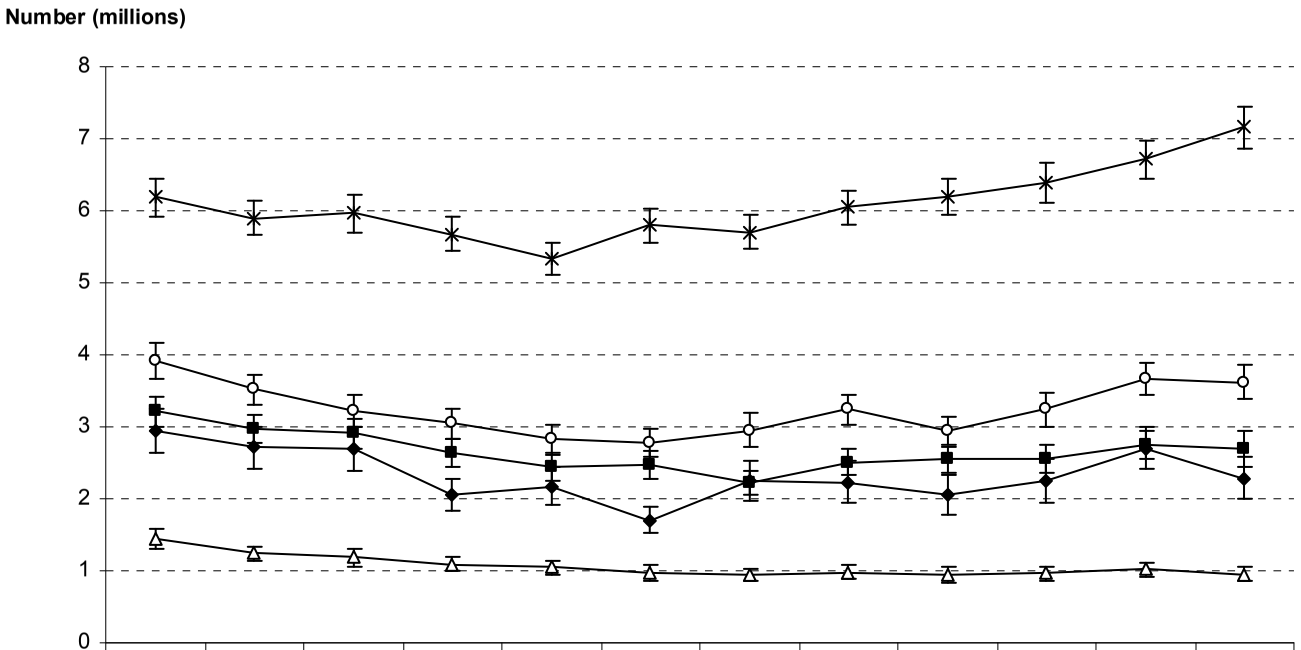
- the number of GP–patients encounters nationally (see Section 2.10) +
- the rate at which the problem was managed +
- the rate at which systemic antibiotics were prescribed for the problem in each year.

The number of antibiotics prescribed by GPs for acute URTI decreased between 1998–99 and 2003–04 by just over 40% (about 1.25 million fewer antibiotic prescriptions in 2003–04). This decrease resulted from a significantly lower prescription rate (Figure 9.7) combined with a significantly lower management rate (Figure 9.8) and a decrease in the national number of GP–patient encounters over this period (Section 2.10). However, between 2003–04 and 2009–10 the number of antibiotics prescribed by GPs for acute URTI increased by about 35% (about 600,000 more prescriptions in 2009–10 than in 2003–04). This increase was primarily due to the increase in the number of GP–patient encounters over this period with little change in the proportion of acute URTIs for which an antibiotic prescription was given, or in the management rate of URTI problems.

The number of antibiotics prescribed for 'other upper respiratory tract infections' followed a similar pattern to that for acute URTIs. The main difference, however, was that for 'other upper respiratory tract infections' the initial decrease in the number of systemic antibiotics prescribed was not due to any change in GP management style (as shown in Figure 9.7), but resulted from a large drop in its management rate (Figure 9.8) combined with the decrease in total GP–patient encounters nationally (that is, decreasing attendance rate).

In contrast to the respiratory problems, the number of antibiotics prescribed for otitis media stayed relatively stable after 2003–04. This was due to the continued decrease in its management (Figure 9.8) countering the increase in overall GP–patient encounters, with no solid trend of change in GP prescribing behaviour.

Figure 9.9 shows that more than 40% of all antibiotics prescribed in Australian general practice were for problems other than respiratory problems or otitis media. In 2002–03 there were about 900,000 fewer antibiotic prescriptions written for the management of these problems than there were in 1998–99. However, in 2009–10, there were an estimated 1.8 million more antibiotic prescriptions given by GPs for these non–respiratory problems than in 2002–03. This increase is larger than all the increases for respiratory problems combined.




| | 1998–99 | 1999–00 | 2000–01 | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 | 2006–07 | 2007–08 | 2008–09 | 2009–10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acute URTI | 2.95 | 2.72 | 2.69 | 2.06 | 2.18 | 1.70 | 2.24 | 2.24 | 2.06 | 2.25 | 2.70 | 2.29 |
| Other URTIs | 3.21 | 2.97 | 2.91 | 2.64 | 2.46 | 2.48 | 2.23 | 2.51 | 2.55 | 2.56 | 2.75 | 2.70 |
| Otitis media | 1.45 | 1.24 | 1.19 | 1.09 | 1.05 | 0.98 | 0.95 | 0.99 | 0.95 | 0.96 | 1.02 | 0.95 |
| Other respiratory | 3.91 | 3.52 | 3.22 | 3.04 | 2.82 | 2.77 | 2.95 | 3.24 | 2.95 | 3.24 | 3.66 | 3.62 |
| Other problems | 6.19 | 5.90 | 5.96 | 5.67 | 5.33 | 5.80 | 5.70 | 6.04 | 6.19 | 6.39 | 6.71 | 7.16 |

**Figure 9.9: National estimated number of annual systemic antibiotic prescriptions by GPs, by problem managed (millions), 1998–99 to 2009–10, 95% CI**

## Summary

The results of this study suggest that prescriptions for antibiotics (for all conditions) per head of population decreased sharply (by 27%) between 1998–99 and 2003–04, agreeing with an earlier report by the NPS.[67] However, since then there has been little change. Together, the common cold (14%) and other upper respiratory tract infections (16%) accounted for 30% of all antibiotic prescriptions in 2009–10.

These results demonstrate that two major factors influence the total number of antibiotics prescribed by GPs for upper respiratory infections. These are:

- the management decision of the GP whether or not to prescribe an antibiotic for URTI
- the number of times URTI is managed by GPs (which in turn is influenced by the incidence of infection in the community, the proportion of those with a respiratory infection who decide to visit the GP, the number of visits they make per episode and the total number of GP–patient encounters).

The decrease in antibiotic prescribing for URTI between 1998–99 and 2003–04 appears due to:

- a decrease in the management rate of acute URTI per 100 GP–patient encounters—this may have been influenced by community education programs and GP advice about management of URTI in previous episodes
- a decrease in GP prescribing of systemic antibiotics in the management of acute URTI, which may have been affected by GP education programs such as that undertaken by NPS
- a decrease in the number of visits per head of population nationally.

In contrast, the decrease in systemic antibiotic prescribing for 'other URTIs' and otitis media over the same period was due to a lower management rate of both conditions combined with a lower national attendance rate, and not from a decrease in GPs prescribing antibiotics for these conditions.

Since 2003–04, there has been little change in either the prescribing rate of antibiotics in the management of acute URTI and of 'other URTIs,' or in the management rate of these conditions. There has been no definite trend for either an increased or decreased prescribing rate of antibiotics for these conditions. However, because there has been an increase in number of GP attendances since that time, there has been an increase in the number of antibiotics prescribed for both conditions.

These results also highlight the importance of using data that link the prescription to the problem being managed. Making inferences about GP behaviour in managing URTI from the number of antibiotics claimed through the PBS by health care card holders[69,70] can be misleading since URTI only accounts for a fraction of antibiotics prescribed. The greatest proportion of the national increase in prescribed antibiotics in the 5 years to 2009–10 has been for management of non-respiratory problems, and this increase does not reflect a change in the way GPs manage URTIs.

## 9.7 Changes in medications over the decade 2000–01 to 2009–10

Data on medications are reported for each year from 2000–01 to 2009–10 in Chapter 9 of the web-based companion report entitled *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] In that report, changes over time are measured as change in the management of problems (that is, as a rate per 100 problems). This reflects change in how GPs are managing problems, and accounts for the significant increase in the number of problems managed per encounter over the decade to 2009–10 (see Section 7.9).

The rate at which medications were prescribed fell from 63.9 per 100 problems managed in 2000–01 to 54.4 per 100 in 2009–10. This significant decrease means that an average of 9.5 fewer prescriptions were written for every 100 problems managed in 2009–10 than 10 years earlier. However, in 2009–10 there were 16.2 million (16%) more encounters claimed through Medicare than there were in 2000–01. As a result, the extrapolated national effect of this change is 4.5 million more prescriptions given by GPs in 2009–10 than in 2000–01. If, instead of decreasing, the prescribing rate had remained static over the decade, the increase in number of GP encounters combined with the increase in the number of problems managed per encounter would have resulted in 21.5 million more prescriptions in 2009–10 than in 2000–01.

Among the prescribed drug groups that decreased were psycholeptics, drugs for obstructive airways disease and systemic anti-inflammatory medications. At the same time, prescribing rates of several drug groups increased significantly, including agents acting on the rennin-angiotensin system, serum lipid-reducing agents, psychoanaleptics, drugs for acid-related digestive disorders, and anti-thrombotic agents.

At the individual generic level, temazepam, levonorgestrel/ethinyloestradiol, cefaclor and celecoxib were among the medications for which significant decreases in prescribing rates occurred over time. On the other hand, significant increases were found in the prescribing rates of many medications. Among them were atorvastatin, oxycodone, perindopril, esomeprazole, and tramadol.

Other changes that occurred over the 10-year period were a steady rise in the proportion of prescriptions for which five repeats were recorded, and an increase in the rate of medications supplied by GPs (mainly vaccines). Rates of medications recommended by GPs for over-the-counter purchases showed no significant change either in total rates or in the individual medications advised.

# 10 Other treatments

The BEACH survey form allows GPs to record up to two other (non-pharmacological) treatments for each problem managed at the encounter. Other treatments include all clinical and procedural treatments provided. These groups are defined in Appendix 4. Routine clinical measurements or observations, such as measurements of blood pressure and physical examinations, were not included if undertaken by the GP, but were included if undertaken by the practice nurse.

The GPs were also asked to indicate whether the treatment was done 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 GP. Treatments provided by the practice nurse are reported separately in Chapter 13.

Data on other treatments are reported for each year from 2000–01 to 2009–10 in the 10-year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 10.1 Number of other treatments

Other treatments were frequently provided for the management of patient problems. In 2009–10, a total of 53,243 other treatments were recorded, at a rate of 52.5 per 100 encounters. Two-thirds of these were clinical treatments. For every 100 problems managed, one in five was managed with a clinical treatment (22.8 per 100 problems) (Table 10.1).

**Table 10.1: Summary of other treatments**

| Variable | Number | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|
| At least one other treatment | 40,800 | 40.3 | 38.5 | 42.0 | — | — | — |
| Other treatments | 53,243 | 52.5 | 49.8 | 55.3 | 34.3 | 32.6 | 36.0 |
| Clinical treatments | 35,484 | 35.0 | 32.6 | 37.4 | 22.8 | 21.3 | 24.3 |
| Procedural treatments | 17,759 | 17.5 | 16.5 | 18.6 | 11.4 | 10.8 | 12.1 |

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

Table 10.2 shows the relationship between other treatments and pharmacological treatments given to patients.

- In nearly two-thirds (61.6%) of the problems that were managed with an 'other treatment', no concurrent pharmacological treatment was provided.
- A clinical treatment was provided in the management of 20.6% of problems. For nearly two-thirds (60.5%) of these problems, no medication was provided.
- A procedure was undertaken in the management of 10.7% of problems, with no pharmacological management given for 63.0% of these problems.

**Table 10.2: Relationship between other treatments and pharmacological treatments**

| Co-management of problems with other treatments | Number of problems | Per cent within class | Per cent of problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| At least one other treatment | 47,133 | 100.0 | 30.3 | 29.0 | 31.7 |
| Without pharmacological treatment | 29,022 | 61.6 | 18.7 | 17.9 | 19.5 |
| At least one clinical treatment | 31,938 | 100.0 | 20.6 | 19.3 | 21.8 |
| Without pharmacological treatment | 19,314 | 60.5 | 12.4 | 11.8 | 13.1 |
| At least one procedural treatment | 16,577 | 100.0 | 10.7 | 10.1 | 11.3 |
| Without pharmacological treatment | 10,444 | 63.0 | 6.7 | 6.2 | 7.2 |

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

# 10.2 Clinical treatments

Clinical treatments include general and specific advice, counselling or education, family planning, and administrative processes. During 2009–10, there were 35,484 clinical treatments recorded, at a rate of 35.0 per 100 encounters, or 22.8 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, as a rate per 100 encounters with 95% confidence limits and as a rate per 100 problems with 95% confidence limits.

General advice and education was the most frequently recorded clinical treatment, at a rate of 6.2 per 100 encounters. Counselling about the problem under management was provided at a rate of 4.3 per 100 encounters, and advice and education about a patient's treatment was provided at a rate of 3.9 per 100 encounters. Psychological counselling was provided at a rate of 3.4 per 100 encounters, and advice and education about medication was given at a rate of 2.4 per 100 encounters (Table 10.3).

Several clinical treatments related to preventive activities done. The most common preventive activity was counselling about nutrition and weight (3.7 per 100 encounters). Several other groups could also be considered preventive, including counselling/advice for exercise, smoking, prevention, lifestyle and alcohol. Together, these preventive treatments accounted for 20.5% of all clinical treatments, provided at a rate of 7.1 per 100 encounters (Table 10.3).

**Table 10.3: Most frequent clinical treatments**

| Clinical treatment | Number | Per cent of other treatments (*n* = 53,243) | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|
| Advice/education* | 6,319 | 11.9 | 6.2 | 5.3 | 7.1 | 4.1 | 3.5 | 4.6 |
| Counselling—problem* | 4,406 | 8.3 | 4.3 | 3.7 | 5.0 | 2.8 | 2.4 | 3.2 |
| Advice/education—treatment* | 3,981 | 7.5 | 3.9 | 3.3 | 4.5 | 2.6 | 2.2 | 3.0 |
| Counsel/advice—nutrition/weight* | 3,767 | 7.1 | 3.7 | 3.4 | 4.1 | 2.4 | 2.2 | 2.7 |
| Counselling—psychological* | 3,492 | 6.6 | 3.4 | 3.2 | 3.7 | 2.2 | 2.1 | 2.4 |
| Advice/education—medication* | 2,439 | 4.6 | 2.4 | 2.2 | 2.6 | 1.6 | 1.4 | 1.7 |
| Other administrative/document* | 2,083 | 3.9 | 2.1 | 1.9 | 2.3 | 1.3 | 1.2 | 1.5 |
| Reassurance, support | 1,411 | 2.7 | 1.4 | 1.1 | 1.7 | 0.9 | 0.7 | 1.1 |
| Sickness certificate* | 1,400 | 2.6 | 1.4 | 1.2 | 1.6 | 0.9 | 0.8 | 1.0 |
| Counsel/advice—exercise* | 1,252 | 2.4 | 1.2 | 1.0 | 1.4 | 0.8 | 0.7 | 0.9 |
| Counsel/advice—smoking* | 738 | 1.4 | 0.7 | 0.6 | 0.8 | 0.5 | 0.4 | 0.5 |
| Counsel/advice—prevention* | 588 | 1.1 | 0.6 | 0.5 | 0.7 | 0.4 | 0.3 | 0.5 |
| Counsel/advice—life style* | 545 | 1.0 | 0.5 | 0.4 | 0.7 | 0.4 | 0.3 | 0.4 |
| Counsel/advice—alcohol* | 399 | 0.7 | 0.4 | 0.3 | 0.5 | 0.3 | 0.2 | 0.3 |
| Counsel/advice—pregnancy* | 345 | 0.6 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Counsel/advice—health/body* | 342 | 0.6 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Observe/wait* | 330 | 0.6 | 0.3 | 0.2 | 0.4 | 0.2 | 0.1 | 0.3 |
| Family planning* | 311 | 0.6 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 |
| *Subtotal* | *34,150* | *64.1* | — | — | — | — | — | — |
| **Total clinical treatments** | **35,484** | **66.6** | **35.0** | **32.6** | **37.4** | **22.8** | **21.3** | **24.3** |

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

## 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 clinical treatments were 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 31,938 problems (20.6% of all problems).

- Depression and URTI were the problems most often managed with a clinical treatment, each at a rate of 1.9 per 100 encounters.
- Almost half the contacts with depression involving management with a clinical treatment did not result in a medication being prescribed/advised/supplied (48.7%) at that encounter.
- Almost 32% of URTI contacts involved a clinical treatment, with 53.1% of these being managed without medication at that encounter.
- More than 1 in 10 (10.6%) hypertension contacts resulted in a clinical treatment, with 44.2% of these being managed without medication at that encounter.

- A clinical treatment was used at one-quarter (25.1%) of contacts with lipid disorders, and 66.2% of these did not involve medication at that encounter.

**Table 10.4: The 10 most common problems managed with a clinical treatment**

| Problem managed | Number | Per cent of problems with clinical treatment | Rate per 100 encounters[(a)] (*n* = 101,349) | 95% LCL | 95% UCL | Per cent of this problem[(b)] | Per cent of treated problems no medications[(c)] |
|---|---|---|---|---|---|---|---|
| Upper respiratory tract infection | 1,931 | 6.0 | 1.9 | 1.6 | 2.2 | 31.8 | 53.1 |
| Depression* | 1,925 | 6.0 | 1.9 | 1.7 | 2.1 | 44.5 | 48.7 |
| Hypertension* | 976 | 3.1 | 1.0 | 0.8 | 1.1 | 10.6 | 44.2 |
| Diabetes* | 968 | 3.0 | 1.0 | 0.9 | 1.1 | 25.8 | 59.9 |
| Lipid disorders | 884 | 2.8 | 0.9 | 0.8 | 1.0 | 25.1 | 66.2 |
| Anxiety* | 804 | 2.5 | 0.8 | 0.7 | 0.9 | 44.7 | 65.0 |
| Gastroenteritis* | 604 | 1.9 | 0.6 | 0.5 | 0.7 | 41.5 | 56.4 |
| Back complaint* | 540 | 1.7 | 0.5 | 0.5 | 0.6 | 19.6 | 46.3 |
| Test results* | 497 | 1.6 | 0.5 | 0.4 | 0.6 | 27.6 | 90.8 |
| Tobacco abuse | 476 | 1.5 | 0.5 | 0.4 | 0.5 | 61.6 | 48.0 |
| *Subtotal* | *9,605* | *30.1* | — | — | — | — | — |
| **Total problems with clinical treatments** | **31,938** | **100.0** | **31.5** | **29.5** | **33.5** | **—** | **—** |

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

(b) Percentage 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/subject/19>).

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

# 10.3 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 17,759 procedural treatments provided in these general practice encounters during 2009–10, at a rate of 17.5 per 100 encounters (Table 10.1).

## Most frequent procedures

Table 10.5 lists the most common procedural treatments provided. Each treatment is expressed as a percentage of all other treatments, and as a rate per 100 encounters with 95% confidence limits. These results only report investigations actually undertaken at the encounter. They do not include investigations that were ordered by the GP to be performed by an external provider. A summary of all investigations (both undertaken and ordered) is provided in Table 12.6.

The most frequently recorded group of procedures in 2009–10 were excisions, at a rate of 3.0 per 100 encounters, and accounting for 5.7% of all other treatments. Other procedural treatments frequently recorded included local injections (2.5 per 100 encounters), dressings (2.4 per 100 encounters) and incisions (1.4 per 100 encounters) (Table 10.5).

**Table 10.5: Most frequent procedural treatments**

| Procedural treatment | Number | Per cent of other treatments (*n* = 53,243) | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|
| Excision/removal tissue/biopsy/ destruction/debridement/cauterisation* | 3,024 | 5.7 | 3.0 | 2.7 | 3.2 | 1.9 | 1.8 | 2.1 |
| Local injection/infiltration*[(a)] | 2,544 | 4.8 | 2.5 | 2.3 | 2.7 | 1.6 | 1.5 | 1.8 |
| Dressing/pressure/compression/ tamponade* | 2,439 | 4.6 | 2.4 | 2.2 | 2.6 | 1.6 | 1.4 | 1.7 |
| Incision/drainage/flushing/aspiration/ removal body fluid* | 1,402 | 2.6 | 1.4 | 1.2 | 1.5 | 0.9 | 0.8 | 1.0 |
| Physical medicine/rehabilitation* | 1,260 | 2.4 | 1.2 | 1.0 | 1.5 | 0.8 | 0.7 | 1.0 |
| Pap smear* | 1,046 | 2.0 | 1.0 | 0.9 | 1.2 | 0.7 | 0.6 | 0.8 |
| Other therapeutic procedures/surgery NEC* | 987 | 1.9 | 1.0 | 0.4 | 1.6 | 0.6 | 0.2 | 1.0 |
| Repair/fixation—suture/cast/prosthetic device (apply/remove)* | 915 | 1.7 | 0.9 | 0.8 | 1.0 | 0.6 | 0.5 | 0.6 |
| Check-up—practice nurse* | 683 | 1.3 | 0.7 | 0.3 | 1.0 | 0.4 | 0.2 | 0.7 |
| Electrical tracings* | 594 | 1.1 | 0.6 | 0.5 | 0.7 | 0.4 | 0.3 | 0.4 |
| INR test | 560 | 1.1 | 0.6 | 0.4 | 0.7 | 0.4 | 0.3 | 0.4 |
| Other preventive procedures/high risk medication* | 549 | 1.0 | 0.5 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 |
| Physical function test* | 542 | 1.0 | 0.5 | 0.4 | 0.6 | 0.3 | 0.3 | 0.4 |
| Urine test* | 287 | 0.5 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| Other diagnostic procedures* | 267 | 0.5 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| *Subtotal* | *17,100* | *32.1* | — | — | — | — | — | — |
| **Total procedural treatments** | **17,759** | **33.4** | **17.5** | **16.5** | **18.6** | **11.4** | **10.8** | **12.1** |

(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/subject/19>).

*Note:* LCL—lower confidence limit; UCL—upper confidence limit; NEC—not elsewhere classified; INR—international normalised ratio. Only the most common procedural treatments—those accounting for > 0.5% of all other treatments—were tabled.

## Problems managed with a procedural treatment

Table 10.6 lists the top 10 problems managed with a procedural treatment. It also shows the proportion of contacts with each problem that was managed with a procedure, and the proportion of problems managed with a procedure without medication given concurrently.

- A total of 16,577 problems (10.7% of all problems) involved a procedural treatment in their management.
- The top 10 problems accounted for 34.4% of all problems for which a procedure was used.
- Female genital check-ups/Pap smears were the most common problem managed with a procedure (0.9 per 100 encounters), with a procedure undertaken at more than half (53.9%) of all contacts.
- Nearly four-fifths (79.7%) of contacts for lacerations and cuts were treated with a procedure. Of these, 77.4% were not concurrently given a medication for this problem at the encounter.

**Table 10.6: The 10 most common problems managed with a procedural treatment**

| Problem managed | Number | Per cent of problems with procedure | Rate per 100 encounters[(a)] (*n* = 101,349) | 95% LCL | 95% UCL | Per cent of this problem[(b)] | Per cent of treated problems no medications[(c)] |
|---|---|---|---|---|---|---|---|
| Female genital check-up/ Pap smear* | 931 | 5.6 | 0.9 | 0.8 | 1.0 | 53.9 | 97.9 |
| Solar keratosis/sunburn | 842 | 5.1 | 0.8 | 0.7 | 0.9 | 66.4 | 97.9 |
| Laceration/cut | 679 | 4.1 | 0.7 | 0.6 | 0.7 | 79.7 | 77.4 |
| Excessive ear wax | 575 | 3.5 | 0.6 | 0.5 | 0.6 | 74.6 | 92.2 |
| Malignant neoplasm of skin | 571 | 3.4 | 0.6 | 0.5 | 0.7 | 44.5 | 94.0 |
| Chronic ulcer skin (including varicose ulcer) | 484 | 2.9 | 0.5 | 0.4 | 0.6 | 77.9 | 78.6 |
| General check-up* | 480 | 2.9 | 0.5 | 0.4 | 0.6 | 15.9 | 71.4 |
| Warts | 449 | 2.7 | 0.4 | 0.4 | 0.5 | 75.9 | 95.2 |
| Sprain/strain* | 354 | 2.1 | 0.3 | 0.2 | 0.5 | 24.1 | 40.8 |
| Back complaint* | 338 | 2.0 | 0.3 | 0.2 | 0.5 | 12.3 | 55.8 |
| *Subtotal* | *5,704* | *34.4* | — | — | — | — | — |
| **Total problems with procedural treatments** | **16,577** | **100.0** | **16.4** | **15.4** | **17.3** | **—** | **—** |

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

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

# 10.4 Changes in other treatments over the decade 2000–01 to 2009–10

An overview of changes in other treatments provided in general practice over the decade can be found in Chapter 10 of the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] In that report, changes over time are measured as change in the management of problems (that is, as a rate per 100 problems). This reflects change in how GPs are managing problems and accounts for the significant increase in the number of problems managed per encounter over the decade (see Section 7.9).

## Clinical treatments

In summary, there was a significant decrease in the rate of clinical treatments provided for every 100 problems managed between 2000–01 and 2009–10. However, this decrease was not linear over the study period—the rate increased between 2000–01 and 2004–05 (from 25.8 clinical treatments per 100 problems managed to 27.0 per 100), but then decreased to a low of 19.9 per 100 in 2006–07 and has gradually been increasing since. By 2009–10 the rate had still not reached the level of 2000–01.

The overall decrease was reflected in the rates of advice and education about treatment, counselling and advice about nutrition and weight, and counselling and advice about exercise.

In light of policy changes (including the establishment of beyondblue in 2000[71], introduction of the Better Outcomes in Mental Health Care program in 2001[72], and the Better access to psychiatrists, psychologists and general practitioners through the MBS initiative in 2006[73]), two results were of particular interest:

- there was no change in the rate of GP provision of psychological counselling
- the rate at which other administration/documentation work was recorded increased between 2000–01 and 2009–10.

There was little change in the rates of clinical treatments provided for any of the problems most often managed with clinical treatments.

## Procedural treatments

There was a significant increase in the number of procedures performed between 2000–01 (8.4 per 100 problems managed) and 2009–10 (11.4 per 100). In particular, there were significantly more local injections given, more procedures from the group dressing/pressure/compression/tamponade, more INR tests, and more other preventive procedures.

# 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 medical specialists, allied health professionals, hospitals for admission, emergency departments or other medical services. Referrals to hospital outpatient clinics and to other GPs were classified as referrals to other medical services.

Data on referrals and admissions are reported for each year from 2000–01 to 2009–10 in the 10-year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 11.1 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 12.4% of all encounters, and for 8.7% of all problems managed. There were a total of 13,481 referrals made at a rate of 13.3 per 100 encounters. The most frequent referrals were to medical specialists (8.4 per 100 encounters, 5.5 per 100 problems managed), followed by referrals to allied health services (3.9 per 100 encounters, 2.6 per 100 problems). 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**

| Variable | Number | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|
| At least one referral[(a)] | 12,554 | 12.4 | 11.9 | 12.9 | 8.7 | 8.4 | 9.0 |
| Referrals | 13,481 | 13.3 | 12.8 | 13.8 | 8.7 | 8.4 | 9.0 |
| Medical specialist | 8,562 | 8.4 | 8.1 | 8.8 | 5.5 | 5.3 | 5.7 |
| Allied health service | 3,974 | 3.9 | 3.7 | 4.2 | 2.6 | 2.4 | 2.7 |
| Hospital | 362 | 0.4 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Emergency department | 202 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| Other medical services | 80 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Other referrals | 301 | 0.3 | 0.2 | 0.4 | 0.2 | 0.1 | 0.2 |

(a) Rate per 100 problems for at least one referral is calculated using a numerator of number of individual problems with a referral (*n* = 13,477).

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

# 11.2 Most frequent referrals

Table 11.2 shows the medical specialists and allied health service groups to whom GPs most often referred patients. The most common specialist referrals were to surgeons (9.7% of specialist referrals), orthopaedic surgeons (9.2%), ophthalmologists (8.1%), and dermatologists (7.7%).

Almost one-third (28.9%) of referrals to allied health services were to physiotherapists, one-fifth were to psychologists (20.1%), one-tenth to podiatrists or chiropodists (9.4%), and 7.6% to dentists.

**Table 11.2: Most frequent referrals, by type**

| Professional/organisation | Number | Per cent of AHP and specialist referrals | Per cent of referral group | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|---|
| **Medical specialist** | **8,562** | **68.3** | **100.0** | **8.4** | **8.1** | **8.8** | **5.5** | **5.3** | **5.7** |
| Surgeon | 827 | 6.6 | 9.7 | 0.8 | 0.7 | 0.9 | 0.5 | 0.5 | 0.6 |
| Orthopaedic surgeon | 789 | 6.3 | 9.2 | 0.8 | 0.7 | 0.8 | 0.5 | 0.5 | 0.6 |
| Ophthalmologist | 696 | 5.6 | 8.1 | 0.7 | 0.6 | 0.8 | 0.4 | 0.4 | 0.5 |
| Dermatologist | 655 | 5.2 | 7.7 | 0.6 | 0.6 | 0.7 | 0.4 | 0.4 | 0.5 |
| Gastroenterologist | 574 | 4.6 | 6.7 | 0.6 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 |
| Cardiologist | 555 | 4.4 | 6.5 | 0.5 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 |
| Ear, nose and throat | 521 | 4.2 | 6.1 | 0.5 | 0.5 | 0.6 | 0.3 | 0.3 | 0.4 |
| Gynaecologist | 505 | 4.0 | 5.9 | 0.5 | 0.4 | 0.6 | 0.3 | 0.3 | 0.4 |
| Urologist | 321 | 2.6 | 3.8 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 |
| Neurologist | 254 | 2.0 | 3.0 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| *Subtotal: top 10 medical specialist referrals* | *5,698* | *45.5* | *66.6* | — | — | — | — | — | — |
| **Allied health and other professionals** | **3,974** | **31.7** | **100.0** | **3.9** | **3.7** | **4.2** | **2.6** | **2.4** | **2.7** |
| Physiotherapy | 1,148 | 9.2 | 28.9 | 1.1 | 1.0 | 1.3 | 0.7 | 0.7 | 0.8 |
| Psychologist | 798 | 6.4 | 20.1 | 0.8 | 0.7 | 0.9 | 0.5 | 0.5 | 0.6 |
| Podiatrist/chiropodist | 373 | 3.0 | 9.4 | 0.4 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Dentist | 302 | 2.4 | 7.6 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| Dietitian/nutritionist | 258 | 2.1 | 6.5 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| Optometrist | 98 | 0.8 | 2.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Audiologist/acoustic testing | 96 | 0.8 | 2.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Diabetes education | 76 | 0.6 | 1.9 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 |
| Counsellor | 57 | 0.5 | 1.4 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Drug and alcohol | 56 | 0.4 | 1.4 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 |
| *Subtotal: top 10 allied health referrals* | *3,262* | *26.0* | *82.1* | — | — | — | — | — | — |
| *Subtotal: all referrals listed* | *8,960* | *71.5* | — | — | — | — | — | — | — |
| **Total allied health and specialist referrals** | **12,536** | **100.0** | **—** | **12.4** | **11.8** | **12.9** | **8.1** | **7.8** | **8.4** |

*Note:* AHP—allied health professionals; LCL—lower confidence limit; UCL—upper confidence limit.

# 11.3 Problems most often referred

Each referral may have been provided for the management of multiple problems, and multiple referrals may have been used in the management of a single problem. There are more problem–referral links than referrals. Table 11.3 shows the most common problems referred to medical specialists, in decreasing frequency order of problem–referral combinations.

The 8,562 specialist referrals were provided in the management of 8,783 problems. The 10 problems most commonly referred to a specialist accounted for 18.9% of all problem–referral links. Those most often referred were pregnancy (3.1% of problem–referral links), malignant skin neoplasm (2.7%), osteoarthritis (2.3%) and diabetes (1.9%) (Table 11.3).

Table 11.3 also shows the rate of referral per 100 contacts for each problem. Pregnancy was the problem most likely to result in a referral to a specialist (18.6 per 100 pregnancy problems referred), followed by malignant skin neoplasm and abnormal test results.

**Table 11.3: The 10 problems most frequently referred to a medical specialist**

| Problem managed | Number | Per cent of problem–referral links | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 contacts of this problem[(a)] |
|---|---|---|---|---|---|---|
| Pregnancy* | 273 | 3.1 | 0.3 | 0.2 | 0.3 | 18.6 |
| Malignant skin neoplasm | 234 | 2.7 | 0.2 | 0.2 | 0.3 | 18.2 |
| Osteoarthritis* | 199 | 2.3 | 0.2 | 0.2 | 0.2 | 6.7 |
| Diabetes—all* | 170 | 1.9 | 0.2 | 0.1 | 0.2 | 4.5 |
| Back complaint* | 151 | 1.7 | 0.1 | 0.1 | 0.2 | 5.5 |
| Sleep disturbance | 145 | 1.6 | 0.1 | 0.1 | 0.2 | 9.8 |
| Ischaemic heart disease* | 125 | 1.4 | 0.1 | 0.1 | 0.1 | 10.7 |
| Depression* | 121 | 1.4 | 0.1 | 0.1 | 0.1 | 2.8 |
| Oesophageal disease | 120 | 1.4 | 0.1 | 0.1 | 0.1 | 4.7 |
| Abnormal test results* | 117 | 1.3 | 0.1 | 0.1 | 0.1 | 10.8 |
| *Subtotal: top 10 problems referred to a medical specialist* | *1,656* | *18.9* | — | — | — | — |
| **Total problems referred to medical specialist** | **8,783** | **100.0** | **8.7** | **8.3** | **9.1** | **—** |

(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/subject/19>).

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

The 3,974 referrals to an allied health professional or service were provided in the management of 4,140 problems. The 10 most common of these accounted for 46.6% of all problem–referral links. Depression was the problem most frequently referred to an allied health service (12.1% of problem–referral links). 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).

The 362 referrals to a hospital were provided in the management of 381 problems. The 10 problems most frequently referred to hospital are shown in Table 11.5. Pregnancy was the most common. However, appendicitis was the problem most likely to be referred.

**Table 11.4: The 10 problems most frequently referred to allied health services**

| Problem managed | Number | Per cent of problem–referral links | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 contacts of this problem[(a)] |
|---|---|---|---|---|---|---|
| Depression* | 500 | 12.1 | 0.5 | 0.4 | 0.5 | 11.5 |
| Diabetes—all* | 281 | 6.8 | 0.3 | 0.2 | 0.3 | 7.5 |
| Back complaint* | 256 | 6.2 | 0.3 | 0.2 | 0.3 | 9.3 |
| Anxiety* | 195 | 4.7 | 0.2 | 0.2 | 0.2 | 10.8 |
| Sprain/strain* | 193 | 4.7 | 0.2 | 0.1 | 0.3 | 13.1 |
| Teeth/gum disease | 147 | 3.6 | 0.1 | 0.1 | 0.2 | 28.3 |
| Osteoarthritis* | 127 | 3.1 | 0.1 | 0.1 | 0.2 | 4.3 |
| Bursitis/tendonitis/synovitis NOS | 98 | 2.4 | 0.1 | 0.1 | 0.1 | 8.5 |
| Shoulder syndrome | 71 | 1.7 | 0.1 | 0.0 | 0.1 | 13.1 |
| Administrative procedure NOS | 63 | 1.5 | 0.1 | 0.0 | 0.1 | 7.1 |
| *Subtotal: top 10 problems referred to AHS* | *1,931* | *46.6* | — | — | — | — |
| **Total problems referred to AHS** | **4,140** | **100.0** | **4.1** | **3.8** | **4.4** | **—** |

(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/subject/19>).

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

**Table 11.5: The 10 problems most frequently referred to hospital**

| Problem managed | Number | Per cent of problem–referral links | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 contacts of this problem[(a)] |
|---|---|---|---|---|---|---|
| Pregnancy* | 23 | 6.0 | 0.02 | 0.01 | 0.04 | 1.6 |
| Fracture* | 20 | 5.2 | 0.02 | 0.01 | 0.03 | 2.2 |
| Pneumonia | 14 | 3.6 | 0.01 | 0.01 | 0.02 | 3.8 |
| Gastroenteritis* | 10 | 2.5 | 0.01 | 0.00 | 0.02 | 0.7 |
| Chronic obstructive pulmonary disease | 9 | 2.4 | 0.01 | 0.00 | 0.02 | 1.1 |
| Urinary tract infection* | 9 | 2.2 | 0.01 | 0.00 | 0.02 | 0.5 |
| Depression* | 8 | 2.1 | 0.01 | 0.00 | 0.02 | 0.2 |
| Appendicitis | 8 | 2.0 | 0.01 | 0.00 | 0.01 | 34.3 |
| Acute bronchitis/bronchiolitis | 8 | 2.0 | 0.01 | 0.00 | 0.01 | 0.3 |
| Ischaemic heart disease* | 8 | 2.0 | 0.01 | 0.00 | 0.01 | 0.6 |
| *Subtotal: top 10 problems referred for admission* | *114* | *29.9* | — | — | — | — |
| **Total problems referred to hospital** | **381** | **100.0** | **0.38** | **0.32** | **0.44** | **—** |

(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/subject/19>).

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

The 202 referrals to an emergency department were provided in the management of 205 problems. The 10 problems most frequently referred to an emergency department are shown in Table 11.6. Pneumonia was the most common. However, appendicitis was the problem most likely to be referred.

**Table 11.6: The 10 problems most frequently referred to an emergency department**

| Problem managed | Number | Per cent of problem–referral links | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 contacts of this problem[(a)] |
|---|---|---|---|---|---|---|
| Pneumonia | 10 | 5.1 | 0.01 | 0.00 | 0.02 | 2.9 |
| Ischaemic heart disease* | 10 | 5.0 | 0.01 | 0.00 | 0.02 | 0.9 |
| Abortion, spontaneous | 7 | 3.6 | 0.01 | 0.00 | 0.01 | 7.7 |
| Fracture* | 7 | 3.4 | 0.01 | 0.00 | 0.01 | 0.8 |
| Chest pain NOS | 6 | 3.1 | 0.01 | 0.00 | 0.01 | 1.8 |
| Appendicitis | 6 | 3.0 | 0.01 | 0.00 | 0.01 | 27.7 |
| Abdominal pain* | 6 | 2.9 | 0.01 | 0.00 | 0.01 | 1.0 |
| Stroke/cerebrovascular accident | 6 | 2.9 | 0.01 | 0.00 | 0.01 | 3.8 |
| Complication of medical treatment | 6 | 2.7 | 0.01 | 0.00 | 0.01 | 1.8 |
| Cholecystitis/cholelithiasis | 5 | 2.7 | 0.01 | 0.00 | 0.01 | 2.7 |
| *Subtotal: top 10 problems referred to emergency department* | *71* | *34.5* | — | — | — | — |
| **Total problems referred to emergency department** | **205** | **100.0** | **0.20** | **0.16** | **0.24** | **—** |

(a) The rate of referrals to an emergency department 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/subject/19>).

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

# 11.4 Changes in referrals over the decade 2000–01 to 2009–10

An overview of changes in referrals over the decade can be found in Chapter 11 of the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] In that report, changes over time are measured as change in the management of problems (that is, as a rate per 100 problems). This reflects change in how GPs are managing problems, and accounts for the significant increase in the number of problems managed per encounter over the decade (see Section 7.9).

In summary, over the 10 years there was a significant increase in the proportion of problems that were referred to other health providers: in 2000–01 at least one referral was made in the management of 7.2% of problems and this increased to 8.7% of problems managed in 2009–10. Referrals to medical specialists rose marginally from 5.1 to 5.5 per 100 problems managed, reflected in marginal increases in referrals to cardiologists and gastroenterologists. However, referrals to allied health services rose far more, from 1.6 to 2.6 per 100 problems managed (a 63% increase). This was reflected in significant increases in referral rates to psychologists, podiatrist or chiropodists, dentists, and marginal increases in the rate of referral to dietitians or nutritionists, and physiotherapists per 100 problems.

There were no changes over the decade in the rate of referrals to hospitals and emergency departments per 100 problems managed.

# 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).

Data on investigations are reported for each year from 2000–01 to 2009–10 in the 10-year summary report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

## 12.1 Number 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 (76.2%) of encounters.

At least one pathology test order was recorded at 17.7% of encounters (for 13.2% of problems managed), and at least one imaging test was ordered at 8.5% of encounters (for 5.7% of problems managed).

**Table 12.1: Number of encounters and problems for which pathology or imaging was ordered**

| Pathology/imaging test ordered | Number of encounters | Per cent of encounters (*n* = 101,349) | 95% LCL | 95% UCL | Number of problems | Per cent of problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|
| Pathology and imaging ordered | 2,478 | 2.4 | 2.3 | 2.6 | 1,819 | 1.2 | 1.1 | 1.3 |
| Pathology only ordered | 15,504 | 15.3 | 14.8 | 15.8 | 18,751 | 12.1 | 11.7 | 12.5 |
| Imaging only ordered | 6,148 | 6.1 | 5.8 | 6.3 | 7,093 | 4.6 | 4.4 | 4.7 |
| No pathology or imaging tests ordered | 77,220 | 76.2 | 75.5 | 76.9 | 127,709 | 82.2 | 81.7 | 82.7 |
| At least one pathology ordered | 17,982 | 17.7 | 17.1 | 18.3 | 20,571 | 13.2 | 12.8 | 13.7 |
| At least one imaging ordered | 8,625 | 8.5 | 8.2 | 8.9 | 8,912 | 5.7 | 5.5 | 6.0 |
| At least one other investigation ordered | 717 | 0.7 | 0.6 | 0.8 | 737 | 0.5 | 0.4 | 0.5 |
| At least one other investigation performed in the practice | 1,342 | 1.3 | 1.2 | 1.5 | 1,359 | 0.9 | 0.8 | 1.0 |
| At least one other investigation ordered or performed | 2,009 | 2.0 | 1.8 | 2.1 | 2,050 | 1.3 | 1.2 | 1.4 |

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

# 12.2 Pathology ordering

A report on changes in pathology ordering by GPs from 1998 to 2001 was produced as an AIHW–University of Sydney book in 2003.[14] A review of GP pathology orders in the National Health Priority Areas and other selected problems between 2000 and 2008 is reported in the AGPSCC publication *General practice in Australia, health priorities and policies 1998 to 2008*.[12] A report *Evidence-practice gap in pathology test ordering: a comparison of BEACH pathology data and recommended testing* was produced by the FMRC for the Australian Government Quality Use of Pathology Program in June 2009.[13] Readers may wish to consider those reports in conjunction with the information presented below.

## Nature of pathology orders at encounter

The GPs recorded 45,594 orders for pathology tests/batteries of tests, at a rate of 45.0 per 100 encounters or 29.3 per 100 problems.

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, as a rate per 100 encounters and as a rate per 100 problems with 95% confidence limits.

The pathology tests recorded were grouped according to the categories set out in Appendix 4. The main pathology groups reflect those used by Medicare Australia.[74]

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 and 2.8 per 100 problems, electrolytes, urea and creatinine (3.2; 2.1), liver function (3.1; 2.0), and thyroid function tests (2.4 per 100 encounters; 1.6 per 100 problems). The most frequently ordered individual test was full blood count at 6.3 orders per 100 encounters.

**Table 12.2: Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group**

| Pathology test ordered | Number | Per cent of all pathology | Per cent of group | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|---|
| **Chemistry*** | **26,249** | **57.6** | **100.0** | **25.9** | **24.6** | **27.2** | **16.9** | **16.1** | **17.6** |
| Lipids* | 4,355 | 9.6 | 16.6 | 4.3 | 4.0 | 4.6 | 2.8 | 2.6 | 3.0 |
| Electrolytes, urea and creatinine* | 3,262 | 7.2 | 12.4 | 3.2 | 3.0 | 3.5 | 2.1 | 1.9 | 2.3 |
| Liver function* | 3,113 | 6.8 | 11.9 | 3.1 | 2.8 | 3.3 | 2.0 | 1.8 | 2.2 |
| Thyroid function* | 2,431 | 5.3 | 9.3 | 2.4 | 2.2 | 2.6 | 1.6 | 1.5 | 1.7 |
| Glucose/glucose tolerance* | 2,332 | 5.1 | 8.9 | 2.3 | 2.1 | 2.5 | 1.5 | 1.4 | 1.6 |
| Multibiochemical analysis* | 2,212 | 4.9 | 8.4 | 2.2 | 1.9 | 2.5 | 1.4 | 1.2 | 1.6 |
| Ferritin* | 1,388 | 3.1 | 5.3 | 1.4 | 1.2 | 1.5 | 0.9 | 0.8 | 1.0 |
| Chemistry; other* | 1,387 | 3.0 | 5.3 | 1.4 | 1.2 | 1.5 | 0.9 | 0.8 | 1.0 |
| HbA1c* | 1,183 | 2.6 | 4.5 | 1.2 | 1.1 | 1.3 | 0.8 | 0.7 | 0.8 |
| Prostate specific antigen* | 1,028 | 2.3 | 3.9 | 1.0 | 0.9 | 1.1 | 0.7 | 0.6 | 0.7 |
| Hormone assay* | 757 | 1.7 | 2.9 | 0.8 | 0.7 | 0.8 | 0.5 | 0.4 | 0.5 |
| C reactive protein | 748 | 1.6 | 2.8 | 0.7 | 0.7 | 0.8 | 0.5 | 0.4 | 0.5 |

*(continued)*

**Table 12.2 (continued): Distribution of pathology orders across MBS pathology groups and most frequent individual test orders within group**

| Pathology test ordered | Number | Per cent of all pathology | Per cent of group | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|---|
| **Haematology*** | **8,382** | **18.4** | **100.0** | **8.3** | **7.8** | **8.7** | **5.4** | **5.1** | **5.7** |
| Full blood count* | 6,352 | 13.9 | 75.8 | 6.3 | 5.9 | 6.6 | 4.1 | 3.9 | 4.3 |
| Erythrocyte sedimentation rate | 1,082 | 2.4 | 12.9 | 1.1 | 1.0 | 1.2 | 0.7 | 0.6 | 0.8 |
| Coagulation* | 736 | 1.6 | 8.8 | 0.7 | 0.6 | 0.8 | 0.5 | 0.4 | 0.5 |
| **Microbiology*** | **6,350** | **13.9** | **100.0** | **6.3** | **5.9** | **6.6** | **4.1** | **3.9** | **4.3** |
| Urine M,C&S* | 1,929 | 4.2 | 30.4 | 1.9 | 1.8 | 2.0 | 1.2 | 1.2 | 1.3 |
| Microbiology; other* | 1,022 | 2.2 | 16.1 | 1.0 | 0.9 | 1.1 | 0.7 | 0.6 | 0.7 |
| Hepatitis serology* | 488 | 1.1 | 7.7 | 0.5 | 0.4 | 0.6 | 0.3 | 0.3 | 0.4 |
| Faeces M,C&S* | 398 | 0.9 | 6.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.2 | 0.3 |
| Chlamydia* | 313 | 0.7 | 4.9 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 |
| Vaginal swab M,C&S* | 298 | 0.7 | 4.7 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| Venereal disease* | 294 | 0.6 | 4.6 | 0.3 | 0.2 | 0.4 | 0.2 | 0.1 | 0.2 |
| HIV* | 266 | 0.6 | 4.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| **Cytology*** | **1,713** | **3.8** | **100.0** | **1.7** | **1.5** | **1.9** | **1.1** | **1.0** | **1.2** |
| Pap smear* | 1,671 | 3.7 | 97.5 | 1.7 | 1.5 | 1.8 | 1.1 | 1.0 | 1.2 |
| **Other NEC*** | **774** | **1.7** | **100.0** | **0.8** | **0.6** | **0.9** | **0.5** | **0.4** | **0.6** |
| Blood test | 369 | 0.8 | 47.7 | 0.4 | 0.3 | 0.5 | 0.2 | 0.2 | 0.3 |
| Other test NEC | 253 | 0.6 | 33.7 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| **Tissue pathology*** | **770** | **1.7** | **100.0** | **0.8** | **0.7** | **0.9** | **0.5** | **0.4** | **0.6** |
| Histology; skin | 615 | 1.4 | 80.0 | 0.6 | 0.5 | 0.7 | 0.4 | 0.3 | 0.5 |
| **Immunology*** | **923** | **2.0** | **100.0** | **0.9** | **0.8** | **1.0** | **0.6** | **0.5** | **0.7** |
| Immunology, other* | 479 | 1.1 | 52.0 | 0.5 | 0.4 | 0.5 | 0.3 | 0.3 | 0.3 |
| Anti-nuclear antibodies | 185 | 0.4 | 20.0 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| Rheumatoid factor | 181 | 0.4 | 19.6 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| **Simple basic tests*** | **193** | **0.4** | **100.0** | **0.2** | **0.2** | **0.2** | **0.1** | **0.1** | **0.1** |
| **Infertility/pregnancy*** | **263** | **0.6** | **100.0** | **0.3** | **0.2** | **0.3** | **0.2** | **0.1** | **0.2** |
| **Total pathology tests** | **45,594** | **100.0** | **—** | **45.0** | **43.1** | **46.9** | **29.3** | **28.2** | **30.4** |

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

*Note:* LCL—lower confidence limit; UCL—upper confidence limit; M,C&S—microscopy, culture and sensitivity; HIV— human immunodeficiency virus; NEC—not elsewhere classified.

## Problems for which pathology tests were ordered

Table 12.3 describes the most common problems for which pathology was ordered, in decreasing frequency order of problem–pathology combinations. Diabetes, hypertension, general check-ups and lipid disorders 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 tests/batteries of tests per 100 specified problems when at least one test is ordered. For example, 31.8% of contacts with

diabetes resulted in pathology orders, and when pathology was ordered for diabetes, 287 tests/batteries of 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 (6.4%) as did diabetes.

**Table 12.3: The 10 problems for which pathology was most frequently ordered**

| Problem managed | Number of problems | Number of problem–pathology combinations[(a)] | Per cent of problem–pathology combinations[(a)] | Per cent of problems with test[(b)] | Rate of path orders per 100 problems with pathology[(c)] |
|---|---|---|---|---|---|
| Diabetes—all* | 3,747 | 3,424 | 7.3 | 31.8 | 287.0 |
| Hypertension* | 9,192 | 3,030 | 6.4 | 11.6 | 284.7 |
| General check-up* | 3,014 | 2,808 | 5.9 | 27.8 | 335.8 |
| Lipid disorders* | 3,526 | 2,169 | 4.6 | 28.4 | 216.8 |
| Weakness/tiredness | 659 | 1,696 | 3.6 | 66.8 | 385.3 |
| Female genital check-up/Pap smear* | 1,729 | 1,648 | 3.5 | 77.7 | 122.6 |
| Urinary tract infection* | 1,780 | 1,081 | 2.3 | 53.2 | 114.2 |
| Pregnancy* | 1,467 | 1,037 | 2.2 | 33.4 | 211.7 |
| Abnormal test results* | 1,091 | 969 | 2.1 | 49.7 | 178.7 |
| Blood test NOS | 290 | 911 | 1.9 | 87.2 | 360.5 |
| *Subtotal* | *26,495* | *18,773* | *39.8* | — | — |
| **Total problems** | **155,373** | **47,208** | **100.0** | **13.2** | **229.5** |

(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 45,594 pathology test orders and 47,208 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/subject/19>).

*Note:* NOS—not otherwise specified.

# 12.3 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 General Practice Statistics and Classification Unit using BEACH data, and published by the AIHW and the University of Sydney in 2001.[15]

## Nature of imaging orders at encounter

There were 9,877 imaging test orders recorded, at a rate of 9.8 per 100 encounters and 6.4 per 100 problems managed.

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, as a rate per 100 encounters, and as a rate per 100 problems with 95% confidence limits. Diagnostic radiology accounted for almost half (47.0%) of all imaging test orders, and ultrasound accounted for 37.5%.

**Table 12.4: The most frequent imaging tests ordered, by MBS group**

| Imaging test ordered | Number | Per cent of all imaging | Per cent of group | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|---|
| **Diagnostic radiology*** | **4,637** | **47.0** | **100.0** | **4.6** | **4.3** | **4.8** | **3.0** | **2.8** | **3.1** |
| X-ray; chest | 1,064 | 10.8 | 23.0 | 1.1 | 0.9 | 1.2 | 0.7 | 0.6 | 0.8 |
| X-ray; knee | 485 | 4.9 | 10.4 | 0.5 | 0.4 | 0.5 | 0.3 | 0.3 | 0.4 |
| Mammography; female | 316 | 3.2 | 6.8 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 |
| X-ray; foot/feet | 253 | 2.6 | 5.5 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| X-ray; shoulder | 250 | 2.5 | 5.4 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| Test; densitometry | 242 | 2.5 | 5.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| X-ray; hip | 233 | 2.4 | 5.0 | 0.2 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 |
| X-ray; ankle | 199 | 2.0 | 4.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| X-ray; spine; lumbosacral | 138 | 1.4 | 3.0 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| X-ray; wrist | 135 | 1.4 | 2.9 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| X-ray; hand | 135 | 1.4 | 2.9 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| X-ray; spine; lumbar | 118 | 1.2 | 2.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| X-ray; finger(s)/thumb | 108 | 1.1 | 2.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| X-ray; abdomen | 88 | 0.9 | 1.9 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| X-ray; spine; cervical | 86 | 0.9 | 1.9 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| X-ray; elbow | 78 | 0.8 | 1.7 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| **Ultrasound*** | **3,702** | **37.5** | **100.0** | **3.7** | **3.5** | **3.8** | **2.4** | **2.3** | **2.5** |
| Ultrasound; pelvis | 578 | 5.9 | 15.6 | 0.6 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 |
| Ultrasound; shoulder | 413 | 4.2 | 11.2 | 0.4 | 0.4 | 0.5 | 0.3 | 0.2 | 0.3 |
| Ultrasound; abdomen | 350 | 3.5 | 9.5 | 0.4 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 |
| Ultrasound; breast; female | 321 | 3.3 | 8.7 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 |
| Ultrasound; obstetric | 286 | 2.9 | 7.7 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| Echocardiography | 174 | 1.8 | 4.7 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| Ultrasound; kidney | 145 | 1.5 | 3.9 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| Test; Doppler | 122 | 1.2 | 3.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Ultrasound; abdomen upper | 98 | 1.0 | 2.6 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Ultrasound; leg | 91 | 0.9 | 2.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Ultrasound scrotum | 90 | 0.9 | 2.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Ultrasound; thyroid | 89 | 0.9 | 2.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Test; Doppler carotid | 77 | 0.8 | 2.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Ultrasound; hip | 74 | 0.7 | 2.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| **Computerised tomography*** | **1,270** | **12.9** | **100.0** | **1.3** | **1.1** | **1.4** | **0.8** | **0.7** | **0.9** |
| CT scan; brain | 204 | 2.1 | 16.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| CT scan; abdomen | 183 | 1.9 | 14.4 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| CT scan; spine; lumbar | 145 | 1.5 | 11.4 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| CT scan; sinus | 100 | 1.0 | 7.9 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |

*(continued)*

**Table 12.4 (continued): The most frequent imaging tests ordered, by MBS group**

| Imaging test ordered | Number | Per cent of all imaging | Per cent of group | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|---|
| CT scan; head | 91 | 0.9 | 7.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| CT scan; chest | 88 | 0.9 | 6.9 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| CT scan; spine; lumbosacral | 86 | 0.9 | 6.7 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| **Magnetic resonance imaging** | **142** | **1.4** | **100.0** | **0.1** | **0.1** | **0.2** | **0.1** | **0.1** | **0.1** |
| **Nuclear medicine imaging*** | **127** | **1.3** | **100.0** | **0.1** | **0.1** | **0.2** | **0.1** | **0.1** | **0.1** |
| **Total imaging tests** | **9,877** | **100.0** | **—** | **9.8** | **9.3** | **10.1** | **6.4** | **6.1** | **6.6** |

* Includes multiple ICPC-2 and ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

## Problems for which imaging tests were ordered

Table 12.5 lists the most common problems for which imaging was ordered, in decreasing frequency order of problem–imaging combinations. The most common problem was back complaint, accounting for 5.0% of orders, followed by osteoarthritis (4.7%), and sprain/strain (4.0%). 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 was ordered. For example, 33.6% of contacts with fractures resulted in an imaging test, and 107.1 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**

| 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* | 2,755 | 494 | 5.0 | 15.5 | 115.4 |
| Osteoarthritis* | 2,945 | 468 | 4.7 | 14.3 | 111.0 |
| Sprain/strain* | 1,469 | 400 | 4.0 | 22.9 | 119.1 |
| Pregnancy* | 1,467 | 368 | 3.7 | 24.7 | 101.3 |
| Bursitis/tendonitis/synovitis NOS | 1,154 | 318 | 3.2 | 23.4 | 117.5 |
| Fracture* | 877 | 315 | 3.2 | 33.6 | 107.1 |
| Injury musculoskeletal NOS | 797 | 274 | 2.7 | 30.7 | 111.9 |
| Abdominal pain* | 614 | 256 | 2.6 | 37.0 | 112.7 |
| Shoulder syndrome | 540 | 236 | 2.4 | 31.0 | 140.4 |
| Breast lump/mass (female) | 162 | 157 | 1.6 | 67.6 | 143.3 |
| *Subtotal* | *12,780* | *3,286* | *33.1* | — | — |
| **Total problems** | **155,373** | **9,981** | **100.0** | **5.7** | **112.0** |

(a) A test was counted more than once if it was ordered for the management of more than one problem at an encounter. There were 9,877 imaging test orders and 9,961 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/subject/19>).

*Note*: NOS—not otherwise specified.

# 12.4 Other investigations

Other investigations include diagnostic procedures ordered by the GP at the encounter or undertaken by the GP or practice staff. GPs ordered 753 other investigations during the study year, and GPs or practice staff undertook 1,429 other investigations. This means there were 2,182 total other investigations either ordered or undertaken in the practice (Table 12.6).

The first half of Table 12.6 lists the other investigations ordered by GPs. The second half lists the other investigations undertaken in the practice by GPs or practice staff. Each investigation is expressed as a percentage of total other investigations ordered or undertaken, as a rate per 100 encounters, and as a rate per 100 problems, each with 95% confidence limits.

**Table 12.6: Other investigations ordered by GPs or performed in the practice**

| Investigation ordered | Number | Per cent of ordered investigations | Rate per 100 encounters (*n* = 101,349) | 95% LCL | 95% UCL | Rate per 100 problems (*n* = 155,373) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|---|
| Electrical tracings* | 395 | 52.5 | 0.39 | 0.33 | 0.45 | 0.25 | 0.22 | 0.29 |
| Diagnostic endoscopy* | 191 | 25.3 | 0.19 | 0.14 | 0.24 | 0.12 | 0.09 | 0.15 |
| Physical function test* | 140 | 18.6 | 0.14 | 0.11 | 0.17 | 0.09 | 0.07 | 0.11 |
| Other diagnostic procedures* | 28 | 3.7 | 0.03 | 0.01 | 0.04 | 0.02 | 0.01 | 0.03 |
| **Total other investigations ordered** | **753** | **100.0** | **0.74** | **0.66** | **0.83** | **0.48** | **0.43** | **0.54** |
| **Investigation undertaken in the practice** | **Number** | **Per cent of undertaken investigations** | **Rate per 100 encounters (*n* = 101,349)** | **95% LCL** | **95% UCL** | **Rate per 100 problems (*n* = 155,373)** | **95% LCL** | **95% UCL** |
| Electrical tracings* | 594 | 41.6 | 0.59 | 0.51 | 0.66 | 0.38 | 0.33 | 0.43 |
| Physical function test* | 542 | 37.9 | 0.53 | 0.44 | 0.63 | 0.35 | 0.29 | 0.41 |
| Other diagnostic procedures* | 230 | 16.1 | 0.23 | 0.17 | 0.28 | 0.15 | 0.11 | 0.18 |
| Diagnostic endoscopy* | 64 | 4.4 | 0.06 | 0.04 | 0.09 | 0.04 | 0.02 | 0.06 |
| **Total other investigations undertaken** | **1,429** | **100.0** | **1.41** | **1.25** | **1.57** | **0.92** | **0.82** | **1.02** |
| **Total other investigations ordered or undertaken in the practice** | **2,182** | **100.0** | **2.15** | **1.97** | **2.34** | **1.4** | **1.29** | **1.52** |

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

# 12.5 Computerised tomography scans of the lumbar and lumbosacral spine (CT-LS)

Concerns have been raised regarding the frequency of use of computerised tomography (CT) scans and the consequences of the significant radiation level to which patients are exposed.[75] CT scan of the lumbar or lumbosacral spine (CT-LS) was the most commonly ordered CT scan in general practice, ordered at 231 encounters (2.4% of all imaging; 18.1% of CT scans) for the management of 233 problems. This represents about 270,000 GP–patient encounters at which a CT-LS was ordered in general practice across Australia in 2009–10. This section investigates lumbar CT scans (ICPC-2 Plus: L41057) and lumbosacral CT scans (ICPC-2 Plus: L41057). Figure 12.1 shows the patients and problems for which a CT-LS was ordered and describes other management for the same problem.

## Patient age and sex

The sex distribution of patients receiving CT-LS (40.9% male) was similar to that of all patients attending general practice (43.1%; Table 6.1). The age distribution differed, with more patients at CT-LS encounters aged 45–64 years (43.9%) and fewer aged less than 25 years (5.8%) compared with the total sample (21.1% aged < 25 years; Table 6.1).

Patients aged 45–64 years were those most likely to have an CT-LS ordered (at 0.4% of encounters in this age group), followed by patients aged 65–74 years (0.3%). CT-LSs were ordered at 0.2% of encounters with male and females patients.

## Reasons for encounter

The reason for encounter most often given by these patients was a back complaint (66.7 per 100 CT-LS encounters), followed by leg/thigh symptom or complaint (19.6).

## Problems for which CT-LS was ordered

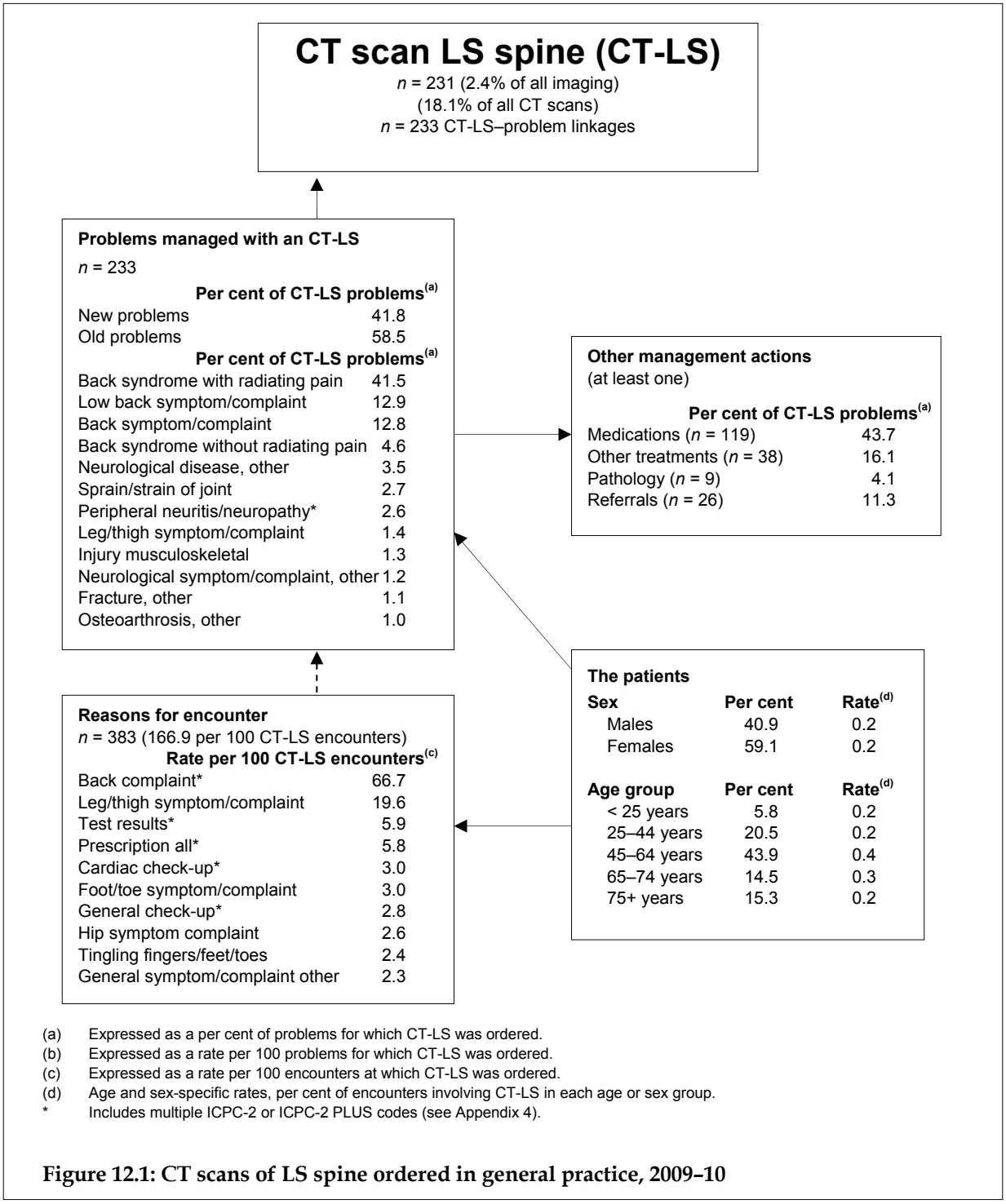
While the majority (58.5%) of CT-LSs were ordered as part of the ongoing management of a previously diagnosed problem, 41.8% were ordered for problems that were new to the patient (had not been managed previously by any doctor). For the group of the top four conditions, a CT-LS was ordered at about 5 per 100 encounters for these problems. The rate of CT-LS ordering ranged from 9.5 per 100 encounters for back syndrome with radiating pain to less than 2 for patients with back syndrome without radiating pain. For patients with a new problem, the overall order rate for the top four conditions was 7.5 per 100 encounters, ranging from 15 for patients with back syndrome with radiating pain to less than 1 per 100 encounters for patients with back syndrome without radiating pain.

The NHMRC National Institute of Clinical Studies guidelines on 'Lumbar imaging in acute non-specific low back pain' 2008 suggest that imaging of the lumbar spine in acute non-specific back pain is not indicated at initial presentation unless 'red flag' signs or symptoms are present.[76] American College of Radiology guidelines make similar recommendations, but also suggest that magnetic resonance imaging (MRI) scanning is the most appropriate investigation once a decision to investigate has been made.[77] However, in Australia, Medicare rebates are not available for MRI scans ordered by GPs. BEACH data do not contain information on the presence of symptoms or signs that might indicate the presence of 'red flags', but it is clear from these data that GPs are selecting patients with clinically

more severe forms of low back pain, as indicated by the clinical label, to investigate with CT scans.

## Other management actions provided at encounters where CT-LS was ordered

At least one medication was prescribed, supplied or advised for over-the-counter purchase for more than 40% of problems for which a CT-LS was ordered. GPs also commonly provided other treatments (including clinical and procedural treatments) (for 16.1% of CT-LS problems), referrals (11.3%), and less commonly pathology (4.1%).




(a) Expressed as a per cent of problems for which CT-LS was ordered.
(b) Expressed as a rate per 100 problems for which CT-LS was ordered.
(c) Expressed as a rate per 100 encounters at which CT-LS was ordered.
(d) Age and sex-specific rates, per cent of encounters involving CT-LS in each age or sex group.
* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4).

**Figure 12.1: CT scans of LS spine ordered in general practice, 2009–10**

## 12.6 Changes in investigations over the decade 2000–01 to 2009–10

Data on investigations are reported for each year from 2000–01 to 2009–10 in Chapter 12 of the web-based companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1] In that report, changes over time are measured as change in the management of problems (that is, as a rate per 100 problems). This reflects change in how GPs are managing problems, and accounts for the significant increase in the number of problems managed per encounter over the decade (see Section 7.9). The major changes are highlighted below.

- At least one pathology test was ordered for 10.6% of problems managed in 2000–01 rising to 13.2% of problems in 2009–10. The largest increase was in orders for chemical pathology, which increased from 10.8 per 100 problems in 2000–01 to 16.9 per 100 problems in 2009–10. Haematology increased at a slower rate, from 4.0 per 100 problems in 2000–01 to 5.4 in 2009–10. Microbiology test orders increased from 3.2 per 100 problems in 2000–01 to 4.1 in 2009–10. There was a far smaller increase in order rates for immunology, a marginal increase in orders for tissue pathology and simple tests, and no increases in the other test groups.
- Between 2000–01 and 2009–10 the number of problems managed per 100 encounters rose from 144.5 to 153.3 (Table 5.1). Both the rise in the number of tested problems and the rise in the number of problems managed at encounter contributed to an overall increase in the proportion of encounters involving a pathology test. These rose from 13.8% of encounters in 2000–01 to 17.7% in 2009–10, which is almost 6.8 million more encounters at which pathology was ordered in 2009–10 than in 2000–01.
- The number of pathology tests ordered increased from 20.5 tests (or battery of tests) per 100 problems managed in 2000–01 to 29.3 per 100 problems in 2009–10. The rate of pathology orders per 100 encounters increased from 29.7 per 100 encounters in 2000–01 to 45.0 in 2009–10, which extrapolates to approximately 22.7 million more tests (or battery of tests) ordered in 2009–10.
- At least one imaging test was ordered for 4.8% of all problems managed in 2000–01, rising to 5.7% of all problems in 2009–10. The proportion of encounters generating imaging orders increased from 6.8% in 2000–01 to 8.5% in 2009–10, resulting in an estimated 3.1 million more encounters nationally at which imaging was ordered in 2009–10.
- The number of imaging tests ordered increased from 5.3 tests (or battery of tests) per 100 problems managed in 2000–01 to 6.4 per 100 problems in 2009–10. Total imaging orders per 100 encounters also increased significantly from 7.7 per 100 encounters in 2000–01 to 9.8 in 2009–10, suggesting there were almost 3.7 million more imaging orders in 2009–10 than in 2000–01.

# 13 Practice nurse activity

This section describes the activities of practice nurses recorded in association with the GP–patient encounters by the GPs in BEACH.

In February 2004, two 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 BEACH recording form (see Appendix 1) was amended to allow the capture of this information from April 2005 onwards.

- GPs were allowed to record multiple (up to three) Medicare item numbers where appropriate, rather than be limited to one item number.
- In the 'other treatments' section, for each problem managed GPs were asked to tick the 'practice nurse' box if the treatment recorded was provided by the practice nurse rather than by the GP. If the box was not ticked it was assumed that the GP provided the 'other treatment'.

The survey form allows 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.

Since February 2004 additional practice nurse items have been added. The seven practice nurse Medicare items recorded by GPs during the 2009–10 BEACH data period are listed with a short description in Table 13.2.

This section investigates: the distribution of the practice nurse Medicare items recorded; treatments provided by practice nurses in association with the GP-recorded encounters; and the problems for which practice nurses provided treatments (in direct association with the GP-recorded encounters).

In Chapter 10, all clinical and procedural treatments 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 indicated as being conducted by a practice nurse and includes the injections for immunisation/vaccination (when given by a practice nurse). GPs are also instructed not to record their taking of routine clinical measurements, such as blood pressure. However, where practice nurses 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 practice nurses 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 provided 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 Practice nurse Medicare claims and practice nurse activity

There were 9,154 (9.0%) GP–patient encounters for which at least once practice nurse item and/or nurse activity was recorded. However, for 155 of these their activity was not described. At the remaining 8,999 encounters a practice nurse was involved in the management of 9,542 problems (6.1% of all problems managed at all encounters). Simple extrapolation of these results suggests that during 2009–10 practice nurses were involved in about 10.5 million GP–patient consultations.

At only 4,161 encounters (4.1% of all encounters, and 45.5% of the 9,154 encounters involving practice nurses) was a practice nurse Medicare item recorded (Table 13.1), and 4,216 practice nurse items recorded. Practice nurse items accounted for 3.7% of all Medicare items recorded in 2009–10 (Table 5.6). At more than half (54.5%) of encounters in which practice nurses were involved, no practice nurse item number was recorded as claimable (Table 13.1).

**Table 13.1: Summary of practice nurse involvement at encounter**

| Variable | Number |
|---|---|
| Total encounters | 101,349 |
| Encounters involving practice nurse | 9,154 |
| Encounters at which practice nurse activity described | 8,999 |
| Encounters with practice nurse item number(s) but activity not described | 155 |
| Encounters at which one or more practice nurse item numbers were recorded as claimable | 4,161 |
| Total problems managed (*n*) | 155,373 |
| Problems managed with practice nurse involvement | 9,542 |
| **Proportions** | **Per cent (95% CI)** |
| Encounters involving practice nurses as a proportion of total encounters | 9.0 (8.2–9.9) |
| Practice nurse claimable encounters as a proportion of total encounters | 4.1 (3.6–4.6) |
| Proportion of practice nurse involved encounters for which one or more practice item numbers were claimed from Medicare | 45.5 (42.1–48.8) |
| Problems involving practice nurses as a proportion of total problems (95% CI) | 6.1 (5.6–6.7) |

*Note*: CI—confidence interval.

## Distribution of practice nurse item numbers claimed at encounters

A total of 4,216 practice nurse item numbers were recorded at 4,161 encounters. Three-quarters of the practice nurse item numbers recorded were for immunisations (74.9%), and a further 21.3% were for wound treatments. Items recorded for practice nurse services to a person with chronic disease accounted for 3.0%, and those claimed for practice nurse conduct of cervical smears (with or without preventive checks) for 0.5% of total practice nurse item numbers recorded. Recorded claims for health checks by nurses were few.

Comparison of the distribution of BEACH practice nurse item numbers recorded and the distribution of the 6.85 million claims made for such items from Medicare in the same data period demonstrated a good fit (Table 13.2).

**Table 13.2: Distribution of practice nurse item numbers recorded at encounter**

| Medicare item number | Short descriptor | Number | Per cent of total | Per cent of Medicare practice nurse claims (*n* = 6.85 million) |
|---|---|---|---|---|
| 10993[(a)] | Immunisation | 3,157 | 74.9 | 70.2 |
| 10996[(a)] | Wound treatment (other than normal aftercare) | 898 | 21.3 | 24.9 |
| 10997[(b)] | Service provided to a person with a chronic disease by a practice nurse or registered Aboriginal Health Worker | 125 | 3.0 | 2.9 |
| 10994[(c)] | Cervical smear and preventive checks | 15 | 0.4 | |
| 10995[(c)] | Cervical smear and preventive checks—women aged 20–69 years, no smear in previous 4 years | 1 | 0.0 | 1.4 (all cervical smears) |
| 10998[(d)] | Cervical smear | 6 | 0.1 | |
| 00711[(e)] | Health check by a practice nurse or registered Aboriginal Health Worker | 14 | 0.3 | 0.0 |
| **Total** | **All Medicare practice nurse item numbers** | **4,216** | **100.0** | **100.0** |

(a) Item number introduced in February 2004.

(b) Item number introduced in July 2007.

(c) Item number introduced in November 2006.

(d) Item number introduced in January 2005.

(e) Item number introduced in July 2008.

*Note*: there were no recordings of items: 16400—Antenatal services provided by midwives, practice nurses and Aboriginal health workers in rural and remote areas; 10987—Follow-up services provided by a practice nurse or Aboriginal health worker for an Indigenous person who has received a health check.

*Source:* Total Medicare practice nurse claims—Medicare health statistics.[5,78]

## Treatments provided by practice nurses

As reported in Chapter 10, GPs reported 53,243 other treatments at encounter. A further 5,917 injections were given for immunisations by a practice nurse (not reported in Chapter 10). In total 59,159 other treatments were recorded. Practice nurses provided 10,078 other treatments (representing 17% of all other treatments recorded at BEACH encounters) at a rate of 9.9 per 100 recorded encounters. The majority (93.0%) of the practice nurse activity was procedural, and these procedures represented 39.6% of all procedures recorded. In contrast, clinical treatments accounted for 7.0% of practice nurse activity, but practice nurses provided only 2.0% of all recorded clinical treatments (Table 13.3).

**Table 13.3: Summary of treatments given by practice nurse**

| | Perform/assisted by practice nurse | | Performed by the GP | | |
|---|---|---|---|---|---|
| Treatment | Number | Row per cent of total | Number | Row per cent of total | Total number recorded[(a)] |
| Procedural treatments[(a)] | 9,371 | 39.6 | 14,304 | 60.4 | 23,675 |
| Clinical treatments | 707 | 2.0 | 34,777 | 98.0 | 35,484 |
| **All other treatments** | **10,078** | **17.0** | **49,081** | **83.0** | **59,159** |

(a) Procedural treatments here include all injections given by a practice nurse for immunisations/vaccinations (*n* = 5,917). 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.

Of the 9,371 procedures done by practice nurses, 48.3% were injections (which were mainly for immunisations/vaccinations), and a further 15.2 % were dressing/pressure/ compression/tamponade. Together these accounted for about two-thirds of all procedures undertaken by practice nurses in association with the recorded GP encounters. Check-ups made up 7.3% of procedures done by the nurse, followed by incision/drainage/aspirations (6.5%) and INR tests (4.3%). Practice nurses also undertook a wide range of other procedural activities in association with the GP encounters. The most common are listed in Table 13.4.

Other administrative procedure (which includes administrative/documentation work but excludes provision of sickness certificates) was the most frequently recorded clinical activity, accounting for 29.3% of the 707 clinical treatments provided by nurses, followed by general advice/education (15.7%), counselling about nutrition or weight (7.4%) and counselling for the problem under management (7.2%) (Table 13.4).

**Table 13.4: Most frequent activities done by a practice nurse**

| Activity | Number | Per cent of group[(a)] | Rate per 100 encounters involving practice nurse[(a)] (*n* = 8,999) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| **Procedural treatments** | **9,371** | **100.0** | **104.1** | **102.4** | **105.9** |
| Local injection/infiltration* | 4,527 | 48.3 | 50.3 | 47.0 | 53.6 |
| Dressing/pressure/compression/tamponade* | 1,424 | 15.2 | 15.8 | 14.2 | 17.5 |
| Check-up—practice nurse* | 683 | 7.3 | 7.6 | 4.0 | 11.1 |
| Incision/drainage/flushing/aspiration/removal body fluid* | 609 | 6.5 | 6.8 | 5.4 | 8.1 |
| INR test | 407 | 4.3 | 4.5 | 3.5 | 5.5 |
| Repair/fixation-suture/cast/prosthetic device (apply/remove)* | 356 | 3.8 | 4.0 | 3.3 | 4.6 |
| Electrical tracings* | 328 | 3.5 | 3.6 | 3.1 | 4.2 |
| Excision/removal tissue/biopsy/destruction/ debridement/cauterisation* | 263 | 2.8 | 2.9 | 2.2 | 3.6 |
| Physical function test* | 257 | 2.7 | 2.9 | 2.1 | 3.6 |
| Urine test* | 120 | 1.3 | 1.3 | 0.8 | 1.8 |
| Other therapeutic procedures/surgery NEC* | 91 | 1.0 | 1.0 | 0.7 | 1.3 |
| Other diagnostic procedures NEC* | 62 | 0.7 | 0.7 | 0.4 | 1.0 |
| Pap smear* | 60 | 0.6 | 0.7 | 0.4 | 0.9 |
| Glucose test | 55 | 0.6 | 0.6 | 0.4 | 0.8 |
| **Clinical treatments** | **707** | **100.0** | **7.9** | **5.9** | **9.9** |
| Other administrative procedure* | 207 | 29.3 | 2.3 | 1.6 | 3.0 |
| Advice/education* | 111 | 15.7 | 1.2 | 0.6 | 1.9 |
| Counselling/advice—nutrition/weight* | 52 | 7.4 | 0.6 | 0.3 | 0.8 |
| Advice/education—prevention* | 51 | 7.3 | 0.6 | 0.2 | 0.9 |
| Counselling—problem* | 51 | 7.2 | 0.6 | 0.3 | 0.9 |

(a) Figures do not total 100, as more than one treatment can be performed by a practice nurse at each encounter and only those individual treatments accounting for ≥ 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/subject/19>).

*Note:* LCL—lower confidence limit; UCL—upper confidence limit; INR—international normalised ratio; NEC—not elsewhere classified.

# 13.2 Problems managed with practice nurse involvement

Practice nurses were involved in management of a wide variety of problems in association with the GP encounters. The problems managed most often were immunisation/vaccination (38.3% of all problems managed with the involvement of a practice nurse), followed by check-ups (5.2%), laceration/cut (4.2%) and chronic skin ulcer (3.8%). Other common problems that involved practice nurses at the consultations are listed in Table 13.5.

**Table 13.5: The most common problems managed with involvement of practice nurses**

| Problem managed | Number | Per cent of problems involving practice nurse (*n* = 9,542) | Rate per 100 encounters with recorded practice nurse activity[(a)] (*n* = 8,999) | 95% LCL | 95% UCL |
|---|---|---|---|---|---|
| Immunisation/vaccination—all* | 3,653 | 38.3 | 40.6 | 37.3 | 43.9 |
| Check-up—all* | 492 | 5.2 | 5.5 | 4.6 | 6.3 |
| Laceration/cut | 403 | 4.2 | 4.5 | 3.8 | 5.1 |
| Chronic ulcer skin (including varicose ulcer) | 364 | 3.8 | 4.0 | 3.3 | 4.8 |
| Atrial fibrillation/flutter | 226 | 2.4 | 2.5 | 1.8 | 3.2 |
| Malignant neoplasm skin | 193 | 2.0 | 2.1 | 1.7 | 2.6 |
| Diabetes—all* | 177 | 1.9 | 2.0 | 1.5 | 2.4 |
| Excessive ear wax | 176 | 1.8 | 2.0 | 1.5 | 2.4 |
| Hypertension* | 163 | 1.7 | 1.8 | 1.2 | 2.4 |
| Skin infection—post traumatic | 160 | 1.7 | 1.8 | 1.3 | 2.2 |
| Blood test—all* | 137 | 1.4 | 1.5 | 0.8 | 2.2 |
| Observation/health education/advice/diet—all* | 101 | 1.1 | 1.1 | 0.1 | 2.1 |
| Vitamin/nutritional deficiency | 96 | 1.0 | 1.0 | 0.8 | 1.3 |
| Pregnancy* | 94 | 1.0 | 1.0 | 0.5 | 1.6 |
| *Subtotal* | *6,431* | *67.5* | — | — | — |
| **Total problems involving practice nurse** | **9,542** | **100.0** | **106.0** | **104.8** | **107.3** |

(a) Rate of nurse provision of treatment at encounter for selected problem per 100 total encounters in which a practice nurse was involved.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/subject/19>).

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

# 13.3 Discussion

These results suggest that many GPs are claiming Medicare items for practice nurses to provide immunisations and, to a lesser degree, wound treatments, but are infrequently using the cervical smear/preventive check practice nurse item numbers.

The following section extrapolates these results to national estimates and considers them in light of Medicare claims data.[5]

- Extrapolation of the 9,154 encounters involving a practice nurse (9.0% of all encounters) to the 116.8 million GP service items claimed through Medicare in 2009–10 suggest there were 10.5 million encounters nationally that involved practice nurses.
- Extrapolation of the 10,078 activities ascribed to practice nurses in BEACH (9.9 per 100 encounters) to a national estimate suggest there were 11.6 million such activities conducted as part of GP–patient encounters nationally.
- Extrapolation of the 4,216 practice nurse items claimed (at a rate of 4.2 per 100 BEACH encounters) suggests that GPs claimed 4.9 million practice nurse items for activities the nurses undertook in relation to the GP–patient encounters.

These data suggest that nationally in 2009–10 there were:

- about 6.7 million (11.6 million activities minus 4.9 million claims) practice nurse clinical activities undertaken in association with GP–patient encounters that were not claimable or not claimed through Medicare.
- about 2.0 million (6.85 million claims from Table 13.2 minus the estimated 4.9 million that were for activities associated with the encounters) practice nurse items claimed for practice nurse activities conducted independently of direct GP–patient consultations (that is, services provided separately from the encounter, and therefore not reported by GPs in BEACH encounter records).

There is no means by which the number of practice nurse clinical activities undertaken independently of the GP–patient encounters for which no claim was made can be estimated, either because the activity did not qualify for Medicare payment, or because the practice simply failed to claim.

Comparison of the services provided by practice nurses (Table 13.4) with the common problems for which these services were provided (Table 13.5) suggests that about 80% of the local injections/infiltrations recorded as given by practice nurses were for immunisations, and about 20% were for other types of injections, and therefore not eligible to be claimed through Medicare.

Table 13.4 shows that nurses dealt with 1,424 dressing/pressure/compression/tamponades in conjunction with the GP encounter, but only 898 claims were made for Medicare payment for wound treatment (Table 13.2). This suggests that about 63% of the dressings recorded for practice nurses were claimable under Medicare. Some of the dressings may have been follow-up encounters where the follow-up treatment (aftercare) was included in the initial Medicare claim (claimed in the past), and may therefore not have been claimable for the practice nurse.

It is clear that practice nurses undertook a wide variety of other activities at the BEACH encounters that did not qualify for Medicare reimbursement.

# 13.4 Changes in practice nurse activity, 2005–06 to 2009–10

A comparison of practice nurse activity from 2005–06 to 2009–10 is provided in Chapter 13 of the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.[1]

Changes are summarised below.

- Encounters involving a practice nurse as a proportion of all encounters more than doubled from 4.2% in 2005–06 to 9.0% in 2008–09. This suggests that in 2009–10, practice nurses were involved in about 10.5 million GP–patient encounters, 6.3 million more than in 2005–06.
- Between 2005–06 and 2008–09 the proportion of encounters with practice nurse activity for which a Medicare practice nurse item number was recorded remained constant at 36–39%. However, in 2009–10 there was a sudden increase (to 45.5%) that did not quite reach statistical significance.
- Provision of clinical treatments by a practice nurse (such as advice and health education) at GP encounters remained infrequent, at less than 1 clinical treatment per 100 encounters.
- The number of procedures (including tests) undertaken by practice nurses at GP–patient encounters more than doubled from 4.0 per 100 encounters in 2005–06 to 9.2 per 100 in 2009–10, nurses now doing 40% of all procedures recorded at BEACH encounters.
- There were increases in practice nurse provision of local injections, check-ups, and INR testing. There were decreases in their rate of: dressings; repair/fixation; electrical tracings; excisions; and physical function tests. An increase in clinical treatments from 5.2 to 7.9 per 100 GP encounters, was largely accounted for by an increase in administrative procedures.

# 14 Patient risk factors

General practice is a useful intervention point for health promotion because about 88% of Australians visit a GP at least once in any given year.[20] GPs, through ongoing professional education, have substantial knowledge of population health, screening programs and other interventions. They are also in an ideal position to advise patients about the benefits of health screening, and to counsel patients individually about their lifestyle choices.

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 2.4.

The patient risk factors measured in BEACH include body mass index (BMI) (calculated using self-reported height and weight), self-reported alcohol consumption and smoking status. Patient risk factors are investigated for a subsample of 40 of the 100 patient encounters recorded by each GP. An example of the encounter form with the patient risk factor SAND questions is included in Appendix 1. The methods used in the risk factor substudies reported in this chapter are described in each section below.

Data on patient risk factors measured in SAND are reported for each year from 2000–01 to 2009–10 in the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

Abstracts of results and the research tools used in all SAND substudies from April 1998 to March 2010 have been published. Those:

- from April 1998 to March 1999 were published in *Measures of health and health care delivery in general practice in Australia*[22]
- from April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*[23]
- since August 2006 have been published in each of the general practice activity annual reports [24-26]
- conducted in the 2009–10 BEACH year are provided in Chapter 15 of this publication.

## 14.1 Body mass index

High body mass was the third highest contributor to the total burden of disease in Australia in 2003, accounting for 7.5% of the total burden[79], an increase from 4.3% of total burden and sixth rank in 1996.[80] The 2007–08 National Health Survey (NHS) estimated that, based on measured data, 62% of Australians aged 18 years and over were overweight or obese (BMI > 25). Men were more likely to be overweight or obese than women (68% compared with 55%).[16] The 2007–08 NHS also reported that 25% of children aged 5–17 years were classified as overweight or obese, with boys and girls having similar rates of overweight/obesity (26% and 24% respectively).[16]

## Method

Patient BMI was investigated for a subsample of 40 of the 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 (without shoes)?
- What is your weight in kilograms (unclothed)?

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 WHO recommendations[81] for BMI groups were used, which specify that an adult (18 years and over) 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 reported height for adult patients was checked against sex-appropriate upper and lower height limits from the Australian Bureau of Statistics (ABS).[82] 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. (2000 & 2007) developed a method that calculates the age–sex-specific BMI cut-off levels for overweight and obesity specific to children aged 2–17 years.[83,84] There are four categories defined for childhood BMI: underweight, normal weight, 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 ABS and Centres for Disease Control (CDC).[82,85] Encounters with children whose reported heights were outside either of the age–sex-appropriate limits were excluded from the analysis.

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. (2000 & 2007) has been used for defining overweight and obesity in children (aged 2–17 years).[83,84]

## Results

### Body mass index of adults

The sample size was 31,932 patients aged 18 years and over at encounters with 984 GPs.

- More than half (60.2%) of the patients were overweight or obese—25.9% obese and 34.4% overweight (Table 14.1).
- More than one-third (37.3%) of adult patients had a BMI in the normal range and 2.4% were underweight (Table 14.1).
- Males were more likely to be overweight or obese (67.6%, 95% CI: 66.5–68.7) than females (55.8%, 95% CI: 54.8–56.8) (results not tabled).
- Overweight/obesity was most prevalent among male patients aged 45–64 years (75.1%) and those aged 65–74 years (73.9%) (Figure 14.1).

- Among female patients, overweight/obesity was most prevalent in those aged 65–74 years (68.8%) and 45–64 years (63.3%) (Figure 14.1).
- Underweight was most prevalent among patients aged 18–24 years and 75 years and over. Of young adults (18–24 years), 7.0% of females and 3.0% of males were underweight, and among those aged 75 years and over, 5.0% of women and 2.2% of men were underweight (Figure 14.2).

The overall and sex-specific prevalence estimates were consistent with the ABS 2007–08 figures from the National Health Survey (based on measured BMI data), which reported that 62% of adults aged 18 and over (68% of men and 55% of females) were overweight or obese.[16]

Readers interested in prevalence of the three WHO-defined levels of obesity will find more information and discussion in Chapter 7 of *General practice in Australia, health priorities and policies 1998 to 2008*.[86]

## Estimation of body mass index for the adult general practice patient population

The BEACH study reports data about patient BMI from a sample of the patients attending general practice. As older people attend a GP more often than young adults, and females attend more often than males, they have a greater chance of being selected in the subsample. This leads to a greater proportion of older and female patients in the sample when compared with the total population who attend a GP at least once in a year. The 2009–10 BEACH sample has been weighted to estimate the BMI of the GP–patient population (that is, the 14.3 million adult patients who attended a GP at least once in 2009–10), using the method described by Knox et al. (2008) applied individually to each of the years of the study.[20]

The estimates for the adult GP–patient population (after adjusting for age–sex attendance patterns) suggest that 25.4% of the patient population were obese, 34.4% were overweight, 38.0% were normal weight and 2.2% were underweight (Table 14.1).

**Table 14.1: Patient body mass index (aged 18 years and over)**

| | Male[a] | | Female[a] | | Total respondents | |
|---|---|---|---|---|---|---|
| BMI class | Per cent in BEACH sample (95% CI) (*n* = 11,945) | Per cent in patient population (95% CI)[b] | Per cent in BEACH sample (95% CI) (*n* = 19,735) | Per cent in patient population (95% CI)[b] | Per cent in BEACH sample (95% CI) (*n* = 31,932) | Per cent in patient population (95% CI)[b] |
| Obese | 25.5 (24.6–26.5) | 25.1 (24.1–26.1) | 26.2 (25.3–27.0) | 25.6 (24.7–26.5) | 25.9 (25.2–26.6) | 25.4 (24.6–26.1) |
| Overweight | 42.1 (41.1–43.0) | 40.9 (39.9–41.9) | 29.6 (28.9–30.3) | 28.8 (28.1–29.6) | 34.4 (33.7–35.0) | 34.4 (33.8–35.1) |
| Normal | 31.6 (30.2–32.3) | 32.9 (31.7–34.0) | 41.1 (40.1–42.0) | 42.4 (41.4–43.4) | 37.3 (36.5–38.2) | 38.0 (37.1–38.9) |
| Underweight | 1.2 (1.0–1.4) | 1.1 (0.9–1.4) | 3.2 (2.9–3.5) | 3.1 (2.8–3.5) | 2.4 (2.2–2.6) | 2.2 (2.0–2.4) |

(a) Patient sex was not recorded for 252 respondents.

(b) Estimation of BMI among the total adult general practice patient population (that is, patients aged 18 years and over who have attended a GP at least once) (*n* = 14.3 million).

*Note:* BMI—body mass index; CI—confidence interval.

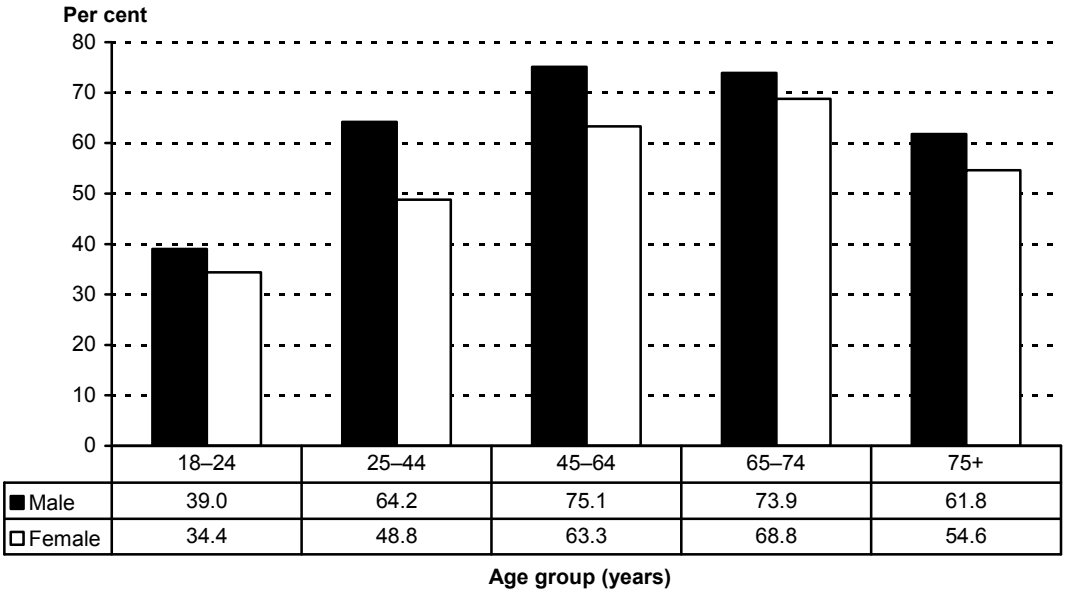



**Figure 14.1: Age–sex-specific rates of overweight/obesity in adults**

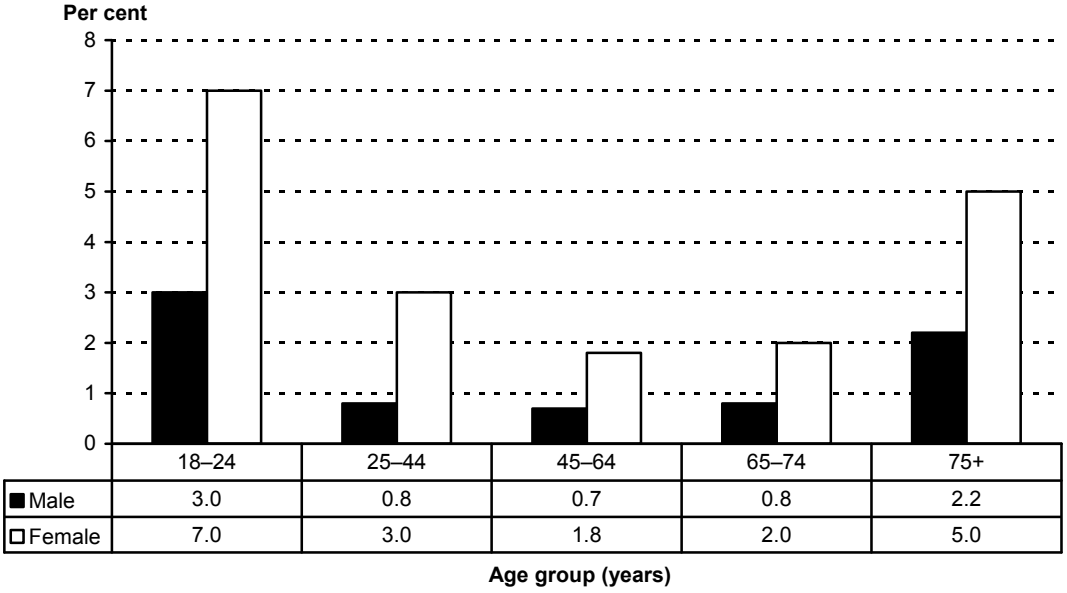



**Figure 14.2: Age–sex-specific rates of underweight in adults**

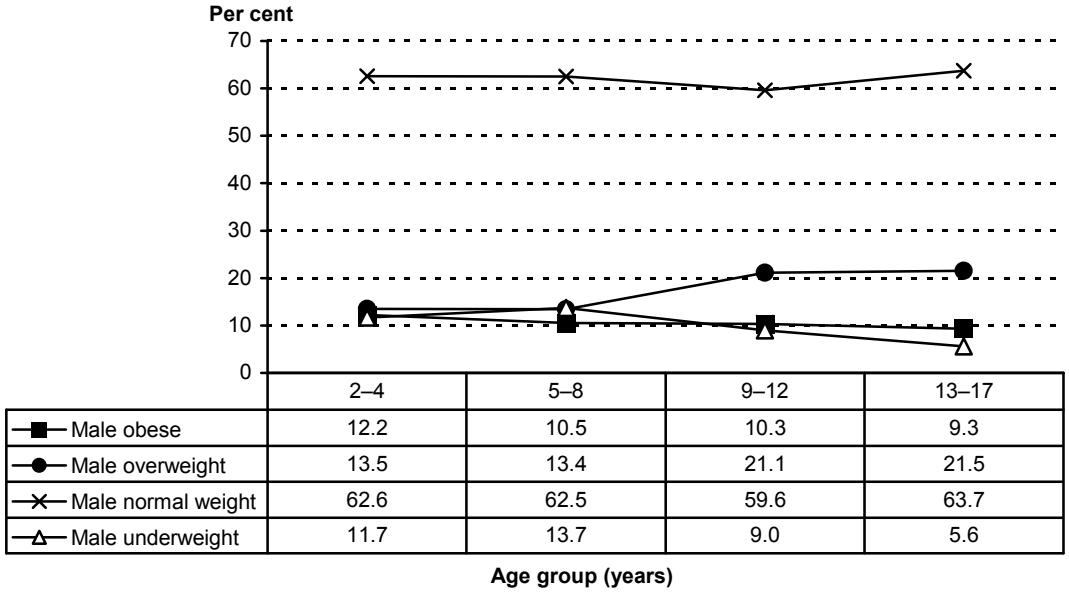
## Body mass index of children

BMI was calculated for 3,183 patients aged 2–17 years at encounters with 829 GPs.

- Just over one-quarter of children (27.6%, 95% CI: 25.8–29.4) were classed as overweight or obese—9.6% (95% CI: 8.4–10.8) obese and 18.0% (95% CI: 16.7–19.4) overweight (results not tabled).
- There was no difference in prevalence of overweight/obesity among male (28.0%, 95% CI: 25.3–30.6) and female children (27.3%, 95% CI: 24.9–29.7) (results not tabled).

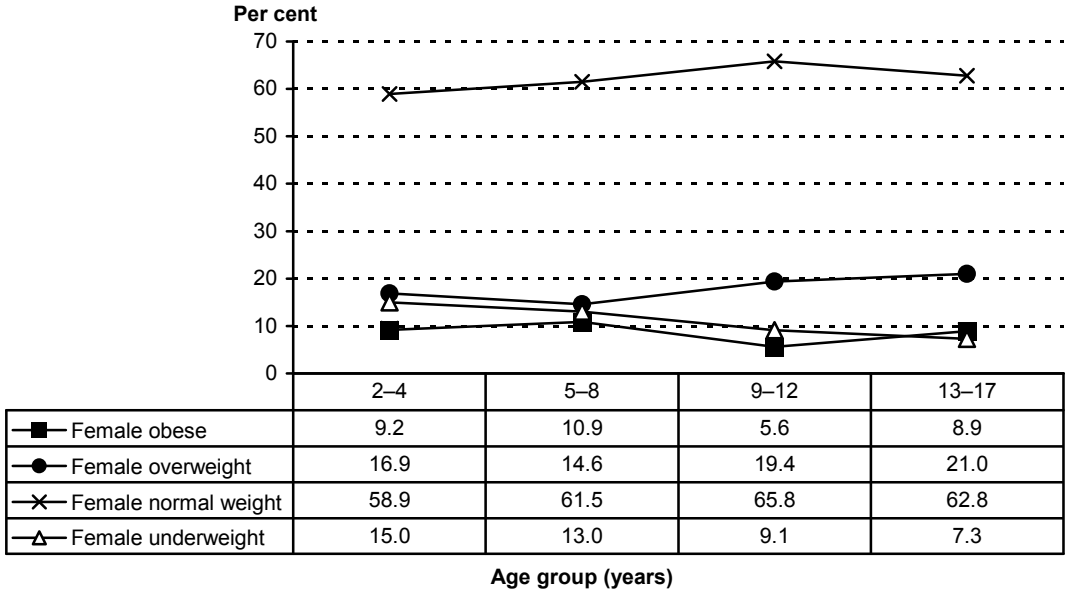
- The age-specific rates of obesity followed similar patterns for both sexes (figures 14.3 and 14.4).

Readers interested in further detail and discussion of overweight and obesity in children attending general practice will find more information in Cretikos et al. (2008) *General practice management of overweight and obesity in children and adolescents in Australia*.[87]




| | 2–4 | 5–8 | 9–12 | 13–17 |
|---|---|---|---|---|
| Male obese | 12.2 | 10.5 | 10.3 | 9.3 |
| Male overweight | 13.5 | 13.4 | 21.1 | 21.5 |
| Male normal weight | 62.6 | 62.5 | 59.6 | 63.7 |
| Male underweight | 11.7 | 13.7 | 9.0 | 5.6 |

**Figure 14.3: Age-specific rates of obesity, overweight, normal weight and underweight in male children**




| | 2–4 | 5–8 | 9–12 | 13–17 |
|---|---|---|---|---|
| Female obese | 9.2 | 10.9 | 5.6 | 8.9 |
| Female overweight | 16.9 | 14.6 | 19.4 | 21.0 |
| Female normal weight | 58.9 | 61.5 | 65.8 | 62.8 |
| Female underweight | 15.0 | 13.0 | 9.1 | 7.3 |

**Figure 14.4: Age-specific rates of obesity, overweight, normal weight and underweight in female children**

# 14.2 Smoking (patients aged 18 years and over)

Tobacco smoking is the leading cause of drug-related death and hospital separations in Australia.[88] 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 2003[79], a decrease from 9.7% of total burden in 1996.[80] According to the 2007 National Drug Strategy Household Survey (NDSHS), 16.6% of Australians aged 14 years and over smoked daily: 18.0% of males and 15.2% of females.[89]

## Method

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

- What best describes your smoking status? Smoke daily<br>Smoke occasionally<br>Previous smoker<br>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 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 32,744 adult patients was established at encounters with 986 GPs. Table 14.2 shows that:

- 15.1% of adult patients were daily smokers
- significantly more male (18.1%) than female patients (13.3%) were daily smokers
- only 2.7% of adult patients were occasional smokers
- more than a quarter of adults (28.2%) were previous smokers.

**Table 14.2: Patient smoking status (aged 18 years and over)**

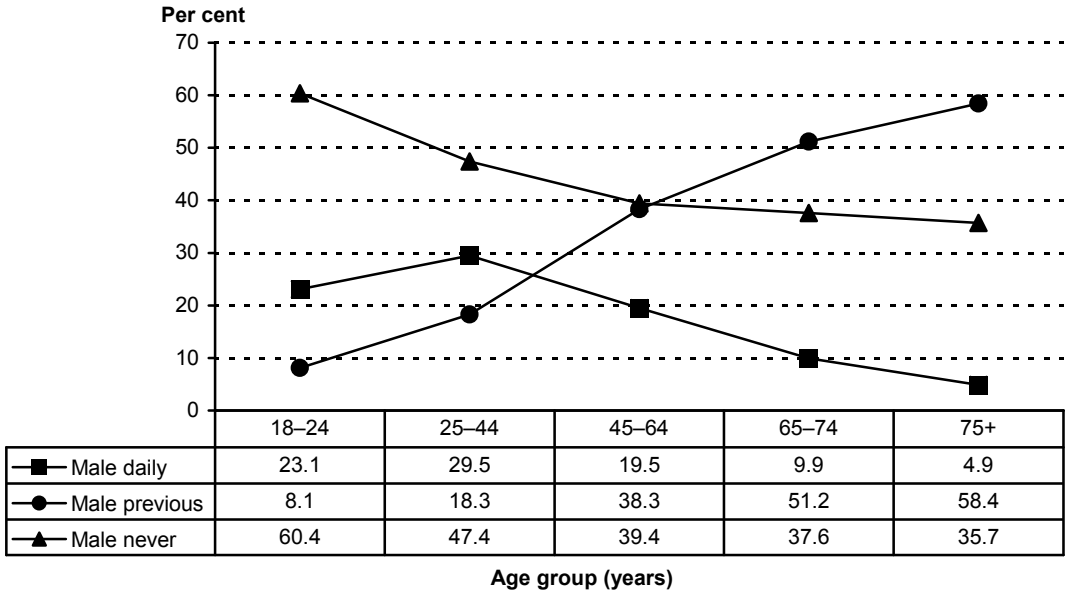
| | Male[(a)] | | Female[(a)] | | Total respondents | |
|---|---|---|---|---|---|---|
| Smoking status | Per cent in BEACH sample (95% CI) (*n = 12,260*) | Per cent in patient population (95% CI)[(b)] | Per cent in BEACH sample (95% CI) (*n = 20,224*) | Per cent in patient population (95% CI)[(b)] | Per cent in BEACH sample (95% CI) (*n = 32,744*) | Per cent in patient population (95% CI)[(b)] |
| Daily | 18.1 (17.1–19.1) | 21.4 (20.2–22.6) | 13.3 (12.6–14.0) | 14.6 (13.9–15.4) | 15.1 (14.4–15.8) | 17.7 (16.9–18.5) |
| Occasional | 3.1 (2.8–3.5) | 3.9 (3.4–4.3) | 2.4 (2.2–2.7) | 2.8 (2.5–3.1) | 2.7 (2.5–2.9) | 3.3 (3.0–3.6) |
| Previous | 36.9 (35.8–38.1) | 30.6 (29.5–31.7) | 22.8 (22.0–23.7) | 21.9 (21.1–22.7) | 28.2 (27.4–29.0) | 25.9 (25.1–26.6) |
| Never | 41.8 (40.6–43.0) | 44.1 (42.8–45.4) | 61.5 (60.4–62.5) | 60.7 (59.6–61.7) | 54.0 (53.1–55.0) | 53.1 (52.1–54.1) |

(a) Patient sex was not recorded for 260 respondents.

(b) Estimation of the smoking status of the total adult general practice patient population (that is, patients aged 18 years and over who have attended a GP at least once) (*n* = 14.3 million).

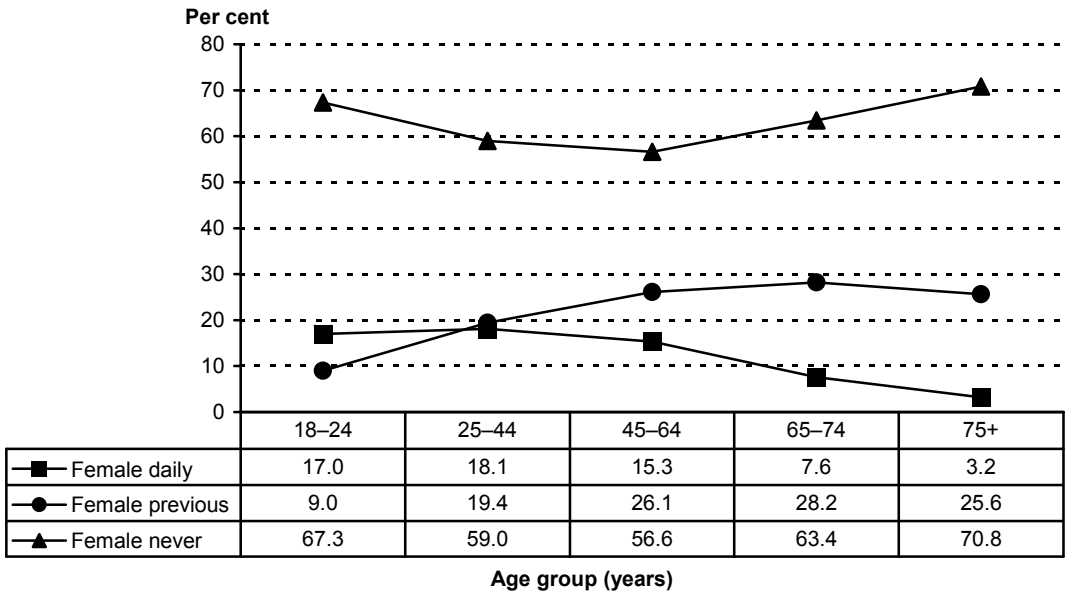
*Note:* CI—confidence interval.

Daily smoking was most prevalent among younger adult patients aged 18–24 years and 25–44 years, with 19% and 22% respectively (results not tabled). Almost 60% of male and 25% of female patients aged 75 years and over were previous smokers, but only 4.9% of males and 3.2% of females in this age group were daily smokers (figures 14.5 and 14.6).




| | 18–24 | 25–44 | 45–64 | 65–74 | 75+ |
|---|---|---|---|---|---|
| Male daily | 23.1 | 29.5 | 19.5 | 9.9 | 4.9 |
| Male previous | 8.1 | 18.3 | 38.3 | 51.2 | 58.4 |
| Male never | 60.4 | 47.4 | 39.4 | 37.6 | 35.7 |

**Figure 14.5: Smoking status—male age-specific rates**




| | 18–24 | 25–44 | 45–64 | 65–74 | 75+ |
|---|---|---|---|---|---|
| Female daily | 17.0 | 18.1 | 15.3 | 7.6 | 3.2 |
| Female previous | 9.0 | 19.4 | 26.1 | 28.2 | 25.6 |
| Female never | 67.3 | 59.0 | 56.6 | 63.4 | 70.8 |

**Figure 14.6: Smoking status—female age-specific rates**

### Estimation of smoking in the adult general practice patient population

The BEACH study reports data about patient smoking habits from a sample of patients attending general practice. As older people attend a GP more often than young adults, and females attend more often than males, they have a greater chance of being selected in the subsample. This leads to a greater proportion of older and female patients in the sample when compared with the total population who attend a GP at least once in a year (about 14.3 million adults in 2009–10). The 2009–10 BEACH sample has been weighted to estimate the smoking status among the GP–patient population, using the method described by Knox et al. (2008) applied individually to each of the years of the study.[20]

The estimates for the GP–patient population (after adjusting for age–sex attendance patterns) suggest that 17.7% of the patient population were daily smokers, 3.3% were occasional smokers, 25.9% were previous smokers and 53.1% had never smoked. Male patients in the total general practice population were significantly more likely to be daily (21.4%), occasional (3.9%) and previous smokers (30.6%) than females patients (14.6%, 2.8% and 21.9%, respectively) (Table 14.2).

## 14.3 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[88] (in particular ischaemic heart disease).[90] The National Health and Medical Research Council (NHMRC) in a review of the evidence concluded that in young women there was no evidence of any cardiovascular mortality benefit from alcohol consumption, and in young men any benefit was outweighed by alcohol-related other causes of death.[90] 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%.[79]

The 2007–08 NHS classified alcohol use of those aged 15 years or more based on the estimated average daily consumption of alcohol during the previous week. They found that 12.6% drank at levels considered to be risky (14.4% of males and 10.8% of females).[16]

The 2007 NDSHS found that 10.3% of people aged 14 years and over (10.2% of males and 10.5% of females) drank at levels considered to be risky or high risk for their health in the long term.[89] The NDSHS also found that 20.4% of people aged 14 years and over (23.7% of males and 17.2% of females) drank alcohol during the preceding 12 months at levels that put their health at risk in the short term.[89] These alcohol consumption risk levels are based on the NHMRC 2001 guidelines.[91]

The NHMRC 2001 alcohol guidelines[91] have been rescinded. In February 2009 the NHMRC published a revised edition of evidence-based alcohol guidelines, which are significantly different from those in 2001, and use the concept of progressively increasing risk of harm with the amount of alcohol consumed, rather than specifying 'risky' and 'high risk' levels of drinking.[92] For this reason the definitions earlier developed by WHO continue to be applied in this report (see 'Method' below).[93]

## Method

To measure alcohol consumption, BEACH uses three items from the WHO Alcohol Use Disorders Identification Test (AUDIT)[93], with scoring for an Australian setting.[94] 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.[94]

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 or more
- 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.

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 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 or guardian is present at the consultation.

## Results

Patients' self-reported alcohol consumption was recorded at 31,771 adult patient (18 years and over) encounters with 984 GPs.

- About one-quarter of adults reported drinking alcohol at at-risk levels (26.5%) (Table 14.3).
- At-risk drinking was more prevalent among male patients (31.6%) than female patients (23.4%) (Table 14.3).
- At-risk drinking was most prevalent in those aged 18–24 years, particularly among men. In this age group almost half of the males and two in five of the females reported at-risk alcohol consumption (Figure 14.7).
- The proportion of patients who were at-risk drinkers decreased with age for both males and females (Figure 14.7).

These estimates are not comparable with the 2007–08 NHS[16] or the 2007 NDSHS[89] as they all use different concepts for defining alcohol consumption and risk, and different adult

populations (patients aged 18 years or more for BEACH, persons aged 15 years or more for the NHS, and persons aged 14 years or more for the NDSHS).

Readers interested in the relationship between morbidity managed and alcohol consumption will find more information in Proude et al. (2006) *The relationship between self-reported alcohol intake and the morbidities managed by GPs in Australia.*[95]

**Table 14.3: Patient alcohol consumption (aged 18 years and over)**

| | Male | | Female | | Total respondents | |
|---|---|---|---|---|---|---|
| Alcohol consumption | Per cent in BEACH sample (95% CI) (*n* = 11,974) | Per cent in patient population (95% CI)[(a)] | Per cent in BEACH sample (95% CI) (*n* = 19,797) | Per cent in patient population (95% CI)[(a)] | Per cent in BEACH sample (95% CI) (*n* = 31,771) | Per cent in patient population (95% CI)[(a)] |
| At-risk drinker | 31.6 (30.4–32.8) | 35.2 (33.9–36.6) | 23.4 (22.5–24.4) | 24.9 (23.9–25.9) | 26.5 (25.7–27.4) | 29.7 (28.7–30.6) |
| Responsible drinker | 47.6 (46.4–48.8) | 45.3 (44.0–46.6) | 42.5 (41.5–43.6) | 43.0 (42.0–44.1) | 44.4 (43.5–45.3) | 44.1 (43.1–45.0) |
| Non-drinker | 20.8 (19.7–21.9) | 19.5 (18.3–20.7) | 34.0 (32.8–35.3) | 32.0 (30.8–33.3) | 29.1 (28.0–30.1) | 26.3 (25.2–27.3) |

(a) Estimation of the alcohol consumption of the total adult general practice patient population (that is, patients aged 18 years and over who have attended a GP at least once) (*n* = 14.3 million).

*Note:* CI—confidence interval.

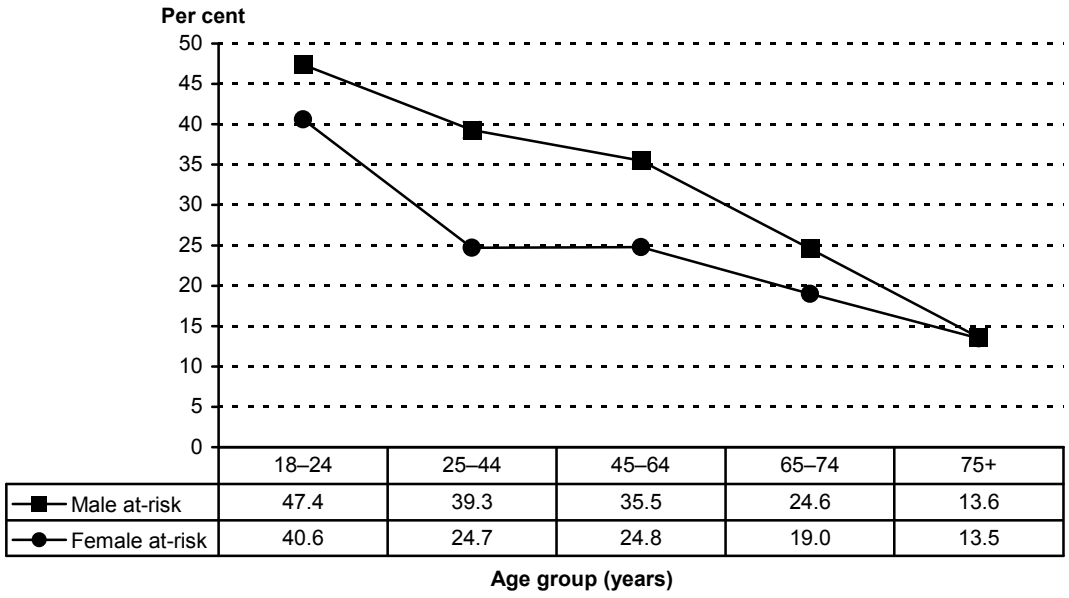



**Figure 14.7: Age–sex-specific rates of at-risk alcohol consumption**

## Estimation of alcohol consumption in the adult general practice patient population

The BEACH study reports data about patient alcohol consumption from a sample of the patients attending general practice. As older people attend a GP more often than young adults, and females attend more often than males, they have a greater chance of being selected in the subsample. This leads to a greater proportion of older and female patients in

the sample when compared with the total population who attend a GP at least once in a year (about 14.3 million adults). The 2009–10 BEACH sample has been weighted to estimate the smoking status among the GP–patient population, using the method described by Knox et al. (2008) applied individually to each of the years of the study.[20]

The estimates for the GP–patient population (after adjusting for age–sex attendance patterns) suggest that 29.7% of the patient population were at-risk drinkers, 44.1% were responsible drinkers and 26.3% were non-drinkers. Male patients in the total general practice population were significantly more likely to be at-risk drinkers (35.2%) than female patients (24.9%) (Table 14.3).

## 14.4 Risk factor profile of adult patients

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 were considered risk factors. A risk factor profile was prepared for 30,795 adult patients (aged 18 years and over) (Table 14.4).

- About half (50.3%) of the adult respondents had one risk factor. The most common was overweight (22.1% of adults) followed by obesity (17.2%).
- One in five patients had two risk factors, the most common combinations being:
  - overweight and at-risk alcohol consumption—7.3% of patients
  - obesity and at-risk alcohol consumption—4.9% of patients
  - daily smoking and at-risk alcohol consumption—3.0% of patients.
- A small group of patients (3.8%) had all three risk factors.

Table 14.5 shows the number of risk factors by patient sex.

- Females were significantly more likely to have no risk factors (29.5%) or one risk factor (51.2%) than males (19.6% and 49.0% respectively).
- Almost one-third of males (31.4%) had two or three risk factors compared with about one in five (19.4%) females.

### Estimation of the risk profile of the adult general practice patient population

The 2009–10 BEACH sample has been weighted to estimate the risk profile of the GP–patient population, using the method described by Knox et al. (2008) applied individually to each of the years of the study.[20]

The estimates for the GP–patient population (after adjusting for age–sex attendance patterns) show that:

- one-quarter of patients had no risk factors (24.5%)
- about half of the adult patients had one risk factor (48.6%), the most common being overweight (20.7% of adults) followed by obesity (15.8%)
- one in five patients had two risk factors (22.2%), the most common combinations being overweight and at-risk alcohol consumption (7.9%), followed by obesity and at-risk alcohol consumption (5.2%)
- 1 in 20 patients had three risk factors (Table 14.4).

## Table 14.4: Risk factor profile of patients (aged 18 years and over)

| Number of risk factors | Number | Per cent in BEACH sample (*n* = 30,795) | 95% LCL | 95% UCL | Per cent in patient population[(a)] | 95% LCL | 95% UCL |
|---|---|---|---|---|---|---|---|
| **No risk factors** | **7,937** | **25.8** | **25.0** | **26.5** | **24.5** | **23.7** | **25.3** |
| **One risk factor** | **15,502** | **50.3** | **49.6** | **51.0** | **48.6** | **47.8** | **49.3** |
| Overweight only | 6,816 | 22.1 | 21.5 | 22.7 | 20.7 | 20.1 | 21.3 |
| Obese only | 5,290 | 17.2 | 16.6 | 17.8 | 15.8 | 15.2 | 16.3 |
| At-risk alcohol level only | 2,330 | 7.6 | 7.1 | 8.0 | 8.1 | 7.6 | 8.7 |
| Current daily smoker only | 926 | 3.0 | 2.8 | 3.3 | 4.0 | 3.6 | 4.3 |
| **Two risk factors** | **6,178** | **20.1** | **19.5** | **20.7** | **22.2** | **21.5** | **22.9** |
| Overweight and at-risk alcohol level | 2,251 | 7.3 | 6.9 | 7.7 | 7.9 | 7.5 | 8.4 |
| Obese and at-risk alcohol level | 1,517 | 4.9 | 4.6 | 5.2 | 5.2 | 4.9 | 5.5 |
| Daily smoker and at-risk alcohol level | 926 | 3.0 | 2.8 | 3.3 | 3.7 | 3.3 | 4.0 |
| Overweight and current daily smoker | 772 | 2.5 | 2.3 | 2.7 | 2.8 | 2.6 | 3.0 |
| Obese and current daily smoker | 712 | 2.3 | 2.1 | 2.5 | 2.6 | 2.3 | 2.8 |
| **Three risk factors** | **1,178** | **3.8** | **3.6** | **4.1** | **4.8** | **4.4** | **5.1** |
| Overweight and current daily smoker and at-risk alcohol level | 733 | 2.4 | 2.2 | 2.6 | 3.0 | 2.7 | 3.2 |
| Obese and current daily smoker and at-risk alcohol level | 445 | 1.4 | 1.3 | 1.6 | 1.8 | 1.6 | 2.0 |

(a) Estimation of the risk factor profile of the total adult general practice patient population (that is, patients aged 18 years and over who have attended a GP at least once) (*n* = 14.3 million).

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

## Table 14.5: Number of risk factors, by patient sex

| | Male | | Female | |
|---|---|---|---|---|
| Number of risk factors | Per cent in BEACH sample (95% CI) (*n* = 11,613) | Per cent in patient population (95% CI)[(a)] | Per cent in BEACH sample (95% CI) (*n* = 19,812) | Per cent in patient population (95% CI)[(a)] |
| No risk factors | 19.6 (18.7–20.5) | 18.7 (17.7–19.7) | 29.5 (28.6–30.4) | 29.5 (28.5–30.5) |
| One risk factor | 49.0 (48.0–50.0) | 46.8 (45.7–47.8) | 51.2 (50.3–52.0) | 50.1 (49.2–50.9) |
| Two risk factors | 25.8 (24.9–26.8) | 27.8 (26.8–28.9) | 16.6 (15.9–17.2) | 17.4 (16.6–18.1) |
| Three risk factors | 5.6 (5.1–6.1) | 6.7 (6.1–7.3) | 2.8 (2.5–3.0) | 3.1 (2.8–3.4) |

(a) Estimation of the risk factor profile of the total adult general practice patient population (that is, patients aged 18 years and over who have attended a GP at least once) (*n* = 14.3 million).

*Note:* CI—confidence interval.

## 14.5 Changes in patient risk factors over the decade 2000–01 to 2009–10

To investigate changes over time in these patient risk factors, data tables reporting results for each year from 2000–01 to 2009–10 are published in the companion report *General practice activity in Australia 2000–01 to 2009–10: 10 year data tables*.[1]

The major changes between 2000–01 and 2009–10 are summarised below.

- The prevalence of obesity in adults attending general practice increased significantly, from 20.2% in 2000–01 to 25.9% in 2009–10, an increase apparent in both male and female patients. The prevalence of overweight in adults was steady over this time period at about 34%.
- The prevalence of overweight and obesity in children aged 2–17 years remained fairly static from 2000–01 to 2009–10, with about 10–11% of children being obese and about 18% overweight.
- Prevalence of daily and occasional smoking decreased significantly in adults aged 18 years and over, from 19.3% and 4.4% respectively in 2000–01, to 15.1% and 2.7% in 2009–10.
- The prevalence of at-risk alcohol consumption among adults aged 18 years and over remained fairly static at about 26% between 2001–02 and 2009–10.

# 15 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 Australian General Practice Statistics and Classification Centre (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 14). Topics are often repeated to increase the size of the sample and its statistical power.

This chapter includes the abstracts and research tools for SAND substudies conducted from April 2009 to March 2010. The subjects covered in the abstracts in this chapter are listed in Table 15.1, with the sample size for each topic.

**Table 15.1: SAND abstracts for 2009–10 and sample size for each**

| Abstract number | Subject | Number of respondents | Number of GPs |
|---|---|---|---|
| 143 | Prevalence of premature ejaculation[(a)] | 656 | 83 |
| 144 | GP ordering of full blood counts and lipid profiles for general practice patients | 5,629 | 193 |
| 145 | Schizophrenia and bipolar disorder management and visit frequency | 2,564 | 89 |
| 146 | Antiplatelet medication and gastrointestinal problems in general practice patients | 3,289 | 111 |
| 147 | Depressive disorders, management and comorbidities | 3,278 | 111 |
| 148 | Type 2 diabetes, and blood glucose, lipid and blood pressure medication management | 3,021 | 103 |
| 149 | Dyslipidaemia and lipid management | 2,960 | 103 |
| 150 | Chronic pain in general practice patients | 2,780 | 94 |
| 151 | Lipid medication use and cardiovascular risk in patients seen in general practice[(b)] | 2,312 | 94 |
| 152 | Migraine and acute/rescue medication use in general practice patients | 3,098 | 105 |
| 153 | Diabetes management and insulin initiation | 3,087 | 105 |
| 154 | Pneumococcal vaccine and pneumonia in general practice patients | 2,662 | 90 |
| 155 | Chronic kidney disease among general practice patients[(c)] | 2,297 | 98 |
| 156 | Osteoarthritis, rheumatoid arthritis and ankylosing spondylitis and acid suppressants use | 2,919 | 97 |
| 157 | Depression and antidepressant use in general practice patients | 5,704 | 195 |
| 158 | Hypertension and benign prostatic hyperplasia[(a)] | 1,003 | 91 |
| 159 | Dementia screening, prevalence and management | 2,690 | 91 |
| 160 | Prevalence, cause, manifestation and severity of adverse pharmacological events | 5,497 | 189 |
| 161 | Chronic obstructive pulmonary disease in general practice patients | 2,842 | 97 |

(a) Substudy limited to male patients aged 18 years and over.

(b) Substudy limited to adult patients aged 18 years and over.

(c) Substudy limited to patients aged 24 years and over.

# SAND abstract number 143: Prevalence of premature ejaculation

**Organisation supporting this study:** Janssen-Cilag Pty Ltd

**Issues:** Prevalence of premature ejaculation (PE) in adult male general practice patients; validation of the Premature Ejaculation Diagnostic Tool in Australian general practice.

**Sample:** 656 adult male encounters from 83 GPs; data collection period: 02/12/08 – 19/01/09.

**Method:** Detailed in the paper entitled *SAND method: 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. **Methods for this study:** The Premature Ejaculation Diagnostic Tool was defined according to Symonds T, Perelman MA et al. *Eur Urol* 2007; 52(2):565–73. A GP information sheet and a patient card with a copy of the questions were provided to assist with completion of the form.

## Summary of results

Of the 2,669 patients in the total sample, 36.6% (95% CI: 33.2–40.0) were male. This proportion of male patients was significantly smaller than the average for BEACH in 2008–09 (42.4%, 95% CI: 41.5–43.3). This was possibly due to the sensitive nature of the study topic. Male patients may have declined to participate, or GPs may have chosen not to record encounters with male patients.

Of the 972 male patients, 796 were adults (aged 18 years and over), and of these patients 656 completed questions about PE. Of these 57.5% reported being currently sexually active, 39.5% were previously sexually active, and 2.7% had never been sexually active.

Self-perceived PE status was recorded by 463 (72.6%) of the 638 currently/previously sexually active adult male patients in this study; 18.1% (*n*=84) felt they had PE and 81.9% (n=379) felt they did not. Of the 84 patients with PE, 45.2% (*n*=38) reported that they had always (or nearly always) had it since their first sexual contact, 42.9% (*n*=36) developed consistent PE 'at a certain age', and 11.9% (*n*=10) developed consistent PE at the same time or after experiencing erectile dysfunction.

Of the 638 currently/previously sexually active patients, the length of time to ejaculation after penetration was recorded for 420 (65.8%). One-quarter (*n*=101) reported ejaculation within 2 minutes, and three-quarters reported ejaculation more than 2 minutes after penetration. Of the 82 patients who self-reported PE and responded to this question, 57 (69.5%) reported ejaculation within 2 minutes of penetration. Of the 338 patients who did not feel they had PE and responded to this question, 44 (13.0%) reported ejaculation within 2 minutes of penetration.

All five questions that form the Premature Ejaculation Diagnostic Tool (PEDT) were answered by 416 currently/previously sexually active adult male patients. Of the 81 patients who felt they had PE, the PEDT score suggested 77.8% had PE, 7.4% had possible PE and 14.8% did not have it. Of the 335 patients who did not feel they had PE, the PEDT score suggested 3.6% had PE, 8.7% had possible PE and 87.8% did not have it.

*The following pages contain the recording form and instructions with which the data in this abstract were collected.*

## Premature ejaculation information for the GP

This pad includes 30 forms which investigate premature ejaculation (in addition to the encounter form).

While 30 forms include these questions we estimate that on average you will only need to ask these questions of 7 or 8 adult male patients who are currently or were previously sexually active.

**However, if you feel at any stage that these questions intrude too greatly on your relationship with this patient, please stop the questions and return the form with the shaded section incomplete for this topic.**

Premature (early, rapid) ejaculation (PE) is the most common type of male sexual dysfunction. It affects between 14% and 30% of males >18 years of age.(1-3)

The personal nature of the condition and the hesitancy of both patients and clinicians to raise the topic means that only a small proportion of those affected seek or receive help.(4)

The purpose of this research is to measure the prevalence of PE among male general practice patients and evaluate the usefulness of a new PE diagnostic tool in Australian general practice. The diagnostic tool being assessed is the Premature Ejaculation Diagnostic Tool.(5)

**A copy of the questions are provided on a separate card that you can show to patients to aid you in completing the questions.**

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.

Thank you for your generosity.


1. Patrick DL, Althof SE, Pryor JL, Rosen R, Rowland DL et al. Premature ejaculation: an observational study of men and their partners. J Sex Med 2005; 2:358-67
2. Laumann EO, Paik A, Rosen R. Sexual dysfunction in the United States. JAMA 1999; 281:537-44.
3. Nicolosi A, Laumann EO, Glasser DB, Moreira ED Jnr, Paik A, Gingell C. Sexual behaviour and sexual dysfunctions after age 40: the global study of sexual attitudes and behaviours. Urology 2004; 63:991-7
4. Aschka C, Himmel W, Ittner E, Kochen MM. Sexual problems of male patients in family practice. J Fam Pract 2001; 50:773-8.
5. Symonds T, Perelman MA, Althof S, et al. Development and validation of a premature ejaculation tool. Eur Urol 2007;52(2):565-73.

# PATIENT CARD

**This card includes a copy of the questions your GP will be asking you about premature ejaculation. Please note that there is no way that you can be identified from your responses.**

## Do you feel that you have premature ejaculation? In other words, do you ejaculate during sexual intercourse before you wish on all or nearly all occasions?

- ☐ No — normal ejaculation
- ☐ Yes — always (or nearly always) since my first sexual contact
- ☐ Yes — previously normal ejaculation but developed premature ejaculation on all or nearly all occasions at a certain age
- ☐ Yes — previously normal ejaculation but developed premature ejaculation on all or nearly all occasions at the same time or after experiencing erectile dysfunction

## How long after penetration do you normally ejaculate?

Answer this quesion in regard to the majority of occasions (more than 90% of occasions). Ejaculation here refers to ejaculation (release of semen) after penetration (when your penis enters your partner).

| | | |
|---|---|---|
| ☐ Before penetration | ☐ 1 minute to 1.5 minutes | ☐ 5 to 10 minutes |
| ☐ less than 10 seconds | ☐ 1.5 minutes to 2 minutes | ☐ 10 to 20 minutes |
| ☐ 11 to 30 seconds | ☐ 2 to 5 minutes | ☐ more than 20 minutes |
| ☐ 31 seconds to 1 minute | | |

## Premature ejaculation diagnostic tool**

This is a questionnaire to help identify men who may have a problem with ejaculating too soon during sexual activity. Even if you do not have any difficulties please answer all the questions.

Please give one response per question and answer in regard to your general experience with intercourse.

**Definition:** *Ejaculation here refers to ejaculation (release of semen) after penetration (when your penis enters your partner).*

| | *Not difficult at all* | *Somewhat difficult* | *Moderately difficult* | *Very difficult* | *Extremely difficult* |
|---|---|---|---|---|---|
| 1. How difficult is it for you to delay ejaculation? | ☐ 0 | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| | *Almost never or never (0%)* | *Less than half the time (25%)* | *About half the time (50%)* | *More than half the time (75%)* | *Almost always or always (100%)* |
| 2. Do you ejaculate before you want to? | ☐ 0 | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 3. Do you ejaculate with very little stimulation? | ☐ 0 | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| | *Not at all* | *Slightly* | *Moderately* | *Very* | *Extremely* |
| 4. Do you feel frustrated because of ejaculating before you want to? | ☐ 0 | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 5. How concerned are you that your time to ejaculation leaves your partner unfulfilled? | ☐ 0 | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |



**Symonds T, Perelman MA, Althof S, et al. Development and validation of a premature ejaculation tool. Eur Urol 2007;52(2):565-73.

# PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **PREMATURE EJACULATION**

*You may tear out this page as a guide to completing the following section of forms.*

IMPORTANT!!

**Please read the GP information (blue) sheet in your pack before commencing this section.**

**These questions are also on a separate patient card in your pack which may assist you to complete these questions.**

## INSTRUCTIONS

Ask the **next 30 PATIENTS** the following questions, where appropriate, **in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated. I.e. if the patient is **NOT** male and 18+ years you may leave this section BLANK.

### Premature ejaculation

Please ask the patient whether they believe that they have **premature ejaculation (PE)**. That is, whether the patient ejaculates during sexual intercourse before they wish (on all or nearly all occasions).

If **yes** please indicate whether the patient has **always** had **PE** (lifelong) or whether the PE is **acquired**.

If the patient has occasional or infrequent PE please tick the box labelled 'no'.

Please **continue to the next questions**, even if the patient answers no.

### Sexual activity status

Please ask the patient if they are or have been **sexually active**. Only ask this question of adult male (18+ years) patients.

If the patient has **never** been sexually active you should **end the questions here** for this patient.

*(If the patient is female or a male aged less than 18 years leave the shaded section blank.)*

### Time until ejaculation

Please ask the patient **how long** after penetration they normally (>90% of occasions) **ejaculate**.

**Definition:** Ejaculation here refers to ejaculation (release of semen) after penetration (when your penis enters your partner).

### Premature ejaculation diagnostic tool**

Please ask the patient the following 5 questions to identify men who may have a problem with ejaculating too soon during sexual activity.

**Please ask these questions of all adult male patients who are or have been sexually active even if they do/did not have any difficulties.** These questions are in regard to the patient's general experience with intercourse.

A card with these questions is included that you can show the patient to aid in answering these questions.

**Circle the number** that corresponds with the patient's response from the patient card. Please give one response per question.



**Symonds T, Perelman MA, Althof S, et al. Development and validation of a premature ejaculation tool. Eur Urol 2007;52(2):565-73.

**THESE QUESTIONS ARE AVAILABLE ON A SEPARATE CARD. YOU MAY SHOW THIS CARD TO THE PATIENT TO ASSIST YOU IN ANSWERING THE QUESTIONS.**

| For male patients aged 18 yrs and over: **Is this patient sexually active?** | **Do you feel you have premature ejaculation (PE) i.e. ejaculate during sexual intercourse before you wish?** | **How long after penetration do you normally ejaculate?** | **1. How difficult is it for you to delay ejaculation?** | **2. Do you ejaculate before you want to?** | **3. Do you ejaculate with very little stimulation?** | **4. Do you feel frustrated because of ejaculating before you want to?** | **5. How concerned are you that your time to ejaculation leaves your partner unfulfilled?** |
|---|---|---|---|---|---|---|---|
| ☐ Yes<br>☐ No<br>☐ Never → **End questions** | ☐ No<br>☐ Yes - always (or nearly always) since my first sexual contact<br>☐ Yes - developed consistent PE at a certain age<br>☐ Yes - developed consistent PE at the same time or after experiencing erectile dysfunction | ☐ Before penetration<br>☐ <10 seconds ☐ >2 - 5 min<br>☐ 11 - 30 sec ☐ >5 - 10 min<br>☐ 31 sec - 1 min ☐ >10 - 20 min<br>☐ >1 - 1.5 min ☐ >20 min<br>☐ >1.5 - 2 min<br>BL108C | **0 1 2 3 4**<br>Please circle a number<br>**0 = not at all**<br>**4 = extremely difficult** | **0 1 2 3 4**<br>Please circle a number<br>**0 = almost never or never**<br>**4 = almost always or always** | **0 1 2 3 4**<br>Please circle a number<br>**0 = almost never or never**<br>**4 = almost always or always** | **0 1 2 3 4**<br>Please circle a number<br>**0 = not at all**<br>**4 = extremely** | **0 1 2 3 4**<br>Please circle a number<br>**0 = not at all**<br>**4 = extremely** |

# SAND abstract number 144: GP ordering of full blood counts and lipid profiles for general practice patients

**Organisation supporting this study:** Australian GP Statistics and Classification Centre

**Issues:** The proportion of patients who receive lipid or full blood count (FBC) tests at that day's encounter; person initiating lipid/FBC tests; purpose of testing; differential diagnoses of investigative FBC tests; morbidities of patients receiving lipid tests.

**Sample:** 5,629 patients from 193 GPs; data collection period: 15/07/2008 – 18/08/2008 and 22/09/2009 – 16/10/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age and sex distribution of patients did not differ from all 2008–09 BEACH encounters. Of 5,629 patients, 693 (12.3%, 95% CI: 11.1–13.5) had a lipid and/or FBC test ordered at that day's encounter: 465 (8.3%) had a lipid test and 530 (9.4%) had a FBC. Sex was known for 459 patients with lipid tests: males had a higher order rate at 9.9% (95% CI: 8.4–11.4) than females 7.0% (95% CI: 5.9–8.1). There was no sex difference in the order rate of FBC tests.

**Lipid tests**

Of the 465 patients with lipid test ordered, 456 indicated who initiated the test order. The majority were suggested by GPs (87.1%), while 11.2% were suggested by patients, and 1.8% by another health professional.

Purpose(s) of ordering lipid test(s) were recorded for 455 patients. Monitoring was the most common reason for ordering (58.5% of patients), followed by investigative/diagnostic (18.2%), primary prevention (18.0%), secondary prevention (17.8%), and opportunistic testing (that is, adding the test once the decision to order was already made) (7.3%).

Of 452 respondents with a lipid test ordered, 43.8% had dyslipidaemia, 43.1% had hypertension, 25.7% were obese, 18.8% had a family history of dyslipidaemia, 18.8% had diabetes, and 12.2% had another cardiovascular disease. At least one of these morbidities/risk factors was present in 84.3% of patients receiving a lipid test.

**FBC tests**

Of the 530 patients with FBC ordered, 486 indicated who initiated the test order. The majority were suggested by GPs (92.2%), while 6.0% were suggested by the patient, and the remaining 1.9% were suggested by another health professional.

Purpose(s) of ordering FBC tests were recorded for 500 patients. An investigative or diagnostic purpose was the most common reason for ordering FBC tests (48.0% of patients), followed by monitoring (35.0%), opportunistic testing (10.6%), primary prevention (8.0%), and secondary prevention (4.8%).

GPs recorded 349 differential diagnoses for 230 patients with investigative FBC ordered. The most common was anaemia (29.2% of diagnoses), while iron deficiency (a common cause of anaemia) was indicated for a further 3.4%. Infections and infectious conditions were recorded for 28.7% of diagnoses, particularly unspecified infections (8.0% of diagnoses), and respiratory infections (6.0%).

*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 **SELECTED PATHOLOGY TESTS.**

*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.

**Please ensure you complete details of all pathology tests ordered at today's encounter in the main section of the form before completing the questions in the shaded section below.**

### Selected pathology tests

Please advise whether you ordered a **lipid test** and/or a **full blood count (FBC)** for this patient **at this encounter**.

Lipid test includes total cholesterol, HDL, LDL and triglycerides.

If you **did not order** a lipid test or full blood count at this encounter please tick the box labelled '**neither of the above**' and **end the questions here** for this patient.

### Initiation of tests

Under each heading (lipid or FBC) please use the tick boxes to indicate **who suggested each test—you, the patient** or **another health professional** (e.g. specialist).

Please **tick only one option per test** using the tick boxes in the appropriate column 'Lipid' or 'FBC'.

### Purpose of test

Please use the tick boxes to indicate for each test whether the test was:

- **investigative** or diagnostic for a new condition
- **monitoring** of an existing condition
- **primary prevention****/screening in an otherwise healthy patient (e.g. following RACGP red book guidelines for preventive activities)
- **secondary prevention****/screening in a patient with established risk factors for a condition but without the condition
- **opportunistic**** - the test was added to the pathology order once the decision to order another test was already made.

**Tick as many as apply** for each test.

### Previous testing

Please indicate whether this patient has had a lipid/FBC test on **any previous occasion**.

If you do not know if the patient has previously been tested please tick the box labelled '**don't know**'.

### Time since last test

If 'yes' to either test please advise **how long** it has been **since the patient last had a lipid/FBC test**.

If you do not know when the last test was ordered please tick the box labelled '**don't know**'.

### Investigative FBC test

If a **FBC** was **ordered today for investigative purposes** please write your **differential diagnosis(es)** in the space provided. Please **rank multiple differential diagnoses**, 1. being the most probable to 3. the least probable.

If you **do not have** a differential diagnosis please write '**none**'.

A differential diagnosis is defined as '*the process of weighing the probability of one disease versus that of other diseases possibly accounting for a patient's illness*'.

Source: www.medterms.com, accessed 27/5/08

### Lipid medication and other conditions

For patients who have a **lipid test ordered today** please indicate whether the patient:

- is **currently taking a lipid lowering medication**
- has any of the **listed conditions or risk factors**.

| At today's encounter did you order a: | Who suggested the test(s)? *(Please tick one option per test)* | Today's test(s) is/are: *(Tick all that apply)* | Has this patient had this test before? | The test was last ordered: | For FBC test: | For LIPID tests: | Does this patient have: |
|---|---|---|---|---|---|---|---|
| ☐ Lipid test<br>☐ Full blood count<br>☐ Neither of the above → **End questions**<br>BL116B | Lipid FBC<br>GP ☐ ☐<br>Patient ☐ ☐<br>Other health professional ☐ ☐ | Lipid FBC<br>Investigative ☐ ☐<br>Monitoring ☐ ☐<br>Preventive (primary)** ☐ ☐<br>Preventive (secondary - pt has known risk)** ☐ ☐<br>Opportunistic** ☐ ☐<br>**See definitions on green sheet | Lipid FBC<br>Yes ☐ ☐<br>No ☐ ☐<br>Don't know ☐ ☐ | Lipid FBC<br><3 mnth ago ☐ ☐<br>3-6 mnth ☐ ☐<br>7-12 mnth ☐ ☐<br>>12 mnth ☐ ☐<br>Don't know ☐ ☐ | If '**investigative**' what is/are your differential diagnosis(es)?<br>1. _____<br>2. _____<br>3. _____ | Is this patient currently taking lipid lowering medication?<br>☐ Yes<br>☐ No<br>☐ Don't know | ☐ Dyslipidaemia<br>☐ Family Hx dyslipidaemia<br>☐ Obesity<br>☐ Diabetes<br>☐ Hypertension<br>☐ Other CVD<br>☐ None of the above |

# SAND abstract number 145: Schizophrenia and bipolar disorder management and visit frequency

**Organisation supporting this study:** Janssen-Cilag Pty Ltd

**Issues:** The proportion of general practice patients with a history of schizophrenia, schizoaffective disorder, schizophreniform, paranoid psychosis or bipolar disorder; whether the condition was managed under a specific plan or program; the number of visits to a GP in the previous 3 months (including the current consultation); the number of visits at which schizophrenia/bipolar disorder was managed; current medications used to manage the condition and who initiated the medication use (GP or specialist).

**Sample:** 2,564 patients from 89 GPs; data collection period: 31/03/2009 – 04/05/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age and sex distribution of respondents did not differ from that of patients at all 2007–08 BEACH encounters.

Of the 2,564 respondents, 74 (2.9%, 95% CI: 2.0–3.7) had a history of either schizophrenia-related problems or bipolar disorder. Of these patients, 32 (1.3%, 95% CI: 0.7–1.8) had schizophrenia, schizoaffective disorder, schizophreniform or paranoid psychosis, and 43 (1.7%, 95% CI: 1.1–2.3) had bipolar disorder.

The majority of schizophrenia-related problems (87.5%) and bipolar problems (83.7%) were in patients aged 25–64 years. There was no significant difference between males and females in the proportion who had either of the conditions.

Of 28 respondents with schizophrenia-related problems, 13 were managed as part of a shared care program with a community mental health centre, and 8 patients were part of a management plan with a private psychiatrist. Of 28 respondents, the median number of GP visits in the previous 3 months was four, at which schizophrenia-related problems were managed twice. Of the 32 patients with schizophrenia-related problems 40.6% ($n$=13) were on one medication, 37.5% ($n$=12) were on two, and 12.5% ($n$=4) of patients were taking no medication. Quetiapine and risperidone were most commonly recorded, and together accounted for more than one-third of the medications. There were 45 medications with known initiator: 10 (22.2%) were initiated by a GP, and 35 (77.8%) by a specialist.

Of 42 respondents with bipolar disorder, 13 were part of a shared care program with a community mental health centre and 17 were being managed as part of a management plan with a private psychiatrist. For the 43 bipolar patients, the median number of visits to a GP in the previous 3 months was 3, at which bipolar disorder was managed once. Of the 43 patients, 34.9% were on one medication, 30.2% were on two, 16.3% were on three, 7.0% were on four, and 11.6% of bipolar patients were taking no medication. Sodium valproate, quetiapine and olanzapine were most commonly recorded, and together accounted for about 36% of the medications. For the 71 medications with known initiator, 28 (39.4%) were initiated by a GP and 43 (60.6%) by a specialist.

*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 **SCHIZOPHRENIA and BIPOLAR DISORDER.**

*You may tear out this page as a guide to completing the following section of forms.*

## INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Schizophrenia / Bipolar disorders

Please use the tick boxes to advise whether this patient has a history of any of the listed **schizophrenia / bipolar disorder** conditions.

If the patient does not have a history of any of these conditions **please end the questions here**.

### Frequency of management

Please write in the spaces provided the approximate **number of times** the patient has visited a GP for any reason in the past 3 months. Use patient recall, your notes or knowledge, to give the best estimate. Please also write the approximate number of GP visits at which their **schizophrenia / bipolar disorder** was **managed** during that time. (Please include **today's** consultation in the total.) If you **do not know** the number for either, please tick the box labelled '**don't know**'.

### Changes to medication

Please advise whether the patient's medication for either condition **will change as a result of today's visit**.

If a medication is to be **stopped** please **circle a number** to indicate which medication(s) (from those listed in the previous question) will cease.

**Change in dose** refers to an increase or decrease in medication dose

**Adding a medication** is the commencement of a medication the patient was not previously taking.

**Tick as many as apply**.

### Management plan

If the patient has a history of any of the previously listed **schizophrenia / bipolar conditions**, please advise whether their condition is **being managed** via any of the methods below.

(CMHC = Community Mental Health Centre)

### Current medications

Please write the **name** of the **medication(s)** currently taken by the patient (i.e. prior to today's visit) for the management of schizophrenia or bipolar disorder.

Please also indicate:

- the **duration** the patient has used each medication (in months)
- whether the medication was **initiated** by a GP or specialist.

### Reasons for changes

Please use the tick boxes to advise the reason(s) for altering the patient's **medication(s)** at today's encounter.

**Does this patient have a history of:**

- ☐ Schizophrenia
- ☐ Schizoaffective disorder / Schizophreniform / paranoid psychosis
- ☐ Bipolar disorder manic
- ☐ Bipolar disorder depressive
- ☐ Bipolar disorder mixed
- ☐ None of the above → **End questions**

**Is the patient managed as part of:**

- ☐ Shared care program with CMHC
- ☐ Management plan with private psychiatrist
- ☐ Discharge plan from hospital
- ☐ Discharge plan from CMHC
- ☐ Community / involuntary treatment order
- ☐ None of the above

BL111B

**Approx. how many times has this patient visited a GP in the past 3 months?**

No. _____ ☐ Don't know

**At approx. how many of these was the schizophrenia/ bipolar disorder managed?**

No. _____ ☐ Don't know

**Medication(s) taken for schizophrenia / bipolar: (prior to this visit)**

| | Medication name | Duration of use | Initiated by (please circle) |
|---|---|---|---|
| 1. | _____ | _____ mths | GP / Spec'st |
| 2. | _____ | _____ mths | GP / Spec'st |
| 3. | _____ | _____ mths | GP / Spec'st |
| 4. | _____ | _____ mths | GP / Spec'st |

**At today's visit did you:** *(tick all that apply)*

- ☐ Stop med(s) ← 1 2 3 4 *(circle the related number)*
- ☐ Add new med(s)
- ☐ Change dose(s) of current med(s)
- ☐ No change

**If you made any med changes today what were the reason(s)?**

- ☐ Improved efficacy
- ☐ Reduce side effects
- ☐ Improved safety
- ☐ Ease of regimen
- ☐ Other _____ *(please specify)*

# SAND abstract number 146: Antiplatelet medication and gastrointestinal problems in general practice patients

**Organisations supporting this study:** AstraZeneca Pty Ltd

**Issues:** Prevalence of patients at risk of cardiovascular disease. For those at risk: current antiplatelet medications and daily dose; proportion with gastrointestinal (GI) problems and medications prescribed for those problems; the pattern of use of proton pump inhibitors (PPI); and timing of initiation of antiplatelet and PPI use.

**Sample:** 3,298 respondents from 111 GPs; data collection period: 05/05/2009–08/06/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

Age and sex of patient were recorded at 3,277 encounters. The age distribution did not differ from all 2007–08 BEACH encounters. Sex distribution was significantly different: 37.6% (95% CI: 34.6–40.5) of encounters were with male patients, a significantly lower proportion than in total 2007–08 BEACH encounters (42.9%, 95% CI: 42.1–43.7).

GPs determined that 1,117 (33.9%) patients were at risk of cardiovascular disease, the proportion rising significantly with age. Among patients aged 25–44 years, 10.6% (95% CI: 7.9–13.3) were at risk, while among those aged 75 years and over, 76.9% (95% CI: 72.0–81.9) were at risk. There was no statistically significant difference between the sexes.

Information on antiplatelet use was available for 1,078 at risk patients. A total of 575 medications were recorded (multiple responses were allowed). Half of the patients (50.5%, 95% CI: 46.0–54.9) took at least one antiplatelet medication: 475 patients (44.1%) taking aspirin, 8.2% taking clopidogrel, and 1.1% taking an aspirin/dipyridamole combination.

Of 1,089 at risk respondents with GI problem data, 437 (40.1%) had at least one GI problem: 31.8% had gastro-oesophageal reflux disease (GORD), 6.5% had dyspepsia, 2.3% had peptic ulcer disease, and 4.5% had other GI problems/symptoms.

Of 430 respondents with a GI problem and medication data, 393 (91.4%) were taking a medication for their problems, and 366 (89.5%) of these were taking a PPI (80.3% of these as a continuous medication). Of a total of 410 medications for GI problems, esomeprazole accounted for 31.2%, pantoprazole for 21.7% and omeprazole 20.0%.

Of the 475 patients currently taking aspirin as an antiplatelet (either alone or with clopidogrel), GI problem status was recorded for 469. Of these, 202 (43.1%) had at least one GI problem: 169 (36.0%) had GORD, 5.5% had dyspepsia, 2.4% had peptic ulcer disease, and 3.2% had other GI problems/symptoms.

Of 167 at-risk patients with GORD and on antiplatelet aspirin, 156 (93.4%) were taking a PPI, and for 122 of these patients (80.3%), the regimen was continuous medication. For 114 at risk patients with GORD and on antiplatelet aspirin, timing of initiation of antiplatelet and PPI use was known: 54.4% started on a PPI first and 45.6% started on antiplatelet aspirin first.

*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 **ANTIPLATELET MEDICATIONS AND GASTROINTESTINAL PROBLEMS.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Cardiovascular risk

In your clinical opinion, please advise whether this patient is at cardiovascular risk.

If '**no**', please **end the questions here** for this patient.

### Antiplatelet medication

In the space provided please write the **name** and **form** of the **antiplatelet medication,** and the regimen (i.e. **strength, dose and frequency**) of the medication(s) the patient is currently taking.

Please include any aspirin combination medications if taken for antiplatelet purposes.

### Medications for GI problems

Please write the **name** and **form** of the **current medication(s)** taken by this patient for their GI problems. (Please ask the patient if necessary).

Please also indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

If the patient is **not currently taking a medication** for their GI problems please tick the box labelled '**No medications for GI problem**'.

### Use of proton pump inhibitors (PPIs)

If the patient uses a PPI please ask the patient how often they take the PPI: **every day (as a continuous medication), most days, weekly, monthly** or **less frequently**.

If the patient does not take a PPI for the management of their GI problems please tick '**no PPI**' and end the questions here.

Please also indicate whether the **PPI was started before commencing antiplatelet** medication. If the patient is **not simultaneously on PPI and antiplatelet** medication tick **'No antiplatelet'**.

### Antiplatelet medication use

Please ask the patient whether they currently take **antiplatelet medication** (e.g. **aspirin, clopidogrel**).

Note: these questions relate to antiplatelet medication use. They do not refer to other anticoagulant medications (e.g. warfarin).

If '**none of the above**', please continue to **part 2** of the form.

### Gastrointestinal (GI) problems

Please use the tick boxes to advise whether this patient has **any of the listed GI problems**.

If the patient does not have a GI problem, please **end the questions here** for this patient.

---

**In your clinical opinion, is this patient at risk of cardiovascular disease?**

- ☐ Yes
- ☐ No → **End questions**

BL112B

**Does this patient currently take:**

- ☐ Aspirin *(as an antiplatelet)*
- ☐ Clopidogrel
- ☐ Other antiplatelet
- ☐ None of the above → **Go to PART 2**

**Current antiplatelet medication(s):**

| Name & Form | Strength | Dose | Frequency |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

*(Please include aspirin combinations if taken as an antiplatelet)*

**PART 2:**

**Does this patient have:**

- ☐ GORD
- ☐ Dyspepsia
- ☐ Peptic ulcer disease
- ☐ Other GI problems/ symptoms
- ☐ None of the above → **End questions**

**Current medication(s) for GI problem(s):**

| Name & Form | Strength | Dose | Frequency |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

☐ No medications for GI problem(s)

**If PPI is used, ask the pt how often it is taken:** ☐ No PPI → **End Qs**

- ☐ every day *(as a continuous med)*
- ☐ weekly / fortnightly
- ☐ most days
- ☐ monthly or less

**Was PPI started before antiplatelet?**

- ☐ Yes
- ☐ Don't know
- ☐ No
- ☐ No antiplatelet

# SAND abstract number 147: Depressive disorders, management and comorbidities

**Organisation supporting this study:** Wyeth Australia Pty Ltd

**Issues:** The proportion of general practice patients who had a diagnosed depressive disorder at the time of encounter; type of depressive disorder; comorbidities present among these patients; current medications taken for the management of depressive disorder; proportion of patients who were adequately controlled with the current treatment; and for those whose depressive disorder was not adequately controlled, the current management plan.

**Sample:** 3,278 patients from 111 GPs; data collection period: 05/05/2009 – 08/06/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. **Method for this study:** DSM-IV-TR criteria for major depression supplied (Source: American Psychiatric Association 2000. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC: American Psychiatric).

## Summary of results

The age and sex distributions of respondents did not differ from that of patients at all 2007–08 BEACH encounters. Of the 3,278 respondents, 594 (18.1%, 95% CI: 16.1–20.2) currently had a diagnosed depressive disorder. The prevalence was low (0.6%, 95% CI: 0.0–1.4) in patients aged less than 15 years, and did not differ from the average in all other age groups. Prevalence was significantly higher for females (20.9%, 95% CI: 18.4–23.3) than males (13.9%, 95% CI: 11.2–16.5).

For the 579 patients who specified the type of depressive disorder, 216 (37.3%) had mixed anxiety-depressive disorder, 174 (30.1%) had major depressive disorder, 162 (28.0%) had generalised depressive disorder, 26 (4.5%) had bipolar disorder, and 12 patients (2.1%) had another depressive disorder (4 of whom had postnatal depression).

Details of comorbidities were provided for 554 patients, of whom 495 (89.4%) had at least one comorbidity. The prevalence common comorbidities were anxiety (47.5%), insomnia (29.1%), hypertension (27.3%) and arthritis (24.2%). Comorbidities other than those listed were recorded for 172 patients (31.1% of respondents), with chronic obstructive pulmonary disease the most commonly recorded, followed by osteoporosis and dementia.

Of 569 respondents with a depressive disorder, 108 (19.0%) were taking no medication for their disorder. There were 569 medications for depressive disorder listed for the 461 patients taking medication. Sertraline was the most common (13.2%), followed by venlafaxine (10.9%). For 502 of the 569 medications, the initiator of the medication was known, and 360 (71.7%) of these were initiated by the GP.

Of the 461 patients taking at least one medication for depressive disorder, information on current management plan was available for 453. Four out of five (78.4%) of these patients had their depressive disorder adequately controlled, with the GP not planning on changing management. For 20 patients (4.4%), the plan was to stay on the same medication but increase the dosage. For 10 patients (2.2%), the plan was to change to another medication, for 11 patients (2.4%) a new medication was to be added, and 43 patients (9.5%) were to be referred to another professional. Other management plans for depressive disorder were recorded for 32 (7.1%) patients, including 10 patients who were to be admitted to hospital.

*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 **DEPRESSIVE DISORDERS.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### BOX 1: Criteria for major depression*

Patient must have for a duration of at least TWO WEEKS depressed mood or loss of interest or pleasure accompanied by at least 4 of the following symptoms:

- significant appetite or weight loss or gain
- insomnia or hypersomnia
- psychmotor agitation or retardation
- fatigue or loss of energy
- feelings of worthlessness or excessive guilt
- impaired thinking or concentration; indecisiveness
- suicidal thoughts/thoughts of death

*DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th edition)

### Depressive disorders

Please indicate whether this patient has been diagnosed with a **depressive disorder**.

If '**no**' please **end questions here** for this patient.

### Comorbidities

Please use the tick boxes to advise whether this patient has any of the listed **comorbidities**.

If the patient has a chronic condition that is not listed please specify it in the space provided.

### Type of depressive disorder

Please indicate which **type of depressive disorder** this patient has been diagnosed with.

The criteria for major depressive disorder are shown in Box 1 for your reference.

If the type of depressive disorder is not listed please tick **'other'** and **specify the type of depressive disorder** in the space provided.

### Medication management

Please write the **name** and **form** of the **current medication(s)** taken by this patient for their depressive disorder.

Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s), and whether the medication was **initiated** by a GP or specialist.

If the patient is **not currently taking a medication** for their depressive disorder please tick the box labelled '**none**' and **end the questions here.**

### Management plan

In your **clinical opinion**, please advise whether the patient's depressive disorder is **adequately controlled**.

If the patient is not adequately controlled, please use the remaining tick boxes to advise your managment plan to improve control.

| Does this patient currently have a diagnosed depressive disorder? | If 'yes', which type? | Other diagnosed medical conditions: *(Tick all that apply)* | Current meds for depressive disorders: | What is the current management plan for this patient? |
|---|---|---|---|---|
| ☐ Yes<br>☐ No → **End questions** | ☐ Generalised depressive disorder<br>☐ Major depressive disorder *(see definition on green sheet)*<br>☐ Mixed anxiety/depressive dis.<br>☐ Bipolar disorder<br>☐ Other: *(please specify)* _____ | ☐ Anxiety ☐ GORD<br>☐ Insomnia ☐ Arthritis ☐ **No chronic disease**<br>☐ Back complaint ☐ Cancer<br>☐ Hypertension ☐ Ischaemic heart disease<br>☐ Lipid disorders ☐ Other chronic problems:<br>☐ Diabetes *(please specify)* _____<br>☐ Asthma _____ | **Name & Form / Strength / Dose / Frequency / Initiated by** *(please circle)*<br>_____ GP / Spec'st<br>_____ GP / Spec'st<br>_____ GP / Spec'st<br>_____ GP / Spec'st<br>☐ NONE → **End questions** | ☐ No change (adequate control)<br>☐ Same med(s) - increase dose<br>☐ Change to another med<br>☐ Add additional med<br>☐ Referral to health professional<br>☐ Other: _____ *(please specify)* |

BL112C

# SAND abstract number 148: Type 2 diabetes, and blood glucose, lipid and blood pressure medication management

**Organisation supporting this study:** Merck Sharp and Dohme (Australia) Pty Ltd

**Issues:** The prevalence of diagnosed Type 2 diabetes in general practice patients; for these patients, the most recent levels of HbA1c, total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol and blood pressure; proportion currently taking medication for management of blood glucose levels; proportion currently taking mono, dual, triple or quadruple medication therapy; proportion currently using insulin (alone or in combination with oral medication) for management of blood glucose levels; proportion who meet the Pharmaceutical Benefits Schedule (PBS) criteria for subsidy of lipid-lowering medications; proportion of eligible patients taking a lipid-lowering medication; proportion of patients with Type 2 diabetes taking a lipid-lowering medication, and those taking a medication for hypertension.

**Sample:** 3,021 respondents from 103 GPs; data collection period: 09/06/2009–13/07/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. **Methods for this study:** A card was supplied to participating GPs to assist in defining patient eligibility for the PBS subsidy.

## Summary of results

The age–sex distribution of respondents did not differ from the distribution for all BEACH encounters, with 42.9% being male, and 26.5% of patients aged 45–64 years.

Of 3,021 respondents, 271 (9.0%) had diagnosed Type 2 diabetes. Of 3,000 patients for whom sex was known, prevalence of Type 2 diabetes was higher among male (11.5%, 95% CI: 9.2–13.8) than female patients (7.2%, 95% CI: 5.6–8.8). Of 3,006 patients for whom age was known, prevalence was higher among patients aged 45–64 years (12.6%) than among patients aged 25–44 years (2.6%).

Of 244 respondents, the average HbA1c level was 7.3%, 57.0% having a level <7.0%. For 255 respondents, the average total cholesterol level was 4.6, 38.8% having levels 4.0–4.99. For 228 respondents, the average LDL cholesterol level was 2.5, 44.3% having levels of 2.5 or higher. For 233 respondents, the average HDL cholesterol level was 1.3, 64.4% having levels greater than 1.0. Of 248 respondents for blood pressure, only 8.1% were in the normal range.

Of 263 Type 2 diabetes respondents to the medication question, 205 (78.0%) were taking at least one medication to manage their blood glucose. Monotherapy was recorded for 108 patients (52.7%), dual for 85 patients (41.5%), and triple therapy for 12 patients (5.9%). None were on quadruple therapy. Of 47 patients taking insulin, 40.4% were taking insulin only, and 59.6% were taking insulin with at least one other medication.

Of 258 Type 2 diabetes respondents to the lipid medication question, 179 (69.4%) were currently taking a lipid-lowering medication, and of 255 respondents to the hypertension medication question, 188 (73.7%) were currently on medication for hypertension. Of 241 Type 2 diabetes patients for whom a response to the question on PBS subsidy eligibility was recorded, 206 (85.5%) met the criteria for subsidy of lipid-lowering medications, and of these, 165 (80.5%) were currently taking a lipid-lowering medication.

*The following pages contain the recording form and instructions with which the data in this abstract were collected.*

## Pharmaceutical Benefits Schedule criteria for lipid-lowering medications

Patients in any of the following high risk groups may start statins or fibrates at any cholesterol level

- Symptomatic coronary heart disease (CHD)
- Symptomatic cerebrovascular disease
- Symptomatic peripheral vascular disease
- Diabetes mellitus with microalbuminuria
- Diabetes mellitus in Aboriginal or Torres Strait Islander patients
- Diabetes mellitus in patients aged ≥60 years
- Family Hx CHD, symptomatic <55 years in two or more first degree relatives
- Family Hx CHD, symptomatic <45 years in one or more first degree relatives

If none of the above apply, patients in the following categories are eligible for PBS criteria for subsidy

*(following dietary therapy of at least 6 weeks duration)*

| PATIENT CATEGORY | LIPID LEVEL |
|---|---|
| • Diabetes mellitus (not otherwise included) | TC >5.5mmol/L |
| • Aboriginal or Torres Strait Islander patients<br>• Hypertension | TC >6.5mmol/L<br>**or**<br>TC >5.5mmol/L and HDL- C <1mmol/L |
| • HDL-C <1mmol/L | TC >6.5mmol/L |
| • Familial hypercholesterolaemia<br>• Family Hx CHD, symptomatic <60 years in one or more 1° relatives<br>• Family Hx CHD, symptomatic <50 years in two or more 2° relatives | Aged <18yrs at Rx initiation:<br>LDL-C >4mmol/L<br>Aged ≥18yrs at Rx initiation:<br>LDL-C >5mmol/L<br>**or**<br>TC >6.5mmol/L<br>**or**<br>TC >5.5mmol/L and HDL- C <1mmol/L |
| • Men aged 35-75 years (not included elsewhere)<br>• Post-menopausal women <75 years | TC >7.5mmol/L<br>**or**<br>Trig >4mmol/L |
| • Patients not otherwise included | TC >9mmol/L<br>**or**<br>Trig >8mmol/L |

*Source:* 'General statement for lipid-lowering drugs prescribed as pharmaceutical benefits' Available at: www.pbs.gov.au, accessed 2/4/09

# 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

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Test levels

Please advise the patient's **levels** at the **most recent testing**, of **HbA1c; total cholesterol; LDL cholesterol; HDL cholesterol.** Please also advise the most recent **blood pressure** reading.

If you **do not know** one of these levels, or if the patient has **never had** one or more of these **levels measured**, please tick the box labelled '**don't know / never tested**'.

### PBS criteria for lipid-lowering medications

Please advise whether this patient meets the **PBS criteria** as set out in the 'General statement for lipid-lowering drugs' for **PBS subsidised lipid-lowering medication(s)**.

**The PBS criteria are provided on a separate card in your research pack.**

### Hypertension medication

Please write the **name** and **form** of the **current medication(s)** taken by the patient for **management of their blood pressure**.

Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

If the patient is **not** currently taking a blood pressure medication please tick the box labelled '**no hypertension medication**'.

### Type 2 diabetes

Please advise whether this patient has been diagnosed with **Type 2 diabetes.**

If the patient **does not have** Type 2 diabetes please **end the questions here for this patient**.

### Glucose-lowering medication

Please write the **name** and **form** of the **current medication(s)** taken by the patient for **management of their blood glucose levels**. Please include both oral medications and insulin.

Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

If the patient is **not currently taking a medication** for blood glucose management please tick the box labelled '**no glucose-lowering medication**'.

### Lipid-lowering medication

Please write the **name** and **form** of the **current medication(s)** taken by the patient for **management of their lipid levels**.

Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

If the patient is **not** currently taking a lipid-lowering medication please tick the box labelled '**no lipid-lowering medication**'.

| Does this patient have Type 2 diabetes? | What are the patient's most recent levels of: | Don't know/ never tested | Current med(s) for BLOOD GLUCOSE levels: | Does the patient meet PBS criteria for subsidy of lipid-lowering medications? | Current LIPID-LOWERING med(s): | Current HYPERTENSION med(s): |
|---|---|---|---|---|---|---|
| ☐ Yes | HbA1c _____ % | ☐ | Name & Form Strength Dose Freq | *See card* | Name & Form Strength Dose Freq | Name & Form Strength Dose Freq |
| ☐ No → **End questions** | Total chol _____ mmol/L | ☐ | _____ | ☐ Yes | _____ | _____ |
| BL113B | LDL-C _____ mmol/L | ☐ | _____ | ☐ No | _____ | _____ |
| | HDL-C _____ mmol/L | ☐ | _____ | | _____ | _____ |
| | BP _____/_____ mm/Hg | ☐ | ☐ **No glucose-lowering medication** | | ☐ **No lipid-lowering medication** | ☐ **No hypertension medication** |

# SAND abstract number 149: Dyslipidaemia and lipid management

**Organisation supporting this study:** Abbott Australasia

**Issues:** The proportion of general practice patients who were having their lipids managed for diagnosed dyslipidaemia and/or other risk factors/conditions; current lipid lowering medication; most recent levels of total cholesterol (TC), low-density lipoprotein (LDL), high-density lipoprotein (HDL) cholesterol and triglycerides, all in mmol/L; GP opinion on whether lipids had reached target; lipid subfraction/s targeted with current medication.

**Sample:** 2,960 respondents from 103 GPs; data collection period: 09/06/2009—13/07/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age–sex distribution of respondents did not differ from the distribution for all 2008–09 BEACH encounters, with the majority of patients (56.6%) being female.

Of the 2,960 surveyed patients, 796 (26.9%, 95% CI: 24.0–29.8) were having their lipids managed. One in five (*n*=663, 22.4%, 95% CI: 19.6–25.2) had diagnosed dyslipidaemia and 167 (5.6%, 95% CI: 3.9–7.4) were having lipids managed for other risk factors/conditions (multiple response allowed). Lipid management rates did not differ significantly for males (30.7%) and females (24.0%). The proportion of adult patients under lipid management increased with age, from 7.1% of those aged 25–44 years to 57.1% of those aged 75 years and over.

Of 796 patients with lipids being managed, lipid medication status was available for 783 patients. Three-quarters of these (*n*=607, 77.5%, 95% CI: 73.1–82.0) were using lipid lowering medication. The remaining 22.5% were having their lipids managed without lipid medication. Of the 607 patients on lipid medication, 575 (94.7%) were using a statin; of these 557 (96.9%) were on a single statin and 18 (3.1%) were on statin combination medication.

Of the 796 patients with lipids being managed, most recent TC, LDL, HDL and triglyceride data was available for 759, 693, 701, and 745 patients respectively. One-quarter (*n*=187, 24.6%) of respondents had TC <4.0, and the proportion of patients reaching target (TC<4.0) was significantly higher in males (35.2%) than females (14.6%). The mean TC was 4.9 (sd=1.3), 4.6 for males and 5.2 for females. Almost half (45.6%), and significantly more males (53.3%) than females (38.4%), had LDL<2.5. The mean LDL was 2.8 (sd=1.1), 2.6 for males and 2.9 for females. Four in five (79.5%), and significantly more females (89.7%) than males (69.7%), had HDL>1.0. The mean HDL was 1.4 (sd=0.4), 1.2 for males and 1.5 for females. Almost half (46.4%) had triglycerides<1.5, with similar proportions for males (48.8%) and females (44.4%). The mean triglyceride level was 1.7 (sd=1.0), 1.8 for males and 1.7 for females.

According to the GPs clinical opinion, target was reached for 61.6%, 58.4%, 82.5% and 68.7% of patients for TC, LDL, HDL and triglycerides respectively.

Of the 607 patients who had lipids managed by medication, 81.1% had total cholesterol targeted, 76.6% had LDL specifically targeted, 36.7% had HDL specifically targeted and 43.7% had triglycerides specifically targeted (multiple response allowed).

*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 **DYSLIPIDAEMIA.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Dyslipidaemia and lipid management

Please indicate whether this patient has **diagnosed dyslipidaemia** or **other risk factors/ conditions that require their lipid levels to be managed** (e.g. high cardiovascular risk).

If the patient does not have dyslipidaemia and their lipid levels are not being managed for other reasons you should **end the questions here** for this patient.

### Lipid lowering therapy

Please write the **name** and **form** of the **current medication(s)** taken by this patient for their dyslipidaemia.

Please also indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

If the patient is **not currently taking a medication** for their dyslipidaemia please tick the box labelled '**NO medication**'.

### Lipid levels

Please advise the patient's **lipid levels** at the **most recent testing**, of:

- **total cholesterol**
- **low density lipoprotein cholesterol (LDL-C)**
- **high density lipoprotein cholesterol (HDL-C)**
- **triglycerides.**

Please circle an option to indicate whether, in your **clinical opinion**, **target lipid levels** have been reached for this patient.

### Target of treatment

Please use the tick boxes to indicate **which** specific **lipid subfraction(s)** you are **targeting** with the **current medication**.

**Tick as many as apply.**

| Does the patient have: | Current lipid lowering medication(s) is: Name & Form / Strength / Dose / Frequency | What are the patient's most recent lipid levels? | In your clinical opinion, have target levels been reached? *(please circle)* | Which lipid subfraction(s) are you targeting with the current medication? *(Tick all that apply)* |
|---|---|---|---|---|
| ☐ Dyslipidaemia | _____ | Total chol _____ mmol/L | Yes / No | ☐ Total cholesterol |
| ☐ Lipid levels managed for other reasons | _____ | LDL-C _____ mmol/L | Yes / No | ☐ LDL-C |
| ☐ Neither of the above → **End questions** | _____ | HDL-C _____ mmol/L | Yes / No | ☐ HDL-C |
| | ☐ **NO lipid lowering medication** | TG _____ mmol/L | Yes / No | ☐ Triglycerides |

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# SAND abstract number 150: Chronic pain in general practice patients

**Organisation supporting this study:** Janssen-Cilag Pty Ltd

**Issues:** The proportion of patients attending general practice who suffer from chronic pain; conditions causing chronic pain; severity of pain (by pain severity grades) for these patients; management of chronic pain; GP and patient satisfaction with current pain management.

**Sample:** 2,780 patients from 94 GPs; data collection period: 14/07/2009 – 17/08/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. **Method for this study**: Chronic pain was defined as 'pain experienced every day for three months in the six months prior to this consultation' (Blyth FM et al. 2001). Severity was graded as: Grade I = low disability/low intensity; Grade II = low disability/high intensity; Grade III = high disability/moderately limiting; Grade IV = high disability/severely limiting (Von Korff M et al. 1992). Satisfaction was graded on a scale of 1 (highly dissatisfied) to 5 (highly satisfied). Pain impact was measured with the 'Living better with pain' log (American Chronic Pain Association 2005), from 1 (best) to 10 (worst). These definitions were supplied on a card for participating GPs.

## Summary of results

The age–sex distribution of patients differed significantly from that of patients at all 2008–09 BEACH encounters, with greater proportions aged 1–4 years and 25–44 years, and lesser proportions aged 65–74 years and being male patients. Of the 2,780 respondents, 523 (18.8%, 95% CI: 16.3–21.3) had chronic pain. The age-specific rates showed prevalence increasing with patient age. Sex-specific rates showed no significant difference between sexes in chronic pain prevalence.

The 'cause of pain' was given for 510 (97.5%) patients: cancer was the cause for 2.4% of these; osteoarthritis for 48.6%; other arthritis for 7.1%; and back problems for 29.2%. Nearly one-third (29.2%) of patients nominated 'other condition' as the cause of their chronic pain, 65.1% of these being musculoskeletal conditions, and 14.7% neurological conditions. Pain severity was recorded for 500 patients (95.6%), and ranked as Grade I for 23.6%, Grade II for 37.8% of, Grade III for 29.6%, and Grade IV for 9.0% of these patients.

Current management was reported for 496 patients (94.3%), of whom 52.6% were currently managing their chronic pain with medication only. Medication in combination with other treatment was used by 31.9%, while 8.5% were using other managements (no medication), and 7.1% were not using any type of pain management. For the 419 patients taking medication, 623 medications were recorded, of which 32.9% was paracetamol, and 10.0% was paracetamol/ codeine. Oxycodone (6.7%), meloxicam (5.8%) and tramadol (5.8%), were also frequently recorded. A total of 247 other management methods were reported for the 200 patients using them, physiotherapy (29.6%), heat therapy (10.5%) and exercise (8.9%) being most common.

GP satisfaction with pain management was recorded for 497 patients, and patient satisfaction with pain management for 502 patients. The mean GP satisfaction level was 2.5, and the mean patient satisfaction level was 2.7. For 498 patient respondents who ranked the impact of pain (when in pain) on activity, sleep and mood (1 = best; 10 = worst), the mean level of impact on activity was 4.7, on sleep was 4.8, and on mood was 4.8.

*The following pages contain the recording form and instructions with which the data in this abstract were collected.*

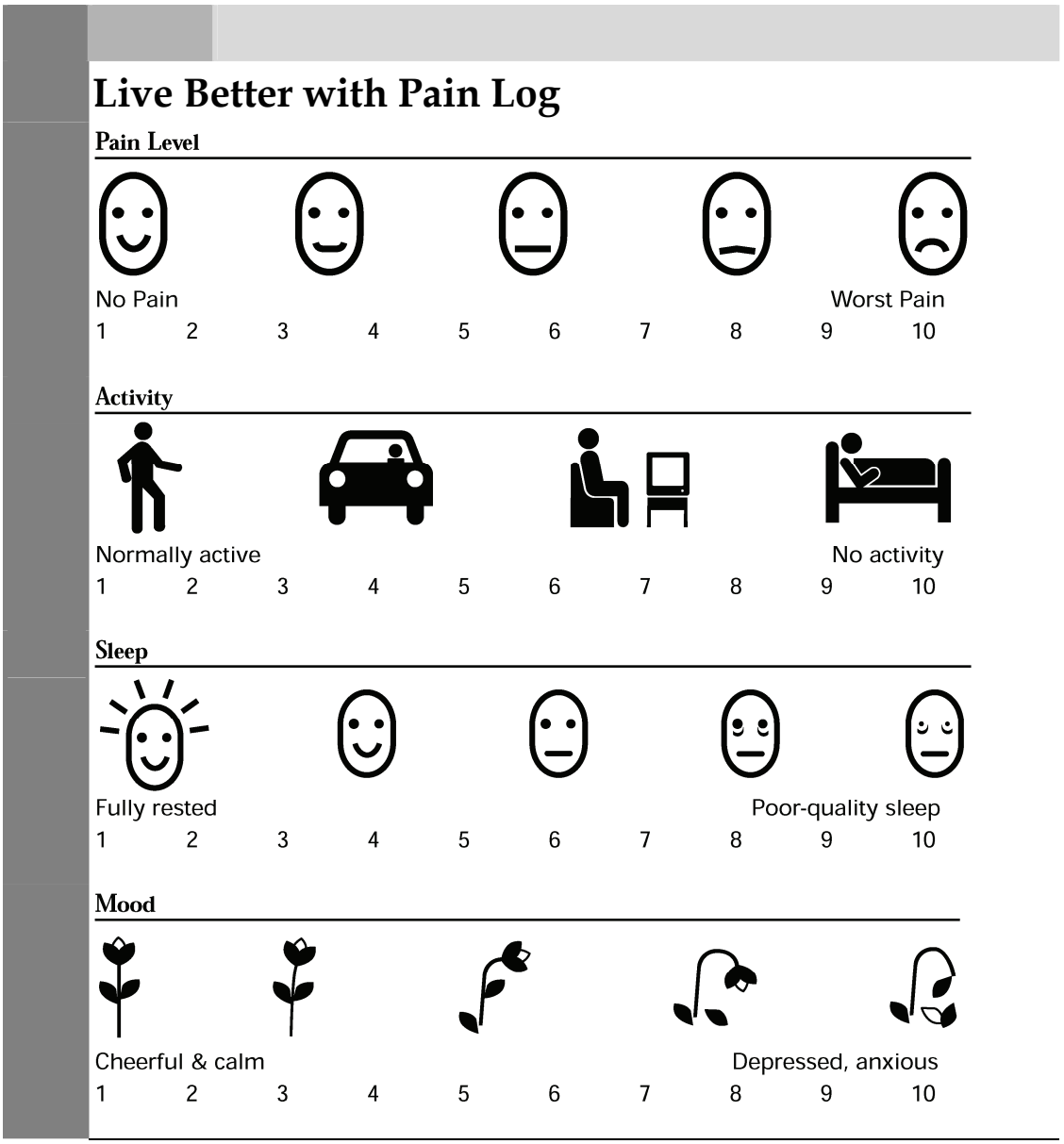
Definition of Chronic Pain - *'pain experienced every day for three months in the six months prior to this consultation'**

* Blyth FM et al. 2001. Pain 89(2–3);127–134.

Severity of Chronic Pain - **Chronic Pain Grades****

I. = low disability - low intensity
II. = low disability - high intensity
III. = high disability - moderately limiting
IV. = high disability - severely limiting

** Von Korff M et al. 1992. Pain 50(2):133–149.




Adapted from: Live Better with Pain Log; © Copyright: 2005
The American Chronic Pain Association

http://www.theacpa.org/documents/8%205x11%20Pain%20Log%202-8-06.pdf

# PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **CHRONIC PAIN.**

*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.

## Chronic Pain

Please indicate by ticking the appropriate box whether this patient suffers from **chronic pain** *(defined* as 'pain experienced every day for three months in the six months prior to this consultation')*.

If **no** chronic pain has been experienced you should **end the questions** here.

*Blythe FM et al. 2001. Pain 89(2-3):127-134

## Causal conditions

Please advise the **condition/s** you identify as being the **cause/s** of the patient's chronic pain.

Tick as many as apply.

## Severity

Please **use your clinical opinion** to rank the **severity** of the patient's pain **when the patient is in pain** as you perceive it according to the Chronic Pain Grades**:

I = low disability - low intensity;

II = low disability - high intensity;

III = high disability - moderately limiting;

IV = high disability - severely limiting.

**Von Korff M et al. 1992. Pain 50(2):133-149

(this Chronic Pain Grade list is also on the chronic pain card in your research kit)

## Chronic pain management

Please advise how the patient's pain is currently being managed.

Please use the space provided to provide details of any **medications** or **other management** currently being used by the patient.

If the patient's pain is **not currently being managed** please tick the box labelled '**NO management**'.

## Satisfaction with pain management

Please circle a number on each of the scales to indicate:

1. **your satisfaction** level with the **pain management**
2. **the patient's satisfaction** level with their pain management.

## Pain level and functioning

Referring to the 'Live better with pain log' tool on the chronic pain card please **ask the patient** to indicate their **pain**, **activity**, **sleep** and **mood** levels when they are in pain and write the corresponding number in the space provided.

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**Does this patient suffer from chronic pain?**

☐ Yes

☐ No → **End questions**

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**If 'yes' from what condition?**

☐ Cancer
☐ Osteoarthritis
☐ Other arthritis
☐ Back problem
☐ Other cond'n _____ *(please specify)*

**When the patient is in pain how severe do you judge the pain is?**

☐ Grade I
☐ Grade II
☐ Grade III
☐ Grade IV

*(Pain grades on card or green sheet)*

**If the pain is currently being managed, how?**

☐ Medication... *(please specify)*

| Name & Form | Strength | Dose | Frequency |
|---|---|---|---|
| 1. | | | |
| 2. | | | |

☐ Other management _____ *(please specify)*

☐ NO management

**Satisfaction with pain management**

**GP satisfaction level**

1 2 3 4 5

Highly satisfied — *(Please circle a number)* — Highly dissatisfied

**Patient satisfaction level**

1 2 3 4 5

Highly satisfied — *(Please circle a number)* — Highly dissatisfied

**Ask the patient to rate the impact of pain on the following functions when in pain:** *(see card)*

Pain level _____

Activity _____

Sleep _____

Mood _____

# SAND abstract number 151: Lipid medication use and cardiovascular risk in patients seen in general practice

**Organisations supporting this study:** Pfizer Australia Pty Ltd

**Issues:** Prevalence of overweight and obesity, smoking, high blood pressure, high total cholesterol, ischaemic heart disease, erectile dysfunction, angina, previous myocardial infarction, previous stroke, other cardiovascular disease risk factor, Type 2 diabetes (and most recent HbA1C result). Current use of lipid lowering agents, and for users: recent results of total cholesterol. HDL, LDL, and triglycerides and past results (prior to start of lipid therapy).

**Sample:** 2,312 adult respondents (18 years and over) from 94 GPs; data collection period: 14/07/09 – 17/08/09.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

Patient age was provided for 2,303 respondents whose age distribution (7.4% 18–24 years, 31.5% 25–44 years, 31.2% 45–64 years and 29.9% 65 years and over) did not significantly differ from that of all adults at BEACH encounters 2008–09. Females were significantly over-represented in this sample (*n*=2,300), 66.4%, compared with 61.1% of adults at all BEACH encounters 2007–08.

Of the 2,211patients for whom BMI could be calculated, 34.1% (95% CI: 31.8–36.3) were overweight and 25.5% (95% CI: 22.7–28.2) were obese. Of the 2,087 patients for whom risk factor information was provided 41.8% had none of those listed, 28.4% had one, 15.5% two and 14.3% three or more: 34.0% had high blood pressure, 27.9% high total cholesterol; 12.8% were current smokers; 8.0% had ischaemic heart disease, 5.1% previous myocardial infarction, 3.6% angina, 2.9% erectile dysfunction, 2.7% previous stroke, 5.9% had 'other' cardiovascular risk factors, and 10.5% had Type 2 diabetes (*n*=218). Current HbA1c, known for 85.8% of Type 2 diabetes patients (*n*=187), averaged 7.14.

Of 2,312 surveyed patients, 23.8% (*n*=551) were currently on lipid medication, 55.1% were not, and for 21.1%, lipid status was not known. There were 570 lipid medications recorded, 88.4% being statins, 4.7% statin combinations, 1.8% fibrates and 5.1% other lipid medications.

Of 548 respondents on current lipid medication, 539 (98.4%) had at least one cardiovascular risk factor: 78.1% had high total cholesterol, 67.2% had high blood pressure, 28.8% had Type 2 diabetes, 24.6% had ischaemic heart disease, 16.2% had previous myocardial infarction, 11.3% had angina, 7.9% were current smokers, 5.8% had erectile dysfunction, 6.4% had previous stroke and 12.6% had 'other' cardiovascular risk factors.

Recent test results were recorded for a varying number of respondents on lipid medication. Mean recent total cholesterol level (*n*=515) was 4.5, mean LDL cholesterol level (*n*=477) was 2.4, mean HDL (*n*=483) was 1.4, and mean triglyceride level (*n*=497) was 1.7. Women on lipid lowering medication had a significantly higher mean total cholesterol and HDL than males.

Measures recorded prior to commencement of lipid medication, showed the mean total cholesterol level (*n*=276) was 6.3, average LDL level (*n*=228) was 3.8, mean HDL level (*n*=242) was 1.4, and the mean triglyceride level (*n*=253) was 2.3.

*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 **LIPID MEDICATION USE in PATIENTS AT CARDIOVASCULAR RISK.**

*You may tear out this page as a guide to completing the following section of forms.*

## INSTRUCTIONS

The following 30 forms relate to the **next 30 PATIENTS in the order in which the patients are seen.**

**For any patients aged less than 18 years, please leave the questions in the bottom section blank.**

### *For patients 18+ years ...*

**Height/weight**

**Ask the patient:**

What is their height (without shoes)?

What is their weight (unclothed)?

Conversion tables from stone/pounds to kilograms and feet/inches to centimetres are provided.

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.

### Cardiovascular risks and conditions

Please use the tick boxes to advise whether this patient has any of the listed **cardiovascular risk** factors, behaviours, conditions or history

Please tick all that apply.

If the patient has **none** of these risk factors, please tick the box labelled '**none of the above**'.

### Test levels

Please advise the patient's **levels** at the **most recent testing**, of **HbA1c; Total cholesterol; HDL cholesterol; LDL cholesterol; and Triglycerides.**

Where possible, please also advise what these levels were **before** the patient **began taking** lipid lowering medication.

If you **do not know** one of these levels, or if the patient has **never had** one or more of these **levels measured**, please tick the box labelled '**don't know / never tested**'.

### Lipid lowering medication

Please write the **name** and **form** of the **current lipid lowering medication/s** taken by the patient, including the regimen (i.e. **strength, dose and frequency**) of the medication.

If **no** lipid medication is currently taken, please tick the box labelled '**no current lipid med'n**'

If the patient was **previously** medicated with a **lipid lowering medication** different to the current one/s, please write the name, form and regimen of the lipid medication **no longer** being taken.

If the patient has **not changed** lipid medications, please tick the box labelled '**no previous lipid med'n**'.

### Other medications

Please use the tick boxes to advise whether the patient is (also) taking any of the **listed medications**.

Please tick as many as apply.

If the patient is **not** currently taking **any** of the listed medications, please tick the box labelled '**none of the above**'.

NB: A2RB = Angiotensin II receptor blocker
CCB = Calcium channel blocker

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**Patient reported** (if 18+ years)

Height: (in cm) ☐

Weight: (in kg) ☐

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**Does the patient have, or are they being managed for, any of the following?:** (tick all that apply)

- ☐ Current smoker
- ☐ High blood pressure
- ☐ High total cholesterol
- ☐ Type II diabetes
- ☐ Ischaemic heart disease
- ☐ Erectile dysfunction
- ☐ Angina
- ☐ Previous MI
- ☐ Previous stroke
- ☐ Other CVD risk
- ☐ None of the above

| What are the patient's most recent levels of... | | ... and levels prior to starting lipid med'n? | | Don't know/ never tested |
|---|---|---|---|---|
| HbA1c | ____ % | ____ | % | ☐ |
| Total chol | ____ mmol/L | ____ | mmol/L | ☐ |
| LDL-C | ____ mmol/L | ____ | mmol/L | ☐ |
| HDL-C | ____ mmol/L | ____ | mmol/L | ☐ |
| Triglycerides | ____ mmol/L | ____ | mmol/L | ☐ |

**The patient's current lipid med'n is:**

Name & Form | Strength | Dose | Freq | ☐ No current lipid med'n

**Their previous lipid med'n was:**

Name & Form | Strength | Dose | Freq | ☐ No previous lipid med'n

**Is the patient also taking:** (tick all that apply)

- ☐ an A2RB
- ☐ a CCB
- ☐ an ACE inhibitor
- ☐ Aspirin
- ☐ Clopidogrel
- ☐ Omega-3
- ☐ None of the above?

# SAND abstract number 152: Migraine and acute/rescue medication use in general practice patients

**Organisation supporting this study:** Merck Sharp and Dohme (Australia) Pty Ltd

**Issues:** The proportion of general practice patients who suffer from migraine attacks. For patients who suffer migraine: frequency per month; type and detail of acute/rescue medication used at time of attack; current and previous use of triptan medication; cardiovascular safety concerns.

**Sample:** 3,098 respondents from 105 GPs; data collection period: 18/08/2009 – 21/09/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age–sex distribution of respondents did not differ from the distribution for all 2008–09 BEACH encounters, with the majority of patients (59.8%) being female. Patients aged 25–44 years and 45–64 years accounted for 22.5% and 27.6% of the sample respectively.

Of the 3,098 surveyed patients, 259 (8.4%, 95% CI: 6.7–10.0) suffered from migraine attacks. Prevalence of migraine was significantly higher among females (10.6%, 95% CI: 8.5–12.6) than males (5.1%, 95% CI: 3.4–6.8), and was highest among patients aged 15–24 years, 25–44 years and 45–64 years (15.5%, 11.1% and 11.0% respectively). Of 249 patients with migraine who reported attack frequency, 55.8% had less than one migraine per month, 18.9% had one per month, and 25.3% had two or more per month. Reported migraine frequency per month were did not differ for males and females.

Of 249 respondents with migraine, 37 (14.9%) currently used no acute/rescue medication at the time of an attack, and 212 (85.1%) used prescribed and/or advised over-the-counter (OTC) acute/rescue medication. The proportion of patients taking OTC acute medication did not differ by migraine frequency. Patients experiencing two or more migraines per month were significantly more likely to use prescribed acute/rescue medication (47.6%, 95% CI: 33.3–62.0) than those who had less than one attack per month (18.8%, 95% CI: 12.7–25.0).

Of the 72 migraine patients currently taking prescribed acute/rescue medication, 71 gave details of these medications. About half (54.9%, *n*=39) were currently using a triptan, most commonly sumatriptan (40.9%, *n*=29), followed by zolmitriptan (9.9%, *n*=7), and naratriptan (4.2%, *n*=3). Almost half (47.9%, *n*=34) were currently using other acute/rescue prescribed medications, paracetamol combinations being the most commonly listed (*n*=19).

Of the 212 migraine patients currently on acute/rescue medication/s (OTC or prescribed), 190 gave information about whether they had ever tried a triptan. One-third (32.6%, *n*=62) had tried a triptan, 120 (63.2%) had never tried a triptan, and the GP indicated 'Don't know ' for 8 (4.2%). Of the 62 patients who had tried a triptan, 39 (62.9%) were currently taking a triptan.

Of the 120 migraine patients on current acute/rescue medication who had never tried a triptan, 112 gave information on cardiovascular risk concerns with triptan use. Of the 112 respondents, 10 (8.9%) had never tried a triptan due to concerns about cardiovascular safety.

*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 **TREATMENT OF MIGRAINE.**

*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.

### Migraine

Please advise whether the patient suffers from migraines.

If 'no' you should end the questions here for this patient.

### Migraine frequency

Please advise the approximate **number of times** the patient would usually experience a **migraine** episode **during a month**.

### Acute/rescue medications

Please use the tick boxes to advise which **types of acute/ rescue medications** this patient **currently** uses for an acute **migraine attack**.

### Current prescribed acute/rescue medication(s)

If the patient **currently uses a prescribed** medication to treat migraine please **write:**

- **the name and form** of the prescribed medication **(if a triptan is used please tick the appropriate box)**
- **the strength** of the medication **and**
- the **average number of tablets, injections or sprays used** by the patient **per migraine attack.**

If a prescribed medication is **not currently used** please tick the box labelled '**NO prescribed acute/rescue med used**'.

### Triptan medication

Please advise whether this patient has **ever** tried a **triptan** medication to treat **migraine**.

Please use the tick boxes to indicate which triptan medication(s) the patient has used: sumatriptan (e.g. imigran, suvalan, sumigran, sumatab), naratriptan (e.g. naramig), and zolmitriptan (e.g. zomig).

Please tick one response per row.

### Triptan never tried

For patients who have **never tried** a triptan medication please advise whether this was **due to concerns about cardiovascular safety**.

---

**Does this patient suffer from migraines?**

☐ Yes

☐ No → **End questions**

**Migraine frequency per month is:**

☐ <1

☐ 1

☐ 2

☐ 3

☐ ≥4

**What types of acute/ rescue medications are currently used for an acute migraine attack?**

*(Tick all that apply)*

☐ OTC products

☐ Prescription meds

☐ No medications → **End questions**

**What prescribed acute/rescue meds are currently used?**

| Name & Form | Strength | Avg no. of tablets/inj/sprays per attack |
|---|---|---|
| ☐ Sumatriptan | _____mg | _____ |
| ☐ Naratriptan tablet | 2.5 mg | _____ |
| ☐ Zolmitriptan tablet | 2.5 mg | _____ |
| ☐ Other meds: *(please specify)* | _____ | _____ |

☐ NO prescribed acute/rescue med used

**What triptan medications has this patient ever tried?** *(Please tick one response per row)*

| | Yes | No | Don't know |
|---|---|---|---|
| Sumatriptan *(e.g. imigran, suvalan, sumigran)* | ☐ | ☐ | ☐ |
| Naratriptan *(e.g. naramig)* | ☐ | ☐ | ☐ |
| Zolmitriptan *(e.g. zomig)* | ☐ | ☐ | ☐ |

**If triptan has never been tried, was this due to concerns about cardiovascular safety?**

☐ Yes

☐ No

☐ Don't know

BL115B

# SAND abstract number 153: Diabetes management and insulin initiation

**Organisation supporting this study:** Sanofi-Aventis Australia Pty Ltd

**Issues:** Prevalence of diagnosed Type 1 and Type 2 diabetes in general practice patients; for these patients, time since diagnosis, most recent HbA1c result and time since last test; proportion currently taking a medication for management of blood glucose levels; proportion currently taking a mono, dual triple or quadruple medication therapy for management of blood glucose levels; proportion currently using insulin (alone or in combination with oral medication); for patients using insulin: HbA1c level before initiation of insulin, the number of years insulin used, and who initiated the insulin.

**Sample:** 3,087 respondents from 105 GPs; data collection period: 18/08/2009 – 21/09/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age–sex distribution of respondents did not differ from the distribution for all BEACH encounters, with 41.1% of patients being male, and 28.6% of patients aged 45–64 years.

Of 3,087 respondents, 258 (8.4%) had diagnosed diabetes. Of these, 31 (1.0%) had Type 1, and 227 (7.4%) Type 2 diabetes. Prevalence of diabetes rose significantly with age. For the 3,065 patients for whom age was known, prevalence was 3.0% for those aged 25–44 years, 9.8% for those aged 45–64 years, 15.9% for those aged 65–74 years, and 17.4% for those aged 75 years and over. Prevalence of diabetes did not differ significantly between male and female patients for the 3,062 patients for whom sex was known.

Of 250 respondents with diabetes, the majority (40.0%) had been diagnosed 5–10 years earlier. Of the 31 patients with Type 1 diabetes, one-third (32.3%) had been diagnosed more than 20 years earlier. Of 219 respondents with Type 2 diabetes, 33.3% had been diagnosed less than 5 years earlier and 42.5% had been diagnosed 5–10 years earlier.

Of 232 diabetes patients with known HbA1c, 53.0% had levels less than 7%. About one-quarter of Type 1 diabetes patients (27.6%) and 56.7% of Type 2 diabetes patients had a level of less than 7%. Of 233 patients, 50.2% had been tested in the previous 3 months.

Of 250 respondents with diabetes, 193 (77.2%) were currently taking at least one blood glucose medication. The majority of the 250 respondents ($n$=135; 54.0%) were taking only oral medication, 30 patients (12.0%) were taking insulin only, 28 (11.2%) were taking a combination of oral medication and insulin. Almost two-thirds of the 193 patients ($n$=119; 61.7%) were on mono therapy, 62 (32.1%) were on dual therapy, 11 (5.7%) were on triple therapy, and one patient was on quadruple therapy.

Of 58 diabetes patients taking insulin, HbA1c level before insulin use was known for 29. Of these, 24 (82.8%) had levels >8% and 5 patients (17.2%) had levels 7–8%. For 57 patients for whom duration was known, 29.8% had been on insulin for more than 10 years.

Of 56 patients taking insulin, almost half (44.6%) had had their insulin initiated by an endocrinologist only, 19 (33.9%) had their insulin initiated by a GP only, and 12 (21.4%) had their insulin initiated by a GP in consultation with an endocrinologist.

*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 MELLITUS.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Diabetes

Please use the tick boxes to advise whether this patient has been diagnosed with **Type 1 or Type 2 diabetes mellitus**.

If the patient **does not have** diabetes please **end the questions here for this patient**.

### Duration of diabetes

Please use the tick boxes to advise how many **years since** this patient was **diagnosed with diabetes**.

### HbA1c level

Please advise the patient's HbA1c **levels** at the **most recent testing**. If you **do not know** the most recent HbA1c result, please tick the box labelled '**don't know**'.

Please use tick boxes to advise **how long ago** the **last HbA1c** test was ordered.

### Glucose-lowering medication

Please write the **name** and **form** of the **current medication(s)** taken by the patient for management of **blood glucose levels**. Please include both **oral medications and insulin**.

Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

If the patient is **not currently taking a medication** for blood glucose management please tick the box labelled '**no glucose-lowering medication**' and **end the questions here for this patient**.

### For patients currently taking insulin

**HbA1c prior to initation of insulin**

Please use the tick boxes to indicate the patient's HbA1c level immediately prior to initiation of insulin.

**Duration of insulin therapy**

Please use the tick boxes to advise how many years this patient has been using insulin.

**Initiation of insulin therapy**

Please use the tick boxes to indicate who made the decision to initiate insulin therapy for this patient.

| Does this patient have diabetes? | How long ago was diabetes diagnosed? | What was the most recent HbA1c result? | Current med(s) for BLOOD GLUCOSE levels: *(include both insulins and oral meds)* | For patients using INSULIN: | How long ago was insulin started? | Who initiated insulin for this patient? |
|---|---|---|---|---|---|---|
| ☐ Yes - Type 1<br>☐ Yes - Type 2<br>☐ No → **End questions** | ☐ < 5 years<br>☐ 5-10 years<br>☐ 11-15 years<br>☐ 16-20 years<br>☐ >20 years | _____ % ☐ Don't know<br>**Time since last HbA1c:**<br>☐ <3 mths ☐ >6 mths<br>☐ 3-6 mths | Name & Form / Strength / Dose / Frequency<br>☐ **No glucose-lowering medication → End questions** | **What was the HbA1c level prior to initiation of insulin?**<br>☐ < 7% ☐ >9-10%<br>☐ 7-8% ☐ >10%<br>☐ >8-9% ☐ Don't know | ☐ < 1 year<br>☐ 1-3 years<br>☐ 4-6 years<br>☐ 7-10 years<br>☐ >10 years<br>☐ Don't know | ☐ GP only<br>☐ GP in consultation with endocrinologist<br>☐ Endocrinologist only |

BL115C

# SAND abstract number 154: Pneumococcal vaccine and pneumonia in general practice patients

**Organisation supporting this study:** Wyeth Australia Pty Ltd

**Issues:** The proportion of general practice patients who received a pneumococcal vaccination: in the previous 5 years; the proportion who received the vaccinations in the previous 12 months, and the month of vaccination; indications for pneumococcal vaccination; the proportion of general practice patients who had been diagnosed with pneumonia in the previous 12 months; month of pneumonia diagnosis; impact of pneumonia on daily life (slight, moderate, severe, very severe).

**Sample:** 2,662 respondents from 90 GPs; data collection period: 22/09/2009 – 26/10/2009.

**Method:** Detailed in the paper entitled SAND method 2009–10 at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age-sex distribution of the respondents did not differ from the distribution for all BEACH respondents in 2008–09, with the majority of patients being female (57.8%). Patients aged 45–64 years accounted for 26.1% of the sample.

Of the 2,662 respondents, 24.4% (*n*=650, 95% CI: 21.3–27.6) had been given a pneumococcal vaccine in the previous 5 years. Of these, 36.5% were aged 75 years or more, and 28.2% were aged less than 15 years. Children aged less than 15 years (48.2%) and those aged 65 years and over (66.6%) had the highest vaccination rates over the previous 5 years.

Of the 601 respondents as to when vaccination had been done, 150 patients (25.0%) had been vaccinated in the previous year, and 132 of these knew the month of vaccination—March and September (each with 17.4%) were most common. After adjusting for general practice attendance frequencies by age and sex, it was estimated that 4.9% of patients who attended general practice at least once had a pneumococcal vaccine in that year.

Reason for vaccination (multiple responses allowed) was recorded for 533 patients. Of these, 62.1% were vaccinated because they were aged 65 years or more, and 27.8% were vaccinated as part of the routine childhood immunisation program. Another medical risk factor was given as a reason for 16.1% of patients, being a smoker was listed for 3.2%, and 0.9% were vaccinated because they came from an Aboriginal or Torres Strait Islander background and were aged over 50 years.

Of the 2,641 respondents who answered the question on pneumonia diagnosis, 62 (2.4%) had been diagnosed with pneumonia in the previous year. Of 48 respondents, almost one-third of had been diagnosed in September (*n*=14, 29.2%).

Of the 62 patients with diagnosed pneumonia, 28 (45.2%) had been vaccinated before their diagnosis of pneumonia, 48.4% had not, and 6.5% did not know. There were 56 respondents to the question on impact of pneumonia on daily life: 27 of them (48.2%) judged the impact as 'severe', and 21.4% judged it 'very severe'.

*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 **PNEUMOCOCCAL VACCINATION AND PNEUMONIA.**

*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.

### Time since vaccination

Please indicate whether the **pneumococcal vaccine** was **given** to the patient **in the last 12 months**.

If '**yes**' please specify the date (**month and year**) that the **vaccination was last given**. For example, if the most recent vaccine was given in February this year please write '02 / 2009' in the space provided.

### PART 2: Pneumonia

Please ask the patient whether they have been **diagnosed with pneumonia in the last 12 months**.

If '**yes**' please specify the date (**month and year**) that the **pneumonia was diagnosed**.

If '**no**' please **end questions** here for this patient.

### Pneumococcal immunisation

Please use the tick boxes to advise whether this patient has had a **pneumococcal immunisation** in the **last 5 years**.

If '**no**' please continue to **part 2** of the form.

### Main reason(s) for vaccination

In your clinical opinion, please advise the **main reason(s)** that this patient **received the pneumococcal vaccine**.

Please tick all that apply.

### Impact of pneumonia

Please ask the patient to describe the extent to which pneumonia **impacted on their day to day life**.

| In the last 5 years has this patient received a pneumococcal vaccine? | If 'yes' was the vaccine given in the last 12 months? | In your clinical opinion, what was/were the main reason/s that this patient received a pneumococcal vaccine? | PART 2: Pneumonia | If 'yes', to what extent did this impact on your day to day life? |
|---|---|---|---|---|
| ☐ Yes - Pneumovax 23<br>☐ Yes - Prevenar<br>☐ Yes - other/unknown<br>☐ No → **Go to PART 2** | ☐ Yes *(please specify date of most recent vaccination)*<br>__ __ / __ __ __ __<br>mth / year<br>☐ No | ☐ Aged ≥ 65 years<br>☐ Routine childhood vaccination<br>☐ Aboriginal/Torres Strait Islander ≥ 50 yrs<br>☐ Other medical risk factors (e.g. COPD)<br>☐ Smoker<br>☐ Other: *(please specify)* _____ | Please ask the patient whether they have been diagnosed with pneumonia in the past 12 months?<br>☐ Yes *(please specify date)*<br>__ __ / __ __ __ __<br>mth / year<br>☐ No → **End questions** | ☐ Not at all<br>☐ Slightly<br>☐ Moderately<br>☐ Severely<br>☐ Very severely |

BL116C

# SAND abstract number 155: Chronic kidney disease among general practice patients

**Organisation supporting this study:** Abbott Australasia Pty Ltd

**Issues:** For patients aged 24 years and over attending general practice: the proportion who had their kidney function assessed in the previous 12 months; the proportion with comorbidities and/or risk factors for chronic kidney disease (CKD); the prevalence of CKD; the stages of kidney disease for patients with CKD. For patients at stages 3–5 of CKD: the management of blood pressure (BP), total cholesterol (TC), and HbA1c levels; underlying causes of CKD.

**Sample:** 2,297 patients aged 24 years and over, from 98 GPs; data collection period: 27/10/2009—30/11/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. **Method for this study:** Stages of disease were defined according to National Kidney Foundation Guidelines.

## Summary of results

There were 2,943 patients sampled, 2,353 of whom were 24 years and over, and 2,297 (97.6%) of these responded to kidney test questions. Nearly two-thirds (64.8%, 95% CI: 61.3–68.4) had had at least one kidney function test in the previous 12 months: 40.7% a glomerular filtration rate test, 63.8% a serum creatinine test, and 13.6% a proteinuria/microalbuminuria test. Age-specific test rates showed that the likelihood of being tested increased significantly with patient age, with 86.3% of patients aged 75 years and over having had at least one test. There was no significant difference between males and females in the proportion tested.

Responses to risk factors/comorbidities were recorded for 2,268 patients: 34.0% had hypertension; 14.8% were obese (BMI > 30); 11.6% had diabetes; 8.4% were current smokers; and 2.5% had a family history of CKD. One in four patients (26.2%) had no risk factors/comorbidities; 75.7% of the 1,675 patients with at least one risk factor had had a kidney function test; and 35.9% of the 593 with no risk factors had been tested.

Of the 2,255 patients for whom a response was recorded, 259 (11.5%) had been diagnosed with CKD, and 55.6% of those were aged 75 years and over. There was no significant difference in diagnosed prevalence between males and females. Stage of disease was provided for 249 diagnosed patients: 10.2% were at Stage 1; 31.0% were at Stage 2; 47.8% were at Stage 3; 7.1% were at Stage 4; and 1.6% were at Stage 5.

Of the 144 patients at stages 3–5 of CKD, response rates to management questions varied—of 142 respondents, 42.3% had had a renal ultrasound in the previous 5 years; of 140 respondents, 52.1% had the quantity of proteinuria assessed; of 142 respondents, 28.9% had been referred to a nephrologist; and of 137, 73.7% were currently taking an ACE inhibitor/A2RA.

Indicator levels for patients at stages 3–5 (response rates varied by question) showed that 34.5% (of 142) had BP of < 130/80; 29.8% (of 131) had a TC of < 4; and 59.5% (of 42) had an HbA1c of < 7. The underlying cause of CKD had been established for 68 of 112 respondents (60.7%). The most common causal condition was hypertension (27.9%, *n*=19), followed by Type 2 diabetes (20.6%, *n*=14).

*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 **CHRONIC KIDNEY DISEASE.**

*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.

## Assessment of renal function

Please use the tick boxes to advise whether this patient has had their **kidney function** tested in the past 12 months, and with **what test/s**. Please tick as many as apply.

## Diagnosis

Please advise whether the patient has been **diagnosed** with **Chronic Kidney Disease (CKD)**, either today or prior to today's consultation.

If the patient has **never** been diagnosed with CKD **please end the questions here**.

## Risk factors and comorbidities

Please advise whether the patient **also has** any of the **listed risk factors** or **conditions**. Tick as many as apply.

If the patient has **none** of the listed risk factors or conditions please tick the box labelled '**none of the above**'.

## Stage of disease*

If the patient has been diagnosed with CKD, please advise what **stage of the disease** currently applies to this patient.

If you **do not know** (e.g if test results are not available) please tick the box labelled 'don't know'

| Stage* | Description | GFR (mL/min/1.73m²) |
|---|---|---|
| 1 | Kidney damage with normal or ↑ GFR | >= 90 |
| 2 | Kidney damage with mild ↓ GFR | 60 - 89 |
| 3 | Moderate ↓ GFR | 30 - 59 |
| 4 | Severe ↓ GFR | 15 - 29 |
| 5 | Kidney failure | <15 (or dialysis) |

*Stages classified as per National Kidney Foundation Guidelines Part 4 - 'Definition and Stages of Chronic Kidney Disease'.

## Management of CKD

The remaining questions are for patients at stages **3-5 only**.
If at stages **1 or 2** you should **end the questions** here.

Please provide the **test**, **referral** and **medication** information requested, using the tick boxes provided.

## Indicator levels

From the most recent test, please provide the patient's levels of BP, total cholesterol and HbA1c.

## Underlying Cause of CKD

Please specifiy the underlying cause of CKD for this patient, if one has been identified.

If a specific cause has not yet been determined, please tick the box labelled 'unknown'.

**In the past 12 months has this patient had their kidney function assessed?**

- ☐ Yes - glomerular filtration test
- ☐ Yes - serum creatinine test
- ☐ Yes - other proteinuria/micro-albuminuria test

*(tick all that apply)*

- ☐ No
- ☐ Don't know

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**Does the patient have:** *(tick all that apply)*

- ☐ Diabetes
- ☐ Hypertension
- ☐ Current smoker
- ☐ Obesity (BMI >30)
- ☐ Aboriginal or Torres St Islander ancestry
- ☐ Family history of CKD
- ☐ None of the above

**Has the patient been diagnosed wtih Chronic Kidney Disease (CKD)?**

- ☐ Yes
- ☐ No → **end**

**If 'yes' what is their Stage* of disease?** *(see definitions on green sheet)*

- ☐ Stage 1
- ☐ Stage 2
- ☐ Stage 3
- ☐ Stage 4
- ☐ Stage 5
- ☐ Don't know

**Remaining Q's for patients at Stages 3 - 5 only:**

| Has/is the patient... | Yes | No |
|---|---|---|
| - Had a renal ultrasound in the past 5 years? | ☐ | ☐ |
| - Had the quantity of proteinuria assessed? | ☐ | ☐ |
| - Been referred to a nephrologist? | ☐ | ☐ |
| - Currently taking an ACE inhibitor / A2RA? | ☐ | ☐ |

**What are the patient's most recent levels of:**

BP ____ /____ mmHg

Total chol _____ mm/L

HbA1c _____ %

**The underlying cause of CKD is:**

_____ *(please specify)* ☐ Unknown

# SAND abstract number 156: Osteoarthritis, rheumatoid arthritis and ankylosing spondylitis and acid suppressants use

**Organisation supporting this study:** AstraZeneca Pty Ltd (Australia)

**Issues:** The proportion of general practice patients with diagnosed osteoarthritis (OA), rheumatoid arthritis (RA) or ankylosing spondylitis (AS); the medications currently taken for management of OA/RA/AS; the reasons for the most recent change in medication regimen for OA/RA/AS; the proportion of patients with OA/RA/AS taking acid suppressants; the reasons for acid suppressant use related to mediations taken for OA/RA/AS.

**Sample:** 2,919 patients from 97 GPs; data collection period: 27/10/2009—30/11/2009.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age-sex distribution of respondents did not differ from the distribution for all 2008–09 BEACH encounters. Of the 2,895 respondents, 755 (26.1%, 95% CI: 23.5–28.7) had OA, 33 (1.1%, 95% CI: 0.7–1.6) had RA, and 3 patients (0.1%, 95% CI: 0.0–0.2) had AS. In total, 786 patients (27.2%, 95% CI: 24.5–29.8) had at least one of these conditions. The prevalence of at least one condition rose significantly as age of patient increased, from 28.7% (95% CI: 25.3–32.2) in patients aged 25–44 years to 66.1% (95% CI: 60.5–71.8) in patients aged 75 years and over. There was no sex-specific difference in prevalence of OA/RA/AS.

Of 740 respondents with osteoarthritis, only 550 (74.3%) were currently taking medication. There were 718 medications recorded, of which 48.3% were over-the-counter (OTC) analgesics, 18.9% were 'other medications', and 16.9% were coxibs or meloxicam. The OTC analgesic paracetamol accounted for 47.9% of medications for osteoarthritis. (Refer to Box 1 for medication groups.)

Of 27 respondents with rheumatoid arthritis only, 24 (88.9%) were currently taking medication. There were 51 medications recorded, of which 38 (74.5%) were in the 'other medication' group, most commonly methotrexate (25.5%). There were five medications (9.8%) in the coxibs and meloxicam group.

Of the 580 patients currently taking medication for OA/RA/AS, information on the reason for most recent change of medication or regimen was available for 482. Lack of efficacy was the most common reason given, cited by 7.7% of patients. Fear of side effects was the reason given by 2.9% of patients, cost of medication was recorded for 2.3%, patient's request for 1.5%, and side effect for 0.8%. No change was recorded for 412 patients (85.5%).

Of 726 respondents, 266 patients (36.6%) were currently taking acid suppressants. Of the 261 acid suppressants recorded, esomeprazole ($n$=80, 30.7%) was most commonly taken, followed by pantoprazole ($n$=65, 24.9%) and omeprazole ($n$=49, 18.8%). Of 264 respondents, 113 (42.8%) indicated that their acid suppressant use was related to their use of OA/RA/AS medication. Reasons for acid suppressant use were: treatment of gastrointestinal symptoms ($n$=73, 64.6%), prevention of gastrointestinal symptoms ($n$=29, 25.7%), treatment of ulcer or bleed ($n$=8, 7.1%), and prevention of ulcer or bleed ($n$=6, 5.3%).

*The following page contains the recording form and instructions with which the data in this abstract were collected.*

**Box 1: Medication groups and Anatomical Therapeutic Chemical (ATC) codes**

| Medication group | ATC code | ATC label for the specified ATC code |
|---|---|---|
| Non-selective non-steroidal anti-inflammatory (NSAID) drugs | All M01A | Anti-inflammatory and antirheumatic products, non-steroids |
| | excluding (M01AH, M01AX05, M01AC06) | excluding (coxibs, glucosamine, meloxicam) |
| Coxibs and meloxicam | M01AH | Coxibs |
| | M01AC06 | Meloxicam |
| OTC analgesic | N02B | other analgesics and antipyrectics |
| | B01AC06 | acetylsalicylic acid |
| Other medication | M01BA | Anti-inflammatory/antirheumatic agents combined with corticosteroids |
| | M01C | Specific antirheumatic agents |
| | M02 | Topical products for joint and muscular pain |
| | M05B | Drugs affecting bone structure and mineralisation |
| | A07E | Intestinal anti-inflammatory agents |
| | H02A | Corticosteroids for systemic use, plain |
| | L01B | Antimetabolites |
| | L04A | Immunosuppressants |
| | N02A | Opioids |
| | N06A | Antidepressants |
| | P01BA02 | Hydroxychloroquine |
| Complementary therapy | M01AX05 | Glucosamine |
| | M01BX | Other anti-inflammatory/antirheumatic agents combined with corticosteroids—for example, glucosamine+chondroitin |
| | V03 | All other therapeutic products |
| | V06D | Other nutrients |
| | A12A | Calcium |
| | B03B | Vitamin B12 and folic acid |
| | A09A | Digestives, including enzymes |

*Source:* World Health Organization Collaborating Centre for Drug Statistics Methodology 2009. Anatomical Therapeutic Chemical (ATC) classification index with Defined Daily Doses (DDDs). January 2009 ed. Oslo: WHO.

## PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **ARTHRITIS, ANKYLOSING SPONDYLITIS AND ACID SUPPRESSION.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Arthritis and/or ankylosing spondylitis

Please use the tick boxes to advise whether this patient has **osteoarthritis (OA)**, **rheumatoid arthritis (RA)** and/or **ankylosing spondylitis (AS)**.

If the patient does **not** have one of these three conditions please **end the questions here for this patient**.

### Medication / regimen change

If the **medication or regimen** of the osteoarthritis/rheumatoid arthritis/ ankylosing spondylitis medication(s) **has changed**, please use the tick boxes to indicate the **reason(s) for the most recent change**.

Tick as many as apply.

### Related medication use

If the patient's **acid suppressant** use is **related to the OA/RA/AS medication(s)**, please use the tick boxes to **indicate the reason**.

### Current medication

In the space provided please write the **name** and **form** of the **medication(s) currently** taken by the patient for management of osteoarthritis (OA), rheumatoid arthritis (RA) and/or ankylosing spondylitis (AS).

Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s).

Please **include all types of medications** taken including over-the-counter medications.

### Acid suppressant medication

Please ask the patient whether they **currently take acid suppressant medication**. If '**yes**' please write the **name, form** and regimen (**dose and frequency**) of the acid suppressant medication(s) **currently used**.

Please include **all types of acid suppressant medications** including over-the-counter medications.

| Does this patient have: | Current medication/s for OA, RA, AS: | If the medication/regimen has changed what was the reason(s) for the most recent change? | Is this patient taking an acid suppressant medication? | If 'yes' is acid suppressant use related to OA, RA or AS medication(s)? |
|---|---|---|---|---|
| ☐ Osteoarthritis (OA)<br>☐ Rheumatoid arthritis (RA)<br>☐ Ankylosing spondylitis (AS)<br>☐ None of the above → **End questions** ← | Name & Form Strength Dose Frequency<br>☐ NO MEDICATION | ☐ Lack of efficacy ☐ Cost<br>☐ Patient request ☐ **No change**<br>☐ Side effect(s): *(please specify)*<br>☐ Fear of side effect(s):<br>☐ Other: | ☐ Yes *(please specify)*<br>Name & Form Strength Dose Frequency<br>☐ No | ☐ Yes - treatment of GI symptoms<br>☐ Yes - prevention of GI symptoms<br>☐ Yes - treatment of ulcer or bleed<br>☐ Yes - prevention of ulcer or bleed<br>☐ No |

BL117C

# SAND abstract number 157: Depression and antidepressant use in general practice patients

**Organisation supporting this study:** Wyeth Australia Pty Ltd

**Issues:** Prevalence of current diagnosed depression; presence of listed comorbidities (anxiety, insomnia, back complaint, hypertension, lipid disorder, diabetes, asthma, ischaemic heart disease, gastro-oesophageal reflux disease, arthritis, cancer, other) in patients with depression; their current use of antidepressants; medication side effects thought (GP clinical opinion) due to the antidepressant medication(s).

**Sample:** 5,704 patients from 195 GPs; data collection periods: 24/02/2009—30/03/2009 and 01/12/2009–18/01/2010. Note: results from the first of these data periods were previously reported as SAND Abstract number 142, in *General practice activity in Australia 2008–09*.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The sex distribution of surveyed patients did not differ from that of patients at all BEACH encounters 2008–09, 42.4% being male. However, this sample was significantly older than patients at all encounters, a greater proportion being aged 65 years and over.

The prevalence of current diagnosed depression among the 5,704 patients was 16.4%, (95% CI: 15.0–17.9), and significantly higher among females (18.8%, 95% CI: 16.9–20.6) than males (13.2%, 95% CI 11.6–14.8). Prevalence was highest among those aged 25–44 years (21.6%) and 45–64 years (21.9%), then decreased significantly to 12.2% among those aged 75 years or more. Of the 936 patients with depression, 840 (89.7%) had at least one comorbidity and 66.6% had two or more. Most common were anxiety (56.7%), insomnia (34.1%), hypertension (27.6%), back complaint (24.3%), lipid disorder (19.7%) and gastro-oesophageal reflux disease (18.5%).

Of the 936 patients with diagnosed depression, 915 (97.8%) responded to the antidepressant question. Of these, 695 (76.0%) were taking antidepressant(s), and 659 patients gave details of 689 antidepressants being taken. About half (51.5%) of these were selective serotonin reuptake inhibitors—largely accounted for by sertraline (14.5% of all antidepressants), citalopram (11.6%) and escitalopram (10.4%). A further 12.6% were non-selective monoamine reuptake inhibitors; 2.4% were monoamine oxidase A inhibitors (selective or non-selective); and 33.4% were 'other antidepressants' (venlafaxine being most common at 17.1%). The presence/absence of side-effects of antidepressants was reported for 650 (93.5%) of the 695 patients: 451 (69.4%) reported no side-effects; and 199 (30.6%) reported 301 side effects (average 1.5 per patient). The most common side effects were sedation (10.8% of those on antidepressants), weight gain (9.9%) and sexual dysfunction (7.5%).

Among those taking antidepressants, prevalence of the common comorbidities paralleled that of all patients with depression. GPs detailed 2,035 other prescribed medications for 627 patients on antidepressant(s) for depression (average 3.2 per patient). Patients on no other medications reported fewer side effects of antidepressants, but reported side effects of antidepressants did not increase with increased numbers of other prescribed medications.

*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 **DEPRESSION.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Depression

Please indicate whether this patient **currently** has **diagnosed depression**.

If this patient does **not** have diagnosed depression please **end the questions here** for this patient.

### Antidepressant medication

Please indicate whether this patient is **currently** taking an **antidepressant medication**.

If **YES,** please **specify the name** of the antidepressant medication.

If **no** please **end the questions here** for this patient.

### Other prescribed medications

Please specify **all other prescribed medications currently** taken **regularly** by this patient for **any condition**.

Please write the **name of each medication**.

### Comorbidities

Please use the tick boxes to advise whether this patient has any of the listed **comorbidities**.

If the patient has a chronic condition that is not listed please specify it in the space provided.

### Side effects of anti-depressant medication

Please use the tick boxes to advise whether this patient is **currently** experiencing **side effects** that you believe, in your clinical opinion, are due to their **antidepressant medication**.

If this patient is **not** experiencing any side effects please tick the box labelled '**no side effects**'.

**Does this patient currently have diagnosed depression?**

☐ Yes

☐ No → **End questions**

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**Other diagnosed medical conditions:** *(Tick all that apply)*

☐ Anxiety
☐ Insomnia
☐ Back complaint
☐ Hypertension
☐ Lipid disorders
☐ Diabetes
☐ Asthma
☐ Ischaemic heart disease
☐ GORD
☐ Arthritis
☐ Cancer
☐ Other chronic problems: *(please specify)* _____

**Currently taking antidepressant medication?**

☐ Yes *(please specify)*

_____

_____

☐ No → **End questions**

**Side effects that in your clinical opinion are due to current antidepressant med:**

☐ Sedation
☐ Sexual dysfunction
☐ Sleep disturbance
☐ Weight gain
☐ Agitation
☐ Anxiety
☐ Nausea
☐ Other: *(please specify)*

_____

_____

☐ No side effects

**Other prescribed medications taken by this patient:** *(please specify medication name)*

_____ _____

_____ _____

_____ _____

_____ ☐ None

# SAND abstract number 158: Hypertension and benign prostatic hyperplasia

**Organisation supporting this study:** Sanofi-Aventis Australia Pty Ltd

**Issues:** Prevalence of diagnosed hypertension, benign prostatic hyperplasia (BPH), and/or other prostate or urinary problems in male general practice patients aged 18 years and over; percentage of patients with at least one of the conditions who were currently taking prazosin; the indication for which prazosin was prescribed; medications currently taken for BPH and/or other prostate or urinary problems, and the health professional who initiated each of these medications (GP alone, specialist alone, GP and specialist, other).

**Sample:** 1,003 adult male respondents from 91 GPs; data collection period: 01/12/2009 – 18/01/2010.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age distribution of respondents did not differ from that of all male patients aged 18 years and over at BEACH encounters, with 28.5% aged 18–45 years, 35.9% aged 45–64 years, and 35.7% aged 65 years and over.

Of the 1,003 respondents, 377 (37.6%) had diagnosed hypertension and 100 (10.0%) had diagnosed BPH. There were 58 (5.8%) patients who had other prostate/urinary conditions. A total of 439 (43.8%) patients had at least one of the conditions, among whom 288 had hypertension only, 58 had hypertension and BPH, and 35 had BPH only. There were 5 patients who had all three conditions.

Of the 439 patients with at least one of the conditions, 426 responded to the prazosin questions, and 6.1% (*n*=26) of them were using prazosin: 4.7% (*n*=17) of those with hypertension; 19.0% (*n*=19) of those with BPH; and 5.2% (*n*=3) of those with another prostate/urinary condition.

Of the 26 patients on prazosin, 12 were prescribed it for BPH only, 8 were prescribed it for hypertension but not BPH, and 6 were prescribed it for hypertension and BPH.

Of the 151 patients with BPH and/or other prostate/urinary conditions, 126 gave medication details: 38 (30.2%) were currently on medication and 88 (69.8%) were on no medications for these conditions. There were 41 medications listed for the 38 patients, with prazosin accounting for almost half (48.8%) of these, while tamsulosin made up one-quarter (24.4%).

Of the 100 patients with BPH, 85 provided medication details, with 27 patients taking 29 medications. Prazosin accounted for 62.1% of these medications, and tamsulosin 24.1%.

Of all medications taken for BPH and/or other prostate/urinary conditions, about one-third (36.8%) were initiated by a GP, and the same proportion was initiated by a specialist. About one-quarter (23.7%) were initiated by both a GP and a specialist.

*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 **HYPERTENSION AND BENIGN PROSTATIC HYPERPLASIA.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Ask the **next 30 PATIENTS** the following questions, where appropriate, **in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated. I.e. if the patient is **NOT** male and 18+ years you may leave this section BLANK.

### Hypertension and Benign prostatic hyperplasia

Please ask these questions for **male patients aged 18 years and over**. For female patients and males aged <18 years please leave the shaded section blank.

Please use the tick boxes to advise whether the male patient has been diagnosed with **hypertension, Benign prostatic hyperplasia (BPH)** and/or **another prostate/urinary problem**.

If the patient does not have one of the listed conditions please tick the box labelled '**none of the above**' and **end questions here for this patient**.

### Medications for BPH or other prostate/urinary problems

Please write the **name, form** and regimen (**dose & frequency**) of any **medications currently taken for** the management of **BPH or other prostate/urinary problems.**

Please include prescribed and over-the-counter medications.

If the patient is **not taking any medication** for the management of BPH or urinary problems please tick the box labelled '**no medication**'.

### Prazosin use

Please use the tick boxes to advise whether the patient **currently takes prazosin**.

If '**yes**' please indicate whether the **prazosin is taken for** the management of **hypertension alone, BPH alone, both hypertension and BPH** or for **another indication**.

### Initiation of medication

Please **tick a box** to indicate for each medication **who made the decision to initiate the medication** for this patient:

- GP alone
- Specialist alone
- GP in consultation with specialist
- Other

---

**For male patients 18+ yrs:**

**Has this patient been diagnosed with:** *(Tick all that apply)*

- ☐ Hypertension
- ☐ Benign prostatic hyperplasia (BPH)
- ☐ Other prostate/urinary problems
- ☐ None of the above → **End questions**

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**Is this patient currently taking prazosin?**

- ☐ Yes
- ☐ No

**If 'yes' is it prescribed for:**

- ☐ Hypertension alone
- ☐ BPH alone
- ☐ Hypertension and BPH
- ☐ Other indication

**For patients with BPH or other prostate/urinary problems:**

**Medication(s) currently taken for these problems:**

| Name & Form | Strength | Dose | Frequency |
|---|---|---|---|
| | | | |
| | | | |

☐ **No medication**

**Decision to initiate this medication was made by:** *Please tick one response per row*

| | GP alone | Specialist alone | GP & specialist | Other |
|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ |

# SAND abstract number 159: Dementia screening, prevalence and management

**Organisation supporting this study:** Pfizer Australia Pty Ltd

**Issues:** The proportion of general practice patients who have been screened for dementia; reason(s) for screening; test(s) used for screening; proportion of screened patients diagnosed with dementia; management of patients with dementia; dementia risk factors present in patients who had not been screened; proportion of unscreened patients with whom GPs had discussed dementia risk.

**Sample:** 2,690 patients from 91 GPs; data collection period: 19/01/2010 – 22/02/2010.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

## Summary of results

The age distribution of respondents was significantly different from patients at all 2008–09 BEACH encounters, with a higher proportion of patients aged 25–44 years. The sex distribution was similar to that of all patients at 2008–09 BEACH encounters.

Of the 2,690 respondents, 226 (8.4%, 95% CI: 6.0–10.8) had been screened for dementia at some time. The percentage of patients screened rose significantly with age to reach 44.1% among patients aged 75 years and over. There was no significant difference between males and females in the proportion of patients screened.

Among the 214 screened patients for whom screening reasons were recorded, 'concern of the GP' was a reason for screening 35.5%, dementia signs and symptoms were cited as a reason for 30.8%, 'family concerns' for 20.1%, family history of dementia for 10.3%, and concern of other health professional for 8.4%. Other reasons for dementia screening were reported for over one-third (34.1%) of these patients. Health assessment accounted for 49.3%, and age of patient accounted for 14.1% of the other reasons specified.

The MMSE (mini mental state exam) was used for 90.7% of the 226 screened patients, and GP-COG (GP assessment of cognition) for 10.2% of patients. The other listed tests were not often used.

Dementia diagnosis status was recorded for 221 of the 226 screened patients. A total of 54 patients (24.4%) were diagnosed with dementia. Of those patients with dementia, 72.2% received a referral, 42.6% were being monitored (no treatment), 29.6% received medication, and for 24.1%, another action was recorded—for example, residential care.

Of the 2,464 patients who had not been screened for dementia, 2,403 gave details of risk factors. Three out of five patients (60.9%) had no risk factors, while 23.4% had one risk factor, 10.7% had two, and 5.0% had three or more. The most common risk factor was cardiovascular disease (14.9% of patients), followed by dyslipidaemia (14.7%), being a smoker (12.7%), diabetes (7.6%), and family history of dementia (7.5%).

GPs were asked if they had ever discussed dementia risk factors with the patient. Of 2,383 respondents who had never been screened, GPs had discussed dementia risk factors with 11.1% of them. They had discussed dementia risk with 21.8% of the 923 unscreened respondents with at least one risk factor.

*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 **DEMENTIA SCREENING.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Dementia screening

Please indicate whether this patient has **ever been screened for dementia**.

If '**yes**' please answer the questions in **PART 1**.

If '**no**' please go to **PART 2** of the form.

## PART 1 — Patients who HAVE been screened

### Reason for screening

Please use the tick boxes to indicate **the reason(s)** that this patient was **screened for dementia**.

Please tick all that apply

### Screening test

Please use the tick boxes to indicate the **screening tests(s)** that were performed.

Please tick all that apply

### Diagnosed dementia

Please indicate whether this patient has been **diagnosed with dementia**.

If 'Yes' please indicate **what actions were taken** to manage the dementia.

Please tick all that apply.

## PART 2 — Patients who have NOT been screened

### Risk factors for dementia

Please use the tick boxes to indicate whether this patient has any of the listed **risk factors for dementia**.

Tick all that apply.

### Dementia risk

Please indicate whether you have **ever discussed the risk of dementia with this patient**.

---

**Has this patient been screened for dementia?**

☐ Yes - go to PART 1

☐ No - go to PART 2

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**PART 1: Dementia screening**

**What were the reason(s) for screening this patient?** *(Tick all that apply)*

☐ Family Hx of dementia

☐ Signs and symptoms

☐ Concern of GP

☐ Concern of other health professional

☐ Family concerns

☐ Other *(please specify)*: _____

**What screening test/s was/were performed?**

☐ MMSE *(Mini mental state exam)*

☐ GP-COG *(GP assessment of cognition)*

☐ Mini-Cog *(a 3 minute cognitive test)*

☐ RUDAS *(Rowland Universal Dementia Assessment Scale)*

☐ Genetic testing

☐ Other *(please specify)*: _____

**Has this patient been diagnosed with dementia?**

☐ Yes

☐ No

**If 'yes' what actions were taken?**

☐ Referral

☐ Medication

☐ Monitoring (no treatment)

☐ Other *(please specify)*

_____

**PART 2: NO screening**

**Does this patient have any of the listed risk factors for dementia?** *(Tick all that apply)*

☐ Family Hx of dementia

☐ Cardiovascular dis.

☐ Diabetes

☐ Smoker

☐ Dyslipidaemia

☐ High homocysteine levels

☐ Previous head injury

☐ None of the above

**Have you discussed dementia risk with this patient?**

☐ Yes

☐ No

## SAND abstract number 160: Prevalence, cause, manifestation and severity of adverse pharmacological events

**Organisations supporting this study:** Australian GP Statistics and Classification Centre

**Issues:** The proportion of general practice patients who have experienced an adverse event resulting from the use of a medication during the preceding 6 months. For the most recent event, the cause, clinical manifestation, severity, duration and any resulting hospitalisation.

**Sample:** 5,497respondents from 189 GPs; data collection period: 19/01/2010–29/03/2010.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

### Summary of results

Sex of patient was recorded at 5,463 encounters, and 63.5% (95% CI: 61.4–65.7) of these were with female patients, a significantly higher proportion than in total 2009–10 BEACH encounters (60.4%, 95% CI: 59.5–61.3). The age distribution did not differ from patients at all 2009–10 BEACH encounters.

Of the 5,497 respondents, 466 (8.5%; CI: 7.4–9.6) had experienced an adverse drug event in the previous 6 months. There was no difference in occurrence of adverse events between the sexes. The proportion of patients who reported an adverse drug event increased with age, from 1.8% of infants aged less than 1 year to 11.6% of patients aged 75 years or more.

Of 484 drugs suspected of causing adverse events, 'natural opium alkaloids' and 'other antidepressants' were the medication groups most often cited. However, they accounted for only 4.8% and 4.6% respectively of the medications, due to the wide variety of medications implicated. The most common individual medications were atorvastatin, which accounted for 2.5%, tramadol (2.3%), amlodipine (1.9%), and metformin (1.9%).

Among 442 respondents, the most commonly listed manifestations/symptoms of the adverse event were digestive in nature (28.1% of all manifestations), followed by skin problems (16.4%), and problems which were general and unspecified (14.2%). At individual condition level, the most common were nausea (9.1% of all listed manifestations), followed by localised rash (8.3%), vomiting (6.0%), vertigo/dizziness (3.6%) and diarrhoea (3.5%). Within individual drug groups, opioids most commonly caused vomiting (drug specific rate 15.3%), nausea (13.9%) and/or constipation (12.5%); antidepressants caused sleep disturbance (13.4%), anti-arthritics caused epigastric pain (19.4%), lipids caused muscle pain (30.8%) and penicillins caused rashes (28.6%) and diarrhoea (19.1%).

Among 446 respondents, the adverse drug event was classed as mild for 41.7%, moderate for 46.2%, and severe for 11.7%.

Of 445 patients with an adverse drug event for whom this information was known, 5.4% were hospitalised due to the event. Of 52 patients with a severe event, 28.9% were hospitalised. Information on the duration of the event was available for 441 patients. For 42.2% the adverse event lasted for less than 1 week, for 19.1% it lasted 1–2 weeks, for 14.3% it lasted 3–4 weeks, for 15.2% it lasted 1–2 months, and for 9.3% it lasted more than 3 months.

*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 **ADVERSE PHARMACOLOGICAL EVENTS.**

*You may tear out this page as a guide to completing the following section of forms.*

## INSTRUCTIONS

**These questions are about measuring the level of impact of medication events in the community. You will need to ask the patient for information when answering the following questions as you may not know if an adverse event occurred e.g. if the patient did not inform you of side effects they experienced or if the medication in question was prescribed / advised / supplied by another doctor / health professional in any setting (e.g. hospital inpatient, outpatient, primary care etc).**

If you are interested in our previous work on this topic, please see Miller GC, Britt HC, Valenti L. Adverse drug events in general practice patients in Australia. Med J Aust 2006 Apr; 184(7):321-4.

### ASK THE PATIENT

Please ask the patient if they have **experienced an adverse event from the use of any medication** in the **past six months**.

An adverse event is an unintended event which could have harmed or did harm the patient. 'Harm' includes physical, psychological or emotional suffering.

If **no** adverse events were experienced, **end the questions here**.

### Medication involved in the event

Please **list the drug** (**or drugs** in the case of interactions) **that you suspect were the cause of the most recent adverse event**.

The drug(s) may be listed using the **generic** or **brand** name.

### Manifestation of the event

From the patient's description or your knowledge of the **most recent adverse event**, what was/were the **manifestation/s or symptom/s** (e.g. rash, vomiting, dementia)?

### Severity of the event

Please indicate the **severity of the event** in terms of harm to the patient (in your clinical opinion).

**Mild** - a reaction of limited duration not requiring further treatment; minimum impact on daily activities.

**Moderate** - a reaction of longer duration or which requires further treatment; limits daily activities.

**Severe** - a reaction of any duration which results in hospitilisation and/or long term limitation of daily activities.

### Hospitalisation

As a result of this adverse event, was the patient **hospitalised**?

### Duration of the event

Please ask the patient how long the most recent adverse event lasted.

| In the past six months has this patient experienced an adverse event in response to use of a medication: | Please list the drug(s) you suspect caused the most recent event: | Please specify the manifestation(s) (e.g. rash, vomiting) of the most recent adverse event: | Was the event - | Was the patient hospitalised due to this event? | What was the duration of the most recent adverse event? |
|---|---|---|---|---|---|
| ☐ Yes<br>☐ No → **End questions** | _____<br>_____<br>_____ | _____<br>_____<br>_____ | ☐ Mild<br>☐ Moderate<br>☐ Severe<br>☐ Don't know | ☐ Yes<br>☐ No | ☐ <1 week<br>☐ 1-2 weeks<br>☐ 3-4 weeks<br>☐ 1 to 3 months<br>☐ > 3 months |

BL119C

# SAND abstract number 161: Chronic obstructive pulmonary disease in general practice patients

**Organisation supporting this study:** Novartis Pharmaceuticals Australia Pty Ltd

**Issues:** For patients attending general practice—the proportion who had diagnosed chronic obstructive pulmonary disease (COPD) with or without asthma; the severity of COPD; factors contributing to diagnosis of COPD; the proportion with asthma diagnosed before COPD; medication taken for management of COPD/COPD with asthma; the proportion who had medication changes at the current encounter, and the reasons for these changes.

**Sample:** 2,842 patients from 97 GPs; data collection period: 23/02/2010—29/03/2010.

**Method:** Detailed in the paper entitled *SAND method 2009–10* at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. **Methods for this study:** GOLD COPD guidelines were used to categorise severity of COPD (< www.goldcopd.com/>).

## Summary of results

There were 2,939 patients sampled, and 2,842 (96.7%) of these responded to asthma and COPD questions. The age distribution did not differ from that of patients at all BEACH encounters in 2008–09, but the sex distribution differed significantly (35.1% male compared with 42.4% male at all 2008–09 BEACH encounters).

Of the 2,842 respondents, 273 patients (9.6%, 95% CI: 8.1–11.2) currently had diagnosed asthma without COPD, 79 (2.8%, 95% CI: 2.0–3.5) had COPD without asthma, 65 (2.3%, 95% CI: 1.6–3.0) had both COPD and asthma, and 2,425 (85.3%, 95%CI: 83.3–87.4) had neither. The highest prevalence was in patients aged 65–74 years. There was no significant difference between proportions of males and females with COPD.

Severity was reported for 142 patients with COPD, 37.3% had mild COPD, 43.0% had moderate COPD, 1 in 10 (11.3%) had severe COPD, and 8.5% had very severe COPD.

Of the 144 patients with COPD, factors contributing to the diagnosis were reported for 142 (98.6%). Some were health states/risk factors, and some were diagnostic factors. Each section of this question had a different number of respondents: of 126 patients, 123 (97.6%) selected 'clinical history/symptoms' as a contributing factor; of 80 respondents, 32 (40.0%) selected 'non-response to bronchodilator'; of 128 respondents, 117 (91.4%) nominated smoking history; of 68 respondents, 19 (27.9%) selected environmental irritants; of 101 respondents, 83 (82.2%) reported spirometry testing; and of 110 respondents, 83 (75.5%) selected chest x-ray. Twelve patients reported other factors, 5 of whom had CT scans.

Of the 65 patients with both COPD and asthma, 38 of 56 respondents (67.9%) reported having asthma diagnosed before the COPD diagnosis.

Medication use questions were answered by 137 of the 144 patients with COPD, and 117 of these (85.4%) were taking at least one. These 117 patients reported a total of 232 medications. The most frequently reported were tiotropium (29.7%) and salbutamol (25.0%). Twelve patients (11.1% of 108 respondents) reported having medication changed at the current encounter. For 5 patients, progression of disease was the reason for the change, and 2 patients had medication changed due to lack of efficacy.

*The following pages contain the recording form and instructions with which the data in this abstract were collected.*

## Severity of Chronic Obstructive Pulmonary Disease (COPD) reference card

| Severity | Measure | Symptoms |
|---|---|---|
| Mild | $FEV_1/FVC < 0.7$<br>$FEV_1 \geq 80\%$ predicted | Characterised by mild airflow limitation.<br>Symptoms of chronic cough and sputum production may be present. |
| Moderate | $FEV_1/FVC < 0.7$<br>$FEV_1 \geq 50$ and $<80\%$ predicted | Characterised by worsening airflow limitation.<br>Shortness of breath typically developing on exertion, chronic cough and sputum production may also be present. |
| Severe | $FEV_1/FVC < 0.7$<br>$FEV_1 \geq 30$ and $<50\%$ predicted | Characterised by further worsening of airflow limitation.<br>Greater shortness of breath, reduced exercise capacity, fatigue, and repeated exacerbations that almost always have an impact on patients' quality of life. |
| Very severe | $FEV_1/FVC < 0.7$<br>$FEV_1 <30\%$ predicted ***or*** $FEV_1 <50\%$ predicted plus chronic respiratory failure[(a)] | Characterised by severe airflow limitation.<br>Quality of life is very appreciably impaired and exacerbations may be life threatening. |

(a) Respiratory failure is defined as arterial pressure of oxygen ($Pa_{O2}$) <8.0 kPa (60 mm Hg) with or without arterial partial pressure of $CO_2$ ($Pa_{CO2}$)>6.7 kPa (50 mm Hg) while breathing at sea level.

Note: $FEV_1$—post bronchodilator forced expiratory volume in one second; FVC—forced vital capacity (maximal inspiration); $FEV_1/FVC$—ratio of forced expiratory volume to forced vital capacity.

*Source*: Rabe KF, Hurd S, Anzueto A, Barnes PJ, Buist SA, Calverley P et al. 2007. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: GOLD executive summary. Am J Respir Crit Care Med 176(6):532-555.

## PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE.**

*You may tear out this page as a guide to completing the following section of forms.*

### INSTRUCTIONS

Please answer the following questions for **ALL** of the **next 30 PATIENTS in the order in which the patients are seen.**

Please **DO NOT select patients** to suit the topic being investigated.

### Chronic Obstructive Pulmonary Disease (COPD) and asthma

Please use the tick boxes to indicate whether this patient has been diagnosed with **COPD (without asthma)**, **COPD with asthma** or **asthma (without COPD)**.

If the patient has been diagnosed with COPD (with or without asthma) please continue with the questions on this form.

If the patient has **not been diagnosed with COPD** please **end questions here** for this patient.

### Factors contributing to COPD diagnosis

Please use the tick boxes to indicate the **factors** that played a role in the **diagnosis of COPD** in this patient.

### Current medications

For patients with COPD (with or without asthma) please write the **name, form** and regimen (**dose and frequency**) of the COPD/asthma medication(s) **currently used**.

If the patient is **not taking any medication** for the treatment of COPD/asthma please tick the box labelled '**no medication**'.

### Reasons for medication change

If the medication was changed at today's encounter please indicate the **reason(s) that it was changed**.

### Severity of COPD

Referring to the **COPD severity scale** on the **laminated card** in your research pack, please indicate the **severity of the patient's COPD**.

### COPD with asthma

For patients with both COPD and asthma please indicate if the **asthma was diagnosed prior to the COPD**.

### Medication change

Please use the tick boxes to advise whether the patient's **COPD or asthma medication** was **changed** as a result of **today's encounter.** This includes, for example, changes in the dosage of existing medications, starting or stopping medications.

**Has this patient been diagnosed with:**

- ☐ COPD with Asthma → continue
- ☐ COPD without Asthma → continue
- ☐ Asthma without COPD
- ☐ None of the above

BL120B **End questions** ←

**How severe is the patient's COPD?**

*According to the GOLD guidelines (see card)*

- ☐ Mild
- ☐ Moderate
- ☐ Severe
- ☐ Very Severe

**Which factors contributed to the COPD diagnosis?**

| | Yes | No |
|---|---|---|
| Clinical history/symptoms | ☐ | ☐ |
| Non-response to bronchodilator | ☐ | ☐ |
| Smoking history | ☐ | ☐ |
| Environmental irritants | ☐ | ☐ |
| Spirometry | ☐ | ☐ |
| Chest X-ray | ☐ | ☐ |

Other: _____

**If the patient has both COPD and asthma, was the asthma diagnosed prior to the COPD?**

- ☐ Yes
- ☐ No

**Current COPD/asthma+COPD medication/s:**

| Name & Form | Strength | Dose | Frequency |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

☐ NO MEDICATION

**Was the COPD/asthma medication changed today (e.g. change in dose or type of medication)?**

- ☐ Yes
- ☐ No

**If 'yes', for what reason(s) was it changed?**

- ☐ Lack of efficacy
- ☐ Patient request
- ☐ Progression of disease
- ☐ Side effect(s)
- ☐ Other: *(please specify)*

_____

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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 Australian Government, which entitles the holder to reduced-cost medicines under the Pharmaceutical Benefits Scheme and some 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 that 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, including 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. (*Source:* O'Halloran J, Miller GC, Britt H 2004. Defining chronic conditions for primary care with ICPC-2. Fam Pract 21(4):381–6).
- *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 exposure, 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:* Encounters identified by any one of MBS item numbers 734, 736, 738, 740, 742, 744, 746, 749, 757, 759, 762, 765, 768, 771, 773, 775, 778, 779.
    - *Incentive payments:* Encounters identified by any one of MBS item numbers 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).

*GP consultation service items:* Includes GP services provided under the MBS professional services category including MBS items classed as A1, A2, A5, A6, A7, A14, A17, A18, A19, A20, A22 and selected items provided by GPs classified in A11, A15 and A27.

*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.

*Practice nurse involvement:* Encounters at which a practice nurse MBS item number and/or a treatment (either clinical or procedural) was recorded as done by a practice nurse.

*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 Royal Australian College of General Practitioners (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. (*Source:* Commonwealth Department of Health and Aged Care 2001. Medicare benefits schedule book. Canberra: DHAC).

*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.

*Significant:* This term is used to refer to a statistically significant results. Statistical significance is measured at the 95% confidence level in this report.

*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 2009–10 recording form

**BEACH (Bettering the Evaluation And Care of Health) - Morbidity and Treatment Survey - National** 

DOC ID

Encounter Number

| Date of encounter | Date of Birth | Sex | Patient Postcode |
|---|---|---|---|
| ___/___/___ | ___/___/_ _ _ _ | M ☐ F ☐ | |

| | Yes / No |
|---|---|
| New Patient | ☐ ☐ |
| Health Care/Benefits Card | ☐ ☐ |
| Veterans Affairs Card | ☐ ☐ |
| NESB | ☐ ☐ |
| Aboriginal | ☐ ☐ |
| Torres Strait Islander | ☐ ☐ |

PATIENT SEEN BY GP ☐

PATIENT NOT SEEN BY GP ☐

**Medicare Item Nos:** (if applicable)

1. _____
2. _____
3. _____

Workers comp paid ☐

State Govt/Other paid ☐

No charge ☐

**START Time**

: 

AM / PM

(please circle)

Patient Reasons for Encounter

1.

2.

3.

**Diagnosis/ Problem ①:** Problem Status New ☐ Old ☐ Work related ☐

| Drug Name AND Form for this problem | Strength of product | Dose | Frequency | No. of Rpts | OTC | GP Supply | Drug status New | Drug status Cont. |
|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |

**Procedures, other treatments, counselling this consult** for this problem

1. Prac Nurse? ☐ 2. Prac Nurse? ☐

**Diagnosis/ Problem ②:** Problem Status New ☐ Old ☐ Work related ☐

| Drug Name AND Form for this problem | Strength of product | Dose | Frequency | No. of Rpts | OTC | GP Supply | Drug status New | Drug status Cont. |
|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |

**Procedures, other treatments, counselling this consult** for this problem

1. Prac Nurse? ☐ 2. Prac Nurse? ☐

**Diagnosis/ Problem ③:** Problem Status New ☐ Old ☐ Work related ☐

| Drug Name AND Form for this problem | Strength of product | Dose | Frequency | No. of Rpts | OTC | GP Supply | Drug status New | Drug status Cont. |
|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |

**Procedures, other treatments, counselling this consult** for this problem

1. Prac Nurse? ☐ 2. Prac Nurse? ☐

**Diagnosis/ Problem ④:** Problem Status New ☐ Old ☐ Work related ☐

| Drug Name AND Form for this problem | Strength of product | Dose | Frequency | No. of Rpts | OTC | GP Supply | Drug status New | Drug status Cont. |
|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |

**Procedures, other treatments, counselling this consult** for this problem

1. Prac Nurse? ☐ 2. Prac Nurse? ☐

**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
3. _____ - _____ 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 ☐
- Smoke occasionally ☐
- Previous smoker ☐
- Never smoked ☐

**To the patient if 18+:**
How often do you have a drink containing alcohol?

- Never ☐
- Monthly or less ☐
- Once a week/fortnight ☐
- 2-3 times a week ☐
- 4+ times a week ☐

**How many 'standard' drinks do you have on a typical day when you are drinking?**

_____

**How often do you have 6 or more standard drinks on one occasion?**

- Never ☐
- Less than monthly ☐
- Monthly ☐
- Weekly ☐
- Daily or almost daily ☐

**FINISH Time**

: 

AM / PM

(please circle)

BA12

# Appendix 2: GP characteristics questionnaire, 2009–10

**The University of Sydney**
School of Public Health

**Australian General Practice Statistics and Classification Centre**

a collaborating unit of the
**Australian Institute of Health and Welfare**

## GP profile

**Doctor Identification Number**

| | | | | |
|---|---|---|---|---|
| | | | | |

**Please fill in boxes or circle answers**

**1.** Sex ..... **Male / Female** *(Please circle)*

**2.** Age .....

**3.** How many years have you spent in general practice? .....

**4.** Country of graduation *(primary medical degree)*:

☐ Australia ☐ Other: (*specify*)_____

**5.** How many direct patient care hours do you work per week?

*(Include hours of direct patient care, instructions, counselling etc and other services such as referrals, prescriptions, phone calls etc.)* .....

**6.** Do you conduct any of your consultations in a language other than English?

☐ No ☐ Yes 25–50%
☐ Yes <25% ☐ Yes >50%

**7.** Are you a GP registrar (i.e. in training)?..... **Yes / No**

**8.** Do you hold FRACGP? ..... **Yes / No**

**9.** Do you hold FACRRM? ..... **Yes / No**

**10.** Do you bulk bill patients?..... **All / Some / None**

**11.** To what extent do YOU use computers at work -
*(Circle all that apply)*

Not at all.....1
Prescribing .....2
Internet .....3
Email .....4

**Pathology**
electronic ordering (online) ..5
print/produce orders only.....6
electronic results receipt.....7

**Medical records**
complete (paperless).....8
partial/hybrid.....9
paper only.....10

**Imaging/other tests** ..... 11

**What clinical software is used?** *(please specify)*

_____

**12.** 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

**13.** Over the past four weeks have you provided any patient care
In a residential aged care facility ..... **Yes / No**
As a salaried/sessional hospital medical officer ..... **Yes / No**

**14.** Postcode of major practice address.....

**15.** In which GP Division is this practice?

_____

**16.** For this practice*, please specify the number of…

(a) individual GPs (including yourself)? .....

(b) full time equivalent GPs (including yourself)?.....
*(Full time equivalent ≈ 35-45hrs/wk)*

(c) individual practice nurses? *(none = 0)*.....

(d) full time equivalent practice nurses? .....
*(Full time equivalent ≈ 35-45hrs/wk)*

*(Note: practice = shared medical records)

**17.** Is your major practice accredited?..... **Yes / No**

**18.** Are any of the following services located / available on the premises? *(Circle all that apply)*:
*(includes services in the same building or within 50 metres, available on a daily or regular basis)*

Physiotherapist..... 1
Psychologist..... 2
Pathology lab/collection centre..... 3
Imaging..... 4
Specialist..... 5
Other (*specify*) _____ 6
None..... 7

**19.** What are the normal after-hours arrangements for your practice? *(Circle all that apply)*:

Practice does its own..... 1
Co-operative with other practices..... 2
Deputising service..... 3
Other..... 4
None..... 5

**20.** Is your major practice site a teaching practice? *(Circle all that apply)*:

for undergraduates..... 1
for junior doctors..... 2
for GP registrars..... 3
No..... 4

*Thank you for participating in the **BEACH PROGRAM.***
*Please return this form with the completed BEACH pad.*

AGPSCC, Westmead Hospital, WESTMEAD, 2145.
Ph: 02 98458151 fax: 02 98458155 email: janc@med.usyd.edu.au Web http://www.fmrc.org.au

GP12 (V2)

# Appendix 3: Dissemination of results from the BEACH program

Available at: <http://www.aihw.gov.au/publications/gep/27/12118-x03.pdf>.

A full list of BEACH publications is also available at the Family Medicine Research Centre's website: < www.fmrc.org.au/publications/>.

# Appendix 4: Code groups from ICPC-2 and ICPC-2 PLUS

Available at: <http://www.aihw.gov.au/publications/gep/27/12118-x03.pdf>.

# Appendix 5: Chronic code groups from ICPC-2 and ICPC-2 PLUS

Available at: <http://www.aihw.gov.au/publications/gep/27/12118-x03.pdf>.

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