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Bettering the Evaluation And Care of Health

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Foreword

Over recent times the Australian Government has initiated a number of wide-ranging reviews of healthcare delivery in this country. Much is being considered about how the health sector is governed and funded and how the various components of the health system interact and complement each other.

Primary care, and general practice in particular, is playing a key role in these discussions just as it does in the health system itself. Australia's first National Primary Health Care Strategy, sets out key directions for change in primary care including improving access, better management of chronic disease, a more systematic focus on prevention and a strong framework for quality and safety. The Strategy builds on the strengths of our existing system to harness the benefits of technology, including eHealth, and provides health care professionals with the infrastructure, equipment, skills and organisation they need to deliver improved primary health care to all Australians.

At times such as this, it is vital that the Government has available to it reliable sources of data that provide good insights upon which to make decisions.

Since its inception, the Bettering the Evaluation and Care of Health (BEACH) survey has filled an important gap in understanding what is happening in general practice in Australia. This 2008-09 BEACH report is no exception. It offers policy makers, researchers and the community an important source of data about the health issues dealt with by GPs – information about patients, the reasons for their visits, their diagnoses and how their problems were managed. It also gives us information about the activities of practice nurses.

Each year about 1,000 randomly selected GPs participate in BEACH, together providing details for about 100,000 patient-encounters. These give us understanding of the content of over 100 million GP-patient encounters that occur in Australia every year. While data recorded from claims to the MBS and PBS capture the majority of these GP encounters, they reveal very little about what happens during the consultation. This leaves a major gap in our understanding of general practice.

Read as a continuing series of data, the BEACH survey provides a picture of the changes that have occurred in the daily activities of general practitioners over the past decade as well as the breadth of health problems faced by the Australian people. Without it, our understanding of primary care would be much poorer.

As we move forward into the era of electronic transmission of health information, opportunities for capturing more information about primary care are being explored. The AIHW has recently undertaken an evaluation of primary care data in Australia with a focus on general practice. It is working with all governments to develop a core set of data items (National Minimum Data Set (NMDS)) to be collected from primary health care services. The AIHW is also collecting data from services providing care to Indigenous Australians, with a focus on maternal and child health and chronic disease care (Healthy for Life). A set of national key performance indicators for Indigenous-specific services is currently being developed, and will take into account the data collections underway.

Linkages between all this work, covering both Indigenous and mainstream services, will be critical. It will also be critical that the data standards and definitions used for our current reporting are not inadvertently changed by ehealth innovations. This is a critical aspect of the move to ehealth – we must gain much richer data without losing the foundations and

understandings we already have, as demonstrated in this latest report from the BEACH survey.

Dr Penny Allbon
Director
Australian Institute of Health and Welfare

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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
AGPSCC	Australian General Practice Statistics and Classification Centre
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)
CT	computerised tomography
CVD	cardiovascular disease
DoHA	Australian Government Department of Health and Ageing
DVA	Australian Government Department of Veterans' Affairs
encs	Encounters
FBC	full blood count
FMRC	Family Medicine Research Centre
GP	general practitioner
GPSCU	General Practice Statistics and Classification Unit
HbA1c	haemoglobin, type A1c
HIV	human immunodeficiency virus
HPV	Human Papillomavirus
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
ICS	inhaled corticosteroids
INR	international normalised ratio
LABA	long-acting beta-agonist
LCL	lower confidence limit
MBS	Medicare Benefits Schedule
NDSHS	National Drug Strategy Household Survey
NHMRC	National Health and Medical Research Council
NHS	National Health Survey

OTC	over-the-counter (that is, medications advised for over-the-counter purchase)
PBS	Pharmaceutical Benefits Scheme
RACGP	Royal Australian College of General Practitioners
RFE	reason for encounter
SABA	short-acting beta-2 agonists
SAND	Supplementary Analysis of Nominated Data
SAS	Statistical Analysis System
UCL	upper confidence limit
WHO	World Health Organization

Symbols

–	not applicable
<	less than
>	more than
NEC	not elsewhere classified
<i>n</i>	Number
NOS	not otherwise specified

Executive summary

This report describes general practitioner (GP) clinical activity from April 2008 to March 2009 inclusive. It summarises results from the 11th year of the Bettering the Evaluation And Care of Health (BEACH) program, using a sample of 101,100 patient encounters with 1,011 GPs.

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 sampled encounters has excellent precision with 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 in this report for results of other substudies finalised in 2008–09.

A web-based summary report of data from the last 10 years of BEACH highlighting major changes over that time, *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*, is available at <www.aihw.gov.au/publications/index.cfm/subject/19>.

The general practitioners

Of the 1,011 GP participants in 2008–09:

- two-thirds were male, 46% were aged 55 years and over, 74% had graduated in Australia
- 12% worked less than 6 clinical sessions and 10% worked 11 sessions or more per week
- 40% had Fellowship of the Royal Australian College of General Practitioners
- 24% conducted some consultations in a language other than English
- 95% used a computer for some clinical purpose(s), four out of five produced prescriptions electronically, and over 50% of GPs reported using paperless medical records
- 85% worked in an accredited practice and 55% in a teaching practice
- 43% worked in practices of 2–4, and 29% in practices of 5–9 full-time equivalent GPs
- 68% worked in a practice that employed a practice nurse(s)
- 43% worked in practices providing their own/cooperative after-hours patient care.

The encounters

- Direct encounters (patient was seen by the GP) accounted for 98.6% of all encounters.
- About 97% of all direct encounters were claimable either through Medicare or the DVA.
- The measured mean length of MBS/DVA-claimable encounters in 2008–09 was 14.6 minutes and the median length was 13.0 minutes.

The patients

- Patients aged less than 25 years accounted for 20% of encounters; 25–44 year olds 21%; 45–64 year olds 29%, and patients 65 years and over 30% of encounters.

- Females accounted for 58% of encounters, and new patients to the practice 6%.
- Half the encounters were with patients who held either a Commonwealth concession card (46%) or a Repatriation health card (3%).
- At 1% of encounters the patient identified as an Aboriginal and/or Torres Strait Islander person and at 10% the patient was from a non-English-speaking background.
- At 57% of encounters only one reason for encounter (RFE) was recorded, at 30.3% two RFEs were recorded and at 13% of encounters three RFEs were recorded.
- Of the top 30 most common RFEs, 19 were descriptions of symptoms such as cough, throat and back complaints, and rash. However, four of the top five RFEs were requests for check-ups, prescriptions, test results and immunisations, and together these RFEs accounted for a quarter of all RFEs.

Problems managed

On average GPs managed 1.5 problems per encounter, the number per encounter increasing with patient age. The most common problems managed were:

- respiratory problems (21 per 100 encounters) – in particular upper respiratory tract infection, respiratory immunisations, acute bronchitis and asthma
- cardiovascular problems (such as hypertension and cardiac check-ups)
- musculoskeletal problems (such as arthritis and back complaints)
- problems of a general and unspecified nature (such as immunisations and check-ups)
- skin problems (such as contact dermatitis and solar keratosis/sunburn).

Chronic conditions made up 36% of all problems managed, the most common being non-gestational hypertension (18% of chronic conditions), depressive disorder (8%), non-gestational diabetes (7%), lipid disorders (7%), and chronic arthritis (7%).

Management actions

For an 'average' 100 GP-patient encounters, GPs recorded 106 medications, 34 clinical treatments, 17 procedures, 9 referrals to specialists and 4 to allied health services, and ordered 46 pathology and 10 imaging tests.

Medications

- 81% of all medications were prescribed, 10% were supplied to the patient by the GP and 8% were recommended by the GP for purchase over the counter.
- No prescription was given for 55% of all problems managed, one was given for 37%, two for 6%, and more than two for 2%.
- Medications most often prescribed were the anti-infectives amoxicillin (4% of all prescriptions), amoxicillin (3%) and cephalexin (3%); the analgesics paracetamol (3%) and paracetamol/codeine (2%); and the lipid modifying agent atorvastatin (2%).

Other treatments

- There were 51 other treatments per 100 encounters, two-thirds being clinical treatments (34 per 100 encounters), and one-third procedures (17 per 100).
- Preventive clinical activities (7 per 100 encounters) included counselling about nutrition and weight, and counselling/advice for exercise, smoking, prevention and alcohol.

- Psychological counselling was provided at a rate of 3 per 100 encounters
- Of the procedures, excisions/biopsies were the most frequent (3 per 100), followed by dressings and local injections (both 2 per 100) and incisions (1 per 100).

Referrals and admissions

- The patient was referred at 13% of all encounters. Two-thirds of referrals were to specialists, 28% to allied health services and <1% to hospitals or emergency departments.
- Referrals to specialists (6 per 100 encounters), were most often to surgeons (10%), ophthalmologists (9%), orthopaedic surgeons (9%) and dermatologists (8%).
- Referrals to allied health services (4 per encounters) were often to physiotherapists (34%), psychologists (19%), podiatrists (9%) and dietitians or nutritionists (7%).

Tests and investigations

Pathology: At least one pathology test order was recorded at 18% of encounters (for 14% of problems managed). Chemistry tests accounted for more than half of all orders, the most common measuring lipids (4.8 orders per 100 encounters), EUC (3.4), liver function (3.3), and glucose/glucose tolerance (2.7 per 100 encounters).

Imaging: At least one imaging tests was ordered at 9% of encounters (for 6% of problems managed). Diagnostic radiology accounted for almost half of these and ultrasound for 37%.

Practice nurse activity

- Practice nurses were involved in 6% of encounters and 4% of all problems managed.
- Practice nurse activities were mainly procedural (93%) and these procedures represented 30% of all procedures recorded. Clinical treatments accounted for 7% of practice nurse activity, but the practice nurse provided less than 2% of all recorded clinical treatments.
- The most common procedures done by practice nurses were injections (37% of their recorded procedures), dressings (21%), incisions (7%), INRs (6%) and check-ups (6%).
- At 61% of encounters involving the practice nurse, no practice nurse Medicare item was recorded as claimable. The most commonly recorded item was for immunisation (64%).

Patient risk factors

Overweight and obesity in adults: In the sample of 33,526 patients, 25% were obese and 36% overweight. After adjusting for age–sex attendance patterns, prevalence in the attending adult population was 25% obese, 35% overweight, 38% normal and 2.4% underweight.

Overweight and obesity in children (2–17 years): Of 2,970 children, 27% were overweight (17%) or obese (11%). There was no difference in prevalence of overweight/obesity among male (29%) and female children (26%).

Smoking status: Of 34,194 adult patients, 15% were daily smokers (18% of males and 13% of females), but after adjustment for age–sex attendance patterns, an estimated 19% of the population attending general practice were daily smokers.

Alcohol consumption: One-quarter of 33,347 adult respondents reported drinking at-risk levels of alcohol. After adjustment for attendance rates, prevalence of at-risk drinking among the adult population attending general practice was 29%.

1 Overview

This publication is the 11th annual report and the 25th 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 2008 to March 2009 inclusive, using details of 101,100 encounters between general practitioners (GPs) and patients (about a 0.1% sample of all general practice encounters) from a random sample of 1,011 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 1999–00 to 2008–09: 10 year data tables* at <www.aihw.gov.au/publications/index.cfm/subject/19> (AIHW catalogue number GEP 26).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 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 unique. It is the only continuous randomised study of general practice activity in the world, and the only national program that provides direct linkage of management actions (such as prescriptions, referrals, investigations) to the problem under management. It began in April 1998, and the BEACH database now includes information for almost 1.1 million encounters from 10,885 participants representing more than 7,824 individual GPs, almost half the sample frame from which the GP samples are drawn.

GPs provided by far the majority of the 112 million general practice services paid by Medicare in Australia in 2008–09, at an average rate of about five visits per head of population that year.² BEACH gives us some understanding of the content of these encounters and of the services and treatments that GPs provide.

1.1 Background

GPs are the first port of call in the Australian health care system. In 2008–09, they claimed about 112 million items of service (not including practice nurse item number claims) through Medicare² and provided an estimated additional 5.4 million services that were paid for by other funders (such as workers compensation, state government) or not charged for at all.³

About 88% of the Australian population visited a GP at least once in 2005–06.⁴ Previous research using BEACH data suggested that in 2001–02 people in Australia spent on average 83 minutes with a GP per head per year. This compared with about 56 minutes per head in New Zealand and about 30 minutes per head in the United States during the same period.⁵

In December 2008, the population of Australia was estimated to be 21.64 million people.⁶ In 2006–07, national expenditure on health was estimated to be \$94 billion, 9% of gross domestic product, with governments funding two-thirds the total health expenditure at an average of \$4,507 per person.⁷

- In 2006 in Australia, 58,167 medical practitioners were working as clinicians, of whom 39.5% were primary care providers. Of these, 85.8% were recognised general practitioners, 7.9% were GP registrars and 6.4% were other primary care clinicians.⁸

- There were 97 full-time equivalent practising primary care practitioners per 100,000 people in Australia in 2006.⁸
- By far the majority of visits to GPs are funded through the Commonwealth Medicare Benefits Schedule (MBS). From March 2008 to April 2009, there were about 112 million general practice services (excluding practice nurse items) paid through Medicare at an average of about five GP services per person.² This equates to about 307,000 services per day, or more than 2.1 million per week.
- In 2008–09, the primary cost to Medicare for GP items was over \$4.5 billion.² Up-to-date estimates of secondary costs generated by GPs could not be located.

1.2 The BEACH program

In summary, the BEACH program is a continuous national study of general practice activity in Australia. It uses details of about 100,000 encounters between GPs and patients (about a 0.1% sample of all general practice encounters) from a random sample of approximately 1,000 recognised practising GPs from across the country (approximately 6% of all recognised practising GPs). 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 the Australian Government Department of Health and Ageing (DoHA). GPs are approached by letter and followed up by telephone recruitment. Each participating GP completes details for 100 consecutive GP–patient encounters on structured paper encounter forms (Appendix 1). They 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
- to establish an ongoing database of GP–patient encounter information
- to assess patient risk factors and health states, and the relationship these factors have with health service activity.

Current status of BEACH

BEACH began in April 1998 and is now in its 12th year. The database for the last 10 data years includes data for 990,100 GP–patient encounters from 9,901 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 2008 to March 2009) on a national basis to provide an overview of general practice activity.

A companion publication *General practice activity in Australia 1999–00 to 2008–09: 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 tells us about what happens at clinical encounters between patients and GPs. It tells us about the relationships between the characteristics of the GP workforce, the patients they manage, the problems that are presented to and managed by GPs, and the treatment provided for each problem. It also provides a reliable continuous measure of changes in general practice since 1998.

We are often asked to outline the strengths of the BEACH program when compared with general practice activity data from other sources. These strengths are summarised below.

- BEACH is the only national study of general practice activity in the world that is continuous, relying on a random ever-changing sample of GPs, and directly linking management actions to the morbidity under management.
- The sheer size of the GP sample (1,000 per year) and the relatively small cluster of encounters around each GP provide more reliable estimates than a smaller number of GPs with large clusters of patients and/or encounters.⁹
- Our access to a regular random sample of recognised GPs in active practice, through the Australian Government Department of Health and Ageing (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). In contrast, systems such as electronic health records rely on the GP to complete all fields of interest without guidance.
- The activities described in BEACH include all patient encounters, not just those covered by Medicare.

- The medication data include all prescriptions, rather than being limited to those prescribed medications covered by the Pharmaceutical Benefits Scheme (PBS) (as are PBS data).
- BEACH is the only source of information on medications supplied directly to the patient by the GP, and about the medications GPs advise for over-the-counter (OTC) purchase, the patients to whom they provide such advice and the problems managed in this 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 a well-structured classification system designed specifically for general practice, together with the use of an extended vocabulary of terms which facilitates reliable classification of the data by trained secondary coders, removes the guesswork often applied in word searches of available records (in free text format) and in classification of a concept.
- The analytical techniques applied to the BEACH data ensure that the clustering inherent in the sampling methods is dealt with. Results are reported with 95% confidence intervals. Users are therefore aware of how reliable any estimate might be.
- Reliability of the methods is demonstrated by the consistency of results over time where change is not expected, and by the measurement of change when it might be expected.

1.3 Issues when using BEACH data with other national data

Users of the BEACH data might wish to consolidate information from multiple national data sources. Integration of data from multiple sources 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 cardholders¹⁰
- have no record of the problem being managed.

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 prescriptions not filled by the patient (and 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 amoxicillin fall under the PBS minimum subsidy level and would not be counted in the PBS data, except where patients received the medication under the PBS because they are Commonwealth concession cardholders or had reached the annual safety net threshold.¹⁰

Medicare Benefits Schedule

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

- The MBS consultation data provided by DoHA do not usually include data about patients and encounters funded through the Department of Veterans' Affairs (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 2008–09, 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 that almost half the enhanced primary care items claimed through the MBS came from about 6% of active GPs.¹¹ 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 MBS items from the Schedule.

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. Approximately 70% of the volume of MBS pathology data are generated by GP orders.¹²
- 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 the DoHA pathology payment system. This means that the tests recorded in the MBS include only those charged for, not all those that were done. 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 increasing³, 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.

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 *Imaging orders by general practitioners in Australia 1999–00*¹³, 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.¹⁴
- 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.¹⁵

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^{16,17}, with around 88% of Australians visiting a GP at least once in any year.⁴ 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 recently published papers: *Estimating prevalence of common chronic morbidities in Australia*⁴, and *Prevalence and patterns of multimorbidity in Australia*.¹⁸

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 range 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 2.4.

Abstracts of results and the research tools used in all SAND substudies from April 1998 to March 2009 have been published. Those from:

- April 1998–99 were published in *Measures of health and health care delivery in general practice in Australia*¹⁹

- April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*²⁰
- August 2006 to March 2007 were published in *General practice activity in Australia 2006–07*²¹
- April 2007 to January 2008 were published in *General practice activity in Australia 2007–08*³
- February 2008 to January 2009 are included in Chapter 15 of this report.

Abstracts of results for all SAND substudies are also available on the Family Medicine Research Centre (FMRC) website <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Participating organisations

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

External purchasers of standard reports

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

Analysis of the BEACH data is a complex task. The AGPSCC has designed standard reports that cover most aspects of a subject under investigation. Examples of a problem-based standard report (subject: ischaemic heart disease in patients aged 45 years 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 approximately 1,000 GPs
- each GP records details about 100 doctor-patient encounters of all types
- the GP sample is a rolling (ever-changing) sample, with approximately 20 GPs participating in any one 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)
- each GP participant also completes 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.

On a quarterly basis the Primary and Ambulatory Care Division of the DoHA updates the sample frame from the Medicare records, leaving out of the sample frame any GPs already randomly sampled in the current triennium, and draws a new sample from those currently in the sample frame. This ensures the timely addition of new entries to the profession, and timely exclusion of those GPs who have stopped practising.

2.2 Recruitment methods

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

- Over the following 10 days the telephone numbers generated from the Medicare data are checked using the electronic white and yellow pages. This is necessary because many of the telephone numbers provided from the Medicare data are incorrect.
- The GPs are then telephoned in the order they were approached and, referring to the approach letter, asked whether they will participate.
- This initial telephone contact with the practice often indicates that the selected GP has moved elsewhere, but is still in practice. Where 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 about 10 days before the planned start date.

- Each GP receives a telephone reminder in the first days of the agreed recording period – this also provides the GP with an opportunity to ask questions about the recording process.
- GPs can use a ‘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 up to 3 months after the set recording time.
- 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: encounter data, GP characteristics 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 data collected include the following:

- **Encounter data:** date of consultation, type of consultation (direct/indirect), 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 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).
- **The problems managed** at encounter (at least one and up to four). Tick boxes are provided to denote the status of each problem as new or continuing for the patient (if applicable).
- **Management** of each problem, including:
 - medications prescribed, supplied by the GP and advised for over-the-counter purchase including brand name, form (where required), strength, regimen, status (if new or continuing medication for this problem for this patient) and number of repeats
 - other treatments provided for each problem including counselling, advice and education, and procedures undertaken; and if other treatment was provided by practice nurse (tick box)
 - new referrals to medical specialists, allied health professionals and hospital
 - investigations including pathology tests, imaging and other investigations ordered at the encounter.

- **GP characteristics:** age and sex, years in general practice, number of GP sessions worked per week, number of full-time equivalent GPs working in the practice, postcode of major practice address, country of graduation, postgraduate general practice training and Fellow of the RACGP status, after-hours care arrangements, use of computers in the practice, whether the practice is accredited, whether it is a teaching practice, work undertaken in other clinical settings and hours worked in direct patient care.

2.4 The BEACH relational database

The BEACH relational database is described diagrammatically in Figure 2.1.

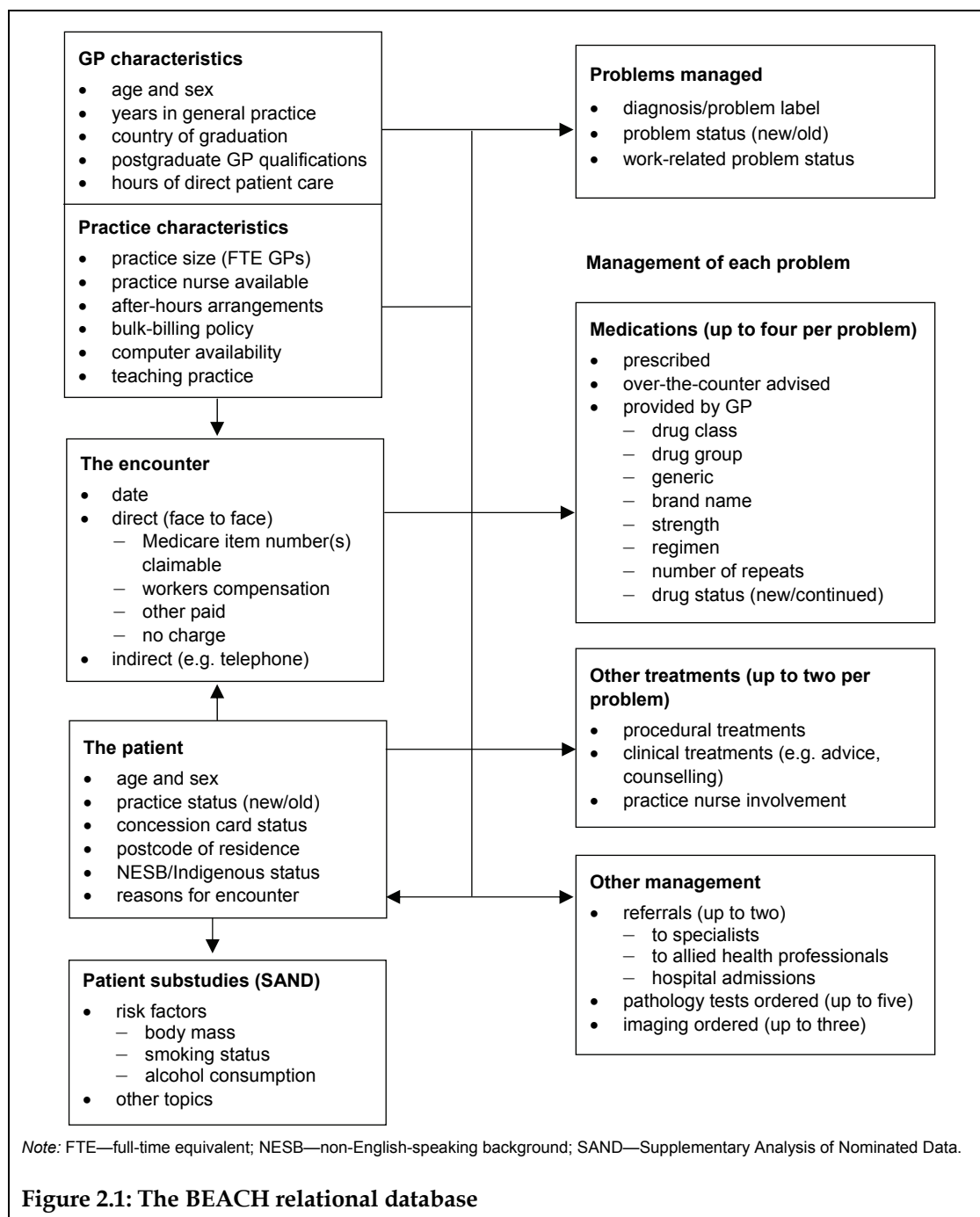


Figure 2.1: The BEACH relational database

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
- all types of management are directly related to the problem being treated.

2.5 Supplementary Analysis of Nominated Data

A section at the bottom of each recording form investigates aspects of patient health or health care delivery in general practice not covered by the consultation-based data. These additional substudies are referred to as SAND, Supplementary Analysis of Nominated Data.

- The year-long data period is divided into 10 blocks, each of 5 weeks with three substudies per block. The research team aims to include data from about 100 GPs in each block.
- Each GP's pack of 100 forms is made up of 40 forms that ask for the start and finish times of the encounter, and include questions about patient risk factors: patient height and weight (used to calculate body mass index, BMI), alcohol intake and smoking status (patient self-report). The methods and results of topics in the SAND substudies for alcohol consumption, smoking status and BMI are reported in Chapter 14. The start and finish times collected on these encounters is used to calculate the length of consultation. The length of consultation for Medicare-claimable encounters is reported in Section 5.3.
- 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 2009 have been published. Those from:

- April 1998–99 were published in *Measures of health and health care delivery in general practice in Australia*¹⁹
- April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*²⁰
- August 2006 to March 2007 were published in *General practice activity in Australia 2006–07*²¹
- April 2007 to January 2008 were published in *General practice activity in Australia 2007–08*³
- February 2008 to January 2009 are included in Chapter 15 of this report.

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 2008–09 BEACH data was conducted with Statistical Analysis System (SAS) version 9.1.3²², and the encounter is the primary unit of inference. Proportions are used only when describing the distribution of an event that can arise only once at a consultation (for example, age, sex), or to describe the distribution of events within a class of events (for example, problem A as a percentage of total problems). Rates per 100 encounters are used when an event can occur more than once at the consultation (for example, RFEs, problems managed or medications).

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

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. We use procedures in SAS version 9.1.3. to calculate the intraclass correlation and adjust the confidence intervals accordingly.²²

Post-stratification weighting of encounter data adjusts for any variance in the characteristics of the participating GPs from those of the sample frame from which they were drawn, and for the varying activity level of each GP (measured by the 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)²³:

- 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 Classifications²⁴, and is the declared national standard in Australia for reporting of health data from general practice and patient self-reported health information.²⁵

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. These are independent in each chapter and both can be used for patient RFEs or problems managed.

Components 2 to 6 cover the process of care, and are common throughout all chapters. The processes of care, including referrals, other (non-pharmacological) treatments and orders for pathology and imaging, are classified in these process components of ICPC-2. Component 2

(diagnostic, screening and prevention) is also often applied in describing the problem managed (for example, check-up, immunisation).

The ICPC-2 is an excellent epidemiological tool. The diagnostic and symptomatic rubrics have been selected for inclusion on the basis of their relative frequency in primary care settings, or because of their relative importance in describing the health of the community. It has approximately 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 vocabulary of terms classified according to the ICPC, now called ICPC-2 PLUS.²⁶ This is an interface terminology, developed by the FMRC from all the terms used by GPs in studies such as the Australian Morbidity and Treatment Survey 1990–91²⁷, the Morbidity and Therapeutic Index 1992–1998 (a clinical audit tool that was available to GPs), and BEACH 1998–2008 that together have included close to 1.5 million encounter records. These terms are classified according to ICPC-2 to ensure international standards for reporting. Readers interested in seeing how coding works can download the ICPC-2 PLUS Demonstrator at <www.fmrc.org.au/icpc2plus/demonstrator.htm>.

When the free-text data are received from the GPs, trained secondary coders (who are undergraduate students studying health information management or medical science) 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 – 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, for example, L92 – shoulder syndrome (includes bursitis, frozen shoulder, osteoarthritis of shoulder, rotator cuff syndrome). When reporting osteoarthritis in this publication, all the more specific osteoarthritis ICPC-2 PLUS terms are grouped within all the appropriate ICPC-2 codes. This group is labelled ‘Osteoarthritis*’ – the asterisk again indicating multiple codes, but in this case they are PLUS codes rather than ICPC-2 codes. 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 list²⁸ 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)²⁹ classification, which is the Australian standard for classifying medications at the generic level.

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

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

Use of the 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 necessarily always at the generic level. Reclassification to lower ATC levels may occur later. Therefore, the ATC uses a top-down approach.

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

- When reporting the 2008–09 annual results for pharmaceutical data, the CAPS database is used in tables of the ‘most frequent medications’ (tables 9.2 to 9.4 inclusive).
- When reporting the annual results for pharmaceuticals in terms of the ATC hierarchy (Table 9.1), ATC Levels 1, 3, and 5 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. A 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 on a regular basis.

2.9 Validity and reliability

A discussion of the reliability and validity of the BEACH program has been published elsewhere.³⁰ In this section we touch 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.³¹ Other studies have reported the degree to which GP-reported patient RFEs and problems managed accurately reflect those recalled by the patient³² and the reliability of secondary coding of RFEs³³ and problems managed.²⁷ The validity of ICPC as a tool with which to classify the data has also been investigated in earlier work.³⁴

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. Bentsen³⁵ and Barsky³⁶ 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.³⁷ 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.^{38,39} 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.³⁵ 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; individuals differ in the number of stimuli they select (selective perception).⁴⁰

The extent to which therapeutic decisions may influence the diagnostic label selected has also been discussed. Howie⁴¹ and Anderson³⁸ 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.³⁸ 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.⁴² 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.⁴³ Differences in the way male and female GPs label problems also appear to be independent of such influences.⁴⁴

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.⁴⁵ 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'.³⁸ 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.^{46,47} 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.⁴⁸

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 2008–09 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 1999–00 to 2008–09. Extrapolations used in these sections estimate the national change across total GP Medicare services from 1999–00 (or where appropriate 2000–01) to 2008–09. These sections refer to data published in *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

Where the results demonstrate a significant change over time, the estimated national change across total GP Medicare services from 1999–00 (or where appropriate 2000–01) to 2008–09 can be calculated using the method detailed below.

- The national estimates are calculated by dividing the rate per 100 encounters of the selected event for 1999–00 (or 2000–01 where appropriate) 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 1999–00 (or 2000–01). The process is then repeated for 2008–09. The difference between the two estimates (to the nearest 10,000) gives the estimated national change in the rate of encounters for that event over the period of interest.
- This is expressed as the estimated increase or decrease over the study period (between 1999–00 or 2000–01 and 2008–09), 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 2008–09 when compared with 1999–00 (or 2000–01).

Table 2.1 provides the total number of general practice professional service items claimed from Medicare in each financial year from 1999–00 to 2008–09. 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.

Example of extrapolation

A significant increase in the number of problems managed at encounter, from 146.7 per 100 encounters in 1999–00 to 154.6 in 2008–09:

- $(146.7/100) \times 101.5 \text{ million} = 148.9 \text{ million}$ problems managed in general practice nationally in 1999–00, and $(154.6/100) \times 112.3 \text{ million} = 173.6 \text{ million}$ problems managed in 2008–09.

This suggests there were 24.7 million (173.6 million minus 148.9 million) more problems managed at GP encounters in Australia in 2008–09 than in 1999–00.

Table 2.1: Number of general practice professional services claimed from Medicare Australia each financial year, 1999–00 to 2008–09 ('000)

	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09 ^(a)
Number of GP MBS items	101,517	100,645	99,921	96,919	96,330	98,180	101,095	103,433	109,518	112,275
Rounded no. of GP MBS items	101,500	100,600	99,900	96,900	96,300	98,200	101,100	103,400	109,500	112,300

(a) Medicare data for the 2008–09 year included data from the March 2008 to April 2009 quarters because the 2008–09 financial year data were not available at the time of preparation of this report.

Source: Medicare statistics, Table B1—Medicare: Number of services ('000) by quarter and financial year of processing by broad type of service. Available at <www.health.gov.au/internet/main/publishing.nsf/Content/Medicare+Statistics-1>.

Limitations of extrapolations

The extrapolations to the total encounters occurring nationally in any one year is 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 (approximately 5% of BEACH encounters annually which include indirect encounters and those paid by sources other than Medicare, such as DVA, state governments, workers compensation insurance, 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.¹¹ 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. The extrapolation therefore still provides an indication of the size of the effect of measured change nationally.

3 The sample

This chapter describes the sample and sampling methods used in the BEACH program. The methods are only summarised in this chapter. For those wanting more detailed explanation, the BEACH methods are described in Chapter 2.

A summary of the annual BEACH samples are reported for each year from 1999–00 to 2008–09 in the companion report *General practice activity in Australia 1999–00 to 2008–09: 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 Australia data by the Primary and Ambulatory Care Division of DoHA (see Chapter 2).

Contact was attempted with 3,538 GPs – 12.5% could not be contacted. About one-quarter 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, 27.3% were no longer at that practice and could not be traced. These would largely be registrars moving through practices during training. In contrast, 11.7% of GPs aged 35 years and over were not traceable (results not shown in Table).

The final participating sample consisted of 1,011 practitioners, representing 32.6% of those who were contacted and available, and 28.6% 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 = 3,538)	Per cent of contacts established (n = 3,097)
Letter sent and phone contact attempted	3,538	100.0	—
No contact	441	12.5	—
No phone number	40	1.1	—
Moved/retired/deceased	119	3.4	—
Unavailable (overseas, maternity leave, etc.)	20	0.6	—
No contact after five calls	262	7.4	—
Telephone contact established	3,097	87.5	100.0
Declined to participate	1,849	52.3	59.7
Agreed but withdrew	237	6.7	7.6
Agreed and completed	1,011	28.6	32.6

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 (χ^2) (significant at the 5% level), were made between BEACH participants and all recognised GPs in the sample frame during the study period (Table 3.2). The GP characteristics data for BEACH participants were drawn from the GP profile questionnaire. 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 Australian GPs in the sample frame, in terms of sex, age, and place of graduation: female GPs, those aged < 35 years, those aged 35–44 years, and overseas graduates were all under-represented, whereas male GPs, those aged 45–54 years, those aged 55 years and over, Australian graduates, and GPs practising in New South Wales were over-represented. Distribution across Rural, Remote and Metropolitan Area classes did not significantly differ from that of the total sample frame.

However, the BEACH participants were more closely representative of the sample provided by DoHA, from which potential participants are approached and recruited (Table 3.3). While the sample provided by DoHA does not appear to reflect the Australian sample frame, it is possible that this is an effect of the random sampling process. DoHA has provided random samples for BEACH recruitment for 11 years and it is possible that the randomisation process has produced a sample that is biased in this instance. However, when the combined samples were compared across the 11-year time frame, overall they more closely reflected the sample frame (Table 3.4).

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

Variable	BEACH ^{(a)(b)}		Australia ^{(a)(c)}	
	Number	Per cent of GPs (n = 1,011)	Number	Per cent of GPs (n = 18,902)
Sex ($\chi^2 = 7.9, p = 0.005$)				
Males	682	67.5	11,923	63.1
Females	329	32.5	6,979	36.9
Missing	0	—	0	—
Age ($\chi^2 = 86.9, p < 0.001$)				
< 35 years	26	2.6	1,509	8.0
35–44 years	141	14.0	4,081	21.6
45–54 years	378	37.5	6,305	33.4
> 54 years	462	45.9	7,007	37.1
Missing	4	0.4	0	—

(continued)

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

Variable	BEACH ^{(a)(b)}		Australia ^{(a)(c)}	
	Number	Per cent of GPs (n = 1,011)	Number	Per cent of GPs (n = 18,902)
Place of graduation ($\chi^2 = 15.4, p < 0.001$)				
Australia	750	74.3	12,938	68.4
Overseas	259	25.7	5,964	31.6
Missing	2	—	0	—
State ($\chi^2 = 17.9, p = 0.013$)				
New South Wales	386	38.2	6,306	33.4
Victoria	257	25.4	4,732	25.0
Queensland	162	16.0	3,605	19.1
South Australia	70	6.9	1,599	8.5
Western Australia	89	8.8	1,740	9.2
Tasmania	19	1.9	502	2.7
Australian Capital Territory	19	1.9	290	1.5
Northern Territory	9	0.9	128	0.7
RRMA ($\chi^2 = 10.4, p = 0.11$)				
Capital	675	66.8	12,498	66.1
Other metropolitan	101	10.0	1,460	7.7
Large rural	56	5.5	1,177	6.2
Small rural	62	6.1	1,298	6.9
Other rural	104	10.3	2,166	11.5
Remote centre	4	0.4	136	0.7
Other remote	9	0.9	167	0.9

(a) Missing data removed.

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

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

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

Table 3.3: 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 2008–09

Variable	Sample frame (all Australia) ^(a) 2008–09		Sample from Medicare claims data ^(b) 2008–09		BEACH participants 2008–09	
	Number	Per cent of GPs	Number	Per cent of GPs	Number	Per cent of GPs
Sex (missing)	(0)		(2)		(0)	
Males	11,923	63.1	2,541	70.7	682	67.5
Females	6,979	36.9	1,055	29.3	329	32.5
Age (missing)	(0)		(1)		(4)	
< 35 years	1,509	8.0	122	3.4	26	2.6
35–44 years	4,081	21.6	591	16.4	141	14.0
45–54 years	6,305	33.4	1,337	37.2	378	37.5
55+ years	7,007	37.0	1,547	43.0	462	45.9
Total	18,902	100.0	3,598	100.0	1,011	100.0

(a) Sample frame—all recognised (see Glossary) general practitioners 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

Table 3.4: 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 for 1998–2009

Variable	Sample frame (all Australia) ^{(a)(c)} Total for 1998–2009		Total DoHA samples combined for 1998–2009 ^{(b)(c)}		Total BEACH participants 1998–2009 ^(c)	
	Number	Per cent of GPs	Number	Per cent of GPs	Number	Per cent of GPs
Sex (missing)	(–) ^(d)		(3)		(0)	
Males	117,409	66.9	25,485	67.6	6,559	66.4
Females	57,995	33.1	12,209	32.4	3,315	33.6
Age (missing)	(–) ^(d)		(3,437)		(57)	
< 35 years	18,774	10.7	3,371	9.8	688	7.0
35–44 years	47,240	26.9	8,998	26.3	2,642	26.9
45–54 years	57,861	33.0	11,923	34.8	3,390	34.6
55+	51,617	29.4	9,968	29.1	3,097	31.5
Total	175,492^(d)	100.0	37,697	100.0	9,874	100.0

(a) Sample frame—all recognised (see Glossary) general practitioners 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.

(c) Missing data removed.

(d) Total missing unknown.

Data on the number of MBS general practice consultation 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 was no difference between the proportions of participants and non-participants in any of the services group. There was a significant difference ($p = 0.0037$) in the mean number of consultation items claimed by participants (1,295.2 claims for the quarter) compared with the GPs who declined to participate (1,367.2 for the quarter) (Table 3.5). Comparisons of the median number of claims for each group showed a difference of fewer than seven consultations per week, and a difference of 5.5 consultations per week in the mean scores. It is possible that the time required to participate in BEACH may be a greater issue for busier GPs. BEACH also may offer an avenue for fulfilling RACGP Clinical Audit requirements to part-time GPs who may not be as able to take up other avenues. It cannot be assumed, however, that a GP seeing 20 patients per day 3 days per week is any less ‘busy’ than a GP seeing 20 patients per day 5 days per week.

Table 3.5: Activity level of participating and non-participating GPs

Variable	Participants ^(a) (<i>n</i> = 1,011)		Non-participants ^(a) (<i>n</i> = 2,086)	
	Number of GPs	Per cent	Number of GPs	Per cent
Activity ($\chi^2 = 5.56, p = 0.062$)				
375–750 services in previous quarter	199	19.7	370	17.7
750–1,500 services in previous quarter	508	50.2	1,085	48.4
> 1,500 services in previous quarter	304	30.1	725	34.2
	Number of claims		Number of claims	
Mean activity level ($t = 2.90, p = 0.0037$)	1,295.2	—	1,367.2	—
Median activity level	1,140	—	1,226.5	—
Standard deviation	630.3	—	680.0	—

(a) Missing data removed.

3.3 Weighting the data

Age-sex weights: As described above in Section 3.2, sampling bias resulted in male GPs and those in the older age groups being over-represented among BEACH participants for 2008–09. In order 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 consultation 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 3.6 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 2008–09 study period (data provided by DoHA).

As shown in Table 3.6, there is an excellent fit of the MBS and BEACH age-sex distribution both with and without weighting, with only one age-sex category (males aged 1–4 years) varying by more than 20% from the population distribution. The range of raw precision ratios (0.84–1.23) 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 0.89–1.18 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 3.6: Age-sex distribution of patients at BEACH and MBS GP consultation service items

Sex/age	BEACH-Raw ^(a)		BEACH-Weighted ^(b)		Australia ^(c)	Precision ratios	
	Number	Per cent (n = 85,770)	Number	Per cent (n = 82,579)	Per cent	Raw ^(a)	Weighted ^(c)
Male							
< 1 year	935	1.1	934	1.1	1.2	1.06	1.02
1–4 years	1,937	2.3	1,946	2.4	2.8	1.23	1.18
5–14 years	2,367	2.8	2,397	2.9	3.3	1.19	1.13
15–24 years	2,433	2.8	2,450	3.0	3.3	1.16	1.11
25–44 years	6,224	7.3	6,324	7.7	8.6	1.18	1.12
45–64 years	10,290	12.0	10,224	12.4	11.8	0.99	0.96
65–74 years	5,440	6.3	5,239	6.4	5.8	0.91	0.91
75+ years	5,223	6.1	4,809	5.8	5.5	0.90	0.94
Female							
< 1 year	806	0.9	807	1.0	1.0	1.06	1.02
1–4 years	1,754	2.1	1,760	2.1	2.4	1.19	1.15
5–14 years	2,262	2.6	2,312	2.8	3.1	1.19	1.12
15–24 years	4,735	5.5	4,766	5.8	6.0	1.08	1.03
25–44 years	11,739	13.7	11,518	14.0	14.5	1.06	1.04
45–64 years	14,678	17.1	13,794	16.7	15.6	0.91	0.94
65–74 years	6,765	7.9	6,145	7.4	6.7	0.84	0.89
75+ years	8,182	9.5	7,155	8.7	8.5	0.89	0.98

(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 Australian Government 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.

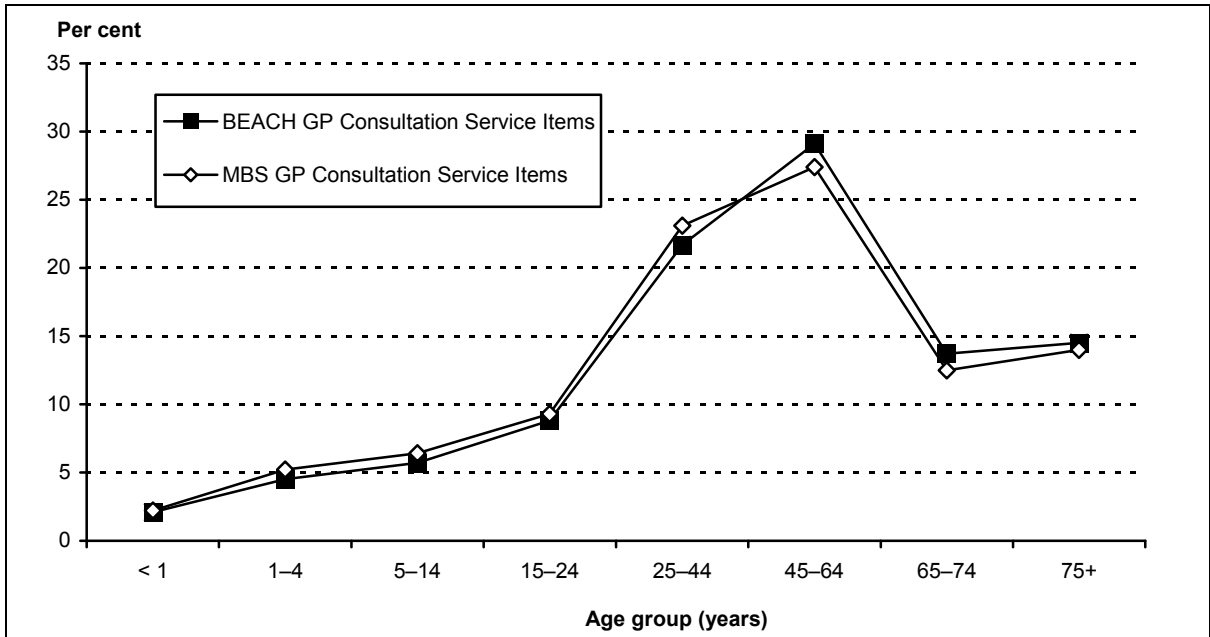


Figure 3.1: Age distribution of all patients at BEACH and MBS GP consultation services 2008-09

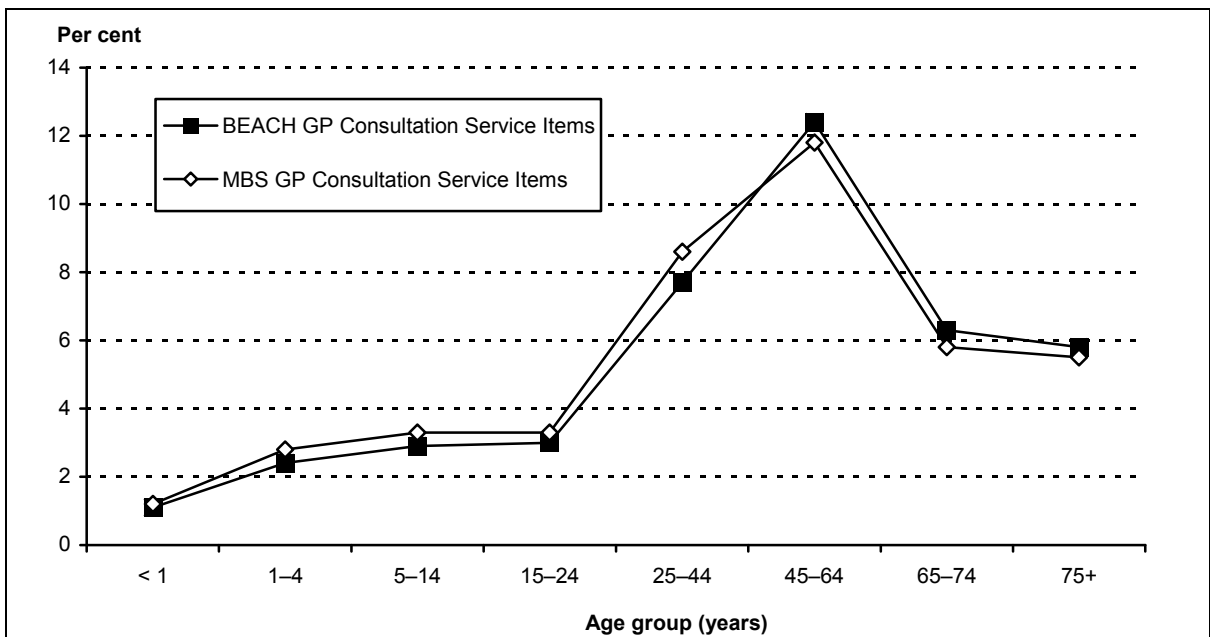
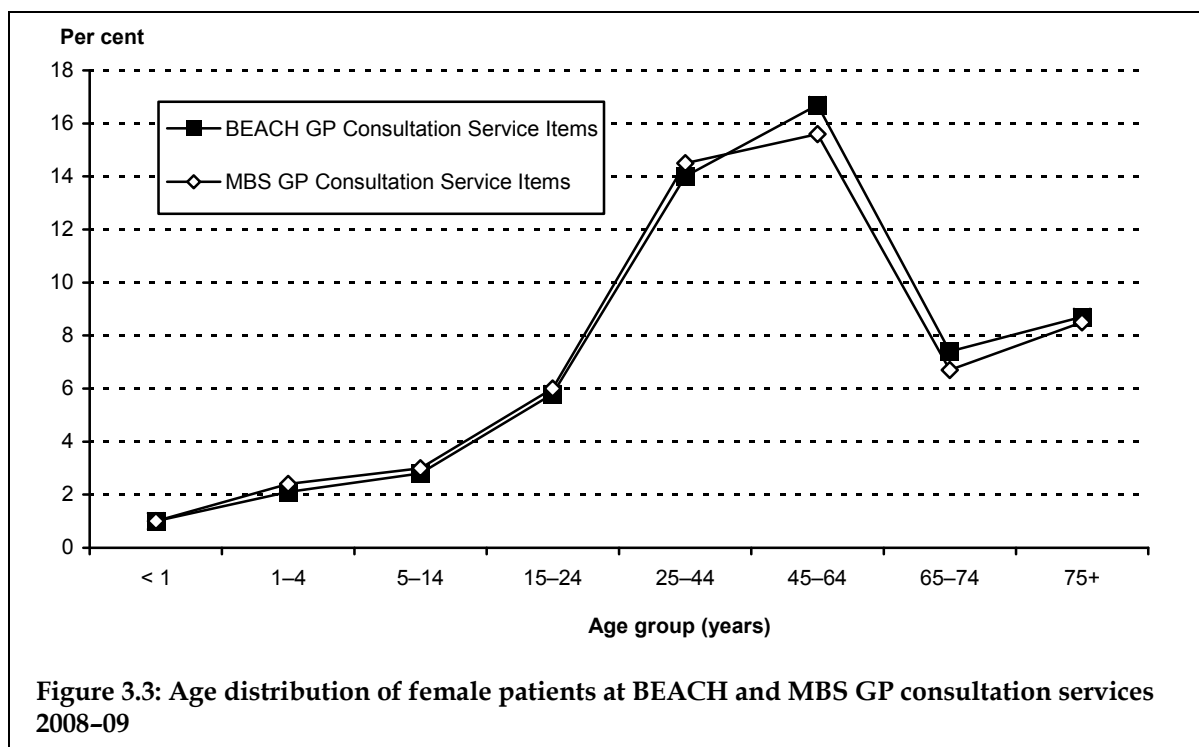


Figure 3.2: Age distribution of male patients at BEACH and MBS GP consultation services 2008-09



3.5 The weighted data set

The final unweighted data set from the 10th 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 3.7.

Table 3.7: The BEACH data set, 2008-09

Variable	Raw	Weighted
General practitioners	1,011	1,011.1
Encounters	101,100	96,687.7
Reasons for encounter	158,909	151,281.8
Problems managed	159,412	149,462.2
Medications	108,545	102,737.1
Other treatments ^(a)	56,286	49,047.6
Referrals	14,420	13,251.1
Imaging	10,105	9,469.3
Pathology	48,533	44,066.2
Other investigations	1,043	953.7

(a) Other treatments excludes injections for immunisations/vaccinations (n = 4,440) (see Chapter 10).

4 The participating GPs

This chapter reports data collected between April 2008 and March 2009 about the participating GPs and their practices from the 11th year of the BEACH program. Data on GP and practice characteristics are reported for each year from 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 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 1,011 participants:

- 68% were male, and 46% were aged 55 years and over
- more than 70% had been in general practice for more than 20 years
- 74% had graduated in Australia
- 24% conducted some consultations in a language other than English
- 40% were Fellows of the RACGP
- 78% worked 6–10 clinical sessions per week, 12% worked fewer than six sessions per week, and only 10% worked more than 10 sessions per week.
- 43% spent more than 40 hours each week on direct patient care services
- 55% had provided care in a residential aged care facility in the previous month
- more than 60% were in practices of fewer than five full-time equivalent GPs
- 73% practised in major cities (classified using the Australian Standard Geographical Classification)
- 85% worked in an accredited practice
- 68% worked in a practice that employed practice nurse(s)
- 43% worked in a practice that provided their own or cooperative after-hours care, and 58% in a practice that used a deputising service for after-hours patient care (multiple responses allowed)
- 55% worked in a teaching practice for undergraduates, junior doctors, registrars, or both
- 25% bulk-billed Medicare for all patients; 47% bulk-billed for all consultations with pensioner/Commonwealth concession cardholders, and 34% bulk-billed for all consultations with children (multiple responses allowed).

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*.⁴⁹

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*.⁵⁰

Table 4.1: Characteristics of participating GPs and their practices

GP characteristic	Number^(a)	Per cent of GPs^(a) (n = 1,011)
Sex (missing = 0)		
Male	682	67.5
Female	329	32.5
Age (missing = 4)		
< 35 years	26	2.6
35–44 years	141	14.0
45–54 years	378	37.5
55+ years	462	45.9
Years in general practice (missing = 6)		
< 2 years	1	0.1
2–5 years	34	3.4
6–10 years	57	5.7
11–19 years	194	19.3
20+ years	719	71.5
Size of practice—full-time equivalent GPs (missing = 8)		
< 2	197	19.6
2–4	430	42.9
5–9	295	29.4
10+	81	8.1
Practice location by RRMA (missing = 0)		
Capital	675	66.8
Other metropolitan	101	10.0
Large rural	56	5.5
Small rural	62	6.1
Other rural	104	10.3
Remote central	4	0.4
Other remote, offshore	9	0.9
Practice location by ASGC remoteness structure (missing = 0)		
Major cities	742	73.4
Inner regional	182	18.0
Outer regional	73	7.2
Remote	9	0.9
Very remote	5	0.5
Place of graduation (missing = 2)		
Australia	750	74.3
United Kingdom	104	10.3
Asia	84	8.3
Europe	19	1.9
Africa	38	3.8

(continued)

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

GP characteristic	Number^(a)	Per cent of GPs^(a) (n = 1,011)
Consult in languages other than English (missing = 3)		
< 25% of consultations	177	17.5
25–50% of consultations	35	3.5
> 50% of consultations	30	3.0
Currently in general practice training program (missing = 4)	15	1.5
Fellow of RACGP (missing = 7)	399	39.7
Fellow of ACRRM (missing = 20)	79	8.0
Accredited practice (missing = 2)	862	85.4
Practice nurse at major practice address (missing = 0)	705	67.7
Sessions per week (missing = 6)		
< 6 per week	125	12.4
6–10 per week	784	78.0
11+ per week	96	9.6
Direct patient care hours (worked) per week (missing = 16)		
≤ 10 hours	3	0.3
11–20 hours	73	7.3
21–40 hours	492	49.5
41–60 hours	400	40.2
60+ hours	27	2.7
Patient care provided in previous month ^(b) (missing = 14)		
As a locum	23	2.3
In a deputising service	26	2.6
In a residential aged care facility	545	54.7
As a salaried/sessional hospital medical officer	103	10.3
None of the above	403	40.4
After-hours arrangements ^(b) (missing = 6)		
Practice does own and/or cooperative with other practices	428	42.6
Practice does its own	290	28.9
Cooperative with other practices	152	15.1
Deputising service	582	57.9
Referral to other service (e.g. emergency hospital dept)	159	15.8
Other arrangement	41	4.1
Bulk-billing ^(b) (missing = 1)		
All patients	252	25.0
All pension/Commonwealth concession cardholders	479	47.4
Some pension/Commonwealth concession cardholders	246	24.4
All children	347	34.4
Some children	321	31.8
Selected other patients	561	55.5

(continued)

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

GP characteristic	Number ^(a)	Per cent of GPs ^(a) (<i>n</i> = 1,011)
Major practice a teaching practice ^(b) (missing = 1)		
Not a teaching practice	456	45.1
Yes—for undergraduates	471	46.6
Yes—for junior doctors	67	6.6
Yes—for registrars	285	28.2

(a) Missing data removed.

(b) Multiple responses allowed.

Note: RRMA—Rural, Remote and Metropolitan Areas classification; ASGC—Australian Standard Geographical Classification; RACGP—Royal Australian College of General Practitioners; 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, a decision was made at the beginning of 2008–09 to redesign the GP profile questionnaire so that more comprehensive information could be collected about the uses to which computers are put in a general practice clinical environment. Rather than expand the existing list of questions, awareness of the time constraints currently being experienced by GPs resulted in the decision to discontinue with questions about computer use at the practice level and concentrate on individual GP use. In particular, more specific information was collected about pathology test ordering and receipt of results, and about medical records.

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

- only 5.3% 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
- 77.0% of GPs were producing prescriptions electronically
- 73% were receiving pathology results on line, and three in five were producing and printing pathology orders via their clinical software
- 22% were ordering pathology electronically
- more than half (54%) had electronic medical records exclusively (i.e. were paperless)
- over one-third (34%) 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 (<i>n</i> = 1,011) ^(a)	Per cent of GPs with computers (<i>n</i> = 955) ^(a)
Not at all	53	5.3	—
Prescribing	776	77.0	81.3
Internet	711	70.5	74.5
Email	583	57.8	61.1
Pathology ordering (on line)	225	22.3	23.6
Produce/print pathology orders only	577	57.2	60.4
Pathology results receipt (on line)	739	73.3	77.4
Medical records—complete (paperless)	539	53.5	56.4
Partial/hybrid records	345	34.2	36.1
Paper records only	53	5.3	5.5
Missing	3	—	—

(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*.⁵¹ 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*.⁵²

4.3 Changes in characteristics of the GPs over the decade 1999–00 to 2008–09

Changes over the decade 1999–00 to 2008–09 are described in detail in the accompanying report *General practice activity in Australia 1999–00 to 2008–09: 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
- in 2008–09 more GPs worked fewer than 6 sessions per week, and fewer worked more than 10 sessions per week, than a decade earlier
- the proportion of GPs in solo practice and smaller practices decreased significantly, and the proportion of GPs in practices with 5 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 11th year of the BEACH program. Data about the encounters are also reported for each year from 1999–00 to 2008–09 in the 10-year report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

5.1 Content of the encounters

In 2008–09, details of 96,688 encounters (weighted data) were available at 1,011 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 157 RFEs and GPs managed about 155 problems per 100 encounters.
- Chronic problems accounted for 36% of all problems managed, managed at a rate of 55 chronic problems per 100 encounters.
- New problems accounted for 37% of all problems, being managed at a rate of 57 per 100 encounters.
- Work-related problems accounted for 2% of all problems managed.
- Medications were the most common treatment choice (69 per 100 problems managed). Most of these medications were prescribed (rather than supplied or advised), at a rate of 56 per 100 problems managed.
- Clinical treatments (such as advice and counselling) were provided at a rate of 22 per 100 problems.
- For every 100 problems managed there were nine referrals for care to other providers, most often to medical specialists (six referrals per 100 problems) and less frequently to allied health professionals (three referrals per 100 problems).
- GPs ordered 30 pathology tests and six 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 = 96,688)	95% LCL	95% UCL	Rate per 100 problems (n = 149,462)	95% LCL	95% UCL
General practitioners	1,011	—	—	—	—	—	—
Encounters	96,688	—	—	—	—	—	—
Reasons for encounter	151,282	156.5	154.7	158.2	—	—	—
Problems managed	149,462	154.6	152.6	156.5	—	—	—
New problems	55,459	57.4	56.0	58.7	37.1	36.2	38.0
Work-related	2,733	2.8	2.6	3.0	1.8	1.7	2.0
Chronic problems	53,264	55.1	53.4	56.8	35.6	34.8	36.5
Medications	102,737	106.3	104.0	108.5	68.7	67.5	70.0
Prescribed	83,509	86.4	84.1	88.6	55.9	54.5	57.2
GP-supplied	10,670	11.0	10.2	11.8	7.1	6.6	7.6
Advised OTC	8,557	8.9	8.3	9.4	5.7	5.3	6.1
Other treatments	49,048	50.7	48.5	52.9	32.8	31.5	34.1
Clinical*	32,867	34.0	32.1	35.9	22.0	20.8	23.2
Procedural*	16,181	16.7	16.0	17.5	10.8	10.4	11.3
Referrals	13,251	13.7	13.2	14.2	8.9	8.6	9.2
Specialist*	8,699	9.0	8.7	9.3	5.8	5.6	6.0
Allied health services*	3,745	3.9	3.6	4.1	2.5	2.3	2.7
Hospital*	317	0.3	0.3	0.4	0.2	0.2	0.2
Emergency department*	199	0.2	0.2	0.2	0.1	0.1	0.2
Other medical services*	48	0.1	0.0	0.1	0.0	0.0	0.0
Other referrals*	243	0.3	0.2	0.3	0.2	0.1	0.2
Pathology	44,066	45.6	43.8	47.4	29.5	28.4	30.5
Imaging	9,469	9.8	9.4	10.2	6.3	6.1	6.6
Other investigations	954	1.0	0.9	1.1	0.6	0.6	0.7

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

From the 2005–06 BEACH data year, changes to the BEACH form were made 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 Table 5.3 and Table 5.4 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 5.5 provides a breakdown of all item numbers recorded by the GPs. Chapter 13 gives a more specific description for each of the practice nurse Medicare item numbers recorded.

Table 5.2 provides an overview of the MBS/DVA item numbers recorded in BEACH in 2008–09. Overall there were 86,118 encounters where at least one MBS/DVA item number was recorded. A single item number was recorded at three-quarters of BEACH encounters said to be claimable from the MBS/DVA.

Table 5.2: Overview of MBS items recorded

Variable	Number	Per cent of encounters
Encounters at which one MBS item was recorded	64,602	75.0
Encounters at which two MBS items were recorded	20,178	23.4
Encounters at which three MBS items were recorded	1,337	1.6
Total encounters at which at least one item was recorded	86,118	100.0

Table 5.3 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 98.6% of all encounters.
- Indirect encounters (where the patient was not seen by the GP) accounted for 1.4% of all encounters.
- Direct encounters where the GP indicated that no charge was made occurred infrequently, at a rate of 0.5 per 100 encounters.
- About 95% of all direct encounters were claimable either through Medicare or the DVA.
- Encounters payable through workers compensation accounted for 2.2% of encounters.
- Encounters payable through other sources (including hospital paid encounters) accounted for 0.8% of encounters.

Table 5.3: Type of encounter

Type of encounter	Number	Per cent of all encounters ^(a) (n = 96,688)	95% LCL	95% UCL	Per cent of direct encounters (n = 89,185)
General practitioners	1,011	—	—	—	—
Indirect encounters ^(b)	1,303	1.4	1.2	1.7	—
Practice nurse only items (indirect encs)	9	0.0	0.0	0.0	—
Direct encounters	89,185	98.6	98.3	98.8	100.0
No charge	424	0.5	0.4	0.6	0.5
MBS/DVA items of service (all) ^{(b)(c)}	86,118	95.2	94.8	95.6	—
MBS/DVA items of service (GPs only) ^(b)	86,069	95.1	94.7	95.5	—
MBS/DVA items of service (GPs only and direct encounters)	86,068	95.1	94.7	95.5	96.5
Practice nurse only items (direct encs)	36	0.0	0.0	0.1	0.0
Workers compensation	1,950	2.2	2.0	2.3	2.2
Other paid (hospital, state, etc.)	707	0.8	0.5	1.0	0.8
Practice nurse only items (unspecified)	3	0.0	0.0	0.0	—
<i>Subtotal</i>	<i>90,491</i>	—	—	—	—
Missing	6,197	—	—	—	—
Total encounters	96,688	—	—	—	—

(a) Missing data removed from analysis.

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

(c) Includes 36 indirect encounters at which a practice nurse item only was recorded and 3 unspecified encounters at which a practice nurse item was recorded.

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

Table 5.4 provides a summary of the MBS items recorded in BEACH, counting one item number only, using the same method described for Table 5.3. This provides comparable data about item numbers recorded to those reported in previous years.

- Standard surgery consultations accounted for the majority (84%) of MBS/DVA-claimable consultations, and accounted for 80% of all recorded encounters.
- Almost 8% of MBS/DVA encounters were long surgery consultations.
- Very few recorded encounters occurred in hospitals. Short and prolonged surgery consultations, home visits and residential aged care consultations were all relatively rare.
- Chronic disease management items, health assessments and GP mental health care items were not recorded often. Only 1% of encounters were claimed as GP mental health care items.

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

MBS/DVA item	Number	Rate per 100 encounters ^(a) (n = 96,688)	95% LCL	95% UCL	Per cent of Medicare-paid GP items (n = 86,069)
Short surgery consultations	1,387	1.5	1.3	1.8	1.6
Standard surgery consultations	72,235	79.8	78.9	80.8	83.9
Long surgery consultations	6,588	7.3	6.8	7.8	7.7
Prolonged surgery consultations	389	0.4	0.3	0.6	0.5
Home visits	767	0.9	0.7	1.0	0.9
Hospital	165	0.2	0.1	0.3	0.2
Residential aged care facility	1,082	1.2	0.9	1.5	1.3
Health assessments	295	0.3	0.3	0.4	0.3
Chronic disease management items	811	0.9	0.8	1.0	0.9
Case conferences	12	0.0	0.0	0.0	0.0
GP mental health care	867	1.0	0.8	1.1	1.0
Incentive payments	147	0.2	0.1	0.2	0.2
Other items	1,325	1.5	1.2	1.8	1.5
Surgical	285	0.3	0.2	0.4	0.3
Therapeutic procedures	340	0.4	0.3	0.5	0.4
Acupuncture	261	0.3	0.2	0.4	0.3
Other items	438	0.5	0.2	0.7	0.5
Total MBS/DVA items of service (GPs only)	86,069	95.1	94.7	95.5	100.0

(a) Missing data removed from analysis.

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

Table 5.5 provides the distribution of all Medicare item numbers recorded across Medicare item number groups. Overall, there were 108,970 MBS item numbers recorded in BEACH in 2008–09. 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 94% 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 16% of all items recorded. Items for hospital, residential aged care and home visits were together recorded at one in every 50 encounters (1.8%). Practice nurse items (including practice nurses conducting health assessments) were recorded at 2.2% of all encounters. For a more detailed breakdown of practice nurse item numbers, and related data on practice nurse activity, refer to Chapter 13.

Table 5.5: Medicare item number distribution across item number groups

Items/encounters	All MBS items ^(a)		At least one item recorded ^(b)			
	Number	Per cent	Number	Per cent	95% LCL	95% UCL
Surgery consultations	80,599	74.0	80,599	93.6	93.0	94.2
Hospital, residential aged care and home visits	2,015	1.8	2,015	2.3	2.0	2.7
Health assessments	353	0.3	353	0.4	0.3	0.5
Chronic disease management items (including case conferences)	1,367	1.3	962	1.1	1.0	1.3
Incentive payments	171	0.2	171	0.2	0.2	0.2
Acupuncture	269	0.2	269	0.3	0.2	0.5
Bulk-billed incentive payment	17,825	16.4	17,825	20.7	18.8	22.6
Practice nurse services—health assessments	3	0.0	3	0.0	0.0	0.0
Practice nurse services—other	2,435	2.2	2,415	2.8	2.4	3.2
Allied health items	2	0.0	2	0.0	0.0	0.0
Diagnostic procedures and investigations	438	0.4	431	0.5	0.4	0.6
Therapeutic procedures	429	0.4	429	0.5	0.4	0.6
Surgical operations	1,256	1.2	1,223	1.4	1.2	1.6
Diagnostic imaging services	9	0.0	9	0.0	0.0	0.0
Pathology services	274	0.3	265	0.3	0.2	0.4
GP mental health care items	982	0.9	982	1.1	1.0	1.3
Other items	543	0.5	542	0.6	0.4	0.9
Total items/encounters	108,970	100.0	86,118	—	—	—

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

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

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

5.3 Consultation length

In a subsample of 34,783 BEACH encounters containing start and finish times for all MBS/DVA-claimable encounters, the mean length of consultation in 2008–09 was 14.6 minutes (95% CI: 14.4–14.9). The median length was 13.0 minutes (results not tabled).

For A1 MBS/DVA-claimable encounters, the mean length of consultation in 2008–09 was 14.4 minutes (95% CI: 14.2–14.6), 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 2.4. The determinants of consultation length have been investigated by Britt et al. (2005) in *Determinants of consultation length in Australian general practice*.⁵³

5.4 Changes in the encounters over the decade 1999–00 to 2008–09

An overview of changes in general practice encounters over the decade can be found in the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹ In summary, between 1999–00 and 2008–09 there were increases in:

- the rates of patient reasons for encounter
- the number of problems managed per 100 encounters
 - the number of new problems, and the number of chronic problems managed per 100 encounters
- the number of GP-supplied medications, procedures, referrals (in particular to specialists and allied health professionals), and orders for pathology, imaging and other investigations per 100 encounters.

Decreases over the 10 years occurred in the rate of prescribed medications and referrals to hospital. The rates of recorded standard surgery and long surgery consultations decreased, as did home visits. Encounters where health assessments or chronic disease management items were claimable increased.

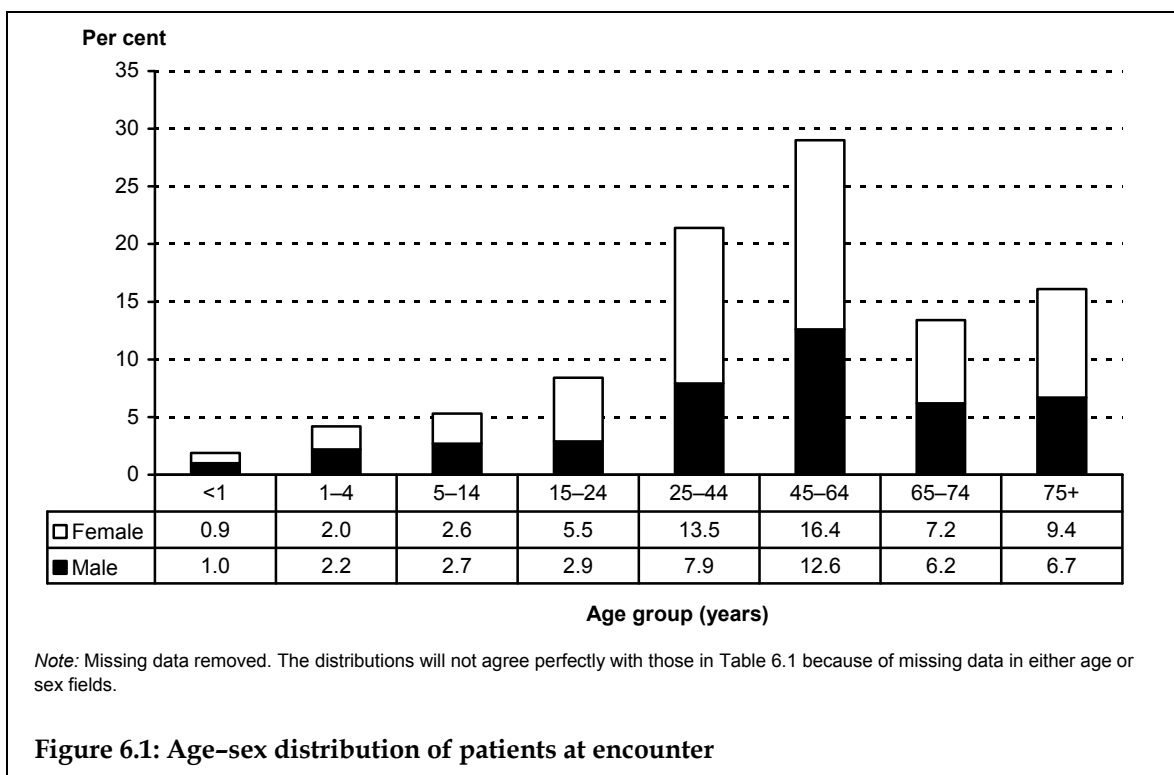
6 The patients

This chapter reports data collected between April 2008 and March 2009 about the characteristics of patients and their reasons for encounter from the 11th year of the BEACH program. Data on patient characteristics and reasons for encounter are reported for each year from 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

6.1 Age–sex distribution of patients at encounter

The age–sex distribution of patients at the 96,688 encounters is shown in Figure 6.1. Females accounted for the greater proportion of encounters (57.6%). This was reflected across all age groups except for children aged less than 15 years (Figure 6.1; Table 6.1).

Patients aged less than 25 years accounted for 19.9% of encounters; those aged 25–44 years accounted for 21.4% of encounters; patients aged 45–64 years accounted for 29.1% and those aged 65 years and over accounted for 29.6% of encounters (Table 6.1).



The relationship between patient age, patient general practice attendance rates and the age distribution of the Australian population is reported in Chapter 4 of *General practice in Australia, health priorities and policies 1998 to 2008*.⁵⁴

6.2 Other patient characteristics

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

- the patient was new to the practice at 5.9% of encounters.
- nearly half the encounters were either with patients who held a Commonwealth concession card (45.7%) or were with patients who held a Repatriation health card (2.9%).
- at 10.4% of encounters the patient was from a non-English-speaking background.
- at 0.8% 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 = 96,688)	95% LCL	95% UCL
Sex (missing) ^(a)	(867)			
Males	40,631	42.4	41.5	43.3
Females	55,189	57.6	56.7	58.5
Age group (missing) ^(a)	(704)			
< 1 year	1,881	2.0	1.8	2.1
1–4 years	4,022	4.2	4.0	4.4
5–14 years	5,124	5.3	5.1	5.6
15–24 years	8,092	8.4	8.0	8.9
25–44 years	20,559	21.4	20.7	22.1
45–64 years	27,904	29.1	28.5	29.6
65–74 years	12,878	13.4	12.9	13.9
75+ years	15,525	16.2	15.4	17.0
Other characteristics ^(b)				
New patient to practice	5,625	5.9	5.5	6.3
Commonwealth concession card	40,890	45.7	44.3	47.0
Repatriation health card	2,738	2.9	2.7	3.1
Non-English-speaking background	9,087	10.4	8.7	12.1
Aboriginal person	633	0.7	0.4	0.9
Torres Strait Islander	81	0.1	0.1	0.1
Aboriginal person and Torres Strait Islander	30	0.0	0.0	0.0

(a) Missing data removed.

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

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

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.⁵⁵

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 symptoms 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 151,282 RFEs recorded. At 56.6% of encounters only one RFE was recorded, at 30.3% two RFEs were recorded and at 13.1% of encounters three RFEs were recorded (Table 6.2). Patients presented on average with 156.5 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 = 96,688)	Per cent of encounters	95% LCL	95% UCL
One RFE	54,752	56.6	55.5	57.8
Two RFEs	29,276	30.3	29.6	30.9
Three RFEs	12,659	13.1	12.4	13.8
Total	96,688	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 40.6 per 100 encounters, with requests for prescriptions and test results most frequently recorded. RFEs related to the respiratory system arose at a rate of 22.0 per 100 encounters, those related to the musculoskeletal system were recorded at a rate of 16.1 per 100 encounters, and those relating to skin were recorded at a rate of 15.1 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 = 151,282)	Rate per 100 encounters ^(b) (n = 96,688)	95% LCL	95% UCL
General & unspecified	39,287	26.0	40.6	39.6	41.7
Prescription—NOS	8,558	5.7	8.9	8.4	9.3
Results tests/procedures NOS	6,279	4.2	6.5	6.1	6.9
Check-up—general*	4,036	2.7	4.2	3.9	4.5
Immunisation/vaccination NOS	2,650	1.8	2.7	2.5	3.0
Administrative procedure NOS	2,024	1.3	2.1	1.9	2.3
Fever	1,811	1.2	1.9	1.7	2.1
Weakness/tiredness	1,429	0.9	1.5	1.4	1.6
Blood test NOS	1,148	0.8	1.2	1.0	1.3
Other referrals NEC NOS	919	0.6	1.0	0.9	1.0
Pain, chest NOS	879	0.6	0.9	0.8	1.0
Observation/health education/advice/diet NOS	859	0.6	0.9	0.8	1.0
Other reason for encounter NEC	816	0.5	0.8	0.7	1.0
Trauma/injury NOS	809	0.5	0.8	0.8	0.9
Clarify/discuss patient RFE/demand NOS	744	0.5	0.8	0.7	0.9
Respiratory	21,312	14.1	22.0	21.2	22.9
Cough	6,527	4.3	6.8	6.3	7.2
Throat complaint	3,082	2.0	3.2	2.9	3.5
Immunisation/vaccination—respiratory	2,280	1.5	2.4	2.0	2.7
Upper respiratory tract infection	2,209	1.5	2.3	2.0	2.6
Nasal congestion/sneezing	1,258	0.8	1.3	1.1	1.5
Shortness of breath/dyspnoea	744	0.5	0.8	0.7	0.8
Asthma	711	0.5	0.7	0.7	0.8
Musculoskeletal	15,529	10.3	16.1	15.5	16.6
Back complaint*	3,001	2.0	3.1	2.9	3.3
Shoulder complaint	1,315	0.9	1.4	1.3	1.5
Knee complaint	1,282	0.8	1.3	1.2	1.4
Foot/toe complaint	1,064	0.7	1.1	1.0	1.2
Leg/thigh complaint	999	0.7	1.0	1.0	1.1
Neck complaint	881	0.6	0.9	0.8	1.0
Injury musculoskeletal NOS	712	0.5	0.7	0.7	0.8
Skin	14,626	9.7	15.1	14.6	15.6
Rash*	2,538	1.7	2.6	2.5	2.8
Skin complaint	1,430	0.9	1.5	1.4	1.6
Check-up—skin*	1,232	0.8	1.3	1.1	1.5
Swelling*	1,081	0.7	1.1	1.0	1.2

(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 = 151,282)	Rate per 100 encounters ^(b) (n = 96,688)	95% LCL	95% UCL
Cardiovascular	11,087	7.3	11.5	10.9	12.0
Check-up—cardiovascular*	5,332	3.5	5.5	5.1	5.9
Hypertension/high blood pressure*	2,064	1.4	2.1	1.9	2.4
Prescription—cardiovascular	729	0.5	0.8	0.6	0.9
Digestive	9,456	6.3	9.8	9.4	10.1
Abdominal pain*	1,686	1.1	1.7	1.6	1.9
Diarrhoea	1,224	0.8	1.3	1.2	1.4
Vomiting	799	0.5	0.8	0.7	0.9
Psychological	8,377	5.5	8.7	8.2	9.1
Depression*	2,004	1.3	2.1	1.9	2.2
Anxiety*	1,104	0.7	1.1	1.0	1.3
Sleep disturbance	1,070	0.7	1.1	1.0	1.2
Prescription—psychological	725	0.5	0.7	0.6	0.9
Endocrine & metabolic	6,659	4.4	6.9	6.5	7.3
Diabetes (non-gestational)*	1,165	0.8	1.2	1.1	1.3
Prescription—endocrine/metabolic	995	0.7	1.0	0.9	1.1
Check-up—endocrinology*	766	0.5	0.8	0.7	0.9
Female genital system	5,088	3.4	5.3	4.9	5.6
Female genital check-up/Pap smear*	1,966	1.3	2.0	1.8	2.2
Menstrual problems*	692	0.5	0.7	0.6	0.8
Neurological	4,623	3.1	4.8	4.6	5.0
Headache	1,513	1.0	1.6	1.4	1.7
Vertigo/dizziness	1,135	0.8	1.2	1.1	1.3
Ear	3,591	2.4	3.7	3.5	3.9
Ear pain	1,401	0.9	1.4	1.3	1.6
Pregnancy & family planning	2,984	2.0	3.1	2.8	3.3
Urology	2,584	1.7	2.7	2.5	2.8
Eye	2,486	1.6	2.6	2.4	2.7
Blood	1,377	0.9	1.4	1.3	1.6
Male genital system	1,298	0.9	1.3	1.2	1.4
Social	918	0.6	1.0	0.9	1.0
Total RFEs	151,282	100.0	156.5	154.7	158.2

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/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. Nearly half (44.0%) of patient RFEs were expressed in terms of symptoms or complaints (for example, 'tired', 'fever'). RFEs were described in diagnostic terms for 17.8% of RFEs (for example, 'about my diabetes', 'for my depression'). The remaining 38.3% 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	Number	Per cent of total RFEs (n = 151,282)	Rate per 100 encounters ^(a) (n = 96,688)	95% LCL	95% UCL
Symptoms & complaints	66,535	44.0	68.8	67.1	70.5
Diagnosis, diseases	26,873	17.8	27.8	26.4	29.2
Diagnostic & preventive procedures	26,003	17.2	26.9	26.0	27.8
Medications, treatments & therapeutics	14,755	9.8	15.3	14.6	15.9
Results	7,559	5.0	7.8	7.4	8.2
Referral & other RFE	7,231	4.8	7.5	7.0	7.9
Administrative	2,325	1.5	2.4	2.2	2.6
Total RFEs	151,282	100.0	156.5	154.7	158.2

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

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

Most frequent patient reasons for encounter

The 30 most commonly recorded RFEs, listed in order of frequency in Table 6.5, accounted for more than half of all RFEs. In this analysis the specific ICPC-2 chapter to which an across-chapter RFE belongs is disregarded, so that, for example, 'check-up – all' includes all check-ups from all body systems irrespective of whether the type was specified.

Of the top 30 most common RFEs, 19 were descriptive of symptoms such as cough, throat and back complaints and rash. However, four of the top five RFEs reflected requests for a process of care (that is, requests for check-ups, prescriptions, test results and immunisations) and together accounted for a quarter of all RFEs (26.1%) (Table 6.5).

Table 6.5: Most frequent patient reasons for encounter

Patient reason for encounter	Number	Per cent of total RFEs (n = 151,282)	Rate per 100 encounters ^(a) (n = 96,688)	95% LCL	95% UCL
Check-up—all*	14,654	9.7	15.2	14.5	15.8
Prescription—all*	12,171	8.0	12.6	12.0	13.2
Test results*	7,559	5.0	7.8	7.4	8.2
Cough	6,527	4.3	6.8	6.3	7.2
Immunisation/vaccination—all*	5,076	3.4	5.3	4.8	5.7
Throat complaint	3,082	2.0	3.2	2.9	3.5
Back complaint*	3,001	2.0	3.1	2.9	3.3
Rash*	2,538	1.7	2.6	2.5	2.8
Upper respiratory tract infection	2,209	1.5	2.3	2.0	2.6
Hypertension/high blood pressure*	2,064	1.4	2.1	1.9	2.4
Administrative procedure NOS	2,024	1.3	2.1	1.9	2.3
Depression*	2,004	1.3	2.1	1.9	2.2
Fever	1,811	1.2	1.9	1.7	2.1
Abdominal pain*	1,686	1.1	1.7	1.6	1.9
Headache	1,513	1.0	1.6	1.4	1.7
Skin complaint	1,430	0.9	1.5	1.4	1.6
Weakness/tiredness	1,429	0.9	1.5	1.4	1.6
Ear pain	1,401	0.9	1.4	1.3	1.6
Shoulder complaint	1,315	0.9	1.4	1.3	1.5
Knee complaint	1,282	0.8	1.3	1.2	1.4
Sneezing/nasal congestion	1,258	0.8	1.3	1.1	1.5
Diarrhoea	1,224	0.8	1.3	1.2	1.4
Diabetes—all*	1,173	0.8	1.2	1.1	1.4
Blood test NOS	1,148	0.8	1.2	1.0	1.3
Vertigo/dizziness	1,135	0.8	1.2	1.1	1.3
Anxiety*	1,104	0.7	1.1	1.0	1.3
Swelling*	1,081	0.7	1.1	1.0	1.2
Sleep disturbance	1,070	0.7	1.1	1.0	1.2
Foot/toe complaint	1,064	0.7	1.1	1.0	1.2
Leg/thigh complaint	999	0.7	1.0	1.0	1.1
<i>Subtotal</i>	<i>86,034</i>	<i>56.9</i>	—	—	—
Total RFEs	151,282	100	156.5	154.7	158.2

(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.

6.4 Changes in patients and reasons for encounter over the decade 1999–00 to 2008–09

An overview of changes in the patients attending general practice and their reasons for encounter over the decade can be found in Chapter 6 of the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

In summary, between 1999–00 and 2008–09:

- the proportion of encounters with patients aged less than 45 years decreased from 51.4% to 41.3%, which equates to approximately 5.8 million fewer encounters nationally in 2008–09 than ten years earlier
- the proportion of encounters with patients aged 45 years and over increased from 48.6% to 58.7%, which equates to an additional 16.6 million encounters
- the proportion of encounters with patients holding a Commonwealth concession card increased significantly from 38.6% in 1999–00 to 45.7% in 2008–09.

There was a significant increase in the number of RFEs per 100 encounters across the decade, from 148.5 in 1999–00 to 156.5 in 2008–09. Fewer patients were giving single RFEs and more were giving two or three RFEs. This increase in RFEs is probably related to the ageing of the patient population.

An interesting change is the increase in patients' requests for tests and for test results across the decade. This ties in with the increased use of pathology 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. Problems that specifically included management by a practice nurse are reported additionally in Chapter 13.

There are two ways to describe the relative frequency of problems managed: as a percentage of all problems managed in the study, or as a rate of problems managed per 100 encounters. Where groups of problems are reported (for example, cardiovascular problems), it must be remembered that more than one 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, 1.4 per 100 encounters) can be regarded as equivalent to 'asthma is managed at 1.4% 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 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

7.1 Number of problems managed at encounter

There were 149,462 problems managed, at a rate of 154.6 per 100 encounters in 2008–09. 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 27% 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).

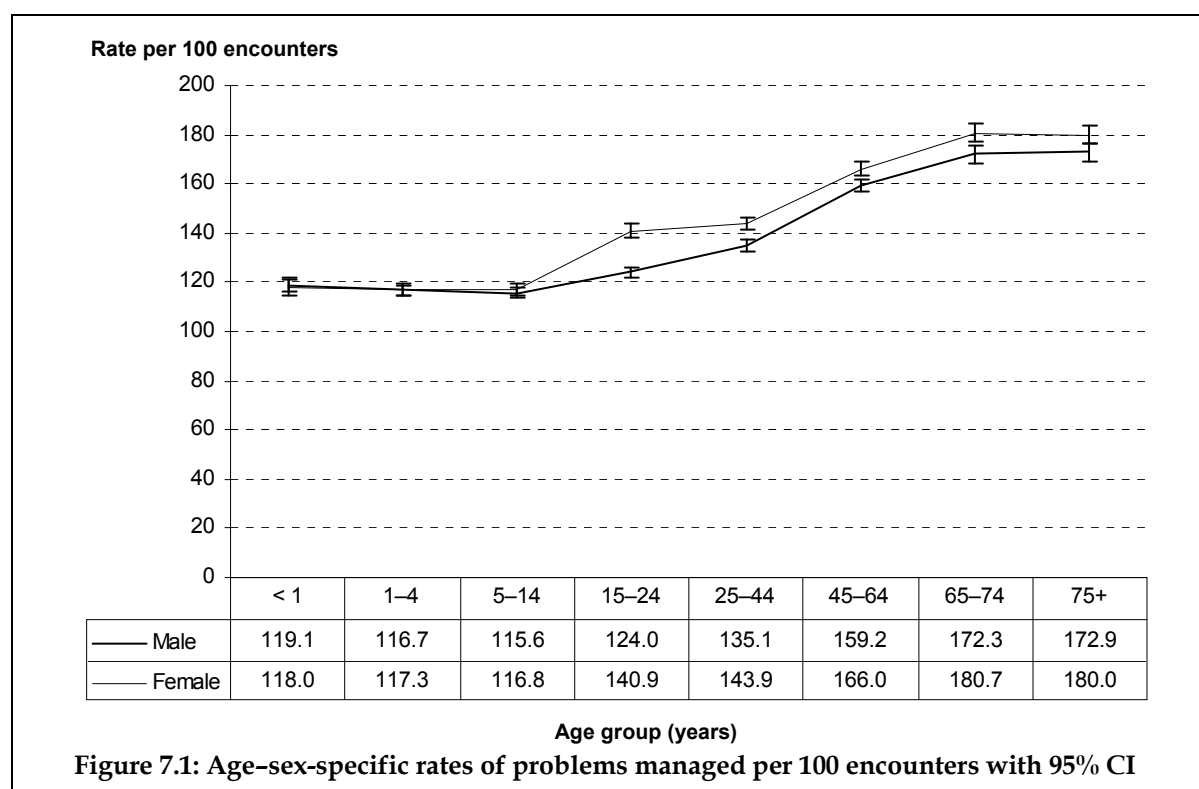
Table 7.1: Number of problems managed at an encounter

Number of problems managed at encounter	Number of encounters	Per cent	95% LCL	95% UCL
One problem	58,746	60.8	59.6	61.9
Two problems	25,858	26.7	26.1	27.4
Three problems	9,334	9.7	9.2	10.1
Four problems	2,750	2.8	2.6	3.1
Total	96,688	100.0	—	—

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

The number of problems managed at encounter increased steadily with the age of the patient. Significantly more problems were managed overall at encounters with female patients (157.8 per 100 encounters, 95% CI: 155.7–160.0) than at those with male patients (150.3 per 100 encounters, 95% CI: 148.3–152.3) (results not tabled).

Figure 7.1 shows the age–sex-specific rates of problems managed, and demonstrates that this difference was particularly evident in the 15–24 year age group.



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 (20.8 per 100 encounters) – in particular upper respiratory tract infection, respiratory immunisations, acute bronchitis and asthma
- cardiovascular problems (such as hypertension and cardiac check-ups)
- musculoskeletal problems (such as arthritis and back complaints)
- problems of a general and unspecified nature (such as immunisations, check-ups and prescriptions)
- skin problems (such as contact dermatitis and solar keratosis/sunburn) (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 = 149,462)	Rate per 100 encounters ^(b) (n = 96,688)	95% LCL	95% UCL
Respiratory	20,112	13.5	20.8	20.2	21.4
Upper respiratory tract infection	5,914	4.0	6.1	5.7	6.6
Immunisation/vaccination—respiratory	2,726	1.8	2.8	2.4	3.2
Acute bronchitis/bronchiolitis	2,550	1.7	2.6	2.4	2.8
Asthma	2,117	1.4	2.2	2.1	2.3
Sinusitis	1,312	0.9	1.4	1.2	1.5
Tonsillitis*	852	0.6	0.9	0.8	1.0
Chronic obstructive pulmonary disease	790	0.5	0.8	0.7	0.9
Cardiovascular	17,933	12.0	18.6	17.8	19.3
Hypertension*	9,787	6.5	10.1	9.6	10.6
Cardiac check-up*	1,263	0.8	1.3	1.1	1.5
Atrial fibrillation/flutter	1,257	0.8	1.3	1.2	1.4
Ischaemic heart disease*	1,230	0.8	1.3	1.2	1.4
Musculoskeletal	16,746	11.2	17.3	16.9	17.8
Arthritis—all*	3,685	2.5	3.8	3.6	4.0
Osteoarthritis*	2,666	1.8	2.8	2.6	2.9
Back complaint*	2,636	1.8	2.7	2.6	2.9
Sprain/strain*	1,374	0.9	1.4	1.3	1.5
Fracture*	910	0.6	0.9	0.9	1.0
Osteoporosis	889	0.6	0.9	0.8	1.0
Bursitis/tendonitis/synovitis NOS	826	0.6	0.9	0.8	0.9
Injury musculoskeletal NOS	815	0.5	0.8	0.7	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 = 149,462)	Rate per 100 encounters^(b) (n = 96,688)	95% LCL	95% UCL
General & unspecified	16,491	11.0	17.1	16.4	17.7
Immunisation/vaccination—general	2,575	1.7	2.7	2.5	2.9
General check-up*	2,375	1.6	2.5	2.3	2.7
Prescription NOS	1,478	1.0	1.5	1.3	1.8
Viral disease, other/NOS	1,143	0.8	1.2	1.0	1.4
Results tests/procedures NOS	1,075	0.7	1.1	1.0	1.2
Abnormal results/investigations NOS	818	0.5	0.8	0.8	0.9
Administrative procedures NOS	738	0.5	0.8	0.7	0.9
Skin	16,426	11.0	17.0	16.5	17.5
Contact dermatitis	1,864	1.2	1.9	1.8	2.0
Solar keratosis/sunburn	1,196	0.8	1.2	1.1	1.4
Malignant neoplasm skin	1,177	0.8	1.2	1.1	1.4
Laceration/cut	884	0.6	0.9	0.8	1.0
Skin disease, other	832	0.6	0.9	0.8	0.9
Endocrine & metabolic	13,026	8.7	13.5	12.9	14
Diabetes, non-gestational*	3,927	2.6	4.1	3.8	4.3
Lipid disorders	3,787	2.5	3.9	3.7	4.2
Vitamin/nutritional deficiency	1,063	0.7	1.1	1.0	1.2
Hypothyroidism/myxoedema	736	0.5	0.8	0.7	0.8
Psychological	11,997	8.0	12.4	11.9	12.9
Depression*	4,112	2.8	4.3	4.0	4.5
Anxiety*	1,867	1.2	1.9	1.8	2.1
Sleep disturbance	1,511	1.0	1.6	1.4	1.7
Tobacco abuse	679	0.5	0.7	0.6	0.8
Digestive	10,128	6.8	10.5	10.2	10.8
Oesophageal disease	2,411	1.6	2.5	2.3	2.7
Gastroenteritis*	1,355	0.9	1.4	1.3	1.5
Female genital system	5,908	4.0	6.1	5.7	6.6
Female genital check-up/Pap smear*	1,956	1.3	2.0	1.8	2.3
Menopausal complaint	781	0.5	0.8	0.7	0.9
Ear	3,757	2.5	3.9	3.7	4.1
Acute otitis media/myringitis	1,048	0.7	1.1	1.0	1.2
Excessive ear wax	808	0.5	0.8	0.8	0.9
Neurological	3,630	2.4	3.8	3.6	3.9
Pregnancy & family planning	3,536	2.4	3.7	3.4	3.9
Pregnancy*	1,232	0.8	1.3	1.1	1.4
Oral contraception*	1,111	0.7	1.1	1.0	1.3

(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 = 149,462)	Rate per 100 encounters^(b) (n = 96,688)	95% LCL	95% UCL
Urology	3,205	2.1	3.3	3.2	3.5
Urinary tract infection*	1,606	1.1	1.7	1.6	1.8
Eye	2,614	1.8	2.7	2.6	2.8
Infectious conjunctivitis	734	0.5	0.8	0.7	0.8
Male genital system	1,980	1.3	2.1	1.9	2.2
Blood	1,401	0.9	1.5	1.3	1.6
Social	573	0.4	0.6	0.5	0.7
Total problems	149,462	100.0	154.6	152.6	156.5

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

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

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

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

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.

In the BEACH program, participating GPs are instructed to record the problem being managed at the encounter at the highest diagnostic level possible using the currently available evidence. As such, almost two-thirds of problems were expressed as diagnoses or diseases (65.2%), with the majority of other problems described as symptoms or complaints (20.8%), or as diagnostic or preventive procedures such as check-ups (9.7%). 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 ‘test result’, or an administrative procedure, or as a ‘prescription’.

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

ICPC-2 component	Number	Per cent of total problems (<i>n</i> = 149,462)	Rate per 100 encounters ^(a) (<i>n</i> = 96,688)	95% LCL	95% UCL
Diagnosis, diseases	97,514	65.2	100.9	99.1	102.6
Symptoms & complaints	31,031	20.8	32.1	31.3	32.9
Diagnostic & preventive procedures	14,452	9.7	15.0	14.2	15.7
Medications, treatments & therapeutics	3,204	2.1	3.3	3.0	3.6
Results	1,475	1.0	1.5	1.4	1.7
Referrals & other RFEs	950	0.6	1.0	0.9	1.1
Administrative	836	0.6	0.9	0.8	1.0
Total problems	149,462	100.0	154.6	152.6	156.5

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

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

7.4 Most frequently managed problems

Overall, there were 154.6 problems managed per 100 encounters. Table 7.4 shows the most frequently managed individual problems in general practice, in decreasing order of frequency. These 30 problems accounted for more than half of all problems managed.

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

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 5.8% of all contacts with diabetes were new diagnoses. In contrast, more than three-quarters of upper respiratory tract infection (URTI) problems were new to the patient, suggesting that the majority of people attend the GP for URTI only once per episode.

The most common problems managed were hypertension (10.1 per 100 encounters), check-ups (6.7), URTI (6.1), immunisation/vaccination (5.7) and depression (4.3) (Table 7.4).

Table 7.4: Most frequently managed problems

Problem managed	Number	Per cent of total problems (n = 149,462)	Rate per 100 encounters^(a) (n = 96,688)	95% LCL	95% UCL	Per cent new problems^(b)
Hypertension*	9,787	6.5	10.1	9.6	10.6	5.0
Check-up—all*	6,478	4.3	6.7	6.3	7.1	37.6
Upper respiratory tract infection	5,914	4.0	6.1	5.7	6.6	76.8
Immunisation/vaccination—all*	5,514	3.7	5.7	5.2	6.2	49.5
Depression*	4,112	2.8	4.3	4.0	4.5	16.2
Diabetes—all*	3,952	2.6	4.1	3.9	4.3	5.8
Lipid disorders*	3,787	2.5	3.9	3.7	4.2	12.5
Arthritis—all*	3,685	2.5	3.8	3.6	4.0	17.8
Back complaint*	2,636	1.8	2.7	2.6	2.9	22.6
Acute bronchitis/bronchiolitis	2,550	1.7	2.6	2.4	2.8	72.5
Oesophageal disease	2,411	1.6	2.5	2.3	2.7	15.3
Asthma	2,117	1.4	2.2	2.1	2.3	17.2
Prescription—all*	2,060	1.4	2.1	1.9	2.4	5.0
Anxiety*	1,867	1.2	1.9	1.8	2.1	20.5
Contact dermatitis	1,864	1.2	1.9	1.8	2.0	45.7
Urinary tract infection*	1,606	1.1	1.7	1.6	1.8	62.6
Sleep disturbance	1,511	1.0	1.6	1.4	1.7	19.3
Test results*	1,475	1.0	1.5	1.4	1.7	30.1
Sprain/strain*	1,374	0.9	1.4	1.3	1.5	60.1
Gastroenteritis*	1,355	0.9	1.4	1.3	1.5	79.7
Sinusitis acute/chronic	1,312	0.9	1.4	1.2	1.5	66.5
Atrial fibrillation/flutter	1,257	0.8	1.3	1.2	1.4	6.1
Pregnancy*	1,232	0.8	1.3	1.1	1.4	39.6
Ischaemic heart disease*	1,230	0.8	1.3	1.2	1.4	7.6
Solar keratosis/sunburn	1,196	0.8	1.2	1.1	1.4	48.2
Malignant neoplasm skin	1,177	0.8	1.2	1.1	1.4	52.9
Viral disease, other/NOS	1,143	0.8	1.2	1.0	1.4	75.7
Oral contraception*	1,111	0.7	1.1	1.0	1.3	17.6
Vitamin/nutritional deficiency	1,063	0.7	1.1	1.0	1.2	32.5
<i>Subtotal</i>	<i>76,776</i>	<i>51.4</i>	—	—	—	—
Total problems	149,462	100.0	154.6	152.6	156.5	37.1

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

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

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 4, <www.aihw.gov.au/publications/index.cfm/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 2008–09, in decreasing order of frequency. Overall, 55,459 problems (37.1% of all problems) were specified as being new, being managed at a rate of 57.4 per 100 encounters.

The far right-hand column of this table shows the proportion of total contacts with this problem reported as being a new problem for the patient. This provides an idea of the incidence of each problem. For example, the 666 new cases of depression represented only 16% of all GP contacts with diagnosed depression, suggesting that more than four out of five contacts for depression were for ongoing management. In contrast, four out of five gastroenteritis cases were first consultations to a medical practitioner for this episode of gastroenteritis. The balance (20%) would have been follow-up consultations for this episode of this problem. This indicates that most patients only require one visit to a GP for the management of an episode of gastroenteritis.

The most common new problems managed were largely acute in nature and included upper respiratory tract infections (4.7 per 100 encounters), immunisations/vaccinations (2.8), acute bronchitis (1.9), general check-ups (1.1) and gastroenteritis (1.1) (Table 7.5).

Table 7.5: Most frequently managed new problems

New problem managed	Number	Per cent of total new problems (n = 55,459)	Rate per 100 encounters^(a) (n = 96,688)	95% LCL	95% UCL	Per cent of this problem^(b)
Upper respiratory tract infection	4,540	8.2	4.7	4.4	5.0	76.8
Immunisation/vaccination—all*	2,727	4.9	2.8	2.5	3.1	49.5
Acute bronchitis/bronchiolitis	1,848	3.3	1.9	1.8	2.1	72.5
General check-up*	1,106	2.0	1.1	1.0	1.3	46.6
Gastroenteritis*	1,079	1.9	1.1	1.0	1.2	79.7
Urinary tract infection*	1,006	1.8	1.0	1.0	1.1	62.6
Sinusitis acute/chronic	872	1.6	0.9	0.8	1.0	66.5
Viral disease, other/NOS	866	1.6	0.9	0.7	1.0	75.7
Contact dermatitis	852	1.5	0.9	0.8	1.0	45.7
Sprain/strain*	825	1.5	0.9	0.8	0.9	60.1
Female genital check-up*	813	1.5	0.8	0.7	1.0	41.6
Acute otitis media/myringitis	746	1.3	0.8	0.7	0.8	71.2
Depression*	666	1.2	0.7	0.6	0.8	16.2
Tonsillitis*	623	1.1	0.6	0.6	0.7	73.1
Malignant neoplasm skin	622	1.1	0.6	0.6	0.7	52.9
Back complaint*	594	1.1	0.6	0.6	0.7	22.6
Solar keratosis/sunburn	577	1.0	0.6	0.5	0.7	48.2
Conjunctivitis, infectious	575	1.0	0.6	0.5	0.7	78.3

(continued)

Table 7.5 (continued): Most frequently managed new problems

New problem managed	Number	Per cent of total new problems (n = 55,459)	Rate per 100 encounters ^(a) (n = 96,688)	95% LCL	95% UCL	Per cent of this problem ^(b)
Excessive ear wax	504	0.9	0.5	0.5	0.6	62.3
Hypertension*	489	0.9	0.5	0.5	0.6	5.0
Abnormal test results*	488	0.9	0.5	0.4	0.6	48.3
Pregnancy*	488	0.9	0.5	0.4	0.6	39.6
Osteoarthritis*	483	0.9	0.5	0.4	0.6	18.1
Lipid disorders*	473	0.9	0.5	0.4	0.6	12.5
Bursitis/tendonitis/synovitis NOS	461	0.8	0.5	0.4	0.5	55.8
Respiratory infection, other	444	0.8	0.5	0.4	0.6	77.6
Test results*	444	0.8	0.5	0.4	0.5	30.1
Fracture*	433	0.8	0.4	0.4	0.5	47.6
Skin disease, other	433	0.8	0.4	0.4	0.5	52.1
Laceration/cut	402	0.7	0.4	0.4	0.5	45.5
<i>Subtotal</i>	<i>26,479</i>	<i>47.7</i>	—	—	—	—
Total new problems	55,459	100.0	57.4	56.0	58.7	—

(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 chronic condition list²⁸ classified according to ICPC-2 was applied to the BEACH data set. More than a third (35.6%) of the problems managed in general practice were chronic in nature. At least one chronic problem was managed at 41.5% of encounters (95% CI: 40.6–42.5), and chronic problems were managed at an average rate of 55.1 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 may be found in Appendix 5.

Table 7.6 shows the most frequently managed chronic problems in Australian general practice in decreasing order of frequency. These 30 chronic problems together accounted for 82.2% of all chronic problems managed, and for 29.3% of all problems managed. The top six chronic problems made up more than half of all chronic problems managed; these were non-gestational hypertension (18.4% of chronic conditions), depressive disorder (7.7%), non-gestational diabetes (7.4%), lipid disorders (7.1%), chronic arthritis (6.7%) and oesophageal disease (4.5%).

Table 7.6: Most frequently managed chronic problems

Chronic problem managed	Number	Per cent of total chronic problems (n = 53,264)	Rate per 100 encounters^(a) (n = 96,688)	95% LCL	95% UCL
Hypertension (non-gestational)**	9,777	18.4	10.1	9.6	10.6
Depressive disorder**	4,082	7.7	4.2	4.0	4.4
Diabetes (non-gestational)**	3,927	7.4	4.1	3.8	4.3
Lipid disorders**	3,787	7.1	3.9	3.7	4.2
Chronic arthritis**	3,569	6.7	3.7	3.5	3.9
Oesophageal disease	2,411	4.5	2.5	2.3	2.7
Asthma	2,117	4.0	2.2	2.1	2.3
Atrial fibrillation/flutter	1,257	2.4	1.3	1.2	1.4
Ischaemic heart disease**	1,230	2.3	1.3	1.2	1.4
Malignant neoplasm of skin	1,177	2.2	1.2	1.1	1.4
Back syndrome with radiating pain**	974	1.8	1.0	0.9	1.1
Osteoporosis	889	1.7	0.9	0.8	1.0
Chronic obstructive pulmonary disease	790	1.5	0.8	0.7	0.9
Hypothyroidism/myxoedema	736	1.4	0.8	0.7	0.8
Heart failure	668	1.3	0.7	0.6	0.8
Migraine	660	1.2	0.7	0.6	0.8
Shoulder syndrome	610	1.1	0.6	0.6	0.7
Obesity (BMI > 30)	590	1.1	0.6	0.5	0.7
Dementia (incl senile, Alzheimer's)	553	1.0	0.6	0.4	0.7
Gout	523	1.0	0.5	0.5	0.6
Schizophrenia	517	1.0	0.5	0.4	0.6
Anxiety disorder**	449	0.8	0.5	0.4	0.5
Vertiginous syndrome	339	0.6	0.4	0.3	0.4
Chronic acne**	336	0.6	0.3	0.3	0.4
Malignant neoplasm prostate	332	0.6	0.3	0.3	0.4
Back syndrome without radiating pain (excluding arthritis and sprains/strains)**	325	0.6	0.3	0.3	0.4
Chronic alcohol abuse	305	0.6	0.3	0.3	0.4
Psoriasis	291	0.5	0.3	0.3	0.3
Phlebitis/thrombophlebitis	287	0.5	0.3	0.3	0.3
Epilepsy	285	0.5	0.3	0.3	0.3
<i>Subtotal</i>	<i>43,793</i>	<i>82.2</i>	—	—	—
Total problems	53,264	100.0	55.1	53.4	56.8

(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, incl—including.

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, workplace exposures or a pre-existing condition that has been significantly exacerbated by work activity or workplace exposure. Work-related problems were managed at a rate of 2.8 per 100 general practice encounters in 2008-09 (Table 7.7).

The most common group of work-related problems were musculoskeletal problems, accounting for almost two-thirds (59.1%) of work-related problems and managed at a rate of 1.7 per 100 general practice encounters. One in ten musculoskeletal problems managed in general practice were work-related. The most common musculoskeletal work-related problems were back complaints (15.5% of work-related problems), sprains and strains (9.8%), unspecified musculoskeletal injury (9.2%) and fractures (3.6%).

Work-related psychological problems accounted for 11.3% of total work-related problems and were managed at a rate of 0.3 per 100 encounters. These psychological problems accounted for only 2.6% of total psychological problems managed in general practice. The most commonly managed work-related psychological problems were depression (4.6% of work-related problems), acute stress reaction (2.3%) and anxiety (2.0%).

Check-ups 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 checks were check-ups classified in the general and unspecified chapter of ICPC-2, including pre-employment and employment check-ups.

Other work-related problems not covered in the above groups accounted for 25.4% of work-related problems and included skin injuries not elsewhere classified (3.5% of work-related problems), lacerations (2.7%) and administrative procedures (1.8%).

Although back complaint was the most commonly managed individual work-related problem (accounting for 15.5% of work-related problems), it accounted for only 16.0% of the management of all back complaints. In contrast, musculoskeletal injury (not otherwise specified) accounted for 9.2% of work-related problems but represented 30.9% of all musculoskeletal injuries (not otherwise specified) managed (Table 7.7).

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

Work-related problem managed	Number	Percentage of total work-related probs (n = 2,733)	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL	Percentage of this problem ^(a)
Musculoskeletal problems	1,614	59.1	1.7	1.5	1.8	9.6
Back complaint*	423	15.5	0.4	0.4	0.5	16.0
Sprain/strain*	269	9.8	0.3	0.2	0.3	19.6
Injury musculoskeletal NOS	252	9.2	0.3	0.2	0.3	30.9
Fracture*	99	3.6	0.1	0.1	0.1	10.9
Shoulder syndrome	69	2.5	0.1	0.1	0.1	12.7
Bursitis/tendonitis/synovitis NOS	63	2.3	0.1	0.0	0.1	7.6
Tennis elbow	60	2.2	0.1	0.0	0.1	24.4
Acute internal knee damage	58	2.1	0.1	0.0	0.1	21.3
Neck symptom/complaint	51	1.9	0.1	0.0	0.1	15.8

(continued)

Table 7.7 (continued): Work-related problems, by type and most frequently managed individual problems

Work-related problem managed	Number	Percentage of total work-related probs (n = 2,733)	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL	Percentage of this problem ^(a)
Psychological problems	308	11.3	0.3	0.3	0.4	2.6
Depression*	126	4.6	0.1	0.1	0.2	3.1
Acute stress reaction	63	2.3	0.1	0.0	0.1	10.7
Anxiety	55	2.0	0.1	0.0	0.1	2.9
Check-up—all*	117	4.3	0.1	0.1	0.2	1.1
General check-up*	96	3.5	0.1	0.1	0.1	4.0
Other work-related problems	694	25.4	0.7	0.6	0.8	0.6
Injury skin, other	94	3.5	0.1	0.1	0.1	17.4
Laceration/cut	74	2.7	0.1	0.1	0.1	8.4
Administrative procedures NOS	50	1.8	0.1	0.0	0.1	6.8
Total work-related problems	2,733	100.0	2.8	2.6	3.0	—

(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: Probs—problems; 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 lipid problems in 2008–09

Lipid disorders are commonly managed in general practice, with 3,787 recorded contacts with the problem, a management rate of 3.9 per 100 encounters with patients in the 2008–09 period (Figure 7.2). This represents approximately 4.4 million encounters at which a lipid problem was managed in general practice across Australia in that year.

Patient age

Patients aged 65–74 years were most likely to have lipid problems managed (7.5 per 100 encounters) followed by patients aged 45–64 years (6.4).

Reasons for encounter

The reason for encounter most often given by these patients was a need for prescriptions (33.8 per 100 lipid encounters). Patients also frequently came for test results, specifically about their lipid disorder, or for a cardiac check-up.

Other problems managed

Hypertension was the comorbidity most often managed with lipid disorders (34.4 per 100 lipid encounters) followed by diabetes (10.4), oesophageal disease (4.8), immunisations/vaccinations (4.0) and osteoarthritis (3.8).

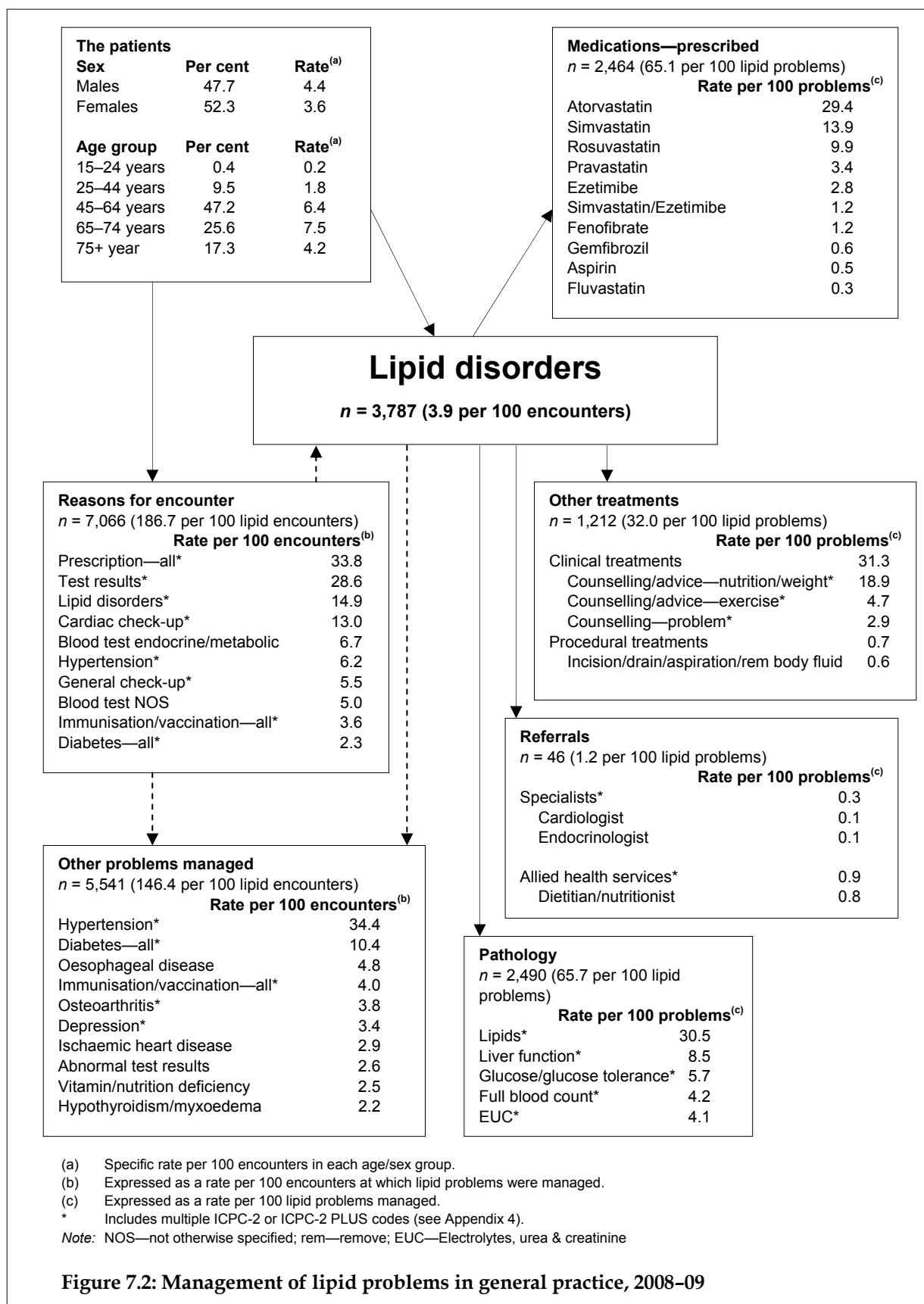


Figure 7.2: Management of lipid problems in general practice, 2008–09

Medications

The rate of prescribed medications was higher in the management of lipid problems (65.1 per 100 problems) than average for all problems (55.9) in the 2008–09 BEACH year.

The most common medication prescribed for lipid disorders was atorvastatin, at a rate of 29.4 per 100 lipid problems, followed by simvastatin (13.9), rosuvastatin (9.9), pravastatin (3.4), and ezetimibe (2.8).

Other treatments

Other treatments were provided at a rate of 32.0 per 100 lipid problems. The majority were clinical treatments (31.3 per 100 lipid problems), of which counselling/advice about nutrition and/or weight (18.9) and exercise (4.7) were the most commonly provided to patients with lipid problems.

Referrals

Referrals for lipid problems were provided at a rate of 1.2 per 100. Referrals to specialists (0.3 per 100) were significantly less common than referrals to allied health professionals (0.9), most of which were to a dietitian or nutritionist.

Pathology

Pathology was ordered at a rate of 65.7 tests/batteries per 100 lipid problems. The majority were lipid tests (30.5), liver function tests (8.5), glucose tolerance (5.7), full blood count (4.2) and electrolytes, urea and creatinine tests (4.1).

7.9 Changes in problems managed over the decade 1999–00 to 2008–09

Data about the problems managed in general practice from each of the last 10 years of the BEACH study from 1999–00 to 2008–09 are reported in the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

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

- There was a significant increase in the number of problems managed at encounter, from 146.7 per 100 encounters in 1999–00 to 154.6 in 2008–09. This suggests there were an additional 24.7 million problems managed at GP encounters in Australia in 2008–09 than in 1999–00. This was reflected in significant increases in the management rate of new problems, and in the management rate of chronic conditions.
- The management rate of new problems increased from 45.3 per 100 encounters in 1999–00 to 57.4 in 2008–09, suggesting approximately 18.5 million more GP contacts with management of new problems in 2008–09 than in 1999–00.
- The management rate of chronic conditions significantly increased from 47.2 per 100 encounters in 1999–00 to 55.1 per 100 in 2008–09, suggesting approximately 14.0 million more GP contacts in Australia in 2008–09 with chronic problems than ten years earlier.

8 Overview of management

The BEACH survey form allowed GPs to record several aspects of patient management for each problem managed at each encounter. Pharmaceutical management 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 1999–00 to 2008–09 are reported for each year in the 10-year report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

At the 96,688 recorded encounters, GPs undertook 219,525 management activities in total. The most common management form was medication, either prescribed, GP-supplied, or advised for over-the-counter purchase. 'Other treatments' were the second most common management activity, with clinical treatments occurring more frequently than procedural treatments (Table 8.1).

For an 'average' 100 GP–patient encounters, GPs provided 86 prescriptions, and 34 clinical treatments, undertook 17 procedures, made 9 referrals to specialists and 4 to allied health services, and placed 46 pathology test orders and 10 imaging test orders.

Table 8.1: Summary of management

Management type	Number	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL	Rate per 100 problems (n = 149,462)	95% LCL	95% UCL
Medications	102,737	106.3	104.0	108.5	68.7	67.5	70.0
Prescribed	83,509	86.4	84.1	88.6	55.9	54.5	57.2
GP-supplied	10,670	11.0	10.2	11.8	7.1	6.6	7.6
Advised OTC	8,557	8.9	8.3	9.4	5.7	5.3	6.1
Other treatments	49,048	50.7	48.5	52.9	32.8	31.5	34.1
Clinical*	32,867	34.0	32.1	35.9	22.0	20.8	23.2
Procedural*	16,181	16.7	16.0	17.5	10.8	10.4	11.3
Referrals	13,251	13.7	13.2	14.2	8.9	8.6	9.2
Specialist*	8,699	9.0	8.7	9.3	5.8	5.6	6.0
Allied health services*	3,745	3.9	3.6	4.1	2.5	2.3	2.7
Hospital*	317	0.3	0.3	0.4	0.2	0.2	0.2
Emergency department*	199	0.2	0.2	0.2	0.1	0.1	0.2
Other medical services*	48	0.1	0.0	0.1	0.0	0.0	0.0
Other referrals*	243	0.3	0.2	0.3	0.2	0.1	0.2
Pathology	44,066	45.6	43.8	47.4	29.5	28.4	30.5
Imaging	9,469	9.8	9.4	10.2	6.3	6.1	6.6
Other investigations ^(a)	954	1.0	0.9	1.1	0.6	0.6	0.7
Total management activities	219,525	227.1	—	—	146.8	—	—

(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 at the surgery.

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

Another perspective emerges in analysis of the number of encounters or problems for which at least one form of management was recorded by the GP (Table 8.2). At least one management action was recorded at 92.2% of encounters and for 86.3% of problems managed.

- At least one medication or other treatment was given for nearly three-quarters of the problems managed.
- At least one medication (most commonly prescribed) was prescribed, supplied or advised for more than half the problems managed.
- At least one other treatment (most commonly clinical) was provided for nearly one-third of problems managed.
- At least one referral (most commonly to a specialist) was made for 9% of problems managed.
- At least one investigation (most commonly pathology) was requested for 18.5% 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 = 96,688)	Number of problems	Per cent of total problems ^(a) (n = 149,462)
At least one management type	89,155	92.2	128,967	86.3
At least one medication or other treatment	79,686	82.4	108,961	72.9
At least one medication	62,929	65.1	81,204	54.3
At least one prescription	52,774	54.6	67,061	44.9
At least one GP-supplied	7,714	8.0	7,908	5.3
At least one OTC advised	8,233	8.5	8,568	5.7
At least one other treatment	38,307	39.6	43,824	29.3
At least one clinical treatment	26,405	27.3	29,840	20.0
At least one procedural treatment	14,536	15.0	15,118	10.1
At least one referral	12,334	12.8	13,228	8.9
At least one referral to a specialist	8,320	8.6	8,795	5.9
At least one referral to allied health	3,585	3.7	3,762	2.5
At least one referral to hospital	317	0.3	331	0.2
At least one referral to emergency department	199	0.2	209	0.1
At least one referral to other medical services	243	0.3	253	0.2
At least one referral NOS	48	0.0	51	0.0
At least one investigation	23,794	24.6	27,640	18.5
At least one pathology order	17,584	18.2	20,310	13.6
At least one imaging order	8,171	8.5	8,464	5.7
At least one other investigation ^(b)	902	0.9	617	0.6

(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 at the surgery.

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

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

- as a single component for almost two-thirds of the problems managed
- as a double component for 19% 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 = 149,462)	Per cent of total encounters (n = 96,688)
No recorded management						9.4	7.8
1+ management recorded						90.6	92.2
✓						37.4	31.4
	✓					9.4	6.9
✓	✓					6.1	10.2
					✓	5.1	2.9
			✓			4.4	3.4
		✓				4.3	3.7
✓					✓	3.2	4.7
✓		✓				2.6	4.3
				✓		2.7	1.7
✓			✓			1.4	3.0
		✓			✓	1.3	1.3
	✓				✓	1.2	1.3
✓				✓		1.0	1.9
	✓		✓			0.9	1.2
✓	✓				✓	0.5	1.7
				✓	✓	0.5	0.6
✓	✓		✓			0.4	1.1
✓		✓			✓	0.3	1.1
	✓	✓				0.3	0.6
	✓			✓		0.3	0.4
			✓		✓	0.3	0.5

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

8.1 Changes in management over the decade 1999–00 to 2008–09

Changes over the decade 1999–00 to 2008–09 are described in detail in the accompanying report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

Briefly, the major changes noted were:

- a significant decrease in the rate at which medications were prescribed
- significant increases in rates of:
 - procedural treatments undertaken
 - referrals made
 - pathology tests ordered
 - imaging tests ordered.

9 Medications

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

- GPs were asked to:
 - enter the generic or brand name, the strength, regimen and number of repeats ordered for each medication
 - designate this as a new or continued medication for 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) from which they were mapped to the international Anatomical Therapeutic Chemical (ATC) classification.⁵⁶
- 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 OTC and some GP-supplied medications which arise in BEACH. Further, some ATC level 5 labels are not specific enough for clarity.

Data on medications are reported for each year from 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 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*.⁵⁷

9.1 Source of medications

As reported in Chapter 8, a total of 102,737 medications were recorded, at rates of 106 per 100 encounters and 69 per 100 problems managed.

- Four out of five medications (81.3% of all medications) were prescribed.
- One in ten (10.4%) medications was supplied to the patient by the GP.
- There were 8.3% of medications recommended by the GP for OTC purchase.

If these results are extrapolated to the 112.3 million general practice Medicare-claimed encounters in Australia in 2008–09, GPs in Australia:

- prescribed medications on more than 97 million occasions
- supplied 12.4 million medications directly to the patient
- recommended medications for OTC purchase on 10.0 million occasions.

9.2 Prescribed medications

There were 83,509 prescriptions recorded, at rates of 86 per 100 encounters and 56 per 100 problems managed. GPs recorded 85.6% of prescribed medications by brand (proprietary) name and 14.4% by their generic (non-proprietary) name (results not tabled).

On a per problem basis:

- no prescription was given for 55.1% of all problems managed
- one prescription was given for 36.6% of problems managed
- two prescriptions were given for 6.1% of problems managed
- three or four prescriptions were given less often (2.1% of problems managed) (Figure 9.1).

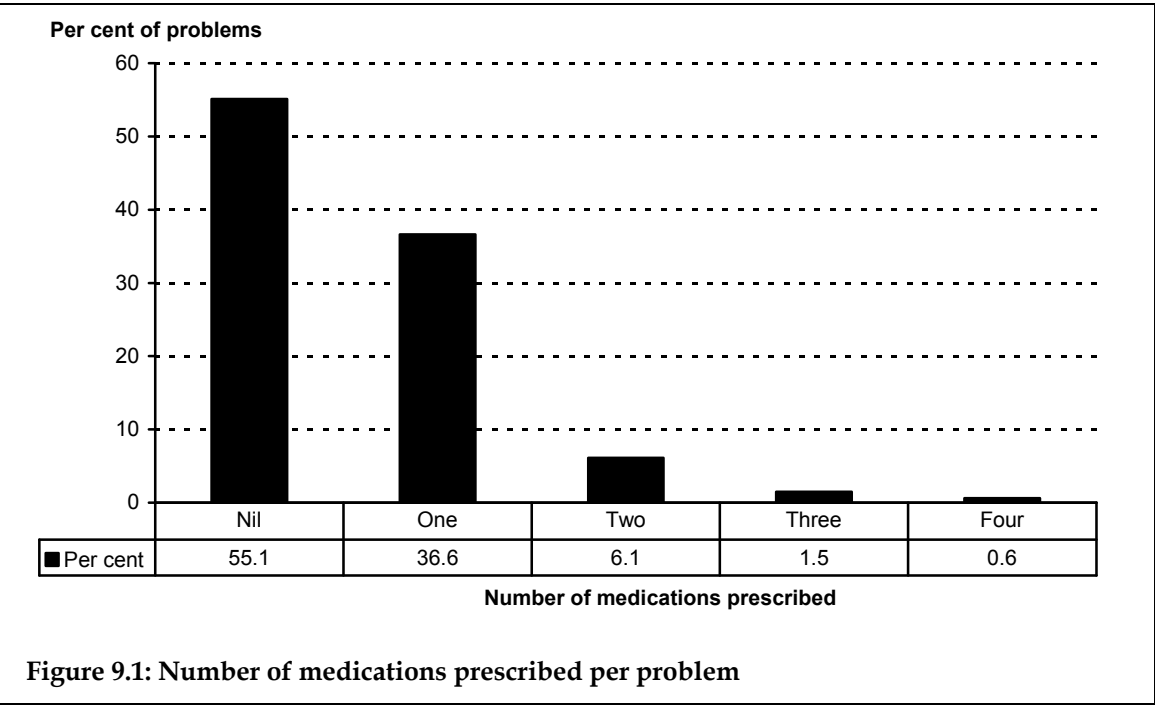
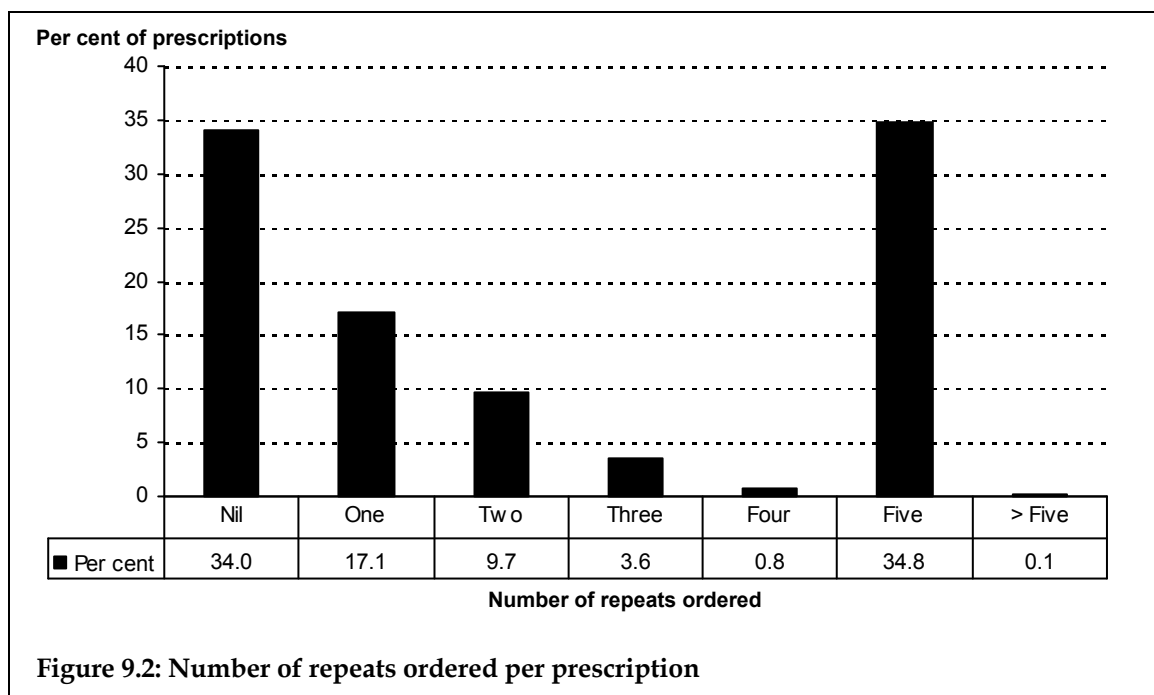


Figure 9.1: Number of medications prescribed per problem

Number of repeats

For 65,104 prescriptions (78.0% 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 34.0% of these prescriptions, the GP specified that no repeats had been prescribed, and for 34.8% five repeats were ordered. The latter proportion reflects the PBS provision of one month’s supply and five repeats for many medications used for chronic conditions such as hypertension. The ordering of one and two repeats (17.1% and 9.7%) was also quite common.



Age–sex-specific rates of prescribed medications

Age–sex-specific analysis found similar prescription rates per 100 encounters for males and females (87.1 and 86.0 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 58 per 100 encounters with patients aged less than 25 years almost doubling to 112 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.

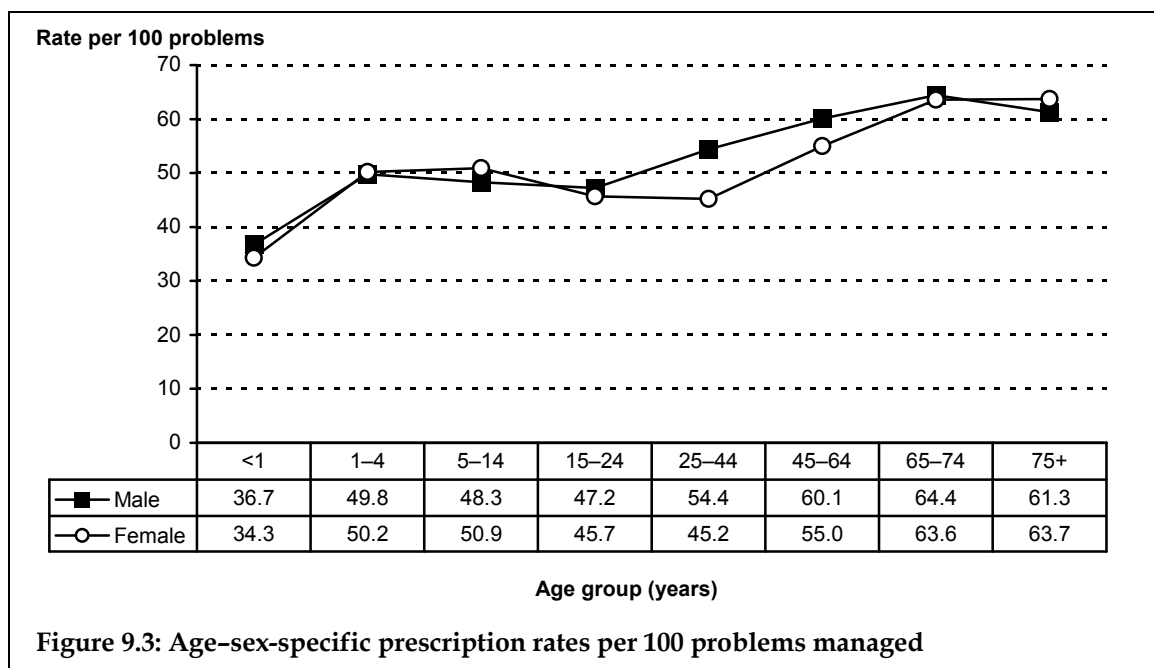


Figure 9.3: Age-sex-specific prescription rates per 100 problems managed

Types of medications prescribed

Table 9.1 shows the distribution of prescribed medications using the WHO ATC classification.⁵⁶ This allows comparison with other data sources such as those produced by Medicare Australia for PBS data. The table lists medications in frequency order within ATC levels 1, 3 and 5. Prescriptions are presented as a percentage of total prescriptions and as a rate per 100 encounters with 95% confidence intervals.

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

ATC Level 1	ATC Level 3	ATC Level 5	Number	Per cent of scripts (n = 83,509)	Rate per 100 encs ^(a) (n = 96,688)	95% LCL	95% UCL
Nervous system			18,208	21.8	18.8	18.1	19.6
	Other analgesics and antipyretics		4,869	5.8	5.0	4.7	5.3
	Paracetamol		2,258	2.7	2.3	2.1	2.5
	Paracetamol, combinations excl. psycholeptics		1,956	2.3	2.0	1.9	2.2
	Acetylsalicylic acid		651	0.8	0.7	0.6	0.8
	Antidepressants		3,495	4.2	3.6	3.4	3.8
	Venlafaxine		619	0.7	0.6	0.6	0.7
	Sertraline		589	0.7	0.6	0.5	0.7
	Opioids		3,103	3.7	3.2	3.0	3.4
	Oxycodone		1,139	1.4	1.2	1.1	1.3
	Tramadol		765	0.9	0.8	0.7	0.9
	Anxiolytics		1,989	2.4	2.1	1.9	2.2
	Diazepam		1,108	1.3	1.2	1.0	1.3
	Oxazepam		603	0.7	0.6	0.5	0.7

(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 scripts (n = 83,509)	Rate per 100 encs^(a) (n = 96,688)	95% LCL	95% UCL
	Hypnotics and sedatives		1,687	2.0	1.7	1.6	1.9
		Temazepam	1,133	1.4	1.2	1.1	1.3
	Antipsychotics		1,171	1.4	1.2	1.1	1.3
		Prochlorperazine	505	0.6	0.5	0.5	0.6
	Drugs used in addictive disorders		695	0.8	0.7	0.6	0.9
	Antiepileptics		665	0.8	0.7	0.6	0.8
	Cardiovascular system		17,340	20.8	17.9	17.0	18.9
	Lipid modifying agents, plain		3,718	4.5	3.9	3.6	4.1
		Atorvastatin	1,791	2.1	1.9	1.7	2.0
		Simvastatin	861	1.0	0.9	0.8	1.0
		Rosuvastatin	553	0.7	0.6	0.5	0.6
	ACE inhibitors, plain		2,652	3.2	2.7	2.6	2.9
		Perindopril	1,305	1.6	1.4	1.2	1.5
		Ramipril	764	0.9	0.8	0.7	0.9
	Angiotensin II antagonists, plain		2,190	2.6	2.3	2.1	2.4
		Irbesartan	973	1.2	1.0	0.9	1.1
		Candesartan	588	0.7	0.6	0.5	0.7
		Telmisartan	525	0.6	0.5	0.5	0.6
	Beta blocking agents		1,916	2.3	2.0	1.8	2.1
		Atenolol	932	1.1	1.0	0.9	1.1
		Metoprolol	532	0.6	0.6	0.5	0.6
	Selective calcium channel blockers with mainly vascular effects		1,649	2.0	1.7	1.6	1.8
		Amlodipine	668	0.8	0.7	0.6	0.8
	Angiotensin II antagonists, combinations		1,336	1.6	1.4	1.3	1.5
		Irbesartan and diuretics	744	0.9	0.8	0.7	0.8
	ACE inhibitors, combinations		644	0.8	0.7	0.6	0.7
	High-ceiling diuretics		605	0.7	0.6	0.6	0.7
		Furosemide	597	0.7	0.6	0.6	0.7
	Selective calcium channel blockers with direct cardiac effects		528	0.6	0.6	0.5	0.6
	Vasodilators used in cardiac diseases		480	0.6	0.5	0.4	0.6
	Antiinfectives for systemic use		16,117	19.3	16.7	16.1	17.2
	Beta-lactam antibacterials, penicillins		6,097	7.3	6.3	6.0	6.6
		Amoxicillin	3,405	4.1	3.5	3.3	3.8
		Amoxicillin and enzyme inhibitor	1,773	2.1	1.8	1.7	2.0
	Other beta-lactam antibacterials		3,248	3.9	3.4	3.2	3.6
		Cefalexin	2,392	2.9	2.5	2.3	2.6
		Cefaclor	765	0.9	0.8	0.7	0.9

(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 scripts (n = 83,509)	Rate per 100 encs ^(a) (n = 96,688)	95% LCL	95% UCL
		Macrolides, lincosamides and streptogramins	2,538	3.0	2.6	2.4	2.8
		Roxithromycin	1,359	1.6	1.4	1.3	1.5
		Clarithromycin	520	0.6	0.5	0.4	0.6
	Viral vaccines		961	1.2	1.0	0.8	1.1
		Influenza, inactivated, whole virus	533	0.6	0.6	0.4	0.7
	Tetracyclines		836	1.0	0.9	0.8	1.0
		Doxycycline	764	0.9	0.8	0.7	0.9
	Sulfonamides and trimethoprim		670	0.8	0.7	0.6	0.8
	Alimentary tract and metabolism		8,107	9.7	8.4	8.0	8.8
	Drugs for peptic ulcer and gastro-oesophageal reflux		3,121	3.7	3.2	3.1	3.4
		Esomeprazole	1,260	1.5	1.3	1.2	1.4
		Pantoprazole	578	0.7	0.6	0.5	0.7
	Blood glucose lowering drugs, excluding insulins		2,361	2.8	2.4	2.2	2.7
		Metformin	1,341	1.6	1.4	1.2	1.5
		Gliclazide	607	0.7	0.6	0.5	0.7
	Propulsives		590	0.7	0.6	0.5	0.7
		Metoclopramide	503	0.6	0.5	0.5	0.6
	Respiratory system		5,018	6.0	5.2	4.9	5.5
	Adrenergics, inhalants		2,776	3.3	2.9	2.7	3.0
		Salbutamol	1,316	1.6	1.4	1.3	1.5
		Salmeterol and other drugs for obstructive airways disease	855	1.0	0.9	0.8	1.0
	Other drugs for obstructive airway diseases, inhalants		817	1.0	0.8	0.8	0.9
	Decongestants and other nasal preparations for topical use		734	0.9	0.8	0.7	0.8
	Musculoskeletal system		4,404	5.3	4.6	4.3	4.8
	Antiinflammatory and antirheumatic products, non-steroid		3,231	3.9	3.3	3.1	3.5
		Meloxicam	901	1.1	0.9	0.8	1.0
		Diclofenac	781	0.9	0.8	0.7	0.9
		Celecoxib	504	0.6	0.5	0.5	0.6
	Drugs affecting bone structure and mineralisation		557	0.7	0.6	0.5	0.6
	Dermatologicals		3,665	4.4	3.8	3.6	4.0
	Corticosteroids, plain		2,339	2.8	2.4	2.3	2.6
		Betamethasone	717	0.9	0.7	0.7	0.8
		Mometasone	651	0.8	0.7	0.6	0.7

(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 scripts (n = 83,509)	Rate per 100 encs ^(a) (n = 96,688)	95% LCL	95% UCL
Genitourinary system and sex hormones			3,207	3.8	3.3	3.1	3.5
	Hormonal contraceptives for systemic use		1,559	1.9	1.6	1.5	1.7
		Levonorgestrel and oestrogen	817	1.0	0.8	0.8	0.9
	Oestrogens		584	0.7	0.6	0.5	0.7
Sensory organs			2,398	2.9	2.5	2.3	2.6
	Anti-infectives		1,019	1.2	1.1	1.0	1.1
		Chloramphenicol	961	1.2	1.0	0.9	1.1
	Corticosteroids and anti-infectives in combination		614	0.7	0.6	0.6	0.7
Blood and blood forming organs			2,250	2.7	2.3	2.2	2.5
	Antithrombotic agents		1,703	2.0	1.8	1.6	1.9
		Warfarin	1,201	1.4	1.2	1.1	1.4
Systemic hormonal preparations, excl sex hormones			2,049	2.5	2.1	2.0	2.3
	Corticosteroids for systemic use, plain		1,205	1.4	1.3	1.1	1.3
		Prednisolone	777	0.9	0.8	0.7	0.9
	Thyroid preparations		726	0.9	0.8	0.7	0.8
		Levothyroxine sodium	720	0.9	0.7	0.7	0.8
Antineoplastic and immunomodulating agents			375	0.5	0.4	0.3	0.4
Various			234	0.3	0.2	0.2	0.3
Antiparasitic products, insecticides and repellent			139	0.2	0.1	0.1	0.2
Total prescribed medications			83,509	100.0	86.4	84.1	88.6

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

Note: ATC—Anatomical Therapeutic Chemical classification; scripts—prescriptions; encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; excl—excluding; ACE—angiotensin-converting enzyme.

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 44.1% of all prescribed medications.

9.3 Medications supplied by GPs

GPs supplied their patients with 10,670 medications in this study, at a rate of 11.0 medications supplied per 100 encounters. At least one medication was supplied at 8.5% of encounters for 5.7% of problems. Table 9.3 shows the most commonly supplied medications at the CAPS generic level (ATC Level 5 equivalent), with vaccines accounting for over two-thirds of this group.

Table 9.2: Most frequently prescribed medications

Generic medication	Number	Per cent of scripts (n = 83,509)	Rate per 100 encounters^(a) (n = 96,688)	95% LCL	95% UCL
Amoxicillin	3,405	4.1	3.5	3.3	3.8
Cephalexin	2,392	2.9	2.5	2.3	2.6
Paracetamol	2,258	2.7	2.3	2.1	2.5
Paracetamol/Codeine	1,833	2.2	1.9	1.8	2.0
Atorvastatin	1,791	2.1	1.9	1.7	2.0
Amoxicillin/potassium clavulanate	1,773	2.1	1.8	1.7	2.0
Roxithromycin	1,359	1.6	1.4	1.3	1.5
Metformin	1,341	1.6	1.4	1.3	1.5
Salbutamol	1,329	1.6	1.4	1.3	1.5
Perindopril	1,305	1.6	1.4	1.2	1.5
Esomeprazole	1,260	1.5	1.3	1.2	1.4
Warfarin sodium	1,201	1.4	1.2	1.1	1.4
Oxycodone	1,139	1.4	1.2	1.1	1.3
Temazepam	1,133	1.4	1.2	1.1	1.3
Diazepam	1,108	1.3	1.2	1.0	1.3
Irbesartan	973	1.2	1.0	0.9	1.1
Chloramphenicol eye	961	1.2	1.0	0.9	1.1
Atenolol	932	1.1	1.0	0.9	1.1
Meloxicam	901	1.1	0.9	0.8	1.0
Simvastatin	861	1.0	0.9	0.8	1.0
Fluticasone/salmeterol	855	1.0	0.9	0.8	1.0
Levonorgestrel/ethinylloestradiol	813	1.0	0.8	0.8	0.9
Cefaclor monohydrate	765	0.9	0.8	0.7	0.9
Tramadol	765	0.9	0.8	0.7	0.9
Doxycycline	764	0.9	0.8	0.7	0.9
Ramipril	764	0.9	0.8	0.7	0.9
Irbesartan/hydrochlorothiazide	744	0.9	0.8	0.7	0.8
Thyroxine	720	0.9	0.7	0.7	0.8
Betamethasone topical	717	0.9	0.7	0.7	0.8
Diclofenac sodium systemic	676	0.8	0.7	0.6	0.8
<i>Subtotal</i>	<i>36,835</i>	<i>44.1</i>	—	—	—
Total prescribed medications	83,509	100.0	86.4	84.1	88.6

(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: Scripts—prescriptions; LCL—lower confidence limit; UCL—upper confidence limit.

Table 9.3: Medications most frequently supplied by GPs

Generic medication	Number	Per cent of supplied meds (n = 10,670)	Rate per 100 encounters^(a) (n = 96,688)	95% LCL	95% UCL
Influenza virus vaccine	2,258	21.2	2.3	2.0	2.7
Pneumococcal vaccine	661	6.2	0.7	0.6	0.8
Papillomavirus (HPV) vaccine	610	5.7	0.6	0.6	0.7
Vitamin B12 (cobalamin)	392	3.7	0.4	0.4	0.5
Mumps/measles/rubella vaccine	322	3.0	0.3	0.3	0.4
Diphtheria/pertussis/tetanus/hepatitis B/ polio/Hib vaccine	314	2.9	0.3	0.3	0.4
Rotavirus vaccine	252	2.4	0.3	0.2	0.3
Haemophilus B vaccine	228	2.1	0.2	0.2	0.3
ADT/CDT (diphtheria/tetanus) vaccine	223	2.1	0.2	0.2	0.3
Polio vaccine oral sabin/injection	190	1.8	0.2	0.2	0.2
Meningitis vaccine	158	1.5	0.2	0.1	0.2
Chickenpox (varicella zoster) vaccine	151	1.4	0.2	0.1	0.2
Diphtheria/pertussis/tetanus/hep B vaccine	138	1.3	0.1	0.1	0.2
Triple antigen (diphtheria/pertussis/tetanus)	133	1.3	0.1	0.1	0.2
Diphtheria/pertussis/tetanus/polio vaccine	132	1.2	0.1	0.1	0.2
Esomeprazole	117	1.1	0.1	0.1	0.2
Metoclopramide	110	1.0	0.1	0.1	0.1
Allergen treatment injection	108	1.0	0.1	0.1	0.1
Meloxicam	107	1.0	0.1	0.1	0.1
Hepatitis B vaccine	97	0.9	0.1	0.1	0.1
Hepatitis A and B vaccine	97	0.9	0.1	0.1	0.1
Betamethasone systemic	95	0.9	0.1	0.1	0.1
Local anaesthetic injection	90	0.8	0.1	0.1	0.1
Typhoid vaccine (salmonella typhi)	80	0.8	0.1	0.1	0.1
Hepatitis A vaccine	73	0.7	0.1	0.1	0.1
Hydrocortisone injection	73	0.7	0.1	0.0	0.1
Medroxyprogesterone	72	0.7	0.1	0.1	0.1
Hepatitis A/salmonella typhi	68	0.6	0.1	0.1	0.1
Salbutamol	63	0.6	0.1	0.0	0.1
Budesonide/eformoterol	61	0.6	0.1	0.0	0.1
<i>Subtotal</i>	<i>7,473</i>	<i>70.0</i>	<i>.</i>	<i>.</i>	<i>.</i>
Total medications supplied	10,670	100.0	11.0	10.3	11.8

(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: Meds—medications; LCL—lower confidence limit; UCL—upper confidence limit.

9.4 Medications advised for over-the-counter purchase

The GPs recorded 8,557 medications as recommended for OTC purchase, at rates of 8.9 per 100 encounters and 5.7 per 100 problems managed. At least one OTC medication was recorded as advised at 8.0% of encounters and for 5.3% 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 (26.2%).

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

Generic medication	Number	Per cent of OTC (n = 8,557)	Rate per 100 encounters ^(a) (n = 96,688)	95% LCL	95% UCL
Paracetamol	2,243	26.2	2.3	2.0	2.6
Ibuprofen	498	5.8	0.5	0.4	0.6
Diclofenac topical	184	2.2	0.2	0.2	0.2
Sodium chloride topical nasal	166	1.9	0.2	0.1	0.2
Aspirin	145	1.7	0.2	0.1	0.2
Sodium/potassium/citric/glucose	140	1.6	0.1	0.1	0.2
Clotrimazole topical	139	1.6	0.1	0.1	0.2
Cetirizine	136	1.6	0.1	0.1	0.2
Paracetamol/Codeine	132	1.5	0.1	0.1	0.2
Loratadine	125	1.5	0.1	0.1	0.2
Fexofenadine	123	1.4	0.1	0.1	0.2
Ergocalciferol (Vit D analogue)	118	1.4	0.1	0.1	0.2
Folic acid	104	1.2	0.1	0.1	0.2
Saline bath/Solution/Gargle	96	1.1	0.1	0.1	0.1
Clotrimazole vaginal	86	1.0	0.1	0.1	0.1
Hydrocortisone/clotrimazole	103	1.2	0.1	0.1	0.1
Glucosamine	82	1.0	0.1	0.1	0.1
Simple analgesics	79	0.9	0.1	0.1	0.1
Cream/Ointment/Lotion NEC	77	0.9	0.1	0.0	0.1
Bromhexine	75	0.9	0.1	0.1	0.1
Sorbolene/glycerol/cetomacrogol	75	0.9	0.1	0.1	0.1
Sodium bicarbonate/citrate/tartaric acid	72	0.8	0.1	0.1	0.1
Hyoscine butylbromide	70	0.8	0.1	0.1	0.1
Ducosate otic	70	0.8	0.1	0.1	0.1
Loperamide	68	0.8	0.1	0.1	0.1
Cold and flu medication NEC	68	0.8	0.1	0.0	0.1
Hydrocortisone topical	60	0.7	0.1	0.0	0.1
Codeine phosphate/Ibuprofen	60	0.7	0.1	0.0	0.1

(continued)

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

Generic medication	Number	Per cent of OTC (n = 8,557)	Rate per 100 encounters^(a) (n = 96,688)	95% LCL	95% UCL
Ferrous sulphate	59	0.7	0.1	0.0	0.1
Budesonide topical nasal	59	0.7	0.1	0.0	0.1
<i>Subtotal</i>	<i>5,510</i>	<i>64.4</i>	—	—	—
Total medications advised	8,557	100.0	8.9	8.3	9.5

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

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

9.5 Opioids prescribed or supplied in 2008–09

Medications from the opioid group (ATC code N02A) were prescribed or supplied by GPs in BEACH 2008–09 at a rate of 3.3 per 100 encounters, and 2.2 per 100 problems managed. For every 100 problems managed with an opioid, 113 opioids were prescribed and four were supplied by GPs. The relationships between patients, their reasons for encounter and the problems managed with an opioid are presented in Figure 9.4.

Patient age and sex

Patients aged < 25 years rarely received opioids from the GP. Patients aged 75+ years were most likely to be prescribed or supplied an opioid, at a rate of 4.2 per 100 encounters, followed by patients aged 45–64 years (3.8 per 100 encounters). There was no difference in the sex-specific opioid medication rates for males and females (2.8 per 100 encounters).

Reasons for encounter

The reason for encounter most often given by patients at encounters where an opioid was prescribed or supplied was a request for a prescription (31.9 per 100 opioid encounters). The second most common reason was back complaint (21.2 per 100 opioid encounters).

Problems managed with an opioid

Problems managed with an opioid were significantly less likely to be a new problem under management (14.3%, 95% CI: 12.6–15.9) compared with the average for BEACH (37.1%, 95% CI: 36.2–38.0). They were also more likely to be work-related (7.2%, 95% CI: 6.0–8.4 compared with the average of 1.8%, 95% CI: 1.7–2.0).

Of problems managed with an opioid, 60% were musculoskeletal. Back complaint was the most common problem, accounting for 23.0% of all problems managed with an opioid. Osteoarthritis and generalised/multiple site pain were also common, making up 10.8% and 6.4% of these problems respectively.

Opioid medications prescribed or supplied

The most common individual opioid was oxycodone, which accounted for 35.8 of all opioids recorded. The second most common opioid was tramadol, accounting for 24.9% of the opioids. It is interesting to note that the prescribing of both these medications has increased significantly over the 10 years to 2008–09. Chapter 9 of the web-based 10-year summary entitled *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*¹ shows that the prescribing of oxycodone increased sixfold, and tramadol increased eightfold over the decade 1999–00 to 2008–09.

Buprenorphine was also frequently prescribed/supplied, accounting for 11.9% of the opioids, as was morphine sulphate, which made up 11.3% of all opioids recorded.

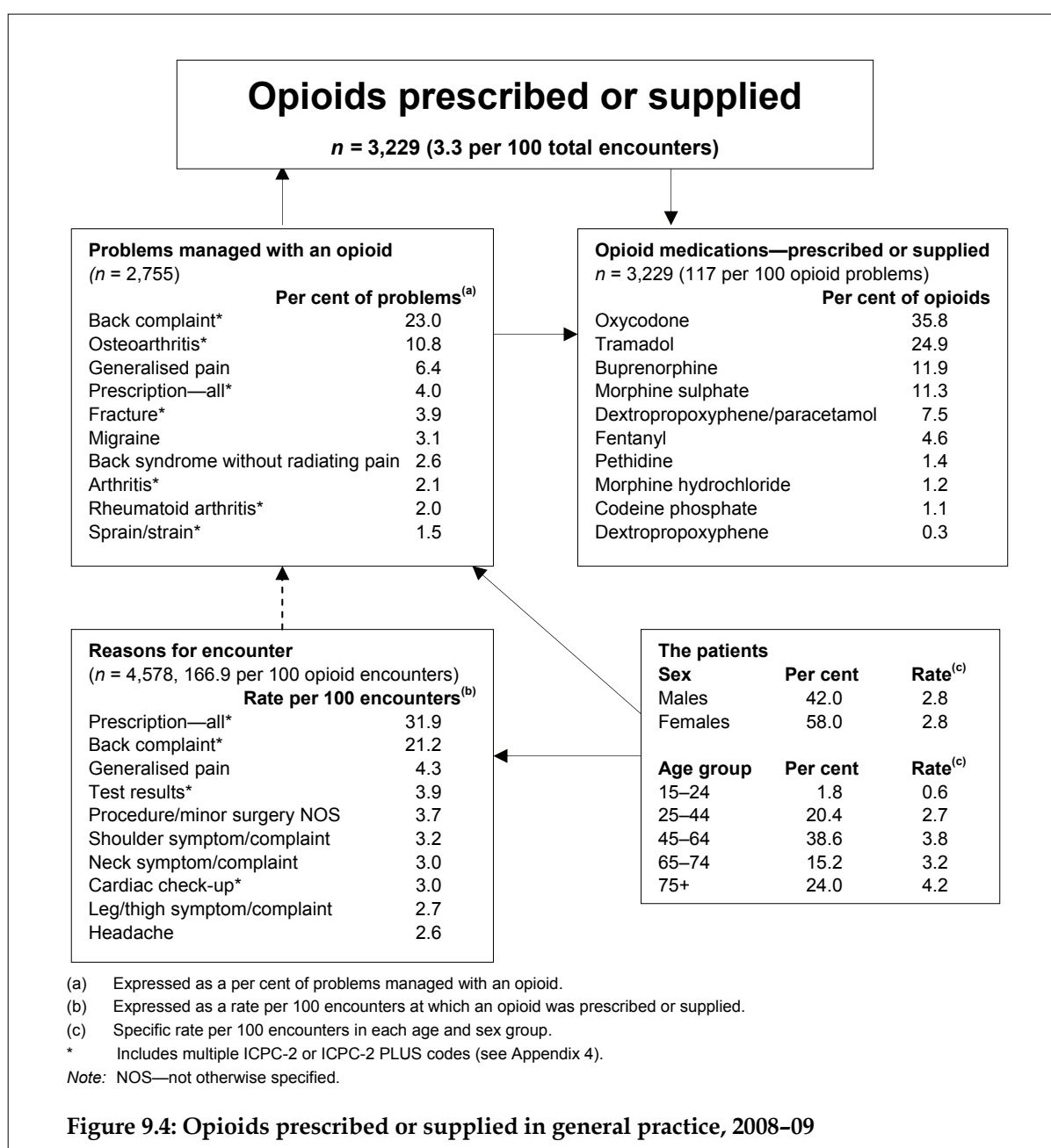


Figure 9.4: Opioids prescribed or supplied in general practice, 2008–09

9.6 Changes in medications over the decade 1999–00 to 2008–09

Data on medications are reported for each year from 1999–00 to 2008–09 in Chapter 9 of the web-based companion report entitled *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

Results shown in that report include the significant decrease in medication prescribing rates per 100 encounters in 2008–09 compared with 1999–00. Among the drug groups which decreased were systemic antibacterials, and sex hormones such as systemic contraceptives and hormone replacement therapy. At the same time, prescribing rates of several drug groups increased significantly, for example lipid reducing agents and drugs for acid-related digestive disorders.

At the individual generic level, roxithromycin, levonorgestrel/oestradiol, cefaclor monohydrate and systemic diclofenac sodium were some of 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, metformin, oxycodone, tramadol and warfarin sodium.

Other changes that occurred over the 10-year period were a 30.0% increase in the proportion of prescriptions for which five repeats were recorded and a significant increase in the rate at which medications (mainly vaccines) were supplied to patients by GPs.

10 Other treatments

The BEACH 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. 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 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

10.1 Number of other treatments

Other treatments were commonly provided in the management of patient morbidity. In 2008–09, a total of 49,048 other treatments were recorded, at a rate of 50.7 per 100 encounters. Two-thirds of these were clinical treatments (Table 10.1).

Table 10.1: Summary of other treatments

Variable	Number	Rate per 100 encs (n = 96,688)	95% LCL	95% UCL	Rate per 100 problems (n = 149,462)	95% LCL	95% UCL
Other treatments	49,048	50.7	48.5	52.9	32.8	31.5	34.1
Clinical treatments	32,867	34.0	32.1	35.9	22.0	20.8	23.2
Procedural treatments	16,181	16.7	16	17.5	10.8	10.4	11.3
At least one other treatment	38,307	39.6	38.3	41.0	—	—	—

Note: Encs—encounters; 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 (63.3%) 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% of problems. For nearly two-thirds of these problems, no medication was provided.
- A procedure was undertaken in the management of 10% of problems, with no pharmacological management given for two-thirds 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 (<i>n</i> = 149,462)	95% LCL	95% UCL
At least one other treatment	43,824	100.0	29.3	28.2	30.4
Without pharmacological treatment	27,757	63.3	18.6	17.9	19.3
At least one clinical treatment	29,840	100.0	20.0	18.9	21.0
Without pharmacological treatment	18,577	62.3	12.4	11.8	13.1
At least one procedural treatment	15,118	100.0	10.1	9.7	10.5
Without pharmacological treatment	9,833	65.0	6.6	6.3	6.9

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 2008–09, there were 32,867 clinical treatments recorded, at a rate of 34.0 per 100 encounters, or 22.0 per 100 problems managed (Table 10.1).

Most frequent clinical treatments

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

General advice and education was the most frequently recorded clinical treatment, at a rate of 6.1 per 100 encounters. The most common preventive activity was counselling about nutrition and weight (4.1 per 100 encounters). There were a number of other groups that also could be considered preventive in nature, including counselling/advice for exercise, smoking, prevention and alcohol. Together, the abovementioned preventive treatments accounted for 20.5% of all clinical treatments, provided at a rate of 7.1 per 100 encounters. Advice and education about treatment was provided at a rate of 3.5 per 100 encounters. Psychological counselling was provided at a rate of 3.2 per 100 encounters, and advice and education about medication was given at a rate of 2.3 per 100 encounters (Table 10.3).

Table 10.3: Most frequent clinical treatments

Clinical treatment	Number	Per cent of other treatments (n = 49,048)	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL
Advice/education*	5,928	12.1	6.1	5.4	6.9
Counselling/advice—nutrition/weight*	3,921	8.0	4.1	3.6	4.5
Counselling—problem*	3,706	7.6	3.8	3.3	4.4
Advice/education—treatment*	3,427	7.0	3.5	3.1	4.0
Counselling—psychological*	3,130	6.4	3.2	3.0	3.5
Advice/education—medication*	2,243	4.6	2.3	2.1	2.6
Sickness certificate*	1,880	3.8	1.9	1.6	2.2
Other admin/document*	1,759	3.6	1.8	1.7	2.0
Reassurance, support	1,465	3.0	1.5	1.3	1.8
Counselling/advice—exercise*	1,346	2.7	1.4	1.2	1.6
Counselling/advice—smoking*	721	1.5	0.8	0.7	0.8
Observe/wait*	410	0.8	0.4	0.3	0.6
Counselling/advice—health/body*	393	0.8	0.4	0.3	0.5
Counselling/advice—alcohol*	374	0.8	0.4	0.3	0.4
Counselling/advice—prevention*	367	0.8	0.4	0.3	0.5
Family planning*	328	0.7	0.3	0.3	0.4
<i>Subtotal</i>	<i>31,399</i>	<i>64.0</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total clinical treatments	32,867	67.0	34.0	32.1	35.9

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

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

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 29,840 problems (20.0% of all problems).
- Depression was the most frequently managed problem with a clinical treatment at a rate of 1.8 per 100 encounters. Upper respiratory tract infections were managed with clinical treatments at a rate of 1.7 per 100 encounters.
- Half the contacts with depression involving management with a clinical treatment did not result in a medication being prescribed/advised/supplied.
- Twenty-eight per cent of upper respiratory tract infection contacts involved a clinical treatment, with 56.8% of these being managed without medication.
- More than one in ten (10.9%) hypertension contacts resulted in a clinical treatment, with nearly half (48.2%) of these being managed without medication.
- A clinical treatment was used at one-quarter (25.1%) of contacts with lipid disorders, and 70.9% of these did not involve medication.

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) (<i>n</i> = 96,688)	95% LCL	95% UCL	Per cent of this problem ^(b)	Per cent of treated problems no meds ^(c)
Depression*	1,781	6.0	1.8	1.7	2.0	43.3	51.4
Upper respiratory tract infection	1,666	5.6	1.7	1.5	1.9	28.2	56.8
Hypertension*	1,067	3.6	1.1	1.0	1.2	10.9	48.2
Diabetes—all*	1,024	3.4	1.1	0.9	1.2	25.9	59.5
Lipid disorders*	951	3.2	1.0	0.9	1.1	25.1	70.9
Anxiety*	829	2.8	0.9	0.8	1.0	44.4	62.2
Gastroenteritis*	638	2.1	0.7	0.6	0.7	47.1	59.6
Back complaint*	547	1.8	0.6	0.5	0.6	20.7	50.1
Viral disease, other/NOS	508	1.7	0.5	0.4	0.6	44.5	61.8
Test results*	474	1.6	0.5	0.4	0.6	32.1	95.1
<i>Subtotal</i>	<i>9,485</i>	<i>31.8</i>	—	—	—	—	—
Total problems with clinical treatments	29,840	100.0	30.9	29.2	32.5	—	—

(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; meds—medications; NOS—not otherwise specified.

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 16,181 procedural treatments provided in these general practice encounters during 2008–09 at a rate of 16.7 per 100 encounters (Table 10.1).

Most frequent procedures

Table 10.5 lists the most common procedural treatments provided by GPs. Each treatment is expressed as a percentage of all other treatments, and as a rate per 100 encounters with 95% confidence limits. These results only report investigations actually undertaken at the encounter. They do not include investigations that were ordered by the GP from 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 2008–09 were excisions, at a rate of 3.2 per 100 encounters, and accounting for 6.3% of all other treatments. Other procedural treatments that were frequently recorded included dressings and local injections (each at a rate of 2.3 per 100 encounters) and incisions (1.3 per 100 encounters) (Table 10.5).

Table 10.5: Most frequent procedural treatments

Procedural treatment	Number	Per cent of other treatments (n = 49,048)	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	3,093	6.3	3.2	2.9	3.5
Dressing/pressure/compression/tamponade*	2,196	4.5	2.3	2.1	2.4
Local injection/infiltration*	2,181	4.5	2.3	2.1	2.4
Incision/drainage/flushing/aspiration/removal body fluid*	1,242	2.5	1.3	1.2	1.4
Physical medicine/rehabilitation*	1,171	2.4	1.2	1.1	1.3
Pap smear*	1,137	2.3	1.2	1.0	1.3
Other therapeutic procedures/surgery NEC*	899	1.8	0.9	0.7	1.1
Repair/fixation—suture/cast/prosthetic device (apply/remove)*	765	1.6	0.8	0.7	0.9
Other preventive procedures/high risk medication*	589	1.2	0.6	0.5	0.7
INR test	504	1.0	0.5	0.4	0.6
Physical function test*	466	1.0	0.5	0.4	0.6
Electrical tracings*	464	1.0	0.5	0.4	0.5
Check-up—practice nurse*	381	0.8	0.4	0.2	0.5
Urine test*	273	0.6	0.3	0.2	0.3
<i>Subtotal</i>	<i>15,359</i>	<i>31.3</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total procedural treatments	16,181	33.0	16.7	16.0	17.5

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

Problems managed with a procedural treatment

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

- A total of 15,118 problems involved a procedural treatment in their management (10.1% of all problems).
- The top 10 problems accounted for 36.5% of all problems for which a procedure was used.
- Female genital check-ups were the most common problem managed with a procedure, with a procedure undertaken at over half (53.0%) of all contacts.
- Nearly three-quarters (73.1%) of contacts for excessive ear wax were managed with a procedure, with the vast majority of these (91.6%) not given 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 encs ^(a) (<i>n</i> = 96,688)	95% LCL	95% UCL	Per cent of this problem ^(b)	Per cent of treated problems no meds ^(c)
Female genital check-up*	1,036	6.9	1.1	0.9	1.2	53.0	97.2
Solar keratosis/sunburn	828	5.5	0.9	0.8	1.0	69.2	97.7
Laceration/cut	701	4.6	0.7	0.6	0.8	79.3	79.6
Excessive ear wax	591	3.9	0.6	0.6	0.7	73.1	91.6
Malignant neoplasm of skin	536	3.5	0.6	0.5	0.7	45.5	95.8
Chronic ulcer skin (including varicose ulcer)	483	3.2	0.5	0.4	0.6	77.1	78.7
Warts	448	3.0	0.5	0.4	0.5	75.1	95.1
Back complaint*	301	2.0	0.3	0.2	0.4	11.4	54.2
General check-up*	302	2.0	0.3	0.3	0.4	12.7	76.0
Skin disease, other	294	1.9	0.3	0.3	0.4	35.3	92.0
<i>Subtotal</i>	<i>5,520</i>	<i>36.5</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total problems with procedural treatments	15,118	100.0	15.6	15.0	16.3	—	—

(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: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; meds—medications.

10.4 Changes in other treatments over the decade 1999–00 to 2008–09

An overview of changes in other treatments provided in general practice over the decade can be found in the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

In summary, there was no change in the rate of clinical treatments provided overall between 1999–00 and 2008–09. There were significant increases in the rates of general advice and education, psychological counselling and sickness certificates. There was a significant decrease in the rate at which advice/education about treatment and medication was given.

There were significantly more procedures performed at general practice encounters in 2008–09 than in 1999–00. In particular, there were significantly more local injections and Pap smears recorded.

11 Referrals and admissions

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

Data on referrals and admissions are reported for each year from 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 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 12.8% of all encounters, and for 8.9% of all problems managed. The most frequent referrals were to specialists, followed by referrals to allied health services. Very few patients were referred to hospitals, to the hospital emergency department or to other medical services.

Table 11.1: Summary of referrals and admissions

Variable	Number	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL	Rate per 100 problems (n = 149,462)	95% LCL	95% UCL
At least one referral ^(a)	12,334	12.8	12.3	13.2	8.9	8.5	9.2
Referrals	13,251	13.7	13.2	14.2	8.9	8.6	9.2
Specialist	8,699	9.0	8.7	9.3	5.8	5.6	6.0
Allied health service	3,745	3.9	3.6	4.1	2.5	2.3	2.7
Hospital	317	0.3	0.3	0.4	0.2	0.2	0.2
Emergency department	199	0.2	0.2	0.2	0.1	0.1	0.2
Other medical services	48	0.0	0.0	0.1	0.0	0.0	0.0
Other referrals	243	0.3	0.2	0.3	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 = 13,228).

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

11.2 Most frequent referrals

There were 13,251 referrals made at a rate of 13.7 per 100 encounters. Table 11.2 shows the specialists and allied health service groups to whom GPs most often referred patients. The most common specialist referrals were to surgeons (10%), ophthalmologists (9%), orthopaedic surgeons (9%) and dermatologists (8%). About 34% of referrals to allied health services were to physiotherapists, 19% to psychologists, 9% to podiatrists or chiropodists and 7% to dietitians or nutritionists.

Table 11.2: The most frequent referrals, by type

Professional/organisation	Number	Per cent of referrals	Per cent of referral group	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL
Medical specialist	8,699	65.6	100.0	9.0	8.7	9.3
Surgeon	861	6.9	9.9	0.9	0.8	1.0
Ophthalmologist	766	6.1	8.8	0.8	0.7	0.9
Orthopaedic surgeon	754	6.0	8.7	0.8	0.7	0.9
Dermatologist	698	5.6	8.0	0.7	0.7	0.8
Cardiologist	575	4.6	6.6	0.6	0.5	0.7
Ear, nose and throat	561	4.5	6.4	0.6	0.5	0.6
Gastroenterologist	523	4.2	6.0	0.5	0.5	0.6
Gynaecologist	516	4.1	5.9	0.5	0.5	0.6
Urologist	342	2.7	3.9	0.4	0.3	0.4
Neurologist	265	2.1	3.0	0.3	0.2	0.3
<i>Subtotal: top 10 specialist referrals</i>	<i>5,861</i>	<i>44.2</i>	<i>67.4</i>	—	—	—
Allied health and other professionals	3,745	28.3	100.0	3.9	3.6	4.1
Physiotherapy	1,132	10.3	34.3	1.2	1.1	1.3
Psychologist	635	5.8	19.2	0.7	0.6	0.7
Podiatrist/chiropodist	299	2.7	9.0	0.3	0.3	0.4
Dietitian/nutritionist	215	2.0	6.5	0.2	0.2	0.3
Dentist	178	1.6	5.4	0.2	0.1	0.2
Audiologist/acoustic testing	98	0.9	3.0	0.1	0.1	0.1
Optometrist	79	0.7	2.4	0.1	0.1	0.1
Breast clinic	67	0.6	2.0	0.1	0.1	0.1
Diabetes education	64	0.6	1.9	0.1	0.0	0.1
Counsellor	62	0.6	1.9	0.1	0.0	0.1
<i>Subtotal: top 10 allied health referrals</i>	<i>2,829</i>	<i>21.3</i>	<i>75.5</i>	—	—	—
<i>Subtotal: all referrals listed</i>	<i>8,690</i>	<i>65.6</i>	—	—	—	—
Total referrals	13,251	100.0	—	13.7	13.2	14.2

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

11.3 Problems most often referred

Referrals can be linked to more than one problem managed at the encounter. The 8,699 referrals to a specialist were provided in the management of 8,895 problems. The 10 problems most commonly referred to a specialist accounted for 19.0% of all problems referred to a specialist. Those most often referred were diabetes (2.9% of problems referred to a specialist), pregnancy, malignant skin neoplasm and osteoarthritis (Table 11.3).

Table 11.3 also shows the rate of referral per 100 contacts for each problem. Carpal tunnel syndrome was the problem most likely to result in a referral to a specialist, followed by malignant skin neoplasm and pregnancy.

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

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n = 96,688)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Diabetes—all*	254	2.9	0.3	0.2	0.3	6.4
Pregnancy*	250	2.8	0.3	0.2	0.3	20.3
Malignant skin neoplasm	243	2.7	0.3	0.2	0.3	20.7
Osteoarthritis*	206	2.3	0.2	0.2	0.3	7.7
Ischaemic heart disease*	147	1.7	0.2	0.1	0.2	11.9
Sleep disturbance	139	1.6	0.1	0.1	0.2	9.2
Back complaint*	131	1.5	0.1	0.1	0.2	5.0
Depression*	107	1.2	0.1	0.1	0.1	2.6
Carpal tunnel syndrome	105	1.2	0.1	0.1	0.1	48.5
Abnormal test results*	104	1.2	0.1	0.1	0.1	10.3
<i>Subtotal: top 10 problems referred to a specialist</i>	<i>1,686</i>	<i>19.0</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>
Total problems referred to specialist	8,895	100	9.2	8.8	9.6	—

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

The 3,745 referrals to an allied health professional or service were provided in the management of 3,884 problems. The 10 most common of these accounted for 46.2% of all problems referred to allied health services, with depression the most common. However, the problem most likely to result in a referral to an allied health service was teeth/gum disease, with more than one in four contacts resulting in referral (Table 11.4).

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

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n = 96,688)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Depression*	491	12.7	0.5	0.5	0.6	12.0
Diabetes—all*	268	6.9	0.3	0.2	0.3	6.8
Back complaint*	265	6.8	0.3	0.2	0.3	10.1
Anxiety*	166	4.3	0.2	0.1	0.2	8.9
Osteoarthritis*	153	3.9	0.2	0.1	0.2	5.8
Sprain/strain*	153	3.9	0.2	0.1	0.2	11.1
Teeth/gum disease	107	2.8	0.1	0.1	0.1	28.1
Bursitis/tendonitis/synovitis NOS	67	1.7	0.1	0.1	0.1	8.1
Shoulder syndrome	63	1.6	0.1	0.1	0.1	11.6
Musculoskeletal injury NOS	62	1.6	0.1	0.1	0.1	7.6
<i>Subtotal: top 10 problems referred to AHS</i>	<i>1,795</i>	<i>46.2</i>	—	—	—	—
Total problems referred to AHS	3,884	100.0	4.0	3.8	4.3	—

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

The 317 referrals to a hospital were provided in the management of 331 problems. The 10 problems most frequently referred to hospital are shown in Table 11.5. Pregnancy was the most common. However, acute myocardial infarction was the problem most likely to be referred.

Table 11.5: The 10 problems most frequently referred to hospital

Problem managed	Number	Per cent of problems referred	Rate per 100 encs (n = 96,688)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Pregnancy*	22	6.6	0.02	0.01	0.03	1.8
Fracture*	20	6.1	0.02	0.01	0.03	2.2
Pneumonia	12	3.7	0.01	0.00	0.02	4.4
Acute myocardial infarction	8	2.3	0.01	0.00	0.02	13.7
Anaemia*	7	2.1	0.01	0.00	0.01	1.3
Abdominal pain*	6	1.8	0.01	0.00	0.01	1.0
Acute bronchitis/bronchiolitis	6	1.8	0.01	0.00	0.01	0.2
Urinary disease, other (NEC)	6	1.7	0.01	0.00	0.01	1.1
Gastroenteritis*	5	1.6	0.01	0.00	0.01	0.4
Depression*	5	1.5	0.01	0.00	0.01	0.1
<i>Subtotal: top 10 problems referred for admission</i>	<i>97</i>	<i>29.2</i>	—	—	—	—
Total problems referred to hospital	331	100.0	0.34	0.29	0.39	—

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

The 199 referrals to an emergency department were provided in the management of 209 problems. The 10 problems most frequently referred to an emergency department are shown in Table 11.6. Fracture 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 problems referred	Rate per 100 encs (n = 96,688)	95% LCL	95% UCL	Rate per 100 contacts of this problem ^(a)
Fracture*	14	6.7	0.01	0.00	0.02	1.5
Pain, chest NOS	11	5.3	0.01	0.00	0.02	3.7
Abdominal pain*	8	3.7	0.01	0.00	0.01	1.3
Appendicitis	7	3.4	0.01	0.00	0.01	28.7
Boil/carbuncle	7	3.2	0.01	0.00	0.01	1.2
Atrial fibrillation/flutter	6	2.9	0.01	0.00	0.01	0.5
Ischaemic heart disease*	6	2.7	0.01	0.00	0.01	0.5
Fever	5	2.3	0.00 [‡]	0.00	0.01	5.0
Stroke/cerebrovascular accident	5	2.3	0.00 [‡]	0.00	0.01	2.5
Pneumonia	5	2.2	0.00 [‡]	0.00	0.01	1.7
<i>Subtotal: top 10 problems referred to emergency department</i>	72	34.5	—	—	—	—
Total problems referred to emergency department	209	100.0	0.22	0.17	0.26	—

(a) The rate of referrals to an emergency department per 100 contacts with the problem.

‡ Rates are reported to two decimal places. This indicates that the rate is < 0.005 per 100 encounters.

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

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

11.4 Changes in referrals over the decade 1999–00 to 2008–09

An overview of changes in referrals over the decade can be found in Chapter 11 of the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹ In summary, there was an increasing likelihood that the patient would be referred at the encounters in 2008–09. There was a significant increase in the overall number of referrals, reflected in referrals to most types of medical specialists. The rate of referral to an allied health service also increased significantly over the decade.

In 2008–09 there were significantly fewer referrals/admissions to hospitals than in 1999–00 but frequency was very low in all years.

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 1999–00 to 2008–09 in the 10-year summary report *General practice activity in Australia 1999–00 to 2008–09: 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 (75.8%) of encounters.

At least one pathology test order was recorded at 18.2% of encounters (for 13.6% 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 ordered

Pathology/imaging test ordered	Number of encounters	Per cent of encounters (n = 96,688)			Number of problems	Per cent of problems (n = 149,462)		
		95% LCL	95% UCL	95% LCL		95% UCL		
Pathology and imaging ordered	2,404	2.5	2.3	2.7	1,695	1.1	1.0	1.2
Pathology only ordered	15,180	15.7	15.2	16.2	18,615	12.5	12.1	12.8
Imaging only ordered	5,766	6.0	5.7	6.2	6,768	4.5	4.4	4.7
No pathology or imaging tests ordered	73,337	75.8	75.2	76.5	122,384	81.9	81.4	82.4
At least one pathology ordered	17,584	18.2	17.6	18.8	20,310	13.6	13.2	14.0
At least one imaging ordered	8,171	8.5	8.1	8.8	8,464	5.7	5.4	5.9
At least one other investigation ordered	902	0.9	0.8	1.0	917	0.6	0.6	0.7
At least one other investigation performed in the practice	1,140	1.2	1.1	1.3	1,142	0.8	0.7	0.8
At least one other investigation ordered or performed	1,995	2.1	1.9	2.2	2,018	1.4	1.3	1.4

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

12.2 Pathology ordering

A comprehensive report on pathology ordering by GPs in Australia in 1998, written by the then General Practice Statistics and Classification Unit (GPSCU) using BEACH data, was published on the Internet by the Diagnostics and Technology Branch of the then Department of Health and Aged Care in 2000.⁵⁸ A report on changes in pathology ordering by GPs from 1998 to 2001 was also produced by the GPSCU as an AIHW–University of Sydney book in the GP series in 2003.⁵⁹ A review of GP pathology ordering in the National Health Priority Areas and other selected problems between 2000 and 2008 is reported in Chapter 5 of the AGPSCC publication *General practice in Australia, health priorities and policies 1998 to 2008*.⁶⁰ Readers may wish to compare those results with the information presented below.

Nature of pathology orders at encounter

The GPs recorded 44,066 orders for pathology tests/batteries of tests, at a rate of 45.6 per 100 encounters.

The distribution of pathology tests by MBS group, and the most common tests within each group are presented in Table 12.2. Each group and individual test is expressed as a percentage of all pathology tests, as a percentage of the group, and as a rate per 100 encounters with 95% confidence limits.

The pathology tests recorded were grouped according to the categories set out in Appendix 4. The main pathology groups reflect those used in previous analyses of pathology tests by Medicare Australia.⁶¹

Test orders classed as chemistry accounted for more than half of all pathology test orders, the most common being lipids, for which there were 4.8 orders per 100 encounters, EUC (3.4), liver function (3.3), and glucose/glucose tolerance (2.7 per 100 encounters).

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

Pathology test ordered	Number	Per cent of all pathology	Per cent of group	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL
Chemistry*	26,073	59.2	100.0	27.0	25.8	28.2
Lipids*	4,604	10.5	17.7	4.8	4.5	5.0
EUC*	3,319	7.5	12.7	3.4	3.2	3.7
Liver function*	3,147	7.1	12.1	3.3	3.0	3.5
Glucose/glucose tolerance*	2,605	5.9	10.0	2.7	2.5	2.9
Thyroid function*	2,404	5.5	9.2	2.5	2.3	2.7
Multibiochemical analysis*	1,891	4.3	7.3	2.0	1.7	2.2
Chemistry; other*	1,294	2.9	5.0	1.3	1.2	1.5
Ferritin*	1,253	2.8	4.8	1.3	1.2	1.4
HbA1c*	1,219	2.8	4.7	1.3	1.1	1.4
Prostate specific antigen*	1,089	2.5	4.2	1.1	1.0	1.2
Hormone assay*	647	1.5	2.5	0.7	0.6	0.8
C reactive protein	637	1.4	2.4	0.7	0.6	0.7

(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 = 96,688)	95% LCL	95% UCL
Haematology*	7,907	17.9	100.0	8.2	7.8	8.6
Full blood count*	6,007	13.6	76.0	6.2	5.9	6.5
ESR	878	2.0	11.1	0.9	0.8	1.0
Coagulation*	786	1.8	9.9	0.8	0.7	0.9
Microbiology*	5,511	12.5	100.0	5.7	5.3	6.1
Urine M,C&S*	1,777	4.0	32.2	1.8	1.7	2.0
Microbiology; other*	813	1.8	14.7	0.8	0.7	0.9
Hepatitis serology*	452	1.0	8.2	0.5	0.4	0.5
Faeces M,C&S*	332	0.8	6.0	0.3	0.3	0.4
Chlamydia*	294	0.7	5.3	0.3	0.2	0.4
Vaginal swab and C&S*	264	0.6	4.8	0.3	0.2	0.3
Venereal disease*	249	0.6	4.5	0.3	0.2	0.3
HIV*	245	0.6	4.5	0.3	0.2	0.3
Cytology*	1,900	4.3	100.0	2.0	1.7	2.2
Pap smear*	1,863	4.2	98.0	1.9	1.7	2.1
Other NEC*	810	1.8	100.0	0.8	0.7	1.0
Blood test	375	0.9	46.2	0.4	0.3	0.5
Other test NEC	286	0.7	35.2	0.3	0.2	0.4
Tissue pathology*	715	1.6	100.0	0.7	0.6	0.9
Histology; skin	642	1.5	89.8	0.7	0.5	0.8
Immunology*	729	1.7	100.00	0.8	0.7	0.9
Immunology, other*	368	0.8	50.4	0.4	0.3	0.4
Rheumatoid factor	155	0.4	21.3	0.2	0.1	0.2
Simple basic tests*	210	0.5	100.0	0.2	0.2	0.3
Infertility/pregnancy*	212	0.5	100.0	0.2	0.2	0.3
Total pathology tests	44,066	100.0	—	45.6	43.8	47.4

* 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; NEC—not elsewhere classified; EUC—electrolytes, urea and creatinine; ESR—erythrocyte settlement rate; M,C&S—microscopy, culture and sensitivity.

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, lipid disorders and general check-ups were the most common problems for which pathology tests were ordered. The two right-hand columns show the proportion of each problem that resulted in a pathology order, and the rate of pathology orders per 100 specified problems when at least one test is ordered. For example, 32.3% of contacts with diabetes resulted in pathology orders, and when pathology was ordered for diabetes, 279 tests were ordered per 100 diabetes contacts that resulted in a pathology test order. In contrast, only 12.4% of

contacts with hypertension problems resulted in a pathology test, but the resulting test orders accounted for almost as many tests (7.2%) as did diabetes.

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

Problem managed	Number of problems	Number of problem–path combinations^(a)	Per cent of problem–path combinations^(a)	Per cent of problems with test^(b)	Rate of path orders per 100 problems with pathology^(c)
Diabetes—all*	3,952	3,570	7.8	32.3	279.4
Hypertension*	9,787	3,306	7.2	12.4	272.9
Lipid disorders*	3,787	2,490	5.5	31.2	210.5
General check-up*	2,375	2,429	5.3	29.5	346.3
Female genital check-up*	1,956	1,718	3.8	76.4	114.9
Weakness/tiredness	655	1,700	3.7	65.4	397.0
Blood test NOS	358	1,097	2.4	85.9	356.4
Urinary tract infection*	1,606	1,040	2.3	55.8	116.1
Pregnancy*	1,232	991	2.2	34.9	230.8
Abnormal test results*	1,011	909	2.0	53.6	167.8
<i>Subtotal</i>	<i>26,719</i>	<i>19,250</i>	<i>42.2</i>	<i>—</i>	<i>—</i>
Total problems	149,462	45,636	100.0	13.6	224.7

(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 44,066 pathology test orders and 45,636 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: Path—pathology; 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 GPSCU using BEACH data, and published by the AIHW and the University of Sydney in 2001.¹³

Nature of imaging orders at encounter

There were 9,469 imaging test orders recorded, at a rate of 9.8 per 100 encounters.

The distribution of imaging tests by MBS group and the most common tests within each group are presented in Table 12.4. Each group and individual test is expressed as a percentage of all imaging tests, as a percentage of the group, and as a rate per 100 encounters with 95% confidence limits. Diagnostic radiology accounted for almost half of all imaging test orders and ultrasound accounted for a further 36.6%.

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 = 96,688)	95% LCL	95% UCL
Diagnostic radiology*	4,584	48.4	100.0	4.7	4.5	5.0
X-ray; chest	1,011	10.7	22.0	1.1	1.0	1.1
X-ray; knee	439	4.6	9.6	0.5	0.4	0.5
Mammography; female	384	4.1	8.4	0.4	0.3	0.4
Test; densitometry	292	3.1	6.4	0.3	0.3	0.4
X-ray; shoulder	268	2.8	5.8	0.3	0.2	0.3
X-ray; hip	242	2.6	5.3	0.3	0.2	0.3
X-ray; foot/feet	235	2.5	5.1	0.2	0.2	0.3
X-ray; ankle	152	1.6	3.3	0.2	0.1	0.2
X-ray; spine; lumbosacral	131	1.4	2.9	0.1	0.1	0.2
X-ray; hand	131	1.4	2.9	0.1	0.1	0.2
X-ray; wrist	123	1.3	2.7	0.1	0.1	0.2
X-ray; spine; cervical	105	1.1	2.3	0.1	0.1	0.1
X-ray; spine; thoracic	99	1.1	2.2	0.1	0.1	0.1
X-ray; abdomen	95	1.0	2.1	0.1	0.1	0.1
X-ray; spine; lumbar	95	1.0	2.1	0.1	0.1	0.1
X-ray; finger(s)/thumb	88	0.9	1.9	0.1	0.1	0.1
Ultrasound*	3,465	36.6	100.0	3.6	3.4	3.8
Ultrasound; pelvis	528	5.6	15.2	0.6	0.5	0.6
Ultrasound; shoulder	390	4.1	11.3	0.4	0.4	0.5
Ultrasound; abdomen	344	3.6	9.9	0.4	0.3	0.4
Ultrasound; breast; female	339	3.6	9.8	0.4	0.3	0.4
Ultrasound; obstetric	259	2.7	7.5	0.3	0.2	0.3
Echocardiography	137	1.4	3.9	0.1	0.1	0.2
Test; doppler	126	1.3	3.6	0.1	0.1	0.2
Ultrasound; kidney	100	1.1	2.9	0.1	0.1	0.1
Ultrasound; renal tract	95	1.0	2.7	0.1	0.1	0.1
Ultrasound; leg	92	1.0	2.7	0.1	0.1	0.1
Ultrasound; thyroid	85	0.9	2.4	0.1	0.1	0.1
Ultrasound; neck	71	0.7	2.0	0.1	0.1	0.1
Ultrasound; abdomen upper	68	0.7	2.0	0.1	0.1	0.1
Ultrasound; hip	63	0.7	1.8	0.1	0.0	0.1
Computerised tomography*	1,234	13.0	100.0	1.3	1.2	1.4
CT scan; brain	194	2.1	15.7	0.2	0.2	0.2
CT scan; abdomen	165	1.8	13.4	0.2	0.1	0.2
CT scan; spine; lumbar	146	1.6	11.9	0.2	0.1	0.2
CT scan; head	119	1.3	9.6	0.1	0.1	0.1
CT scan; spine; lumbosacral	100	1.1	8.1	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 = 96,688)	95% LCL	95% UCL
CT scan; chest	87	0.9	7.1	0.1	0.1	0.1
CT scan; sinus	77	0.8	6.2	0.1	0.1	0.1
Nuclear medicine imaging*	115	1.2	100.0	0.1	0.1	0.1
Scan; bone(s)	72	0.8	62.8	0.1	0.1	0.1
Magnetic resonance imaging	71	0.8	100.0	0.1	0.1	0.1
Total imaging tests	9,469	100.0	—	9.8	9.4	10.2

* 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 describes the most common problems for which imaging was ordered, in decreasing frequency order of problem–imaging combinations. The most common problem for which imaging was ordered was osteoarthritis, accounting for 5.0% of orders, followed by back complaint (also 5.0%), and fracture (3.7%). 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, 35.3% of contacts with fractures resulted in an imaging test and 108.9 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)
Osteoarthritis*	2,666	481	5.0	15.5	116.3
Back complaint*	2,636	472	5.0	15.9	113.0
Fracture*	910	350	3.7	35.3	108.9
Sprain/strain*	1,374	306	3.2	18.9	117.4
Pregnancy*	1,232	301	3.1	23.9	102.0
Injury musculoskeletal NOS	815	284	3.0	28.9	120.3
Abdominal pain*	601	277	2.9	39.7	116.0
Bursitis/tendonitis/synovitis NOS	826	233	2.4	24.3	116.1
Shoulder syndrome	545	215	2.3	31.3	126.2
Breast lump/mass (female)	208	212	2.2	68.3	149.1
<i>Subtotal</i>	<i>11,813</i>	<i>3,129</i>	<i>32.8</i>	<i>—</i>	<i>—</i>
Total problems	149,462	9,542	100.0	5.7	112.7

(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 9,469 imaging test orders and 9,542 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. There were a total of 954 other investigations ordered by GPs during the study year and 1,177 other investigations undertaken by the GP or practice staff during the study year. This means there were 2,131 total other investigations either ordered or undertaken in the practice (Table 12.6).

Most frequent other investigations

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

Table 12.6: Most frequent other investigations ordered by GPs or performed in the practice

Investigation ordered	Number	Per cent of ordered investigations	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL
Electrical tracings*	498	52.3	0.52	0.45	0.58
Diagnostic endoscopy*	274	28.7	0.28	0.24	0.33
Physical function test*	152	15.9	0.16	0.13	0.19
Other diagnostic procedures*	30	3.1	0.03	0.02	0.04
Total other investigations ordered	954	100.0	0.99	0.89	1.08
Investigation undertaken in the practice	Number	Per cent of undertaken investigations	Rate per 100 encounters (n = 96,688)	95% LCL	95% UCL
Physical function test*	466	39.6	0.48	0.40	0.56
Electrical tracings*	464	39.4	0.48	0.41	0.55
Other diagnostic procedures*	227	19.3	0.24	0.18	0.29
Diagnostic endoscopy*	20	1.7	0.02	0.01	0.03
Total other investigations undertaken	1,177	100.0	1.22	1.08	1.35
Total other investigations ordered or undertaken in the practice	2,131	—	2.20	2.04	2.36

* 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 Full blood counts ordered in 2008–09

Full blood count (FBC) was the most commonly ordered pathology test in general practice, ordered at 6,007 encounters (6.2% of all encounters) for the management of 6,292 problems in 2008–09. This represents approximately 7 million GP–patient encounters at which FBC was ordered in general practice across Australia in that year.

Figure 12.1 shows the patients and problems for which an FBC was ordered and describes other pathology tests ordered for the same problem.

Patient age and sex

The sex distribution of patients receiving FBC (39.6% male) was similar to that of all patients attending general practice (42.4%, Table 6.1). The age distribution differed, with more patients at FBC encounters aged 25–64 years (58.1%) and fewer aged < 25 years (11.0%) compared with the total sample (50.5% and 19.9%, respectively, Table 6.1).

Patients aged 45–64 years were those most likely to have an FBC ordered (7.3% of encounters in this age group) followed by patients aged 25–44 years (7.0%). FBC was ordered at 5.8% of encounters with male patients and at 6.5% of those with females.

Reasons for encounter

The reason for encounter most often given by these patients was a request for prescription (11.7 per 100 FBC encounters), followed by requests for a check-up (10.9), weakness/tiredness (9.7) and requests for a blood test (7.6).

Problems for which FBC was ordered

The majority (56.7%) of FBCs were ordered as part of the ongoing management of a previously diagnosed problem (that is, 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).

FBC was most commonly ordered for hypertension (8.1%), as part of a general check-up (6.6%), as part of the investigation of weakness/tiredness (5.7%), as part of the management of diabetes (4.5%), anaemia (2.6%), and for problems labelled as ‘blood tests’ (2.9%).

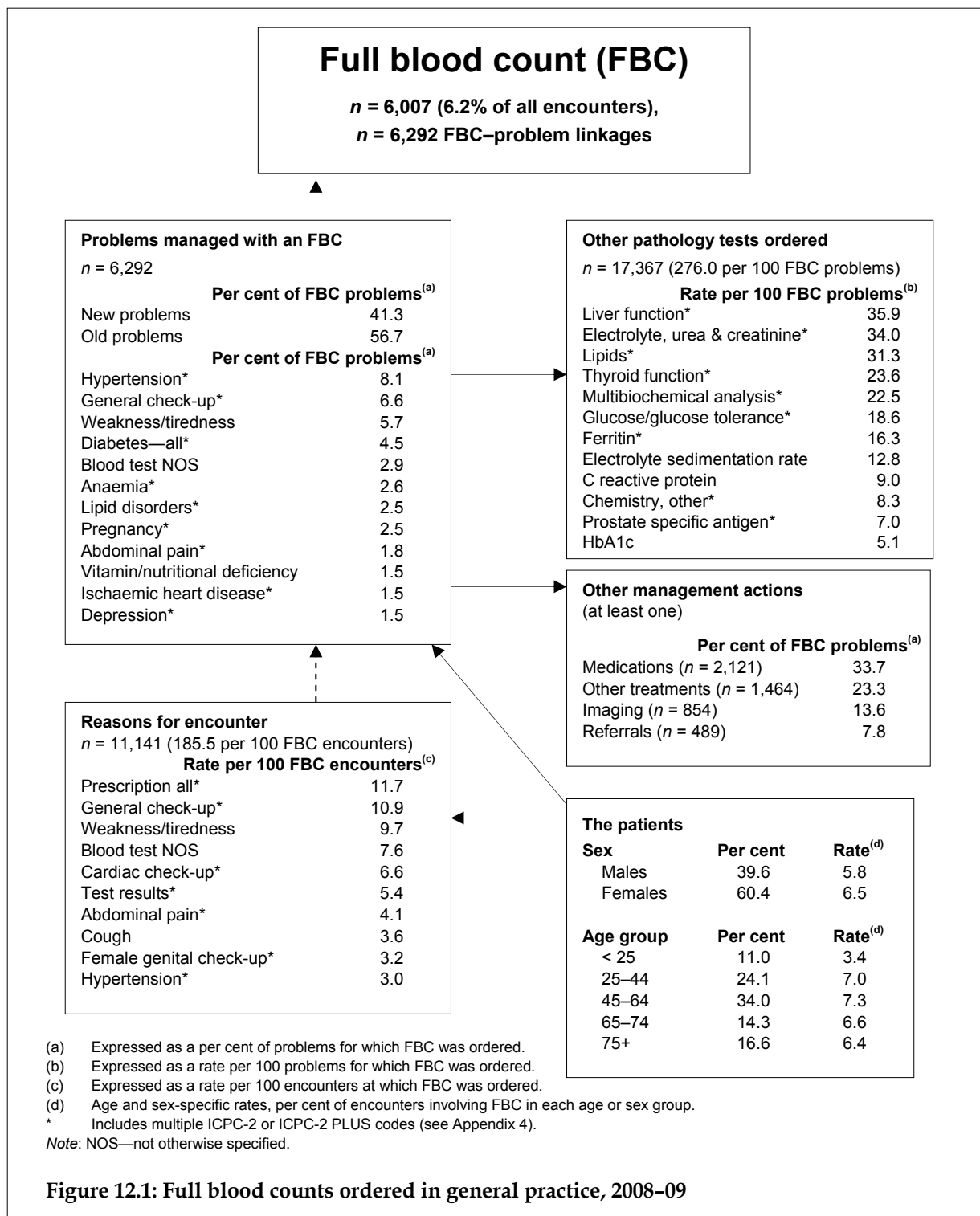
Other pathology tests ordered for problems where FBC was ordered

There were 17,367 other pathology tests ordered for the same problems that involved FBC orders. On average, 3.8 pathology tests/batteries of tests were ordered for problems involving an FBC order, that is, the FBC order and three (2.8) additional pathology tests/batteries of tests.

The tests most commonly ordered with FBC were liver function tests (35.9 per 100 FBC-tested problems), electrolyte, urea and creatinine (34.0), lipids (31.3), thyroid function tests (23.6) and multibiochemical analysis (22.5).

Other management actions provided at encounters where FBC was ordered

At least one medication was prescribed, supplied or advised for over-the-counter purchase for approximately one-third of problems for which an FBC was ordered. GPs also commonly provided other treatments (including clinical and procedural treatments) (23.3% of FBC problems), ordered imaging (13.6%), and less commonly referred (7.8%).



12.6 Changes in investigations over the decade 1999–00 to 2008–09

Data on investigations are reported for each year from 1999–00 to 2008–09 in Chapter 12 of the web-based companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹ The major changes are highlighted below.

- The likelihood of ordering at least one pathology test increased from 13.8% of encounters in 1999–00 to 18.2% in 2008–09, which is almost 6.5 million additional encounters at which pathology was ordered in 2008–09 than in 1999–00.
- The number of pathology tests ordered increased from 29.7 tests (or battery of tests) per 100 encounters in 2000–01 to 45.6 in 2008–09, which extrapolates to approximately 21.3 million more test orders in 2008–09.
- The proportion of encounters generating imaging orders increased from 6.7% in 1999–00 to 8.5% in 2008–09, resulting in an estimated 2.7 million more encounters nationally at which imaging was ordered in 2008–09.
- Total imaging orders increased significantly from 7.7 per 100 encounters in 2000–01 to 9.8 in 2008–09, suggesting there were almost 3.3 million more in 2008–09.

13 Practice nurse activity

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

In 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 allowed GPs to record up to two other treatments for each problem managed at the encounter. Other treatments include all clinical and procedural treatments provided at the encounters. These groups are defined in Appendix 4.

Between February 2004 and July 2007 five new practice nurse items were added. Recent additions were: item 00711 – child health checks by practice nurses or Aboriginal health workers); item 10987 – follow up after an Indigenous health check in rural or remote areas. These two items were therefore available for the part of the BEACH year reported here. The seven practice nurse Medicare items recorded by GPs during the 2008–09 BEACH data period⁶² are listed with a short description in Table 13.2.

This section investigates: the distribution of the Medicare items claimed for practice nurses (these items are reported as two groups in Table 5.5); treatments provided by practice nurses in association with the GP-recorded encounters; problems for which the practice nurse provided the treatment in direct association with the GP-recorded encounters.

In Chapter 10, all 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 that were not counted in Chapter 10. GPs are also instructed not to record their taking of routine clinical measurements, such as blood pressure. However, where the practice nurse undertook these activities at the consultation, and it was recorded as a practice nurse activity, they have been included in the analysis in this chapter.

When viewing these results, it must be remembered that these practice nurse data will not include activities undertaken by the practice nurse during the GP's BEACH recording period that were outside (not associated with) the recorded encounter. Such activities could include Medicare-claimable activities (for example, immunisations/vaccinations) provided under instruction from the GP but not 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

Practice nurses were involved in 6,183 (6.4%) GP-patient encounters. Simple extrapolation of this result suggests that during 2008–09 practice nurses were involved in about 7.2 million GP-patient consultations.

At 131 (2.1%) encounters practice nurse involvement was indicated by the recording of practice nurse item numbers claimable from Medicare, but the activity/ies undertaken by the practice nurse was not described. At the remaining 6,052 encounters for which practice nurse activity was described, they were involved in the management of 6,281 problems (4.2% of all problems managed at all encounters).

At only 2,416 (39.1%) of the 6,183 encounters involving the practice nurse, was a practice nurse Medicare item recorded, and in total 2,438 practice nurse items were recorded at a rate of 2.5 per 100 BEACH encounters. Practice nurse items accounted for 2.2% of all Medicare items recorded in 2008–09 (Table 5.5). At almost two-thirds (60.9%) of encounters in which the practice nurse was 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	96,688
Encounters involving practice nurse	6,183
Encounters at which practice nurse activity described	6,052
Encounters with practice nurse item number(s) but activity not described	131
Encounters at which 1 or more practice nurse item numbers were recorded as claimable	2,416
Total problems managed (<i>n</i>)	149,462
Problems managed with practice nurse involvement	6,281
	Per cent (95% CI)
Encounters involving the practice nurse as a proportion of total encounters	6.4 (5.8–7.0)
Practice nurse claimable encounters as a proportion of total encounters	2.5%
Proportion of practice nurse involved encounters for which one or more practice item numbers were claimed from Medicare	39.1 (35.9–42.3)
Problems involving the practice nurse as a proportion of total problems (95% CI)	4.2 (3.8–4.6)

Note: CI—confidence interval.

Distribution of practice nurse item numbers claimed at encounters

The 2,438 practice nurse item numbers were recorded among 2,416 encounters. Almost all the practice nurse item numbers recorded were for immunisations (63.5%) and wound treatments (33.3%). Items claimed for practice nurse services to a person with chronic disease accounted for 1.9% and those claimed for practice nurse conduct of cervical smears (with or without preventive checks) for 1.1% of total practice nurse item numbers recorded. Recorded claims for health checks by nurses were very few.

Comparison of the distribution of BEACH practice nurse item numbers recorded and the distribution of the 5.44 million claims made for such items from Medicare in the same data period demonstrated excellent 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 = 5.44 million)
10993	Immunisation	1,549	63.5	63.6
10996	Wound treatment (other than normal aftercare)	812	33.3	31.7
10997 ^(a)	Service provided to a person with a chronic disease by a practice nurse or registered Aboriginal Health Worker	46	1.9	2.7
10994 ^(b)	Cervical smear and preventive checks	16	0.7	
10995 ^(b)	Cervical smear and preventive checks—women 20–69 years, no smear in past 4 years	10	0.4	1.6 (all cervical smears)
10998 ^(c)	Cervical smear	1	0.1	
00711 ^(d)	Health check by a practice nurse or registered Aboriginal Health Worker	3	0.1	0.1
Total	All Medicare practice nurse item numbers	2,438	100.0	100.0

(a) Item number introduced in July 2007.

(b) Item number introduced in November 2006.

(c) Item number introduced in January 2005.

(d) Item number introduced in July 2008.

Source: Medicare health statistics.⁶³

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 of Aboriginal health worker for an Indigenous person who has received a health check; 10999—Cervical smear—women 20–69 years, no smear in past 4 years

Treatments provided by practice nurses

As reported in Chapter 10, GPs reported 49,048 other treatments at encounter. A further 4,210 injections were given for immunisations by a practise nurse (not reported in Chapter 10). In total 53,258 other treatments were recorded.

At least one practice nurse activity was recorded at 6,052 encounters—6.3% of all encounters. Nurses were involved in the management of 6,281 problems (4.2% of all problems managed by the participating GPs). Practice nurses provided 6,649 other treatments (representing 12.5% of all other treatments recorded at BEACH encounters) at a rate of 6.9 per 100 recorded encounters. The majority (93.3%) of the practice nurse activity was procedural in nature and these procedures represented 30.4% of all procedures recorded. In contrast, clinical treatments accounted for 6.7% of practice nurse activity, but the practice nurse provided less than 2% of all recorded clinical treatments (Table 13.3).

Table 13.3: Summary of treatments given by practice nurse

Treatment	Performed/assisted by the practice nurse		Performed by the GP		Total number recorded ^(a)
	Number	Per cent of total	Number	Per cent of total	
Procedural treatments ^(a)	6,202	30.4	14,189	69.6	20,391
Clinical treatments	447	1.4	32,420	98.6	32,867
All other treatments	6,649	12.5	46,609	87.5	53,258

(a) Procedural treatments here include all injections given by a practice nurse for immunisations/vaccinations ($n = 4,210$). 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 6,202 procedures done by practice nurses, 37.3% were injections (which were mainly for immunisations/vaccinations) and a further 20.7% were dressing/pressure/compression/tamponade. Together these accounted for more than half of all procedures undertaken by practice nurses in association with the recorded GP encounters. Incision/drainage/aspirations made up 7.2% of procedures done by the nurse, INR tests 6.2%, check-ups 6.1% and electrical tracing 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.

Table 13.4: Most frequent activities done by a practice nurse

Activity	Number	Per cent of group ^(a)	Rate per 100 encs involving practice nurse ^(a) ($n = 6,052$)	95% LCL	95% UCL
Procedures/tests	6,202	100.0	94.9	92.9	96.8
Local injection/infiltration*	2,314	37.3	38.2	34.9	41.6
Dressing/pressure/compression/tamponade*	1,283	20.7	21.2	19.2	23.2
Incision/drainage/flushing/aspiration/removal body fluid*	448	7.2	7.4	6.0	8.8
INR test	386	6.2	6.4	4.9	7.9
Check-up-practice nurse*	381	6.1	6.3	4.0	8.6
Electrical tracings*	267	4.3	4.4	3.6	5.2
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	262	4.2	4.3	3.4	5.2
Repair/fixation-suture/cast/prosth (apply/remove)*	260	4.2	4.3	3.6	5.0
Physical function test*	164	2.6	2.7	2.0	3.4
Urine test*	103	1.7	1.7	1.0	2.4
Other therapeutic procedures/surgery NEC*	83	1.3	1.4	0.8	2.0
Glucose test	58	0.9	1.0	0.6	1.3
Pap smear*	43	0.7	0.7	0.1	1.3
Other diagnostic procedures*	31	0.5	0.5	0.2	0.8
Pregnancy test*	30	0.5	0.5	0.3	0.7
Assist at operation*	29	0.5	0.5	0.2	0.7

(continued)

Table 13.4 (continued): Most frequent activities done by a practice nurse

Activity	Number	Per cent of group ^(a)	Rate per 100 encls involving practice nurse ^(a) (n = 6,052)	95% LCL	95% UCL
Clinical treatments	447	100.0	7.4	6.0	8.8
Other administrative procedure *	140	31.4	2.3	1.6	3
Advice/education—treatment*	57	12.7	0.9	0.5	1.3
Advice/education*	46	10.3	0.8	0.5	1.1
Counselling/advice—nutrition/weight*	44	9.9	0.7	0.4	1.1
Counselling—problem*	28	6.2	0.5	0.2	0.7

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

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

Note: Encls—encounters; LCL—lower confidence limit; UCL—upper confidence limit; INR—international normalised ratio; NEC—not elsewhere classified; prosth—prosthetic device.

Other administrative procedure (which includes administrative/ documentation work but excludes provision of sickness certificates) was the most frequently recorded clinical activity, accounting for 31.4% of the 447 clinical treatments provided by nurses, followed by advice/education about treatment (12.7%), general advice/education (10.3%), counselling about nutrition or weight (9.9%) and counselling for the problem under management (6.2%) (Table 13.4).

13.2 Problems managed with practice nurse involvement

The problems managed most often with the assistance of a practice nurse in association with the consultation were immunisation/vaccination (28.4% of all problems managed with the involvement of a practice nurse), followed by laceration/cut (6.2%) and chronic skin ulcer (5.7%). Practice nurses were involved in the management of a wide range of problems in association with the GP encounters. The most common are listed in Table 13.5.

Table 13.5: The most common problems managed with the involvement of practice nurse

Problem managed	Number	Per cent of problems involving PN (n = 6,281)	Rate per 100 encls with recorded PN activity ^(a) (n = 6,052)	95% LCL	95% UCL
Immunisation/vaccination—all*	1,783	28.4	29.5	26.2	32.7
Laceration/cut	388	6.2	6.4	5.5	7.3
Chronic ulcer skin (including varicose ulcer)	355	5.7	5.9	4.9	6.9
General check-up*	221	3.5	3.7	2.9	4.4
Atrial fibrillation/flutter	207	3.3	3.4	2.6	4.3
Diabetes—all*	186	3.0	3.1	2.4	3.7
Malignant neoplasm skin	157	2.5	2.6	1.9	3.3
Excessive ear wax	153	2.4	2.5	2.0	.0

(continued)

Table 13.5 (continued): The most common problems managed with the involvement of practice nurse

Problem managed	Number	Per cent of problems involving PN (n = 6,281)	Rate per 100 encs with recorded PN activity^(a) (n = 6,052)	95% LCL	95% UCL
Skin infection, post-traumatic	116	1.8	1.9	1.5	2.3
Hypertension*	110	1.8	1.8	1.2	2.4
Vitamin/nutritional deficiency	99	1.6	1.6	1.2	2.1
Blood test, blood immune system	67	1.1	1.1	0.5	1.7
Asthma	66	1.1	1.1	0.7	1.5
Boil/carbuncle	64	1.0	1.1	0.7	1.4
<i>Subtotal</i>	3,972	63.2	—	—	—
Total problems involving practice nurse	6,281	100.0	103.8	103.1	104.5

(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: PN—practice nurse; encs—encounters; 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, dressings, but are rarely using the cervical smear/preventive check practice nurse item numbers. The health check item number was only available to GPs for 4 months of the 2008–09 BEACH year so had low usage in both BEACH and the MBS for that data year.

The following section extrapolates these results to national estimates and considers them in light of Medicare claims data.⁶³

- Extrapolation of the 6,183 encounters involving a practice nurse (6.4% of all encounters) to the 112.3 million GP consultations claimed through Medicare in 2008–09 suggest that there were 7.2 million encounters nationally that involved the practice nurse.
- Extrapolation of the 6,649 activities ascribed to the practice nurse in BEACH (6.9 per 100 encounters) to a national estimate suggest there were 7.7 million such activities conducted as part of GP–patient encounters nationally.
- Extrapolation of the 2,438 practice nurse items claimed (at a rate of 2.5 per 100 BEACH encounters) to national estimates suggests that GPs claimed 2.8 million practice nurse items for activities the nurses undertook in relation to the GP–patient encounters.⁶³

These data suggest that nationally in 2008–09 there were:

- about 4.9 million (7.7 million activities minus 2.8 million claims) practice nurse clinical activities undertaken in association with GP–patient encounters that were not claimable or not claimed through Medicare.
- about 2.6 million (5.4 million claims minus the estimated 2.8 million that were for activities associated with the encounters) practice nurse items claimed for practice nurse activities conducted independently of direct GP–patient consultations (i.e. services provided separately from the encounter, and therefore not reported by GPs in BEACH encounter records.)

There is no means by which we can estimate the number of practice nurse clinical activities undertaken independently of the GP–patient encounters for which no claim was made, 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 three-quarters of the local injections/infiltrations recorded as given by practice nurses were for immunisations, and about one-third were for other types of injections and therefore not eligible to be claimed through Medicare. Table 13.2 suggests that for only 1,549 (86.9%) of the 1,783 immunisation/vaccination problems involving practice nurses (shown in Table 13.5), a practice nurse item number was claimable. Perhaps the remaining 13% were for vaccinations that do not qualify under the Medicare claims guidelines.

Table 13.4 shows that nurses dealt with 1,283 dressing/pressure/compression/tamponades in conjunction with the GP encounter, but only 812 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 be follow-up encounters where the follow-up treatment (aftercare) is included in the initial Medicare claim (claimed in the past), and may therefore not be claimable for the practice nurse.

It is clear that there was a wide range of other activities undertaken by practice nurses at the BEACH encounters which did not qualify for Medicare re-imburement.

13.4 Changes in practice nurse activity, 2005–06 to 2008–09

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

In summary:

- the number of practice nurse item numbers claimed per 100 GP–patient encounters increased significantly from 1.7 items per 100 encounters in 2005–06 to 2.5 per 100 in 2008–09.

Irrespective of whether or not a claim was made for a practice nurse item at the encounter:

- encounters involving a practice nurse as a proportion of all recorded encounters increased significantly from 4.2% in 2005–06 to 6.4% in 2008–09, an increase of more than 50%
- the number of procedures (including tests) undertaken by practice nurses at GP–patient encounters rose significantly by 55%
- between 2006–07 and 2008–09, practice nurse INR tests increased from 1.8 per 100 encounters in which they were involved to 6.4 per 100, almost a threefold increase
- practice nurse check-ups went up by about 50%, suggesting that nationally they did about 250,000 more check-ups in relation to GP–patient encounters in 2008–09 than in 2006–07
- administrative procedures (excluding provision of sickness certificates) done by practice nurses at GP–patient encounters increased from 0.7 to 2.3 per 100 practice nurse encounters, a threefold increase.

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.⁴ 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 1999–00 to 2008–09 in the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

Abstracts of results and the research tools used in all SAND substudies from April 1998 to March 2009 have been published. Those from:

- April 1998–99 were published in *Measures of health and health care delivery in general practice in Australia*¹⁹
- April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*²⁰
- August 2006 to March 2007 were published in *General practice activity in Australia 2006–07*²¹
- April 2007 to January 2008 were published in *General practice activity in Australia 2007–08*³
- February 2008 to January 2009 are included in Chapter 15 of this report.

14.1 Body mass index

High body mass was the third highest contributor to the total burden of disease in Australia, accounting for 7.5% of the total burden⁶⁴, an increase from 4.3% of total burden and sixth rank in 1996.⁶⁵ 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%).¹⁴ 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).¹⁴

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 recent WHO recommendations⁶⁶ 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).⁶⁷ 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 which calculates the age-sex-specific BMI cut-off levels for overweight and obesity specific to children aged 2–17 years.^{68,69} 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).^{67,70} 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).^{68,69}

Results

Body mass index of adults

The sample size was 33,526 patients aged 18 years and over at encounters with 1,010 GPs.

- More than half (61.5%) of the patients were overweight or obese – 25.4% obese and 36.1% overweight (Table 14.1).
- More than one-third (36.1%) of adult patients had a normal BMI and 2.5% were underweight (Table 14.1).
- Males were more likely to be overweight or obese (68.7%, 95% CI: 67.6–69.7) than females (56.5%, 95% CI: 55.5–57.5) (results not tabled).
- Overweight/obesity was most prevalent among male patients aged 65–74 years (76.5%) and those aged 45–64 years (74.8%) (Figure 14.1).

- Among female patients overweight/obesity was most prevalent in those aged 65–74 years (69.3%) and 45–64 years (63.1%) (Figure 14.1).
- Underweight was most prevalent among patients aged 18–24 years and 75 years and over. Of young adults (18–24 years), 7.4% of females and 2.8% of males were underweight, and among those aged 75 years and over, 5.0% of women and 1.3% 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, which reported that 62% of adults aged 18 and over (68% of men and 55% of females) were overweight or obese.¹⁴

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 will attend a GP at least once. We have weighted the BEACH sample to estimate the BMI of the GP–patient population (that is, the 14 million adult patients who attended a GP at least once in 2006–07), using the method described by Knox et al. (2008).⁴

The estimates for the adult GP–patient population (after adjusting for age–sex attendance patterns) suggest that 24.5% of the patient population were obese, 35.4% were overweight, 37.7% were normal weight and 2.4% were underweight (Table 14.1).

Readers interested in prevalence of the three WHO-defined levels of obesity will find more information and discussion in Chapter 7 of the AGPSCC publication *General practice in Australia, health priorities and policies 1998 to 2008*.⁷¹

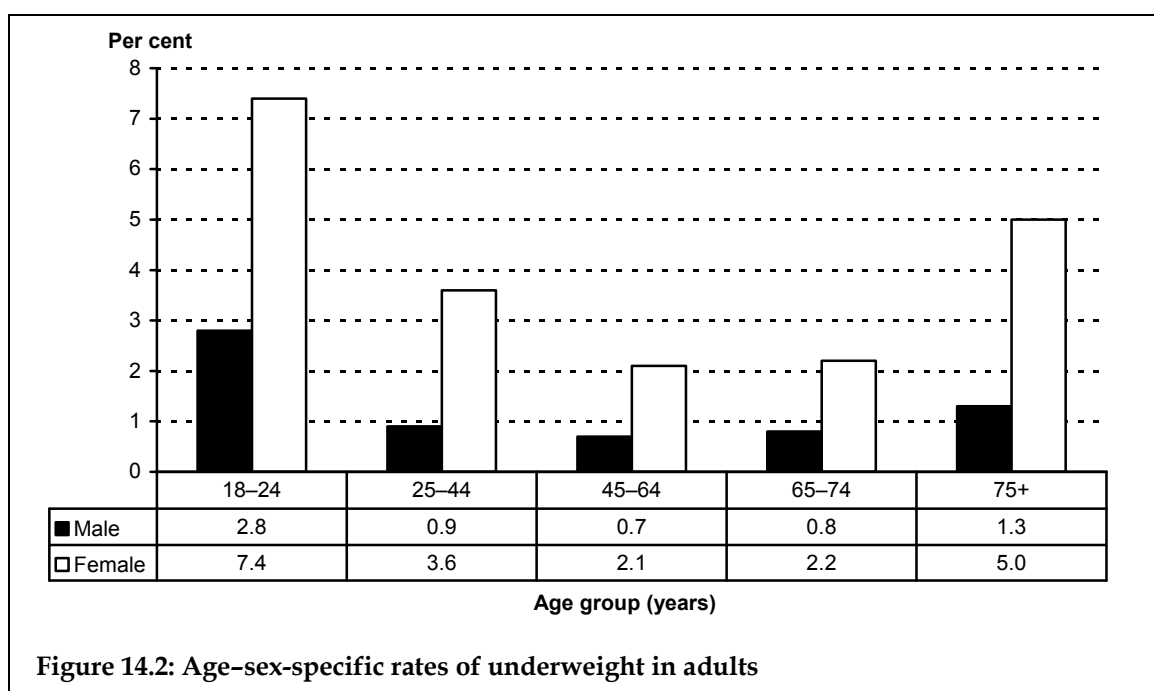
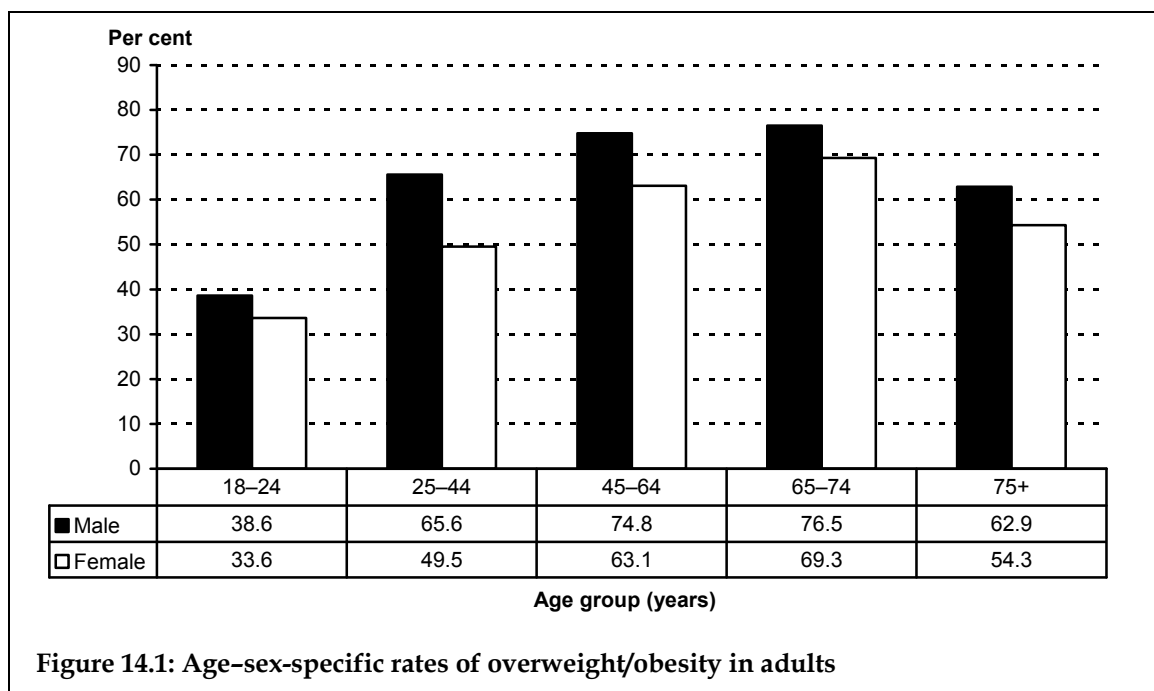
Table 14.1: Patient body mass index (aged 18 years and over)

BMI class	Male ^(a)		Female ^(a)		Total respondents	
	Per cent in BEACH sample (95% CI) (n = 13,595)	Per cent in patient population (95% CI) ^(b)	Per cent in BEACH sample (95% CI) (n = 19,671)	Per cent in patient population (95% CI) ^(b)	Per cent in BEACH sample (95% CI) (n = 33,526)	Per cent in patient population (95% CI) ^(b)
Obese	25.0 (24.1–26.0)	24.2 (23.3–25.2)	25.6 (24.8–26.4)	24.8 (23.9–25.6)	25.4 (24.7–26.1)	24.5 (23.8–25.2)
Overweight	43.6 (42.7–44.6)	42.4 (41.4–43.5)	30.9 (30.2–31.6)	29.4 (28.7–30.2)	36.1 (35.5–36.7)	35.4 (34.7–36.0)
Normal	30.3 (29.3–31.4)	32.3 (31.1–33.5)	40.0 (39.1–41.0)	42.3 (41.2–43.3)	36.1 (35.3–36.8)	37.7 (36.8–38.6)
Underweight	1.0 (0.8–1.2)	1.1 (0.9–1.3)	3.4 (3.2–3.7)	3.6 (3.2–3.9)	2.5 (2.3–2.7)	2.4 (2.2–2.6)

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

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



Body mass index of children

BMI was calculated for 2,970 patients aged 2-17 years at encounters with 821 GPs.

- Just over one-quarter of children (27.2%, 95% CI: 25.4-29.0) were classed as overweight or obese – this consists of 10.5% (95% CI: 9.3-11.7) obese and 16.7% (95% CI: 15.3-18.2) overweight (results not tabled).
- There was no difference in prevalence of overweight/obesity among male (28.5%, 95% CI: 26.0-31.0) and female children (26.1%, 95% CI: 23.7-28.4) (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*.⁷²

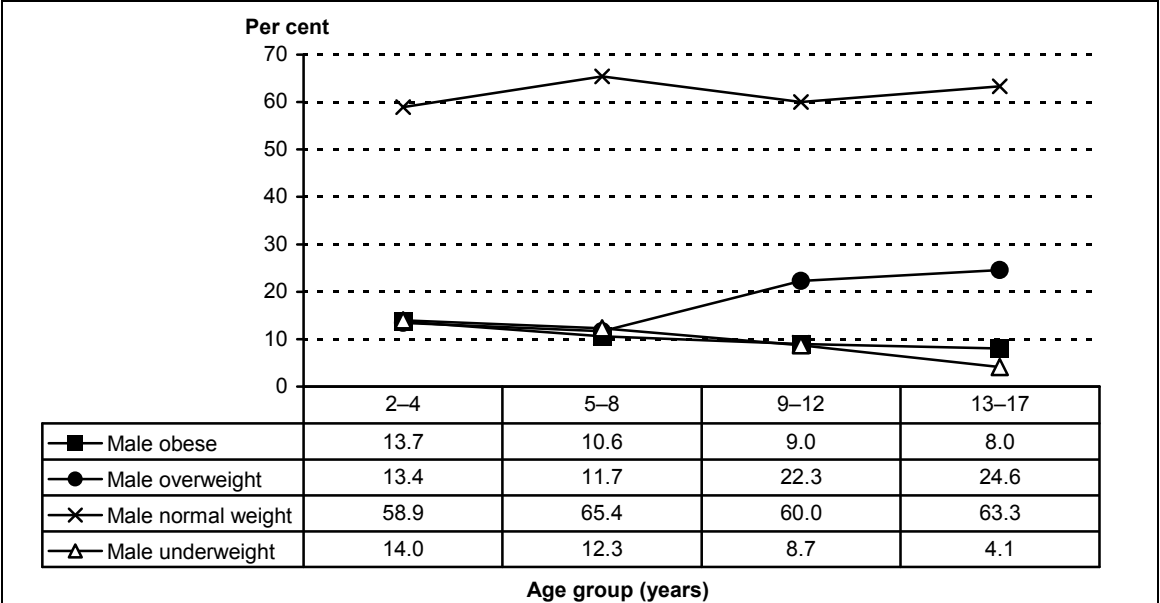


Figure 14.3: Age-specific rates of obesity, overweight, normal weight and underweight in male children

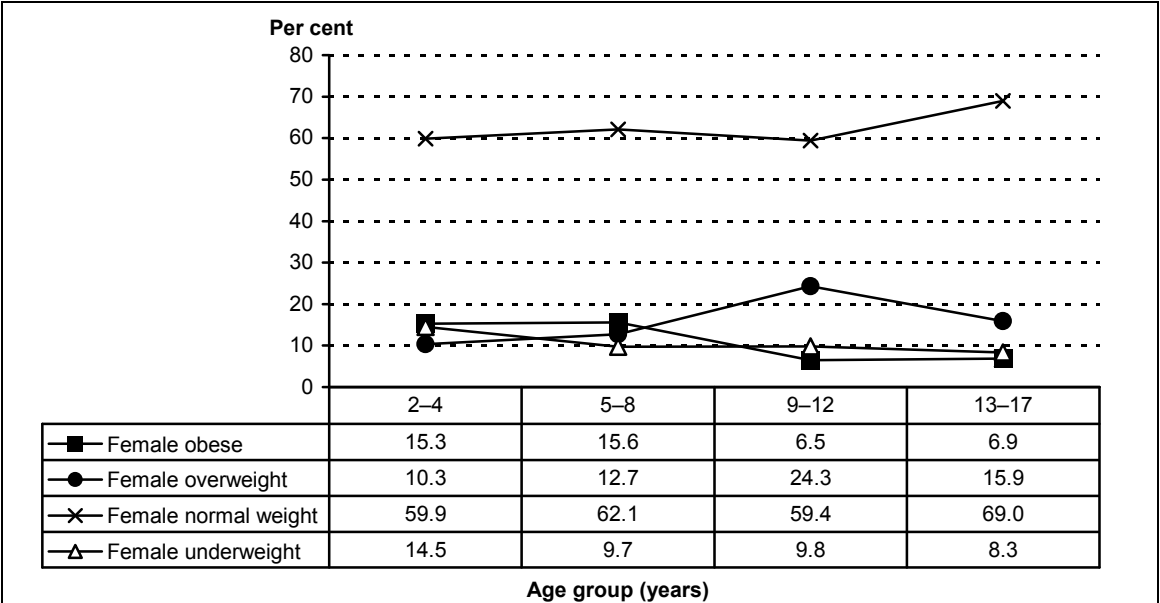


Figure 14.4: Age-specific rates of obesity, overweight, normal weight and underweight in female children

14.2 Smoking (patients aged 18 years and over)

Tobacco smoking is the leading cause of drug-related death and hospital separations in Australia.⁷³ 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 2003⁶⁴, a decrease from 9.7% of total burden in 1996.⁶⁵ 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.⁷⁴

Method

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

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

Respondents were limited to adults aged 18 years and over because there are ethical concerns about approaching the younger patient group to ask for information on smoking 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 34,194 adult patients was established at encounters with 1,010 GPs. Table 14.2 shows that:

- 15.3% of adult patients were daily smokers
- significantly more male (18.1%) than female patients (13.3%) were daily smokers
- only 2.6% of adult patients were occasional smokers
- more than a quarter of adults (28.8%) were previous smokers.

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

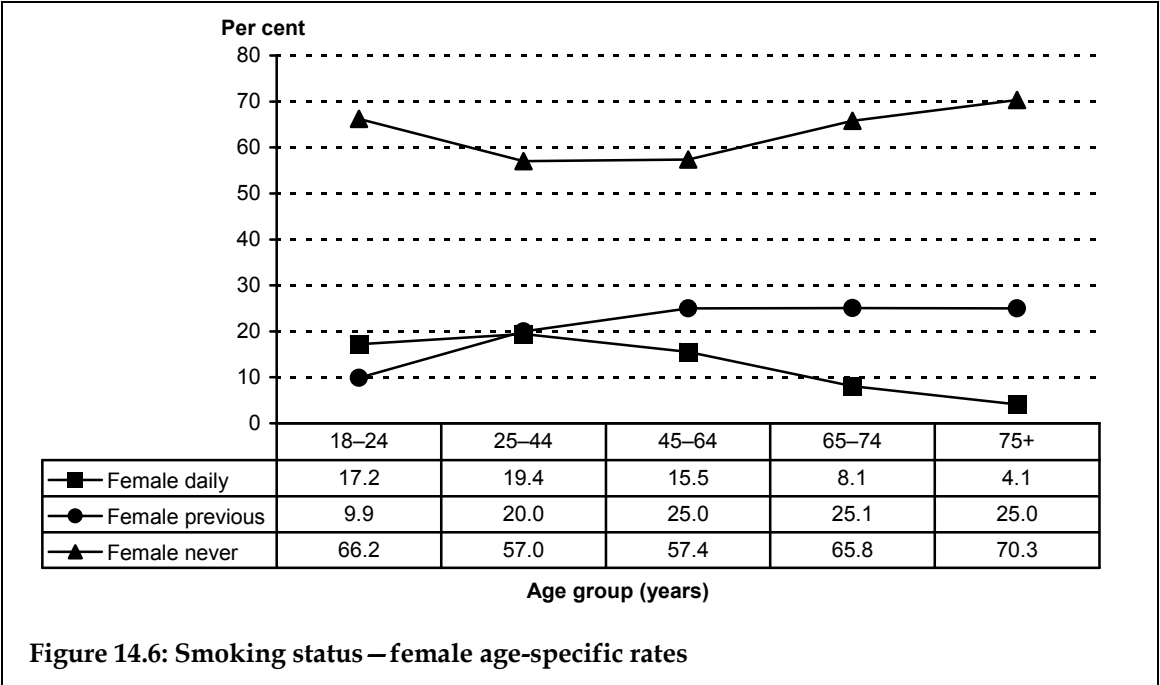
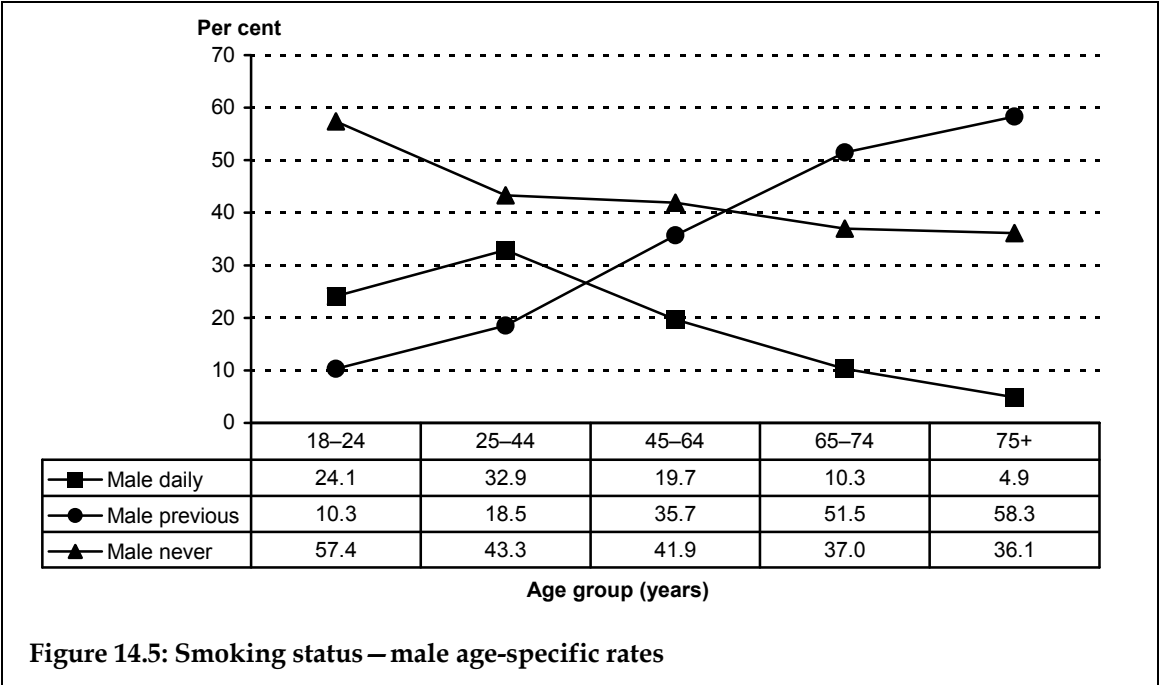
Smoking status	Male ^(a)		Female ^(a)		Total respondents	
	Per cent in BEACH sample (95% CI) (n = 13,841)	Per cent in patient population (95% CI) ^(b)	Per cent in BEACH sample (95% CI) (n = 20,079)	Per cent in patient population (95% CI) ^(b)	Per cent in BEACH sample (95% CI) (n = 34,194)	Per cent in patient population (95% CI) ^(b)
Daily	18.1 (17.2–19.0)	22.8 (21.7–24.0)	13.3 (12.6–14.0)	15.4 (14.6–16.2)	15.3 (14.6–15.9)	18.8 (18.0–19.6)
Occasional	3.0 (2.6–3.4)	4.1 (3.5–4.6)	2.4 (2.2–2.7)	3.0 (2.6–3.3)	2.6 (2.4–2.9)	3.5 (3.1–3.8)
Previous	37.9 (36.8–39.1)	29.9 (28.8–31.0)	22.5 (21.7–23.3)	21.4 (20.6–22.2)	28.8 (28.1–29.6)	25.3 (24.6–26.1)
Never	41.0 (39.8–42.2)	43.2 (41.9–44.5)	61.7 (60.7–62.7)	60.3 (59.2–61.3)	53.3 (52.4–54.2)	52.5 (51.5–53.4)

(a) Patient sex was not recorded for 274 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 million.

Note: CI—confidence interval.

Daily smoking was most prevalent among younger adult patients (aged 18–24 years and 25–44 years), with one in five and one in four of these patients respectively reporting daily smoking. Almost 60% of male and 25.0% of female patients aged 75 years and over were previous smokers, but only 4.9% of males and 4.1% of females in this age group were daily smokers (figures 14.5 and 14.6).



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 (about 14 million adults). We have weighted the BEACH sample to estimate the smoking status among the GP-patient population, using the method described by Knox et al. (2008).⁴

The estimates for the GP-patient population (after adjusting for age-sex attendance patterns) suggest that 18.8% of the patient population were daily smokers, 3.5% were occasional smokers, 25.3% were previous smokers and 52.5% had never smoked. Male patients in the total general practice population were significantly more likely to be daily (22.8%), occasional (4.1%) and previous smokers (29.9%) than females patients (15.4%, 3.0% and 21.4%, 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 morbidity⁷³ (in particular ischaemic heart disease).⁷⁵ 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.⁷⁵ 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%.⁶⁴

The 2007 NDSHS found that 10.1% of people aged 14 years and over (10.1% of males and 10.4% of females) drank at levels considered to be risky or high risk for their health in the long term.⁷⁴ This risk level of alcohol consumption was based on the NHMRC 2001 guidelines.⁷⁶ The NDSHS also found that 34.6% of people aged 14 years and over (38.7% of males and 30.5% of females) drank alcohol during the preceding 12 months at levels that put their health at risk in the short term.⁷⁴

The NHMRC 2001 alcohol guidelines⁷⁶ 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.⁷⁷ For this reason we have continued to apply the definitions earlier developed by WHO (see Method below).⁷⁸

Method

To measure alcohol consumption, BEACH uses three items from the WHO Alcohol Use Disorders Identification Test (AUDIT)⁷⁸, with scoring for an Australian setting.⁷⁹ 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.⁷⁹

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

- How often do you have a drink containing alcohol?
Never
Monthly or less
Once a week/fortnight
2-3 times a week
4+ times a week
- How many standard drinks do you have on a typical day when you are drinking?

- How often do you have six or more standard drinks on one occasion?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

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

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 33,347 adult patient (18 years and over) encounters with 1,010 GPs.

- About one-quarter of adults reported drinking alcohol at at-risk levels (25.2%) (Table 14.3).
- At-risk drinking was more prevalent among male patients (30.1%) than female patients (21.8%) (Table 14.3).
- At-risk drinking was most prevalent in the 18-24 year age group, particularly among men. In this age group half of the males and more than one-third 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 a little lower than those for short-term risk from the NDSHS.⁷⁴ This is likely to be due to the difference in the age ranges studied (14 years and over in the NDSHS and 18 years and over in BEACH), and to differences in the age-sex distributions of the study populations.

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

Alcohol consumption	Male		Female		Total respondents	
	Per cent in BEACH sample (95% CI) (n = 13,583)	Per cent in patient population (95% CI) ^(a)	Per cent in BEACH sample (95% CI) (n = 19,764)	Per cent in patient population (95% CI) ^(a)	Per cent in BEACH sample (95% CI) (n = 33,347)	Per cent in patient population (95% CI) ^(a)
At-risk drinker	30.1 (28.9–31.2)	35.7 (34.4–37.0)	21.8 (20.8–22.7)	23.8 (22.7–24.8)	25.2 (24.3–26.0)	29.2 (28.2–30.2)
Responsible drinker	48.9 (47.8–50.1)	45.1 (43.9–46.4)	42.6 (41.6–43.7)	43.7 (42.7–44.8)	45.2 (44.3–46.1)	44.4 (43.4–45.3)
Non-drinker	21.0 (20.0–22.0)	19.2 (18.1–20.3)	35.6 (34.3–36.9)	32.5 (31.2–33.8)	29.6 (28.6–30.7)	26.4 (25.4–27.4)

(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 million.

Note: CI—confidence interval.

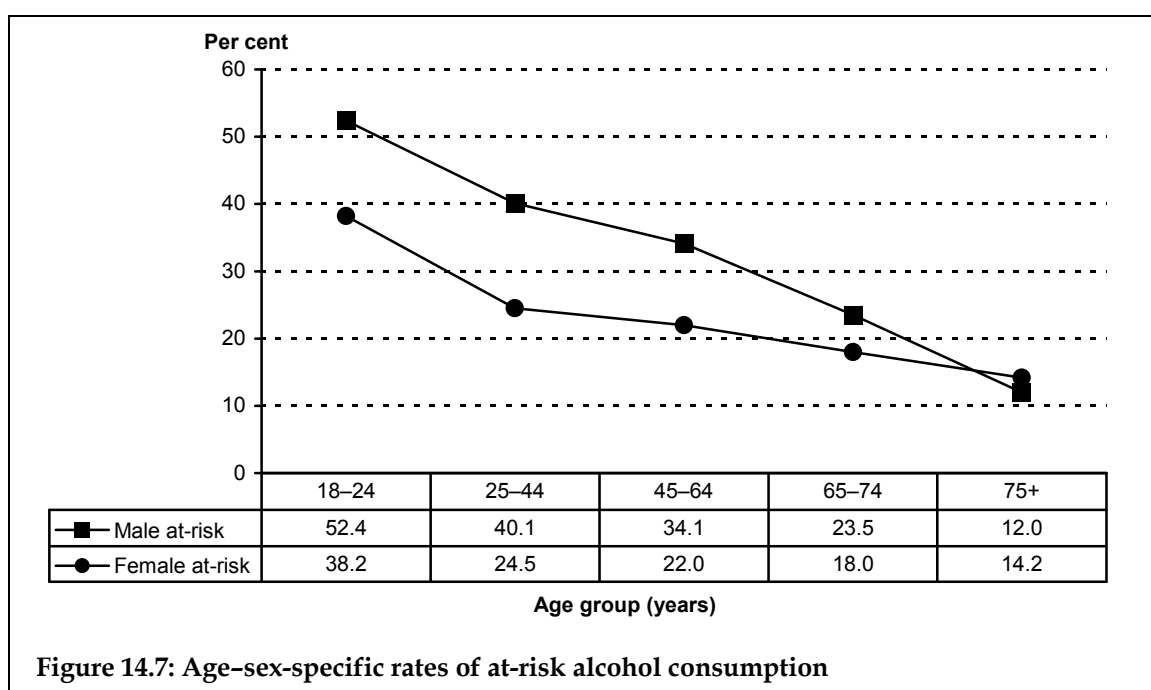


Figure 14.7: Age-sex-specific rates of at-risk alcohol consumption

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 (about 14 million adults). We have weighted the BEACH sample to estimate the alcohol consumption among the GP-patient population, using the method described by Knox et al. (2008).⁴

The estimates for the GP-patient population (after adjusting for age-sex attendance patterns) suggest that 29.2% of the patient population were at-risk drinkers, 44.4% were responsible drinkers and 26.4% were non-drinkers. Male patients in the total general practice population

were significantly more likely to be at-risk drinkers (35.7%) than female patients (23.8%) (Table 14.3).

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*.⁸⁰

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 32,432 adult patients (aged 18 years and over) (Table 14.4).

- More than half (51.8%) of the adult respondents had one risk factor. The most common was overweight (23.8% of adults) followed by obesity (17.4%).
- One in five patients had two risk factors, the most common combinations being:
 - overweight and at-risk alcohol consumption – 7.2% of patients
 - obesity and at-risk alcohol consumption – 4.4% of patients
 - daily smoking and at-risk alcohol consumption – 2.9% of patients.
- A small group of patients (3.8%) had 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 (29.1%) than males (19.0%).
- Almost one-third of males (30.5%) had two or three risk factors compared with just under one-fifth (18.2%) of females.

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

The BEACH study reports data about patient risk factors 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 (about 14 million adults). We have weighted the BEACH sample to estimate the risk factor profile among the GP-patient population, using the method described by Knox et al. (2008).⁴

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

- one-quarter of patients had no risk factors (24.0%)
- about half of the adult patients had one risk factor (49.1%). The most common risk factor was overweight (21.3% of adults) followed by obesity (15.6%)
- one in five patients had two risk factors (21.9%). The most common combinations of risk factors were overweight and at-risk alcohol consumption (7.7%), followed by obesity and at-risk alcohol consumption (4.6%)
- one in twenty 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 = 32,432)			Per cent in patient population ^(a)		
		95% LCL	95% UCL	95% LCL	95% UCL	95% LCL	95% UCL
No risk factors	8,093	25.0	24.2	25.7	24.0	23.2	24.8
One risk factor	16,795	51.8	51.1	52.5	49.1	48.4	49.8
Overweight only	7,717	23.8	23.2	24.4	21.3	20.7	21.9
Obese only	5,647	17.4	16.8	18.0	15.6	15.1	16.2
At-risk alcohol level only	2,292	7.1	6.6	7.5	8.1	7.5	8.7
Current daily smoker only	1,139	3.5	3.2	3.8	4.1	3.7	4.4
Two risk factors	6,310	19.5	18.9	20.0	21.9	21.2	22.6
Overweight and at-risk alcohol level	2,330	7.2	6.8	7.6	7.7	7.3	8.1
Obese and at-risk alcohol level	1,417	4.4	4.1	4.6	4.6	4.3	4.9
Daily smoker and at-risk alcohol level	926	2.9	2.6	3.1	3.9	3.5	4.2
Overweight and current daily smoker	916	2.8	2.6	3.0	3.2	3.0	3.5
Obese and current daily smoker	721	2.2	2.0	2.4	2.5	2.3	2.7
Three risk factors	1,234	3.8	3.5	4.1	5.1	4.7	5.4
Overweight and current daily smoker and at-risk alcohol level	775	2.4	2.2	2.6	3.3	3.0	3.5
Obese and current daily smoker and at-risk alcohol level	459	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 million.

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

Table 14.5 shows the estimation of number of risk factors in the total GP–patient population by sex. Male patients in the total patient population were significantly more likely to have two (28.2%) or three risk factors (7.3%) than female patients (16.6% and 3.2%, respectively).

Table 14.5: Number of risk factors, by patient sex

Number of risk factors	Male		Female	
	Per cent in BEACH sample (95% CI) (n = 13,228)	Per cent in patient population (95% CI) ^(a)	Per cent in BEACH sample (95% CI) (n = 19,204)	Per cent in patient population (95% CI) ^(a)
No risk factors	19.0 (18.1–19.8)	17.5 (16.6–18.4)	29.1 (28.1–30.0)	29.4 (28.4–30.4)
One risk factor	50.5 (49.6–51.5)	47.0 (46.0–48.1)	52.7 (51.8–53.5)	50.8 (49.9–51.7)
Two risk factors	25.0 (24.1–25.9)	28.2 (27.1–29.2)	15.6 (15.0–16.3)	16.6 (15.9–17.3)
Three risk factors	5.5 (5.0–5.9)	7.3 (5.7–7.9)	2.6 (2.4–2.6)	3.2 (2.9–3.5)

(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 million.

Note: CI—confidence interval.

14.5 Changes in patient risk factors over the decade 1999–00 to 2008–09

In order to investigate changes over time in these patient risk factors, data tables reporting results for each year from 1999–00 to 2008–09 are published in the companion report *General practice activity in Australia 1999–00 to 2008–09: 10 year data tables*.¹

The major changes between 1999–00 and 2008–09 are highlighted below.

- The prevalence of overweight and obesity in adults attending general practice increased significantly, from 33.1% and 19.4% respectively in 1999–00 to 36.1% and 25.4% in 2008–09; an increase apparent in both male and female patients.
- In contrast, the prevalence of overweight and obesity in children aged 2–17 years remained static from 1999–00 to 2008–09, with about 11% of children being obese and about 17% overweight.
- Both current and occasional smoking rates decreased significantly in adults aged 18 years and over, from 18.9% and 5.2% respectively in 1999–00 to 15.3% and 2.6% in 2008–09.
- The prevalence of at-risk alcohol consumption levels among adults aged 18 years and over remained fairly static at around 26% between 2001–02 and 2008–09.

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 2.4. 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 February 2008 to March 2009. 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 2008–09 and sample size for each

Abstract number	Subject	Number of respondents	Number of GPs
122	Hypertension and use of combination products in general practice patients	3,375	115
123	Prevalence and management of migraine among general practice patients	3,301	114
124	Weight loss attempts among general practice patients	3,059	103
125	Oral corticosteroid use and osteoporosis	3,050	103
126	Asthma and allergic rhinitis in general practice patients	3,003	102
127	Chronic pain in general practice patients	3,013	103
128	Chronic kidney disease among general practice patients	2,536	103
129	Asthma in general practice patients	3,068	103
130	Diabetes Type 2 and dyslipidaemia in general practice patients	3,096	106
131	Prevalence and management of migraine	3,095	105
132	Prevalence and patterns of multimorbidity	8,677	289
133	Generic medication substitution for general practice patients	2,974	101
134	Antipsychotic medication use in general practice patients	2,961	101
135	Diabetes in general practice patients	2,921	101
136	Depressive disorders in general practice patients	2,977	101
137	Osteoporosis in general practice patients	2,766	94
138	Dyslipidaemia in general practice patients	2,627	89
139	Secondary prevention of heart attack and stroke	2,972	103
140	Atrial fibrillation/flutter in general practice patients	2,963	102
141	Smoking cessation attempts and methods used by general practice patients	2,660	101
142	Depression and antidepressant use in general practice patients	2,963	101

Abstracts of results and the research tools used in all SAND substudies from April 1998 to March 2009 have been published. Those from:

- April 1998–99 were published in *Measures of health and health care delivery in general practice in Australia*¹⁹
- April 1999 to July 2006 were published in *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*²⁰
- August 2006 to March 2007 were published in *General practice activity in Australia 2006–07*²¹
- April 2007 to January 2008 were published in *General practice activity in Australia 2007–08*³

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

SAND abstract number 122: Hypertension and use of combination products in general practice patients

Organisation supporting this study: Sanofi-Aventis Australia Pty Ltd

Issues: Prevalence of diagnosed hypertension in patients attending general practice. Proportion of these who are on combination pharmacological products for hypertension and length of time used; use of single product medications (diuretic, beta-blocker, calcium channel blocker, ACE inhibitor, A2RA) (tick boxes, multiple response allowed) used before moving to combined product; level of blood pressure control in those on combination products and level of control in those on previous single product medications; reasons for moving from single product(s) to combination product.

Sample: 3,375 patients from 115 GPs; data collection period: 22/01/2008 – 25/02/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age and sex distributions of sampled patients were similar to those of patients at all 2007-08 BEACH encounters, 41.5% being male.

Of the 3,375 patients, 935 (27.7%, 95% CI: 25.0-30.4) had diagnosed hypertension (either controlled or uncontrolled) and there was no difference in prevalence between males (30.2%, 95% CI: 26.6-33.8) and females (26.0%, 95% CI: 23.2-28.7). The prevalence was very low (1.4%) among those aged less than 25 years and increased with age, from 5.7% among 25-44 year olds, 32.9% among 45-64 year olds, 56.3% among 65-74 year olds, to 64.9% among those aged 75 years and over.

Of 920 patients with hypertension for whom combination product information was provided, 223 (24.2%) were on a combination product: 12.1% on an ACE inhibitor/diuretic combination, 10.2% on an A2RA/diuretic and 1.4% on an ACE/calcium channel blocker combination. The majority (55.3%) of the 219 patients who gave length of time on the combined product, indicated they had been taking it for more than 2 years. For 221 patients on a combined product, current level of blood pressure (BP) control was given: 84.2% well controlled, 14.5% BP too high, 1.4% BP too low.

For 200 patients reporting previous medication, 198 had used at least one of the listed medication types and together had been using 271 medication types. Of these, 55.1% were ACE inhibitors, 25.1% were calcium channel blockers, 24.6% were A2RAs, 16.4% were beta blockers and 9.7% were diuretics. For 198 patients who had previously used the listed medications, BP control was good for 24 (12.1%), too high for 85.9% and too low for 2.0%.

Reasons for moving to a combination product were given for 211 patients (multiple responses allowed): for 75.4% it was to improve BP control; for 44.1% it was to add a second drug; for 37.0% it was to have simpler therapy; for 24.6% it was to reduce cost to the patients; for 7.1% it was to reduce side effects, and for 6.2% the reasons were not known.

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 **COMBINATION PRODUCTS IN HYPERTENSION**. 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.

Hypertension

Please advise whether or not this patient has **diagnosed Hypertension** (controlled or uncontrolled) as a problem currently under management. Include patients regardless of whether or not they are taking **medication** for the **management** of hypertension, which was prescribed either today or at a previous encounter, by you, or by another doctor.

Management

Please advise whether the patient is taking a **combination product** for the **management** of hypertension. If **No** you should **end the questions here**. If **Yes** please continue.

Duration of use

Please tick one box to advise the approximate **duration of use** of the combination product.

Current BP control

Please advise whether (in your clinical opinion) the patient's BP is **well controlled, too high or too low**.

Uncontrolled BP

Where BP is **uncontrolled**, please use the tick boxes to advise what you consider to be the **main reason/s** (in your clinical opinion). If the reason is one other than those listed, please tick the box labelled **'other'** and **write the reason** in the space provided.

Previous hypertension medication

Please use the tick boxes to advise the **single product** medications taken by the patient **prior to commencing** the combination product. Please tick as many as apply.

BP control on previous medication

Please advise whether (in your clinical opinion) the patient's BP was **well controlled, too high or too low**, on their previous medication.

Uncontrolled BP - previous medication

Where BP was **uncontrolled** on the **previous medication**, please use the tick boxes to advise what you consider to be the **main reason/s** (in your clinical opinion). If the reason is one other than those listed, please tick the box labelled **'other'** and **write the reason** in the space provided.

Reasons for prescribing combination product

Please advise the main reason/s for the **decision to prescribe** a combination product for hypertension management for this patient. Tick as many options as apply. If you **do not know** the reason for prescribing, tick the box labelled **'don't know'**.

Does this patient currently have hypertension (either controlled or uncontrolled)? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is the patient taking a combination product for hypertension? <input type="checkbox"/> ACE/ diuretic <input type="checkbox"/> A2RA/ diuretic <input type="checkbox"/> ACE/CCB <input type="checkbox"/> Other <input type="checkbox"/> No → End questions	The patient has been taking the combination product for: <input type="checkbox"/> < 3 months <input type="checkbox"/> 3 to 12 mths <input type="checkbox"/> 13 to 24 mths <input type="checkbox"/> > 24 months	The patient's blood pressure (BP) is currently <input type="checkbox"/> Well controlled <input type="checkbox"/> Too high <input type="checkbox"/> Too low	If BP is uncontrolled, what is the main reason/s? (tick all that apply) <input type="checkbox"/> Medication intolerance <input type="checkbox"/> Non-compliance <input type="checkbox"/> Sub-optimal medication <input type="checkbox"/> Other (please specify)	Prior to the combination product, the patient took: (tick all that apply) <input type="checkbox"/> a diuretic <input type="checkbox"/> a beta-blocker <input type="checkbox"/> a calcium channel blocker <input type="checkbox"/> an ACE inhibitor <input type="checkbox"/> none of the above <input type="checkbox"/> no previous treatment	The patient's BP on previous treatment was: <input type="checkbox"/> Well controlled <input type="checkbox"/> Too high <input type="checkbox"/> Too low	If BP was uncontrolled, what was the main reason/s? (tick all that apply) <input type="checkbox"/> Medication intolerance <input type="checkbox"/> Non-compliance <input type="checkbox"/> Sub-optimal medication <input type="checkbox"/> Other (please specify)	A combination product was prescribed to: (tick all that apply) <input type="checkbox"/> have simpler therapy <input type="checkbox"/> add a second drug <input type="checkbox"/> reduce adverse side effects <input type="checkbox"/> improve BP control <input type="checkbox"/> reduce cost to the patient <input type="checkbox"/> don't know
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SAND abstract number 123: Prevalence and management of migraine among general practice patients

Organisation supporting this study: Pfizer Australia

Issues: Prevalence of migraine among patients attending general practice; frequency of migraine attacks; current and previous acute medication; current prophylactic medications; frequency of after-hours service visits for acute migraine.

Sample: 3,301 patients from 114 GPs; data collection period: 22/01/2008 – 25/02/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age and sex distributions of this sample of patients were similar to those of all patients at 2007-08 BEACH encounters. Of the 3,301 patients, 304 (9.2%, 95% CI: 7.7-10.8) suffered from migraine attacks. Prevalence was significantly higher among females (12.9%, 95% CI: 10.6-15.1) than males (4.1%, 95% CI: 3.1-5.2). Age-specific rates of migraine for 3,280 patients showed the highest prevalence was among those aged 25-44 years (14.8%). Over half (57.9%) of 280 patients reporting migraine frequency, had fewer than one per month. The proportion who experienced one or two migraines per month was similar (13.6% and 13.2% respectively), and 15.4% suffered three or more attacks per month.

Of 298 migraine sufferers who specified current medication, 209 (70.1%) were on current acute medication for migraine. There were no significant differences in use of current acute medication by frequency of attacks although there was a trend towards higher usage rates as number of attacks increased. Of 245 recorded acute medications, the most frequently used was paracetamol (29.0%) followed by paracetamol/codeine (14.3%) and ibuprofen (11.4%).

Of 254 who responded to the previous acute medication question, 96 (37.8%) had used another acute medication in the past. Paracetamol, the most frequently recorded, accounted for 25.0% of past acute medications. Ninety-two patients gave reasons for discontinuation of previous medication. Most frequent were lack of efficacy (37.5%) followed by 'other' reasons (25.0%). Half of the 22 detailed 'other' reasons related to cessation of migraines. Successful treatment was the reason for discontinuation for 18.8% of patients and side effects for 11.5%.

Of 279 patients responding to the question on use of prophylactic medication, 30 (10.8%) were currently taking prophylactic medication. Among 260 patients for whom attack frequency and prophylactic medication use were provided, there was no significant difference in use of prophylactic medication by frequency of attack although there was a trend towards higher usage rates as number of attacks increased. Propranolol hydrochloride and pizotifen were the most common of the 30 prophylaxis medications listed.

There were 280 patients who gave information on consulting GP/out-of-hours service for rescue medication at the time of a migraine. The majority (85.7%) of these never or almost never consulted a GP or out-of-hours service for rescue medication, while 10% consulted to get emergency rescue medication at the time of a migraine some of the time.

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 **PATIENTS WITH 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 indicate by ticking the appropriate box whether this patient suffers from **migraine** attacks, either initially diagnosed today or at a previous encounter, in the past 12 months, or more than 12 months ago (by you or by another GP).

If 'no' you should end the questions here. If 'yes' to any of the options, please continue.

Migraine frequency

Please advise the approximate number of times the patient would usually experience a migraine episode during a month.

Current migraine medication

Please write the name and regimen of any medication (oral, nasal spray or injection) taken during an acute attack or as 'rescue' migraine. Please write the approximate duration of use in the space provided, and circle an option to indicate months or years.

If no acute or rescue medication is usually taken please tick the box labelled 'none'.

In the space below, please write the name and regimen of the current prophylaxis medication being taken by the patient to prevent migraine. If no prophylaxis medication is currently being taken please tick the box labelled 'none'.

Previous acute or breakthrough medication

If the patient was taking a different acute or breakthrough medication prior to the one currently taken, please write the name and regimen and duration of use for the previous acute/breakthrough (rescue) medication. Please write the most recent previous medication only, and use the tick boxes to advise why this medication was discontinued.

If discontinuation occurred because of side effects, please write the main side effect/s experienced in the space provided. If discontinuation occurred because of a reason other than those listed, please tick the box labelled 'other' and write the reason in the space provided.

If no acute/breakthrough medication was taken prior to the current one please tick the box labelled 'none'.

Patients seeking rescue medication

Please advise how frequently the patient consults a GP or an after hours service, at the time of a migraine episode, for rescue medication.

Does this patient suffer from migraine attacks? <input type="checkbox"/> No → End questions <input type="checkbox"/> Yes - diagnosed ... <input type="checkbox"/> Today <input type="checkbox"/> In the past 12 mths <input type="checkbox"/> > 12 mths prior	If 'yes' migraine frequency per month is: <input type="checkbox"/> < 1 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> ≥ 3	Current acute or breakthrough medication is: Name & Form Strength Dose Frequency Duration of use _____ _____ _____ _____ _____ mths/ys	Previous acute / breakthrough med'n (if any) was: Name & Form Strength Dose Frequency Duration of use _____ _____ _____ _____ _____ mths/ys	Does the patient consult a GP/Out of Hours Service at the time of migraine for rescue medication? <input type="checkbox"/> Never/almost never (0-20%) <input type="checkbox"/> Some of the time (21-40%) <input type="checkbox"/> Half of the time (41-60%) <input type="checkbox"/> Most of the time (61-80%) <input type="checkbox"/> Always/almost always (81-100%)
Reason for discontinuing use was: <input type="checkbox"/> Lack of efficacy <input type="checkbox"/> Side effects <input type="checkbox"/> Cost <input type="checkbox"/> Other <input type="checkbox"/> Withdrawal after successful treatment		Side effects _____ (please specify) Other _____ (please specify)		

SAND abstract number 124: Weight loss attempts among general practice patients

Organisation supporting this study: Merck, Sharp and Dohme (Australia) Pty Ltd

Issues: BMI and weight status; patients attempting weight loss in previous 2 years; weight-loss methods used; proportion of patients considering each method the most successful.

Sample: 3,059 patients from 103 GPs; data collection period: 26/02/2008 – 01/04/2008.

Method: Detailed in the paper entitled 'SAND Method 2007-08' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

In this sample there were fewer patients aged 1–4 years and fewer males (38.7%, 95% CI: 35.6–41.7) than at all 2007–08 BEACH encounters (42.9%, 95% CI: 42.1–43.7).

Of the 2,653 adult (aged 18+) patients for whom height and weight were reported, 38.4% were normal weight, 34.7% were overweight and 24.1% were obese. Male adults were more likely to be overweight or obese (66.7%, 95% CI: 63.0–70.4) than adult females (54.2%, 95% CI: 50.6–57.8). Of 219 surveyed children (aged 2–17 years) 26.5% were overweight or obese.

Among 2,691 adults responding to the question on weight-loss attempts, 917 (34.1%, 95% CI: 30.6–37.6) had attempted weight loss in the previous two years. Women were more likely to have attempted weight loss (39.4%, 95% CI: 35.5–43.2) than men (25.5%, 95% CI: 21.6–29.4) and older adults (75+) were less likely to have attempted weight loss (16.9%) than 18–24 year olds (31.1%), 25–44 year olds (39.5%), 45–64 year olds (42.2%) or 65–74 year olds (33.1%). The likelihood of attempting weight loss increased with increasing weight status; from 1.3% of underweight adults, 15.9% of normal weight adults, 35.1% of overweight adults to 67.7% of obese adults.

Of 917 adults attempting weight loss, methods used were indicated by 913: 24.6% had tried a weight-loss program, 26.2% meal plans, 9.6% OTC products, 50.7% other (self-managed) diet, 67.6% exercise program, 6.4% prescribed medication and 0.4% surgical procedure. All 4 adults who had used a surgical procedure found this method the most successful, followed by 45.5% of those using other (self-managed) diet, and 38.7%, 38.2% and 37.0% of those using exercise program, weight-loss program and prescribed medications respectively.

Among 244 children aged 2–17 years responding to the weight-loss attempts question, 22 (9.0%) had attempted weight loss in the previous 2 years. The small sample size in children means significance of difference was not achieved by sex or age. One in eight (12.4%) female children and 5.7% male children, 16.3% of those aged 9–12 years and 13.6% of those aged 13–17 years had attempted weight loss. The likelihood of attempting weight loss increased with increasing weight status, from 3.8% of underweight/normal children to 19.4% of overweight children and 27.3% of obese children.

The most common methods used among the 22 children who attempted weight loss were exercise program ($n = 15$) and other (self-managed) diet ($n = 11$). Surgical procedures, prescribed medications and weight loss programs had not been used by any of the children.

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

Weight loss methods

Please tick the box beside any **weight loss methods** the patient has tried in the past 2 years in an attempt to lose weight.

Tick as many boxes as apply.

- * **Weight loss programs** e.g Jenny Craig, Weight Watchers, Gutbusters, Gloria Marshall etc.
- * **Meal Plans** e.g. Lite N Easy, Easy Slim, Nu-Shape etc.
- * **Over-the-counter (OTC) Products** available from pharmacies, supermarkets, health food stores etc, e.g. Slimfast, Optifast, Cenovis NutriPlan etc.
- * **Other reducing diet** e.g. commencing a structured diet plan other than those listed above.
- * **Exercise program** i.e. commencing an exercise program not usually undertaken such as walking, jogging, or participating in some other physical activity for the purpose of losing weight.
- * **Prescribed medication** e.g. Reductil, Duromine, Tenuate etc, prescribed for weight loss.
- * **Surgical procedure** e.g. gastric banding, liposuction, etc.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **PATIENT WEIGHT LOSS**. 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.

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.

Patient morbidity

Please use the tick boxes to advise whether the patient has been diagnosed with **any of the listed conditions**. Tick as many as apply.
 If the patient has **none** of the listed conditions please tick the box labelled **'none of the above'** and continue.

Weight loss methods

Ask the patient which of the listed **weight loss methods** they have tried in the past 2 years. Please refer to the laminated **card** in your research pack for more information.
 Please tick as many as apply.
 If **none** of the listed methods have been tried, please tick the box labelled **'none of the above'** and continue.

Successful methods

Please write in the weight loss method nominated by the patient as the one they considered to be the **most successful**.
 If they did **not** consider any method to be successful, write **'none'**.

Weight loss medications

Please use the tick boxes to advise whether the patient has taken any of the listed **weight loss medications** in their attempt to lose weight. Tick as many as apply.
 For each medication, please **write a number** in the space provided, and **circle an option** (weeks or months) to indicate the approximate **amount of time the medication was taken** by the patient.
 If **none** of the medications were tried, please tick the box labelled **'none of the above'**.

Cholesterol and glucose

From the **most recent tests**, please **write the levels** for the patient. If any levels are **unknown**, or if the patient has **not undergone** any of these tests, please tick the box labelled **'don't know / never tested'**.

Weight loss attempts

Ask the patient if they have made **any attempts to lose weight** in the **past 2 years**.
 If **'No'** you should **end the questions here** for this patient.

Ask the patient their

Height: _____ **cm**

Weight: _____ **kg**

Does the patient have:

- Diabetes Type 2
- Metabolic syndrome
- Post-acute coronary syndrome
- Other significant CVD
- A major psychological disorder (tick all that apply)
- Sleep apnoea
- None of the above

Please advise the most recent levels of:

- HbA1c _____
- Total-C _____
- LDL-C _____
- HDL-C _____
- TG _____

Ask the patient

In the past 2 years have you attempted to lose weight?
 Yes
 No → **End questions**

Which weight loss methods have you tried? (see card)

- Weight loss programs
- Meal plans
- OTC products (pharmacy/retail)
- Other reducing diet
- Exercise program
- Prescribed medication
- Surgical procedure (tick all that apply)
- None of the above

Which method did you find the most successful?

 (please specify)

Which of the following medications have you tried for weight loss: (tick all that apply)

- Xenical (Orlistat) _____ wks/mths
- Reductil (Sibutramine) _____ wks/mths
- Dopaminergic agonist (eg Duromine) _____ wks/mths
- Byetta (Exenatide) _____ wks/mths
- None of the above (please circle)

Duration of use

_____ wks/mths
 _____ wks/mths
 _____ wks/mths
 _____ wks/mths (please circle)

SAND abstract number 125: Oral corticosteroid use and osteoporosis

Organisation supporting this study: Sanofi-Aventis Australia Pty Ltd

Issues: Prevalence of long-term oral corticosteroid (OCS) treatment; conditions for which long-term OCS treatment is used; regimen details and duration of use of OCS; proportion of patients on long-term OCS use who are also being treated with bisphosphonate, have their bone mineral density measured, have experienced fractures from minor falls or other minor trauma, have been diagnosed with corticosteroid induced osteoporosis (CIO); proportion of patients diagnosed with CIO who have been referred to a specialist.

Sample: 3,050 patients from 103 GPs; data collection period: 26/02/08 – 01/04/08.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age distribution of the sample was similar to that of patients at all BEACH encounters 2007–08. However, it included fewer males (38.4%, 95% CI: 35.3–41.6) than at total BEACH encounters (43.7%, 95% CI: 42.9–44.5).

Of the 3,050 surveyed patients, 312 (10.2%) had used or were currently using an OCS, and 101 (3.3%) of these had been taking an OCS for at least 3 months (long term users). Ninety-six of the long-term OCS users listed 98 indicator conditions, 36.7% being musculoskeletal and 22.4% respiratory. Rheumatoid arthritis was the condition most commonly treated with long-term OCS (17.3%), followed by polymyalgia rheumatica (11.2%) and asthma (9.2%).

Of the 101 long-term OCS users: 99 gave details of the OCS used and 60 of these were using prednisolone, 30 prednisone, and 7 another oral steroid; 77 responded to the question on current use of biphosphonate and 18 (23.4%) of these were currently using a bisphosphonate; of 63 reporting past use bisphosphonate, 11 (17.5%) had previously taken a bisphosphonate.

Of 100 long-term OCS users reporting bone mineral density assessment status, 39 had not been tested for bone mineral density, 11 were tested annually, 6 were tested more than once a year, and 37 were tested less than once a year. The question on fractures was answered by 98 long term OCS users of whom 20 (20.4%) had suffered a fracture following minor trauma. Of 99 respondents to the question on CIO, 11 (11.1%) had CIO and 8 of these had been referred to a specialist.

There were 40 long term OCS users with an average recorded daily dose of at least 7.5 mg (classified as high dose users). Of these, 26 (65.0%) were using prednisolone, and 14 (35.0%) prednisone. Of 31 long-term high dose users who responded to the question on biphosphonate use, 9 (29.0%) were currently using a bisphosphonate and of 21 reporting previous use, 5 (23.8%) had previously taken a bisphosphonate.

Of 40 long-term high dose OCS users, 18 (45.0%) had not had a bone mineral density test, 5 were tested annually, 3 were tested more than once a year, and 11 were tested less than once a year. Of 39 respondents, 8 (20.5%) had suffered a fracture following minor trauma. Four patients (10.3%) had CIO and two had been referred to 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 **ORAL CORTICOSTEROID USE**. 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.

Medication - Regimen and duration of oral corticosteroid use

Please use the tick boxes to advise the type of oral corticosteroid taken by the patient, and write in the **current or most recent regimen details**. Under **'duration of use'**, please write a number and circle an option (months or years) to indicate how long the oral corticosteroid has been/was being used.

Management with Bisphosphonate

Please use the tick boxes to advise whether the patient is currently/was previously also treated with **bisphosphonate**.

Oral corticosteroid use

Please use the tick boxes to advise whether the patient is **currently** being, or has **previously** been, treated with **oral corticosteroids**. If the patient has **not** been treated with oral corticosteroids you should **end the questions here**.

Condition/s managed with oral corticosteroids

Where oral corticosteroids are being, or have been used, please write in the space provided the **condition/s** for which the oral corticosteroid is/was taken.

Previous fractures from minor trauma

Please use the tick boxes to advise whether the patient has ever suffered a **bone fracture** resulting from a minor fall or other **minor trauma**.

Specialist referral

Where CIO has been diagnosed, please advise whether the patient has been **referred to a specialist**.

Corticosteroid induced osteoporosis

Please advise whether the patient has been **diagnosed with corticosteroid induced osteoporosis (CIO)** as a result of long term oral corticosteroid use. This diagnosis may have been made by you or by another clinician, today or on a previous occasion. If the patient has not been diagnosed with CIO you should end the questions here.

Testing of bone mineral density

Please use the tick boxes to advise **how often** the patient's **bone mineral density** is assessed. If details of previous testing are **unknown**, or if the patient has **not been tested**, please tick the appropriate box.

<p>Has this patient been treated with oral corticosteroids?</p> <p><input type="checkbox"/> Currently, for ≥ 3 mths</p> <p><input type="checkbox"/> Previously, for ≥ 3 mths</p> <p><input type="checkbox"/> Currently or previously, for < 3 mths</p> <p><input type="checkbox"/> Never → End questions</p>	<p>If oral steroids were taken, for what condition/s was this treatment used?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>EL 100C</p>	<p>Medication management:</p> <p>Which oral steroid is/was most recently taken?</p> <p>Name _____</p> <p><input type="checkbox"/> Prednisolone</p> <p><input type="checkbox"/> Prednisone</p> <p><input type="checkbox"/> other oral steroid</p> <p>form _____</p> <p>strength _____</p> <p>dose _____</p> <p>frequency _____</p> <p>Duration of use _____</p> <p>mths/yr</p> <p>mths/yr</p> <p>mths/yr (please circle)</p> <p>is/was the patient treated with bisphosphonate?</p> <p>Currently - <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Previously - <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>How often is bone mineral density assessed?</p> <p><input type="checkbox"/> Annually</p> <p><input type="checkbox"/> > once per year</p> <p><input type="checkbox"/> < once per year</p> <p><input type="checkbox"/> Not tested</p> <p><input type="checkbox"/> Unknown</p>	<p>Has the patient ever suffered fractures/trauma following minor trauma?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Has the patient been diagnosed with corticosteroid induced osteoporosis (CIO)?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No → End questions</p>	<p>If 'Yes' to diagnosed CIO, has the patient been referred to a specialist?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
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SAND abstract number 126: Asthma and allergic rhinitis in general practice patients

Organisation supporting this study: Merck, Sharp and Dohme (Australia) Pty Ltd

Issues: Prevalence of asthma in general practice patients; prevalence of allergic rhinitis in general practice patients; prevalence of both asthma and allergic rhinitis in general practice patients; medications taken for asthma management; medications taken for allergic rhinitis management; asthma medications previously used by patients currently taking combination asthma medications.

Sample: 3,003 patients from 102 GPs; data collection period: 01/04/2008 – 05/05/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age and sex distributions of surveyed patients were similar to those of patients at all BEACH encounters 2007-08. Of the 3,003 respondents, 689 (22.9%, 95% CI: 20.4-25.5) had asthma and/or allergic rhinitis. The prevalence of asthma was 14.6% ($n = 439$, 95% CI: 12.7-16.5), and of allergic rhinitis 12.7% ($n = 382$, 95% CI: 10.6-14.9). Both conditions were present in 4.4% of surveyed patients ($n = 132$, 95% CI: 3.3-5.5), in 5.2% of those aged 2-14 years, and in 4.5% of those aged 15 years and over.

Information about medications was provided for 428 patients with asthma, with 85.1% taking at least one asthma medication. Nearly half (45.8%) were taking one medication, 33.6% were taking two medications and 5.6% were taking three medications. A total of 556 asthma medications were recorded. The most common medications for asthma were the short-acting beta-2 agonists (SABA) (54.7%), followed by fixed dose combinations of inhaled corticosteroids with long-acting beta-2 agonists (ICS/LABA) (30.6%). The most common generic medication most often was salbutamol (46.9% of all asthma medications), followed by fluticasone/salmeterol (23.0%).

Information about medications used was provided for 376 patients with allergic rhinitis, of whom 71.3% were taking at least one allergic rhinitis medication. Nearly equal proportions were taking nasal corticosteroids (38.0%) and antihistamines (37.2%). There were 163 asthma medications listed for patients with allergic rhinitis – SABA were the most commonly recorded (55.2%), followed by the ICS/LABA combination (31.3%).

Of 152 patients currently taking a combination ICS/LABA, 141 patients (92.8%) had previously taken at least one 'single' asthma medication. Nearly half (48.0%) had taken two previous 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 **ASTHMA and ALLERGIC RHINITIS**. 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.

Asthma and/or allergic rhinitis

Please advise whether this patient has been diagnosed with **asthma** and/or **allergic rhinitis** (either seasonal or perennial). If the patient does not have asthma or allergic rhinitis you should **end the questions here**.

Asthma medication

For patients with asthma, please advise the **medications** the patient is **currently taking for asthma**. In the space provided please give the **name and form** and **regimen** of each medication the patient is currently taking. If the patient is **not currently taking medication** for their asthma please tick the box labelled **No medication for asthma**.

Allergic rhinitis medication

For patients with allergic rhinitis, please use the tick boxes to advise the **medications** the patient is **currently taking for** the management of their **allergic rhinitis**. If the patient is **not currently taking medication** for their allergic rhinitis please tick the box labelled **No medication for allergic rhinitis**.

Previous asthma medication

For patients with asthma who are **currently taking a combination product of inhaled corticosteroid (ICS) and long acting beta agonist (LABA)** please use the tick boxes to advise which medications the patient was taking **prior to commencement** of the combination product.

Does this patient have:
 Asthma
 Allergic rhinitis (seasonal or perennial)
 None of the above → **End questions**

BL101B

Current medication/s for asthma is:

Name & Form	Strength	Dose	Frequency
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

No medication for asthma

Current medication/s for allergic rhinitis is:

Nasal corticosteroid

Antihistamine

Other _____ (please specify)

No medication for allergic rhinitis

If the patient is currently taking an ICS / LABA combination product for asthma what medications were they taking prior to its commencement? (Tick all that apply)

Short acting beta agonist

Inhaled corticosteroid

Long acting beta agonist

Leukotriene receptor antagonist

Other _____ (please specify)

No medication

SAND abstract number 127: 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; the severity of pain (by pain severity grades) for these patients; the management of their chronic pain; GP and patient satisfaction with current pain management for patients who experience chronic pain.

Sample: 3,013 patients from 103 GPs; data collection period: 01/04/2008 – 05/05/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. 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).

Summary of results

The age-sex distribution of the patient sample reflected that of all patients at all BEACH encounters 2007-08. Of the 3,013 respondents, 590 (19.6%, 95% CI: 16.9-22.3) had chronic pain. The age-specific rates showed that prevalence increased with patient age, from 3% among those aged less than 25 years, to 33% in those aged 75 years and over. Sex-specific rates showed no significant difference between the sexes in prevalence of chronic pain.

The 'cause of pain' was given for 577 patients: cancer was the cause for 2.4% of these; osteoarthritis for 47.7%; other arthritis for 5.6%; back problems for 29.1%; and 29.3% of patients nominated an 'other condition' as the cause of their chronic pain, 51.3% of these being musculoskeletal conditions and 22.6% neurological conditions. Pain severity was recorded for 559 patients, and ranked as Grade I for 26.7%, Grade II for 36.5% of, Grade III for 27.2%, and Grade IV for 9.7% of these patients.

Current medication management was provided for 578 chronic pain patients and 58.8% were currently managing their chronic pain with medication only. Medication in combination with other treatment was used by 28.7%; 6.4% were using other managements without medication, and 6.1% were not using any type of pain management. For the 506 patients taking medication, 776 medications were recorded, of which 32.6% was paracetamol, and 8.6% was paracetamol/codeine. Tramadol (8.4%), oxycodone (6.7%) and meloxicam (5.2%) were also frequently recorded. A total of 241 other management methods were reported for the 203 patients using them, physiotherapy (25.7% of the other pain management methods) and exercises (25.3%) being most common.

GP and patient satisfaction level with the patient's pain management was recorded for 568 patients, on a scale of 1 (highly satisfied) to 5 (highly dissatisfied). The mean GP satisfaction level was 2.4, and the mean patient satisfaction level was 2.5. For 563 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 4.5, on sleep was 4.7, 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.





Live Better with Pain Log

Pain Level






No Pain
1 2 3 4 5 6 7 8 9 10
Worst Pain

Activity






Normally active
1 2 3 4 5 6 7 8 9 10
No activity

Sleep

Fully rested
1 2 3 4 5 6 7 8 9 10
Poor-quality sleep

Mood

Cheerful & calm
1 2 3 4 5 6 7 8 9 10
Depressed, anxious

Adapted from: Live Better with Pain Log; © Copyright: 2005

The American Chronic Pain Association

<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.

*By the FM et al. 2001. Pain 88(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.

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'**.

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 Korf M et al. 1992. Pain 50(2):133-149

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.

Does this patient suffer from chronic pain?

Yes

No → End questions

BL-101C

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

CP satisfaction level

1 Highly satisfied

2

3

4

5 Highly dissatisfied

(Please circle a number)

Patient satisfaction level

1 Highly satisfied

2

3

4

5 Highly dissatisfied

(Please circle a number)

Ask the patient to rate the impact of pain on the following functions when in pain: (see card)

Pain level _____

Activity _____

Sleep _____

Mood _____

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.

SAND abstract number 128: Chronic kidney disease among general practice patients

Organisation supporting this study: Abbott Australasia Pty Ltd

Issues: For adult patients attending general practice – the proportion who have 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; the management of CKD; levels of BP, total cholesterol and HbA1c in patients at Stages 3–5 of CKD; the underlying causes of CKD.

Sample: 2,536 patients aged 24 years and over, from 103 GPs; data collection period: 06/05/2008 – 09/06/2008.

Method: Detailed in the paper entitled 'SAND Method 2008–09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. Stages of disease were defined according to National Kidney Foundation Guidelines.

Summary of results

There were 3,088 patients sampled, 2,536 of whom were 24 years and over, and 2,498 (98.5%) of these responded to kidney test questions. Nearly two-thirds (65.6%, 95% CI: 61.8–69.5) had had at least one kidney function test in the previous 12 months: 43.4% a glomerular function test, 62.3% a serum creatinine test, and 13.8% 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 been tested. There was no significant difference between males and females in the proportion tested.

Responses to risk factors/comorbidities were recorded for 2,479 patients: 38.2% had hypertension; 13.5% were obese (BMI > 30); 12.1% had diabetes; 9.6% were current smokers; 2.1% had a family history of CKD. One in five patients (20.6%) had no risk factors/comorbidities; 74.9% of the 1,968 patients with at least one risk factor had had a kidney function test; 31.5% of those with no risk factors had been tested.

Of the 2,474 patients for whom a response was recorded, 258 (10.4%) had been diagnosed with CKD, and 61.2% 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 254 diagnosed patients: 11.4% were at Stage 1; 30.7% at Stage 2; 45.7% were at Stage 3; 9.1% were at Stage 4; and 1.6% were at Stage 5.

Of the 143 patients at Stages 3–5 of CKD, response rates to management questions varied – of 136 respondents, half (51.5%) had had a renal ultrasound in the past 5 years and 58.1% had the quantity of proteinuria assessed; of 139 respondents, 38.1% had been referred to a nephrologist, and 75.5% were currently taking an ACE inhibitor/A2RA.

Indicator levels for patients at Stages 3–5 (response rates again varied by question) showed 33.6% had BP of < 130/80; 23.4% had a TC of < 4; and 52.5% had an HbA1c of < 7. The underlying cause of CKD had been established for 70.4% of 125 respondents. The most common causal condition was hypertension (33.0%, $n = 29$) followed by Type 2 diabetes (26.1%; $n = 23$).

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 1 - GFR \geq 90 ml/min
- *Stage 2 - GFR 60 - 89 ml/min
- *Stage 3 - GFR 30 - 59 ml/min
- *Stage 4 - GFR 15 - 29 ml/min
- *Stage 5 - GFR $<$ 15 ml/min + 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 specify 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'.

<p>In the past 12 months has this patient had their kidney function assessed?</p> <p><input type="checkbox"/> Yes - glomerular filtration test</p> <p><input type="checkbox"/> Yes - serum creatinine test</p> <p><input type="checkbox"/> Yes - other proteinuria/micro-albuminuria test <i>(tick all that apply)</i></p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Don't know</p>	<p>Does the patient have: <i>(tick all that apply)</i></p> <p><input type="checkbox"/> Diabetes</p> <p><input type="checkbox"/> Hypertension</p> <p><input type="checkbox"/> Current smoker</p> <p><input type="checkbox"/> Obesity (BMI $>$30)</p> <p><input type="checkbox"/> Aboriginal or Torres St Islander ancestry</p> <p><input type="checkbox"/> Family history of CKD</p> <p><input type="checkbox"/> None of the above</p>	<p>Has the patient been diagnosed with Chronic Kidney Disease (CKD)?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No \rightarrow end</p>	<p>If 'yes' what is their Stage* of disease? <i>(see definitions on green sheet)</i></p> <p><input type="checkbox"/> Stage 1</p> <p><input type="checkbox"/> Stage 2</p> <p><input type="checkbox"/> Stage 3</p> <p><input type="checkbox"/> Stage 4</p> <p><input type="checkbox"/> Stage 5</p> <p><input type="checkbox"/> Don't know</p>	<p>Remaining G's for patients at Stages 3 - 5 only:</p> <p>Has/s the patient...</p> <p>- Had a renal ultrasound in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>- Had the quantity of proteinuria assessed? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>- Been referred to a nephrologist? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>- Currently taking an ACE inhibitor / A2RA? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>What are the patient's most recent levels of:</p> <p>BP _____ / _____ mmHg</p> <p>Total chol _____ mm/L</p> <p>HbA1c _____ %</p> <p>The underlying cause of CKD is: _____ <i>(please specify)</i> <input type="checkbox"/> Unknown</p>
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SAND abstract number 129: Asthma in general practice patients

Organisation supporting this study: AstraZeneca Pty Ltd (Australia)

Issues: Prevalence of asthma in general practice patients; severity of asthma; frequency of general practice visits for any reason by patients with asthma; frequency of asthma management; types of medications taken by patients with asthma; involvement of practice nurse in asthma management.

Sample: 3,068 patients from 103 GPs; data collection period: 06/05/2008 – 09/06/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The sex distribution of patients in this sample was similar to the sex distribution of all patients in BEACH in 2007-08. Compared with the overall BEACH sample in 2007-08, there were significantly fewer patients aged 15-24 years (6.9%, 95% CI: 5.7-8.1 compared with 9.5%, 95% CI: 9.0-9.9) and 25-44 years (18.5%, 95% CI: 16.5-20.5 compared with 23.4%, 95% CI: 22.7-24.1) and significantly more patients aged 75 years and over (19.2%, 95% CI: 16.5-22.0 compared with 14.7%, 95% CI: 13.9-15.5).

Of 3,068 patients, 461 (15.0%, 95% CI: 13.3-16.7) had been diagnosed with asthma. The highest prevalence of asthma was in patients aged 5-14 years (29.5%), followed by those aged 15-24 years (19.9%). There was no significant difference in the prevalence among male and female patients (14.3% and 15.4% respectively). Of the 456 patients with asthma for whom age was reported, 75 (16.5%) were classified as children (0-17 years) and 381 (83.6%) were adults (18 years and over).

Of the children with asthma, 72.7% had infrequent asthma and 2.6% had 'persistent' asthma. Of the 371 adults for whom severity was reported 39.9% had 'very mild' asthma, 32.1% had 'mild' asthma, 22.9% had 'moderate' asthma and 5.1% had 'severe' asthma.

Of 453 patients with asthma for whom visit frequency was recorded, 7.5% had not visited a GP in the previous 12 months for any reason and 22.5% had visited 2-4 times. The number of visits at which their asthma had been managed was reported for 447 patients. For 24.2% of these their asthma had been managed at one GP visit in the previous 12 months and 43.9% stated they had not had their asthma managed at all in the previous 12 months.

Information about medications taken for asthma was provided for 443 patients. There were 581 asthma medications being taken by 341 respondents. There were 102 patients not currently taking asthma medication. Short-acting beta-2 agonists (SABA) accounted for half of all medications (50.3%), and combination products of inhaled corticosteroids with long acting beta-2 agonists (ICS/LABA) accounted for 30.6%. At the generic level, salbutamol was the most common medication taken for asthma (45.4% of all medications), followed by fluticasone/salmeterol (21.0%). One in five patients was taking both a SABA and an ICS/LABA (21.0%). Of the 435 patients who responded to the question about practice nurse involvement with asthma management, 24 patients (5.5%) indicated that a practice nurse had been involved with their asthma management.

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

Severity of asthma reference card

Children

Severity*	Common features
Infrequent episodic	Episodes 6-8 weeks or more apart and from 1 to 2 days up to 1-2 weeks duration; usually triggered by URTI or environmental allergen; attacks generally not severe; symptoms rare between attacks; normal examination and lung function except when symptomatic.
Frequent episodic	Attacks <6 weeks apart; attacks more troublesome; minimal symptoms such as exercise induces wheeze between attacks; normal examination and lung function except when symptomatic; commonly troubled through winter months only.
Persistent	Symptoms most days; nocturnal asthma > 1/wk with sleep disturbance; early morning chest tightness; exercise intolerance and spontaneous wheeze; daily use of beta2 antagonist; abnormal lung function; history of emergency room visits or hospital admissions.

Adults

Severity*	Common features
Very mild	Episodic
Mild	Occasional symptoms (up to 2/wk); exacerbations >6-8 weeks apart; normal FEV ₁ when asymptomatic
Moderate	Symptoms most days; exacerbations <6-8 weeks apart which affect day-time activity and sleep; exacerbations last several days; occasional emergency room visit.
Severe	Persistent; limited activity level; nocturnal symptoms > 1/wk; frequent emergency room visits and hospital admission in past year; FEV ₁ may be significantly reduced between exacerbations.

* The severity classes are adapted from the NAC Asthma Management Handbook 1998 edition, updated March 2002

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **ASTHMA MANAGEMENT**. 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.

Presence of asthma

Please use the tick boxes to advise whether this patient suffers from **asthma**. If 'no' you should **end the questions here** for this patient. If 'yes' please answer the following questions about the patient's asthma. You may need to ask the patient or check their notes. If you do not know the exact number please give your best estimations.

Severity of asthma

Please use the tick boxes to advise the **current severity** of this patient's asthma. Use the **'Severity of asthma reference card'** included in your research pack to estimate the severity level.

GP visits for asthma management

Please advise the approximate number of occasions when **asthma** was managed during the **past 12 months**, either as the **main or secondary reason** for the patient's visit.

Number of visits to a GP

Please use the tick boxes to advise the approximate **number of times** the patient has consulted a GP for **ANY reason, including asthma management**, during the **past 12 months**. Do not include **today's visit** in this estimation.

Previous management

If the patient's asthma was **not managed** in the **past 12 months**, please advise how long since the **most recent visit** where asthma was managed.

Practice nurse involvement

Please advise whether the **nurse at this practice** has been **involved** in the **management** of this patient's **asthma**.

Current medication use

Please advise the **medications** the patient is **currently taking for asthma**. In the space provided please give the **name and form** and **regimen** of each medication the patient is currently taking. If the patient is **not currently taking medication** for their asthma please tick the box labelled **'No medication for asthma'**.

Has this patient ever been diagnosed with asthma?
 Yes
 No → **End questions**

If 'yes', how severe is the patient's asthma? (see *asthma card*)
 Child
 Infrequent
 Frequent
 Persistent

Adult
 Very mild
 Mild
 Moderate
 Severe

How many times has the patient visited a GP for any reason in the past 12 months (apart from today)?
 None
 Once only
 2-4 times
 5-7 times

8-10 times
 11-15 times
 >15 times

At how many visits was their asthma managed?
 None
 Once only
 2-3
 4-6
 >6

If the patient has NOT had their asthma managed in the past 12 months, how long (approximately) since asthma was last managed?
 < 1.5 years
 > 1.5 and < 2 years
 > 2 years

Current medication/s for asthma is:

Name & Form	Strength	Dose	Frequency
<input type="checkbox"/> No medication for asthma			

Has the patient seen a nurse in this practice about their asthma?

Yes - today
 Yes - in the past
 No

SAND abstract number 130: Diabetes Type 2 and dyslipidaemia in general practice patients

Organisation supporting this study: Merck, Sharp and Dohme (Australia) Pty Ltd

Issues: The prevalence of Type 2 diabetes (T2D) and/or dyslipidaemia among general practice patients and their HbA1c and cholesterol levels Among those with T2D and/or hyperlipidaemia, the prevalence of hypertension; congestive heart failure (CHF), coronary heart disease (CHD); metabolic syndrome; and current smoking status. Current medication and use of diet and exercise for blood glucose control.

Sample: 3,096 patients from 106 GPs; data collection period: 10/06/2008 – 14/07/2008

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The age-sex distribution of respondents was similar to the distribution for all BEACH encounters, with the majority (57.1%) of patients being female.

Of the 2,957 surveyed patients, 799 had diagnosed T2D and/or dyslipidaemia: 349 (11.8%, 95% CI: 10.2–13.4) had T2D, 615 (20.8%, 95% CI: 17.8–23.8) had dyslipidaemia, and 165 (5.6%) had both conditions. There was no significant difference in these results between male and female patients. Patients aged 45–64 years had a significantly lower rate of T2D and/or dyslipidaemia (31.0%) than patients aged 65–74 years (50.6%) and those aged 75 years and over (45.3%).

Of the 799 patients with diagnosed T2D and/or dyslipidaemia, 755 answered the question on comorbidities: 69.4% had hypertension, 11.1% had CHF, 26.2% had CHD and 8.3% had moderate/severe renal insufficiency, and 12.1% had metabolic syndrome. Of these 755 patients, 610 (80.8%) had at least one of the comorbidities. Current smoking status was recorded for 740 patients and 77 (10.4%) were current smokers.

Of 338 patients with T2D who responded to the question, 57.1% had an HbA1c level of ≤ 7 and 35.5% had an HbA1c level > 7 , and for 7.4% the HbA1c level was not known or had never been tested.

Of 575 patients with dyslipidaemia who responded to the question, 247 (43.0%) had a total cholesterol level of ≥ 5.0 , and of the 171 responding patients with T2D without diagnosed dyslipidaemia, 25.2% had a total cholesterol level of ≥ 5.0 .

Of 334 patients with T2D for whom medication management of blood glucose was recorded, 269 (80.5%) were currently taking at least one medication: 32.0% were on metformin mono-therapy; 29.7% were on dual therapy of metformin and a sulphonylurea; 10.4% were on mono-therapy sulphonylurea; 9.7% were taking insulin as a mono therapy, and 6.7% were taking metformin and insulin as dual therapy. Of the 337 medications for which duration of use was specified, 82.8% had been taken for years and 17.2% for months. Of 205 respondents, 67.3% were taking at least one medication and using diet/exercise, and 26.8% were not taking medication but were using diet/exercise to manage their blood glucose.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **TYPE 2 DIABETES and HYPER/DYSLIPIDAEMIA**. You may tear out this page as a guide to completing the following section of forms.

INSTRUCTIONS

Ask **ALL** of the next **30 PATIENTS** the following questions in the order in which the patients are seen.

Please **DO NOT** select patients to suit the topic being investigated.

Type 2 diabetes and/or hyper/dyslipidaemia

Please use the tick boxes to indicate if this patient has either **Type 2 diabetes** and/or **hyper/dyslipidaemia**.

If the patient **does not have** either Type 2 diabetes and/or hyper/dyslipidaemia you should **end the questions here**.

Morbidity

Please use the tick boxes to advise whether the patient has ever been **diagnosed** with any of the **listed conditions**.

NB - moderate/severe renal insufficiency defined as creatinine \leq 50ml/min.

Patient smoking status (if 18+ years)

Please use the tick boxes to advise whether or not the patient is a **current smoker**.

Test levels

Please advise the patient's levels at the **most recent testing**, of **HbA1c**; **total cholesterol**; **LDL cholesterol**; **HDL cholesterol**.

If you **do not know** one of these levels, or if the patient has **never had** one or more of these **levels tested**, please tick the box labelled '**don't know / never tested**'.

Medication / management for blood glucose levels

Medications - Please advise the **name and regimen** of any **medication/s** currently being taken by the patient for **management of their blood glucose levels**. NB - if insulin is used, write the name only - regimen details are not required.

Duration of use - Please **write a number** in the space provided, and **circle an option** to indicate **months or years**, to advise the approximate **length of time** the medication has been taken by the patient.

If **no medication** is currently being taken for blood glucose management, please tick the box labelled '**no medication**'.

Please **circle an option** to advise whether **diet and/or exercise** are part of the patient's blood glucose management.

If the patient is currently taking **2 or more agents** (even if in 1 product) for blood glucose control please indicate the patient's **HbA1c level prior to the addition of the most recent medication**. If the **HbA1c level** prior to the addition of the most recent medication is **unknown** (e.g. you are not this patient's regular GP) please tick the box labelled '**don't know**'.

Does this patient have:

- Hypertension
- Congestive heart failure
- Coronary heart disease
- Mod/severe renal insuff.
- Metabolic syndrome
- None of the above

Does this patient also have:

- Type 2 diabetes
- Hyper/dyslipidaemia
- Neither of the above → **End questions**

BL-103B

Is the patient a **current smoker**?

Yes
 No

What are the patient's most recent levels of:

HbA1c _____ % Don't know/ never tested

Total chol _____ mmol/L

LDL-C _____ mmol/L

HDL-C _____ mmol/L

The current medication / management for this patient's BLOOD GLUCOSE levels is / are:

Name & Form	Strength	Dose	Frequency	Duration of use
_____	_____	_____	_____	(mths/yr)
_____	_____	_____	_____	(mths/yr)
_____	_____	_____	_____	(mths/yr)
_____	_____	_____	_____	(mths/yr)

If the patient is on 2 or more agents, what was the HbA1c prior to the addition of the most recent medication? HbA1c _____ %

No medication Diet/exercise? Yes/No Don't know

SAND abstract number 131: Prevalence and management of migraine

Organisation supporting this study: Janssen-Cilag Pty Ltd

Issues: Prevalence of migraine among patients attending general practice; frequency of migraine attacks; current and previous prophylaxis medication; current acute medications.

Sample: 3,095 patients from 105 GPs; data collection period: 10/06/2008 – 14/07/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The sex distribution of the sampled patients was similar but included significantly fewer younger patients than patients at all BEACH encounters 2007-08:

Of the 3,095 surveyed patients, 253 (8.2%, 95% CI: 6.7-9.6) suffered from migraine attacks. Prevalence of migraine was significantly higher among females (11.1%, 95% CI: 9.0-13.2) than males (4.5%, 95% CI: 3.1-5.8), was uncommon in patients younger than 25 years, and significantly more common among patients aged 25-64 years than among older patients. Of 229 patients with migraine who reported attack frequency, 57.2% experienced less than one migraine per month. One in ten migraine patients had one or two migraines per month (11.4% and 9.6% respectively) and 21.8% experienced migraine three or more times per month. Reported number of migraine attacks per month was similar for males and females.

Of 250 patients with migraine who responded to the question on prophylaxis medication usage, 35 (14.0%, 95% CI: 8.3-19.7) were on current prophylaxis medication. Among 229 migraine patients for whom attack frequency and medications were known, those experiencing 2 or 3+ migraines per month were significantly more likely to be taking prophylaxis medication (31.8% and 24.0%) than those having less than one migraine per month (5.3%). As migraine frequency increased, the proportion using current prophylaxis medication increased (trend test: $p < 0.001$). Most frequently used prophylaxis medications were pizotifen and propranolol, which together accounted for 55.3% of all prophylaxis medications. Of 245 patients with migraine who reported previous prophylaxis usage, 9.8% ($n = 24$) had previously used a prophylaxis medication, mainly propranolol and pizotifen. Of these, 10 (41.7%) had switched to another prophylaxis, and 7 (29.2%) stopped medication due to successful treatment.

Of 244 patients with migraine who reported rescue medication usage, 194 (79.5%, 95% CI: 73.1-86.0) were currently using rescue medication when required; a stark contrast to prophylaxis use. Likelihood of use of rescue medication increased significantly with migraine frequency, from 71.7% of those having less than 1 migraine per month, to 80.0%, 95.5% and 90.0% of those having 1, 2 or 3+ migraines per month (trend test: $p < 0.001$). Most common acute medications were paracetamol, paracetamol/codeine and ibuprofen.

Overall, in 2008, 14.0% of patients with migraine attending general practice were currently on prophylaxis medication, with most on pizotifen or propranolol. In contrast, most migraine patients used acute medication as needed.

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 **PATIENTS WITH 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 indicate by ticking the appropriate box whether this patient suffers from **migraine** attacks, either initially diagnosed today or at a previous encounter, in the past 12 months, or more than 12 months ago (by you or by another GP).
If 'no' you should **end the questions here**.
If 'yes' to any of the options, please continue.

Migraine frequency

Please advise the approximate **number of times** the patient would usually experience a **migraine episode during a month**.

Current migraine medication

Please write the **name and regimen** of the **current prophylaxis medication** being taken by the patient to prevent migraine.
If **no** prophylaxis medication is currently being taken please tick the box labelled 'none'.
In the space below, please write the **name and regimen** of any medication (oral, nasal spray or injection) taken during an **acute attack** or as '**rescue**' medication taken acutely for **breakthrough** migraine.
If **no** acute or rescue medication is usually taken please tick the box labelled 'none'.
For each medication, please write the approximate **duration this patient has been using the medication** in the space provided, and **circle an option** to indicate weeks, months or years.

Previous prophylaxis medication

If the patient was taking a **different prophylactic medication prior to the one currently taken**, please write the **name and regimen** and **duration of use** for the **previous prophylactic medication**.

Please write the **most recent** previous medication only, and use the tick boxes to advise **why** this medication was **discontinued**.

If discontinuation occurred because of **side effects**, please write the **main side effect/s** experienced in the space provided. If discontinuation occurred because of a reason other than those listed, please tick the box labelled 'other' and write the reason in the space provided.

If **no prophylaxis medication** was taken **prior** to the current one, or if prophylaxis medication is **not being taken at all**, please tick the box labelled 'none'.

Patients seeking rescue medication

Please advise **how frequently** the patient consults a **GP** or an **after hours service**, at the time of a migraine episode, for **rescue** medication.

<p>Does this patient suffer from migraine attacks?</p> <p><input type="checkbox"/> No → End questions</p> <p><input type="checkbox"/> Yes - diagnosed ...</p> <p><input type="checkbox"/> Today</p> <p><input type="checkbox"/> In the past 12 mths</p> <p><input type="checkbox"/> > 12 mths prior</p> <p style="text-align: right;"><small>BL103.C</small></p>	<p>If 'yes' migraine frequency per month is:</p> <p><input type="checkbox"/> < 1</p> <p><input type="checkbox"/> 1</p> <p><input type="checkbox"/> 2</p> <p><input type="checkbox"/> ≥ 3</p>	<p>Current prophylaxis medication is:</p> <table border="1"> <tr> <td>Name & Form</td> <td>Strength</td> <td>Dose</td> <td>Frequency</td> <td>Duration of use</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td><small>wks/mths/ys</small></td> </tr> </table> <p>Acute or 'rescue' medication is:</p> <table border="1"> <tr> <td>Name & Form</td> <td>Strength</td> <td>Dose</td> <td>Frequency</td> <td>Duration of use</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td><small>wks/mths/ys</small></td> </tr> </table>	Name & Form	Strength	Dose	Frequency	Duration of use					<small>wks/mths/ys</small>	Name & Form	Strength	Dose	Frequency	Duration of use					<small>wks/mths/ys</small>	<p>Previous prophylaxis medication (if any) was:</p> <table border="1"> <tr> <td>Name & Form</td> <td>Strength</td> <td>Dose</td> <td>Frequency</td> <td>Duration of use</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td><small>wks/mths/ys</small></td> </tr> </table> <p>Reason for discontinuing use was:</p> <p><input type="checkbox"/> Lack of efficacy</p> <p><input type="checkbox"/> Side effects</p> <p><input type="checkbox"/> Cost</p> <p><input type="checkbox"/> Withdrawal after successful treatment</p> <p>Other _____ (please specify)</p>	Name & Form	Strength	Dose	Frequency	Duration of use					<small>wks/mths/ys</small>	<p>Does the patient consult a GP/Out of Hours Service at the time of migraine for rescue medication?</p> <p><input type="checkbox"/> Never/almost never (0-20%)</p> <p><input type="checkbox"/> Some of the time (21-40%)</p> <p><input type="checkbox"/> Half of the time (41-60%)</p> <p><input type="checkbox"/> Most of the time (61-80%)</p> <p><input type="checkbox"/> Always almost always (81-100%)</p>
Name & Form	Strength	Dose	Frequency	Duration of use																														
				<small>wks/mths/ys</small>																														
Name & Form	Strength	Dose	Frequency	Duration of use																														
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Name & Form	Strength	Dose	Frequency	Duration of use																														
				<small>wks/mths/ys</small>																														

SAND abstract number 132: Prevalence and patterns of multimorbidity

Organisation supporting this study: Australian General Practice Statistics and Classification Centre

Issues: Prevalence of chronic conditions; prevalence of multimorbidity and the patterns of multimorbidity, estimated in three populations: a sample of patients at general practice encounters, people who see a GP at least once in a year (the attending population), and the Australian population.

Sample: 8,677 patients from 289 GPs; data collection period: 15/07/2008 – 04/05/2009.

Method: Morbidity was defined according to the 16 domains of the Cumulative Illness Rating Scale (CIRS). Multimorbidity was defined as the presence of illness in two or more CIRS domains. Methods are as described elsewhere in detail¹⁸ except that in this study all diagnosed problems were recorded and adjustment for those who did not attend general practice was more specifically undertaken by age-sex groups.

Summary of results

The age and sex distributions of patients at these encounters were similar to the total 2007–08 BEACH encounters with 41.8% of patients being male and 28.1% aged 45–64 years of age.

There were no chronic conditions currently under management in 33.3% of the patients sampled, in 40.7% of the attending population and in 49.0% of the Australian population. One-quarter (24.4%) of the sample, 26.4% of the attending population and 21.9% of the Australian population had morbidity(ies) in only one CIRS domain. Two-fifths (42.3%) of the sample, 32.9% of the attending population and 29.1% of the Australian population had multimorbidity. Prevalence of multimorbidity increased with patient age, 6.8% (95% CI: 4.8–8.8) of sampled young adults aged 15–24 years having multimorbidity compared with 89.8% (95% CI: 87.6–92.1) of those aged 75–84 years. The number of CIRS domains also increased with patient age, only 0.3% (95% CI: 0.0–0.6) of sampled young adults aged 15–24 years having diagnoses in five or more CIRS domains compared with 31.4% (95% CI: 24.2–38.7) of sampled patients aged 75–84.

The most common CIRS domains among the patient sample were vascular conditions (33.7%, $n = 2,923$), musculoskeletal conditions (28.0%), psychological problems (21.5%) and endocrine conditions (19.8%). After adjusting for visit frequency, the most common CIRS domains among people who see a GP at least once in a year were vascular conditions (25.0%), then musculoskeletal (21.3%), psychological (19.3%) and endocrine conditions (16.1%). After adjusting for people who do not attend general practice in a year, the most common CIRS domains in the Australian population were vascular (22.4%), musculoskeletal (18.8%), psychological (16.5%) and endocrine conditions (14.1%).

The most common multimorbidity combination was one or more vascular condition(s) + one or more musculoskeletal condition(s) (with or without other CIRS domain conditions), present in 17.1% of patients sampled, 11.4% of people who see a GP at least once in a year and 10.4% of the Australian population.

The following page contains the recording form and instructions with which the data in this abstract were collected.

SAND abstract number 133: Generic medication substitution for general practice patients

Organisation supporting this study: Australian Government Department of Health and Ageing

Issues: Decisions regarding use of generic medication substitution in Australian general practice patients; reasons for not allowing generic substitution; number of medications regularly taken by patients; generic substitution decision for medications prescribed at the current encounter.

Sample: 2,974 patients from 101 GPs; data collection period: 19/08/08 – 22/09/08.

Method: Detailed in the paper entitled 'SAND Method: 2008–09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The sex distribution of the patient sample (57.8% female) reflected that of all BEACH encounters. The age distribution differed from that of all BEACH encounters in 2007–08, with significantly fewer patients aged 25–44 years, 20.4% (95% CI:18.3–22.5) compared with 23.4% (95% CI: 22.7–24.1).

Of the 2,974 patients for whom details about generic medication substitution were provided, the vast majority (90.8%) were always allowed generic substitution, 4.2% were sometimes allowed substitution and for 5.0% substitution was never allowed. Patients aged 65 years and over were significantly less likely to be always allowed substitution (86.0%, 95% CI: 79.2–92.7) compared with patients aged 1–17 years (97.0%, 95% CI: 94.4–99.6).

Of the 273 patients who were not allowed or only sometimes allowed generic substitution, reasons for this decision were provided for 267 patients. Multiple responses were allowed and a total of 405 reasons were recorded. GP preference was the most commonly reported reason for restricting/not allowing generic substitution (59.9% of these patients, $n = 160$), and for 46.4% of these patients ($n = 124$) it was the sole reason for restricting/not allowing substitution. Patient-based factors were also common reasons for restricting/not allowing generic substitution and included use of multiple medications (21.7% of patients), patient age (17.2%), mental state (14.6%) and complex medication regimen (10.1%).

Of the 267 patients for whom generic substitution was restricted/not allowed, one-third were not taking any prescribed or over-the-counter medications on a regular or ongoing basis ($n = 86$), one-quarter were taking one to two medications ($n = 67$), 19.1% were taking three to four medications, and 23.6% were taking five or more medications.

GPs were asked to record the generic substitution status of medications prescribed at the current encounter. For 59.3% ($n = 162$) of the 273 patients for whom generic substitution was restricted/not allowed, at least one medication was prescribed at the encounter, and of these 162 encounters, generic medication substitution was not allowed for any medications at 68.5%, substitution was allowed for all medications at 20.4% and selected substitution was allowed at 11.1%.

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 **GENERIC MEDICATION SUBSTITUTION**. 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.

Generic substitution

Please use the tick boxes to advise whether you **allow generic substitution of prescribed medications** for this patient (regardless of whether you did or did not prescribe a medication today).

If you **always allow generic substitution** for this patient please **end the questions** here for this patient.

Number of medications

Please advise the **number of prescribed medications and/or GP-advised over-the-counter (OTC) medications** (e.g. low dose aspirin for cardiovascular prevention, paracetamol for analgesic management of osteoarthritis), this patient takes on a daily or regular basis for ongoing management. (Please discuss with the patient if necessary.)

Do not include vitamins, minerals and other complementary medicines that you have not advised.

No / restricted generic substitution

If you **DO NOT ALLOW** or if you **RESTRICT generic substitution** for this patient, please use the tick boxes to indicate the **reason(s)** that you **do not allow or restrict generic substitution** for this patient.

Critical dose medications are defined as those where small differences in dose may lead to serious therapeutic failures and/or serious adverse drug reactions.*

Tick as many boxes as apply.

If the reason is not listed please tick **'other'** and write the reason(s) in the space provided.

* Adapted from Health Canada. Guidance for Industry, Bioequivalence requirements: critical dose drugs. Available from: www.hc-sc.gc.ca

Medications prescribed today

For **medications prescribed at today's encounter** if substitution of generics is **NOT allowed** for:

- **Selected medications**—please write the names of medications for which generic substitution was NOT allowed
- **ALL medications**—please tick the box labelled **'all of today's meds'**.

If **no prescriptions** were given at **today's encounter** please tick the box labelled **'no prescriptions today'**.

In general, do you allow generic substitution of prescribed medications for this patient?

- Yes - always → End questions
- Yes - sometimes
- No

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If you do not allow, or if you restrict, generic substitution for this patient what is / are the reason(s)?

- Patient's age (Tick all that apply)
- Patient's mental state
- Allergy
- Multiple medications
- GP preference
- Other... please specify _____
- Complexity of current regimen
- Critical dose medication(s) _____
- Avoidance of adverse events _____

How many prescribed and/or GP-advised OTC medications is this patient taking on a daily/regular ongoing basis?

- 0
- 1-2
- 3-4
- 5-8
- 9-12
- >12

TODAY'S MEDICATION(S) for this patient:

Please write the names of medications prescribed today for which generic substitution was **NOT allowed**:

- All of today's meds
1. _____
2. _____
3. _____
4. _____
- No prescriptions today → End questions

SAND abstract number 134: Antipsychotic medication use in general practice patients

Organisation supporting this study: Pfizer Australia

Issues: Prevalence of antipsychotic medication use in Australian general practice patients; conditions for which antipsychotics are being used; current antipsychotic used; previous antipsychotic; reason for previous medication/ regimen change; side effects of current antipsychotic; management of side effects.

Sample: 2,961 patients from 101 GPs; data collection period: 19/08/2008 – 22/09/2008.

Method: Detailed in the paper entitled 'SAND Method 2008–09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The age distribution of the patient sample differed from that of 2007–08 BEACH encounters, with fewer patients aged 1–4 years (3.2%, 95% CI: 2.6–3.9 compared with 4.3%, 95% CI: 4.1–4.6) and marginally more patients aged 75 years and over (18.7%, 95% CI: 15.5–21.8 compared with 14.7%, 95% CI: 13.9–15.5). The sex distribution of patients was similar to that for all BEACH encounters, 58.4% being female.

Of the 2,961 respondents, GPs indicated that 103 patients (3.5%, 95% CI: 2.5–4.5) were currently taking antipsychotic medication. There were no statistically significant differences in prevalence across age groups of patients, but age-specific rates suggested a trend towards higher use of antipsychotic medication among the 25–44 years age group, the 45–64 years age group, and patients aged 75 years and over. There was no significant difference between the proportion of male (4.0%, 95% CI: 2.3–5.7) and female (3.1%, 95% CI: 2.2–4.1) patients on antipsychotic medication.

Of 85 respondents to the question on condition(s) being treated with the antipsychotic medication, 27 patients (31.8%) were being prescribed antipsychotic medication for schizophrenia, 22 (25.9%) for bipolar disorder, 18 (21.2%) for dementia, 11 (12.9%) for schizoaffective disorder, six (7.1%) for other psychoses and six for other conditions.

There were 102 medications listed for 88 patients. The most common current medications were olanzapine (28.4% of current medications), quetiapine (15.7%) and risperidone (13.7%). Information on who initiated the current antipsychotic medications was provided for 79 medications, the majority of which (73.4%) were initiated by a specialist.

Details of the most recent previous antipsychotic medications were provided for 16 patients, and these were equally likely to have been initiated by the GP (56.3%) or a specialist (43.8%). Five patients had a change of regimen in the same medication, and 11 changed to a new medication. Of these 11 previous medications, the most common was olanzapine ($n = 4$). Lack of efficacy was the most common reason given for medication/regimen change.

Thirty (38.5%) of 78 respondents reported side effect(s) of their current antipsychotic medication. Weight gain (14.1%) and too much sedation (14.1%) were the most common. For the 29 respondents to the question on management of the side effect, GPs indicated that for 11, monitoring was the only management. For seven patients, management was referral to a psychiatrist, and for five patients, management was a change the dosage of the medication.

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 **ANTIPSYCHOTIC MEDICATION**. 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.

Antipsychotic medication

Please advise whether this patient is **currently** taking an antipsychotic medication.

If **'No'** please end questions here for this patient.

Medication management

Please write the **name and form of the current antipsychotic medication(s)** taken by this patient. Please indicate the regimen (i.e. **strength, dose and frequency**) of the medication(s) and circle an option to advise whether the medication was **initiated** by a GP or a specialist.

If the patient's current antipsychotic medication is not the medication or regimen **originally** prescribed please provide **details of the most recent previous medication, or previous regimen**.

Indication for antipsychotic medication

If the patient is currently taking an antipsychotic medication please advise the **condition(s)** for which it was prescribed.

Change in medication

If the patient's antipsychotic medication or regimen was **changed** since originally prescribed, please use the tick boxes to advise the **reasons for the most recent change**.

If the medication or regimen was changed because of **side-effects** or **other reasons** please **specify** these in the spaces provided.

Side-effects of current medication

Please advise whether the patient has ever **experienced** any **side-effects** on their **current antipsychotic medication(s)**.

Please indicate the **severity of the side effect** 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 hospitalisation and/or long term limitation of daily activities.

Management of side-effects

Where the patient has **experienced side-effects** on their **current antipsychotic medication(s)** please use the tick boxes to indicate **how you will or did manage the patient**.

<p>Is this patient currently taking an antipsychotic medication?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No → End questions</p>	<p>Prescribed for:</p> <p><input type="checkbox"/> Schizophrenia</p> <p><input type="checkbox"/> Schizoaffective dis.</p> <p><input type="checkbox"/> Bipolar disorder</p> <p><input type="checkbox"/> Dementia</p> <p><input type="checkbox"/> Other psychoses</p> <p><input type="checkbox"/> Other _____</p> <p>(please specify)</p>	<p>Current antipsychotic medication is/are:</p> <table border="0"> <tr> <td>Name & Form</td> <td>Strength</td> <td>Dose</td> <td>Freq</td> <td>Initiated by</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>GP / Specialist</td> </tr> </table> <p>Most recent previous antipsychotic medication was:</p> <table border="0"> <tr> <td>Name & Form</td> <td>Strength</td> <td>Dose</td> <td>Freq</td> <td>Initiated by</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>GP / Specialist</td> </tr> </table>	Name & Form	Strength	Dose	Freq	Initiated by	_____	_____	_____	_____	GP / Specialist	Name & Form	Strength	Dose	Freq	Initiated by	_____	_____	_____	_____	GP / Specialist	<p>If med/regimen has changed, what was the reason(s):</p> <p><input type="checkbox"/> Lack of efficacy</p> <p><input type="checkbox"/> Side effects... (please specify) _____</p> <p><input type="checkbox"/> Suboptimal dosage</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Don't know</p> <p>(please specify)</p>	<p>Any side-effects on current medication:</p> <p><input type="checkbox"/> Extrapyramidal side-effects... Mild / Mod / Severe</p> <p><input type="checkbox"/> Weight gain... Mild / Mod / Severe</p> <p><input type="checkbox"/> Raised prolactin... Mild / Mod / Severe</p> <p><input type="checkbox"/> Increased cholesterol... Mild / Mod / Severe</p> <p><input type="checkbox"/> Too much sedation... Mild / Mod / Severe</p> <p><input type="checkbox"/> Other _____</p> <p>(please specify)</p>	<p>Severity (please circle)</p> <p>Mild / Mod / Severe</p>	<p>If side-effect on current med how will/did you manage this?</p> <p><input type="checkbox"/> Change in dosage</p> <p><input type="checkbox"/> Referral to psychiatrist</p> <p><input type="checkbox"/> Treatment of side effects</p> <p><input type="checkbox"/> Monitor patient only</p> <p><input type="checkbox"/> Cease medication</p> <p><input type="checkbox"/> Other: _____</p> <p>(please specify)</p>
Name & Form	Strength	Dose	Freq	Initiated by																						
_____	_____	_____	_____	GP / Specialist																						
Name & Form	Strength	Dose	Freq	Initiated by																						
_____	_____	_____	_____	GP / Specialist																						

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SAND abstract number 135: Diabetes in general practice patients

Organisation supporting this study: Sanofi-Aventis Australia Pty Ltd

Issues: Prevalence of Type 1 (T1D) and Type 2 diabetes (T2D) among general practice patients; the proportion of patients with diabetes referred in the previous 12 months to: diabetes nurse educator, practice nurse, endocrinologist, ophthalmologist, dietitian, podiatrist, or other health professional; the proportion using insulin and the type being used: basal insulin; intermediate acting insulin; fast acting insulin; for those on insulin, who initiated therapy; other medications being taken for diabetes.

Sample: 2,921 patients from 101 GPs; data collection period: 23/09/2008 – 27/10/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age distribution of patients differed from the distribution for patients at all BEACH encounters 2007-08, with fewer patients aged 15-44 and more aged 65 years and over. The sex distribution was similar to that of patients at all BEACH encounters, with the majority (58.6%) of patients being female.

Among the 2,921 patients, the prevalence of diabetes was 11.2% (95% CI: 9.4-13.1). Prevalence of T1D was 1.8% (95% CI: 1.2-2.3) and of T2D was 9.5% (95% CI: 7.7-11.2). Age had no effect on the prevalence of T1D. The sex distribution of the T1D patients was no different from the total sample. Among the 276 patients with T2D for whom age was known, the 65-74 years age group had the highest age-specific rate of T2D (21.2%).

Of 51 patients with T1D, 44 (86.3%) had been referred at least once in the past year. The most frequent referrals were to ophthalmologists (58.8% of T1D patients), endocrinologists (56.9%), diabetes nurses (41.2%), podiatrists (31.4%), and dietitians (23.5%). Of 264 respondents with T2D, 87.5% had been referred in the past year. Most (58.3% of T2D patients) had been referred to ophthalmologist, 43.2% to podiatrists, 37% to each of diabetes nurses, endocrinologists and dietitians, and 18.9% to practice nurses. GPs recorded that 38 (74.5%) of T1D patients were using insulin. Basal insulin only was used by 50.0% and 36.8% were using a combination of basal and fast-acting insulin. Almost half of the T1D patients (47.1%) were on insulin only and 27.5% were taking insulin with another diabetes medication. Ten patients were on another medication only, and three patients were using diet and exercise only to manage their diabetes.

Of 261 respondents with T2D, 32 (12.3%) were using insulin. Most (81.3%) were using only basal insulin and 18.8% were using a combination of basal and fast-acting insulin. There were 21 patients who were taking insulin with another diabetes medication. Of T2D respondents, 183 (70.1%) were using 267 individual medications other than insulin to manage the disease. Half (58.1%) were on metformin and 25.8% were on gliclazide. A quarter of patients (25.7%) managed their T2D using diet and exercise only.

Almost two-thirds of all diabetes patients had their insulin therapy initiated by a specialist and for just under 20% it was initiated by a GP alone.

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

INSTRUCTIONS

Ask **ALL** of the next **30 PATIENTS** the following questions in the order in which the patients are seen.

Please **DO NOT** select patients to suit the topic being investigated.

Diabetes

Please use the tick boxes to indicate whether this patient has either **Type 1** or **Type 2 diabetes**.
If the patient has **neither** Type 1 or Type 2 diabetes you should **end the questions here** for this patient.

Referrals to other clinicians

Please use the tick boxes to advise whether the patient has been referred in the past 12 months to any of the listed **specialists** or allied **health workers**. For a referral to a specialist or allied health worker not listed, please tick the box labelled **'other'** and **specify** in the space provided.

Please tick as many as apply.

If **no referrals** were made to a specialist or allied health worker, please tick the box labelled **'none of the above'**.

Diabetes medication

If the patient has either **Type 1** or **Type 2 diabetes**, please use the tick boxes to indicate the **insulin being used by the patient** (if insulin is being used for diabetes management).

If the patient is **not** taking insulin, please tick the box labelled **'No insulin'**.

In the second section, please write the **name and regimen of other medications** currently being taken by the patient to **manage their diabetes**.

If the patient's diabetes is managed with **diet and exercise only**, i.e. they are taking **no** medication, please tick the box labelled **'No medication - diet / exercise controlled'**.

Initiation of insulin

If the patient is currently taking **insulin** for diabetes management, please advise whether the insulin was **initiated by yourself** or **another GP only**, by a **GP in consultation** with an **endocrinologist**, or by an **endocrinologist only**.

Does this patient have:

- Diabetes Type 1
 Diabetes Type 2
 Neither → **End questions**

EL1006B

In past year was a referral made to -

- Diabetes nurse educator (please tick all that apply)
 Practice nurse
 Endocrinologist
 Ophthalmologist
 Dietitian
 Other _____
 None of the above

If either type of Diabetes what medication is the patient taking?

Intermediate acting insulin

- aspart protamine suspension.
 lispro protamine suspension.
 neutral-isophane (NPH)

Fast acting insulin

- aspart
 lispro
 neutral

NO INSULIN

Oral/other diabetes medication is-

Name & form	strength	dose	frequency

No med'n - diet / exercise controlled

If taking insulin, was the insulin initiated by -

- GP only
 GP in consultation with endocrinologist
 Endocrinologist only

SAND abstract number 136: Depressive disorders in general practice patients

Organisation supporting this study: AstraZeneca Pty Ltd (Australia)

Issues: Prevalence of diagnosed depressive disorders in general practice patients; the specific type of depressive disorders; medications recorded for the management of depressive disorders; whether a selective serotonin reuptake inhibitor (SSRI) or a serotonin-norepinephrine reuptake inhibitor (SNRI) was being used and its effectiveness.

Sample: 2,977 patients from 101 GPs; data collection period: 23/09/2008 – 27/10/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. In this study effectiveness of medication was ranked from 1 (no effect) to 5 (resolution of symptoms).

Summary of results

There was a significantly smaller proportion of patients aged 1–44 years (35.9% compared with 44.7%), and a significantly larger proportion of 45–64 year old patients (31.9%, 95% CI: 29.4–34.4 compared with 28.1%, 95% CI: 27.5–28.6) compared with total 2007–08 BEACH encounters. The sex distribution of patients at encounters was similar to that of all patients at 2007–08 BEACH encounters.

Of the 2,977 respondents, 507 (17.0%, 95% CI: 14.8–19.3) currently had a diagnosed depressive disorder. Of these patients, age was known for 505 and sex for 503. Patients aged 45–64 years had the highest prevalence of depressive disorder (22.6%, 95% CI: 19.5–25.7), followed by patients aged 25–44 years (20.1%, 95% CI: 15.9–24.3). Prevalence decreased significantly among those aged 65–74 years (13.3%, 95% CI: 9.3–17.2). Among patients aged 75 and over, 16.0% (95% CI: 11.5–20.5) had a depressive disorder. There was no difference among males (14.3% 95% CI: 11.8–16.8) and females (19.2% 95% CI: 16.3–22.1).

Type of depressive disorder was known for 493 patients of whom 34.1% had a generalised depressive disorder, 23.1% had major depressive disorder, 34.5% had mixed anxiety/depressive disorder, 6.9% had bipolar disorder and 5.9% had another type of depressive disorder.

Of the 489 respondents for whom medication details were recorded, 105 patients (21.5%) were not taking any medication for their depressive disorder, 323 (66.1%) were taking one medication, 38 (7.8%) were taking two, 16 patients were taking three, and 7 patients were taking four. A total of 475 medications were being taken, the most common being sertraline (19.2% of medications), venlafaxine (11.8%) and escitalopram oxalate (9.1%)

Of the 489 respondents for whom medication details were recorded, 48.3% ($n = 236$) were taking an SSRI, 17.8% ($n = 87$) were on an SNRI, and 166 patients (34.0%) were taking neither of the two drug types.

Of 212 respondents on an SSRI, Rank 4 was recorded for 43.4% and Rank 5 was recorded for another 25.0%. Of 65 respondents taking an SNRI, Rank 4 was recorded for 46.2% and Rank 5 for 16.9%.

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.

Depressive disorders

Please indicate whether this patient has been diagnosed with a **depressive disorder**.

If 'no' please **end questions here** for this patient.

Medication management

Please write the **name** and **form** of the **current medication(s)** taken by this patient for their depressive disorder.

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 depressive disorder please tick the box labelled 'none' and **end the questions here**.

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.

BOX 1: Criteria for major depression*

Patient must have for a duration of at least **TWO WEEKS** of depressed mood or loss of interest or pleasure accompanied by at least 4 of the following symptoms:

- significant appetite or weight loss or gain
- feelings of worthlessness or excessive guilt
- insomnia or hypersomnia
- impaired thinking or concentration; indecisiveness
- psychomotor agitation or retardation
- suicidal thoughts/thoughts of death

*DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th edition)

Effectiveness of SSRI or SNRI

If the patient is **currently taking** a Selective Serotonin Reuptake Inhibitor (**SSRI**) or a Serotonin Noradrenaline Reuptake Inhibitor (**SNRI**) please **rank the effectiveness** of each SSRI or SNRI in the management of this patient (1 = no effect; 5 = resolution of symptoms).

Management of poor effectiveness

If the patient is **currently taking a SSRI** or a **SNRI** with **poor effectiveness** (defined as efficacy rank of 1 or 2 from previous question) please use the tick boxes to advise **how you intend to manage this**.

If your intended management action is not listed please tick the box labelled 'other' and **specify the action in the space provided**.

<p>Does this patient currently have a diagnosed depressive disorder?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No → End questions</p>	<p>If 'yes', which type?</p> <p><input type="checkbox"/> Generalised depressive disorder</p> <p><input type="checkbox"/> Major depressive disorder (see definition on green sheet)</p> <p><input type="checkbox"/> Mixed anxiety/depressive dis.</p> <p><input type="checkbox"/> Bipolar disorder</p> <p><input type="checkbox"/> Other: (please specify)</p>	<p>Current meds for depressive disorders:</p> <table border="1"> <thead> <tr> <th>Name & Form</th> <th>Strength</th> <th>Dose</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p><input type="checkbox"/> NONE → End questions</p> <p style="text-align: right;">BL108C</p>	Name & Form	Strength	Dose	Frequency													<p>If a SSRI or SNRI is currently used please rank its effectiveness: (1 = no effect; 5 = resolution of symptoms)</p> <p>Effectiveness (please circle)</p> <p>SSRI 1 2 3 4 5</p> <p>SNRI 1 2 3 4 5</p> <p><input type="checkbox"/> No SSRI/SNRI → End questions</p> <p style="text-align: right;"><i>(Tick all that apply)</i></p>	<p>If the effectiveness of the current SSRI or SNRI is 1 or 2, how do you intend to manage this?</p> <p><input type="checkbox"/> Increase dose of current SSRI/SNRI</p> <p><input type="checkbox"/> Addition of a mood stabilizer (e.g. lithium)</p> <p><input type="checkbox"/> Addition of an atypical antipsychotic</p> <p><input type="checkbox"/> Change to another SSRI/SNRI</p> <p><input type="checkbox"/> Referral to psychiatrist</p> <p><input type="checkbox"/> Psychological counselling</p> <p><input type="checkbox"/> Other: (please specify)</p>
Name & Form	Strength	Dose	Frequency																	

SAND abstract number 137: Osteoporosis in general practice patients

Organisation supporting this study: National Prescribing Service Ltd

Issues: Medications taken by patients for prevention and treatment of osteoporosis; risk factors for osteoporosis; prevalence of fractures after minor trauma; screening for osteoporosis; frequency of osteoporosis diagnosis after previous screening.

Sample: 2,766 patients from 94 GPs; data collection period: 28/10/2008 – 01/12/2008.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The age and sex distributions of this sample of patients were similar to all patients at 2007-08 BEACH encounters. Of 2,345 respondents to the medication question, 354 (15.1%, 95% CI: 12.3-17.9) were using at least one of the listed medications. A calcium supplement was taken by 224 patients (9.6%), a vitamin D supplement was taken by 181 patients (7.7%), and 111 patients (4.7%) were taking bisphosphonates.

Of 2,743 patients for whom risk factor information was provided, 625 (22.8%) had at least one risk factor for osteoporosis. The proportion of patients with risk factors rose significantly with patient age, from 1.7% of those aged less than 25 years to 52.4% of those aged 75+ years. Among male patients, 15.6% (95% CI: 12.5-18.7) had one or more risk factors. Among female patients, the figure was significantly higher at 27.5% (95% CI: 23.5-31.5).

Of 2,659 respondents to the question on fracture after minor trauma, 190 (7.2%) had experienced this. The incidence was significantly higher among females (7.7%, 95% CI: 6.0-9.3) than among males (3.8%, 95% CI: 2.4-5.2). Incidence of fractures was rare in patients aged less than 45 years (1.3%), then rose with age: 5.4% in those aged 45-54 years, 10.0% in those aged 65-74 years, and 20.1% among those aged 75 years and over.

Of the 653 patients who had at least one of the risk factors and/or fracture after minor trauma, 115 (17.6%) had been referred that day for screening, with the majority (77.7%) being referred for bone mineral density scan. Three hundred and six (46.9%) patients had been referred previously for screening. Of the 653 risk factor and/or fracture patients, 37.2% had never been screened. A significantly higher proportion of female patients were referred for screening compared with male patients.

Of 297 screened respondents, 142 (47.8%) had been diagnosed with osteoporosis. Age was known for 140 of these patients, and over half (56.4%) were aged 75 years and over. Sex of patient was known for 140 of the 142 patients diagnosed with osteoporosis and 85.0% were female. However, there was no significant difference between screened male and female patients in the proportion who had been diagnosed with osteoporosis after screening.

Of 126 patients with diagnosed osteoporosis and fracture information, 67.5% had had at least one fracture, and of 134 patients with osteoporosis with osteoporosis medication details, nine out of ten (89.6%) were taking at least one osteoporosis-related medication.

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

Please read this card and tell your doctor if you answer 'yes' to 1 or more of the questions. You do not have to tell the doctor which questions you have answered 'yes' to, unless you wish to do so.

The One-Minute Osteoporosis Risk Test**

1. Have either of your parents broken a hip after a minor bump or fall?
2. Have you broken a bone after a minor bump or fall?
3. For Women: Did you undergo menopause before the age of 45?
4. For women: Have your periods stopped for 12 months or more (other than because of pregnancy)?
5. For Men: Have you ever suffered from impotence, lack of libido or other symptoms related to low testosterone levels?
6. Have you taken corticosteroids tablets (cortisone, prednisone, etc) for more than 6 months?
7. Have you lost more than 5 cm (2 inches) in height?
8. Do you regularly drink heavily (in excess of safe drinking limits)?
(Safe = 4 standard drinks daily for men, 2 daily for women)*
9. Do you suffer frequently from diarrhoea (caused by problems such as coeliac disease or Crohn's disease)?

** Test designed by the International Osteoporosis Foundation

* Pols R.G. & Hawkes D.V (1992) *Is there a safe level of daily consumption of alcohol for men and women?* Australian Government Publishing service, Canberra .

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **OSTEOPOROSIS**. 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.

Medications

Please use the tick boxes to advise whether the patient is taking any of the listed medications. For bisphosphonate (including combination products), raloxifene and HRT, please write the approximate length of time the patient has been taking these medications by writing a number in the space provided and circling either 'months' or 'years' For Vitamin D and Calcium supplement, please write the daily dose in the space provided, eg 500mg.

Risk factors for Osteoporosis

This question refers to the risk factors listed on the card. Please ask the patient to read the card and advise whether or not they have 1 or more of the risk factors listed. (NB - The patient is not required to indicate which risk factor/s they have, just whether they have one or more.)

Body site

If the patient has suffered fractures following minor trauma, please write the total number of fractures and which body sites were involved. For example, if the patient fractured a wrist two months ago and a hip seven months ago, the total would be 2 and the body sites would be 1. wrist 2. hip

Fractures

Please ask the patient if they have ever suffered fracture/s following minor trauma.

Screening

This question refers to X-ray and Bone Mineral Density (BMD) testing. Please use the tick boxes to advise whether this patient has been referred today for screening, has ever been screened previously, or has never been screened or referred for screening. Please circle the type of screening which the patient has been referred for or previously received. For example, if you are referring the patient today for BMD and the patient was previously screened with X-ray, please write: Referred today for screening? Screened previously? Never screened or referred? Type of screen X-ray / BMD / both X-ray / BMD / both

Diagnosis from screening

if previously screened, was the patient diagnosed with osteoporosis (i.e. BMD T-score of <2.5 or less) as a result of that screening?

<p>is the patient currently taking:</p> <p><input type="checkbox"/> Bisphosphonate Duration of use _____ mths/yrs</p> <p><input type="checkbox"/> Raloxifene (Evista) _____ mths/yrs</p> <p><input type="checkbox"/> HRT _____ mths/yrs</p> <p><input type="checkbox"/> Teriparatide (Forteo) Daily dose _____</p> <p><input type="checkbox"/> Strontium (Protos) _____</p> <p><input type="checkbox"/> Vitamin D supplement _____</p> <p><input type="checkbox"/> Calcium supplement _____</p> <p><input type="checkbox"/> None of the above</p>	<p>Does this patient have 1 or more of the risk factors listed on the enclosed card?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If 'NO' to both, end questions HERE if 'yes' to either, please continue →</p>	<p>Has this patient ever suffered fracture/s following minor trauma?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If 'yes' how many fractures? _____</p> <p>Which body site? (e.g. vertebral, hip, wrist)</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p>	<p>Has this patient been: (tick all that apply)</p> <p><input type="checkbox"/> Referred today for screening?</p> <p><input type="checkbox"/> Screened previously?</p> <p><input type="checkbox"/> Never screened or referred?</p>	<p>Type of screen (please circle)</p> <p>X-ray / BMD / both</p> <p>X-ray / BMD / both</p>	<p>if previously screened, was the patient diagnosed with osteoporosis?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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SAND abstract number 138: Dyslipidaemia in general practice patients

Organisation supporting this study: Abbott Australasia

Issues: Proportion of general practice patients with diagnosed dyslipidaemia or who have their lipid levels managed for other reasons; proportion of these patients who are taking a lipid lowering medication; the types of medications taken; the most recent levels of cholesterol, LDL, HDL and triglycerides (TG); how HDL is specifically being managed.

Sample: 2,627 patients from 89 GPs; data collection period: 02/12/08 – 19/01/09.

Method: Detailed in the paper entitled 'SAND Method: 2008–09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>. Blood pressure levels were defined according to the classification from the Heart Foundation and the Cardiac Society of Australia and New Zealand, available at <www.heartfoundation.org.au/SiteCollectionDocuments/guideline%20lipid%20mgt.pdf>.

Summary of results

The 2,605 patients for whom sex was recorded were less likely to be male (37.3%) and of 2,616 patients for whom age was recorded, a significantly higher proportion were aged 45–64 years (31.5%, 95% CI: 29.1–34.0), when compared with those at all BEACH encounter 2007–08 (42.9% male, and 28.1%, 95% CI: 27.5–28.6 aged 45–64 years).

Of the 2,627 respondents, 727 (27.7%) had dyslipidaemia and 198 (7.5%) were having their lipid levels managed for other reasons. Altogether, 904 patients were having their lipid levels managed for dyslipidaemia and/or other reasons.

There was no significant difference in the proportion of males (38.1%) and females (32.1%) for whom lipids were being managed. The proportion of patients whose lipids significantly increased with age were: 11.9% of those aged 25–44 years, 47.3% of patients aged 45–64 years, 59.3% of those aged 65–74 years and 56.6% of older patients aged 75 years and over.

Of 869 patients having their lipids managed for whom medications were reported, 578 (66.5%) were taking a lipid medication. Male patients (73.7%) were significantly more likely than females (61.2%) to currently be taking a lipid medication. There were 546 patients (62.8%) taking a statin with or without another type of lipid medication, 3.7% were taking a medication other than a statin only, and 33.5% were managing lipids without lipid medication. Of the 546 patients taking lipid medication, 94.5% were taking a statin.

Of 868 patients for whom target status was reported, 23.2% had reached their target for total cholesterol. The average total cholesterol level was 4.9. Of 757 respondents to the question on LDL cholesterol, 44.9% had reached their target. The average LDL cholesterol level was 2.8. Of 767 respondents to the question on HDL cholesterol, 80.1% had reached their target. The average HDL cholesterol level was 1.4. Of 854 respondents to the question on TG, 50.5% had reached their target. The average TG level was 1.7.

Of the 520 respondents who were taking a statin, 230 (44.2%) were having their HDL cholesterol levels specifically managed. The majority (90.4%) were managing HDL with diet, 73.9% were using exercise and 82.2% were using medication.

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.

HDL cholesterol management

We are trying to **gauge whether** the HDL cholesterol level is being **specifically targeted** in your management of dyslipidaemia.

If **yes** please advise how the patient's HDL cholesterol is being managed. If the HDL cholesterol is **not** being specifically targeted please **end the questions here**.

<p>Does the patient have:</p> <p><input type="checkbox"/> Dyslipidaemia</p> <p><input type="checkbox"/> Lipid levels managed for other reasons</p> <p><input type="checkbox"/> Neither of the above → End questions</p> <p>BL1098B</p>	<p>Current lipid lowering medication(s) is:</p> <table border="1"> <thead> <tr> <th>Name & Form</th> <th>Strength</th> <th>Dose</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p><input type="checkbox"/> NO lipid lowering medication</p>	Name & Form	Strength	Dose	Frequency													<p>What are the patient's most recent lipid levels? (please circle)</p> <table border="1"> <thead> <tr> <th></th> <th>mmol/L</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Total chol</td> <td> </td> <td> </td> </tr> <tr> <td>LDL-C</td> <td> </td> <td> </td> </tr> <tr> <td>HDL-C</td> <td> </td> <td> </td> </tr> <tr> <td>TG</td> <td> </td> <td> </td> </tr> </tbody> </table>		mmol/L	Yes / No	Total chol			LDL-C			HDL-C			TG			<p>Is this patient's HDL cholesterol being specifically managed?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No → End questions</p>	<p>→ if 'yes', how is the HDL-C being managed? (Tick all that apply)</p> <p><input type="checkbox"/> Diet</p> <p><input type="checkbox"/> Exercise</p> <p><input type="checkbox"/> Medication</p> <p><input type="checkbox"/> Other: (please specify)</p>
Name & Form	Strength	Dose	Frequency																																
	mmol/L	Yes / No																																	
Total chol																																			
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TG																																			

SAND abstract number 139: Secondary prevention of heart attack and stroke

Organisation supporting this study: National Prescribing Service Ltd

Issues: Proportion of general practice patients who have one or more of a selected list of morbidity risk factors associated with heart attack or stroke; proportion of these patients currently taking one or more of a selected list of antiplatelet/anticoagulant medication; the main reasons for non-use of anticoagulant or antiplatelet medications for secondary prevention in patients with morbidity risk factor associated with heart attack/stroke.

Sample: 2,972 patients from 103 GPs; data collection period: 20/01/09–23/02/09.

Method: Detailed in the paper entitled 'SAND Method: 2008–09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

Patient age was provided for 2,959 patients. Patients were significantly older than average for all BEACH encounters, with a greater proportion aged 65 years and over. Sex of patient was provided at 2,948 encounters and was similar to that of all BEACH encounters.

Of the 2,972 patients, about two in five ($n = 1,156$, 38.9%) had at least one of the listed morbidity risk factors. Risk factor and sex of patient was provided for 2,959 patients, and showed that the proportion with at least one risk factor increased significantly with age: one in ten patients (9.2%) aged 25–44 years, 35.1% of patients aged 45–64 years, 69.1% of patients aged 65–74 years and 79.9% of patients aged 75 and over.

Of the 2,972 patients, 923 (31.1%) had hypertension, 125 (4.2%) had atrial fibrillation, and 105 (3.5%) had had an acute myocardial infarction. Stroke/transient ischaemic attack was recorded for 131 (4.4%) patients, stable/unstable angina for 92 (3.1%) and peripheral vascular disease for 58 (2.0%). There were 63 patients (2.1%) who had a previous coronary artery bypass graft, and 44 (1.5%) who had a previous percutaneous transluminal coronary angioplasty (PTCA). Other risk factors were indicated for 7.8% of patients, the most common being diabetes.

Of the 1,156 patients with at least one morbidity risk factor, 1,022 (88.4%) reported whether or not they were currently taking one of the listed antiplatelet/anticoagulant medication. Two-thirds of these patients were taking at least one medication. Aspirin was being taken by 46.3% of patients, warfarin by 11.9% and clopidogrel by 10.7%. One-third ($n = 343$, 33.6%) of the patients were not taking any antiplatelet/anticoagulant medication and reasons were recorded for 319 of these. For almost half of these patients (47.3%), the reason was stated as 'not clinically indicated'. For 16.6% of patients, the reason was a history of peptic ulcer disease or gastro-oesophageal reflux disease, and for 8.2% the reason was an anticipated adverse effect on gastrointestinal tract. Concurrent non-steroid anti-inflammatory drug therapy and other adverse effects (including hypersensitivity) were cited for 5.0% and 3.8% of patients respectively. Seventy-six patients (23.8%) did not use antiplatelet/anticoagulant medication for other reasons, such as patient resistance.

The following page contains the recording form and instructions with which the data in this abstract were collected.

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **SECONDARY PREVENTION OF HEART DISEASE AND STROKE**. 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.

These questions relate to the use of aspirin and other anti-coagulation therapy for the secondary prevention of heart attack and stroke in high-risk patients. Our aim is to identify patients with risk factors; estimate the prevalence of patients taking aspirin, aspirin like medications or herbal preparations with similar anti-coagulant effects; and to estimate the proportion of patients with stated intolerance or allergy to aspirin or similar medications.

Patient risk factors for heart attack or stroke

Please use the tick boxes to indicate whether or not this patient has any of the listed risk factors or comorbidities for heart attack or stroke.

Tick as many boxes as apply.

If the patient has **NONE** of the listed risk factors, please **end** the questions here for this patient.

Medications

Please tick the box beside any anti-platelet or anti-coagulant medications currently being taken by this patient for secondary prevention of heart attack or stroke.

Include **prescribed** and **over the counter** medications such as **aspirin** or **herbal preparations** used for anti-coagulant effects (e.g. **garlic, ginger, ginseng, feverfew, ginkgo, chamomile, bromelain**)

Ask the patient about any over the counter preparations so that these may be included.

Tick as many boxes as apply.

Reasons for non-use of anti-platelet or anti-coagulant medication for secondary prevention

If the patient is not currently taking an anti-platelet / anti-coagulant medication or other preparation for secondary prevention, please use the tick boxes to indicate the **main reason/s** for non-use by this patient.

If you tick the 'other' box, please write the reason in the space provided.

Does this patient have any of these risk factors for heart attack/stroke?

- Hypertension
- Atrial fibrillation
- AMI
- Stroke/TIA
- Stable/unstable angina
- Peripheral vascular disease
- Previous CABGs
- Previous PTCA
- Other _____
(please specify risk factor)
- None of above → **End questions**

Ex. 109B

Which medications are currently being taken?

- Aspirin
- Dipyridamole
- Dipyridamole with aspirin
- Clopidogrel
- Ticlopidine
- Warfarin
- Heparin
- Low mol. weight heparin
- Danaparoid
- Herbal prep. _____
- None of the above

Despite presence of risk factors, aspirin or anti-coagulants are not taken because of:-

- History of PUD or GORD
- Expected adverse effect on GIT
- Concurrent NSAID therapy
- Other adverse effect including hypersensitivity
- Not clinically indicated
- Other _____

SAND abstract number 140: Atrial fibrillation/flutter in general practice patients

Organisation supporting this study: Sanofi Aventis Australia Pty Ltd

Issues: Prevalence of atrial fibrillation or flutter among general practice patients; presence of selected comorbidities (diabetes, hypertension, heart failure, ischaemic heart disease, cerebrovascular/transient ischaemic attack (CVA/TIA), history of myocardial infarction, other CVD) among patients with atrial fibrillation or flutter (AF); current and previous medication taken for AF; whether GP or specialist initiated medication; duration of use; reason for change from previous medication.

Sample: 2,963 patients from 102 GPs; data collection period: 20/01/2009 – 23/02/2009.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The age and sex distributions of this sample of patients were similar to patients at all 2007-08 BEACH encounters. Of the 2,963 patients, 127 (4.3%, 95% CI: 3.4-5.1) had atrial fibrillation and 7 patients (0.2%) had flutter making a total of 134 patients (4.5%) with atrial fibrillation or flutter. There were 2,829 patients (95.5%) who had neither condition. The proportion of patients with atrial fibrillation or flutter rose significantly with age from 2.4% of patients aged 45-64 years to 15.0% of patients 75 years and over. There were no statistically significant differences between the sexes in the proportion with atrial fibrillation or flutter. Among male patients, 5.6% had atrial fibrillation and 0.3% had flutter. The results for females were 3.3% and 0.2%.

Of the 134 patients with atrial fibrillation/flutter (AF patients), 116 (86.6%) had at least one of the conditions and 18 patients (13.4%) had none. Thirty-eight AF patients (28.4%) had one of the comorbidities and another 37 (27.6%) had two. Twenty-five patients (18.7%) had three comorbidities. A total of 258 comorbidities were recorded. Hypertension was the most common condition, recorded for 64.2% of AF patients, followed by heart failure (37.3%), ischaemic heart disease (35.8%) and diabetes (24.6% of AF patients).

Among 128 of the respondents with AF, 123 (96.1%) were currently taking medication for the condition. A total of 222 medications were recorded, of which 72.0% were initiated by a specialist and 28.0% by a GP. For 86.7% of these medications, duration of use was more than 12 months. Antithrombotic agents were the most common (42.8% of medications for AF), and almost all of these were warfarin. Cardiac therapy accounted for 21.2% of medications and about two-thirds of these were digoxin. Beta-blocking agents made up 19.8%, and about two-thirds of these were sotalol or metoprolol. Acetylsalicylic acid (aspirin) was recorded 11 times, and was usually initiated by the GP (63.6%). Other medications initiated more often by the GP were mainly ACE inhibitors but numbers were small for these medications. Of 125 AF respondents, 9 (7.2%) had changed their medication during the previous 12 months. Aspirin and amiodarone were each recorded twice, and half of the patients cited lack of efficacy as the reason for change. Numbers were too small to draw conclusions at this level of analysis.

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 **ATRIAL FIBRILLATION / FLUTTER**. 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.

Atrial fibrillation and atrial flutter

Please use the tick boxes to advise whether this patient has **atrial fibrillation** or **atrial flutter**. If the patient **does not** have either atrial fibrillation or atrial flutter you should **end the questions here**.

Comorbidities

Please use the tick boxes to advise whether the patient has also been **diagnosed** with any of the **listed conditions**. If the patient has a **cardiovascular disease** that is not listed please tick the box labelled 'Other CVD' and **specify the condition**.

Medications for atrial fibrillation/flutter

Please advise which **medication(s)** for **atrial fibrillation/flutter** this patient is currently taking.

Please **include any anticoagulants**.

For each medication please **circle the appropriate responses** to indicate:

- **who initiated the medication** (a GP or specialist)
- **how long** the patient has been taking the medication.

Change in atrial fibrillation/flutter medication

Please advise whether this patient's **atrial fibrillation/flutter medication** has **changed** in the **previous 12 months**.

This question refers to changes in the atrial fibrillation/flutter medication(s) being used. It does not refer to changes in the regimen of the atrial fibrillation/flutter medication(s).

If the **only change** has been a change in regimen (e.g. increased dosage) please tick 'no'.

If the patient's atrial fibrillation/flutter medication has **not changed** in the previous 12 months you should **end the questions here**.

Previous atrial fibrillation/flutter medication

If the patient's atrial fibrillation/flutter medication has changed please write the **name(s)** of the **most recent previous atrial fibrillation/flutter medication(s)** in the space provided.

Reasons for change

Please use the tick boxes to indicate the **reasons** for the **most recent change** in the patient's atrial fibrillation/flutter medication.

Tick as many as apply.

<p>Does this patient have:</p> <p><input type="checkbox"/> Atrial fibrillation</p> <p><input type="checkbox"/> Atrial flutter</p> <p><input type="checkbox"/> Neither of the above → End questions</p> <p>BL109C</p>	<p>Does this patient also have: <i>(Tick all that apply)</i></p> <p><input type="checkbox"/> Diabetes</p> <p><input type="checkbox"/> Hypertension</p> <p><input type="checkbox"/> Heart failure</p> <p><input type="checkbox"/> Ischaemic heart disease</p> <p><input type="checkbox"/> CVA / TIA</p> <p><input type="checkbox"/> Myocardial infarct Hx</p> <p><input type="checkbox"/> Other CVD... <i>(Please specify)</i></p>	<p>Current medications for atrial fibrillation/flutter are:</p> <table border="1"> <thead> <tr> <th>Medication name</th> <th>Initiated by <i>(please circle)</i></th> <th>Duration of use <i>(please circle)</i></th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>GP / Specialist</td> <td><6 / 6-12 / >12mths</td> </tr> <tr> <td>_____</td> <td>GP / Specialist</td> <td><6 / 6-12 / >12mths</td> </tr> <tr> <td>_____</td> <td>GP / Specialist</td> <td><6 / 6-12 / >12mths</td> </tr> <tr> <td>_____</td> <td>GP / Specialist</td> <td><6 / 6-12 / >12mths</td> </tr> </tbody> </table> <p><input type="checkbox"/> No medication for atrial fibrillation/flutter</p>	Medication name	Initiated by <i>(please circle)</i>	Duration of use <i>(please circle)</i>	_____	GP / Specialist	<6 / 6-12 / >12mths	_____	GP / Specialist	<6 / 6-12 / >12mths	_____	GP / Specialist	<6 / 6-12 / >12mths	_____	GP / Specialist	<6 / 6-12 / >12mths	<p>Has the atrial fibrillation/flutter medication changed in the past 12 months?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No → End questions</p>	<p>If 'yes', most recent previous atrial fibrillation/flutter medication(s) was:</p> <p>_____</p>	<p>Reason(s) for change were:</p> <p><input type="checkbox"/> Interactions with other meds <i>(Tick all that apply)</i></p> <p><input type="checkbox"/> Lack of efficacy</p> <p><input type="checkbox"/> Toxicity of medication</p> <p><input type="checkbox"/> Other side effects: <i>(please specify)</i></p> <p>_____</p> <p><input type="checkbox"/> Other: _____</p>
Medication name	Initiated by <i>(please circle)</i>	Duration of use <i>(please circle)</i>																		
_____	GP / Specialist	<6 / 6-12 / >12mths																		
_____	GP / Specialist	<6 / 6-12 / >12mths																		
_____	GP / Specialist	<6 / 6-12 / >12mths																		
_____	GP / Specialist	<6 / 6-12 / >12mths																		

SAND abstract number 141: Smoking cessation attempts and methods used by general practice patients

Organisations supporting this study: Pfizer Australia Pty Ltd

Issues: Smoking status of adults attending general practice; comorbidities of current/previous smokers; quit method/s tried in the previous 2 years by current/previous smokers.

Sample: 2,660 patients aged 18+ from 101 GPs; collection period: 24/02/2009 – 30/03/2009.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: <www.fmrc.org.au/publications/SAND_abstracts.htm>.

Summary of results

The age-sex distribution of adult respondents was similar to the distribution with all 2008-09 adult BEACH encounters, with the majority (59.8%) of patients being female.

Of the 2,660 adult respondents, 384 patients (14.4%, 95% CI: 12.4-16.5) were current smokers, 684 (25.7%, 95% CI: 23.3-28.1) were previous smokers and 1,592 (59.9%, 95% CI: 56.8-62.9) had never smoked. Males were significantly more likely than females to be current smokers (17.7% compared with 12.4%) or previous smokers (37.2% compared with 18.2%). Previous smokers were significantly older (average age 63.0 years, 95% CI: 61.0-64.9) than those who had never smoked (56.6 years, 95% CI: 54.7-58.6) or current smokers (46.7 years, 95% CI: 44.7-48.7).

Of the 1,068 adult current or previous smokers, comorbidity data were available for 974. Of these current/previous smokers, the most common comorbidities from the list provided were high blood pressure (35.6%) followed by high cholesterol (25.6%), depression (20.4%), heart disease (18.5%) and anxiety (17.3%). Diabetes was also relatively common (11.3%). Current smokers were significantly more likely to have mental health problems (depression, anxiety or other mental health conditions) than previous smokers (42.7% compared with 25.2%).

Of the 1,068 adult current/previous smokers, quit methods tried during the previous 2 years were reported for 1,003 and 31.6% (95% CI: 26.9-36.3) of these had attempted to quit: 19.6% had tried to quit using cold turkey, 9.2% had tried nicotine replacement, 18 (1.8%) had tried bupropion, 55 (5.5%) had tried varenicline and 11 (1.1%) tried other methods; multiple quit method response was allowed.

Excluding the 488 previous smokers who quit more than 2 years ago (that is, previous smokers with no quit attempts in the previous 2 years), a two-year quit attempt profile was calculated for 515 current/previous smokers who were current smokers 2 years before. Of these, 198 (38.5%, 95% CI: 32.9-44.0) had made no attempt to quit during the previous 2 years, 141 (27.4%, 95% CI: 20.8-33.9) had successfully quit, and 176 (34.2%, 95% CI: 28.7-39.6) had unsuccessfully attempted to quit. The pattern was similar for males and females.

Of the 317 current/previous smokers who attempted to quit in the previous 2 years, 247 responded to the question on whether they had ever used prescribed medications. About 3 in 10 (29.6%) indicated using prescribed medications in a quit attempt.

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 **USE OF PRESCRIBED MEDICATIONS IN SMOKING CESSATION**. 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.

Smoking status

Please ask the patient if aged 18 years and over:

Which category best describes their smoking status:

If the patient has **never** smoked please **end** questions here for this patient.

Smoking cessation methods

Please ask the patient, in the last 2 years, which **smoking cessation** methods they have tried.

Tick as many as apply.

If the patient has tried a method that is not listed please specify the method in the space provided.

If the patient has made **no attempt** to quit smoking please tick the box labelled 'none' and **end questions** here for this patient.

Other conditions

Please use the tick boxes to indicate whether the patient has **any of the listed conditions**.

Tick as many as apply.

Smoking cessation medication

Please advise the **most recent or current prescribed medication** this patient has taken for **smoking cessation**. Please tick only one option.

If this patient has **never used a prescribed medication for smoking cessation** please tick the box labelled 'No med ever tried' and **end questions here** for this patient.

For the **most recent or current prescribed medication** please specify:

- Current script:** Please indicate whether the patient is **currently taking the medication**.
- Duration of use of medication:** Please indicate whether the patient took the prescribed medication **continually for: 4 weeks or less, or more than 4 weeks**.
- Cause of success:** Please ask **former smokers** whether they believe the medication was the **primary aid to their success at quitting smoking**.

Please answer these questions in regard to the time **prior to taking the medication**:

- Patient motivation:** In your clinical opinion, what was the **patient's** motivation level to quit smoking.
- Years of smoking:** please ask the patient the total **number of years** the patient had been smoking.
- Cigarettes smoked:** please ask the patient the **number of cigarettes** they smoked **daily**.
- Quit attempts:** please ask the patient the **number of attempts** they had made to **quit smoking**.

Smoking support

Please use the tick boxes to indicate the **smoking cessation support** given to the patient **before or at the time of commencing the prescribed medication**.

<p>For patients aged 18+ years:</p> <p>Please describe your smoking status:</p> <p><input type="checkbox"/> Current smoker</p> <p><input type="checkbox"/> Previous smoker</p> <p><input type="checkbox"/> Never smoked → End questions</p> <p>EL1108</p>	<p>Does the patient have any of the following diagnosed conditions:</p> <p><input type="checkbox"/> High blood pressure</p> <p><input type="checkbox"/> High cholesterol</p> <p><input type="checkbox"/> Anxiety</p> <p><input type="checkbox"/> Diabetes</p> <p><input type="checkbox"/> Heart disease</p> <p><input type="checkbox"/> Asthma</p> <p><input type="checkbox"/> Other respiratory disease</p> <p><input type="checkbox"/> Other respiratory health cond'n above</p> <p><input type="checkbox"/> None of the above</p>	<p>In last 2 years, quitting method(s) tried were:</p> <p><input type="checkbox"/> Cold turkey</p> <p><input type="checkbox"/> Nicotine replacement</p> <p><input type="checkbox"/> Bupropion</p> <p><input type="checkbox"/> Varenicline</p> <p><input type="checkbox"/> Other: (please specify)</p> <p><input type="checkbox"/> None → End Qs</p>	<p>Most recent or current prescribed med for smoking cessation is:</p> <p><input type="checkbox"/> Bupropion (e.g. Zyban)</p> <p><input type="checkbox"/> Varenicline (Champix)</p> <p><input type="checkbox"/> No med ever tried → End Qs</p>	<p>Was med current script?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Duration of use (wks):</p> <p>≤4 <input type="checkbox"/> >4 <input type="checkbox"/></p> <p>Yes No</p> <p><input type="checkbox"/> <input type="checkbox"/></p> <p>cause of success?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>Prior to starting the medication:</p> <p>Patient motivation to quit was:</p> <p><input type="checkbox"/> High</p> <p><input type="checkbox"/> Moderate</p> <p><input type="checkbox"/> Low</p> <p>Years of smoking: _____ / years</p>	<p>Support used before/at time of starting med:</p> <p><input type="checkbox"/> Quitline</p> <p><input type="checkbox"/> 'My time to quit'</p> <p><input type="checkbox"/> 'Committed quitters'</p> <p><input type="checkbox"/> GP counselling</p> <p><input type="checkbox"/> Other: (please specify)</p> <p><input type="checkbox"/> None</p>
				<p>Number of quit attempts:</p> <p><input type="checkbox"/> 0</p> <p><input type="checkbox"/> 1-2</p> <p><input type="checkbox"/> 3-5</p> <p><input type="checkbox"/> >5</p> <p><input type="checkbox"/> Don't know</p>	<p>Cigarettes smoked: _____ / day</p>	

SAND abstract number 142: Depression and antidepressant use in general practice patients

Organisation supporting this study: Wyeth Australia Pty Ltd

Issues: Prevalence of current diagnosed depression in the patient sample; 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 (multiple response allowed); their current use of antidepressants; medication side effects thought (GP clinical opinion) due to the antidepressant medication(s).

Sample: 2,963 patients from 101 GPs; data collection period: 24/02/2009 – 30/03/2009.

Method: Detailed in the paper entitled 'SAND Method 2008-09' available at: www.fmrc.org.au/publications/SAND_abstracts.htm.

Summary of results

The sex distribution of surveyed patients was similar to that of patients at all BEACH encounters 2007-08, 41.6% being male. However, this sample was significantly older than patients at all encounters, with fewer patients aged less than 45 years, and a greater proportion aged 65 years and over.

The prevalence of diagnosed depression among the 2,963 patients was 15.1%, (95% CI: 13.3-16.3), and did not significantly differ in males (13.2%) and females (16.5%). It was most prevalent among 25-44 year old patients (20.9%) and those aged 45-64 years (20.7%). Prevalence then decreased significantly to 10.7% among those aged 75 years and over.

Of the 446 patients with depression, 90.1% ($n = 402$) had at least one comorbidity and 64.8% had two or more. Most common among these 402 patients were anxiety (51.8%), insomnia (32.1%), hypertension (29.3%), back complaint (24.0%), and lipid disorder (18.6%).

Of the 446 patients with diagnosed depression, 430 (96.4%) responded to the antidepressant question. Of these, 329 (76.5%) were taking antidepressants and 306 gave details of 323 antidepressants being taken. More than half (54.5%) of these were selective serotonin reuptake inhibitors (SSRIs) (sertraline (15.5%), escitalopram (11.5%), and citalopram (10.2%) being the most common; 13.6% were non-selective monoamine reuptake inhibitors; 1.9% were monoamine oxidase A inhibitors; 30.0% were 'other antidepressants' (venlafaxine being most common). Of the 303 patients with depression for whom side effects were reported, 26.7% ($n = 81$) had 112 side effects (average 1.4 per patient), the most common being sedation (7.9% of those on antidepressants), weight gain (7.3%), and sexual dysfunction (6.6%).

Of the 329 patients taking antidepressant(s) for depression, 306 (93.0%) had comorbidity(ies), 68.4% having two or more, prevalence of each common comorbidity being similar to the total sample of patients with depression. Other prescribed medications were reported for 302 patients taking an antidepressant for depression, 964 being detailed (average 3.2 per patient).

Of 284 patients with depression for whom all data were complete, only one of 54 patients not taking other prescribed medication(s) reported a side effect and 26.5% of those on additional medications reported side effect(s) of antidepressant(s).

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.

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**'.

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**.

Does this patient currently have diagnosed depression?
 Yes
 No → **End questions**

Other diagnosed medical conditions:
 Anxiety *(Tick all that apply)*
 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

EL-110C

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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 that entitles the holder to reduced-cost medicines under the Pharmaceutical Benefits Scheme and a limited number of other concessions from state and local government authorities.

Complaint: A symptom or disorder expressed by the patient when seeking care.

Component (ICPC-2): In ICPC-2 there are seven components which act as a second axis across all chapters.

Consultation: See *Encounter*.

Diagnosis/problem: A statement of the provider's understanding of a health problem presented by a patient, family or community. GPs are instructed to record at the most specific level possible from the information available at the time. It may be limited to the level of symptoms.

- *New problem:* The first presentation of a problem, including the first presentation of a recurrence of a previously resolved problem, but excluding the presentation of a problem first assessed by another provider.
- *Old problem:* A previously assessed problem that requires ongoing care, 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 exposures or that a pre-existing condition has been significantly exacerbated by work activity or workplace exposure.

Encounter (enc): Any professional interchange between a patient and a GP.

- *Indirect:* Encounter where there is no face-to-face meeting between the patient and the GP but a service is provided (for example, prescription, referral).

- *Direct*: Encounter where there is a face-to-face meeting of the patient and the GP.

Direct encounters can be further divided into:

- *Medicare-claimable*
 - *Surgery consultations*: Encounters identified by any one of MBS item numbers 3, 23, 36, 44, 52, 53, 54, 57, 5000, 5020, 5040, 5060, 5200, 5203, 5207, 5208.
 - *Home visits*: Encounters identified by any one of MBS item numbers 4, 24, 37, 47, 58, 59, 60, 65, 5003, 5023, 5043, 5063, 5220, 5223, 5227, 5228.
 - *Hospital encounters*: Encounters identified by any one of MBS item numbers 19, 33, 40, 50, 87, 89, 90, 91.
 - *Residential aged care facility*: Encounters identified by any one of MBS item numbers 20, 35, 43, 51, 92, 93, 95, 96, 5010, 5028, 5049, 5067, 5260, 5263, 5265, 5267.
 - *Health assessments*: Encounters identified by any one of MBS item numbers 700, 702, 704, 706, 708, 710, 712.
 - *Chronic disease management items*: Encounters identified by any one of MBS item numbers 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731.
 - *Case conferences*: 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 the 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 2008–09 recording form

Encounter Number	Date of encounter	Date of Birth	Sex	Patient Postcode	Yes / No New Patient <input type="checkbox"/> <input type="checkbox"/> Health Care/Benefits Card <input type="checkbox"/> <input type="checkbox"/> Veterans Affairs Card <input type="checkbox"/> <input type="checkbox"/> NESB <input type="checkbox"/> <input type="checkbox"/> Aboriginal <input type="checkbox"/> <input type="checkbox"/> Torres Strait Islander <input type="checkbox"/> <input type="checkbox"/>	PATEENT SEEN BY GP <input type="checkbox"/> PATEENT NOT SEEN BY GP <input type="checkbox"/> Medicare Item Nos: (if applicable) 1. _____ Workers comp paid <input type="checkbox"/> 2. _____ State Govt/Other paid <input type="checkbox"/> 3. _____ No charge <input type="checkbox"/>
START Time	Patient Reasons for Encounter	1. _____ 2. _____ 3. _____				
AM / PM (please circle)						
Diagnosis/ Problem 1:	Problem Status	Diagnosis/ Problem 2:	Problem Status	Diagnosis/ Problem 3:	Problem Status	
Drug Name AND Form for this problem	New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/>	Drug Name AND Form for this problem	New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/>	Drug Name AND Form for this problem	New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/>	
1. _____	Frequency No. of Rpts _____	1. _____	Frequency No. of Rpts _____	1. _____	Frequency No. of Rpts _____	
2. _____	Dose _____	2. _____	Dose _____	2. _____	Dose _____	
3. _____	Strength of product _____	3. _____	Strength of product _____	3. _____	Strength of product _____	
4. _____	GP Supply _____	4. _____	GP Supply _____	4. _____	GP Supply _____	
Prac Nurse? <input type="checkbox"/> 2. _____		Prac Nurse? <input type="checkbox"/> 2. _____		Prac Nurse? <input type="checkbox"/> 2. _____		
Procedures, other treatments, counselling this consult for this problem						
1. _____						
Diagnosis/ Problem 4:						
Drug Name AND Form for this problem	New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/>	Drug Name AND Form for this problem	New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/>	Drug Name AND Form for this problem	New <input type="checkbox"/> Old <input type="checkbox"/> Work related <input type="checkbox"/>	
1. _____	Frequency No. of Rpts _____	1. _____	Frequency No. of Rpts _____	1. _____	Frequency No. of Rpts _____	
2. _____	Dose _____	2. _____	Dose _____	2. _____	Dose _____	
3. _____	Strength of product _____	3. _____	Strength of product _____	3. _____	Strength of product _____	
4. _____	GP Supply _____	4. _____	GP Supply _____	4. _____	GP Supply _____	
Prac Nurse? <input type="checkbox"/> 2. _____		Prac Nurse? <input type="checkbox"/> 2. _____		Prac Nurse? <input type="checkbox"/> 2. _____		
Procedures, other treatments, counselling this consult for this problem						
1. _____						
NEW REFERRALS, ADMISSIONS						
1. _____	Problem(s) _____	1. _____	Problem(s) _____	1. _____	Problem(s) _____	
2. _____	Body site _____	2. _____	Body site _____	2. _____	Body site _____	
3. _____	IMAGING/Other tests _____	3. _____	IMAGING/Other tests _____	3. _____	IMAGING/Other tests _____	
To the patient if 18+:						
Which best describes your smoking status?		How often do you have a drink containing alcohol?		How often do you have 6 or more standard drinks on one occasion?		
Smoke daily <input type="checkbox"/>	Smoke occasionally <input type="checkbox"/>	Never <input type="checkbox"/>	Monthly <input type="checkbox"/>	Never <input type="checkbox"/>	Less than monthly <input type="checkbox"/>	
Previous smoker <input type="checkbox"/>	Never smoked <input type="checkbox"/>	Monthly <input type="checkbox"/>	2-3 times a week <input type="checkbox"/>	Monthly <input type="checkbox"/>	Weekly <input type="checkbox"/>	
		2-3 times a week <input type="checkbox"/>	4+ times a week <input type="checkbox"/>	Weekly <input type="checkbox"/>	Daily or almost daily <input type="checkbox"/>	
Height: _____ cm	Weight: _____ kg	To the patient if 18+:		FINISH Time		
		How often do you have a drink containing alcohol?		AM / PM (please circle)		
		Never <input type="checkbox"/>		BA II		

Appendix 2: GP characteristics questionnaire, 2008–09



The University of Sydney
at Westmead Hospital

Australian General Practice
Statistics and
Classification Centre



Doctor Identification Number

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a collaborating unit of the

Australian Institute of Health and Welfare

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. How many GPs (full time equivalents) work at this practice (including yourself)?
5. Postcode of major practice address.....
6. In which GP Division is this practice?
.....
7. Year of graduation
8. Country of graduation (primary medical degree):
 Australia Other: (specify) _____
9. Do you conduct any of your consultations in a language other than English?
 No Yes 25 – 50%
 Yes <25% Yes >50%
10. Are you a GP registrar (i.e. in training)?... Yes / No
11. Do you hold FRACGP?..... Yes / No
12. Do you hold FACRRM? Yes / No
13. Is your major practice accredited?..... Yes / No
14. To what extent do YOU use computers at work - (Circle all that apply)

Not at all.....1	Medical records
Prescribing2	complete (paperless) .. 8
Internet3	partial/hybrid..... 9
Email4	paper only..... 10
Pathology	What clinical software is used? (please specify)
electronic ordering (online) ..5	_____
print/produce orders only.....6	
electronic results receipt.....7	
15. Number of general practice sessions you usually work per week?
(1 session = ~4 hrs e.g. a morning session)
16. Direct patient care hours worked per week?
(Include hours of direct patient care, instructions, counselling etc and other services such as referrals, prescriptions, phone calls etc.)

17. Is there a practice nurse at your major practice address? Yes / No
If yes, how many full time equivalents?
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/collecti on centre.....3
Imaging4
Specialist5
Other (specify)6
None.....7
19. Over the past four weeks have you provided any patient care(Circle all that apply):

As a locum 1
In a deputising service 2
In a residential aged care facility 3
As a salaried/sessional hospital medical officer ...4
None of the above5
20. What are the normal after-hours arrangements for your practice? (Circle all that apply):

Practice does its own..... 1
Co-operative with other practices 2
Deputising service.....3
Referral to other service (e.g. A&E)4
Other 5
None 6
21. Do you bulk bill ALL patients? Yes / No
If No, which groups are bulk billed?
(Tick one box per row)

Pensioner/Healthcare Card holders...	All	Some	None
Children <16 years.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other patients.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Is your major practice site a teaching practice? (Circle all that apply):

for undergraduates..... 1
for junior doctors..... 2
for GP registrars.....3
No4
23. Did any of your BEACH consultations take place in an Aboriginal Community Controlled Health Service (ACCHS)?

No..... 1
Yes - all2
Yes - some (which dates) 3

Thank you for participating in the BEACH PROGRAM.

Appendix 3: Dissemination of results from the BEACH program

Available at <www.aihw.gov.au/publications/index.cfm/subject/19>. Click on the link to the report and see **Additional material**.

A full list of BEACH publications is also available at the Family Medicine Research Centre website: <www.fmrc.org.au/publications/>.

Appendix 4: Code groups from ICPC-2 and ICPC-2 PLUS

Available at <www.aihw.gov.au/publications/index.cfm/subject/19>. Click on the link to the report and see **Additional material**.

Appendix 5: Chronic code groups from ICPC-2 and ICPC-2 PLUS

Available at <www.aihw.gov.au/publications/index.cfm/subject/19>. Click on the link to the report and see **Additional material**.

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