Measures of health and health care delivery in general practice in Australia

The Australian Institute of Health and Welfare is an independent health and welfare statistics and information agency. The Institute's mission is to inform community discussion and decision making through national leadership in the development and provision of authoritative and timely information on the health and welfare of Australians.

The General Practice Statistics and Classification Unit is a collaborating unit of the Australian Institute of Health and Welfare and the University of Sydney, situated within the Family Medicine Research Centre at Westmead Hospital. It fulfils the obligation of the Australian Institute of Health and Welfare to collect statistics regarding general practitioners, their patients and their patients' care.

Measures of health and health care delivery in general practice in Australia

SAND

Supplementary Analysis of Nominated Data 1998–99

from the BEACH program
(Bettering the Evaluation And Care of Health)
a continuous study of general practice activity in Australia

**Geoffrey P Sayer, Helena Britt, Fiona Horn, Alice Bhasale,
Kevin McGeechan, Janice Charles, Graeme C Miller,
Brynley Hull, Sharon Scahill**

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Foreword

Publication of this volume of supplementary information from the ongoing BEACH program marks a new and exciting development in the process of using data gathered from general practice to inform us about the health of Australians and their use of health services.

The first national survey of general practice in Australia was conducted in 1962–63 (National Health and Medical Research Council 1966, 1969), the second from 1969 to 1974 (Royal Australian College of General Practitioners 1976), the third in 1990–91 (Bridges-Webb et al. 1992), and the first of the ongoing BEACH reports were published in 1999 (Britt et al. 1999a; Britt et al. 1999b). What this current report adds to these is important.

The SAND questions add a new dimension to the study of general practice by gathering information from consulting patients and their general practitioners that is not necessarily related to the patient's presenting problems. It includes information collected at GP–patient encounters about risk factors, health status and health service use which has not previously been gathered.

This addition to the survey is an effective and very efficient way of enhancing its value. Sub-sampling within an overall comprehensive program minimises the bias sometimes associated with data gathered from specifically focused projects. It allows comparison of data from general practice with population data collected by the Australian Bureau of Statistics because it uses the same demographic classifications of, for example, occupation. Because it is collected in a medical setting with input from both doctor and patient, the data may be more accurate than data gathered in census type surveys (in which information on medical conditions is self-reported), though more definitive information about the validity of both is required. Since such a high proportion of the population uses general practice services within any period of time, information originating in general practice is likely to be reasonably representative of the population.

The SAND questions investigate health status issues such as well being, body mass, physical activity, severity of illness, and prevalence of disease, including co-morbidity, which cannot be estimated using encounter-based data. The prevalence of risk behaviours, such as smoking and alcohol use, has been determined and related to morbidity and demographic factors. The real time spent in consultation and the extent to which GPs are happy with this have been recorded and related to the clinical content of the consultation to aid our understanding of the dynamics of general practice care and its likely relationship to quality. Levels of prevention in the general practice patient community, such as immunisation or mammography, can be good markers of protection or need in patients.

Such emphasis on the health of the general practice patient population, rather than mere concentration on presenting problems, is valuable in encouraging the population viewpoint which can be so effective in health promotion and preventive medicine applied in general practice. The data can be cross-analysed with encounter-based data to provide a broader view which may assist in policy development, particularly in identifying areas (such as obesity or alcohol use) which may need targeted intervention. GPs are in a position to provide these interventions, though the report shows that in some cases they are dissatisfied with the limited time they can find to provide them.

The SAND results reported here are useful in themselves. They are even more useful in indicating the potential for further development, not only on the lines already being followed, but also, perhaps, into the challenging area of possible patient follow-up and outcome measures. We can look forward with confidence to the future contribution of BEACH in assisting the betterment of general practice for both patients and general practitioners.

Emeritis Professor Charles Bridges-Webb
Chair
Management Committee
General Practice Statistics and Classification Unit

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1 Introduction

Population health and health improvements resulting from interventions and strategies need to be monitored. General practice is commonly identified as a significant intervention point for health care and health promotion because general practitioners have considerable exposure to the health of the population. As about 80% of the population visit a GP in any one year (Commonwealth Department of Health and Family Services 1996), general practice would appear to provide a suitable basis from which to monitor many aspects of the health of the population. Furthermore, general practice provides over 100 million consultations per year and is the most frequent point of entry into the health care system (Health Insurance Commission 1999). General practice is therefore a suitable source of health care delivery information as well. When collecting population health information it may be more cost-effective to enlist the support of a number of general practitioners who provide access to a number of patients, particularly where the data are collected as part of a larger study, than (for example) to conduct a national population survey. However, the reliability of extrapolating from such encounter-based cluster sample surveys (see below) to the general population would need to be investigated.

The BEACH (Bettering the Evaluation And Care of Health) program is a continuous national study of general practice activity collecting information about the GP patient encounter. It involves some 1,000 general practitioners (GPs) and provides details regarding approximately 100,000 encounters per year (Britt et al. 1999a; Britt et al. 1999b). Since the GPs actively record the information on structured encounter forms, the data collection process also makes possible concurrent collection of information about the patients themselves (e.g. their health status, risk factors, existing morbidity) and about health care delivery (e.g. use and effectiveness of medication and treatment, use of other health services).

The BEACH program has three primary aims:

- to provide a reliable and valid data-collection process for general practice that is responsive to the ever-changing needs of information users;

- to establish an ongoing database of GP–patient encounter information; and

- to assess patient risk factors and health states and the relationship these factors have with health service activity.

This report addresses the third of these aims and also investigates aspects of health service delivery related to the patients at the surveyed encounters.

The national SAND (Supplementary Analysis of Nominated Data) program, within BEACH, is concerned with the provision of patient population data. The original concept of SAND (the focus of a doctoral thesis—Sayer GP in preparation) stems from a concept used in other surveys and surveillance systems which employ a sub-sampling methodology as part of a wider program of investigation. For example, the NSW midwives data collection collected maternal smoking status in conjunction with the mother and baby variables (New South Wales Health Department 1994) while the National Health Survey has included nutritional sub-sampling as part of the wider health survey (Australian Bureau of Statistics 1996). Prior to the national study reported here, the SAND methods were piloted in Western Sydney and in Victoria during 1997.

There are several advantages in asking the patient additional health related items at the time of the GP–patient encounter. First, the variables can be linked to other aspects of the encounter for epidemiological investigations of the relationship between risk factors and morbidity (e.g. body mass and diabetes). Second, the presence of the GP at the time of

patient questioning may provide more reliable data, especially in topics covering pharmacological management or past history. The combination of patient recall and the medical record held by the GP as a source of information would be preferable to recall only. Third, the GP can often provide insight into aspects of the patient's health that are not covered by the current consultation (e.g. co-morbidity, patient history). Fourth, the final sample generates a large number of observations from a randomly selected sample of GPs in an efficient and timely manner. Last, but not least, because the majority of topics investigated in SAND change every five weeks, results are available in a timely manner—from the inception of the research question to reporting of results takes less than six months.

There are, however, possible disadvantages that may impact on the reliability and validity of the data collected. First, GPs may fail to complete the question-asking process because of time constraints in the course of the consultation. Second, patients may not accurately report risk factor status (e.g. smoking and alcohol use) even to their GP. Third, it is a clustered sample of persons attending general practice and such a sample is likely to be different, no matter how marginally, from the general population. Lastly there is a possibility that one patient may be seen twice by the GP during his/her BEACH recording period and that the same SAND question will apply to both encounters. The chances of this are far less than in the total BEACH database because each recording pack is divided into sub-samples of SAND questions. However to allow for this possibility these data should still be regarded as encounter based, rather than patient based. Through out this report the term 'patients' is sometimes used for convenience, but the accurate description is 'patient encounters'.

The SAND program began in conjunction with BEACH in April 1998. Each organisation supporting the BEACH program has access to a sub-sample of 6,000 encounter forms per year in which to insert a series of questions (or two sets of questions in two smaller samples) on a subject of their choice. The organisation receives a report of its SAND results as soon as they are available. Access to these results is given to all other supporting organisations some three months later.

The following report describes the results from each of the topics covered in the first 12 months of SAND The report demonstrates the versatility of SAND for it includes results from questions asked of the patient and from other questions asked of the GP. Sometimes information is drawn from both sources. The topic reports are not intended to be exhaustive descriptions of the results for each topic. Rather, they provide an introduction to the major findings from the seventeen topics investigated through the sub-sampling methodology. Reports of more detailed analyses of some of these topics will be published elsewhere.

2 Methods

This section provides an overview of the BEACH methods, describes the development of the SAND process and gives a brief summary of the methods adopted.

2.1 BEACH methods

The methods adopted in the BEACH program have been described in detail elsewhere (Britt et al. 1999a; Britt et al. 1999b). In summary, a random sample of approximately 1,000 recognised GPs per year each records details about 100 doctor–patient encounters of all types on structured paper encounter forms.

The source population includes all recognised GPs who have claimed a minimum of 375 general practice Medicare items (items 1–51) in the most recently available three-month Health Insurance Commission (HIC) data period. This equates with a cut-off of 1,500 Medicare claims per year and ensures inclusion of the majority of part-time GPs while excluding those who are not in active private practice but claim for a few consultations a year. The General Practice Branch of the Commonwealth Department of Health and Aged Care (DHAC) draws a sample every three months.

The randomly selected GPs are approached by letter and then by a telephone follow-up. GPs who agree to participate are set an agreed recording date approximately three to four weeks ahead. A research pack is sent to each participant about 10 days before the planned recording date.

The research pack contains:

- a covering letter;
- a project information sheet;
- a GP profile questionnaire;
- a pad of 105 recording forms (to allow for some error);
- a detailed set of instructions;
- a height and weight measure conversion (to metric) chart (for body mass index);
- a sample completed form with explanation;
- a pictorial 'standard drinks' chart to help patients answer questions on alcohol intake;
- additional instructions for completing supplementary questions on each form;
- a reply-paid envelope and several copies of a patient information sheet.

The patient information sheet gives patients the choice to 'opt out' and not have details of their consultation included in the study by informing their GP of this decision. A telephone reminder is made to each GP participant during the first days of the agreed recording period. Non-returns are followed up by regular telephone calls. An example of a recording form is provided at appendix 1.

Each participating GP earns 25 audit points from the Royal Australian College of General Practitioners (RACGP) towards his or her quality assurance (QA) requirements. As part of this QA process s/he receives an analysis of his/her own results compared with those of nine other unidentified practitioners who recorded at approximately the same time. Comparison with the national average and with targets relating to the National Health Priority Areas is also made. In addition, GPs receive some educational material related to the

identification and management of patients who smoke or who consume alcohol at hazardous levels.

2.2 Development of the SAND methods

In 1996 the Western Sydney Division of General Practice (WSDGP) provided funding for a local morbidity and treatment survey. The Division required current data concerning the health needs of the population in its region and the activities of GPs practising in Western Sydney in order to plan future projects and educational programs. This provided the opportunity to test:

- a detailed encounter form;
- the inclusion of patient-based questions on health risk factors;
- the application of extensive and detailed coding systems for diagnoses, pharmaceutical treatments and other management techniques; and
- a comprehensive database 'front-end' and direct computer assisted secondary data entry.

Interest in the possible use of the general practice patient population to measure aspects of population health led to the addition of a **new section** (SAND—Supplementary Analysis of Nominated Data) on each BEACH form, **concerning patient based ris**k factors and health assessment. Items were asked of a sub-sample of patients seeing each participating GP.

Form type 1: Half the 100 forms in each recording pad included questions about the patient's:

- status in terms of being: of non-English-speaking background (NESB); an Aboriginal and/or a Torres Straight Islander person (ATSI);
- height and weight; and
- smoking status.

Form type 2: The remaining half of the pad included questions regarding the patient's:

- self-reported general health status; and
- alcohol consumption level.

The two blocks of form types were placed in alternate order through the recording pads so that for 50% of the participating GPs the first half of the recording pack was form type 1 and for the other 50% it was form type 2. The intent was to reduce (and later measure) any bias that such questions might impose on the morbidity managed or management provided during the consultation. Subsequent analysis revealed that there was no impact on the morbidity managed or management practices associated with the SAND items collected.

The program was approved by the RACGP as a quality assurance option (audit) for participants. All of the new aspects of the research method were found to be viable, with two exceptions. First, the layout of the sections asking for details of prescribed drugs was not ideal for reliable data gathering. Second, considering the overall lack of information available about the morbidity of people of NESB and ATSI status, it was felt these questions should be included on every form rather than on only a sub-sample. The recording form was revised after the Western Sydney pilot study to lead the GP in provision of more details about the drugs prescribed. The questions on NESB and ATSI status were also removed from the SAND section and placed on every recording form.

In 1997 the Department of Human Services, Victoria, commissioned a study of general practice activity in that State. The objective was to measure any changes in morbidity and its

management since measured in 1990–91 in the Australian Morbidity and Treatment Survey (AMTS) (Bridges-Webb et al. 1992) and provide a new baseline for the measurement of future change. The revised recording form was used in this study.

The successful completion of the SAND questions, and the valuable data provided through this method, demonstrated that GP collection of data about risk factor status from their patients was a feasible approach. Feedback from the GPs also showed that they considered this type of information valuable in providing a better understanding of the health of their patients from a population health view.

The success and usefulness of the method encouraged the implementation of optional blocks of brief questions as part of the national BEACH program of monitoring general practice activity. Not only risk factors would be investigated, but also aspects of health care delivery would also be included in the study program.

2.3 SAND methods

SAND investigates other aspects of patient health or health care delivery not covered by general practice consultation based information. The annual BEACH data collection period is broken down into 10 blocks of recording, each block comprising five weeks. Each block should include data from 100 GPs, 20 GPs recording per week. Each GP's recording pad is made up of three components (40 A forms, 40 S forms and 20 L forms). Each component covers a different SAND topic, and involves a line of questioning that is asked of the patient or the GP in addition to the encounter based information.

The order of SAND the components in the GPs recording pack is randomised, so that 40 A forms may appear first, second or third in the pad. Although analysis of the pilots in WSDGP and Victoria suggested that when GPs were required to ask questions related to body mass, alcohol use and smoking status there was no impact on the encounter details collected, the possibility of an effect for other lines of questioning must be considered. Randomised ordering of the components ensures that there is no order effect on the quality of the information collected.

Two parts of SAND remain constant for the year across the 10 blocks of the BEACH program. All GPs have 40 A forms in their recording pads and these investigate height, weight, patient-assessed well being and alcohol use. A single smoking status item is also included on all 40 S forms. Questions in the remaining space vary from block to block, and address other aspects of patient health/health care delivery in general practice, effectively sub-sampling the overall sample.

2.4 Classification of morbidity data

Problems managed at encounter and problems recorded as part of the SAND sub-sample questions were coded using ICPC-2 PLUS (Britt 1997). This is an extended vocabulary of terms classified according to the International Classification of Primary Care (Version 2) (ICPC-2), a product of the World Organization of Family Doctors (WONCA) (Classification Committee of the World Organization of Family Doctors 1997).

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

2.5 Statistical methods

The analyses of the SAND databases are conducted through SAS version 6.12 (1996) with the encounter as the primary unit of analysis. Proportions (%) are used only when describing the distribution of an event that can arise only once at a consultation (e.g. age, gender or smoking status) or to describe the distribution of events within a class of events (e.g. condition A as a % of total conditions).

Rates per 100 encounters are used when an event can occur more than once at the consultation (e.g. patient reasons for encounter [RFEs], problems managed or medications). Rates per 100 problems are also used when a management event can occur more than once per problem managed (e.g. prescribed drugs, orders for pathology). In general, the following results present the number of observations (n), rate per 100 encounters and the 95% confidence intervals.

The BEACH study is essentially a random sample of GPs, each providing data about a cluster of encounters. Cluster sampling study designs in general practice research violate the simple random sample (SRS) assumption because the probability of an encounter being included is a function of the probability of the GP being selected (Sayer 1999).

There is also a secondary probability function of particular encounters being included in the GP's cluster and this increases the likelihood of sampling bias. In addition, there will be inherent relationships between encounters from the same cluster and this creates a statistical bias. For example, female GPs tend to see more female patients than their male counterparts; a group of patients of one GP may receive different treatments from those received by patients of another GP, reflecting different practice styles. The probability of gaining a representative sample of encounters is therefore reduced by the potential sampling and statistical bias, decreasing the accuracy of national estimates.

When an investigator violates the SRS assumption, analytical techniques that consider the study design should be employed. In this report the standard error calculations used in the 95% confidence intervals incorporate both the single-stage clustered study design and sample weighting according to Kish's description of the formulas (Kish 1965). SAS is limited in its capacity to calculate the standard error for the current study design, so additional programming has been required to incorporate the formulae.

3 Well being

3.1 Background

There has been considerable interest in assessing patient functional status. A lot of work has concentrated on capturing not only the physical functioning but also the social and psychological functioning. The SF-36 (Medical Outcomes Study questionnaire) was designed as a generic indicator of health status (Ware & Sherbourne 1992). It has been postulated (Stewart et al. 1989) that generic instruments are useful for monitoring patients with multiple conditions, the health status of people with different conditions and for comparative purposes with the general population. A single question in the SF-36 is an overall health evaluation item. This item provides a summary indicator and captures the general impact of health problems on the individual's functional status (McDowell & Newell 1996).

The AIHW concluded that the single self-perceived health status item gave a better indicator of overall health than the more specific illness related items. In 1995, over half (55%) the Australian population (15+ years) reported their overall health as very good or excellent, 13% rated their health as fair and 4% considered their health to be poor. There were no gender differences, but the proportion rating their health as fair or poor increased with age. However, it was noted that the figures would under-estimate persons with poor health, as persons living in institutions (hospitals and nursing homes) were not represented (Australian Institute of Health and Welfare 1996).

3.2 Research questions

1. What are the levels of well being in general practice patients?
2. Is the level of well being in general practice patients associated with particular patient profiles?

3.3 SAND questions

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Box 3.1: Patient well being

GPs asked the patients (18+ years):

In general would you say your health is: *Excellent?*
Very good?
Good?
Fair?
Poor?

</div>

3.4 Results

Sample size (18+ years) was 29,488 patient encounters from 984 GPs.

Overall, 14.1% (95% CI: 13.2–14.9) of patients aged 18 years and over rated their general health as excellent, while 18.6% (95% CI: 17.9–19.2) rated it fair and 5.9% (95% CI: 5.4–6.4) rated it poor. The distribution of self-rated general health for males and females was comparable. While the proportion of persons rating their health as fair or poor increased with age (Figure 3.1), the rate was similar between males and females, the exception being an apparent difference between males and females in the 18–24 years group (males: 9.2%; females: 1.6%).

Investigations into the association of general health rating and problems managed (ICPC-2 chapter level) revealed an apparent increase in the relative rate of management of psychological problems at encounters where the patient reported fair or poor health (Table 3.1). This was consistent across age and gender strata (data not shown). There was also a trend for higher rates of management of conditions related to the digestive, circulatory, musculoskeletal and neurological systems as the patient rated their health as poorer.

	18–24	25–44	45–64	54–74	75+
Excellent	25.1	20.9	11.8	6.5	4.8
Fair	9.4	12	18.4	25.2	31.8
Poor	1.7	3.8	5.6	7.5	11.5

Age group (years)
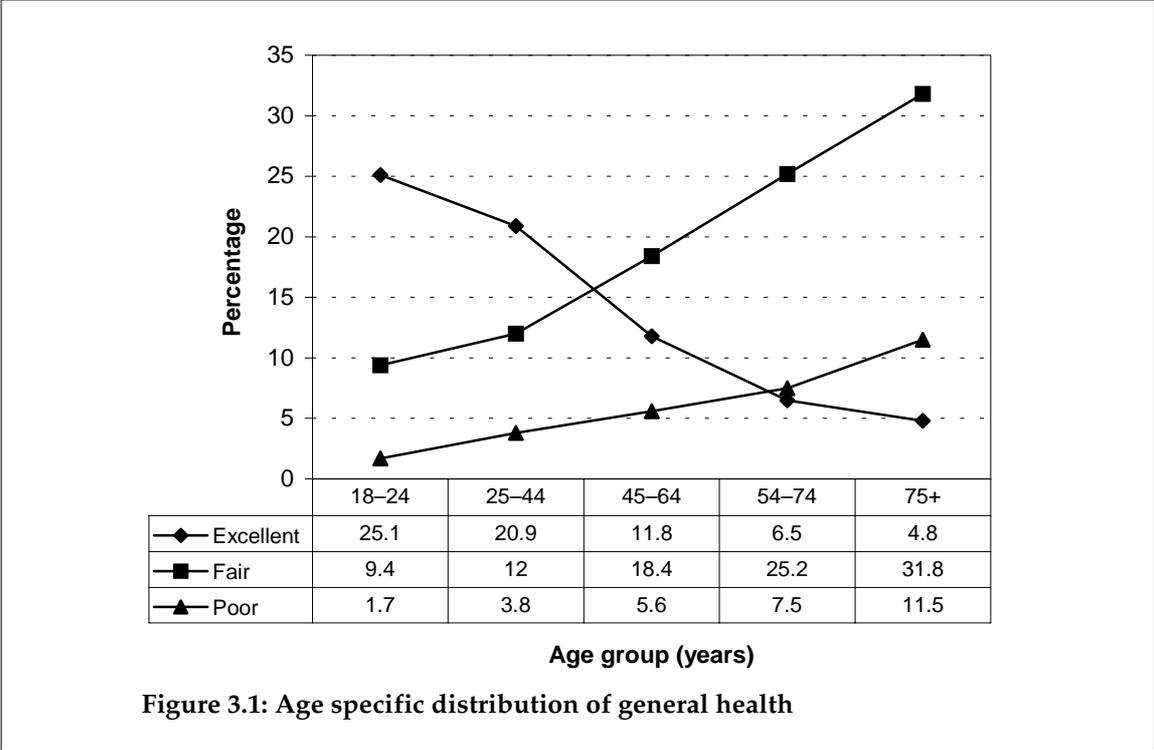
Figure 3.1: Age specific distribution of general health

As examples, closer examination of the psychological, digestive, circulatory, musculoskeletal and neurological chapters showed an increase in the likelihood of management of oesophageal disease, heart failure, lumbar disc lesions, migraine, depression, disturbance of sleep/insomnia and anxiety, as the patient's rating of health moved from excellent to poor (Table 3.2).

Table 3.1: Patient general health by problems managed (by ICPC-2 chapter)

Problems managed	Excellent (n=4,153)		Very good (n=8,404)		Good (n=9,752)		Fair (n=5,476)		Poor (n=1,734)	
	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs
General & unspecified	542	13.1	1,012	12.0	1,173	12.0	701	12.8	233	13.4
Blood	56	1.3	140	1.7	180	1.8	151	2.8	50	2.9
Digestive	322	7.8	802	9.5	1,086	11.1	666	12.2	256	14.8
Eye	109	2.0	247	2.9	259	2.7	153	2.8	38	2.2
Ear	155	3.7	338	4.0	357	3.7	135	2.5	32	1.9
Circulatory	381	9.2	1,314	15.6	2,239	23.0	1,516	27.7	456	26.3
Musculoskeletal	662	15.9	1,465	17.4	1,975	20.3	1,241	22.7	417	24.0
Neurological	112	2.7	336	4.0	421	4.3	346	6.3	150	8.7
Psychological	211	5.1	699	8.3	1,313	13.5	1,105	20.2	431	24.9
Respiratory	785	18.9	1,754	20.9	2,084	21.4	1,140	20.8	396	22.8
Skin	870	20.9	1,577	18.8	1,493	15.3	755	13.8	189	10.9
Endocrine & metabolic	206	5.0	678	8.1	1,195	12.3	731	13.3	207	11.9
Urological	110	2.6	237	2.8	283	2.9	233	4.3	77	4.4
Pregnancy & family planning	438	10.5	593	7.1	324	3.3	79	1.4	12	0.7
Female genital system	444	10.7	845	10.1	750	7.7	253	4.6	67	3.9
Male genital system	52	1.3	138	1.6	167	1.7	76	1.4	24	1.4
Social	23	0.6	60	0.7	103	1.1	76	1.4	18	1.0

Note: Abbreviations: encs = encounters

Table 3.2: Patient general health by problems managed (selected ICPC-2 codes)

Problem managed	Excellent		Very good		Good		Fair		Poor	
	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs
Oesophageal disease	32	0.8	116	1.4	196	2.0	126	2.3	49	2.8
Heart failure	—	—	23	0.3	94	1.0	125	2.3	84	4.8
Lumbar disc lesion	21	0.5	48	0.6	101	1.0	72	1.3	33	1.9
Migraine	35	0.8	73	0.9	89	0.9	69	1.3	29	1.7
Depressive disorder	48	1.2	191	2.3	418	4.3	401	7.3	169	9.7
Sleep disturbance	41	1.0	129	1.5	215	2.2	164	3.0	43	2.5
Feeling anxious	23	0.6	91	1.1	167	1.7	136	2.5	38	2.2
Anxiety disorder	11	0.3	30	0.4	42	0.4	48	0.9	16	0.9

Note: Abbreviations: encs = encounters

3.5 Discussion

The self-rated general health by general practice patients is marginally poorer than that of the general community. It appears that those patients who rate their health fair to poor were more likely to have psychological problems managed at the encounter than patients who rated their health as excellent, very good or good. Further, the current study would suggest that the presence of the management of depression at the encounter had a substantial impact on a patient's health rating. This may suggest that the single item of the SF-36 is more sensitive to the impact of psychological functioning than physical functioning.

4 Body mass

4.1 Background

Body mass is commonly assessed through the Body Mass Index (BMI). A person's BMI is assessed by dividing weight (kilograms) by height (metres) squared. A BMI that is less than 20 is considered underweight, 20–24 is normal, 25–29 is overweight and more than 30 is considered to be obese. Obesity or being overweight is considered a risk factor for coronary heart disease, stroke, heart failure and non-insulin dependent diabetes. There is also an association between obesity or being overweight and hypertension and cholesterol levels. It was estimated in 1995 that 43% of women (aged 25–64) and 66% of men (aged 25–64) were overweight or obese (BMI 25+) (Australian Institute of Health and Welfare 1996). Obesity or being overweight accounts for an estimated 4.3% of Disability Adjusted Life Years (DALYs) (Mathers et al. 1999). Being underweight is associated with poorer ratings of general health (Manderbacka et al. 1999) and higher levels of functional illness (Ferraro & Booth 1999).

National Health Priority Areas recognises obesity as an important modifiable cause of premature death and disability (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999a)**.** The national objective is to reduce the prevalence of overweight and obesity among adults. The population indicator for overweight will rely on:

- self-reported height and weight: ABS National Heath Surveys;
  - ABS Population Survey Monitor; and
  - National Physical Activity Survey
- measured height and weight:
  - National Nutrition Survey;
  - NHF Risk Factor Prevalence Surveys;
  - Australian Health and Fitness Survey; and
  - Department of the Arts, Sport, the Environment, Tourism and Territories Physical Activity Survey.

Comparable data can also be obtained through the SAND program. While attention usually centres on issues surrounding being overweight, investigation of the morbidity profiles of normal and underweight people is also of interest.

4.2 Research questions

1. What are the levels of obesity in general practice patients?
2. Is obesity in general practice patients associated with particular patient profiles?
3. What are the levels of underweight in general practice patients?
4. Is being underweight in general practice patients associated with particular patient profiles?

4.3 SAND questions

Box 4.1: Body mass

GPs asked the patients (18+ years):

♦ *What is your height in centimetres?*

♦ *What is your weight in kilograms?*

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

4.4 Results

Sample size (18+ years) was 30,485 patient encounters from 978 GPs.

Overall, 18.4% (95% CI: 17.7–18.9) of patient encounters were with adults considered obese, 32.8% (95% CI: 32.1–33.4) were with adults considered overweight and 8.6% (95% CI: 8.2–9.0) with people considered underweight. A higher proportion of males were overweight or obese (57.2%) than females (47.0%). While the proportion of patients considered overweight or obese increased with age, the trend reversed at 75 years and over in both genders (Figure 4.1). It was also found that of women aged 18–24 years, 22.1% were considered to be underweight compared with only 9.0% of males in this age group (Figure 4.2).

	18–24	25–44	45–64	65–74	75+
Male overweight	22.7	38.9	44.1	43.7	39.3
Female overweight	16.2	24	31.5	34.7	30.3
Male obese	14	15.2	23.7	19.1	9.6
Female obese	10.1	16.5	26.4	22.7	13.5

Age group (years)
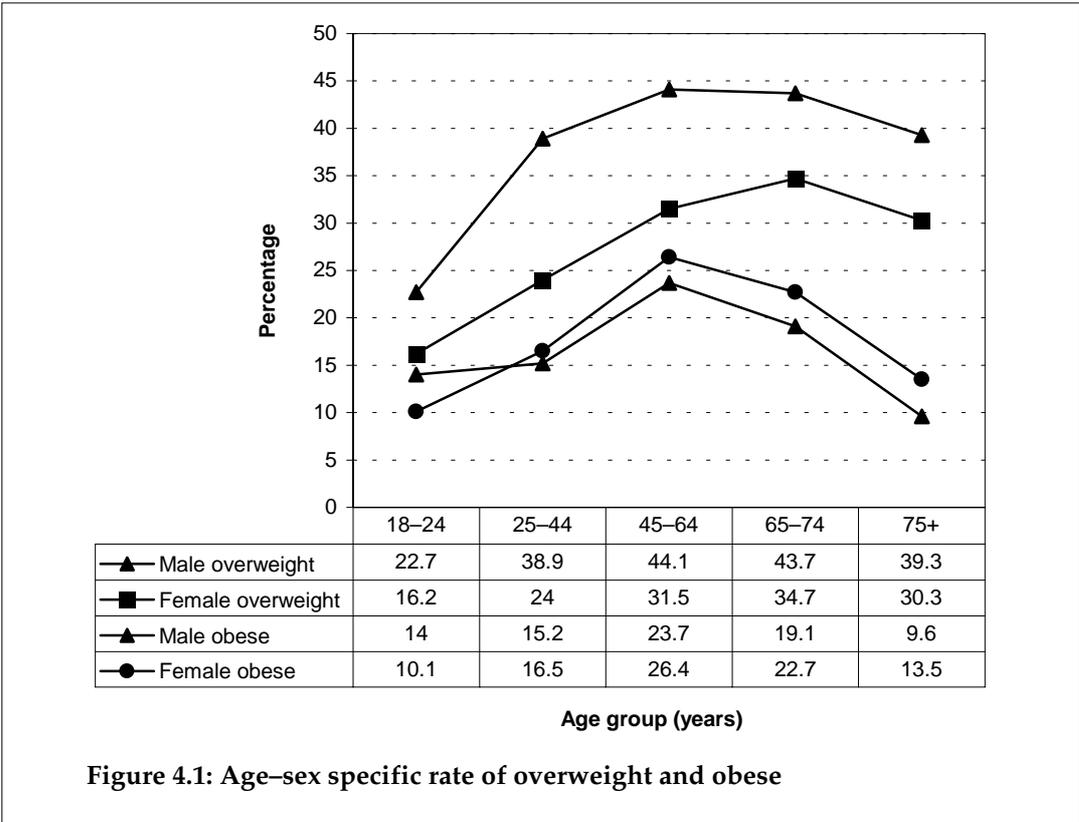
Figure 4.1: Age–sex specific rate of overweight and obese

	18–24	25–44	45–64	65–74	75+
Male underweight	9.0	4.2	2.4	3.5	7.8
Female underweight	22.1	12.8	6.0	7.2	15.4

Age group (years)

Figure 4.2: Age–sex specific rate of underweight and obese
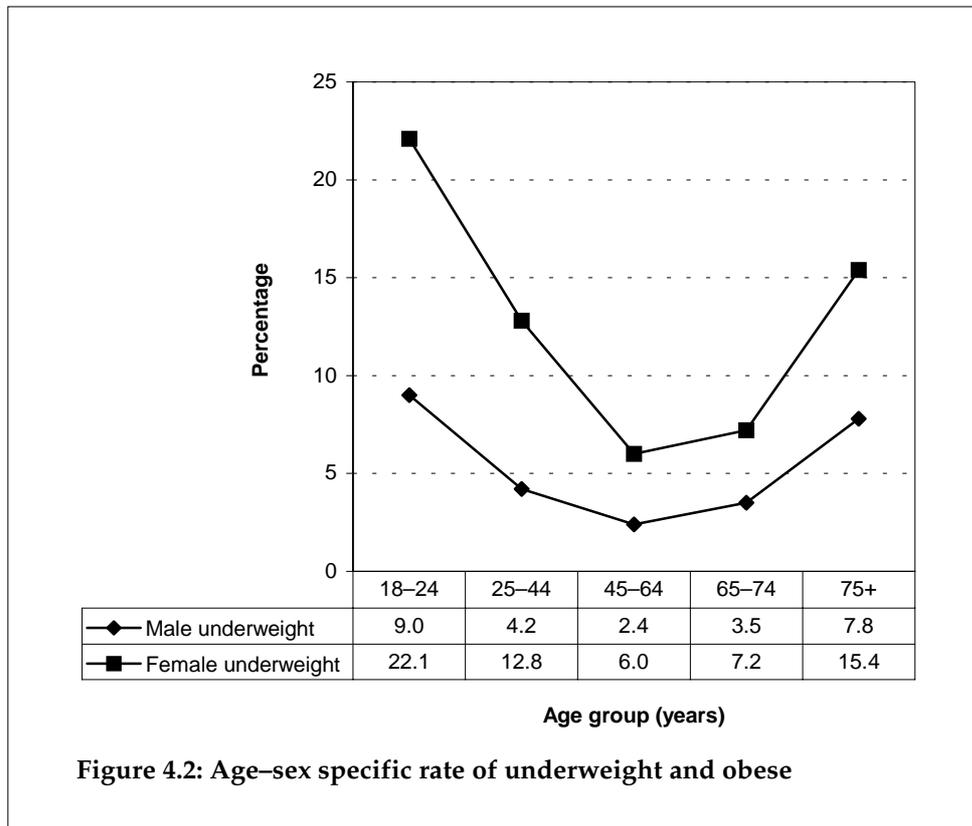
Investigations into the association of body mass and problems managed (at ICPC-2 chapter level) revealed an apparent increased rate of management of digestive and psychological problems at encounters where the patient was considered underweight (Table 4.1). Closer examination of the psychological problems (at ICPC-2 rubric level) showed an increase in the likelihood of depression and drug abuse being managed at encounters with patients considered underweight (Table 4.2).

Overweight and obese patients were more likely to have circulatory and endocrine and metabolic problems managed. A closer examination of these types of conditions (at ICPC-2 rubric level) showed a higher rate of management of uncomplicated hypertension, non-insulin dependent diabetes mellitus (NIDDM) and lipid disorders.

4.5 Discussion

General practitioners view the areas of weight management and prevention of obesity and overweight as important domains of their work (Campbell et al. 1998). The current data suggest that patients attending general practice are more likely to be overweight or obese than the general community. This provides an opportunity for GPs to improve the health of the population. The preliminary findings of the current study also suggest an association between body mass index and morbidity managed by the GP, supporting previous research on the ill effects of overweight and obesity. Further analyses which take account of the confounding influence of age and gender need to be conducted to confirm this finding, and will be the subject of a later paper.

Table 4.1: Patient body mass by problems managed (ICPC-2 chapter)

Problems managed	Underweight (n=2,624) n	Per 100 encs	Normal (n=12,305) n	Per 100 encs	Overweight (n=9,992) n	Per 100 encs	Obese (n=5,593) n	Per 100 encs
General & unspecified	336	12.8	1,528	12.4	1,257	12.6	643	11.5
Blood	66	2.5	276	2.2	158	1.6	83	1.5
Digestive	320	12.2	1,332	10.8	1,008	10.1	594	10.6
Eye	72	2.7	347	2.8	289	2.9	134	2.4
Ear	67	2.6	400	3.3	353	3.5	217	3.9
Circulatory	348	13.3	2,016	16.4	2,264	22.7	1,478	26.4
Musculoskeletal	394	15.0	2,284	18.6	2,081	20.8	1,182	21.1
Neurological	138	5.3	530	4.3	444	4.4	287	5.1
Psychological	439	16.7	1,607	13.1	1,183	11.8	645	11.5
Respiratory	600	22.9	2,541	20.7	2,079	20.8	1,178	21.1
Skin	412	15.7	2,048	16.6	1,716	17.2	890	15.9
Endocrine & metabolic	151	5.8	887	7.2	1,101	11.0	1,003	17.9
Urological	111	4.2	396	3.2	302	3.0	165	3.0
Pregnancy & family planning	204	7.8	715	5.8	354	3.5	225	4.0
Female genital system	293	11.2	1,159	9.4	627	6.3	368	6.6
Male genital system	21	0.8	173	1.4	199	2.0	71	1.3
Social	25	1.0	123	1.0	90	0.9	51	0.9

Note: Abbreviations: encs = encounters

Table 4.2: Patient body mass by problems managed (selected circulatory, psychological and endocrine and nutritional problems)

Problem managed	Underweight n	Per 100 encs	Normal n	Per 100 encs	Overweight n	Per 100 encs	Obese n	Per 100 encs
Uncomplicated hypertension	130	5.0	941	7.6	1,198	12.0	877	15.7
Depressive disorder	132	5.0	479	3.9	404	4.0	244	4.4
Drug abuse	39	1.5	100	0.8	35	0.4	12	0.2
NIDDM	23	0.9	183	1.5	303	3.0	325	5.8
Lipid disorder	31	1.2	279	2.3	375	3.8	215	3.8

Note: Abbreviations: encs = encounters

5 Smoking

5.1 Background

The smoking of tobacco is the risk factor associated with the greatest burden of disease in Australia, accounting for 9.7% of all Disability Adjusted Life Years (DALYs) (Mathers et al. 1999). It is estimated that 27% of Australian men and 23% of Australian women are smokers (Hill et al. 1998). Tobacco smoking increases the risk of cancers, coronary heart disease, peripheral vascular disease and stroke. It was estimated in 1995 that 3.2 million (23.5%) adult Australians were at risk of heart disease and other chronic conditions due to smoking (Australian Institute of Health and Welfare 1999). Smoking was responsible for 21% of all male deaths, 9% of all female deaths and 100,000 hospital episodes for an estimated 800,000 bed days per year (Australian Institute of Health and Welfare 1996).

Australians are more aware of the health risks of smoking than ever before, with significant public health gains in tobacco control in recent years achieving worldwide recognition. Average per capita consumption of tobacco fell by 49% between 1965 and 1993, with marked decreases after national bans on radio and TV advertising and mass media quit smoking campaigns (National Health and Medical Research Council 1995). Nonetheless, *National Goals and Targets for Australia's Health* (Nutbeam et al. 1993) recognised smoking as the 'single most important modifiable cause of premature death and disability in Australia'. *National Health Priority Areas* also recognises smoking as an important modifiable cause of premature death and disability in Australia (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999a)**.** The national objective is to reduce the prevalence of regular smoking among adults and secondary school students. The population indicator for smoking will rely on self-reported smoking through:

- ABS National Heath Surveys;
- ABS Population Survey Monitor;
- NHF Risk Factor Prevalence Surveys;
- Anti-Cancer Council of Victoria Patterns of Tobacco Smoking;
- National Campaign Against Drug Abuse; and
- National Household Survey.

Comparable data on regular smoking can also be obtained through the SAND program which allows investigation into the relationship between each category of smoking status and morbidity under management.

5.2 Research questions

1. What is the smoking status of general practice patients?
2. Is smoking status in general practice patients associated with particular patient profiles?

5.3 SAND questions

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**Box 5.1: Smoking status**

GPs asked the patients (18+ years):

What best describes your smoking status?

</td><td>

Smoke daily
Occasional smoker
Previous smoker
Never smoked

</td></tr>
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Note: The term 'smoking' is used here to mean tobacco smoking of any kind, including cigarettes, pipes and cigars.

5.4 Results

Sample size (18+ years) was 30,265 patient encounters from 980 GPs.

Overall, 19.2% (95% CI: 18.4–20.0) of patient encounters were with adults who are daily smokers, while 5.6% (95% CI: 5.1–6.1) were with occasional smokers and 27.0% (95% CI: 26.2–27.8) with previous smokers. A greater proportion of males were daily smokers (22.6%) than females (17.0%). The proportion of smokers decreased with age, with less than 7% of patients aged 75 years and over being daily smokers (Figure 5.1). However, almost 60% of males aged 65 years or more were previous smokers.

Investigations into the association of smoking status and the problems managed at encounter (ICPC-2 chapter level) revealed an apparent increase in the rate of management of psychological problems at encounters where the patient was a daily smoker (Table 5.1). Closer examination of these psychological problems (at ICPC-2 rubric level) showed higher rates of smokers among patients being managed for their depression, drug abuse, anxiety/ nervousness/tension, acute stress reactions and schizophrenia (Table 5.2). The influence of age and gender was not controlled for in Table 5.1, thereby bringing mixed results for an association between smoking status and circulatory or respiratory problems managed. However, previous smokers, who tended to be older, were more likely to experience circulatory problems than other smoking groups (Table 5.1), with a higher rate of management of ischaemic heart disease (IHD) (with or without angina) among previous smokers (Table 5.2).

Age group (years)	18–24	25–44	45–64	65–74	75+
Male daily	35	34.3	23	12.1	7.1
Male previous	9	17.9	38.9	58.1	59.9
Male never	44.9	38.8	32.8	26.4	30.4

Age group (years)

Figure 5.1: Male age specific rates—smoking status

Age group (years)	18–24	25–44	45–64	65–74	75+
Female daily	26.3	24.7	16.6	7.8	4.8
Female previous	10.8	18.1	22.3	26.0	23.3
Female never	51.2	49.5	57.2	64.1	70.4

Age group (years)

Figure 5.2: Female age specific rates—smoking status

Table 5.1: Patient smoking status by problems managed (ICPC-2 chapter)

Problem managed	Never (n=14,590)		Previous (n=8,180)		Occasional (n=1,691)		Daily (n=5,815)	
	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs
General & unspecified	1,808	12.4	985	12.0	189	11.2	666	11.5
Blood	304	2.1	185	2.3	31	1.8	104	1.8
Digestive	1,540	10.6	888	10.9	194	11.5	630	10.8
Eye	427	2.9	232	2.8	34	2.0	127	2.2
Ear	493	3.4	278	3.4	63	3.7	193	3.3
Circulatory	3,157	21.6	2,147	26.2	155	9.2	628	10.8
Musculoskeletal	2,797	19.2	1,563	19.1	297	17.6	1,153	19.8
Neurological	669	4.6	365	4.5	67	4.0	297	5.1
Psychological	1,492	10.2	915	11.2	205	12.1	1,253	21.5
Respiratory	2,871	19.7	1,827	22.3	343	20.3	1,133	19.5
Skin	2,378	16.3	1,368	16.7	276	16.3	936	16.1
Endocrine & metabolic	1,537	10.5	1,074	13.1	133	7.9	462	7.9
Urological	518	3.6	271	3.3	47	2.8	142	2.4
Pregnancy & family planning	670	4.6	292	3.6	137	8.1	299	5.1
Female genital system	1,388	9.5	494	6.0	181	10.7	450	7.7
Male genital system	190	1.3	192	2.3	27	1.6	78	1.3
Social	121	0.8	72	0.9	20	1.2	87	1.5

Note: Abbreviations: encs = encounters

Table 5.2: Patient smoking status by problems managed (selected circulatory and psychological problems)

Problem managed	Never		Previous		Occasional		Daily	
	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs	n	Per 100 encs
Uncomplicated hypertension	1667	11.4	998	12.2	75	4.4	328	5.6
IHD with angina	70	0.5	73	0.9	—	—	12	0.2
IHD without angina	177	1.2	209	2.6	10	0.6	29	0.5
Depressive disorder	557	3.8	320	3.9	75	4.4	340	5.8
Drug abuse	11	0.1	11	0.1	10	0.6	160	2.8
Feeling anxious/nervous/tense	207	1.4	122	1.5	26	1.5	117	2.0
Acute stress reaction	107	0.7	58	0.7	14	0.8	65	1.1
Schizophrenia	43	0.3	21	0.3	—	—	75	1.3

Note: Abbreviations: encs = encounters

5.5 Discussion

GPs have regular contact with smokers, almost one in five encounters with adults being with persons who smoke daily. They can provide opportunistic advice especially in the presence of smoking-related ailments and are therefore ideally placed to encourage smokers to quit and to assist them in doing so.

Patients feel that GP advice regarding smoking is acceptable and appropriate (Richmond et al. 1990; Richmond et al. 1997). In one Australian study, 67% of smokers said that if they were to decide to quit, they would opt for some form of quit smoking program from a medical practitioner or other health professional (Owen & Davies 1990). It has also been shown that smokers who receive non-smoking advice from doctors are nearly twice as likely to quit as those who are not advised to quit (Glynn 1990). A study in the United Kingdom found that even brief advice to quit from GPs to all their smoking patients resulted in a 5% abstinence rate after one year (Russell et al. 1979). While in public health terms, 5% may be a significant improvement, for a GP this means that 95% have not taken the advice. The use of other treatment strategies will therefore have a role to play in the reduction of smoking rates among general practice patients.

6 Alcohol use

6.1 Background

There have been small public health gains in reducing alcohol consumption in recent years. However, alcohol use is the second leading cause of drug-related death in Australia after tobacco (Australian Institute of Health and Welfare 1996). It is estimated that 44% of male drinkers and 30% of female drinkers drink regularly to excessive levels (Mattick & Jarvis 1993). Regular excessive drinking of alcohol can affect the heart, liver, brain, pancreas, muscles, lungs, skin, nervous system, intestines and the testes in males. Binge drinking of large amounts results in suppression of the central nervous system and in stomach inflammation and toxic damage to the bowel. Binge drinking is also associated with suicide and falls, motor vehicle and pedestrian accidents. Regular binge drinkers can experience the same sort of effects as regular heavy drinkers.

National Health Priority Areas also recognises alcohol as an important modifiable cause of premature death and disability in Australia (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999a). The national objective is to reduce the prevalence of high consumption among adults and secondary school students. Population indicators for excessive alcohol consumption have relied on self-reported alcohol use through:

- ABS National Heath Surveys;
- ABS Population Survey Monitor;
- NHF Risk Factor Prevalence Surveys;
- National Campaign Against Drug Abuse; and
- National Household Survey.

Comparable data on alcohol use can be obtained through the SAND program ,which also allows investigation of the relationship between each category of alcohol use and the morbidity managed at encounter. In assessing the effects of alcohol use on health ,it is important to ascertain how frequently a person drinks alcohol and the quantity he or she drinks. BEACH uses three items from Section A of the World Health Organization's (WHO) Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al. 1993). Together, these three items can separate hazardous/harmful drinkers from others not at risk (non-drinkers and responsible drinkers). The nine additional items of AUDIT allow further discrimination of problem drinkers into hazardous or harmful drinking categories. AUDIT is a useful tool as it can easily be used in full, by GPs to screen patients before making a more thorough assessment of problem drinkers only.

6.2 Research questions

1. What is the prevalence of hazardous/harmful alcohol consumption in general practice patients?
2. Is hazardous/harmful drinking in general practice patients associated with particular patient profiles?

6.3 SAND questions

Box 6.1: Alcohol use

GPs asked the patient (18+ years):

♦ *How often do you have a drink containing alcohol?*

Never
Monthly or less
Once a week
2–4 times a week
5+ times a week

♦ *How many standard drinks do you have on a typical day when you are drinking?*

_____

♦ *How often do you have 6 or more standard drinks on one occasion?*

Never
Monthly or less
Once a week
2–4 times a week
5+ times a week

Notes:

1. A standard drinks chart was provided to each GP to assist the patient in identifying the number of standard drinks consumed.

2. Together these three questions assess 'at risk' alcohol use. The scores for each question range from 0–4. A sore of 5+ for males or 4+ for females suggests that the person's drinking level is placing them at risk.

6.4 Results

Sample size (18+ years) was 29,230 patient encounters from 984 GPs.

Overall, 31.9% (95% CI: 31.0–32.8) of patient encounters were with adults who are considered to be drinking 'at-risk' levels of alcohol. Male patients had a higher rate of at risk drinkers (38.4%; 95% CI: 36.5–40.3) than female patients (27.7%; 95% CI: 26.4–28.9). In general, the proportion of female at risk drinkers decreased with age with less than 20% of female patients of 75 years and over considered at risk because of alcohol use (Figure 6.1). In contrast, the proportion of males considered at risk increased with age, with a decline occurring only for those aged 65 years or more. Investigations into the association of alcohol use and problem managed (ICPC-2 chapter level) revealed no apparent increase or decrease in rates of management of specific problems at encounters where the patient was an at risk drinker. The influence of age and gender was not controlled for in any of these comparisons, and will be the subject of further analysis in later reports.

Age group (years)	18–24	25–44	45–64	65–74	75+
Male at risk	39.7	41.5	41.6	37.1	26.5
Female at risk	36.6	31.2	27.7	22.8	18.5

Figure 6.1: Age–sex specific rate for at risk alcohol use
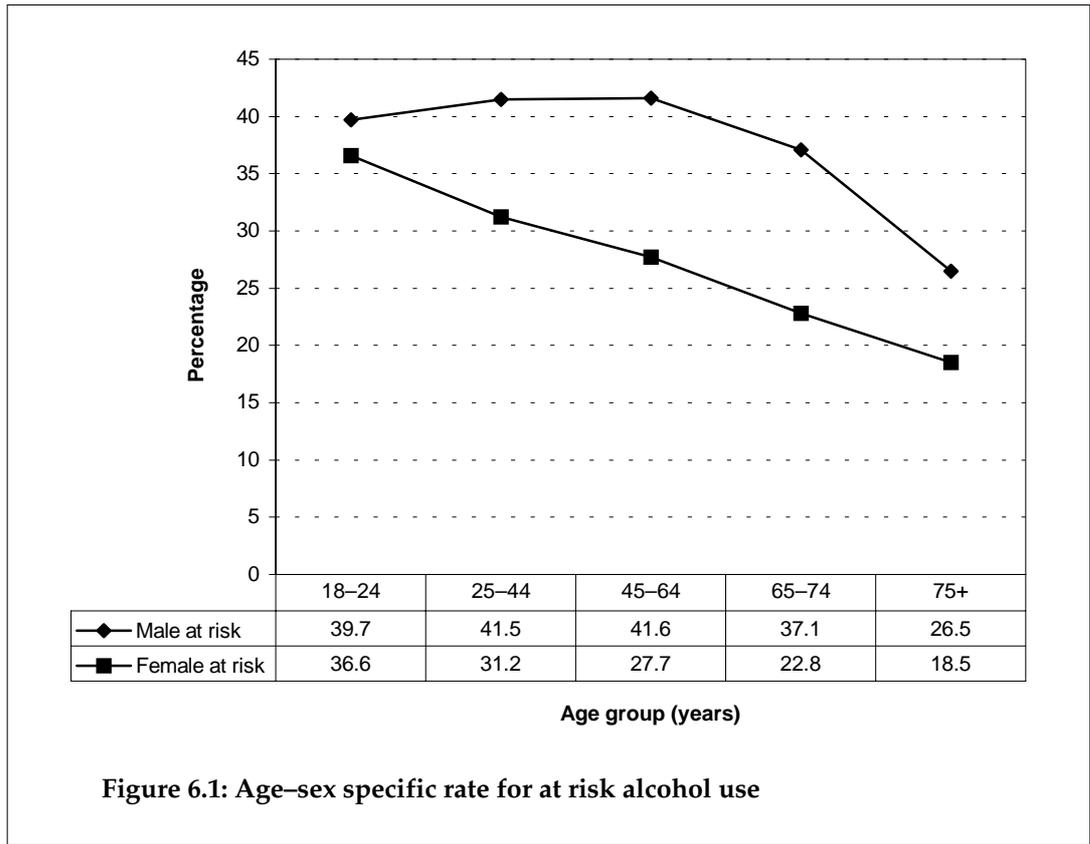
6.5 Discussion

Early intervention is a proven and effective method of reducing alcohol consumption in hazardous and early stage problem drinkers before greater harm can be done (Mattick & Jarvis 1993; Bien et al. 1993; Richmond & Anderson 1994). In a population health framework there are benefits from early intervention aimed at promoting responsible drinking. General practice is ideally placed for screening and initiating early brief intervention techniques. At one in three encounters with adult patients, the GP will be dealing with a person drinking 'at-risk' levels of alcohol.

Patients feel that the GP should be asking them about drinking and GP advice is acceptable and appropriate (Richmond et al. 1997). Numerous studies in Australia and the United Kingdom have shown that GP provision of brief advice can result in a 25–30% reduction in alcohol consumption and a 45% reduction in the number of excessive drinkers (Richmond & Anderson 1994). Appropriate referral can also be made through adequate assessment of alcohol use, problems associated with use, readiness to change and self-efficacy.

7 Physical activity

7.1 Background

Physical inactivity is an important risk factor for a variety of diseases (US Department of Health and Human Services 1996), in particular cardiovascular disease. Until recently, health promotion guidelines related to physical activity have emphasised the need for sustained vigorous activity to achieve a health benefit.

New guidelines have recently been published in Australia that set out the 'minimum levels of physical activity required for good health' (Australian Sports Commission 1997). The main recommendation is that people take part in moderate physical activity for at least a total of 30 minutes per day on most days of the week. The 30 minutes need not be continuous but can be made up of bouts of activity of 10 minutes each. The new guidelines utilise the evidence brought together in the US Surgeon's General report (US Department of Health and Human Services 1996) and are being publicised by the organisations involved in Active Australia.

As well as promoting the new guidelines, Active Australia has also conducted a survey to determine how many Australians are currently meeting the recommended physical activity levels (Bauman 1999). The survey, conducted in 1997, collected information from people aged 18 to 75 years through a random household telephone sample. Questions on the amount of time spent walking and doing moderate and vigorous physical activity were asked. Active Australia intends to repeat the survey to assess whether people are adopting the advice on physical activity.

An important source of advice and information on health-promoting behaviour, such as physical activity, is a person's GP (Bull & Jamrozik 1998). However, little is known about whether people who attend general practice are more or less active than the population at large or whether activity levels among these people are related to the reasons that they attend a doctor's surgery. The inclusion of these SAND questions in BEACH was intended to provide some of this information

7.2 Research questions

1. What are the levels of physical activity in general practice patients?
2. Is the level of activity in general practice patients considered sufficient?

7.3 SAND questions

Box 7.1: Physical activity

GPs asked the patients:

♦ *In the past week, how many times have you walked continuously, for at least 10 minutes?*

♦ *Please estimate total walking time.*

♦ *In the past week, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant? (e.g. tennis, jogging, cycling, excluding house work or gardening).*

♦ *Please estimate total vigorous activity time.*

♦ *In the past week, how many times did you do moderate physical activities? (e.g. lawn bowls, golf, gentle swimming, excluding house work or gardening).*

♦ *Please estimate total moderate activity time.*

7.4 Results

Sample size (18–75 years) was 2,677 patient encounters for 185 GPs.

Among patients in general practice, the most common form of physical activity was walking. More than two-thirds of people reported walking in the previous week, while only about one in four reported having done some form of moderate (27.3%) or vigorous (23.0%) physical activity. Information was not recorded for 10.8%, 15.1% and 15.7% of the questions on walking, moderate and vigorous physical activity, respectively.

The proportion of patients attending general practitioners who reported engaging in physical activity appeared less than that for the Australian population, although the pattern was broadly similar (Table 7.1).

Table 7.1: Patient reported physical activity levels

	Walking [a]			Moderate [a]			Vigorous [a]		
	None	**1–2**	**3+**	**None**	**1–2**	**3+**	**None**	**1–2**	**3+**
SAND respondents	31.8	14.2	54.0	72.6	14.8	12.5	77.0	12.7	10.3
Australian population [b]	25.0	17.3	57.7	69.9	19.6	10.5	56.6	19.6	23.9

(a)   Sample size: walking n=2,373; Moderate n=2,273; Vigorous n=2,256

(b)   Source: Australian Sports Commission

Active Australia defines 'sufficient activity' as at least 150 minutes, spread over five sessions per week, of moderate intensity physical exercise (Australian Sports Commission 1997). One third (34.7%) of respondents in the SAND survey who reported doing sufficient exercise (as defined by Active Australia) was 34.7%. Ten per cent of people did not have enough information recorded to calculate an exercise level. The proportion doing sufficient exercise was considerably less than that in the Active Australia (60.1%) survey.

Those in the younger age groups were more likely to have done sufficient exercise than the older age groups in both surveys. However, in contrast to the results from the Australian population, females in the general practice patient population were less likely to do sufficient exercise than males.

7.5 Discussion

The SAND survey suggests that people seen by their GP are less active than the general population. One of the possible explanations for this result is that the Active Australia survey was a telephone survey to households, whereas the SAND survey was conducted by GPs who recorded data about their patients whether seen in the surgery, at home, in a nursing home or in hospital. Another possible reason is that due to space limitations on the recording form it was not possible to collect data on household and gardening activities which were included in Active Australia's measure of sufficient exercise.

Despite these limitations, the data will provide GPs with a better understanding of the physical activity levels of the people whom they treat. In addition, because it has been collected as part of the BEACH survey, relationships between physical activity and the conditions for which people are treated in general practice can be investigated.

8 Prevalence of upper gastro-intestinal conditions and NSAID use

8.1 Background

Reflux-related indigestion is a common problem in the general community. In a large population survey in the United Kingdom in 1990, Jones et al. found that 41% of adults had experienced either heartburn or upper abdominal pain/discomfort in the past six months (Jones et al. 1990). A review of studies by Talley et al. (1998) suggested that in Western countries the annual prevalence of recurrent upper abdominal pain or discomfort ranged from 20–40%, depending on the definition applied.

The BEACH survey (1998–99) showed that upper gastrointestinal problems (UGIs) were managed at a rate of 4.0 per 100 encounters and that new episodes of UGIs arose at a rate of 1.2 per 100 patient contacts (Kelly 2000). This suggests through extrapolation, that there are around 1.2 million new episodes presenting in general practice in Australia each year. However, the community prevalence of UGI problems is likely to be far higher. Jones et al. demonstrated that in the United Kingdom only about one-quarter of heartburn sufferers had consulted a GP about their condition (Jones et al. 1990).

Talley suggests that dyspepsia affects approximately one in four people in Australia (Talley 1996) while Westbrook et al. (1998) suggest its prevalence may be as high as 36%. In 1993–94, the cost of antacids and drugs for the treatment of peptic ulcer paid through the Pharmaceutical Benefits Scheme was $163 million and by 1997–98 this had increased to $376 million (Commonwealth Department of Health and Aged Care 1999a). Additional costs of over-the-counter drugs, and those falling below the PBS cost threshold, are difficult to estimate.

In a review of non-steroidal anti-inflammatory drug (NSAID)-associated gastrointestinal complications, Schoenfeld et al.—suggest that between 0.1% and 2.0% of people using NSAIDs suffer serious gastrointestinal complications and that chronic ingestion of NSAIDs increases the risk for gastrointestinal complications ranging from dyspepsia to gastrointestinal bleeding (Schoenfeld et al. 1999).

The BEACH program provided an opportunity to investigate the prevalence of UGI problems in the general practice patient population and its relationship with NSAID intake.

8.2 Research questions

1. What is the prevalence of upper gastrointestinal problems in general practice patients in Australia?
2. Of those with UGI symptoms, what proportion are currently being treated and how?
3. What proportion of patients with UGI symptoms have also been on NSAIDs in the past 12 months?
4. Is there a relationship between NSAID use and occurrence of UGI symptoms?

8.3 SAND questions

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Box 8.1: Prevalence of upper gastrointestinal conditions and NSAID use

GPs asked the patients:

♦   *In the past 12 months has this patient used NSAIDs No*
      for any condition?   *Short term use—< 3 months*
                                          Long term use—> 3 months

♦   *Over the past 12 months has the patient had*   *Dyspepsia/indigestion?*
      (forced choice, highest level if multiple selected)   *Reflux symptoms/heartburn?*
                                          Ulcer (duodenal, peptic)?
                                          None of the above?

♦   *Was the duration*   *Days?*
                                          Weeks?
                                          Months?

♦   *How has it been treated? (multiple response allowed)*   *No treatment*
                                          Self-treated (OTC, quickeze etc.)
                                          Prescribed: *Antacids*
                                                       H_2 *antagonists*
                                                        PPIs
                                                        Triple therapy

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</table>

8.4 Results

Sample size was 3,569 patient encounters from 89 GPs.

Prevalence of use of NSAIDs

Almost one-quarter (24.0%; 95% CI: 21.4–26.5) of the 3,368 persons responding to this question reported using NSAIDs during the previous 12 months and the majority (70.1%) of these had used them for less than 3 months. NSAID use was most common in middle-aged respondents (32.1%) and decreased in the elderly to 27.5% (Figure 8.1).

Prevalence of UGI problems

The prevalence of UGI problems in patients attending Australian general practice was estimated as 30.8% (95% CI: 27.2–34.4), dyspepsia having the highest prevalence at 16.1% (95% CI: 13.3–19.0), followed by reflux (12.5% 95% CI: 10.5–14.5). Ulcers were far less prevalent, being reported by only 2.2% (95% CI: 1.3–3.1) of the sample.

There was no significant difference between males and females in the overall UGI rate, or in the relative reporting rates of each of the three types of UGI problem. The prevalence of UGI problems increased with age, to peak in patients aged 45–64 years (37.1%) and then decreased slightly in the older age groups (Figure 8.2).
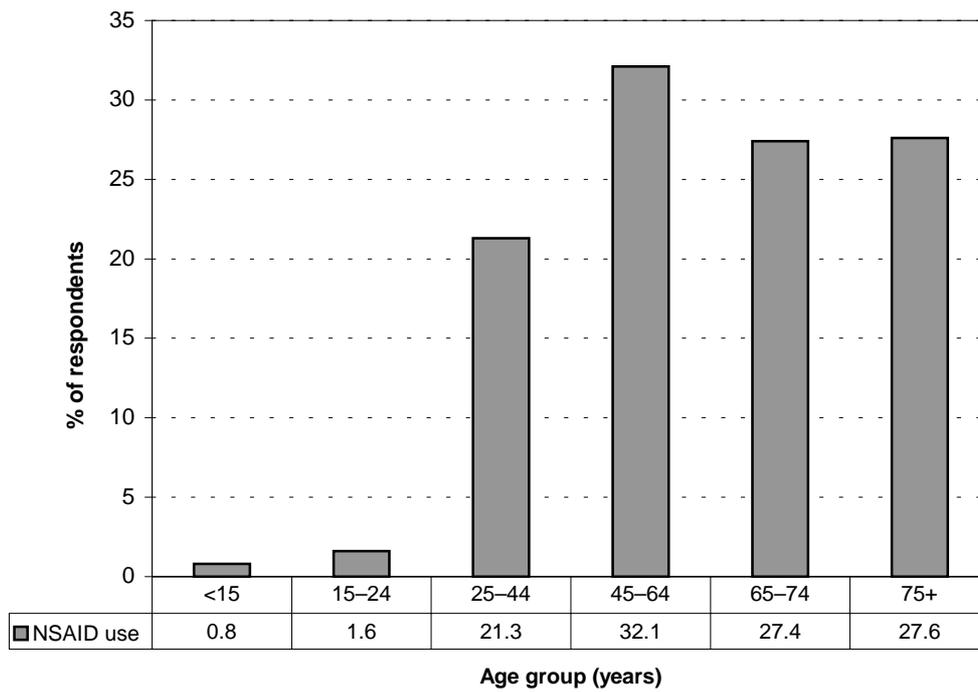
Figure 8.1: Age–specific rates of NSAID use in previous 12 months

Age group (years)	<15	15–24	25–44	45–64	65–74	75+
NSAID use	0.8	1.6	21.3	32.1	27.4	27.6
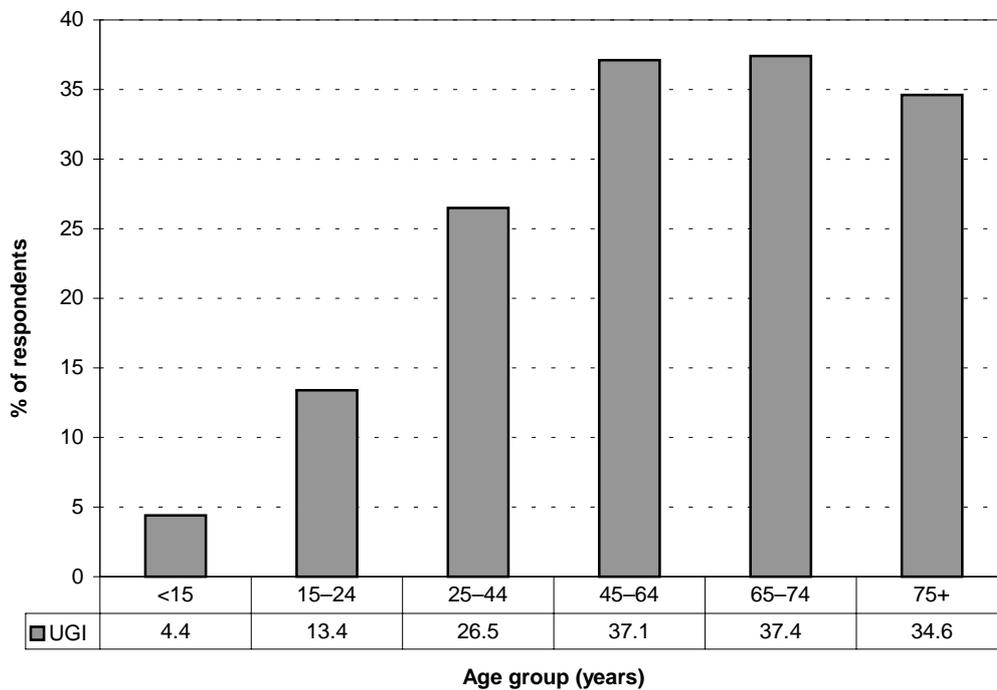
Figure 8.2: Age-specific rates of upper gastrointestinal problems in previous 12 months

Age group (years)	<15	15–24	25–44	45–64	65–74	75+
UGI	4.4	13.4	26.5	37.1	37.4	34.6

Management of UGI problems

No treatment was being used by 17.8% of UGI sufferers, while 27.2% were self treating only. More than half (55.0%) were taking prescribed medication: 39.2% of those with dyspepsia; 68.8% of those with reflux and 94.9% of those with an ulcer (Table 8.1).

Table 8.1: UGI problem group by treatment type

Treatment type	Dyspepsia (%) (n=492)	Reflux (%) (n=394)	Ulcer (%) (n=59)	All UGI (%) (n=945)
No treatment	23.0	13.2	5.1	17.8
Self-treatment only	37.8	18.0	—	27.2
Prescribed medication (+/– self-treatment)	39.2	68.8	94.9	55.0

Note: Missing data removed

More than one-third of patients with a UGI problem were taking prescribed antacids, and almost two-thirds were on prescribed H2 antagonists. Prescribing of proton pump inhibitors was most likely in patients with ulcers, and then in those with reflux. Triple therapy was rarely being used by this group of patients (Figure 8.3).

	Dyspepsia	Reflux	Ulcer	All UGI
■ Antacids	38.9	21.0	3.6	35.8
■ H2s	63.7	67.9	51.8	64.6
□ PPIs	10.8	18.1	35.7	15.2
□ Triple therapy	1.6	4.4	19.6	5.0

UGI problem group

Figure 8.3: Prescribed medication type for medicated patients in each UGI problem group
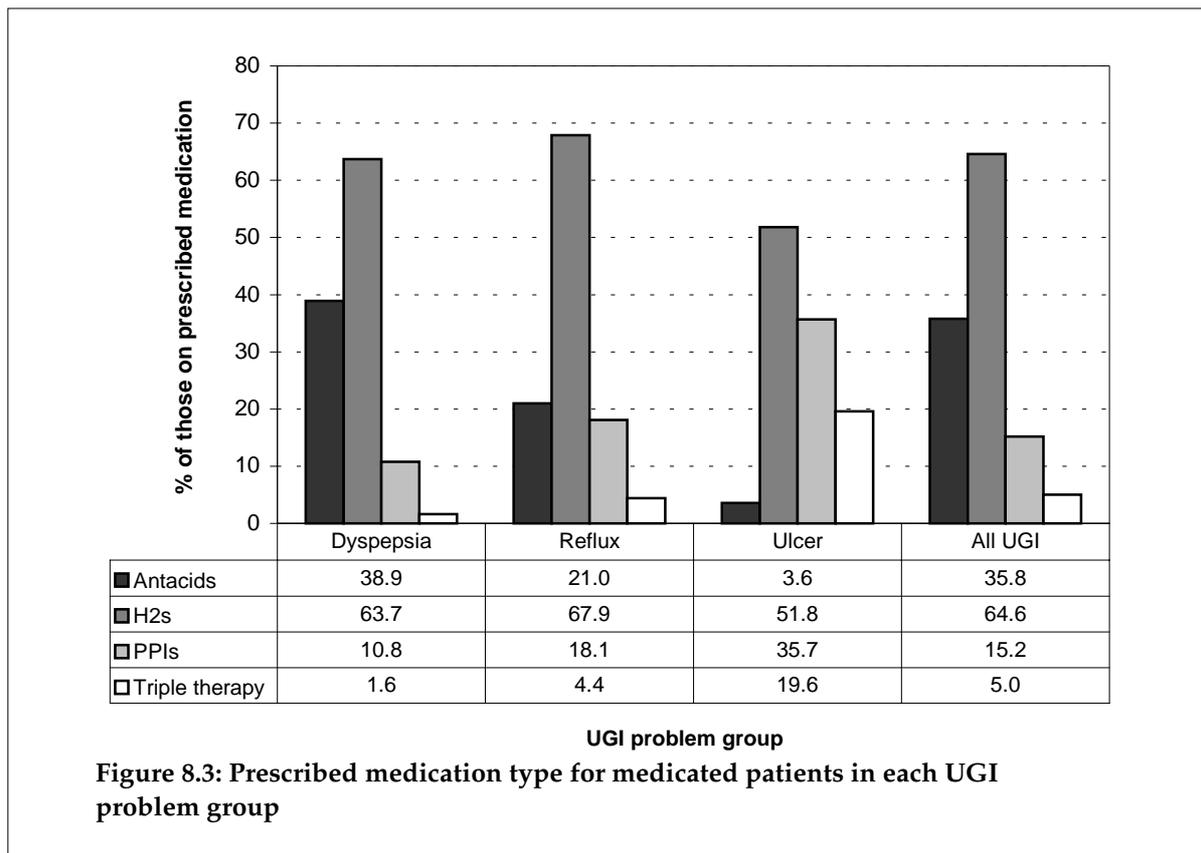
Notes:

1. Abbreviations: H2s = H2 antagonist drug group; PPIs = proton pump inhibitors

2. Patients may be on more than one type of prescribed medication for their UGI problem.

3. Number of patients on prescribed medication: Dyspepsia n= 193; Reflux n= 271, Ulcer n= 56; All UGI n= 520

The relationship between NSAID use and UGI problems

There was a significant relationship between NSAID use in the previous 12 months and having a UGI problem. It was found that 41.8% of those who had used NSAIDs reported a UGI problem compared with 25.8% of those who had not used NSAIDs (Table 8.2). After adjusting for age, through multiple logistic regression, the odds ratio indicated a 1.49 increase (p<.05) in the likelihood of having a UGI condition for each unit increase in NSAID use (no NSAIDs; <3 months; >3 months) (results not shown). That is, people who had used NSAIDs for less than 3 months were 1.49 times more likely to report a UGI condition than those who had not used NSAIDs. Those who had used NSAIDs for longer than 3 months were 1.49 times more likely to have had a UGI condition than short term users.

Table 8.2 : NSAID use and upper gastrointestinal problems

NSAID USE	UGI problem	Number	% of n
No NSAIDs (n=2,560)	**Any UGI problem**	**660**	**25.8**
	Dyspepsia	343	13.4
	Reflux	272	10.6
	Ulcer	45	1.8
Yes NSAIDs (n=808)	**Any UGI problem**	**338**	**41.8**
	Dyspepsia	183	22.7
	Reflux	129	16.0
	Ulcer	26	3.2

8.5 Discussion

The results of this study suggest that almost one in three persons attending general practitioners in Australia have suffered UGI problems in the previous 12 months, whether or not they have sought medical attention for the problem. This is somewhat less than the Jones et al. (1990) estimate of the prevalence in adults in the United Kingdom (41%). However, the current study included all age groups, not only adults. The estimated prevalence of dyspepsia was far lower than that reported by Westbrook et al. (1998) and this may be due to differences in terminology or definition applied in the two studies.

Many of the patients who had suffered UGI problems were not taking prescribed medication for their condition, suggesting that many people in the community self-treat for their upper UGI symptoms, particularly 'dyspepsia'. The likelihood of use of prescribed medication was highest for peptic ulcer, followed by reflux oesophagitis and least likely for dyspepsia.

This study has given further support to the association between NSAID use and the occurrence of problems related to the upper gastrointestinal system, indicating that the likelihood of suffering from a UGI problem increases with short-term use of NSAIDs and increases again with long-term use. However, these data are cross-sectional in that information on use of NSAIDs and occurrence of UGI problems both relate to the previous twelve months. For example, no information was available at to whether the NSAID use preceded or followed the UGI problem.

9 Cholesterol

9.1 Background

Elevated cholesterol is one of the factors contributing to cardiovascular disease in Australia. Heart, stroke and vascular disease are the leading causes of death among Australians, accounting for 42% of all deaths in 1996 (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999a).

It is widely recognised that the lowering of cholesterol levels is one modifiable factor in the prevention of cardiovascular disease. Little information is available about the prevalence of cholesterol screening in general practice in Australia and how those people with hypercholesterolaemia are being managed. Of particular interest is the level of High Density Lipoproteins (HDL) screening. A high level of HDL is associated with lower levels of artery disease. Never-the-less, no national data have been collected to provide a measure of trends in community cholesterol levels since 1989 (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999a).

General practitioners have a unique role in primary prevention, as the community perceives doctors as the most authoritative source of information on factors and behaviours associated with reducing the risk of disease (Royal Australian College of General Practitioners 1996). At the same time, many patients are perceived by their doctor to be dissatisfied with the consultation if they are not given a prescription (Butler et al. 1998; de Burgh et al. 1995). Between 1994–95 and 1995–96, the total cost of lipid lowering drugs increased by 30% (Waters et al. 1998). Given these conflicting forces, it was considered timely to investigate the extent to which GPs in Australia are undertaking cholesterol screening, and what management strategies are being used (both medically and in terms of lifestyle advice) for those with hypercholesterolaemia.

9.2 Research questions

1. What proportion of general practice patients have had their cholesterol checked in the previous 12-month period?
2. What proportion of these also had their level of High Density Lipoproteins (HDL) checked?
3. What is the prevalence of hypercholesterolaemia in general practice patients in Australia?
4. How is hypercholesterolaemia being managed in Australian general practice?

9.3 SAND questions

> **Box 9.1: Cholesterol screening**
>
> *GPs asked the patients:*
>
> ♦ *Over the past 12 months have you had a cholesterol check?*   *Yes / No*
>
>   **If 'yes':**
>
>   ♦   *Was the level?*   *High*
>   *Normal*
>   *Low*
>
>   ♦   *Did you have your HDL checked?*   *Yes / No / Don't know*
>
> ♦ *What treatment are you having for cholesterol?*   *None*
>   *(multiple response allowed)*   *Exercise*
>   *Diet*
>   *Medication:*
>   *Brand name?_____*
>
> ♦ *Is your cholesterol level controlled?*   *Yes/No/Don't know/Not applicable*

9.4 Results

Sample size was 3,391 patient encounters from 96 GPs.

Of the 3,391 patient encounters, 57.0% were with females and 45.1% were with patients aged 45 years or older. Almost one-third (32.4%, 95% CI: 28.7–36.1) reported having had a cholesterol check during the previous 12-month period. Of these, 52.3% (95% CI: 46.2–58.4) also reported having had their HDL checked. Males had slightly higher sex specific rates of cholesterol checks (30.4%) compared with those of females (27.1%). Those aged 65–74 years had the highest rate of cholesterol check (age specific rate 54.0%, 95% CI: 43.2–64.5) (Figure 9.1).

At the 1,099 encounters where the patient reported having their cholesterol level checked in the previous 12 months, 32.1% (95% CI: 28.3–36.0) of patients reported high cholesterol levels. Where cholesterol levels were being actively managed (496 encounters), just under half of these (45.8%, 95% CI: 40.1–51.4) were using medication +/– diet and exercise. The remaining 54.2% (95% CI: 48.9–59.6) were using diet and/or exercise only to control their cholesterol level.

At encounters where the patient was on medication, over 90% were taking one of the 'statin' class (Figure 9.2). Over half were using Simvastatin, while almost 20% were being prescribed Atorvastatin, and a further 16% Pravastatin.

Of those being treated with medication for hypercholesterolaemia, almost two-thirds (65.2%) said their cholesterol level was now controlled (95% CI: 47.9%–82.5%). Of those who were currently not on medication but were using diet and/or exercise, less than half (44.6%,95% CI: 19.8–69.4%) stated their cholesterol level was currently controlled.

Age group (years)	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
Male	0.0	0.0	0.3	2.2	8.0	23.0	26.6	19.4
Female	0.0	0.0	0.3	3.3	11.1	26.0	27.3	24.7

Figure 9.1 : Age–sex specific rates of cholesterol check in previous 12 months

Figure 9.2: Distribution of medications (at generic level) for hypercholesterolaemia
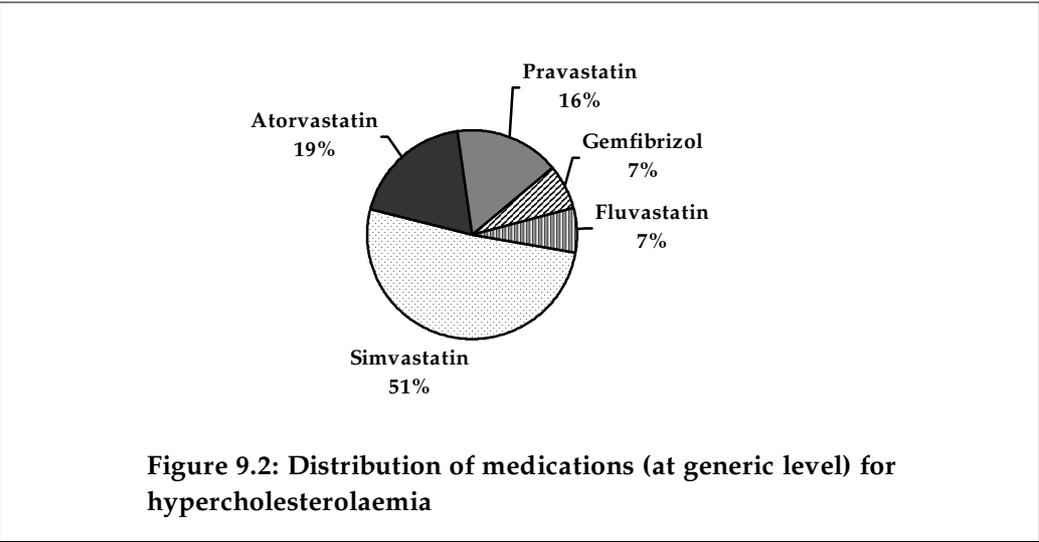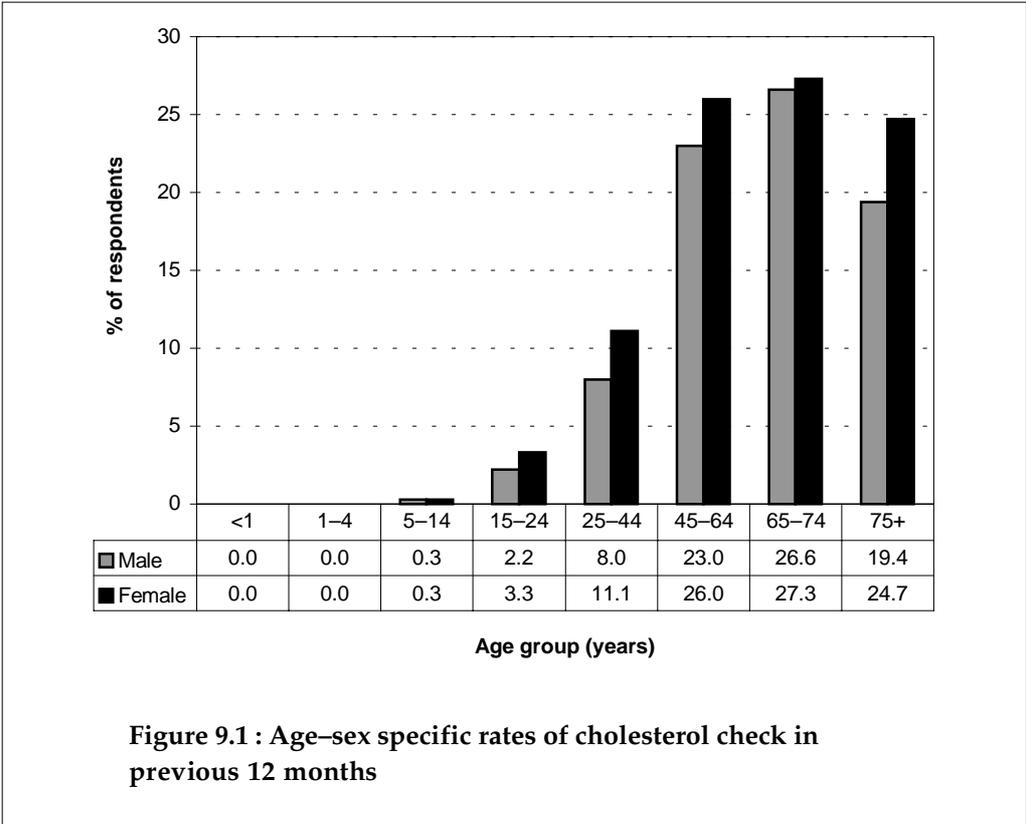
9.5 Discussion

The results of this study indicate, with good reliability, that of persons attending general practitioners in Australia, approximately one-third will have had a cholesterol check in the previous 12 months and about half of these would be aware they had their HDL checked at the same time. High cholesterol would be indicated in 28–36% of these patients and, of these, 40–50% would be on medication for high cholesterol levels. The vast majority of people on medication for high cholesterol levels would be aware of the extent to which the level is controlled and the cholesterol levels of two-thirds of those on medication would be controlled. Persons using diet and or exercise (no medication) in order to control their cholesterol levels may be less aware of the extent to which it was controlled. The extent of control with diet and/or exercise is therefore possibly a less reliable estimate.

10 Vaccination and mammography

10.1 Background

General practitioners are the primary source of immunisation against tetanus and influenza in Australia (Britt et al. 1999b; Health Insurance Commission 1999). The SAND questions on influenza and tetanus immunisation were based on the NHMRC criteria set out in the sixth edition of the *Australian Immunisation Handbook 1997* (National Health and Medical Research Council 1997).

While the incidence of tetanus in Australia is very low, with only two cases being reported in 1996 (Australian Institute of Health and Welfare 1998a), the disease is often fatal, and continued control depends on high levels of immunisation (National Health and Medical Research Council 1997).

Influenza is still a life-threatening disease, particularly for 'high risk' groups (Australian Institute of Health and Welfare 1998a). High risk categories include patients over 65 years (over 50 years for Aboriginal people and Torres Strait Islanders), adults with a chronic debilitating disease (especially chronic cardiac, pulmonary, renal and metabolic diseases), children with cyanotic congenital heart disease, adults and children receiving immuno-suppressive therapy, residents. Vaccination is also recommended for staff members of nursing homes and for other health workers caring for immuno-compromised patients (National Health and Medical Research Council 1997). Immunisation is an important preventive measure which significantly reduces the impact of the disease (Ahmed et al. 1995; Ahmed et al. 1997).

In the 1995 National Health Survey, 64% of women aged 50–69 reported having a mammogram (Australian Institute of Health and Welfare 1998b). Women have direct access to breast cancer screening and frequently attend in response to public awareness programs. The extent to which GPs are aware of their patients attendance may reflect both their involvement in and promotion of screening activities and their communication with their patients. While the mammography question to patients was asked of all women over the age of 18, the prime target was women in the 50–69 age group for whom BreastScreen Australia has set a target of 70% mammography level aiming to achieve a 30% reduction in breast cancer deaths (Australian Institute of Health and Welfare 1998b).

10.2 Research questions

1. How many general practice patients report having tetanus immunisation in the preceding 10 years?
2. How many general practice patients report having influenza immunisation in the preceding year?
3. How many general practice patients are classified by the general practitioner in an at-risk category for influenza?
4. What proportion of general practice patients who are classified in an at-risk category for influenza report having been immunised against influenza in the preceding year?
5. How many women over the age of 18 years presenting to general practice report having screening mammography in the preceding two years?

6. What proportion of women over the age of 18 years presenting to general practice report having screening mammography in the preceding two years and in what proportion was this known to the general practitioner?

10.3 SAND questions

<div style="border:1px solid black">

Box 10.1: Vaccination and mammography screening

GPs asked the patients:

♦ *Have you had a tetanus immunisation*
    or booster in the last 10 years?   *Yes / No / Don't know*

♦ *Have you been vaccinated against influenza*   *Yes / No / Don't know*
    in the last year?

♦ *Have you had a screening mammography in the*   *Yes / No / Don't know*
    last two years? (asked of women over 18 years)

Questions asked of the GPs:

♦ *Is the patient in an at-risk category for influenza?*   *Yes / No / Don't know*

♦ *Prior to asking today, were you aware of this*   *Yes / No / Not sure*
    patient's mammography? (asked for women
    who responded positively to the question
    regarding mammography)

</div>

Note: In this report the 'at risk' category includes health care workers for whom vaccination is advised.

10.4 Results

Sample size was 2,002 patient encounters from 100 GPs.

Tetanus immunisation

Overall 63.7% (95% CI: 59.9–67.5) of encounters in general practice were with persons who had tetanus immunisation in the preceding 10 years. A small percentage did not know whether they had or not. There was no significant difference in the tetanus immunisation rates of males and females. Patients over the age of 45 years were significantly less likely (53.7%; 95% CI: 47.8–59.5) to have been immunised than patients aged 15–44 years (69.3%; 95% CI: 64.3–74.4) and those aged 0–14 years (91.0%; 95% CI: 72.0–100.0).

Patients encountered who resided in remote areas were significantly more likely (80.8%; 95% CI: 69.2–92.4) to have been immunised than patients residing in urban areas (62.0%; 95% CI: 57.9–66.2) (Figure 10.1).

	Urban	Rural	Remote
☐ Yes	62.7	70.4	80.8
☐ No	30.0	20.9	3.9
☐ Don't Know	7.3	8.7	15.4
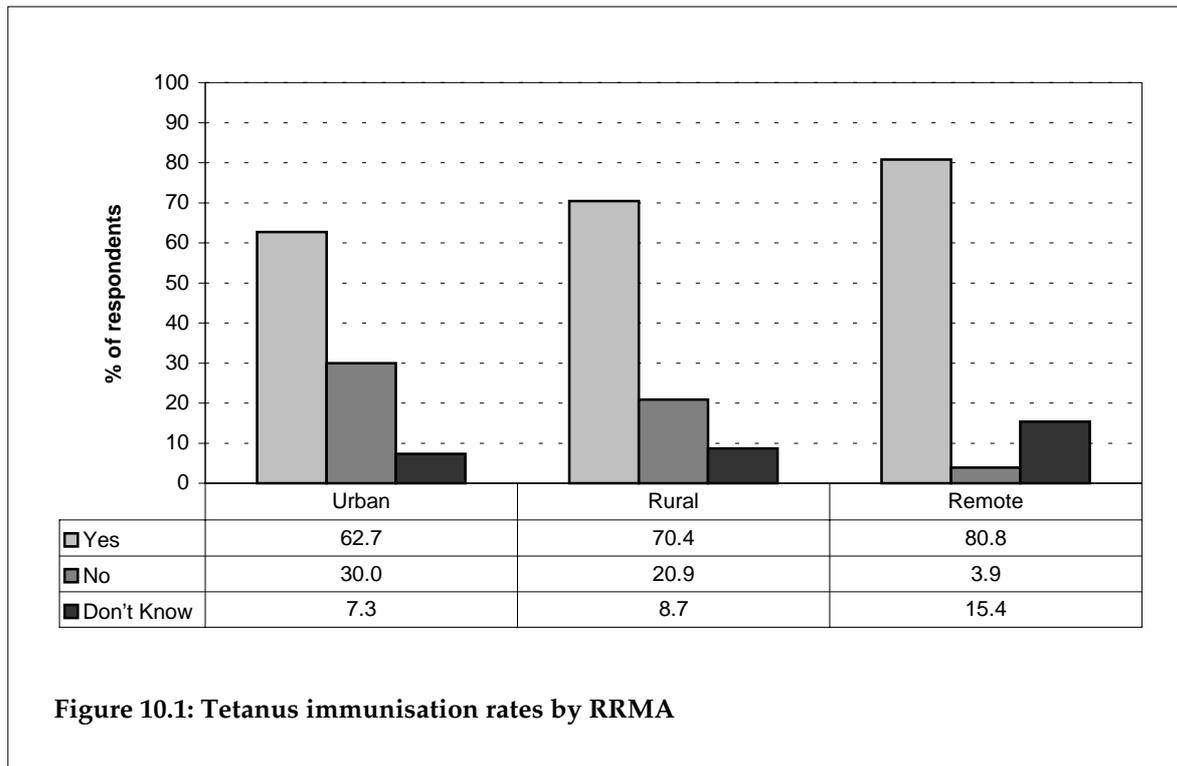
Figure 10.1: Tetanus immunisation rates by RRMA

Influenza vaccination

Overall 28.5% (95% CI: 24.9–32.1) of encounters in general practice were with persons who have had influenza vaccination in the preceding year. There was no significant difference in the influenza vaccination rates of males and females.

Patients over the age of 65 years were significantly more likely (74.1%; 95% CI: 60.5–87.8) to have been vaccinated than patients aged 45–64 years (26.8%; 95% CI: 18.4–35.2), who, in turn, were more likely to be vaccinated than patients under 45 years, a group which had low levels of vaccination (6.2%; 95% CI: 3.0–9.3).

Patients classified as at risk for influenza were seen at 35.5% (95% CI: 31.5–39.5) of encounters. There was no significant difference between males and females in the proportion classified as 'at-risk'. Of those classified as at-risk, 69.5% had been vaccinated, while only 5.9% of those not classified 'at-risk' had been vaccinated (Figure 10.2). There were no significant differences by age or gender in the relationship between being at-risk and influenza vaccination.

	At risk	Not at risk
■Yes	70.1	6.0
□No	28.9	93.7
■Don't Know	1.0	0.4

Figure 10.2: Influenza immunisation rates by risk catagory
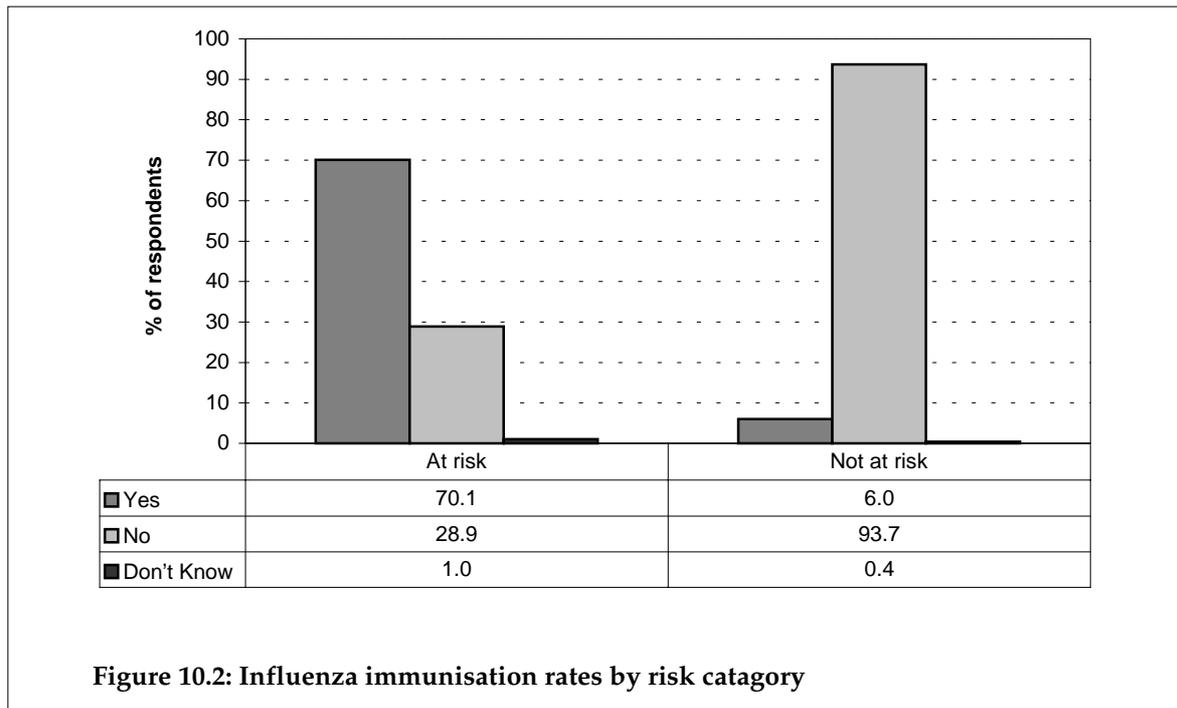
Mammography screening

Overall 35.3%, (95% CI: 32.1–38.4) of women aged 18 years and over encountered in general practice reported having screening mammography in the preceding two years. Only 4.6% of women aged between 18 and 39 reported having a mammogram compared with 69.5% of women in the 50–69 age group. Women in the 70+ age group reported lower rates (29.5%) of mammography than those in the 50–69 years age group (69.5%) (Figure 10.3). There were no significant differences in reported screening rates between urban and rural patients presenting to general practitioners in the study (data not shown).

General practitioners reported being aware of the patient's mammogram in 75.4% of the instances where women reported having had a mammogram in the preceding two years. There were no significant differences in the level of awareness related to the age of the patient or the age or gender of the GP (data not shown).

	18–39	40–49	50–69	70+
☐ Yes	4.6	44.4	69.5	29.5
■ No	90.7	49.4	28.1	65.2

Age group (years)

Figure 10.3: Age specific rates of mammography in previous two years
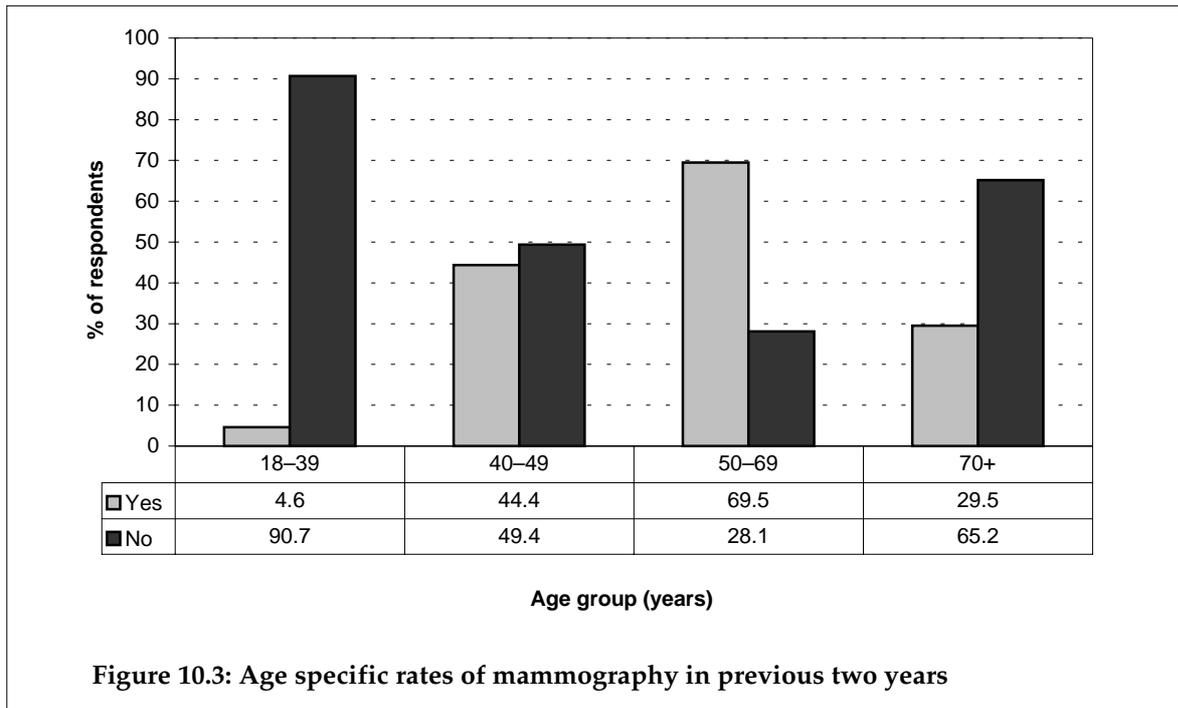
10.5 Discussion

Tetanus immunisation levels in the higher risk remote areas were significantly higher than in the lower risk urban areas, possibly reflecting a patient and/or GP awareness of the greater risks. While few patients classified 'not-at-risk' by GPs receive immunisation against influenza, there is a substantial group of 'at-risk' patients who are not receiving immunisation. This study provides one measure of the immunisation levels in the general practice patient population and could be repeated to monitor changes in reported immunisation levels.

BreastScreen's national screening target for mammography of 70% for women aged 50–69 may now be being reached. It is notable that in spite of the direct patient access to mammography, the patient's GP reported awareness of the mammogram in over three-quarters of instances. General practitioners can play an important part in the screening process and the SAND survey could be used to supplement future monitoring of mammography screening.

11 Health care utilisation

11.1 Background

Health care utilisation is defined as being an indicator of 'chronicity'. That is, people who attend GPs and physicians frequently, who use high numbers of medications, are admitted to hospital, reside in nursing homes or have certain morbidity types (e.g. cognitive impairment, incontinence) are deemed to have more indicators of chronic and unstable conditions than people who do not utilise the same mix of services and resources. General practice is well positioned to meet the needs of patients with chronic and complex conditions. Increased life expectancy will see an increase in the number of elderly people with chronic medical problems. Most elderly people will continue to be looked after in the community rather than in acute settings. General practitioners will therefore be in a unique position to face the challenges of coordinating patient care.

The NSW Department of Health has forecast that by 2001 in New South Wales almost 50% of old people will be in the 'old-old' group, i.e. frail and aged 75 years and over (NSW Health Department 1990). The frail aged will be likely to have more complex care needs and require integrated care and coordination of services. The Australian Coordinated Care Trials are currently under way in an attempt to address some of these issues (Commonwealth Department of Health and Aged Care 1999b).

The Jamison Inquiry (Jamison 1980) noted from a NSW survey into hospital service utilisation that the aged (60 years and over) comprised 8.6% of the population but occupied 30% of acute hospital beds and consumed 40% of prescribed drugs. General practice patients have received little attention, mainly due to deficits in available information sources. This SAND topic aimed to establish levels of health services utilisation among patients attending general practice and to identify those who would fulfil the 'chronicity' criteria.

11.2 Research questions

1. How many prescribed and over-the-counter medications are taken routinely by general practice patients in Australia over a six-month period?

2. How many visits are made to GPs in Australia by general practice patients, in a six-month period?

3. How many general practice patients are admitted to hospital in a six-month period?

4. How many general practice patients attend allied health professionals in a six-month period?

5. What is the lifestyle/dependency status of patients attending GPs?

6. What is the prevalence of various indicators of 'chronicity'—falls, cognitive impairment, social isolation, incontinence—in the general practice population?

11.3 SAND questions

Box 11.1: Health care utilisation

GPs asked the patients the following questions, all of which were preceded by 'In the past 6 months'

♦ *Number of medications routinely taken?*   *Prescribed*

OTC (over-the-counter)

Number of GP visits (any GP)?

*Number of hospital admissions
        (including day surgery)?*

Number of AHP consultations?

♦ *Lifestyle: (tick box for 'yes')*   *In the community
Living independently?
Dependent on carer /other?
In an institution?*

GP assessment *(tick box for 'yes')*

♦ *Present status:*   *Falls / poor mobility?
   (Multiple response allowed)   Cognitive impairment / psychiatric problem?
Socially isolated, carer stress, loneliness?
Incontinent?
Department of Veterans' Affairs health care plan?
Other coordinated care plan*

Notes:

1. Routinely = usually taken at least once daily but could be taken on a regular basis less frequently (e.g. Ventolin)

2. OTC: may include pharmacy medicines (S3), vitamins, alternative therapies, anti-oxidants etc.

3. Allied health professional (AHP) could include home nursing visits, physiotherapist, chiropractor, psychologist etc.

11.4 Results

Sample size was 7,992 patient encounters from 200 GPs.

The highest response rates were for those questions dealing with GP consultations i.e. number of prescribed medications (91.8%) and number of GP visits (94.8%). Response rates decreased for questions dealing with other aspects of health service utilisation— hospital admissions (81.3%), number of over-the-counter (OTC) medications (67.6%) and allied health professional consultations (81.9%).

At least one prescribed medication had been taken routinely in the past six months by patients at 63.1% of the encounters. Of these, 69.0% had routinely taken between one and three medications. In comparison, 31.6% had routinely taken at least one OTC medication. The rate of use of both prescribed and OTC medications increased with age. The proportion of females who routinely took at least one prescribed medication was 66.7% compared with that for males, 58.7%. Similarly, more females than males had routinely taken at least one OTC medication over the previous six months. At 4.9% of encounters, the patients stated that they had routinely taken seven or more medications (prescribed and/or over-the-counter).

It was estimated that 92.6% of patient encounters had seen a GP at least once in the previous six months. Of these, the majority (52.3%) had seen a GP between one and four times. Males and females had similar rates of GP attendance with only slightly more females (94.0%) than males (91.0%) having at least one GP visit in the past six months. At least one admission to hospital in the previous six months was reported at 16.0% of encounters. The majority of these, 70.9%, had one admission only. At least one visit to an allied health professional, in the previous six months, was reported by patients at 17.5% of encounters.

At 75.7% of encounters, patients stated that they were living independently, while 12.5% said that they were dependent on a carer or other. Only 2.6% of the total sample were institutionalised.

The prevalence of falls/poor mobility and cognitive impairment/psychiatric problems was similar, 5.3% for those living independently and 5.2% for those who were dependent on a carer. The prevalence of social isolation/carer stress/loneliness was 3.9%, while the prevalence of incontinence was 1.3%. All of these indicators were more prevalent in those who were dependent on a carer and for those who were institutionalised.

'Chronicity' was defined as having at least one of the following (in the previous six-months): falls/poor mobility, cognitive impairment, social isolation, incontinence, more than two hospital admissions, more than 11 AHP consultations, 7+ prescribed and/or OTC medications (Table 11.1).

Table 11.1: Indicators of chronicity

Chronicity indicator (n=7,992)	n	%	95% CI
Falls/poor mobility	421	5.3	4.0–6.5
Cognitive impairment	414	5.2	3.2–7.1
Social isolation etc.	308	3.9	2.6–5.2
Incontinence	107	1.3	0.0–2.7
>2 hospital admissions	302	3.8	2.6–5.0
11+ AHP consultations	109	1.4	0.0–3.4
7+ prescribed and/or OTC medications	393	4.9	3.7–6.2

Note: Abbreviations: AHP=allied health professional, OTC=over-the-counter

It was estimated that 16.4% of respondents could be classified as having at least one indicator of chronicity. Of those with at least one chronicity indicator, 64.2% had only one indicator, 21.0% had two indicators while the remaining 15.0% had three or more. The prevalence of all indicators of chronicity increased with age. Participants in DVA health care plans were identified at only 27 encounters (0.3%). A further 80 people (4.4%) had other health care plans.

11.5 Discussion

It was demonstrated with good reliability that using the SAND method, health utilisation indicators could be identified for patients attending general practitioners. These indicators may be of future benefit in the planning and delivery of health services for those with complex care needs. The advent of the new Medicare item numbers for patient care assessment and managed care, which were introduced in November 1999 (Commonwealth Department of Health and Aged Care 1999c), should provide an incentive for GPs to assess and coordinate complex patient care. The uptake of these will be worthy of future monitoring, particularly the patient profiles.

12 Depression

12.1 Background

Depression is the most common and frequent mental disorder reported in household health surveys (Australian Bureau of Statistics 1998). There was a significance increase in the management of depression in general practice between 1990–91 and 1998–99 (Britt et al. 1999b). The increase is possibly due to the increased availability of medications and doctor and public education. From a burden of disease perspective, Mathers et al. (1999) have estimated that depression was responsible for 93,016 Disability Adjusted Life Years (DALY) for 1996, with depression contributing to 2.7% of DALYs for males and 4.8% of DALYs for females. Depression is the major focus of the mental health area under the National Health Priority Areas initiative (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999b).

Often it has been argued that a significant number of depressed people do not actively seek assistance. Furthermore, there is considerable debate about who is best positioned to assist depressed people. Investigating who currently is being used for assistance will provide information for the basis of interventions. It is also of interest to investigate the effectiveness of anti-depressant medication on aspects of patient functioning.

There is debate on whether the depression reported through household surveys or by GPs meets a level of severity that is truly the diagnostic label of 'depression' meeting diagnostic criteria, such as the DSM-IV (American Psychiatric Association 1994) or validated depression instruments. The Composite International Diagnostic Interview (CIDI) depression sub-scale (Robins et al. 1988) has been used successfully in the National Co-morbidity Study in the United States and is considered a standardised instrument of the WHO mental health epidemiological survey program. There are two stem questions indicating whether the patient is likely to have experienced a depressive episode in the previous 12 months. There is more detailed questioning in the CIDI following these two stem items relating to severity and psychopathology of the depressive state. As a screening instrument the two items better quantify depression as indicative of a level of debilitating illness than a self-reported 'I was depressed'.

12.2 Research questions

1. What proportion of people presenting to general practice have experienced a depressive episode in the previous 12 months?
2. How have depressed persons sought help for their depression?
3. What medications have depressed persons used for their depression?
4. While on medication for depression, how were patients affected in terms of sleep, appetite, work/study, relationships and sexual activity?

12.3 SAND questions

Box 12.1: Depressive episodes in the previous 12 months

GPs asked the patients:

♦ *During the past 12 months was there ever a time lasting two weeks or more when you:*

  Lost interest in most things like hobbies, work, activities that usually give you pleasure?[a]   *Yes / No*

  Felt sad, blue or depressed? [a]   *Yes / No*

If 'yes' to either:

♦ *What did you do about it?*   *Nothing*

  (multiple response allowed)   *Sought help from:*   *GP*
  (tick box for 'yes')   *Other health professional*
                                                                      Family or friends
                                                                      Psychiatrist

                                           Took medication: *Name medication_____*

If on medication:

♦ *How were you affected during treatment?*

  Sleep   *Better / Same / Worse*

  Appetite   *Better / Same / Worse*

  Work/study   *Better / Same / Worse*

  Relationships   *Better /Same / Worse*

If 18+ years:

  Sexual activity   *Better / Same / Worse*

(a)   A depressive episode is indicated if the patient responds positively to either of these stem questions.

12.4 Results

Sample size was 4,006 patient encounters from 200 GPs.

Overall, it was estimated that 27.2% (95% CI: 25.0–29.4) of encounters in general practice were with persons who had experienced a depressive episode in the previous 12 months. Of particular interest was the fact that more females (30.5%) reported a depressive episode in the previous 12 months than males (22.8%). Further, across all age groups, a greater percentage of females than males reported a depressive episode in the previous 12 months (Figure 12.1).

Of people reporting a depressive episode, 25.9% (95% CI: 22.3–29.5) sought no help, 54.3% (95% CI: 50.7–57.8) sought help from a GP, 25.3% (95% CI: 20.1–30.4) sought help from family and friends and 8.8% (95% CI: 5.4–12.3) sought help from a psychiatrist. Medications were used by 30.6% (95% CI: 27.4–33.8) of people reporting a depressive episode, with Sertraline (16.9%) being the most commonly used medication.

Medication had the most profound effect on those who took it for their depressive episode. Sleep improved for 60.1% (worsened in 5.7%) of patients, appetite improved in 34.2% (worsened in 7.8%) of patients, work/study improved in 36.3% (worsened in 9.3%) of patients, relationships improved in 40.5% (worsened in 6.6%) of patients and sexual activity improved in 7.2% (worsened in 12.6%) of patients.

	5–14	15–24	25–44	45–64	65–74	75+
Males	3.1	24.8	31.2	25.5	19.3	33.0
Females	0	32.0	38.1	33.6	31.5	34.0

Age group (years)

Figure 12.1: Age–specific rates of a depressive episode in previous 12 months
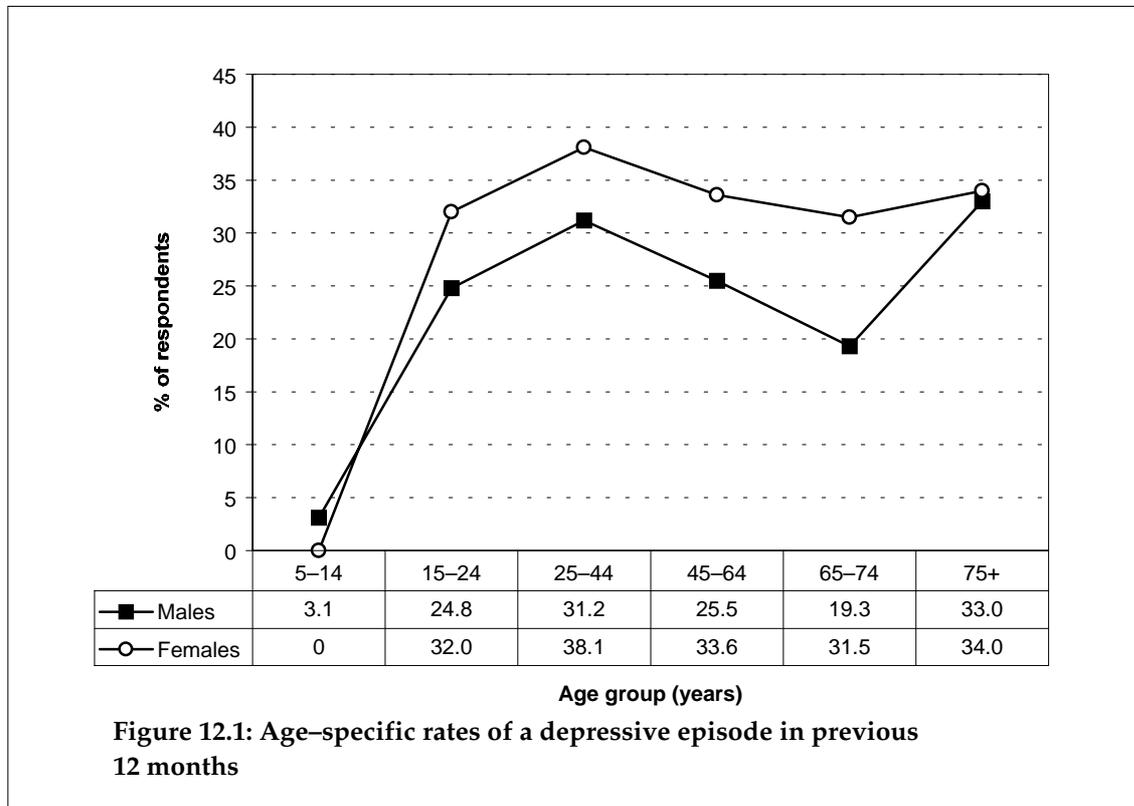
12.5 Discussion

The current study shows that a significant number of patients attending GPs have experienced a depressive episode in the previous 12 months. Over half of patients have reported GPs as a place of assistance. The National Health Priority Areas initiative has identified the recognition of depression as central to the management of depression in primary care (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare 1999b). However, education and training are required as primary care physicians vary considerably (25–75%) in their capacity to detect depression (Brown & Schulberg 1998). As shown in this investigation, simple screening questions can be effective in identifying patients for more thorough assessment.

Medications for depression appear to have the greatest impact on sleep and a lesser positive impact on appetite, work/study and relationships. The use or non-use of concurrent psychotherapy was not investigated in this study. The possible combined effect of these managements on the results therefore should not be discounted. The challenge for any health care provider is to select the treatment that best suits an individual and this choice may be influenced by the severity of the problem.

13 The effect of the introduction of therapeutic group premiums on patient care

13.1 Background

In the 1997 Budget, the Government announced that it intended to extend the price premium arrangements to apply to groups of drugs that had similar clinical activity. These therapeutic group premiums (TGPs) were introduced from 1 February 1998. This policy was in effect an extension of the earlier Brand Pricing Policy where premiums were applied to individual bio-equivalent brands of a particular drug.

The four therapeutic groups for which premiums were introduced were: the ACE inhibitors, the calcium channel blockers (both used to treat cardiovascular disease), the 'statin' group of drugs used for lowering blood cholesterol, and the H2 receptor antagonists for the treatment of peptic ulcer.

The Government subsidy for the drugs in these therapeutic groups is based on the benchmark price (i.e. the lowest priced drug/s in each group), and the price difference for a more expensive drug within the relevant group is paid by the patient over and above the relevant patient co-payment. The level of the premium is determined by the sponsor of the drug. Under the TGP policy, exemptions to paying the premium were available, on application by the prescriber, to patients who could not (for clinical or compliance reasons) tolerate the benchmark priced drug.

This study aimed to investigate the extent to which these changes on 1 February 1998 led to patients changing their medication and whether they affected the outcomes of the health care. It was conducted in a five-week period in August–September 1998, approximately six months after the introduction of the premiums.

13.2 Research questions

Overview: Did increased charges for selected drug classes lead to a change in medications prescribed for upper gastrointestinal (UGI) problems and hypertension, and did this affect patient outcomes?

1. What proportion of general practice patients are currently taking anti-hypertensive and/or ulcer medications?
2. What proportion of these patients changed their medication in the previous six months?
3. What proportion of these changed due to additional charges for the old medication?
4. Who suggested the change in medication?
5. What was the effect of the new medication?

13.3 SAND questions

Box 13.1: Reaction to increased costs of medication

GPs asked the patients:

- *Do you take medication for blood pressure or ulcers?*   *Yes / No*

- *Have you changed your blood pressure or ulcer medicines
  since February this year?*   *Yes / No*

- *Was this change in medication due to additional charges
  for the old medication?*   *Yes / No*

- *Who suggested the change?*   *Doctor*
  Self
  Pharmacist
  Other

- *Has the new medicine:*
    Worked as well?   *Yes / No*
    Had new or different side-effects?   *Yes / No*
    Meant more visits to your GP?   *Yes / No*

- *Overall, has the change in medication affected your:*
    Usual activities?   *Better / Same / Worse*
    Well being?   *Better / Same / Worse*
    Satisfaction with your overall care?   *Better / Same / Worse*

13.4 Results

Sample size was 3,641 patient encounters from 192 GPs.

Anti-hypertensive medications were being taken by 18.5% of the patients, while prescribed ulcer medication was being taken by 6.5% of patients. Some patients were taking both, such that about one in five was taking at least one anti-hypertensive or ulcer medication.

More than one-quarter (27.4%) of these 808 people, reported a change in at least one of these medications in the previous six months. The additional cost of the old medication as a result of the introduction of the therapeutic group premiums was cited as the reason for change by only 58 patients, one-quarter (26.2%) of those whose medication had changed and only 7.2% of those taking at least one of these medication types.

Changes in medication due to the TGP policy were slightly more common for anti-hypertensives (7.0% of those on such medication) than for ulcer medications (5.5%) (Table 13.1). Change was slightly more likely for patients aged 75 years or more than for those in younger age groups (Figure 13.1).

Table 13.1: Prevalence of use of selected drugs groups and of changes in medication

Medication type and change status	n	% (n=3, 641)	% of taking	% of changed
Patients taking anti-hypertensives	674	18.5	100.0	. .
medication changed in last six months	183	5.0	27.2	100.0
changed due to charge	47	1.3	7.0	25.7
Patients taking ulcer medication	235	6.5	100.0	. .
medication changed in last six months	48	1.3	20.4	100.0
changed due to charge	13	0.4	5.5	27.1
Patients taking at least one anti-hypertensive or ulcer medication.	808	22.2	100.0	. .
at least one medication changed in last six months	221	6.1	27.4	100.0
at least one changed due to charge	58	1.6	7.2	26.2

	<44	45–64	65–74	75+
■ Changed due to charges	5.0	7.3	6.8	8.2

Age group (years)

Figure 13.1: Age specific rates of changed medication(s) due to increased charges (of those on at least one of these medications)
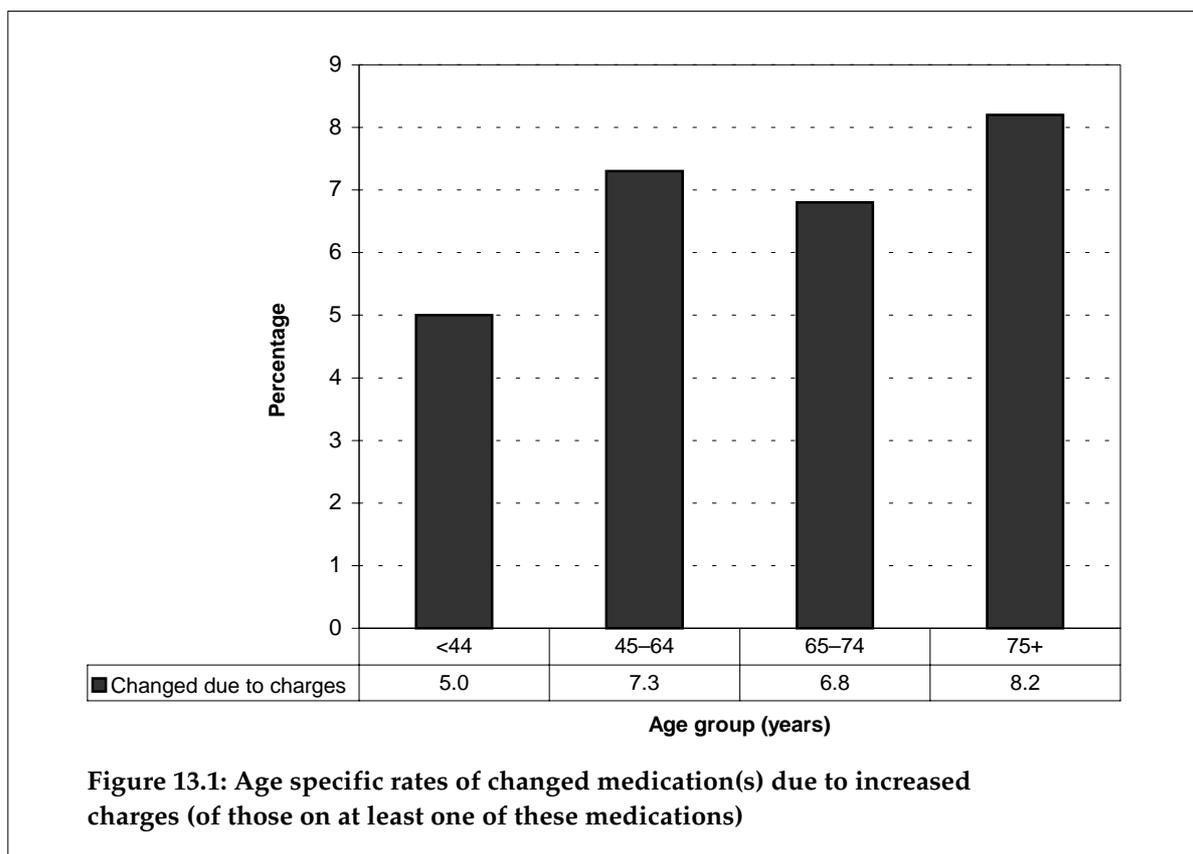
Information about who suggested the change in medication was obtained at 34 of these encounters. Sixteen changes due to price premiums were suggested by a doctor, three were self-initiated while fifteen were suggested by a pharmacist.

Only one of the 58 people felt that the change in medication had adversely affected their usual activities. The majority also felt that it had not had any affect on their well being (85.4%) or their satisfaction with their overall care (85.4%) However, a small proportion felt that the change had a detrimental effect on their well being and some were therefore less satisfied with their care. (Table 13.2).

Table 13.2: Effect of change in medication on patients (n=58)

	Better (n)	Same (n)	Worse (n)
Usual activities	0	57	1
Well being	1	50	7
Patient satisfaction	5	50	4

Two-thirds (69.9%) of those patients who changed medication due to the increased costs felt that the new medication worked as well as the old one. New or different side-effects were reported by 19.0% of these patients, and one in four (25.9%) said that they had had more visits to their GP as a result of the change in medication.

13.5 Discussion

The increased costs of some anti-hypertensives and anti-ulcerants led to very few changes in medication by this sample of patients. In the small proportion who made a change as a result of increased costs, by far the majority had no ill effects as a result. A very small number reported adverse effects of the new medication when compared with the old, and a few patients needed more visits to the GP as a result of the change. However numbers were very small so any conclusions drawn should only be tentative.

14 Consultation time and GP satisfaction

14.1 Background

There has been considerable interest in the time general practitioners spend with their patients, particularly under a fee-for-service system. The debate is centred on the argument that short consultations do not provide sufficient time to deal with complex patient issues, particularly psychosocial issues and preventive or health promotion activities.

Many factors have been found to be associated with consultation time including patient age and gender (Carr-Hill et al. 1998). The main finding is that female patients with female GPs have longer consultations. Consistent with this, in Australia, female GPs tend to manage more problems per consultation, with a greater likelihood of psychological problems being managed (Britt et al. 1996), thereby increasing the length of the consultation. Martin et al. (1997) also demonstrated that longer consultations were more likely to include the management of psychological problems and multiple problems than shorter consultations, irrespective of GP gender.

While there has been considerable research into patient satisfaction, research into GP satisfaction with the consultation and GP perception of the patient's satisfaction is limited. However, it has been shown that doctors tend to view more negatively than do patients the doctor's ability to assess, put patients at ease, explain, advise and allow expression of emotional feelings during a consultation (Rashid et al. 1989).

14.2 Research questions

What is the average consultation length in general practice?

1. How satisfied are GPs with consultations?
2. How satisfied are patients with the consultation, according to the GP?
3. How satisfied are GPs with the consultation in terms of their own:
   - response to the presenting problem?
   - disease management?
   - medication and treatment review?
   - preventive care and lifestyle advice?
   - psychosocial assessment, counselling and referral?
   - care coordination/case management?

14.3 SAND questions

Box 14.1: Consultation time and GP satisfaction

For three recording blocks:

GPs were asked to:

- ♦ *record the start and finish time for each encounter*
- ♦ *rate their satisfaction with the consultation on a scale of 1–7, where 1 was 'very unsatisfied' and 7 was 'very satisfied'.*

For one recording block:

GPs were asked to rate the patient's satisfaction with the consultation on a scale of 1–7, where 1 was 'very unsatisfied' and 7 was 'very satisfied'.

For one recording block:

GPs were asked if, in the time available, they were satisfied with:

♦ *Response to the presenting problem*	*Yes / No / Not applicable*
♦ *Disease management*	*Yes /No / Not applicable*
♦ *Medication and treatment review*	*Yes / No / Not applicable*
♦ *Preventive care and lifestyle advice*	*Yes / No / Not applicable*
♦ *Psychosocial assessment, counsel, referral*	*Yes / No / Not applicable*
♦ *Care coordination/case management*	*Yes / No / Not applicable*

14.4 Results

Sample sizes were:

- GP satisfaction and consultation time—11,053 patient encounters from 277 GPs;
- GPs' view of patient satisfaction—3,647 patient encounters from 91 GPs; and
- GP satisfaction on aspects of consultation—3,644 patient encounters from 91 GPs.

Some of these encounters were 'indirect' (encounters where the patient was not seen but a service provided). These were removed from the samples, leaving a sample of 10,502 direct (patient seen) encounters.

The nature of the distribution (skewed with large outliers) suggested that the median was a better measure of central tendency than the mean. The median length for the 10,502 direct consultations for which the GP recorded a time was 12 minutes. The mean consultation time was 14.6 minutes (95% C.I 14.1–15.0). There was only a slight difference in the median consultation length for male (11 minutes) and female (12 minutes) patients. The median length of consultation increased slightly with the age of the patient, those with patients aged less than 15 years having a median length of 10 minutes and those with patients aged 45 years or more, a median length of 13 minutes (Figure 14.1).

Younger GPs (under 35 years) had marginally longer consultation times, with a median of 13 minutes, compared with 12 minutes for those in older age groups. Female GPs had a median consultation length of 13 minutes compared with that for male GPs of 11 minutes.

Three-quarters of the 10,502 direct consultations (76.3%) were between five and 19 minutes in duration. Only 2.4% were of less than five minutes duration, and 2.5% were 40+ minutes long. The majority of consultations (93.3%) were between the hours of 08:00 and 18:00. As would be expected, the length of consultation increased with the number of problems being managed by the GP, with a median of 20 minutes for encounters involving the management of four problems compared with 10 minutes for those involving only one problem.

Average consultation lengths for encounters with particular problems are provided in Table 14.1. Results showed that encounters with a social problem (regardless of other problems managed) had the longest median consultation length of 20 minutes compared with a median of 10 minutes for eye, ear and respiratory problems.

GPs stated that they were satisfied with the consultation at 55.1% of encounters, were neutral at 42.8%, and dissatisfied at only 2.1% of encounters. GPs were generally satisfied with their response to the presenting problem (97.6%), disease management (92.2%) and medication/treatment review (91.4%) but were a little less satisfied with preventive care (80.6%) psychosocial assessment (78.8%) and care coordination (86.3%).

For the majority of encounters (69.5%), the GP felt that the patient was satisfied with the consultation.

	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
Males	10	10	10	10	12	13	12	13
Females	10	10	10	12	14	14	14	14

Age group (years)

Figure 14.1: Patient age-sex specific median consultation time (in minutes)
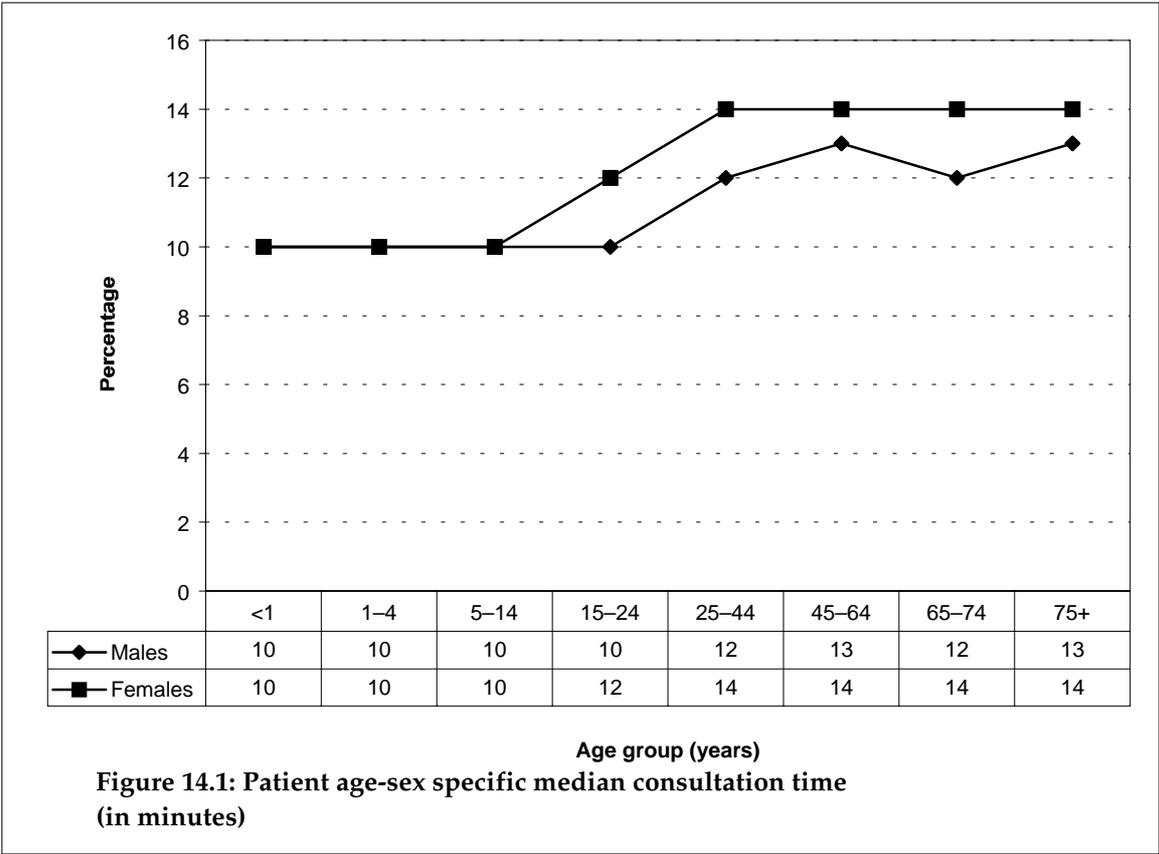
Table 14.1: Median and mean consultation length for encounters by problem managed (ICPC-2 chapter)

Problem managed	Number[a]	Median	Mean
General & unspecified	1558	12	14.5
Blood	216	14	17.2
Digestive	1044	13	15.3
Eye	297	10	13.0
Ear	559	10	12.4
Circulatory	1657	15	15.8
Musculoskeletal	1755	14	15.5
Neurological	430	15	16.4
Psychological	1120	15	18.3
Respiratory	2180	10	13.5
Skin	1755	12	14.0
Endocrine & metabolic	839	15	15.7
Urological	332	14	14.8
Pregnancy & family planning	470	12	14.1
Female genital system	769	15	17.2
Male genital system	141	14	15.8
Social	112	20	23.2

(a)   Column total (n=15,044) is greater than the number of consultations because more than one problem could be managed at an encounter.

14.5 Discussion

The average direct consultation was 12 minutes long with considerable variation between GP encounters. The problems managed, the patient characteristics (which are inherently related to the problems managed), and GP characteristics influence the length of time spent on a consultation. Other sections of this report demonstrate the opportunities for the general practitioner in the areas of psychosocial problem management, in preventive medicine and health promotion activity. This section has demonstrated that at almost all encounters GPs were satisfied, in the time available, with their disease management and response to the presenting problem. However at about one in five encounters they were not satisfied with their preventive care and life style advice, psychosocial assessment or care coordination. More detailed analyses of these data in the future may provide a better understanding of the relationship between length of consultation and GP satisfaction with their management of specific patient groups (e.g. the elderly, the chronically ill) and/or specific problem types (e.g. depression).

15 Hypertension

15.1 Background

Hypertension is the most common of all cardiovascular conditions. In the 1995 ABS Health Survey, 67% of males and 76% of females with a cardiovascular condition reported having hypertension (Australian Bureau of Statistics 1997a). Furthermore, hypertension is the most common problem managed in Australian general practice, being managed at a rate of 8.3 per 100 encounters (Britt et al. 1999b). Anti-hypertensives (i.e. beta-blockers, calcium channel blockers, ACE inhibitors) are the drugs most frequently prescribed by GPs for cardiovascular conditions (Waters et al. 1998; Britt et al. 1999b).

Between 1986 and 1993 the types of anti-hypertensive drugs prescribed for hypertension changed, with a decrease in the use of diuretics and beta blockers and an increase in the use of ACE inhibitors and calcium channel blockers (Henry et al. 1994).

Based on public expenditure, it has been postulated that first-line treatment (diuretics) and second-line treatments (beta blockers) are being passed over for calcium channel blockers and ACE inhibitors, which are considered third line therapy. ACE inhibitors ranked second of the highest cost medicine groups subsided by the PBS in 1995–96 with a total cost of $275 million, behind antacids used for the treatment of peptic ulcer (Waters et al. 1998). Given escalating costs, an apparent shift away from first-line therapy and the drive to encourage GPs to substitute generic drugs for brands, it was considered that a sub-sample of questions which investigated hypertension management and its apparent effectiveness would yield useful data.

15.2 Research questions

1. What is the prevalence of hypertension in patients attending general practitioners in Australia?

2. What is the prevalence of uncomplicated hypertension and of hypertension with complications in patients attending general practitioners in Australia?

3. What is the severity of the hypertension in these patients? (measured by GP assessed ease of control)

4. What medication types are being used in the management of hypertension in general practice in Australia?

15.3 SAND questions

15.4 Results

Sample size was 1,908 patient encounters from 95 GPs.

The prevalence of hypertension in general practice patients was 20.1% (95% CI: 17.3–22.8). Of the 383 patients with hypertension, 84.3% were considered to have simple hypertension, while 15.7% were said to have complicated hypertension.

There was no difference in the rate of hypertension for males (19.5%, 95% CI: 15.5–23.4) and females (20.2%, 95% CI: 17.1–23.3). The rate of hypertension increased with age until 75 years, with those aged 65–74 years having the highest rate at 52.5% (95% CI: 41.1–64.0). Age specific rates of simple and complicated hypertension were similar to those for all hypertension.

The GPs stated that it was easy to achieve control of the patient's hypertension for 80.0% of those reported to have hypertension. Not surprisingly, GPs found it more difficult to control complicated hypertension (compared with simple hypertension), with 67.2% finding it difficult or extremely difficult to control, and only 11.4% reporting this for simple hypertension.

Of the patients with hypertension, 12.3% were not taking any medication for their condition, while just over a half (55.4%) were taking only one medication. The remaining 32.4% were taking two or more medications. As would be expected, patients with complicated hypertension were taking more medications than those with simple hypertension.

The most frequently prescribed medications for hypertension were ACE inhibitors (Figure 15.1). Almost one-quarter of patients were using ACE inhibitors only, while 46.8% were receiving an ACE inhibitor only or in conjunction with another class of drug. The next most frequently prescribed medication type was calcium channel blockers, 14.9% receiving a calcium channel blocker only and 33.2% either alone, or in conjunction with another class of medication.

	Ca channel blockers	ACE inhibitors	Beta blockers	Diuretics	Other	None
■ People with hypertension	33.2	46.8	16.7	22.5	8.9	12.3
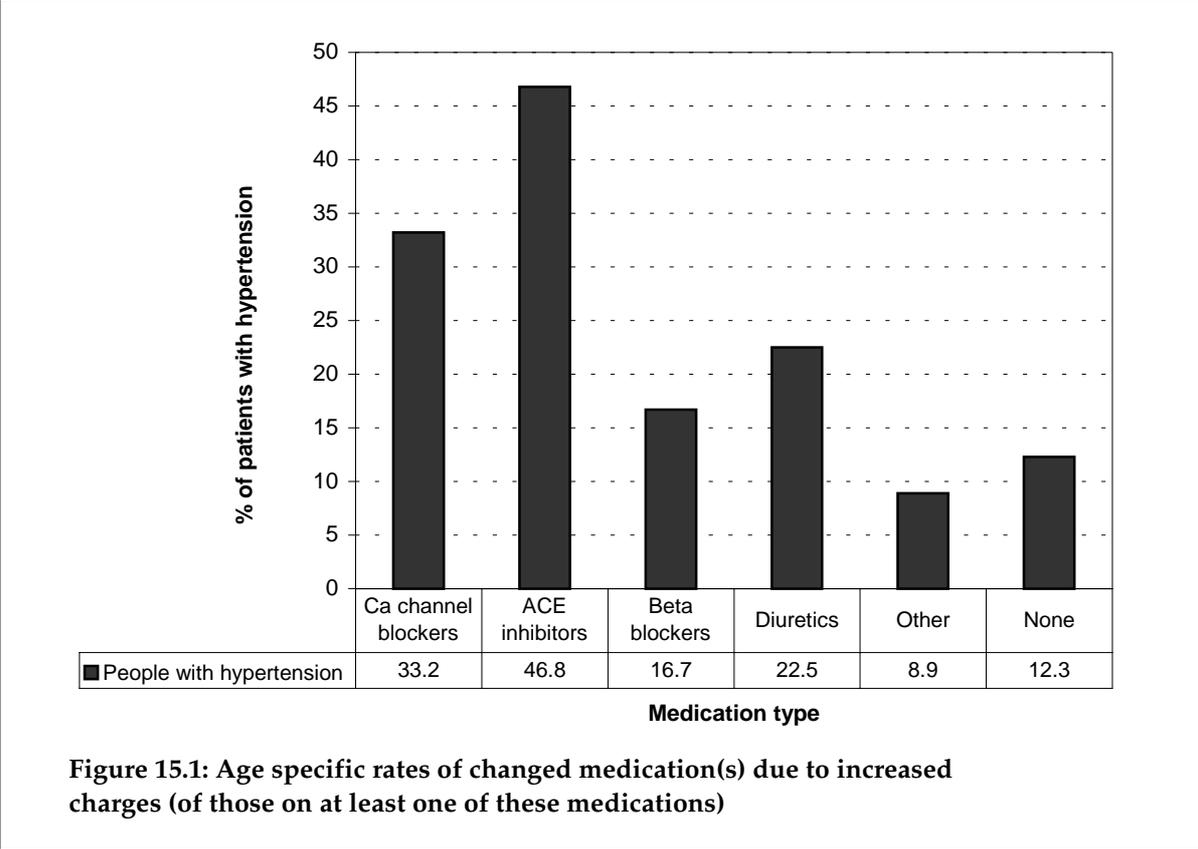
Medication type

Figure 15.1: Age specific rates of changed medication(s) due to increased charges (of those on at least one of these medications)

Note: Patients may be on more than one medication type for their hypertension

15.5 Discussion

The results of this study indicate, with good reliability, that one in five people attending general practitioners in Australia has hypertension. The majority of persons with hypertension (88%) take at least one medication for their condition and the most frequently prescribed medications are ACE inhibitors. These data will provide a baseline for future monitoring of the management of this condition, which is a major contributor to the burden of illness in Australia.

16 Severity of illness

16.1 Background

With an ageing population and increasing pressure on health service resources, there is a need to measure outcomes of health care delivery (Commonwealth Department of Human Services and Health 1994). This requires attention to aspects of morbidity not usually considered in classic epidemiology, such as the measurement of severity of illness. The Duke University Severity of Illness Checklist (DUSOI) (Parkerson et al. 1995) is an instrument designed to measure a patient's severity of illness based on the application of clinical judgment. The parameters for judging severity include symptom status, complications, prognosis without treatment, and treatability. An international study by Parkerson et al. in 1996 found DUSOI to be a feasible tool for rating severity of illness for health problems in general practice. However, the authors suggested that further research was needed in the primary care setting in order to improve reliability and validity of the instrument.

The DUSOI is a measure of severity of illness that can be used directly by the provider at the time of the patient encounter and also indirectly by medical record audit at a later date. The direct method has the advantage of access to the clinical judgment of the provider, but the disadvantage of adding time to the encounter. This study sought to further investigate the usefulness of carrying out a DUSOI rating within the confines of the general practice consultation and the acceptability of the DUSOI to clinicians.

16.2 Research question

1. What is the severity of problems managed in patients attending general practitioners in Australia?

16.3 SAND questions

Box 16.1: Severity of illness scoring key

The Duke University Severity of Illness (DUSOI) scale was used to assess the severity of the problem under management. It is comprised of four components: symptoms, complications, prognosis and treatability as per the scoring key below:

	None	**Questionable**	**Mild**	**Moderate**	**Major**
1. Symptoms (past week)	0	1	2	3	4
2. Complications (past week)	0	1	2	3	4

	Disability				**Threat to life**
3. Prognosis	**None**	**Mild**	**Moderate**	**Major**	
(next 6 months <u>if</u> <u>untreated</u>)	0	1	2	3	4

4. Treatability	**Need for treatment**			**Expected response to treatment**		
	No	**Questionable**	*If 'yes'*	**Good**	**Questionable**	**Poor**
	0	1		2	3	4

Symptoms: based on the GP's judgement as to the presence or absence of symptoms and their level of severity on the day of the visit and during the preceding week

Complications: defined as the presence of health problems which are secondary to the problem being managed

Prognosis: assessed in terms of either the level of disability or threat to life which a health problem holds for the patient during the next six months, if untreated. Disability refers to any limitation of a person's ability to function in everyday life

Treatability: based upon the need for treatment and the expected response to treatment.

Note: GPs were required to rate (code 0–4) for each component. The total DUSOI score is determined by addition of the four components, division of this total by 16 then multiplication by 100 to generate a value between 0 and 100. A high DUSOI indicates high severity of illness.

16.4 Results

Sample size was 4,125 patient encounters from 103 GPs.

The 4,125 patients had a total of 5,924 problems managed (143.6 per 100 encounters). DUSOI scores were completed for 92.5% of problems managed. A high DUSOI indicated high severity of illness. Almost half (42.5%) of the problems managed were rated as having a DUSOI score in the range of 26–50. Just over three-quarters (80.4%) of problems were rated as having a DUSOI score of 0–50, (i.e. the less severe end of the rating scale).

Table 16.1: DUSOI score top 10 problems

Problem managed	No. of cases	Mean	95% LCI	95% UCI	Median	Minimum	Maximum
Uncomplicated hypertension	342	27.7	25.7	29.6	25.0	0.0	75.0
URTI	188	27.7	23.1	32.2	25.0	0.0	75.0
Depressive disorder	145	49.6	44.6	54.6	50.0	6.3	87.5
Lipid disorder	101	24.3	21.8	26.9	25.0	0.0	43.8
Diabetes, non-insulin dependent	96	37.8	33.2	42.5	37.5	0.0	75.0
Asthma	91	45.3	41.3	49.4	43.8	6.3	100.0
Acute bronchitis/bronchiolitis	90	43.1	37.9	48.4	43.8	0.0	87.5
Sleep disturbance	81	32.6	25.3	39.8	25.0	0.0	93.8
Contact/allergic dermatitis	76	35.8	32.6	39.0	31.3	6.3	75.0
Osteoarthrosis	73	47.9	43.7	52.2	43.8	0.0	93.8

Note: Abbreviations: LCI = Lower confidence interval, UCI = Upper confidence interval

The mean and 95% CIs, the median, and the range of DUSOI scores for the most frequently managed problems at these encounters are provided in Table 16.1. Chronic conditions such as osteoarthrosis (47.9, 95% CI: 43.7–52.1) and asthma (45.3, 95% CI: 41.3–49.4) scored significantly higher than acute problems such as upper respiratory tract infection (27.7, 95% CI: 23.1–32.2) and gastroenteritis (31.7, 95% CI 27.3–36.2).

The problem with the highest mean DUSOI score (not shown in Table 16.1) was chronic obstructive pulmonary disease (67.9, 95% CI: 61.2–74.6) and the problem with the lowest mean score (not shown in Table 16.1) was medical examination/health evaluation (0.3, 95% CI: 0.0–1.0).

There were no statistically significant differences in mean DUSOI scores for problems in male patients and those managed in females. DUSOI scores were calculated for three age categories: under 15 years, 15–64 years and 65+ years. The severity of illness score did not necessarily increase with age. This is exemplified by asthma where the score for those aged less than 15 years was 34.7 (95% CI: 28.9–40.5), while those aged 15–64 years were rated as 49.7(95% CI: 45.1–54.2) and 65+ year olds were rated as 44.1 (95% CI: 33.1–55.2). Comparison between age groups was limited by differing patterns of morbidity in different age strata.

16.5 Discussion

The current investigation is the first large collection of DUSOI in Australian general practice. The data will be useful for comparison with those of other studies in general practice and with particular populations (e.g. veterans). It will also be possible to examine particular problem management for differential severity and the association of severity to different management practices. For example, those with more severe depression may be more likely to receive medication than those with mild depression.

The DUSOI could be said to be an acceptable tool for use in general practice because of the large proportion of problems managed for which the DUSOI ratings were completed. The usefulness of the tool in the measurement of illness severity in general practice needs further investigation, but already there appears to be a differentiation between problem types, with the more chronic conditions receiving a higher rating of severity than the acute conditions.

17 Co-morbidity

17.1 Background

The prevalence of co-morbidities, which can affect the treatment a patient receives and also their prognosis, is expected to increase in Australia over the next few years. This increase will be mainly due to the fact that the proportion of the population aged over 65 years is increasing (Australian Institute of Health and Welfare 1998a). Hence the prevalence of chronic diseases, such as arthritis and coronary heart disease, will increase. But the importance of chronic diseases and co-morbidity among children should not be overlooked (Newacheck et al. 1991).

This increase in co-morbidity will have a great impact upon the health sector in Australia, particularly general practice. The GP is usually a person's first point of call when he or she requires medical treatment, and the GP usually treats the whole patient not just a single disease.

There is also the methodological question of co-morbidity not being identified in encounter based data collections. Morbidity not managed at the encounter is not usually recorded. The researcher is able to describe only the problems that are actively managed during the course of a consultation.

Although co-morbidity is of great importance, there have been few studies (Schellevis et al. 1993; van den Akker et al. 1998; Wun et al. 1998) conducted anywhere in the world that have measured the extent of co-morbidity. These SAND questions represent the first attempt in Australia to measure co-morbidity in general practice and to assess the extent to which such co-morbidity is not picked up in cross-sectional encounter based study because it is not managed at the encounter.

17.2 Research questions

1. What is the prevalence of co-morbidity among patients in general practice?
2. How does this prevalence differ by the sex and age of the patient?
3. How does the prevalence differ between different conditions, particularly acute and chronic conditions?

17.3 SAND questions

Box 17.1: Co-morbidity

In the main part of the BEACH form the GP records up to four problems managed at that encounter.

In the SAND section, the GPs were asked to list any (up to four) of the patient's conditions not managed at the encounter.

17.4 Results

Sample size was 3,802 patient encounters from 95 GPs.

The total number of morbid conditions for each patient was calculated by adding the number of problems managed at the encounter with the number of conditions recorded in the SAND section as not managed at the encounter. Only problems and conditions that were labelled with a specific diagnostic/disease label (ICPC-2 codes in the diagnosis/disease component 7) and that were not one of the codes in the exclusion list used by van den Akker et al—(1998) in their study of co-morbidity in general practice were included in the count of morbid conditions.

Around one in five encounters were with patients without disease; that is, these people were attending with symptoms, complaints and process events (e.g. cough, headache, referrals, test results; i.e. ICPC-2 codes in the components 1–6) and did not have a specific disease (according to the van den Akker definition) managed or listed in the unmanaged co-morbidities listed. At a further 42.0% of encounters the patient had only one disease either managed or listed. Over one-third (36.6%) of encounters were with people who had one or more recognised co-morbid conditions (Table 17.1).

About two-thirds (64.0%) of all morbidity listed (n=5,360) had been managed at the encounter.

Table 17.1: Number of recognised conditions[a] per patient

Number of recognised conditions	Number	Percentage of encounters (n=3,802)	95% LCI	95% UCI
0	816	21.5	19.4	23.5
1	1,595	42.0	39.5	44.4
2	782	20.6	18.8	22.3
3	357	9.4	8.0	10.8
4+	252	6.6	4.8	8.5

(a)   as defined above

Note: Abbreviations: LCI = Lower 95% confidence interval, UCI = Upper 95% confidence interval

At least one co-morbidity was reported for a similar proportion of male and female patients (38% and 36% respectively). The proportion of people with co-morbidities increased with age and the highest proportion was among those aged 75 and over (71%) (Figure 17.1).

Age group (years)	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
■ Male	9.1	15.6	20.6	22.3	31.1	45.8	65.2	72.7
□ Female	8.3	15.0	18.1	22	23.1	41.2	61.8	70.8

Figure 17.1: Age–sex specific rates of presence of co-morbidity
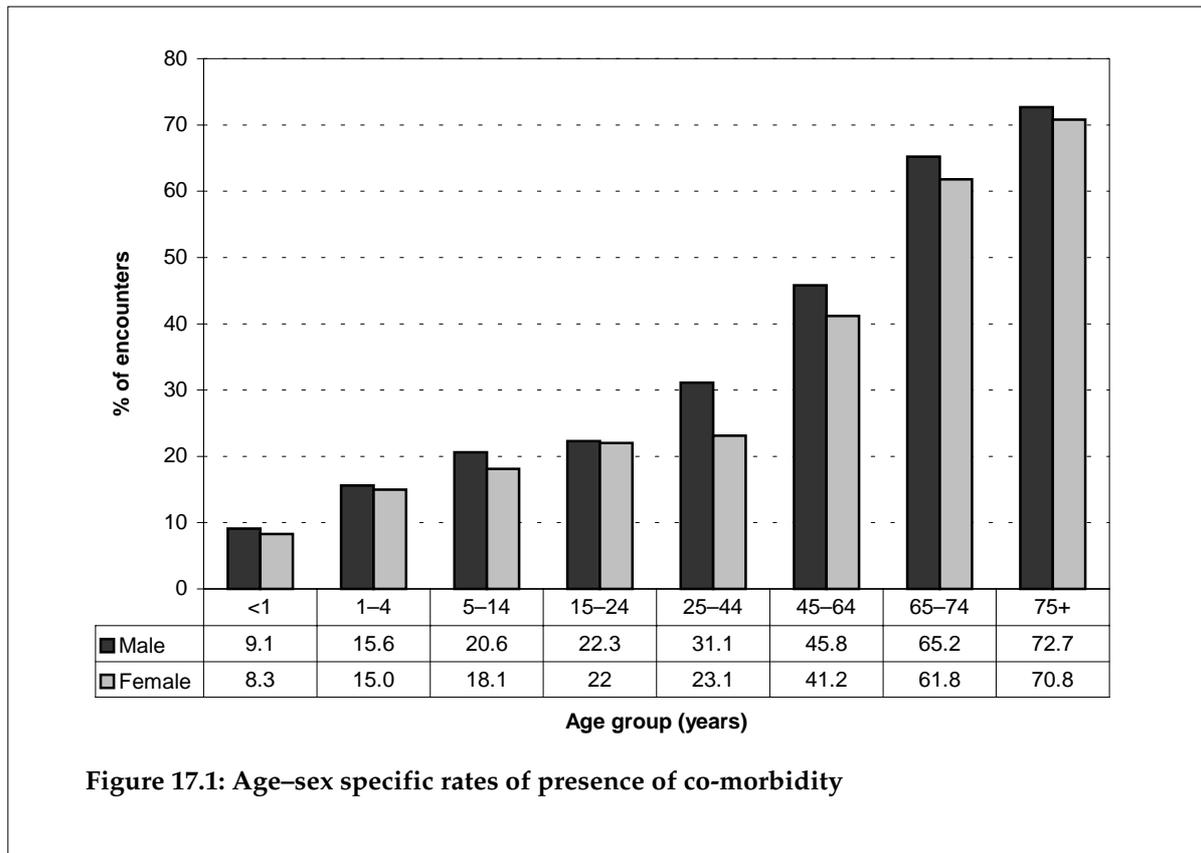
17.5 Discussion

The prevalence of co-morbidity (or multi-morbidity as van den Akker terms it) was higher in this survey than in the Dutch study carried out in 1994 (van den Akker et al. 1998). The Dutch study found a prevalence of roughly 30% compared with 37% in the current study. One of the possible reasons for this is that the denominator used in the Dutch study was the total population registered with the GPs. The total number of registered patients would include those who come infrequently and who are likely to be in better health than those attending more regularly. In contrast, the encounter-based nature of the BEACH method generates a greater chance of identifying patients who attend general practice more frequently and who are likely to be less healthy.

In the future, the data collected will be analysed separately for acute and chronic diseases, as has been done elsewhere (Wun et al. 1998; Schellevis et al. 1993). Further study is planned into the extent to which other factors (e.g. health card status, place of residence) are associated with increased levels of co-morbidity. It is particularly necessary to think about co-morbidity in the area of health outcome studies including clinical trials which usually excludes individuals who have co-morbidity. However, as demonstrated in the current study it is a common event in the general practice patient population.

18 Musculoskeletal conditions and NSAID use

18.1 Background

Musculoskeletal disorders affect 5% (over 800,000 people) of all Australians (Australian Institute of Health and Welfare 1998a). The prevalence of these conditions increases with age with musculoskeletal disorders affecting more than 15% of people aged over 65 years. Musculoskeletal conditions are also one of the most common patient reasons for encounter (RFE) in general practice (11.5% of all RFEs) and such problems are managed at a rate of 16.9 per 100 encounters (Britt et al. 1999b).

Guidelines have been published on the management of osteoarthritis in general practice, including advice on the prescribing of non-steroid anti-inflammatory drugs (NSAIDs) (March 1997). It has been estimated that 10–20% of elderly people (65 years and over) currently use NSAIDs (Griffin 1998). Unfortunately, these medications can cause gastrointestinal problems such as peptic ulcers. A review of the evidence of the association between NSAID use and gastrointestinal injury reported a three-to-five fold increase in risk among NSAID users (Griffin 1998).

Recent studies in Australia have measured the prevalence of musculoskeletal conditions in the population (Australian Institute of Health and Welfare 1998a), and, separately, the use of NSAIDs (McManus et al. 1996). Although one study (March et al. 1998) has collected data on musculoskeletal conditions and NSAID use among people over 65 years, there has not been a national study that has described NSAID use among people with musculoskeletal conditions. The data collected as part of these SAND questions will fill this information gap and provide a better understanding of the extent of musculoskeletal conditions and NSAID use in general practice patients.

18.2 Research questions

1. What is the prevalence of chronic musculoskeletal conditions in general practice patients?
2. What medications are taken by patients for their chronic musculoskeletal conditions?
3. What proportion of general practice patients report using NSAIDs in the past 12 months?
4. What is the relationship between NSAID use (by those with a chronic musculoskeletal condition) and gastrointestinal injury?

18.3 SAND questions

Box 18.1: Musculoskeletal conditions and NSAID use

GPs asked the patients (or used their knowledge of the patient):

- *Have you suffered from any chronic musculoskeletal
  conditions in the past 12 months?
  (chronic=lasting for 3 months or more)*   *Yes / No*

If 'yes':

- *Name of the condition (if more than one such condition,
  specify the more serious)*

- *Drugs currently used (up to 3) for the chronic
  musculoskeletal condition,*

- *Their prescribed daily dose*

- *Approximate length of usage for these medications*

If 'yes' to medications, GPs asked the patients:

- *How effective do you feel this treatment has been?*   *Very good*
  Good
  Fair
  Poor

GPs were asked to ascertain whether the patient:

- *had taken any NSAIDs in the past 12 months*   *Yes / No*

If 'yes':

- *For approximately how long?*   *Short term (< 3 months)*
  Long term (3+ months)

GPs were asked whether, to their knowledge, the patient

- *had suffered a gastrointestinal bleed in the past 12 months?*   *Yes / No*

If 'yes':

- *Was the patient on NSAIDs at the time of the bleed?*   *Yes / No*

If 'yes':

- *What drug was the patient taking?*

- *What was the daily dose and?*

- *Approximately how long had the patient been using the drug at the time of the bleed?*


18.4 Results

Sample size was 4,443 patient encounters from 111 GPs.

At almost one in three (31.9%, 95% CI: 29.0–34.8) encounters the patient had suffered a chronic musculoskeletal condition in the previous 12 months. The sex specific rate was not significantly different for males and females (30.4%, 95% CI: 26.0–34.9 and 33.0%, 95% CI: 29.7–36.2, respectively). Significantly, more patients in the older age groups reported having had a musculoskeletal condition, particularly for women aged 85 years or more. For age groups 65-74, 75-84 and 85 years +, prevalence of chronic musculoskeletal conditions ranged between 40–47% in males and 48–53% in females.

The most common chronic musculoskeletal conditions reported were osteoarthritis (30.4 per 100 encounters, 95% CI: 24.8–36.0) and back complaints (22.2 per 100 encounters, 95% CI: 19.1–25.2). Males and females reported a similar range of conditions. For those aged less than 65 years, back complaints was the most common, while osteoarthritis was the most common among those aged 65 years and over.

Of patients with a chronic musculoskeletal condition, 70.8% (95% CI: 66.8–74.9) reported current use of medication to treat the condition. The most common drug used to treat the condition was Paracetamol. Eighty-seven medications were prescribed for every 100 musculoskeletal conditions. The majority (60%) of patients using medication reported that the current treatment was either 'Good' or 'Very good'. This proportion was not significantly related to sex, age or condition treated.

Fourteen per cent (95% CI: 12.4–16.2) of all respondents had been taking NSAIDs for less than three months in the previous 12 months and 6.3% (95% CI: 5.3–7.2) had been taking NSAIDs for more than three months. There was a higher rate of NSAID use among people who had a chronic musculoskeletal condition than among people who had not (Figure 18.1). Only 67 people (1.5%) reported having had a gastrointestinal bleed in the previous 12 months.

	Yes	No
■ Used NSAIDS in past 12 months	51.6	7.1
□ No NSAIDS in past 12 months	48.4	92.9

Musculoskeletal condition in previous 12 months

Figure 18.1: NSAID use and musculoskeletal conditions
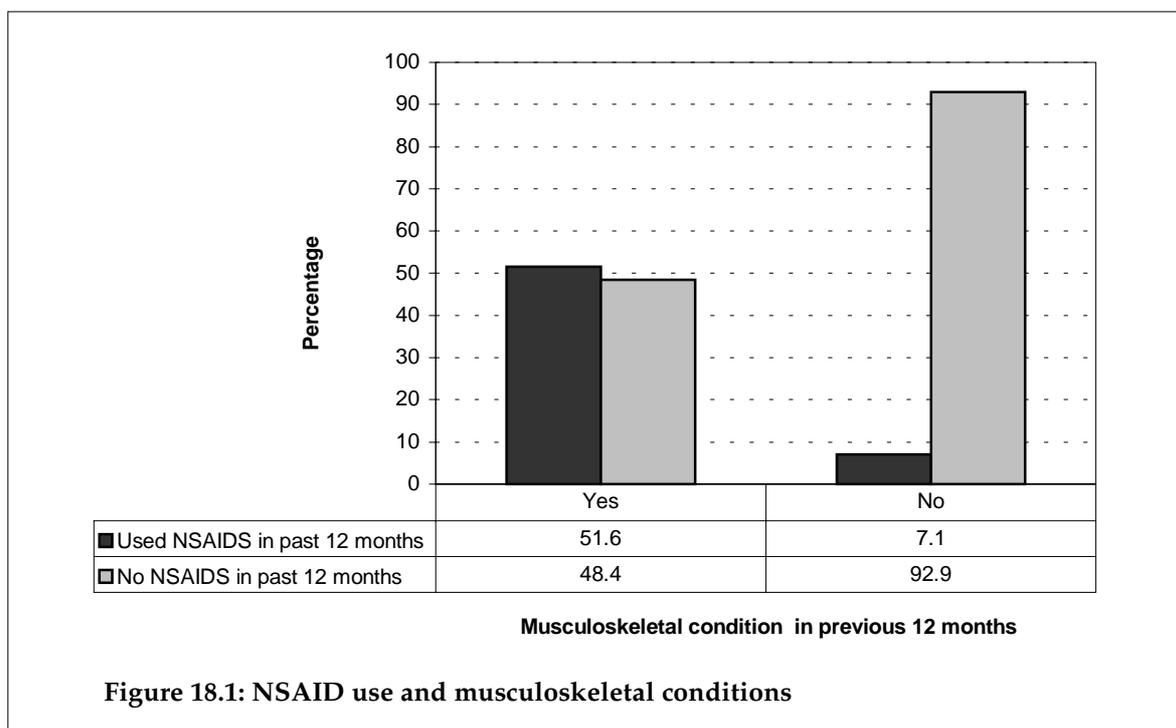
18.5 Discussion

The prevalence of musculoskeletal conditions among people aged 65 years or more was lower in the current survey than in that reported by March et al. From a survey conducted in 1991 among people living in Northern Sydney (1998). The current survey found a range of prevalence of 40–53% in patients aged 65 years and over, compared with a prevalence of 60–70% in the survey by March et al. (1998). The difference in the prevalence of musculoskeletal conditions may be due to differences in definitions used in the two studies. While March et al. suggest that one of the main outcome measures of the study was 'self-reported chronic illnesses', the results are described in terms of 'musculoskeletal symptoms'. In contrast, in the current study only chronic conditions were included and 'chronic' was defined as lasting three months or more.

The prevalence of NSAID use, 25%, was similar in the two studies. However, the prevalence of NSAID use was expected to be less because McManus et al. (1996) described a fall in NSAID use in the Australian community between 1990 and 1994. The similarity in results may be because the survey of March et al. (1998) recorded only medications that were taken regularly and did not include medications that had been discontinued. In contrast, the current study asked about any NSAID use in the previous 12 months.

The number of people who reported a gastrointestinal bleed was insufficient to examine its relationship with NSAID use.

The SAND data provide up-to-date information on chronic musculoskeletal conditions and NSAID use in Australia and will act as a baseline against which future changes in prevalence and related NSAID use can be measured.

19 Hepatitis

19.1 Background

General practitioners will usually be the first point of contact for those with hepatitis, an infectious disease for which there are recognised risk factors and reliable diagnostic tests. The incidence of hepatitis A, B, and C are most commonly estimated from notifications to the National Notifiable Diseases Surveillance System.

Hepatitis C is a chronic condition that has been described as 'the new challenge of the 1990s for Australia's general practitioners' (Kidd 1999), which may remain undiagnosed in many cases (Vakil & McCaughan 1998). While the incidence of hepatitis C in 1998 was reported as 2.2 per 100,000, the figure is based on the 323 cases where current illness and serological evidence were both reported. Unspecified notifications (those that do not satisfy these conditions) occurred at a rate of 102.2 per 100,000 population (Thomson et al. 1999).

As blood-borne diseases, the risk factors for hepatitis C and hepatitis B are very similar, with the main route of transmission believed to be intravenous drug use (Thomson et al. 1999). Risk factors for hepatitis A are also identifiable, and are more often related to exposure to contaminated food or individuals (Figure 19.1). While the risk factors for hepatitis A, B and C are well known, the number of people in the community who are at risk is not routinely measured. It would clearly also be in the interests of public health to know what proportions of at-risk groups in the community have actually been tested for these diseases, and the negative and positive rates of such tests.

Notifications data suggest that risk for hepatitis B and C tends to be greater for those in the 15–34 year age group (Thomson et al. 1999).

Using the SAND methodology, it was decided to investigate the 12-month prevalence of risk factors for hepatitis A, B and C, the proportions of those at risk who had been tested and who were positive among GP patients.

19.2 Research questions

1. What proportion of the general practice population is 'at-risk' for:
   - hepatitis A?
   - hepatitis B?
   - hepatitis C?

2. What proportion of the general practice population has been tested for:
   - hepatitis A?
   - hepatitis B?
   - hepatitis C?

3. What proportion of the general practice population tested positive for:

- hepatitis A?
- hepatitis B?
- hepatitis C?

19.3 SAND questions

GPs were provided with a card showing a list of risk criteria for each condition (Figure 19.1). They were asked to give this to each patient or their carer who then answered whether or not they were at risk for each condition. To protect the privacy of patients, patients were not asked to reveal which risk factor(s) applied to them, only whether or not they were in a risk group.

For each condition, GPs were asked the patient status in the past 12 months for being at risk, having been tested, and whether the patient's test was positive. For those whose test was positive, GPs were asked to indicate any referrals made as a result.

Box 19.1: SAND questions for Hepatitis

In the past 12 months, what was the patient's status for the following diseases?

		At risk?	*Tested?*	*Positive?*
♦	*Hepatitis A*	*Yes/No/Don't know*	*Yes/No/Don't know*	*Yes/No/Don't know*
♦	*Hepatitis B*	*Yes/No/Don't know*	*Yes/No/Don't know*	*Yes/No/Don't know*
♦	*Hepatitis C*	*Yes/No/Don't know*	*Yes/No/Don't know*	*Yes/No/Don't know*

19.4 Results

Sample size was 4,259 patient encounters from 108 GPs.

The rates described below are reported firstly as a proportion of all respondents to each question regarding risk status. Secondly, patients who responded to the risk question were used as the denominator for the second (e.g. the proportion of those at risk who were tested). The results for each disease are summarised in Table 19.1.

Hepatitis A

Of all respondents, 7.5% (95% CI: 5.9–9.1) identified themselves as at risk for Hepatitis A, and 6.3% (95% CI: 4.7–8.0) had been tested in the past 12 months. Of the 311 respondents who responded to the question 'was the test positive or not' (see question 3 above), 3.9% (95% CI: 0.0–25.3) had a positive test. Hence, of the total population surveyed, 0.3% had serological confirmation hepatitis A (n=4,061).

Of the 7.5% of general practice patients surveyed who were at risk for hepatitis A, young adults had the highest age specific rates of risk, with 10.7% of 15–24 year olds (95% CI: 8.0–13.4) and 12.4% of 25–44 year olds (95% CI: 10.4–14.5). There were no sex-related differences for hepatitis A risk status.

There were 305 patients (7.5%) who identified themselves as at risk for hepatitis A. Of these, 29.3% (95% CI: 20.2–38.3) had been tested for hepatitis A in the past 12 months. Of those tested, 5.5% (95% CI: 0.0–34.0) were positive for hepatitis A.

Hepatitis A	Hepatitis B	Hepatitis C
• Traveller to endemic areas	• Traveller to endemic areas	• Injecting drug use
• Male homosexual	• Baby of hepatitis B positive mother	• Transfusion prior Feb 1990
• Health care worker	• Sexual partner of hepatitis B carrier	• Tattoos, skin piercing, acupuncture
• Child care worker	• Household contact with hepatitis B carrier	• Imprisonment
• Worker or close contact with intellectually disabled people	• Injecting drug user	• Renal dialysis
• Sewerage worker	• Transfusion before Feb 1990	• Liver disease
	• Recipient of blood products	• Sex industry worker
	• Any tattoos, skin piercing or acupuncture	• Sexual partner of hepatitis C carrier
	• Imprisonment	• Male homosexual
	• Renal dialysis	
	• Liver disease	
	• Male homosexual	
	• Sex industry worker	
	• Health care worker	
	• Resident or staff of facilities for intellectually disabled	
	• Garbage collector	

Figure 19.1: At risk criteria for hepatitis A, B & C given to patients—self-assessment of risk

Hepatitis B

Of all respondents (n=4,091), 13.4% (95% CI: 11.2–15.4) identified themselves as at risk for hepatitis B. Testing for hepatitis B had been carried out for more patients than said they were at risk, with 15.0% (95% CI: 12.5–17.4) of respondents having been tested for hepatitis B in the past 12 months. Of 616 respondents to the question on the results of the test, 5.2% said they were positive (95% CI: 0.0–11.5), and these represented only 0.8% of the total sample.

Of those who were at risk for hepatitis B, younger adults again had the highest age specific rates of risk, with 23% of 15–24 year olds (95% CI: 17.9–28.1) and 20.9% of 25–44 year olds (95% CI: 17.6–24.2) at risk for hepatitis B. There were no sex-related differences for hepatitis B risk status.

Of the 13.4% of patients identified as at risk, almost half (46.9%, 95% CI: 41.0–52.9) had been tested in the past 12 months. Of those who had been tested, 5.9% (95% CI: 0.0–12.8) had a positive test result.

Hepatitis C

The proportion of all respondents who identified themselves as at risk for hepatitis C was 8.8% (95% CI: 7.1–10.5). Testing was carried out for 8.6% (95% CI: 6.6–10.7) of all respondents. A positive hepatitis C test result was reported by 6.7% (95% CI: 0.04–13.3) of the 390 respondents tested. Therefore 0.6% of all respondents had objectively verified Hepatitis C.

Young adult patients were most at risk for hepatitis C, with 16.7% of 15–24 year olds (95% CI: 12.7–20.8) and 13.7% of 25–44 year olds (95% CI: 11.5–15.9). The majority of all respondents who tested positive for hepatitis C (80.7%) were in the 25–44 year old age group. There were no differences in rates (i.e. risk, tested and positive) between males and females for hepatitis C.

Of those who identified themselves as being at risk for hepatitis C, 39.8% (95% CI: 31.2–47.7) had been tested. Of those tested, 8.2% (95% CI: 0.04–16.4) were positive for hepatitis C. It is interesting that while 319 patients were tested for hepatitis C, only about 140 of these patients identified themselves as at risk.

Table 19.1: Hepatitis A, B and C—percentage of patients at risk, tested and positive

	%	n	No. encs	95% LCI	95% UCI
Hepatitis A					
At risk	7.5	305	4061	5.9	9.1
Tested	6.3	231	3655	4.7	8.0
Positive	3.9	12	311	0.0	25.3
Of those at risk, proportion tested	29.3	84	287	20.2	38.3
Of those tested, proportion positive	5.5	12	217	0.0	34.0
Hepatitis B					
At risk	13.4	546	4091	11.3	15.4
Tested	15.0	561	3752	12.5	17.4
Positive	5.2	32	616	0.0	11.5
Of those at risk, proportion tested	46.9	252	537	41.0	52.9
Of those tested, proportion positive	5.9	31	530	0.0	12.8
Hepatitis C					
At risk	8.8	358	4071	7.1	10.5
Tested	8.6	319	3695	6.6	10.7
Positive	6.7	26	390	0.04	13.3
Of those at risk, proportion tested	39.8	140	352	31.9	47.7
Of those tested, proportion positive	8.2	25	304	0.04	16.4

Notes: Abbreviations: encs = encounters, LCI = lower confidence interval, UCI = upper confidence interval

19.5 Discussion

The results showed that a notable proportion of respondents identified themselves as being at risk for hepatitis B (13%), hepatitis C (9%), or hepatitis A (7.5%). Young to middle aged adults (15–44) were most at risk for all types of hepatitis, but particularly for hepatitis B and C, as has been found with notifications data (Thomson et al. 1999). However, while some studies have reported greater risk for males, there were no gender differences in this study.

Thirty to 50% of patients who reported they were at risk also stated they been tested for the disease. Of those tested for one or more types of hepatitis, positive results were reported for 5–8%. Overall, less than 1% of the total sample reported positive results for each of the three types of hepatitis.

There may be a role for increased screening of at risk patients in general practice, particularly for young adults. However the cost-effectiveness of such screening would need to be investigated.

20 Employment and occupation

20.1 Background

Occupation is an important determinant of the types of morbidity experienced by Australian workers (Foley 1996). There has been a long-term lack of information on the extent to which GPs manage work-related conditions. This lack of information means that there is potentially a significant source of work-related morbidity in the community that is not being recognised by governments or the occupational health and safety community. The extent of this morbidity, especially for groups such as the self-employed, warrants investigation. Some of these conditions are likely to present to general practitioners and to have their costs covered by Medicare. Using the sub-sampling methodology of BEACH, it was decided to investigate the employment status and occupations of persons presenting to general practice and the types of conditions managed for particular employment and occupation groups.

20.2 Research questions

1. What proportion of patients presenting to general practice are employed and in what types of occupation?
2. What are the most common problems managed for those employed patients presenting to general practice?
3. What are the most common problems managed for retirees and unemployed patients and do they differ from those managed for employed patients?
4. What are the most common problems managed for patients in particular occupational groups?

20.3 SAND questions

Box 20.1: Employment and occupation

GPs asked the patients (15+ years):

♦ *How would you describe your current employment status?*

          Self-employed
          Employed by other
          Unemployed
          Home duties
          Student and working
          Student and not working
          Retired
          Unable to work due to health problems
          Other (specify)

♦ *How many hours do you normally spend in all paid jobs each week?*

♦ *What is your current occupation?*

♦ *In what industry are you currently employed?*

♦ *What was/is your main lifetime occupation?*

♦ *What was/is your main work activity?*

20.4 Results

Sample size was 4,355 patient encounters from 219 GPs.

Current employment status

Of all respondents, 67.8% (CI: 65.7–70.0) were not in the labour force and 32.2% (95% CI: 30–34.3) were in the labour force. Those not in the work force were mainly retirees (28.1% of all respondents) and students (14.7% of all respondents).

Industries were coded using the Australian and New Zealand Standard Industrial Classification (ANZSIC) (Australian Bureau of Statistics 1993). The main industries in which the respondents in the work force were currently employed were retail trade (15.7%, 95% CI: 14.2–17.1), health and community services (12.6%, 95% CI: 11.4–13.7) and manufacturing (10.7%, 95% CI: 9.7–11.6).

Current occupation

Current occupation was analysed by the Australian Standard Classification of Occupations (ASCO) major groups, sub-groups and individual occupations (Australian Bureau of Statistics 1997b). Current occupation analysed by major group showed that most currently employed patients described themselves as 'professionals' followed by 'intermediate clerical/sales/service' workers (Figure 20.1). The distribution across major groups demonstrated a similar pattern to that from the ABS labour force survey (Australian Bureau of Statistics 1999), though these two groups were slightly over-represented in the patient sub-sample while other groups were slightly under-represented. The most common current

occupations at the ASCO 6-digit level were 'sales assistant', 'general clerk' and 'school teacher'.

	Prof.	Inter clerical	Element clerical	Trades	Labourer	Assoc prof.	Inter product	Manager	Adv clerical
■SAND	20.1	19.8	12.2	11.2	9.4	8.0	7.6	6.7	5
□ABS	17.5	16.9	10.3	13.6	10.1	10.4	9.1	7.5	4.6

Age group (years)

Figure 20.1: Current occupation distribution — SAND sub-sample and ABS data
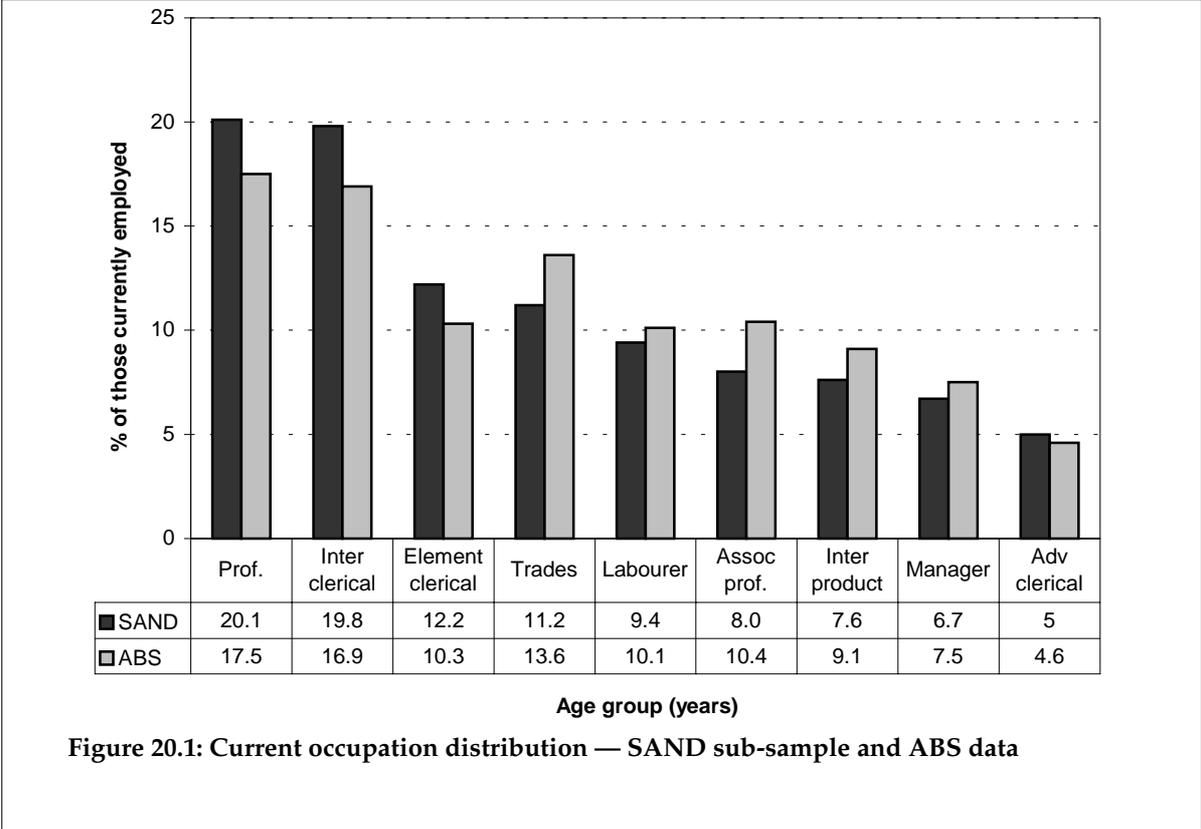
Note: Abbreviations: Prof. = professionals, Inter clerical = intermediate clerical/sales/service, Element clerical = elementary clerical/sales/service, Trades = tradespersons, Assoc prof. = associate professionals, Inter product = intermediate production/transport, Manager = managers and administrators, Adv clerical = advanced clerical/service

Source: Australian Bureau of Statistics 1999

Problems managed at the consultation were linked to the occupation of the patient. These data were analysed for different occupation groups and compared with the distribution of all problems managed for the same period. For all respondents, the most common problems managed were hypertension, immunisation and upper respiratory infection. However, this varied between different employment status groups and different occupation groups. Not surprisingly, hypertension was managed at a lower rate for employed patients than for all respondents but at a far higher rate for retirees than for all respondents. An example of the differences among occupation groups is shown for elementary clerical/sales/service workers whose back complaint, depression and sprains/strains were managed at a far higher rate than among all respondents (Figure 20.2).

Problem managed at encounter	Back complaint	Depression	URTI	Hypertension	Sprain/strain
Elementary clerical sales service	7.9	6.8	5.1	4.5	4
All respondents	3.1	4.0	4.6	10.2	1.4
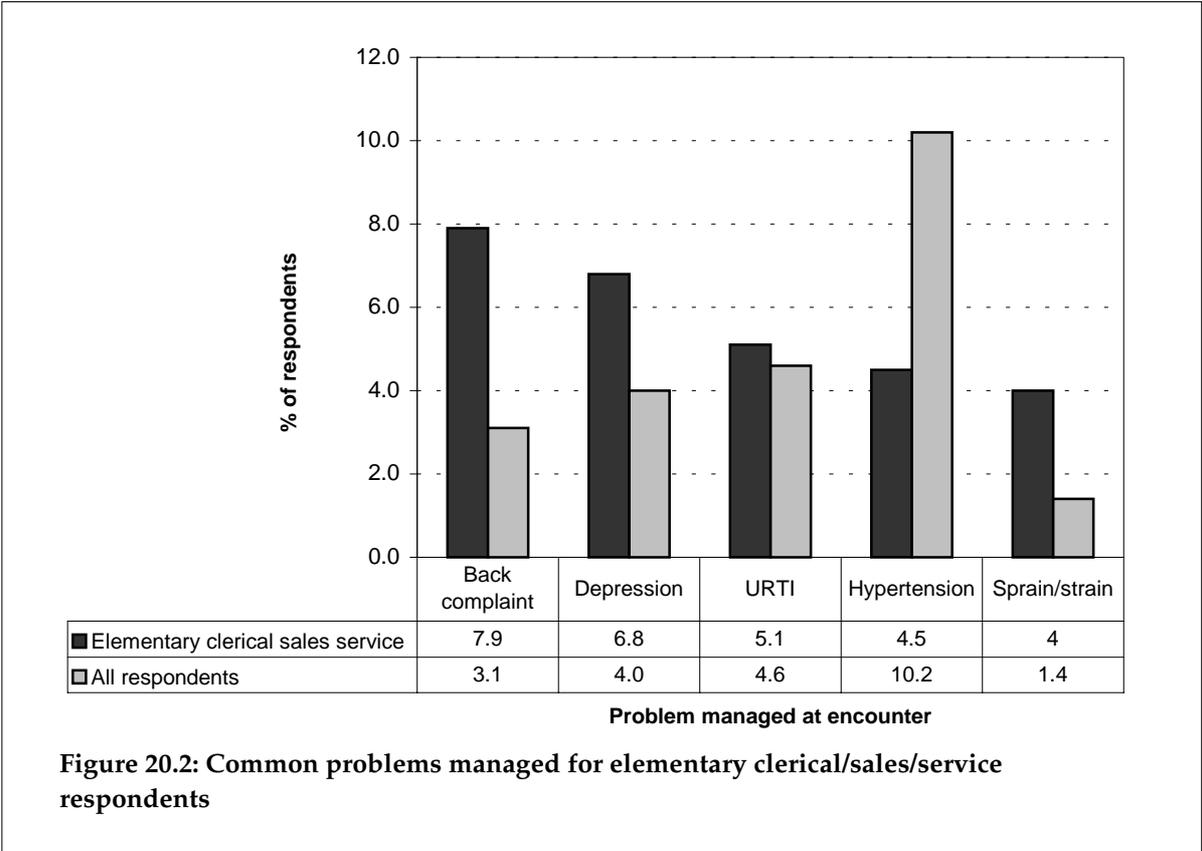
Figure 20.2: Common problems managed for elementary clerical/sales/service respondents

20.5 Discussion

Collection of data pertaining to the employment and occupational status of general practice patients has enabled the identification of the most common occupational groups that are attending general practice. The morbidity associated with particular occupational groups has been examined only briefly in this report. The influence of age, gender and other factors will need to be more thoroughly investigated to determine the independent effect of occupation on morbidity managed in general practice. The influence of time spent in employment would also need to be considered if we are to have a better understanding of the effect of over-working or under-working on health. However, these data go some way towards addressing the lack of information regarding the morbidity of particular occupation groups and provide the opportunity for a closer examination of occupation and health as seen through general practice.

21 Conclusion

This report describes the results of the first year of the national SAND program which utilises a sub-sampling approach of BEACH encounters to study specific aspects of health and health care delivery. Many of the topics have not been previously investigated or studied in the general practice context. However, from the outset, there were possible advantages and disadvantages foreseen in this sub-sampling approach.

In the course of describing the results, it has been demonstrated there was an advantage in asking the patient additional health-related items at the time of the GP–patient encounter. Some variables have been linked to other aspects of the encounter to determine associations between risk factors and morbidity (e.g. body mass and diabetes). This is useful as it helps us identify possible 'at-risk' patients who are attending general practice. The section on length of consultation and GP satisfaction showed that in the majority of consultations GPs felt that the time spent with the patient had been sufficient for them to deal with preventive health and psychosocial aspects of patient care, but in about one-in-five they did not. Several parts of this report suggest that they have ample opportunity to improve their patients' health through provision of advice, encouragement and education, for a considerable proportion of the general practice patient population have been shown to have risk factors (such as obesity, smoking or a high alcohol intake) that lend themselves to intervention.

Through the SAND sub-sampling approach, the GP was able to provide insights into aspects of the patient care that were not covered by the current consultation (e.g. co-morbidity, patient history). The final samples contained sufficient power and precision because of the randomly selected sample of GPs (in most sections over 100 GPs) who each provided data regarding 20 or 40 patients. The resulting data sets provide extensive investigative opportunities for the future.

There were some disadvantages that may impact on the reliability and validity of the data collected. For some of the lines of questioning GPs failed to complete all of the SAND questions with patients. The fact that there were missing data was possibly due to time constraints in the course of the consultation or confusion in the construct of the questions. It was particularly evident for indirect encounters (i.e. encounters where there is no face-to-face meeting between the patient and the general practitioner, but a service is provided) where it was not possible for the GP to gather the additional information. However, the random nature of the missing data among direct encounters and the large number of valid observations may counteract the loss from indirect consultations, which make up a minority (3.3%) of GP activity (Britt et al. 1999b).

The current report has provided a broad-brush examination of the work to date. With the importance of general practice continuing to be realised, the SAND program provides opportunity to explore the nature of health and health care delivery as experienced through the general practice interface. The valuable information collected will lead to a better understanding of the issues faced by GPs and the patients they care for.

Appendix 1: an example of a recording form

Glossary

Aboriginal	The patient identifies himself or herself as an Aboriginal person.
Allied health professionals	Those who provide clinical and other specialised services in the management of patients, including physiotherapists, occupational therapists, dietitians and pharmacists.
BreastScreen	The national organisation responsible for mammography screening
Chapters	The main divisions within ICPC-2 PLUS: there are 17 chapters primarily representing the body systems.
Complaint	A symptom or disorder expressed by the patient when seeking care.
Component	In ICPC-PLUS 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.
Drug	*See* Medication
Encounter (enc)	Any professional interchange between a patient and a general practitioner:
• **indirect**	Encounter where there is no face-to-face meeting between the patient and the general practitioner but a service is provided (e.g. prescription, referral).
• **direct**	Encounter where there is a face-to-face meeting of the patient and the general practitioner.
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).

Labour force	Includes all persons in any of the following categories (ABS):

- employed by other
- self emploed
- unemployed (i.e. seeking work)
- student working.

Medication	Medication which is prescribed, advised for over-the-counter purchase or provided by the GP.
Morbidity	Any departure, subjective or objective, from a state of physiological or psychological well being. In this sense, sickness, illness and morbid conditions are synonymous.
Problem managed	*See* Diagnosis
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 (RACGP) who participates in, and meets the requirements for, quality assurance and continuing medical education as defined in the RACGP Quality Assurance and Continuing Medical Education Program, *or*

- undertaking an approved placement in general practice as part of a training program for general practice leading to the award of the Fellowship of the Royal Australian College of General Practitioners or undertaking an approved placement in general practice as part of some other training program recognised by the RACGP as being of equivalent standard. (Medicare Benefits Schedule book, 1 November 1998.)

Rubric	A label for an individual code in ICPC-2 PLUS.
Torres Strait Islander	A patient identifies himself or herself as a Torres Strait Islander.
Work-related problem	A problem which, irrespective of the source of payment for the consultation, is likely (in the GP's view) to have resulted from work-related activity or workplace exposures, or a pre-existing condition that (in the GP's view) has been significantly exacerbated by work activity or workplace exposure.

Abbreviations

ABS	Australian Bureau of Statistics
ACE (inhibitors)	Angiotensin converting enzyme
AIHW	Australian Institute of Health and Welfare
AHP	Allied health professional
AMA	Australian Medical Association
AMTS	Australian Morbidity and Treatment Survey 1990–91
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASCO	Australian Standard Classification of Occupations
ATSI	Aboriginal and/or Torres Strait Islander
AUDIT	Alcohol Use Disorders Identification Test
BEACH	Bettering the Evaluation And Care of Health
BMI	Body mass index
CI	Confidence interval (in this report 95% CIs are used)
CIDI	Composite International Diagnostic Interview
DALY	Disability Adjusted Life Years
DHAC	Commonwealth Department of Health and Aged Care
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders (4th Edition)
DUSOI	The Duke University Severity of Illness scale
DVA	Department of Veterans' Affairs
Enc	Encounter
GP	General practitioner
HDL	High density lipoproteins
HIC	Health Insurance Commission
IHD	Ischaemic heart disease
ICPC-2	International Classification of Primary Care (Version 2)
ICPC-2 PLUS	An extended vocabulary of terms classified according to ICPC-2
LCI	Lower confidence interval
MBS	Medicare Benefits Schedule
NESB	A patient who reports coming from a non-English-speaking background (i.e. a language other than English is spoken at home).
NHF	National Heart Foundation
NHMRC	National Health and Medical Research Council
NIDDM	Non insulin dependent diabetes
NSAID	Non-steroidal anti-inflammatory drugs
OTCs	Drugs advised for over-the-counter purchase
PBS	Pharmaceutical Benefits Scheme

QA	Quality assurance (in this case the Quality Assurance Program of the Royal Australian College of General Practitioners)
RACGP	Royal Australian College of General Practitioners
RFE	Reason(s) for encounter (see Glossary)
RRMA	Rural, remote and metropolitan area classification
SAND	Supplementary analysis of nominated data
SAS	Statistical Analysis System
SF-36	The Medical Outcomes Study questionnaire
SRS	Simple random sample
TGP	Therapeutic group premiums
UCI	Upper confidence interval
UGI	Upper gastrointestinal problem(s)
WHO	World Health Organization
WONCA	World Organization of Family Doctors
WSDGP	Western Sydney Division of General Practice

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