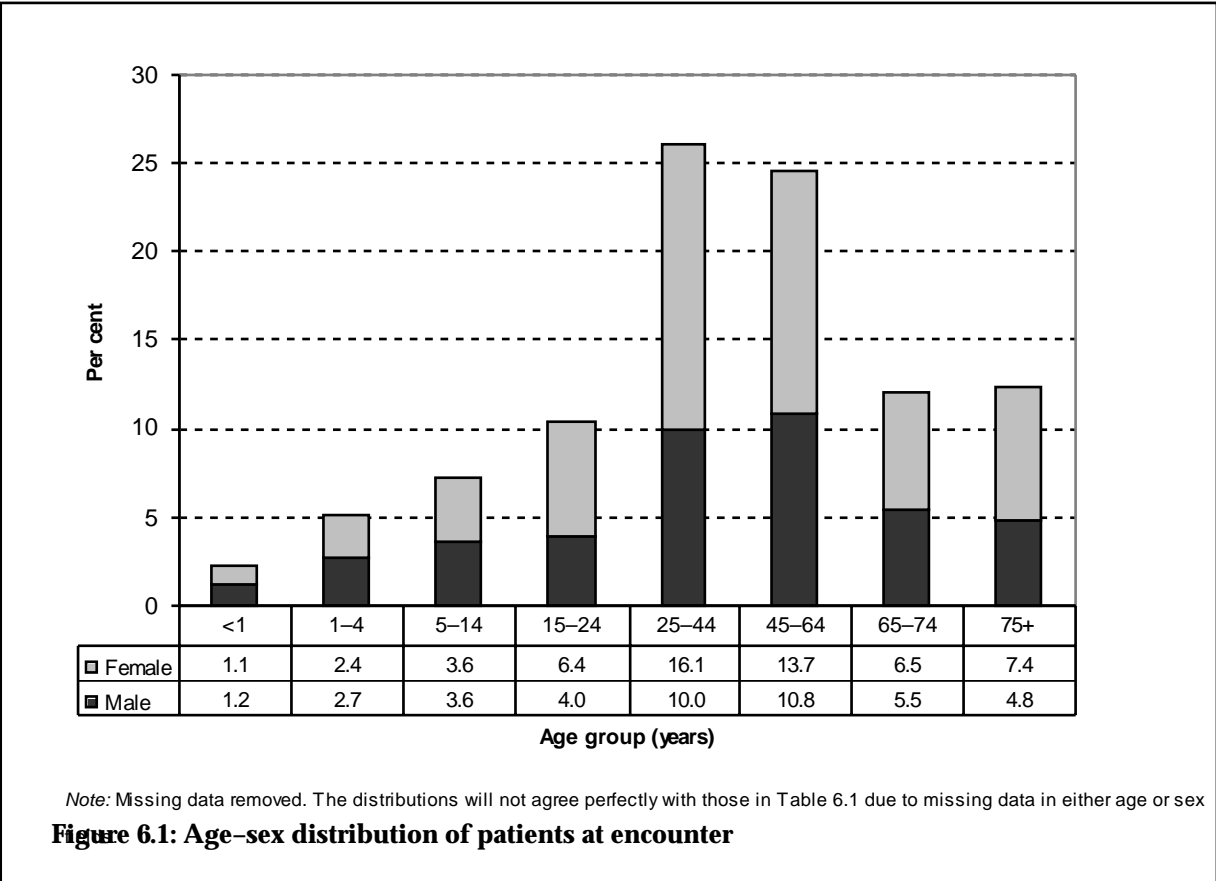


6 The patients

6.1 Patient characteristics

6.1.1 Age–sex distribution of patients

Figure 6.1 shows the age–sex distribution of patients at the encounters recorded in the survey. Age was not recorded at 1.1% of encounters and sex was not recorded at 1.5% of encounters. Approximately one in seven encounters were with children aged less than 15 years (14.8%), one in ten were with young adults (10.4%), and approximately one in four with patients in each of the following age groups, 25–44 years (26.3%), 45–64 years (24.5%), and 65 years and older (24.1%) (Table 6.1).



Overall there were more female than male patient encounters (57.3% compared with 42.7%). This was reflected across all age groups except for patients aged 1–4 years where there were slightly more male than female encounters. Sex differences were greatest in the reproductive years (25–44 year age group), and in the elderly (75+ years), where there are more females than males in the general population.

6.1.2 Other patient characteristics

For each encounter the GP indicated whether the patient was new to the practice or had been seen previously. The patient was new to the practice at 7.3% of encounters. Patients who held a health care card accounted for 38.6% of all encounters and persons who held a Department of Veterans' Affairs card a further 2.9%. At 8.0% of encounters the patient was from a non-English-speaking background (NESB), and at 0.7% the patient indicated they were an Aboriginal person and/or Torres Strait Islander.

Methodological issues

While the age and sex distributions of the patients paralleled those of the 1998–99 BEACH data year the relative rate of presentation of patients with specific characteristics varied considerably from the rates in the previous year. The relative rates for every one of the 'other characteristics' showed a downturn since the previous year. Of particular note is the significantly lower rate of new patients (7.3 per 100 encounters, 95% CIs 6.6–8.0 c.f. 9.2 per 100, 95% CIs 8.6–9.8), those holding a health care card (38.6, 95% CIs 37.0–40.2 c.f. 43.0 per 100, 95% CIs 41.7–44.5)¹ and those of a non-English-speaking background (8.0 per 100, 95% CIs 4.8–11.1 c.f. 14.9 per 100, 95% CIs 13.0–16.7).

The research team believes that these differences have resulted from a change in the recording form and that the results in 1998–99 are likely to be more reliable than those in 1999–2000.

In 1998–99 the questions on patient status to the practice, NESB status, Aboriginality and Torres Strait Islander status each had a 'Yes' and a 'No' box beside them and each was in its own section. It was consistently noted that participating GPs habitually only ticked the 'Yes' boxes and left 'No' boxes blank. In analyses blank (no response) was therefore counted as 'no' for each question rather than treated as missing data. As a result of this observation, in the second year these variables were listed underneath each other in a single section on the form. A single box was placed next to each (see Appendix 1). Participating GPs were instructed to tick the box beside each characteristic that applied to this patient.

The consistently lower rates of presentation for all these subgroups of patients, and particularly the statistically significant differences in presentations of new patients, NESB patients and those holding a health care card suggest that this change in form design had a significant negative impact on the extent to which GPs responded to these questions. This will be considered in the design of the form in the coming data year (2001–2002).

While this raises questions regarding the reliability of the estimates of rates of presentation of each subgroup of interest it does not negate the value of the morbidity and therapeutic data pertaining to each group. However, those doing research on any of the subgroups listed here should keep this likely under-recording of other patient characteristics in mind.

¹ *Note:* The figures for the proportion of persons who held a health care card reported in 'General Practice Activity in Australia 1998–99' were incorrect. The proportion quoted here is correct.

Table 6.1: Characteristics of the patients at encounters

Patient variable	Number	% of encounters (N=104,856)	95% LCI	95% UCI
Sex				
Males	44,308	42.7	42.0	43.5
Females	59,366	57.3	56.5	58.0
Missing sex	1,182	..	..	..
Age group				
<1 year	2,447	2.4	2.2	2.5
1–4 years	5,384	5.2	4.9	5.5
5–14 years	7,471	7.2	6.9	7.5
15–24 years	10,814	10.4	9.9	10.8
25–44 years	27,326	26.3	25.5	27.0
45–64 years	25,521	24.5	24.0	25.0
65–74 years	12,486	12.0	11.5	12.5
75+ years	12,603	12.1	11.4	12.9
Missing age	804	..	..	..
Other characteristics				
New patient to practice	7,641	7.3	6.6	8.0
Health care card	40,452	38.6	37.0	40.2
Veterans' Affairs Gold Card	2,726	2.6	2.3	2.9
Veterans' Affairs White Card	304	0.3	0.0	0.6
Non-English-speaking background	8,356	8.0	4.8	11.1
Aboriginal	695	0.7	0.0	1.5
Torres Strait Islander	53	0.1	0.0	0.7
Aboriginal & Torres Strait Islander	3	**	0.0	1.4

** Less than 0.1%.

Note: UCI–upper confidence interval, LCI–lower confidence interval.

6.2 Patient reasons for encounter

Reasons for encounter (RFEs) are those concerns and expectations which patients bring to the GP. Participating GPs were asked to record at least one and up to three patient RFEs in words as close as possible to those used by the patients, before the diagnostic or management process has begun. These reflect the patient's view of the reasons for consulting the GP. RFEs can be expressed in terms of one or more symptoms (e.g. 'itchy eyes', 'chest pain'), in diagnostic terms (e.g. 'about my diabetes', 'for my hypertension'), a request for a service ('I need more scripts', 'I want a referral'), an expressed fear of disease, or a need for a check-up.

Patient RFEs have a many-to-many relationship to problems managed. That is, the patient may describe two symptoms that relate to a single problem managed at the encounter or may describe one RFE that relates to multiple problems.

International interest in RFEs has been developing over the past two decades. They reflect the patient's demand for care and can provide an indication of service utilisation patterns, which may benefit from intervention on a population level (McWhinney 1986).

The movement towards the patient-centred approach in turn stimulated increasing interest in the patient's role in the primary care setting, the way he/she reacts to pain, discomfort and stress; his/her attitudes to illness and disease and the factors which influence his/her decision to attend a medical practitioner (Barsky 1981; Stewart et al. 1975).

6.2.1 Nature of reasons for encounter

There were 155,690 patient RFEs recorded at a rate of 148.5 per 100 encounters.

Reasons for encounter by ICPC-2 chapter

The distribution of patient RFEs by ICPC-2 chapter and the most common RFEs within each chapter are shown in Table 6.2. Each chapter and individual RFE is expressed as a per cent of all RFEs and as a rate per 100 encounters with 95% confidence intervals.

More than half the RFEs related to the respiratory, musculoskeletal, skin, circulatory and digestive systems. Less common were RFEs of a psychological or social nature and reasons related to the blood, ear, eye, urological, neurological, endocrine and genital systems.

Almost one in five RFEs (19.5%, 29.0 per 100 encounters) were classified in the general chapter, not being associated with any particular body system. Of these, the most common were requests for a prescription, a check up or for test results. However there were also some general symptoms frequently described such as fever and chest pain (of unspecified origin).

Respiratory problems arose at a rate of 25.3 per 100 encounters, the most common being cough, throat complaints and upper respiratory tract infection (URTI) (often expressed as a 'cold'). Requests for influenza vaccines presented at a rate of 1.8 per 100 encounters while asthma, nasal congestion, shortness of breath and acute bronchitis were also relatively common.

RFEs related to the musculoskeletal system were described at a rate of 16.6 per 100 encounters and were most commonly for symptoms and complaints of specific skeletal body parts. Complaints related to the back were by far the most common (3.6 per 100 encounters), followed by those related to the knee, the foot/toe, the neck, shoulder and leg.

Reasons associated with the skin were described at a rate of 15.1 per 100 encounters, rash being the most frequent problem followed by skin complaints (not otherwise classified). Requests for a skin check-up were also in the most frequent list of RFEs related to the skin.

Requests for a cardiovascular check-up accounted for almost half of all RFEs associated with the circulatory system, which arose at a rate of 11.2 per 100 encounters. Patients also frequently presented for their hypertension or 'high blood pressure (BP)' problem.

Digestive problems accounted for 7.0% of all reasons described, arising at a rate of 10.4 per 100 encounters. Abdominal pain was most common, followed by diarrhoea and vomiting. Together these three symptoms represented approximately half of all digestive-related RFEs.

Less frequently recorded were RFEs of a psychological nature (7.2 per 100 encounters) and these were often described in terms of depression, insomnia and anxiety. The relative frequencies of the remaining ICPC-2 chapters for patient reasons for encounter are provided in Table 6.2.

Table 6.2: Distribution of patient reasons for encounter by ICPC-2 chapter and most frequent individual reasons for encounter within chapter

Patient reasons for encounter	Number	% total RFEs	Rate per 100 encs ^(a)	95% LCI	95% UCI
General & unspecified	30,391	19.5	29.0	28.1	29.9
Prescription NOS	6,299	4.1	6.0	5.6	6.5
Check-up NOS*	3,416	2.2	3.3	3.0	3.5
Results tests/procedures NOS	2,278	1.5	2.2	1.9	2.4
Fever	2,302	1.5	2.2	1.8	2.6
Immunisation/vaccination-general	2,044	1.3	2.0	1.7	2.1
Weakness/tiredness	1,559	1.0	1.5	1.3	1.7
Chest pain NOS	1,336	0.9	1.3	1.2	1.4
Administrative procedure NOS	1,163	0.8	1.1	0.9	1.3
Trauma/injury NOS	847	0.5	0.8	0.7	0.9
Blood test NOS	825	0.5	0.8	0.5	1.0
Respiratory	26,492	17.0	25.3	24.3	26.2
Cough	7,329	4.7	7.0	6.5	7.5
Throat complaint	4,368	2.8	4.2	3.8	4.5
URTI	2,849	1.8	2.7	2.3	3.1
Immunisation/vaccination-respiratory	1,905	1.2	1.8	1.2	2.4
Nasal congestion/sneeze	1,731	1.1	1.7	1.2	2.1
Asthma	1,205	0.8	1.2	1.0	1.3
Shortness of breath, dyspnoea	966	0.6	0.9	0.8	1.1
Influenza	851	0.6	0.8	0.4	1.2
Acute bronchitis/bronchiolitis	738	0.5	0.7	0.5	0.9
Musculoskeletal	17,381	11.2	16.6	16.1	17.1
Back complaint*	3,804	2.4	3.6	3.4	3.8
Knee complaint	1,361	0.9	1.3	1.2	1.4
Foot/toe complaint	1,249	0.8	1.2	1.1	1.3
Neck complaint	1,134	0.7	1.1	1.0	1.2
Shoulder complaint	1,085	0.7	1.0	0.9	1.1
Leg/thigh complaint	1,003	0.6	1.0	0.9	1.1
Skin	15,860	10.2	15.1	14.7	15.6
Rash*	2,844	1.8	2.7	2.6	2.9
Skin complaint	1,305	0.8	1.2	1.1	1.4
Swelling*	1,109	0.7	1.1	0.9	1.2
Check-up*	820	0.5	0.8	0.6	1.0
Circulatory	11,747	7.5	11.2	10.6	11.8
Check-up*	5,840	3.8	5.6	5.1	6.0
Hypertension/high BP*	1,764	1.1	1.7	1.2	2.2

(continued)

Table 6.2 (continued): Distribution of patient reasons for encounter by ICPC–2 chapter and most frequent individual reasons for encounter within chapter

Patient reasons for encounter	Number	% total RFEs	Rate per 100 encls ^(a)	95% LCI	95% UCI
Digestive	10,891	7.0	10.4	10.0	10.7
Abdominal pain*	2,172	1.4	2.1	1.9	2.2
Diarrhoea	1,397	0.9	1.3	1.2	1.5
Vomiting	1,230	0.8	1.2	1.0	1.3
Psychological	7531	4.8	7.2	6.8	7.6
Depression*	1,793	1.2	1.7	1.6	1.9
Insomnia	1,270	0.8	1.2	1.1	1.4
Anxiety*	1,026	0.7	1.0	0.8	1.2
Endocrine & metabolic	5,650	3.6	5.4	5.1	5.7
Diabetes (non-gestational)*	799	0.5	0.8	0.6	1.0
Female genital system	5585	3.6	5.3	4.9	5.7
Check-up/Pap smear*	1,734	1.1	1.7	1.4	1.9
Menstrual problems*	929	0.6	0.9	0.7	1.0
Neurological	5,864	3.8	5.6	5.4	5.8
Headache	2,250	1.5	2.2	2.0	2.3
Vertigo/dizziness	1,287	0.8	1.2	1.1	1.3
Ear	4,363	2.8	4.2	4.0	4.4
Ear pain	1,954	1.3	1.9	1.7	2.0
Pregnancy & familyplanning	4,019	2.6	3.8	3.5	4.2
Pre-postnatal check*	1,376	0.9	1.3	0.8	1.8
Oral contraception*	1,059	0.7	1.0	0.8	1.2
Eye	2,973	1.9	2.8	2.7	3.0
Eye pain	595	0.4	0.6	0.4	0.7
Urology	2,738	1.8	2.6	2.5	2.8
Blood	2,162	1.4	2.1	1.9	2.3
Male genital system	1,049	0.7	1.0	0.9	1.1
Social problems	996	0.6	1.0	0.8	1.1
Total RFEs	155,690	100.0	148.5	146.7	150.2

(a) Figures do not total 100.0 as more than one RFE can be recorded at each encounter.

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

Note: UCI–upper confidence interval, LCI–lower confidence interval, NOS–not otherwise specified.

Table 6.3: Most frequent patient reasons for encounter

Patient reason for encounter	Number	% total RFEs	Rate per 100 encs ^(a)	95% LCI	95% UCI
Check-up—all*	14,891	9.6	14.2	13.5	14.9
Prescription—all*	10,082	6.5	9.6	9.1	10.2
Cough	7,329	4.7	7.0	6.5	7.5
Immunisation/vaccination—all*	4,421	2.8	4.2	3.8	4.6
Throat complaint	4,368	2.8	4.2	3.8	4.5
Test results*	4,157	2.7	4.0	3.7	4.3
Back complaint*	3,804	2.4	3.6	3.4	3.8
URTI	2,849	1.8	2.7	2.3	3.1
Rash*	2,844	1.8	2.7	2.6	2.9
Fever	2,302	1.5	2.2	1.8	2.6
Headache	2,250	1.5	2.2	2.0	2.3
Abdominal pain*	2,172	1.4	2.1	1.9	2.2
Ear pain	1,954	1.3	1.9	1.7	2.0
Depression*	1,793	1.2	1.7	1.6	1.9
Hypertension/high blood pressure*	1,764	1.1	1.7	1.2	2.2
Nasal congestion/sneeze	1,731	1.1	1.7	1.2	2.1
Weakness/tiredness general	1,559	1.0	1.5	1.3	1.7
Diarrhoea	1,397	0.9	1.3	1.2	1.5
Knee complaint	1,361	0.9	1.3	1.2	1.4
Chest pain NOS	1,336	0.9	1.3	1.2	1.4
Skin complaint	1,305	0.8	1.2	1.1	1.4
Vertigo/dizziness	1,287	0.8	1.2	1.1	1.3
Insomnia	1,270	0.8	1.2	1.1	1.4
Foot/toe complaint	1,249	0.8	1.2	1.1	1.3
Vomiting	1,230	0.8	1.2	1.0	1.3
Asthma	1,205	0.8	1.2	1.0	1.3
Administrative procedure NOS	1,163	0.8	1.1	0.9	1.3
Neck complaint	1,134	0.7	1.1	1.0	1.2
Swelling*	1,109	0.7	1.1	0.9	1.2
Shoulder complaint	1,085	0.7	1.0	0.9	1.1
<i>Subtotal</i>	<i>86,401</i>	<i>55.5</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total RFEs	155,690	100.0	146.3	144.6	148.0

(a) Figures do not total 100.0 as more than RFE can be recorded at each encounter.

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

Note: Encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval, NOS—not otherwise specified

Most frequent patient reasons for encounter

The thirty most commonly recorded RFEs, listed in order of frequency in Table 6.3 accounted for over 50% of all RFEs. In this analysis the specific ICPC-2 chapter to which an across chapter RFE concept belongs is disregarded, such that 'check-up—(all)' includes all check-ups from all body systems irrespective of whether the type was specified (e.g. 'BP check') or whether the request was very general. Equally, 'immunisation/vaccination—(all)' includes influenza vaccination requests as well as those for childhood immunisation, hepatitis etc.

The need for a check-up was by far the most common RFE, accounting for almost 10% of all RFEs recorded at a rate of 14.2 per 100 encounters. Requests for medication were also frequent (9.6 per 100 encounters). It is notable that RFEs described as 'hypertension' and 'high BP' also arose at a rate of 1.7 per 100 encounters and these are likely to be closely associated with the need for a check-up and/or medication. RFEs associated with the need for immunisation or vaccination were the fourth most often expressed RFE (4.2 per 100 encounters), perhaps reflecting an increasing understanding of the advantages of such preventive care.

The remaining RFEs in the top 30 were largely symptom-based, led by cough (7.0 per 100) and throat complaints (4.2 per 100), back complaints, URTI (often described as 'a cold') and rash. Undifferentiated symptoms such as fever, headache, abdominal pain, ear pain, weakness/tiredness, diarrhoea and chest pain were also common. Many musculoskeletal symptoms also appeared in the top 30 RFEs. It is interesting to note that chronic conditions such as asthma, depression and insomnia were frequently described in diagnostic terms by patients when giving their reasons for encounter.

6.3 The inter-relationship of RFEs with other variables. Example: abdominal pain

An RFE was classified as 'abdominal pain' if the patient described their reason for the encounter in terms of any of the labels classified under the ICPC-2 rubric D01 (Pain/cramps, abdominal general) or D06 (Pain, abdominal localised, other). In ICPC-2 PLUS these rubrics include a number of more specific symptom and complaint codes such as 'cramps; abdominal' and 'intestinal colic'. As multiple ICPC-2 PLUS codes fall into the general abdominal pain group, in cases where a patient used more than one of these terms at an encounter, the RFE would have been counted twice.

Abdominal pain was the twelfth most frequently recorded patient RFE (Table 6.3). It was described on 2,172 occasions, represented 1.4% of all RFEs and occurred at a rate of 2.1 per 100 encounters. Encounters involving at least one RFE of this type numbered 2,168 (2.1% of all encounters).

Figure 6.2 illustrates the relationship of an RFE of abdominal pain with other information collected at that general practice encounter. The RFE of abdominal pain can be directly linked to patient characteristics such as age and sex (solid arrows). However a RFE can only be indirectly linked (dotted arrows) to the problems and managements (i.e. prescriptions written, tests and investigations ordered, and referrals transcribed) provided at the encounter. In addition, other RFEs presenting with abdominal pain have also been included to give an indication of concurrent reasons for attendance at these encounters.

Age and sex distribution of patients

Of the 2,168 encounters at which abdominal pain was described as a reason for encounter over two-thirds were with female patients. Patients presenting with abdominal pain tended to be somewhat younger than the total sample. Only 16% of these patients were aged 65 years and over compared with about 24% of patients at all encounters.

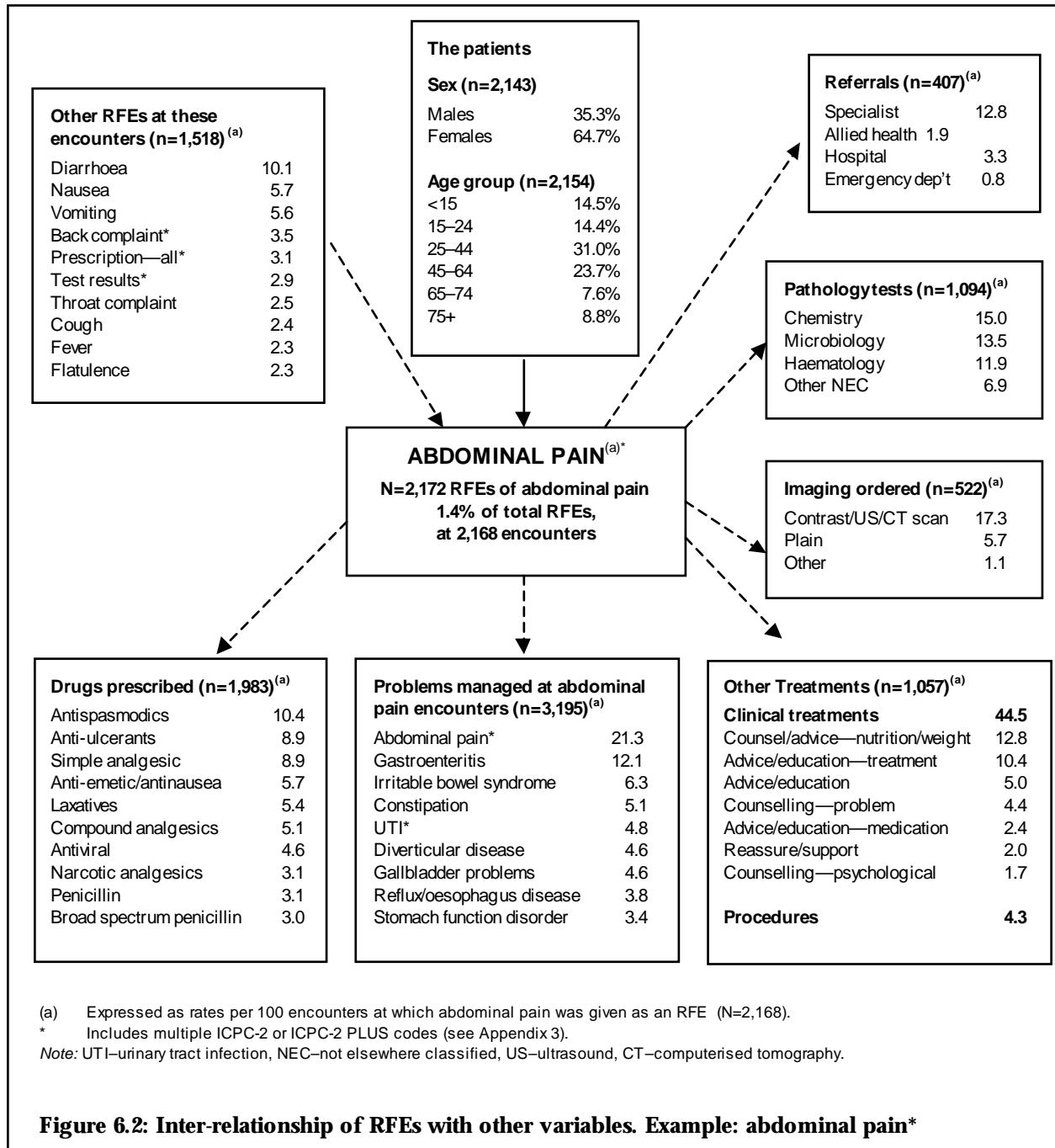


Figure 6.2: Inter-relationship of RFEs with other variables. Example: abdominal pain*

Other reasons for encounter

At each encounter where a RFE of abdominal pain was described, up to two other patient RFEs could be recorded. A total of 1,518 other RFEs were described at these encounters. At one in ten encounters diarrhoea was concurrently described with the abdominal pain, while some patients described nausea (5.7 per 100 abdominal pain encounters) and/or vomiting (5.6 per 100). Other symptoms described include throat complaints, cough, fever and flatulence. Requests for a prescription and for test results were also relatively common.

Problems managed

Multiple problems could be managed at an encounter, some of which may have been unrelated to the RFE of abdominal pain. However, while there is not a direct link between a single RFE and a single diagnosis, certain diagnostic groups stand out at these encounters and a relationship between the demand for care and the diagnostic label can be generally assumed (Britt et al. 1994).

At the 2,168 encounters where abdominal pain was recorded as a RFE the number of problems managed was 3,195. This rate was the same as the average for all encounters (147 per 100). The most common problem managed at these encounters was described in the same symptomatic terms. That is, at one in five in (21.3 per 100) encounters no further definition of the underlying problem could yet be determined. This was followed by problems with more specific labels such as gastroenteritis (12.1 per 100 encounters), irritable bowel syndrome (6.3) and constipation (5.1).

Prescriptions and other treatments

Medications were prescribed at these encounters at a rate of 91.5 per 100 encounters, a similar rate to the average for all encounters (93.8 per 100). Antispasmodics were the most frequently prescribed medication group (10.4 per 100 encounters), followed by anti-ulcerants (8.9 per 100). Simple, compound and narcotic analgesics all rated in the top ten medication groups prescribed at these encounters as did anti-emetics/antinauseants, laxatives, antivirals and penicillins.

There were 1,057 clinical treatments recorded at these encounters, recorded at a rate of 44.5 clinical treatments per 100 encounters, a higher rate than in the total dataset (33.5 per 100). Counselling or advice about nutrition/weight was most common (12.8 per 100 abdominal pain encounters). Advice about treatment was also frequently given (10.4 per 100, followed by psychological counselling and counselling of an unspecified nature. Procedures were rarely undertaken at these encounters

Referrals, tests and investigations

Referrals numbered 407 (18.8 per 100 abdominal pain encounters). Over two-thirds of these were to specialists (12.8 per 100 abdominal pain encounters) and such referrals were made at almost double the overall average rate (7.3 per 100 encounters). Encounters involving a RFE of abdominal pain generated high pathology test ordering rates. There were 1,094 pathology test orders (or groups of tests such as FBC) at these encounters, a rate of 50.5 per 100 encounters. This compares with an overall rate of 26.3 orders per 100 encounters. Orders for imaging were also high (24.1 per 100 encounters) compared with the overall rate (7.5 per 100). Contrast/US/CT imaging was most commonly ordered at a rate of 17.3 per 100 encounters involving a RFE of abdominal pain and this was a far higher rate than average (2.6 per 100).

7 Problems managed

A problem managed is a formal statement of the provider's understanding of a health problem presented by the patient, family or community. It can be described in terms of a disease, symptom or complaint, social problem or ill-defined condition managed at the encounter. As GPs were instructed to record each problem to the most specific level possible from the information available, the description of the problem managed may at times be limited to the level of presenting symptoms.

At each patient encounter up to four problems could be recorded by the GP, a minimum of one problem being compulsory. The status of each problem to the patient—new (first presentation to a medical practitioner) or old (follow-up of previous problem)—was also indicated. The GPs are not asked to report the relative 'importance' of each problem in an encounter, and the order in which the problems is reported has no significance. This contrasts with the way in which diagnoses are reported in hospital morbidity data, in which one diagnosis is designated as the principal diagnosis, and other diagnoses are generally listed in order of significance.

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

The relative frequency of problems managed can be described in two ways: as a per cent of all problems managed in the study, or as a rate of problems managed per 100 encounters. Where groups of problems are reported (e.g. circulatory problems) it must be remembered that more than one type of problem (e.g. hypertension and oedema) could have been managed at a single encounter. In considering these results the reader must be mindful that while a rate per 100 encounters for a single ungrouped problem (e.g. asthma, 3.2 per 100 encounters) can be regarded as equivalent to 'asthma is managed at 3.2% of encounters or at 32 per 1,000 encounters', such a statement cannot be made for grouped concepts.

7.1 Number of problems managed at encounter

A total of 153,857 problems were managed at the 104,856 patient encounters, at an average rate of 146.7 problems per 100 encounters. At the majority of encounters (65.4%) only one problem was managed, while three or more problems were managed at almost 10% of encounters (Table 7.1).

Table 7.1: Number of problems managed at an encounter

Number of problems managed at encounter	Number of encounters	Col %	95% LCI	95% UCI
One problem	68,591	65.4	64.3	66.5
Two problems	25,849	24.7	24.0	25.3
Three problems	8,096	7.7	7.3	8.1
Four problems	2,320	2.2	1.9	2.5
Total encounters	104,856	100.0	..	..
Total problems managed	153,857	..	..	..

Note: UCI—upper confidence interval, LCI—lower confidence interval.

7.2 Nature of morbidity

7.2.1 Problems managed by ICPC–2 chapter

Table 7.2 presents (in decreasing order) the frequency and distribution of problems managed by ICPC–2 chapter. Individual problem types most frequently recorded within each chapter are also included where they represent more than 0.5% of all problems managed. Each ICPC–2 chapter and problem managed is expressed as a per cent of all problems managed and as a rate per 100 encounters with 95% confidence intervals.

Overall, half of the problems managed in general practice related to four major body systems—the respiratory, skin, musculoskeletal and circulatory systems. Other common problems were related to the digestive, endocrine/metabolic, or female genital systems. Problems least frequently presented related to the blood and blood-forming organs and the male genital system or were of a social nature. Almost 10% of problems managed were not simply related to a specific body system and were classified in the general and unspecified chapter.

At a chapter level, respiratory problems were the most frequently managed at a rate of 24.2 per 100 encounters, accounting for nearly a fifth (16.5%) of all problems managed. The high occurrence of asthma, URTI and bronchitis contributed to this result. Other common respiratory problems included influenza vaccination, sinusitis and tonsillitis.

The rates for skin problems (17.0 per 100 encounters) and for problems related to the musculoskeletal system (16.9 per 100 encounters) were equivalent. For skin problems, contact dermatitis (including non-specific dermatitis and eczema) was most common (1.9 per 100 encounters), followed by solar keratosis, then injuries to the skin (such as lacerations and cuts) and malignant skin neoplasms.

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

Problem managed	Number	% total problems	Rate per 100 encls ^(a)	95% LCI	95% UCI
Respiratory	25,375	16.5	24.2	23.5	24.9
URTI	7,527	4.9	7.2	6.7	7.7
Asthma	3,365	2.2	3.2	3.0	3.4
Acute bronchitis/bronchiolitis	3,319	2.2	3.2	2.9	3.4
Immunisation/vaccine respiratory	2,057	1.3	2.0	1.3	2.6
Sinusitis acute/chronic	1,653	1.1	1.6	1.4	1.7
Tonsillitis*	1,351	0.9	1.3	1.1	1.5
Allergic rhinitis	1,116	0.7	1.1	0.8	1.3
Chronic obstructive pulmonary disease	872	0.6	0.8	0.6	1.0
Skin	17,865	11.6	17.0	16.6	17.5
Contact dermatitis	1,967	1.3	1.9	1.8	2.0
Solar keratosis/sunburn	1,161	0.8	1.1	0.9	1.3
Laceration/cut	945	0.6	0.9	0.8	1.0
Malignant skin neoplasm	951	0.6	0.9	0.7	1.1
Musculoskeletal	17,766	11.6	16.9	16.4	17.4
Back complaint*	2,880	1.9	2.8	2.6	2.9
Osteoarthritis*	2,346	1.5	2.2	2.0	2.4
Sprain/strain*	1,878	1.2	1.8	1.6	2.0
Fracture*	1,032	0.7	1.0	0.9	1.1
Arthritis*	843	0.6	0.8	0.6	1.0
Circulatory	17,074	11.1	16.3	15.5	17
Hypertension*	8,821	5.7	8.4	7.9	8.9
Ischaemic heart disease ^(b)	1,650	1.1	1.6	1.3	1.8
Cardiac check-up*	1,407	0.9	1.3	1.0	1.6
Heart failure	893	0.6	0.9	0.6	1.1
General & unspecified	14,622	9.5	13.9	13.4	14.5
Preventive immunisation/medication NOS	2,253	1.5	2.2	1.9	2.4
General check-up*	1,845	1.2	1.8	1.6	1.9
Viral disease, other/NOS	1,608	1.1	1.5	1.2	1.8
Medication/script/request/renew/inject NOS	1,333	0.9	1.3	0.9	1.6
Psychological	11,025	7.2	10.5	10	11.1
Depression*	3,595	2.3	3.4	3.2	3.6
Anxiety*	1,825	1.2	1.7	1.5	1.9
Sleep disturbance	1,620	1.1	1.5	1.4	1.7

(continued)

Table 7.2 (continued): Distribution of problems managed across ICPC–2 chapter and most frequent individual problems within chapter

Problem managed	Number	% total problems	Rate per 100 encs^(a)	95% LCI	95% UCI
Digestive	10,533	6.9	10.1	9.7	10.3
Oesophageal disease	1,682	1.1	1.6	1.5	1.8
Gastroenteritis, presumed infection	1,030	0.7	1.0	0.8	1.2
Endocrine & metabolic	9,572	6.2	9.1	8.7	9.6
Diabetes, non-gestational*	2,791	1.8	2.7	2.4	2.9
Lipid disorder	2,765	1.8	2.6	2.4	2.9
Female genital system	6,461	4.2	6.2	5.8	6.6
Female genital check-up/Pap smear*	1,628	1.1	1.6	1.3	1.8
Menopausal complaint	1,429	0.9	1.4	1.2	1.5
Menstrual problems*	844	0.6	0.8	0.7	0.9
Ear	4,679	3.0	4.5	4.3	4.7
Acute otitis media/myringitis	1,681	1.1	1.6	1.4	1.8
Pregnancy & familyplanning	4,512	2.9	4.3	4.0	4.6
Pre-postnatal check-up*	1,189	0.8	1.1	0.7	1.6
Oral contraception*	1,090	0.7	1.0	0.9	1.2
Neurological	4,098	2.7	3.9	3.7	4.1
Migraine	918	0.6	0.9	0.7	1.0
Urology	3,185	2.1	3.0	2.9	3.2
Urinary tract infection*	1,843	1.2	1.8	1.6	1.9
Eye	2,875	1.9	2.7	2.6	2.9
Infectious conjunctivitis	871	0.6	0.8	0.7	0.9
Blood	1,781	1.2	1.7	1.5	1.9
Male genital system	1,467	1.0	1.4	1.3	1.5
Social problems	968	0.6	0.9	0.7	1.1
Total problems	153,857	100.0	146.7	144.9	148.6

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter.

(b) This includes both ischaemic heart disease (IHD) with angina and IHD without angina specified. The results presented in the 1998–1999 BEACH report were for IHD without angina. IHD without angina in 1999–2000 were n=1,108, 0.7 % of problems managed (95% CI: 0.5–0.9) at a rate of 1.1 per 100 encounters (95% CI: 0.8–1.3).

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

Note: Encs–encounters, UCI–upper confidence interval, LCI–lower confidence interval, NOS–not otherwise specified.

Hypertension (8.4 per 100 encounters) constituted over half of all circulatory problems (16.3 per 100 encounters) and was the most frequently managed problem, accounting for 5.7% of all problems. Cardiac related check-ups, ischaemic heart disease and heart failure were other circulatory conditions reported at a relatively high frequency.

The most common problem managed in the general and unspecified chapter was general immunisation/vaccination, followed by general check-ups, and ill-defined or unspecified viral illnesses. Medication provision for an unspecified diagnosis/problem was also commonly recorded by GPs.

7.2.2 Problems managed by ICPC–2 component

Examination of problems managed across ICPC–2 components provides an alternative way of viewing the types of matters dealt with at general practice consultations (Table 7.3).

GPs were instructed to record problems managed in the most specific terms possible at the time of the encounter. In an ideal world we could therefore predict that problems managed should fall into three components of ICPC–2, namely the diagnosis/disease, symptoms and complaints, and diagnostic and preventive procedures (e.g. check-up). Although these components were the most frequently recorded, there were a small number of problems described in terms of a prescription, referral, test result or administrative procedure. In these circumstances the lack of clinical description of the underlying problem required the label to be coded in terms of the process described (e.g. diagnosis was recorded as referral to dermatologist).

The majority of problems (65.5%) were described in terms of a diagnosis or disease (e.g. hypertension, depression, asthma) at an average rate of 96.1 per 100 encounters. Problems described in terms of a symptom or complaint (e.g. febrile) represented almost a quarter of all problems managed and were recorded at a rate of 31.9 per 100 encounters. Diagnostic screening and preventive procedures occurred at a rate of 13.1 per 100 encounters and were most commonly check-ups and vaccinations/immunisations. Problems related to the provision of medication and other treatments where no other diagnostic information was given were recorded at a rate of 3.1 per 100 encounters, while problems described in terms of a referral, test result, or administrative procedure were relatively few (less than 2% of all problems).

Table 7.3: Distribution of problems managed by ICPC–2 component

ICPC–2 component	Number	% of total problems	Rate per 100 encs ^(a)	95% LCI	95% UCI
Diagnosis, diseases	100,788	65.5	96.1	94.4	97.8
Symptoms & complaints	33,491	21.8	31.9	31.1	32.7
Diagnostic & preventive procedures	13,700	8.9	13.1	12.4	13.7
Medications, treatments & therapeutics	3,257	2.1	3.1	2.8	3.4
Referral & other RFE	1,347	0.9	1.3	1.1	1.5
Results	822	0.5	0.8	0.6	1.0
Administrative	451	0.3	0.4	0.2	0.6
Total problems	153,857	100	146.7	144.9	148.6

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter.

Note: Encs–encounters, RFE–reason for encounter, UCI–upper confidence interval, LCI–lower confidence interval.

7.2.3 Most frequent problems managed

The 30 most commonly recorded problems are listed in descending order of frequency in Table 7.4. In this analysis the specific chapter to which ‘across-chapter concepts’ (immunisation/vaccination and prescriptions) apply is ignored and the concept grouped to all other similar concepts. For example, immunisation/vaccination includes influenza vaccinations (from chapter R) as well as those for childhood immunisation (chapter A), hepatitis immunisation (chapter D) and neurological immunisations such as tetanus (chapter N).

The 30 most frequently managed problems accounted for almost half of all problems managed. Hypertension was the most common, accounting for 5.7% of all problems managed, at a rate of 8.4 per 100 encounters. This was followed by URTI, which was recorded at a rate of 7.2 per 100 encounters and immunisation/vaccination (4.6 per 100 encounters). Together these top three problems accounted for nearly 15% of all problems managed and their relative frequency was notably higher than that of all other problems managed.

Depression was the fourth most commonly managed problem (3.4 per 100 encounters), followed closely by asthma, bronchitis and back complaint. A number of chronic conditions followed, including diabetes, lipid disorders and osteoarthritis at a rate of 2.7, 2.6 and 2.2 per 100 encounters respectively.

The remaining problems in the top 30 included some problems from body systems that were relatively low in frequency. Although all problems related to the ear chapter accounted for only 3.0% of problems overall, otitis media was among the top 30 problems managed. Similarly, while urological problems were relatively infrequent overall (only 2.1% of total problems—Table 7.2), urinary tract infections were among the most frequent problems.

It is also notable that a number of non-diagnostic problem labels fell into the top 30 problems most frequently managed by general practitioners. These included preventive care (immunisations/vaccinations), general and body systems specific check-ups (female genital, reproductive and circulatory chapters) and medication provision or review.

Table 7.4: Most frequently managed problems

Problem managed	Number	% of total problems	Rate per 100 encs^(a)	95% LCI	95% UCI
Hypertension*	8,821	5.7	8.4	7.9	8.9
URTI	7,527	4.9	7.2	6.7	7.7
Immunisation/vaccination—all*	4,818	3.1	4.6	4.2	5.0
Depression*	3,595	2.3	3.4	3.2	3.6
Asthma	3,365	2.2	3.2	3.0	3.4
Acute bronchitis/bronchiolitis	3,319	2.2	3.2	2.9	3.4
Back complaint*	2,880	1.9	2.8	2.6	2.9
Diabetes*	2,808	1.8	2.7	2.5	2.9
Lipid disorder	2,765	1.8	2.6	2.4	2.9
Osteoarthritis*	2,346	1.5	2.2	2.0	2.4
Contact dermatitis	1,967	1.3	1.9	1.8	2.0
Sprain/strain*	1,878	1.2	1.8	1.6	2.0
Prescription—all*	1,858	1.2	1.8	1.5	2.1
General check-up*	1,845	1.2	1.8	1.6	1.9
UTI*	1,843	1.2	1.8	1.6	1.9
Anxiety*	1,825	1.2	1.7	1.5	1.9
Oesophageal disease	1,682	1.1	1.6	1.5	1.8
Acute otitis media/myringitis	1,681	1.1	1.6	1.4	1.8
Sinusitis acute/chronic	1,653	1.1	1.6	1.4	1.7
Ischaemic heart disease*	1,650	1.1	1.6	1.3	1.8
Female genital check-up*	1,628	1.1	1.6	1.3	1.8
Sleep disturbance	1,620	1.1	1.5	1.4	1.7
Viral disease NOS	1,608	1.1	1.5	1.2	1.8
Menopausal complaint	1,429	0.9	1.4	1.2	1.5
Cardiac check-up*	1,407	0.9	1.3	1.0	1.6
Tonsillitis*	1,351	0.9	1.3	1.1	1.5
Pre-postnatal check-up*	1,189	0.8	1.1	0.7	1.6
Solar keratosis/sunburn	1,161	0.8	1.1	0.9	1.3
Allergic rhinitis	1,116	0.7	1.1	0.8	1.3
Oral contraception*	1,090	0.7	1.0	0.9	1.2
<i>Subtotal</i>	73,726	47.9	..	..	..
Total problems	153,857	100.0	146.7	144.9	148.6

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter and only per cents $\geq 0.5\%$ are included.

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

Note: Encs—encounters, UCI—upper confidence interval, LCI—lower confidence intervals, NOS—not otherwise specified.

7.3 The inter-relationship of problems managed with other variables

7.3.1 Problem inter-relationship example 1: URTI

A problem was classified as an acute upper respiratory infection (URTI) if the GP recorded it in the diagnosis/problem section of the form in terms such as: common cold, coryza, pyrexial cold, head cold, nasal or throat infection, acute pharyngitis, acute rhinitis or URTI (ICPC-2 Rubric R74).

URTI was the second most common problem managed in general practice. It was recorded on 7,485 occasions (at a rate of 7.2 per 100 encounters), accounting for 4.9% of all problems managed. A simple extrapolation based on approximately 103 million Medicare-claimed general practice consultations would suggest there are approximately 7.4 million encounters per year in which GPs manage URTI.

Figure 7.1 illustrates the relationship of URTI with other variables that are collected at the general practice encounter. URTI can be directly linked to patient characteristics such as age and sex, treatments provided, prescriptions written, tests and investigations ordered, and referrals transcribed (solid arrows). URTI can also be indirectly related to patient RFEs (dotted arrow). In addition, other problems that were managed at an 'URTI encounter' have been included to give an indication of comorbidities managed with URTI.

Age and sex distribution of patients

Patients managed for URTI were more likely to be female (55.1%), in line with the sex distribution in the study overall (57.3%). Younger patients were over-represented in URTI encounters (51.5% were under 25) compared with the proportion of patients under 25 (25.1%) in the sample as a whole.

Reasons for encounter

At the 7,485 encounters where URTI was managed, a total of 12,895 patient RFEs were described (172 per 100 URTI encounters), somewhat more than in the total sample (148 per 100 total encounters). However, the RFEs at an URTI encounter were almost exclusively for URTI (28.1 per 100 URTI encounters) and symptoms related to URTI, such as cough (33.6 per 100 URTI encounters), throat complaint (32.3 per 100 URTI encounters), and nasal congestion (10.8 per 100 URTI encounters). This would be expected, given the acute nature of URTI symptoms.

Other problems managed

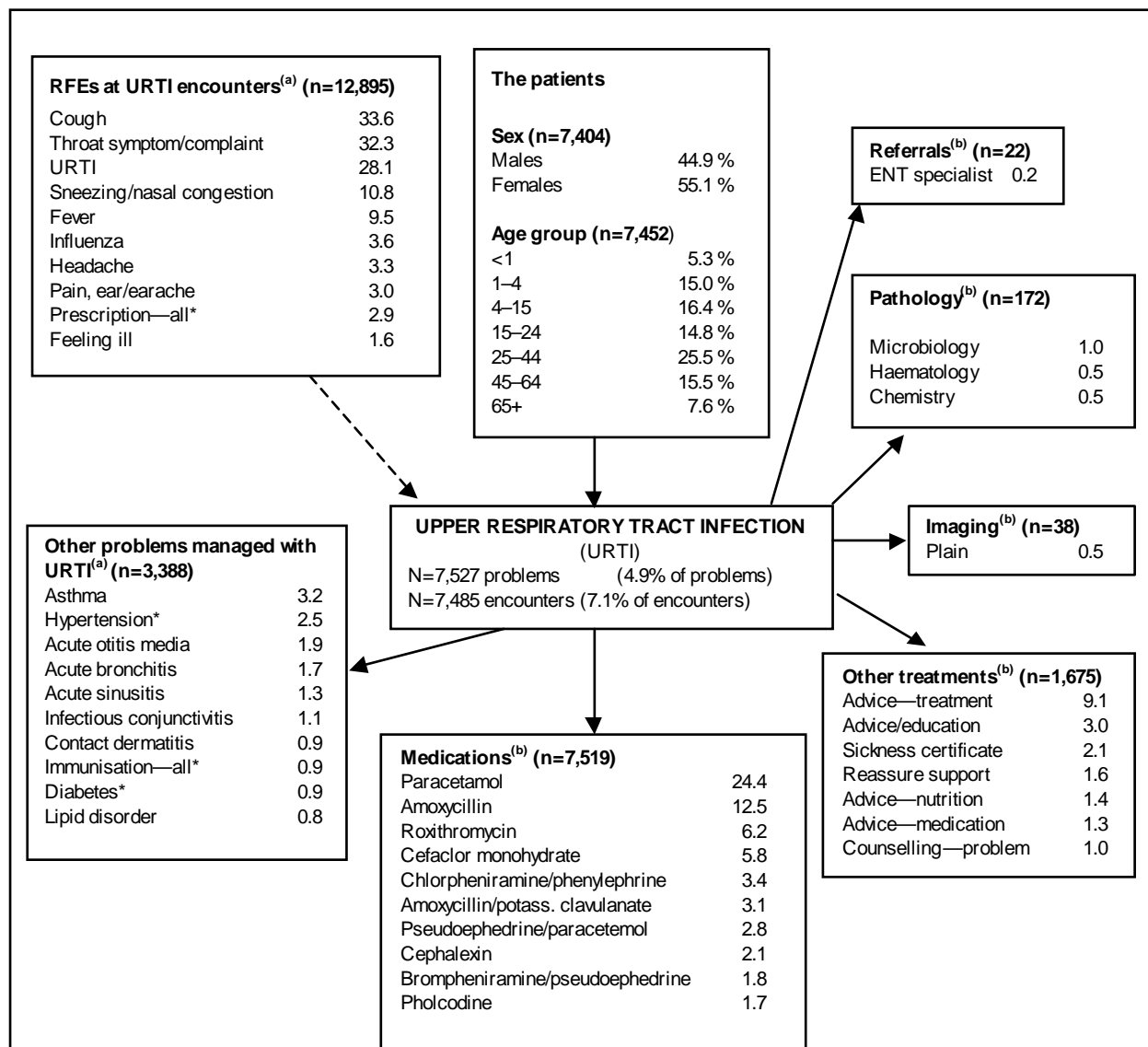
At each encounter where URTI was managed a range of other problems was also reported. A total of 3,388 other problems were managed by the GP where URTI occurred. The most common co-morbidity managed with URTI were the most common problems found in the study as a whole. However, problems related to URTI such as the rates of asthma (3.2 per 100 URTI encounters) and acute otitis media (1.9 per 100 URTI encounters) were somewhat higher than the rates found for encounters overall, while hypertension (2.5 per 100 URTI encounters) was managed at less than half the rate at URTI encounters than for encounters overall (8.7 per 100 encounters). These differences can be understood in terms of the relatively young age of URTI patients.

Prescriptions and other treatments

The top ten medications for URTI included analgesics, antibiotics and cold preparations. Paracetamol was the most common medication prescribed/advised/supplied at a rate of 24.4 per 100 URTI problems. Antibiotics were prescribed at a rate of 34.9 per 100 URTI contacts, broad spectrum penicillins accounting for 61.6% of these. Amoxycillin (including in combination with potassium clavulanate) was most commonly chosen (15.6 per 100 URTI). Cephalosporins were also relatively common, being prescribed/supplied at a rate of 7.9 per 100 URTI contacts.

Referrals, tests and investigations

The patient was referred in only 22 cases, and 14 of these were referred to an ENT specialist. Rates for pathology and imaging orders were very low, with a total of 172 pathology tests and 38 imaging orders.



(a) Expressed as rates per 100 encounters at which URTI was managed (N=7,485).

(b) Expressed as rates per 100 problems at which URTI was managed (N=7,527).

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

Note: ENT—ear nose throat.

Figure 7.1: Inter-relationship of a problem managed with other variables. Example: URTI

7.3.2 Problem inter-relationship example 2: malignant skin neoplasm

A problem was classified as 'malignant skin neoplasm' if the GP recorded it in the diagnosis/problem section of the form in terms such as basal cell carcinoma, squamous cell carcinoma, skin carcinoma, Bowen's disease, melanoma, malignant mole, rodent ulcer, malignant naevus or malignant skin neoplasm (ICPC-2 Rubric S77).

Malignant skin neoplasm was the forty-ninth most common problem managed in general practice. It was recorded on 951 occasions (at a rate of 0.9 per 100 encounters), accounting for 0.6% of all problems managed. A simple extrapolation based on approximately 103 million Medicare-claimed general practice consultations would then suggest there are approximately 900,000 encounters per year in which GPs manage malignant skin neoplasm.

Figure 7.2 illustrates the relationship of malignant skin neoplasm with other variables that are collected at the general practice encounter. Malignant skin neoplasm can be directly linked to patient characteristics such as age and sex, treatments provided, prescriptions written, tests and investigations ordered, and referrals transcribed (solid arrows). Malignant skin neoplasm can also be indirectly related to patient RFEs (dotted arrow). In addition, other problems that were managed at a 'malignant skin neoplasm encounter' have been included to give an indication of comorbidities managed with malignant skin neoplasm.

Age and sex distribution of patients

A higher proportion of patients managed for malignant skin neoplasm were male (54.6%), compared with the proportion of males in the study overall (42.7%). The majority of patients (88.4%) at malignant skin neoplasm encounters were 45 years or older compared with 48.6% in the sample as a whole.

Reasons for encounter

At the 943 encounters where malignant skin neoplasm was managed, a total of 1,536 patient RFEs were described (163 per 100 malignant skin neoplasm encounters), occurring somewhat more than in the total sample (148 RFEs per 100 total encounters). Skin complaints or symptoms (including, skin neoplasm, sunburn/solar keratosis and swelling) were given as RFEs at a rate of 52 per 100 malignant skin neoplasm encounters. Skin check-up was given as a RFE at a rate of 8.4 per 100 malignant skin neoplasm encounters.

Other problems managed

A total of 840 other problems were managed by the GP where malignant skin neoplasm occurred. Hypertension was the most frequent other problem managed (9.9 per 100 malignant skin neoplasm encounters) at a somewhat higher rate than for the sample overall (8.4 per 100 encounters). Sunburn/solar keratosis was also managed at a rate of 5.8 per 100 malignant skin neoplasm encounters.

Prescriptions and other treatments

The most common treatment for malignant skin neoplasm was removal of tissue/biopsy (7.8 per 100 malignant skin neoplasm problems). There were relatively few medications for malignant skin neoplasm (6.6 per 100 problems). Cephalexin was the most common medication (0.9 medications per 100 malignant skin neoplasm problems).

Referrals, tests and investigations

Referrals were made at a rate of 20.9 per 100 problems. Patients were most commonly referred to a dermatologist (8.8 referrals per 100 malignant skin neoplasm problems) surgeon (5.5 per 100 problems) or plastic surgeon (4.1 referrals per 100 problems). There were 208 pathology orders, mostly histopathology (ordered at a rate of 19.6 per 100 malignant skin neoplasm problems).

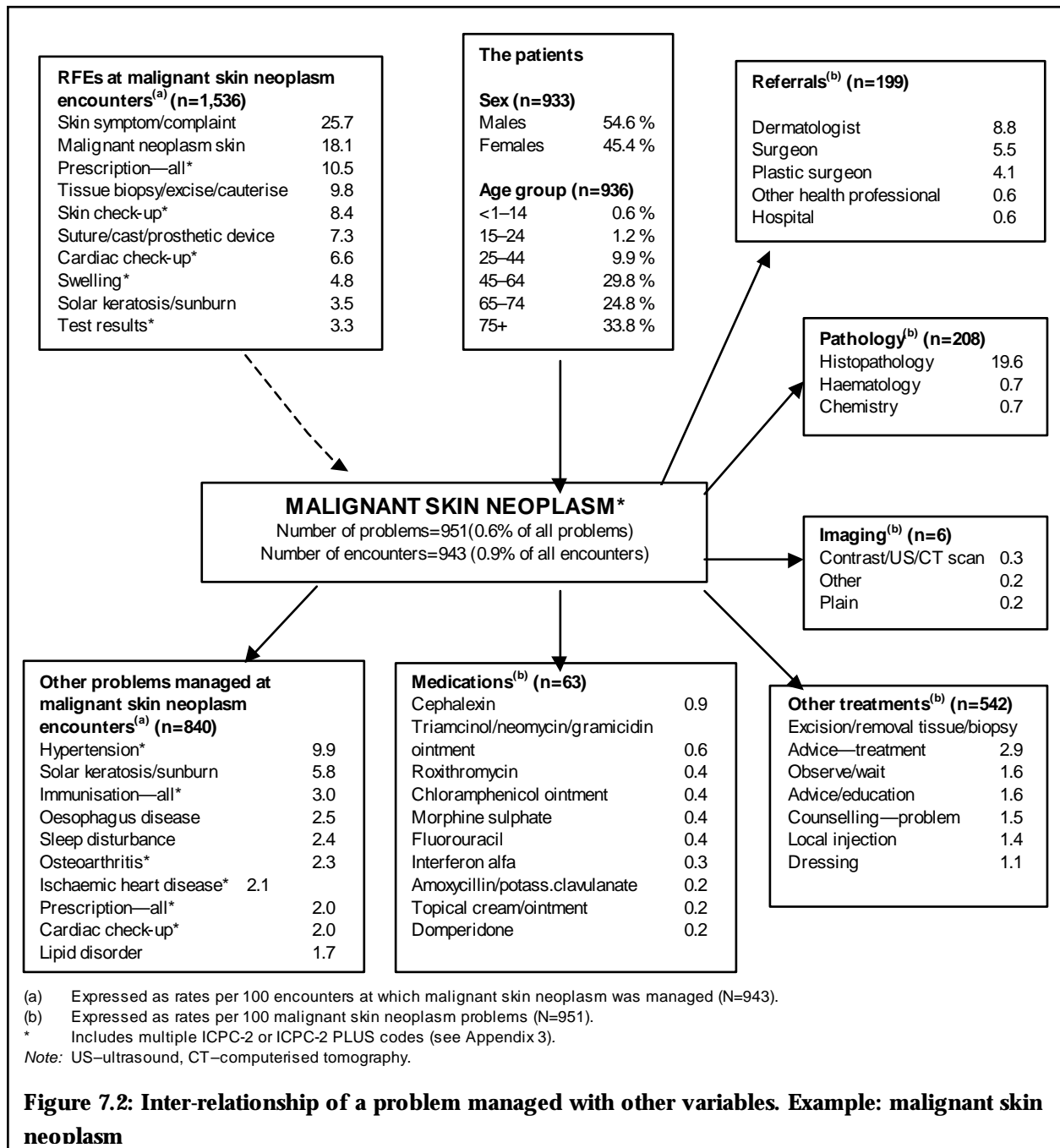


Figure 7.2: Inter-relationship of a problem managed with other variables. Example: malignant skin neoplasm

7.3.3 Problem inter-relationship example 3: asthma

A problem was classified as 'asthma' if the GP recorded it in the diagnosis/problem section of the form as: asthma; allergic, wheezy or asthmatic bronchitis; extrinsic allergic alveolitis or status asthmaticus (ICPC-2 rubric R96).

Asthma was the fifth most common problem managed in general practice. It was recorded on 3,363 occasions (at a rate of 3.2 per 100 encounters), accounting for 2.2% of all problems managed. A simple extrapolation based on approximately 103 million Medicare-claimed general practice consultations would then suggest there are approximately 3.5 million encounters per year in which GPs manage asthma.

Figure 7.3 illustrates the relationship of asthma with other variables that are collected at the general practice encounter.

Age and sex distribution of patients

Patients managed for asthma were more likely to be female (53.7%). A large proportion of asthma patients (40.7%) were aged under 25 years. Comparison with the age distribution for total encounters (25.1% under 25 years) indicate that young patients were over-represented at asthma encounters. Since 46.3% of asthma patients were male compared with 42.7% for the sample as a whole, males were slightly over-represented at asthma encounters.

Reasons for encounter

At the 3,363 encounters where asthma was managed, a total of 5,627 patient RFEs were described (167 per 100 asthma encounters), somewhat more than in the total dataset (146 per 100 total encounters). For a third of these encounters the patients described their reason for the encounter as asthma. Cough was another major reason for encounter (27.2 per 100 asthma encounters). Requests for medication (not necessarily for asthma) were also a frequent RFE presenting at a rate of 15.3 per 100 asthma encounters. Other respiratory complaints such as shortness of breath (6.6 per 100), wheezing (5.8 per 100) and upper respiratory tract infection (3.4 per 100) were frequent RFEs. Other RFEs included respiratory follow-up (6.6 per 100) and respiratory check-up (3.7 per 100).

Other problems managed

At each encounter where asthma was managed a number of other problems may have been managed. Overall, a total of 2,627 other problems were managed by the GP where an asthma contact occurred. There were some differences in the most common comorbidities managed with asthma compared with the total dataset. Upper respiratory tract infection was the most common other problem at an asthma encounter (7.2 per 100 asthma encounters), managed at the same rate as for the sample overall (7.2 per 100 encounters). Hypertension (5.3 per 100 asthma encounters), however, was managed less frequently than for the sample overall (8.4 per 100 encounters), perhaps reflecting the relatively young age of asthma patients. Acute bronchitis/bronchiolitis presented more frequently at asthma encounters (4.3 per 100) than for the sample overall (3.2 per 100 encounters).

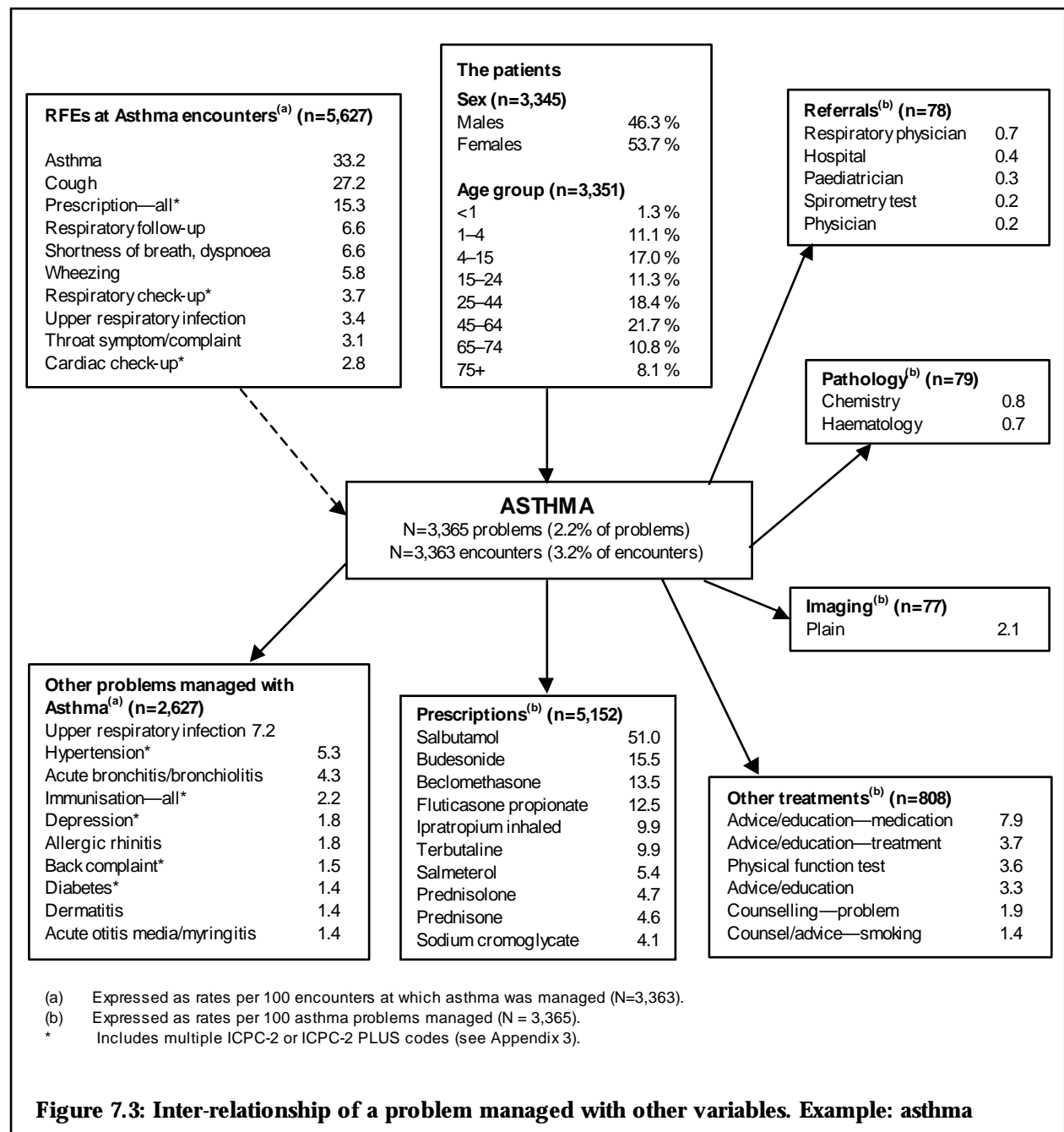
Prescriptions and other treatments

Medication was by far the most common treatment for asthma; 5,152 medications were prescribed/advised or supplied at a rate of 153 medications per 100 asthma problems. Salbutamol was the most frequent medication (51.0 medications per 100 asthma problems). The other top medications included budesonide (15.5 per 100 asthma problems), beclomethasone (13.5 per 100) and fluticasone propionate (12.5 per 100).

Advice about medication (7.9 per 100 asthma problems) and treatment (3.7 per 100 asthma problems) were the most common forms of management other than medication.

Referrals, tests and investigations

Referral rates for asthma were very low (2.3 per 100 asthma problems) compared with the total data set (7.6 per 100 problems). Referral to a respiratory physician (0.7 per 100 problems) was the most common. Less than one (0.4) in a hundred asthma problems were referred to hospital. There were few pathology (79) or imaging tests (77) ordered in the management of asthma.



8 Overview of management

The BEACH survey form allowed GPs to record several aspects of patient management initiated for each problem managed at each encounter. Pharmaceutical management was recorded in detail and linked to a patient problem. Other modalities such as counselling, procedures and other treatments were recorded briefly in the GP's own words and were also related to a single problem. Referrals and hospital admissions were similarly related to a single problem. Provision was made on the form for pathology and imaging orders to be related to multiple problems.

A total of 210,840 management activities were undertaken by GPs at a rate of 201 per 100 encounters and 137 per 100 problems. The most common management activity was medication prescribed, advised or supplied, at a rate of 110.1 per 100 encounters or 75 per 100 problems. Other treatments took place at the rate of 46 per 100 encounters, referrals at a rate of 11.2, pathology orders at a rate of 26.3 and imaging at a rate of 7.5 per 100 encounters (Table 8.1).

Table 8.1: Summary of management

Management type	Number	Rate per 100 encounters	95% LCI	95% UCI	Rate per 100 problems	95% LCI	95% UCI
Medications	115,432	110.1	107.8	112.4	75.0	73.6	76.4
Prescribed	98,372	93.8	91.5	96.2	63.9	62.5	65.4
Advised OTC	9,842	9.4	8.6	10.2	6.4	5.8	7.0
GP supplied	7,218	6.9	5.8	7.9	4.7	4.0	5.4
Other treatments	48,194	46.0	44.1	47.8	31.3	30.1	32.5
Clinical	35,102	33.5	31.8	35.2	22.8	21.7	23.9
Procedural	13,092	12.5	11.9	13.0	8.5	8.1	8.9
Referrals	11,760	11.2	10.8	11.7	7.6	7.4	7.9
Specialist	7,639	7.3	7.0	7.6	5.0	4.8	5.2
Allied health	3,290	3.1	2.9	3.4	2.1	2.0	2.3
Hospital	744	0.7	0.5	0.9	0.5	0.4	0.6
Emergency dept	87	0.1	0.0	0.4	0.0	0.0	0.3
Pathology	27,613	26.3	25.2	27.5	18.0	17.2	18.7
Imaging	7,841	7.5	7.1	7.8	5.1	4.9	5.3
Total management activities	210,840	201.1	..	..	137.0	..	..

Note: UCI—upper confidence interval, LCI—lower confidence interval, OTC—over-the-counter.

Another perspective emerges in analysis of the number of encounters or problems managed for which at least one form of management was initiated by the GP. For example, at least one medication was given at more than two-thirds of encounters and for 58.1% of problems. At least one non-pharmacological treatment was given at 36.2% of encounters and for 28% of problems. A referral was made in 10,925 encounters (10.4%) and for 7.4% of problems. At least one investigation was ordered at 19% of encounters and for 14.3% of problems. These were most commonly pathology orders, which occurred at 13.8% of encounters (10.4% of problems). Imaging orders were placed less frequently at 6.7% of encounters and for 4.7% of problems (Table 8.2).

Table 8.2: Encounters and problems in which treatments occurred

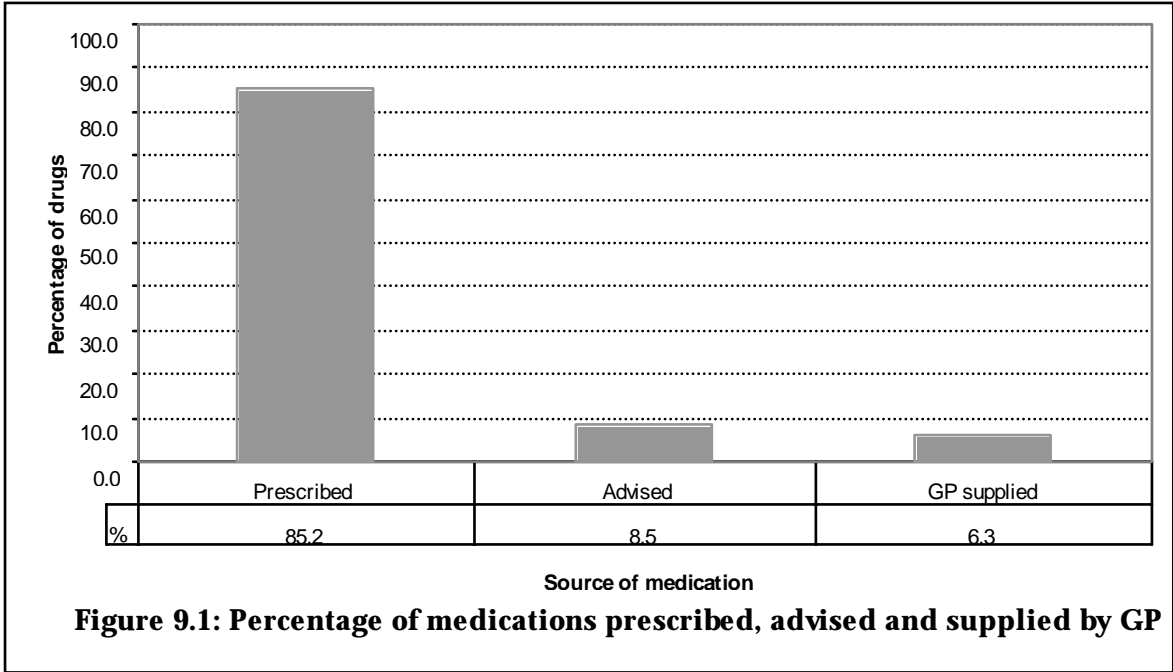
Treatment type	Number of encounters	Per cent of total encounters ^(a) (N=104,856)	Number of problems	Per cent of total problems ^(a) (N=153,857)
At least one treatment type	87,892	83.8	116,184	75.5
At least one medication	71,781	68.5	89,401	58.1
At least one prescription	62,988	60.1	78,792	51.2
At least one OTC advised	8,705	8.3	8,870	5.8
At least one GP supplied	5,325	5.1	5,645	3.7
At least one non-pharmacological treatment	37,961	36.2	43,069	28.0
At least one clinical treatment	28,269	27.0	31,885	20.7
At least one therapeutic procedure	11,990	11.4	12,373	8.0
At least one referral	10,952	10.4	11,386	7.4
At least one referral to a specialist	7,274	6.9	7,539	4.9
At least one referral to allied health	3,140	3.0	3,201	2.1
At least one referral to hospital	730	0.7	744	0.5
At least one referral to emergency dept	87	0.1	87	0.1
At least one investigation	19,854	19.0	21,968	14.3
At least one pathology order	14,426	13.8	15,940	10.4
At least one imaging order	7,019	6.7	7,242	4.7

(a) Figures will not total 100.0% as multiple events may occur in one encounter or in the management of one problem at encounter.

9 Medications

9.1 Source of medications

The survey form allowed the recording of up to four medications for each problem managed. Each medication could be recorded as prescribed (the default), recommended for over-the-counter purchase or supplied by the GP from surgery stocks or samples. GPs were requested to enter the brand or generic name, the strength, regimen and number of repeats ordered for each medication and to designate if this was a new or continued medication for that patient for this problem. This structure allowed analysis of the medications prescribed, advised by GPs for over-the counter purchase and medications supplied by the GP, and the prescribed daily dose (PDD) of medications. Generic or brand names were entered into the database in the form recorded by the GP. Medications were classified using the CAPS system developed by the Family Medicine Research Centre from which they were also mapped to the ATC classification (see Methods) (WHO 1997). While analysis can be conducted at brand name level, results in this chapter are reported only at the generic level.



A total of 115,425 medications were recorded during this year of the BEACH survey, at a rate of 110 per 100 encounters and 75 per 100 problems managed. Most medications (85.2%) were prescribed. However, 8.5% of medications were recommended by the GP for over-the-counter purchase and 6.3% supplied to the patient by the GP. Extrapolated to the whole general practice population, this represents 8.5 million occasions per annum on which medications were recommended by GPs to their patients for over-the-counter purchase. On a further 6.3 million occasions per annum at least one medication was supplied by the general practitioner. These areas of medication supply have been largely unexplored in other studies (Figure 9.1).

9.2 The inter-relationship of medications with other variables

Figures 9.2 to 9.4 demonstrate the relationship between medications and other variables collected in the survey. These examples demonstrate the wealth of information which can be inter-related in studying medications used in general practice. On the charts solid arrows indicate a direct relationship and dotted arrows an indirect one.

9.2.1 Medication inter-relationship example 1: lipid-lowering medications

Figure 9.2 shows the relationship between prescribed or supplied lipid-lowering agents and other variables.

Rate of prescription or supply

Lipid-lowering medications were prescribed or supplied at a rate of 2.8 per 100 total GP encounters and at a rate of 1.9 per 100 total problems. Simvastatin and atorvastatin were the most common, accounting for three-quarters of all lipid-lowering medications.

Prescribed daily dose

Prescribed daily doses (PDD) are reported as medians reflecting the middle point of prescribing regimes. The median provides a measure of central tendency that is not heavily influenced by outliers, as is the mean. Simvastatin, a medication which is available in tablets of strengths from 5 mg to 80 mg had a median PDD of 20 mg. Atorvastatin also had a median PDD of 20mg, which is the mid-range of dosage suggested in MIMS (MIMS Australia 1999).

Age and sex distribution of patients

Patients between 45 and 64 years of age were the most frequent recipients of lipid-lowering medication, accounting for 44.7% of all patients receiving the medications. They were followed by those in the 65–74 age group. This reflects the age groups in which hyperlipidemia occurs. The sex distribution of the patients showed an over-representation of males when compared with the general GP patient population.

Reasons for encounter

The most commonly described patient reason for encounter was a request for prescription, recorded at a rate of 37.6 per 100 encounters at which lipid-lowering medications were prescribed or given. A cardiac check up, lipid disorder and a need for test results were also relatively frequent RFEs.

Problems managed

As one would expect, the problem under management with lipid-lowering medications was most commonly labelled 'lipid disorder' (76.0%). However, these medications were also used in the management of ischaemic heart disease (6.6%) and hypertension (3.2%). In these cases the GP probably viewed the lipid management as part of the broader problem.

Other medications prescribed or supplied

Other medications were prescribed or supplied at the same encounter and for the same problem for which lipid-lowering medications were given on 794 occasions at a rate of 33.5 per 100 of these problems. Antihypertensives made up a large proportion of these co-medications.

Other treatments

Other treatments were less frequently utilised for problems managed with lipid-lowering medications (18.7 per 100 problems) than in the total dataset (31.3 per 100 problems). All of the most common other treatments involved advice or counselling, with advice about diet and nutrition being given in over 10% of cases.

Pathology and imaging

Pathology was ordered at a rate of 31.5 per 100 problems managed with lipid-lowering medications, much higher than the overall rate of 18.0. Orders for blood chemistry were by far the most common, reflecting the regular monitoring of the effect of such medications. Imaging was ordered much less frequently, at a rate of 1.2 per 100 problems compared with 5.1 for the total data.

Referrals

The patient was referred to other services for these problems infrequently (1.5 per 100 problems) compared with a rate of 7.6 for all problem types.

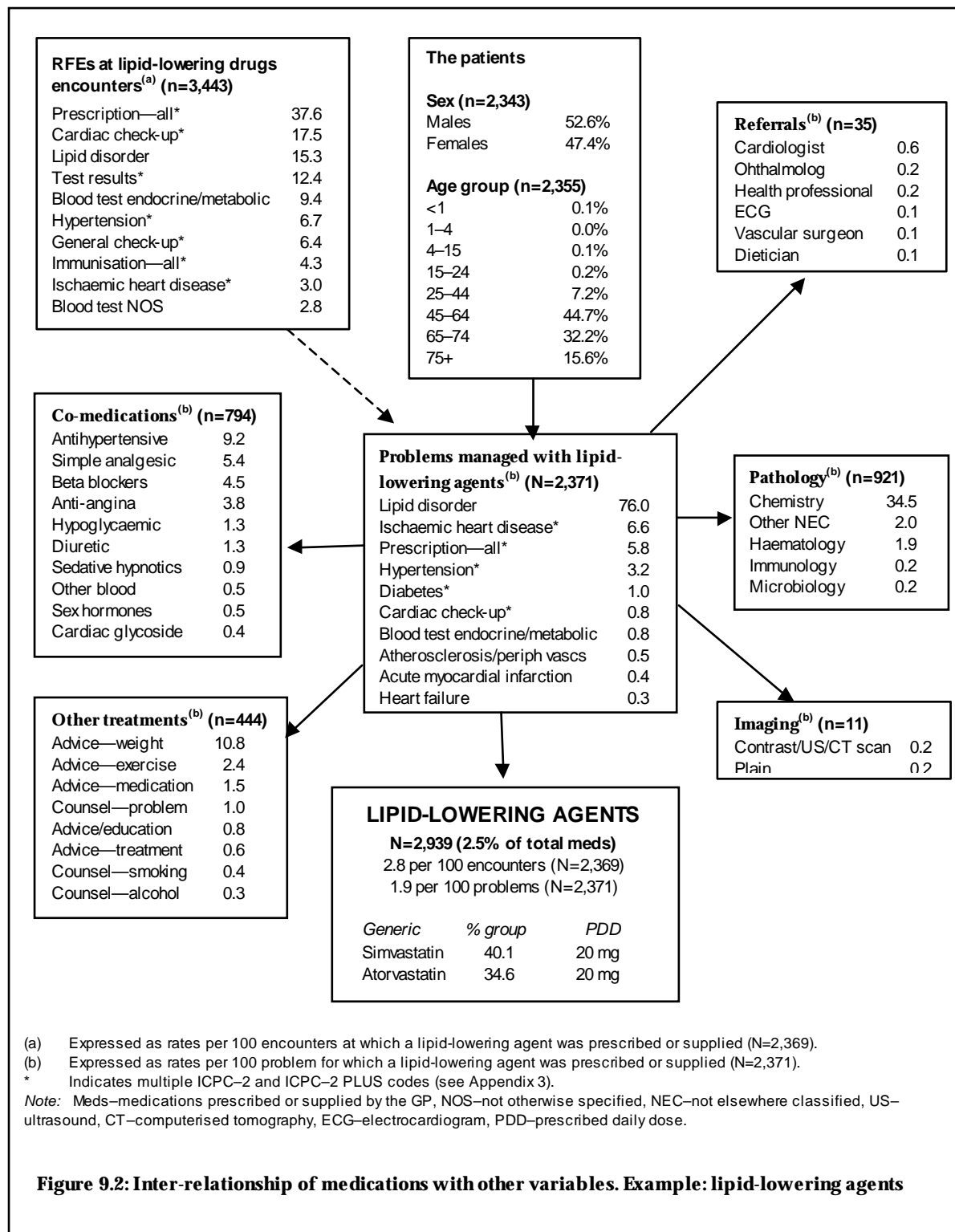


Figure 9.2: Inter-relationship of medications with other variables. Example: lipid-lowering agents

9.2.2 Medication inter-relationship example 2: benzodiazepines

Figure 9.3 shows the relationship between benzodiazepines and other variables.

Rate of prescription or supply

There were 4,263 occasions on which benzodiazepines were recorded by GPs, accounting for 3.7% of all medications recorded. They were given at a rate of 4.1 per 100 total encounters and at a rate of 2.8 per 100 total problems. Temazepam and diazepam were the most common of these.

Prescribed daily dose

Temazepam had a median PDD of 10 mg which falls at the mid-point of the recommended range. Diazepam had a median PDD of 5 mg which is the lowest adult dose suggested in MIMS (MIMS Australia 1999).

Age and sex distribution of patients

Patients between 45 and 64 years of age were the most likely to be prescribed benzodiazepines, accounting for 30.7% of all patients receiving them. Patients in the 25–44 age group were slightly less likely to receive these medications. The sex distribution of the patients was similar to that of the general GP patient population.

Reasons for encounter

The most commonly described patient reason for encounter was a request for prescription, described at a rate of 38.1 per 100 encounters at which benzodiazepines were prescribed or given. Sleep disturbance was also a commonly cited reason, at 19.7 per 100, followed by anxiety at 11.9 per 100 encounters.

Problems managed

Sleep disturbance was the most common problem managed with benzodiazepines, accounting for almost a third of such problems. Anxiety was also common and made up 22.3% of problems.

Other medications prescribed or supplied

A total of 1,672 medications were prescribed or supplied at the same encounter and for the same problem for which benzodiazepines were given. Antidepressants were the most common co-medications, at a rate of 9.7 per 100 of these problems

Other treatments

Other treatments were less frequently utilised for problems managed with benzodiazepines (23.6 per 100 problems) than in the total dataset (31.3 per 100 problems). Psychological counselling was the most frequent non-pharmacological treatment, given at a rate of 9.9 per 100 of these problems.

Referrals, tests and investigation

The patient was referred to other health professionals for these problems at a rate of 3.3 per 100 problems compared with a referral rate of 7.6 in the total data. Pathology was ordered at a rate of 2.8 per 100 problems managed with benzodiazepines, much lower than the overall rate of 18.0. Imaging was also ordered infrequently, at a rate of 1.0 per 100 problems.

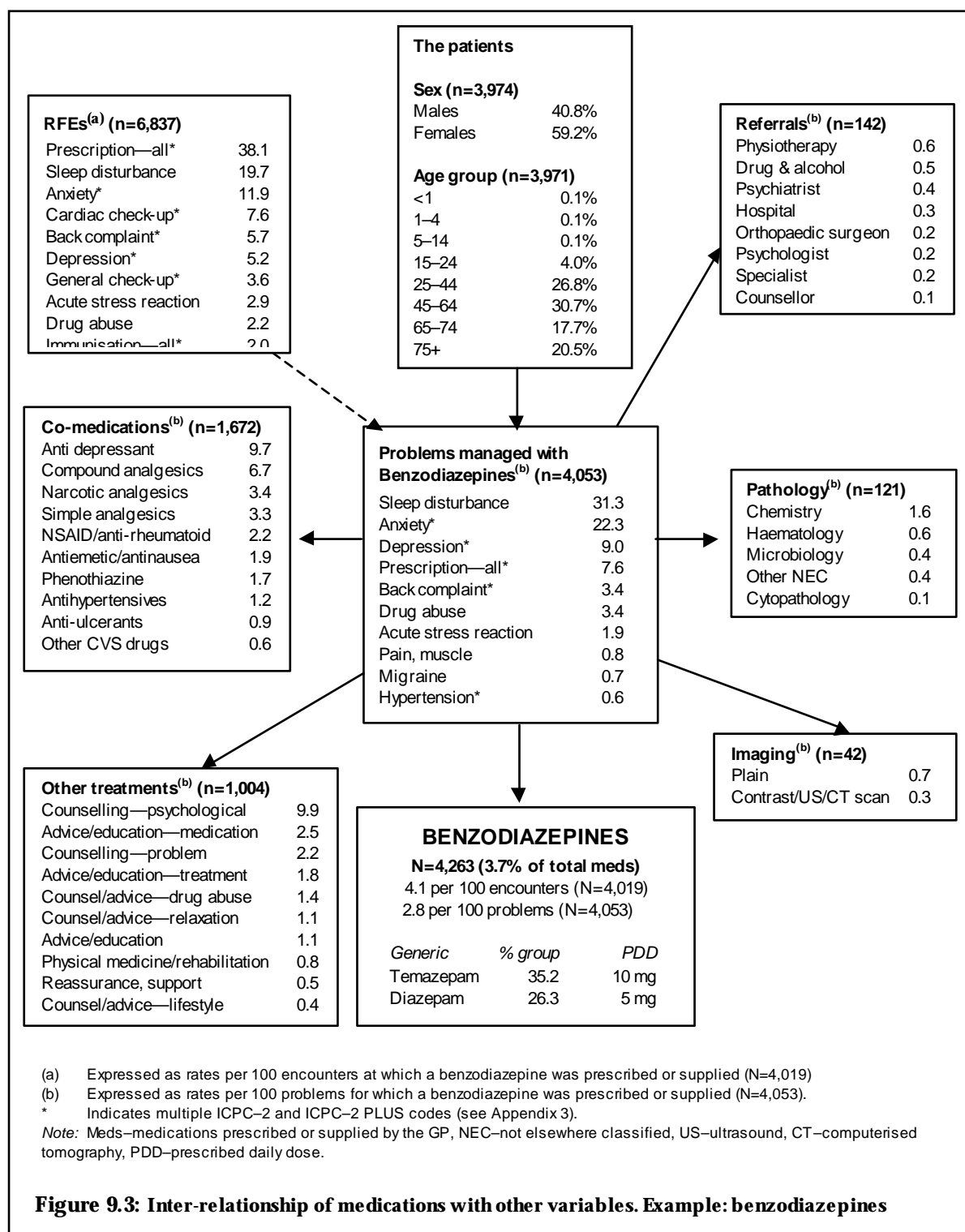


Figure 9.3: Inter-relationship of medications with other variables. Example: benzodiazepines

9.2.3 Medication inter-relationship example 3: antiseecretory agents

Figure 9.4 shows the relationship between antiseecretory medications and other variables.

Rate of prescription or supply

A total of 2,097 antiseecretory medications were recorded by GPs, accounting for 1.8% of all medications recorded. They were given at a rate of 2.0 per 100 total encounters and at a rate of 1.4 per 100 total problems. Ranitidine was the most common antiseecretory medication. Ranitidine had a median PDD of 300mg which accords with the recommended usual dose (MIMS Australia 1999).

Age and sex distribution of patients

Patients between 45 and 64 years of age were most likely to be prescribed antiseecretory medications, accounting for 33.0% of all patients receiving them. Patients in the 65–74 age group were somewhat less likely to receive the medications, (23.3%). The sex distribution of the patients showed a higher proportion of males compared with the general GP patient population.

Reasons for encounter

The most commonly described patient reason for encounter was a request for prescription, described at a rate of 31.5 per 100 encounters at which antiseecretory medications were prescribed or given. Oesophageal disease was the next most common reason (10.4 per 100 encounters). Epigastric pain and abdominal pain were also frequently cited reasons for encounter.

Problems managed

Oesophageal disease was the most common problem managed with an antiseecretory medication, accounting for more than half of such problems. Other problems, which were far less frequent, included peptic ulcers (9%) and dyspepsia (7.6%).

Other medications prescribed or supplied

A total of 504 co-medications were prescribed or supplied for the same problem for which antiseecretory medications were given. Antispasmodics were the most common of these, recorded at a rate of 4.1 per 100 of these problems. NSAID/anti-rheumatoids were the second most frequent, demonstrating a relationship between antiseecretory medications and NSAIDs.

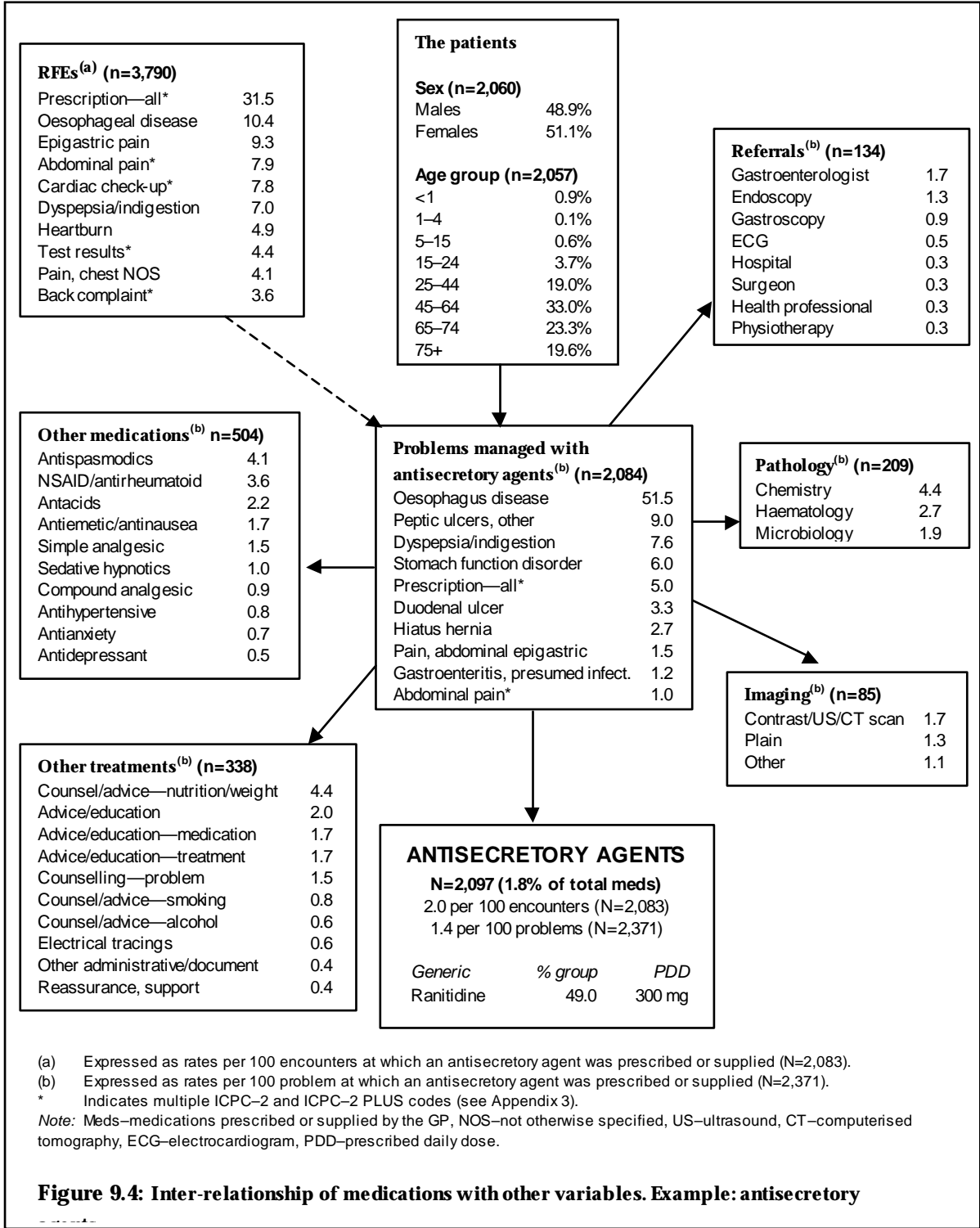
Other treatments

Other treatments were given for problems managed with antiseecretory medications at a rate of 16.1 per 100 problems managed. This is half the rate of other treatments in the total dataset. Counselling nutrition/weight, given at a rate of 4.4 per 100 of these problems, was the most frequent non-pharmacological treatment.

Referrals, tests and investigations

The patient was referred to other services for these problems at a similar rate to the total data (6.4 per 100 problems). As might be expected, the most common referral was to a gastroenterologist. Pathology was ordered at a rate of 10.0 per 100 problems managed with

antisecretory medications. Imaging occurred, at a similar rate to that of the total data, 4.1 per 100 problems managed.



9.3 Prescribed medications

There were 98,371 prescriptions recorded, at a rate of 93.8 per 100 encounters and 63.9 per 100 problems managed. At least one prescription was recorded at 60.0% of encounters and for half (50.5%) the problems managed.

The survey form allowed GPs to record up to four medications for each of four problems. A maximum of 16 medications could therefore be recorded at each encounter.

However, no medications were prescribed at 40.0% of encounters, one medication at 38.4% of encounters, two at 13.9% and three at 5.0%. Four or more medications were prescribed at only 2.7% of encounters (Figure 9.5).

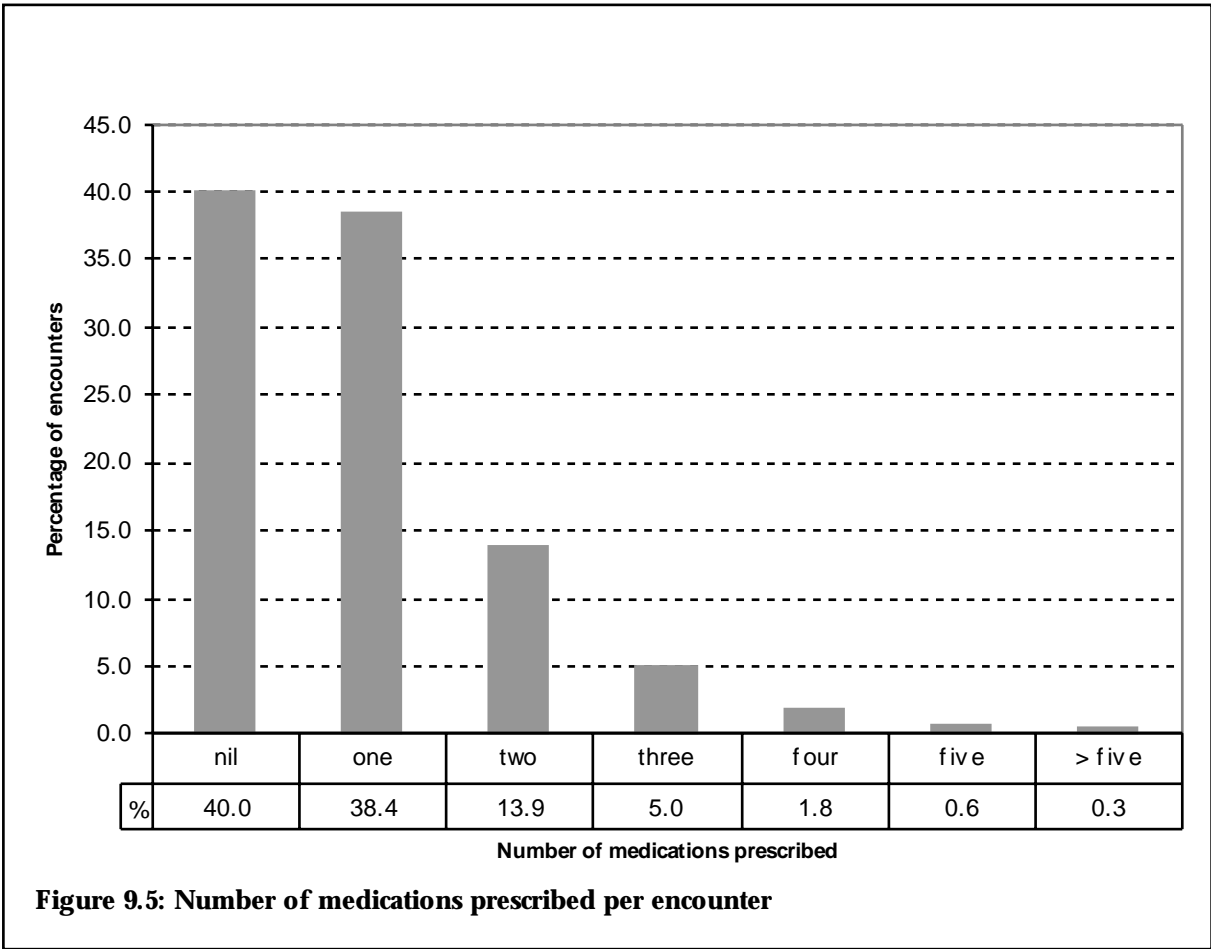
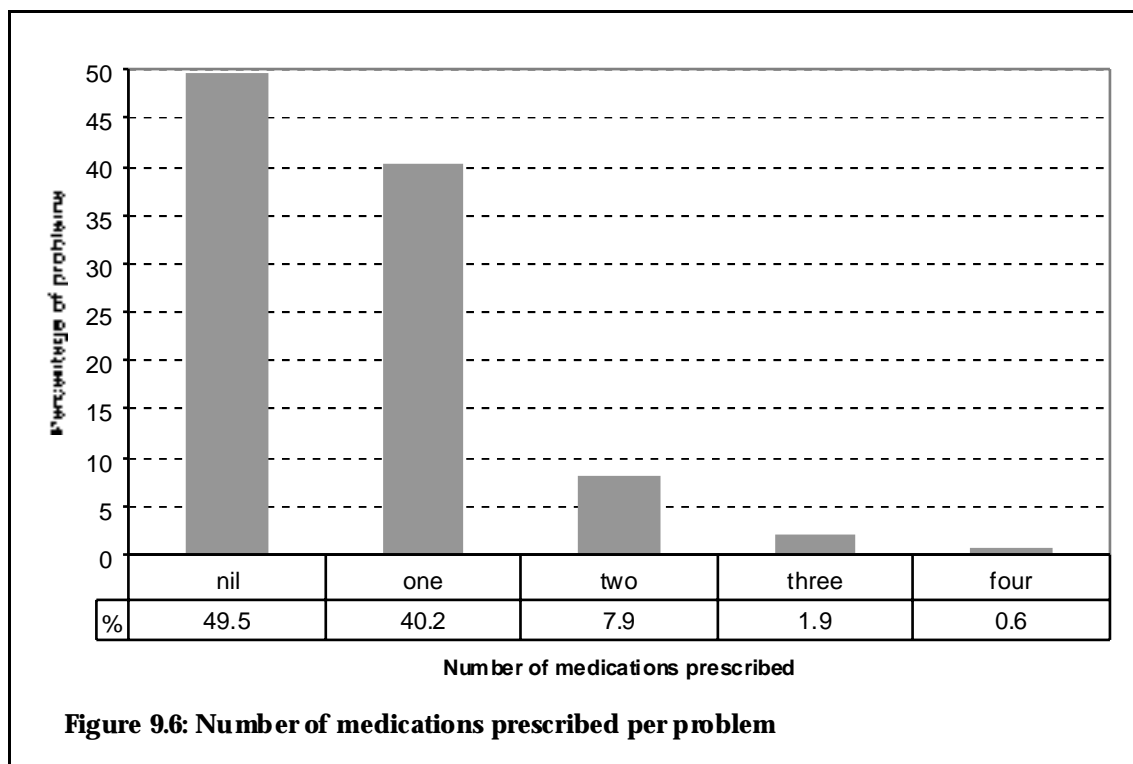


Figure 9.5: Number of medications prescribed per encounter

No prescription was given for almost half (49.5%) of all problems managed, one for 40.2%, two for 7.9% and three or more for only 2.5% (Figure 9.6).



9.3.1 Number of repeats

GPs were also asked to record the number of repeat prescriptions ordered for each prescribed medication. There was a very high level of missing data in this field. For 53,834 prescriptions (54.7%) there was nothing recorded. For the remaining 44,537 prescriptions the distribution of the specified number of repeats (from specified zero to 6+) is provided in Figure 9.7. For almost one-third of these prescriptions the GP specified that no repeats had been prescribed while for one quarter of prescriptions five repeats were ordered. The latter proportion reflects the PBS provision of one month's supply and five repeats for many medications used for chronic conditions such as hypertension. Ordering two repeats was not unusual (16.3%) but ordering three repeats, or six or more repeats, was relatively rare. The level of missing data makes it difficult to reliably extrapolate to the total number of intended prescriptions (i.e. original plus repeats). The extrapolations can be based on two possible assumptions:

- for all missing repeat data the GP intended that no repeats be given (i.e. that the GPs assumed blank=zero), or
- the missing data are random and distributed across all medication types in a similar manner to those for which repeat status was recorded.

The first assumption (missing=zero repeats) would suggest that the total number of original prescriptions plus the repeats ordered by these GPs amounted to approximately 188,200 for the year. Assuming approximately 103 million GP-patient Medicare-paid encounters nationally per year, this extrapolates to about 190 million orders by recognised GPs for medications to be dispensed.

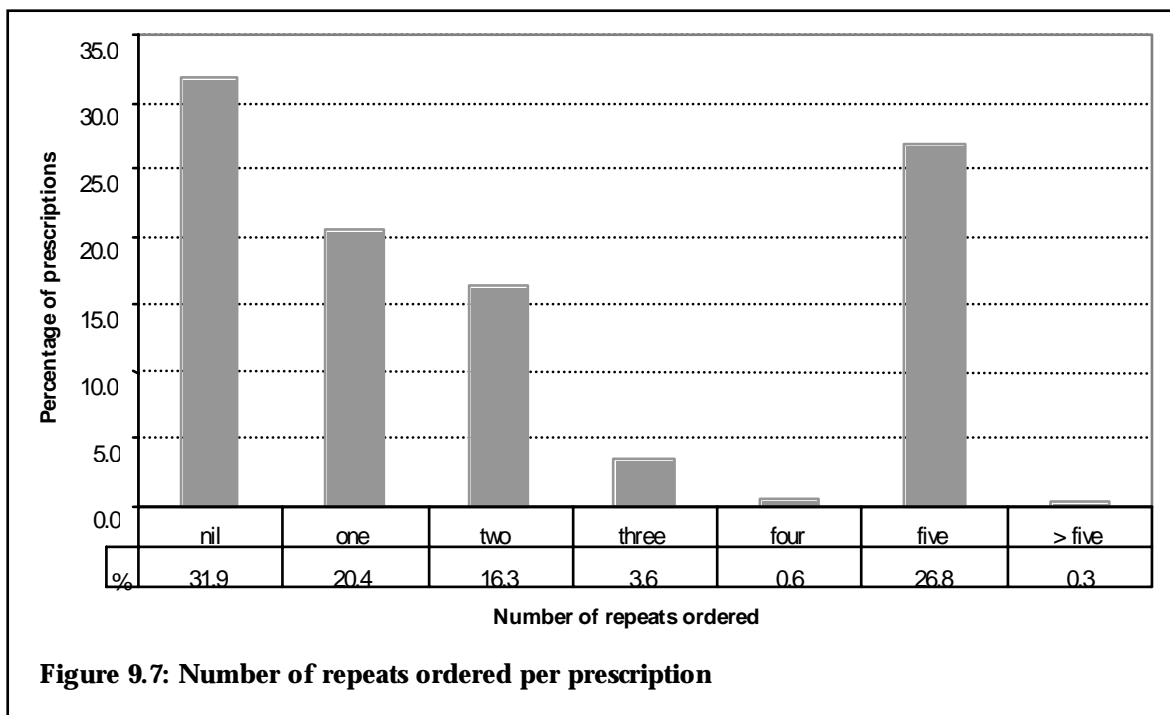
If the missing data are assumed to be random in nature the extrapolation should be based on the pattern of repeats that were recorded. This method would suggest that the

participating GPs intended a total 297,590 medications to be dispensed as a result of these prescriptions. This extrapolates to about 300 million orders by recognised GPs in Australia per year.

The distribution across group and subgroup of medications prescribed where the 'repeat' section was left empty was compared with the distribution for all medications for which the number of repeats was specified. The distributions differed markedly, suggesting that the missing repeats data were not distributed evenly across different types of medications. It could therefore be best assumed that the missing data in some cases means 'no repeats' and in others is truly missing. On this assumption one can only say that the number of orders by recognised GPs for medications to be dispensed would be at least 190 and could be up to 300 million per year across the country.

However in the 1999 calendar year only 123,510,334 dispensed prescriptions from recognised GPs were recorded in the Pharmaceutical Benefits Scheme data (personal communication McManus, DHAC from HIC data). While it could be expected that some prescriptions are not presented for dispensing, the non-redemption rates for prescriptions in overseas studies have varied between 5.2% in the UK (Beardon et al. 1993) and 13% in a more comparable health system in New Zealand (Gardner et al. 1996) These non-redemption rates are not sufficient to explain the difference. The main cause of this huge discrepancy appears to be the lack of recording in the PBS data of medications that fall below the subsidy threshold and the lack of data on private prescriptions. This suggests that PBS data should not be used alone to monitor significant areas of general practice therapeutic management.

The high level of missing repeat data in this second year of BEACH is disappointing. The research team is developing some better examples and more explicit instructions for participating GPs in an attempt to improve the response rate to this question in the coming (fourth) BEACH year.



9.3.2 Age–sex-specific rates of prescribed medications

Age–sex-specific charts show the prescription rate per 100 encounters for all the male or female patients respectively in the age group under consideration. Figure 9.8 shows the well described tendency for the number of prescriptions written at each encounter to rise with advancing age. Figure 9.9, however, demonstrates that the age-based increase almost disappears if the prescription rate is related to problems. This suggests that the increased prescription rate in older patients is largely accounted for by the increased number of health problems to which they are subject. Compared with BEACH 1998, there was a higher rate of prescription both per encounter and per problem managed for infants and young children. In particular, the rates for females aged less than one has risen from 69 to 82 per 100 encounters and from 58 to 69 per 100 problems. For 1–4 year old females, rates rose from 73 to 80 per 100 encounters and from 62 to 69 per 100 problems managed. Conversely, the rate per 100 problems for females older than 75 years dropped from 75 to 70. These differences are descriptive only. They have not been statistically tested and may purely reflect insignificant data variation. For reliable trend analysis a third year of BEACH data are required.

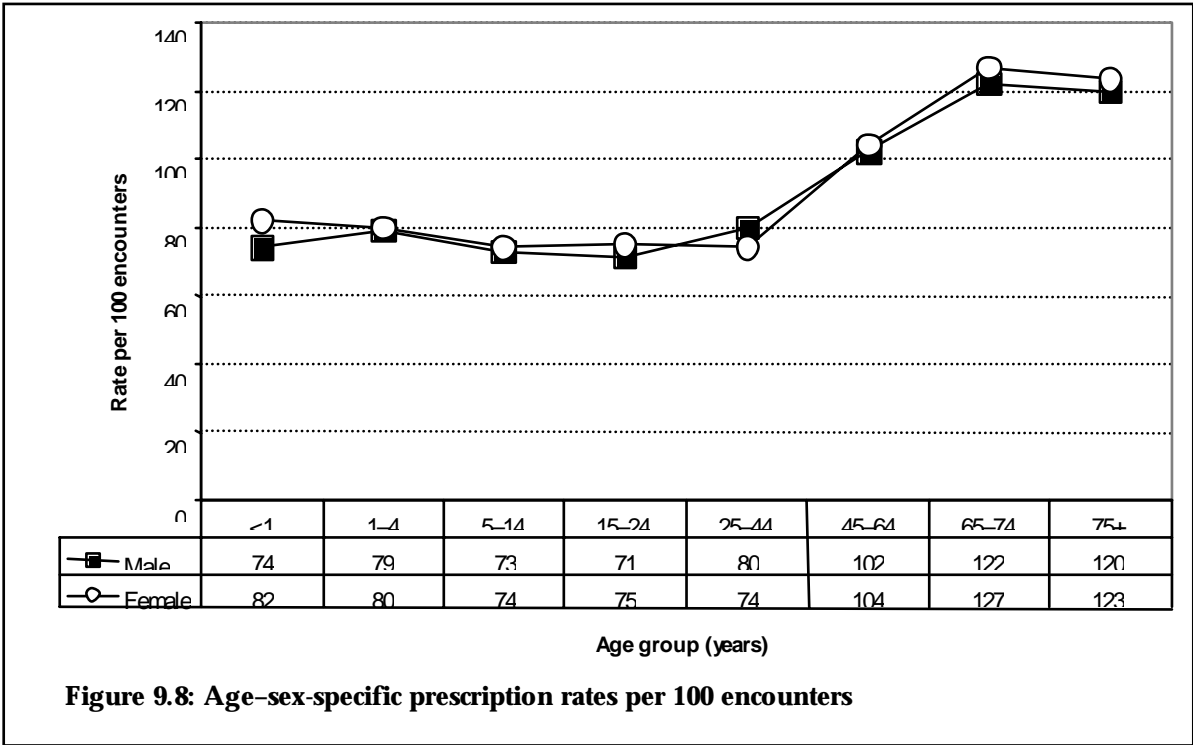


Figure 9.8: Age–sex-specific prescription rates per 100 encounters

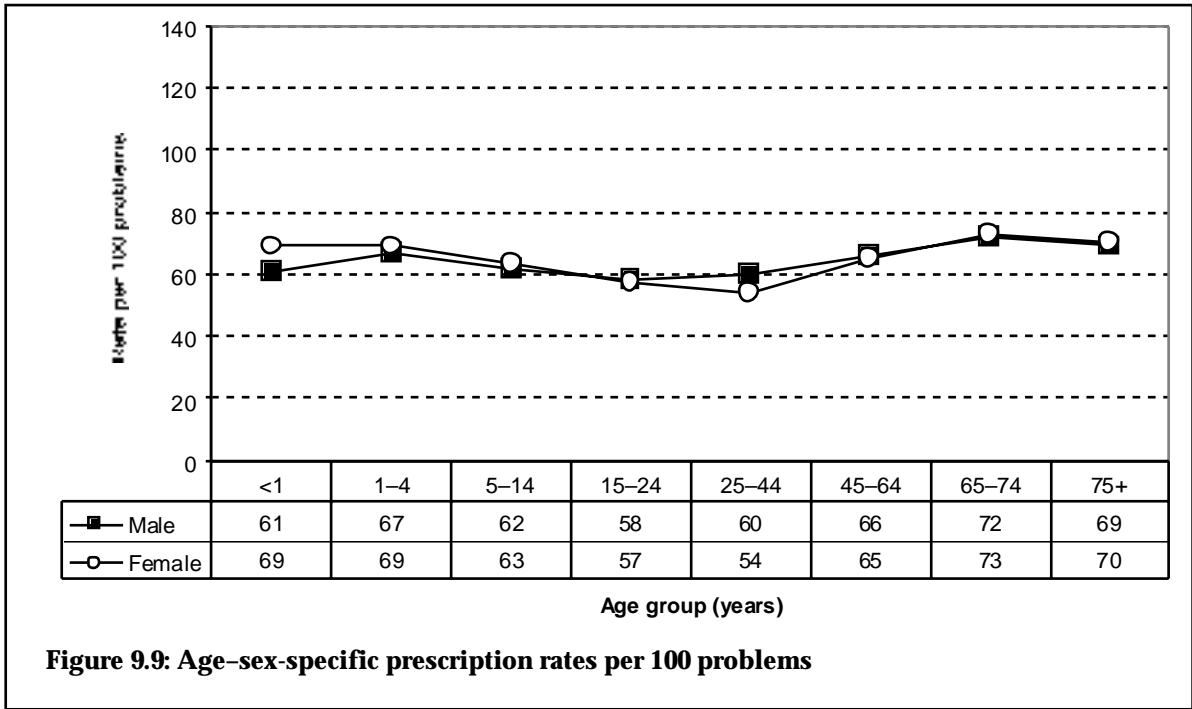


Figure 9.9: Age-sex-specific prescription rates per 100 problems

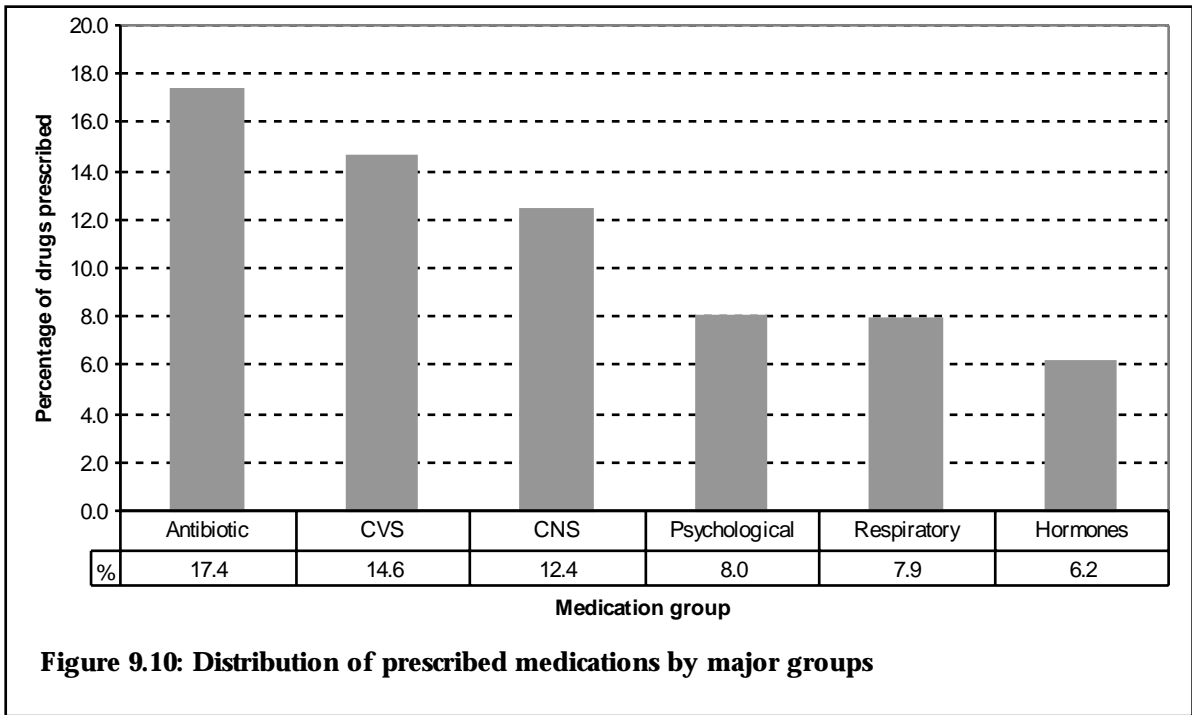


Figure 9.10: Distribution of prescribed medications by major groups

9.3.3 Types of medications prescribed

Medications prescribed by major groups

The distribution of prescribed medications by major groups is presented graphically in Figure 9.10. Antibiotics were the most commonly prescribed group, representing 17.4% of all prescriptions. These were followed by cardiovascular medications (14.6%), central nervous system (12.4%), psychological (7.5%), respiratory medications (7.9%) and hormones (6.2%). Table 9.1 shows the distribution of medications commonly prescribed by group, subgroup and generic name in order of medication group frequency.

In the antibiotic group, broad spectrum penicillins were prescribed at a rate of 4.7 per 100 encounters. Amoxicillin and the amoxicillin/potassium clavulanate were the most frequently prescribed in that group. Cephalosporins were prescribed almost as frequently at a rate of 4.0 per 100 encounters.

Within cardiovascular medications, antihypertensives contributed more than half the prescriptions (7.1 per 100 encounters). Other cardiovascular medications, principally lipid-lowering agents, contributed 2.4 prescriptions per 100 encounters. Beta-blockers were also frequently recorded.

Prescribed central nervous system medications were mainly analgesics (9.3 per 100 encounters) and anti-emetics (1.6). Compound analgesics containing codeine continue to be a frequent choice.

Psychological medications most frequently prescribed were antidepressants, in particular, sertraline, while bronchodilators (3.8) and asthma preventives (2.5) made up the majority of respiratory medications prescribed.

In other groups, vaccines were prescribed at a rate of 4.6, NSAIDS/anti-rheumatoids at a rate of 4.6, topical steroids at a rate of 2.8 and anti-ulcerants at a rate of 2.2 per 100 encounters.

The wide range of medications prescribed reflects the extensive variety of problems managed in general practice.

Table 9.1: Distribution of medications prescribed by group, subgroup, generic medication

Group	Subgroup	Generic	Number	Per cent of scripts	Rate per 100 encs	95% LCI	95% UCI
Antibiotics			17,141	17.4	16.3	15.8	16.9
	Penicillins		1,580	1.6	1.5	1.3	1.7
		Penicillin V/VK	626	0.6	0.6	0.4	0.8
	Broad-spectrum penicillins		4,963	5.0	4.7	4.4	5.1
		Amoxicillin	3,266	3.3	3.1	2.8	3.4
		Amoxicillin/clavulanate	1,690	1.7	1.6	1.4	1.8
	Tetracycline		1,203	1.2	1.1	1.0	1.3
		Doxycycline	971	1.0	0.9	0.7	1.1
	Sulphonamides		498	0.5	0.5	0.2	0.7
		Cotrimoxazole	498	0.5	0.5	0.2	0.7
	Other antibiotics		3,611	3.7	3.4	3.2	3.7
		Roxithromycin	1,886	1.9	1.8	1.6	2.0
		Erythromycin	774	0.8	0.7	0.5	0.9
	Antiviral agents		823	0.8	0.8	0.4	1.2
	Cephalosporins		4,239	4.3	4.0	3.7	4.4
		Cephalexin	2,154	2.2	2.1	1.8	2.3
		Cefaclor monohydrate	1,725	1.8	1.6	1.3	2.0
Cardiovascular			14,378	14.6	13.7	12.9	14.5
	Antihypertensives		7,460	7.6	7.1	6.7	7.6
		Amlodipine	820	0.8	0.8	0.6	0.9
		Perindopril	738	0.7	0.7	0.5	0.9
		Enalapril mal	714	0.7	0.7	0.5	0.9
		Irbesartan	711	0.7	0.7	0.5	0.9
		Indapamide	617	0.6	0.6	0.4	0.8
		Felodipine	541	0.6	0.5	0.3	0.7
	Antiangina		1,380	1.4	1.3	1.1	1.5
	Betablockers		1,896	1.9	1.8	1.6	2.0
		Atenolol	1,085	1.1	1.0	0.8	1.2
		Metoprolol	498	0.5	0.5	0.3	0.7
	Other CVS medications		2,535	2.6	2.4	2.2	2.6
		Simvastatin	951	1.0	0.9	0.7	1.1
		Atorvastatin	820	0.8	0.8	0.6	0.9

(continued)

Table 9.1 (continued): Distribution of medications prescribed by group, subgroup, generic medication

Group	Subgroup	Generic	Number	Per cent of scripts	Rate per 100 encs	95% LCI	95% UCI
Central nervous system			12,159	12.4	11.6	11.0	12.2
	Simple analgesics		5,213	5.3	5.0	4.6	5.4
		Paracetamol	4,248	4.3	4.1	3.7	4.4
		Aspirin	891	0.9	0.8	0.6	1.1
	Narcotic analgesics		1,411	1.4	1.3	0.9	1.8
	Compound analgesics		3,126	3.2	3.0	2.8	3.2
		Paracetamol/codeine	2,529	2.6	2.4	2.2	2.6
	Anticonvulsants		522	0.5	0.5	0.3	0.7
	Anti-emetic/antinausea		1,673	1.7	1.6	1.5	1.7
		Prochlorperazine	805	0.8	0.8	0.6	0.9
		Metoclopramide	793	0.8	0.8	0.6	0.9
Psychological			7,912	8.0	7.5	7.1	8.0
	Sedative hypnotics		2,009	2.0	1.9	1.7	2.1
		Temazepam	1,504	1.5	1.4	1.3	1.6
	Anti-anxiety		2,202	2.2	2.1	1.9	2.3
		Diazepam	1,120	1.1	1.1	0.9	1.3
		Oxazepam	883	0.9	0.8	0.6	1.1
		Phenothiazine	625	0.6	0.6	0.4	0.8
	Antidepressants		3,076	3.1	2.9	2.8	3.1
		Sertraline	734	0.7	0.7	0.5	0.9
Respiratory			7,790	7.9	7.4	6.9	7.9
	Expectorants		575	0.6	0.5	0.2	0.9
	Bronchodilators		3,946	4.0	3.8	3.5	4.1
		Salbutamol	2,499	2.5	2.4	2.2	2.6
		Terbutaline	725	0.7	0.7	0.5	0.9
		Ipratropium inhaled	716	0.7	0.7	0.5	0.9
	Asthma preventives		2,660	2.7	2.5	2.3	2.8
		Budesonide	777	0.8	0.7	0.6	0.9
		Beclomethasone	635	0.6	0.6	0.4	0.8
		Fluticasone propionate	533	0.5	0.5	0.3	0.7

(continued)

Table 9.1 (continued): Distribution of medications prescribed by group, subgroup, generic medication

Group	Subgroup	Generic	Number	Per cent of scripts	Rate per 100 encs	95% LCI	95% UCI
Hormones			6,136	6.2	5.9	5.5	6.2
	Sex hormones		2,164	2.2	2.1	1.9	2.2
		Medroxyprogesterone	547	0.6	0.5	0.4	0.7
	Corticosteroids		1,484	1.5	1.4	1.2	1.6
		Prednisone	530	0.5	0.5	0.2	0.8
		Prednisolone	515	0.5	0.5	0.3	0.7
	Hypoglycaemics		1,901	1.9	1.8	1.5	2.1
		Metformin	740	0.8	0.7	0.5	0.9
	Other hormones		584	0.6	0.6	0.4	0.7
Musculoskeletal			5,977	6.1	5.7	5.4	6.0
	NSAID/anti-rheumatoid		4,807	4.9	4.6	4.3	4.8
		Diclofenac systemic	1,321	1.3	1.3	1.1	1.5
		Naproxen	790	0.8	0.8	0.5	1.0
		Piroxicam oral	606	0.6	0.6	0.3	0.8
		Ibuprofen	591	0.6	0.6	0.3	0.8
Allergy, immune system			5,461	5.6	5.2	4.8	5.6
	Antihistamines		729	0.7	0.7	0.5	0.9
	Vaccines		4,572	4.6	4.4	3.9	4.8
		Influenza virus vaccine	1,575	1.6	1.5	0.9	2.1
Skin			4,833	4.9	4.6	4.4	4.8
	Anti-infection skin		1,040	1.1	1.0	0.8	1.1
	Topical steroid		2,965	3.0	2.8	2.7	3.0
		Betamethasone topical	904	0.9	0.9	0.7	1.0
		Monetasone	672	0.7	0.6	0.5	0.8
		Hydrocortisone topical	543	0.6	0.5	0.4	0.7
	Other skin		804	0.8	0.8	0.6	0.9
Digestive			4,490	4.6	4.3	4.1	4.5
	Anti-ulcerants		2,299	2.3	2.2	2.0	2.4
		Ranitidine	1,029	1.0	1.0	0.8	1.1
	Antidiarrhoeals		560	0.6	0.5	0.4	0.7
Ear, nose topical			2,594	2.6	2.5	2.3	2.6
	Topical otic		1,008	1.0	1.0	0.8	1.1
		Dexamethasone/ Framycetin	524	0.5	0.5	0.3	0.7
	Topical nose		1,584	1.6	1.5	1.3	1.7
		Budesonide topical nasal	958	1.0	0.9	0.8	1.1

(continued)

Table 9.1 (continued): Distribution of medications prescribed by group, subgroup, generic medication

Group	Subgroup	Generic	Number	Per cent of scripts	Rate per 100 encs	95% LCI	95% UCI
Urogenital			2,123	2.2	2.0	1.8	2.2
	Diuretics		1,561	1.6	1.5	1.3	1.7
		Furosemide (Furosemide)	851	0.9	0.8	0.6	1.0
Contraceptives			1,822	1.9	1.7	1.6	1.9
	Oral contraception		1,818	1.8	1.7	1.6	1.9
		Levonorgestrel/ Ethinylestradiol	1,333	1.4	1.3	1.1	1.4
Eye medications			1,794	1.8	1.7	1.6	1.8
	Anti-infectives, eye		1,133	1.2	1.1	1.0	1.2
		Chloramphenicol eye	950	1.0	0.9	0.8	1.0
Blood			1,668	1.7	1.6	1.4	1.7
	Haemopoietic		874	0.9	0.8	0.7	1.0
	Other blood		795	0.8	0.8	0.6	0.9
		Warfarin sodium	728	0.7	0.7	0.5	0.9
Nutrition, metabolism			1,185	1.2	1.1	0.9	1.3
	Minerals/tonics		601	0.6	0.6	0.4	0.7
Miscellaneous			373	0.4	0.4	0.0	0.8
Antineoplastics			348	0.4	0.3	0.1	0.5
Surgical preparations			110	0.1	0.1	0.0	0.7
Diagnostic agents			78	0.1	0.1	0.0	0.4

Note: Scripts—prescriptions, encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval.

Most frequently prescribed generic medications

The most frequently prescribed individual generic medications are listed in Table 9.2. Antibiotics were well represented in BEACH, with five of the top ten medications being from that group. Simple analgesics were very frequently prescribed, probably reflecting their prescription for health care card holders for whom prescription is a cheaper option than over-the-counter purchase. Influenza vaccine represented 1.6% of all prescriptions, presumably reflecting a patient and GP response to public health campaigns to increase immunisation levels in at-risk groups.

Table 9.2: Most frequently prescribed medications

Generic medication	Number	Per cent of scripts	Rate per 100 encs	95% LCI	95% UCI
Paracetamol	4,248	4.3	4.1	3.7	4.4
Amoxicillin	3,266	3.3	3.1	2.8	3.4
Paracetamol/codeine	2,529	2.6	2.4	2.2	2.6
Salbutamol	2,499	2.5	2.4	2.2	2.6
Cephalexin	2,154	2.2	2.1	1.8	2.3
Roxithromycin	1,886	1.9	1.8	1.6	2.0
Cefaclor monohydrate	1,725	1.8	1.6	1.3	2.0
Amoxicillin/potassium clavulanate	1,690	1.7	1.6	1.4	1.8
Influenza virus vaccine	1,575	1.6	1.5	0.9	2.1
Temazepam	1,504	1.5	1.4	1.3	1.6
Levonorgestrel/ethinylloestradiol	1,333	1.4	1.3	1.1	1.4
Diclofenac sodium systemic	1,321	1.3	1.3	1.1	1.5
Diazepam	1,120	1.1	1.1	0.9	1.3
Atenolol	1,085	1.1	1.0	0.8	1.2
Ranitidine	1,029	1.0	1.0	0.8	1.1
Doxycycline hcl	971	1.0	0.9	0.7	1.1
Budesonide topical nasal	958	1.0	0.9	0.8	1.1
Simvastatin	951	1.0	0.9	0.7	1.1
Chloramphenicol eye	950	1.0	0.9	0.8	1.0
Betamethasone topical	904	0.9	0.9	0.7	1.0
Aspirin	891	0.9	0.8	0.6	1.1
Oxazepam	883	0.9	0.8	0.6	1.1
Fruzemide (Furosemide)	851	0.9	0.8	0.6	1.0
Amlodipine	820	0.8	0.8	0.6	0.9
Atorvastatin	820	0.8	0.8	0.6	0.9
Prochlorperazine	805	0.8	0.8	0.6	0.9
Metoclopramide	793	0.8	0.8	0.6	0.9
Naproxen	790	0.8	0.8	0.5	1.0
Budesonide	777	0.8	0.7	0.6	0.9
Erythromycin	774	0.8	0.7	0.5	0.9
<i>Subtotal</i>	<i>41,902</i>	<i>42.5</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total prescribed medications	98,371	100.0	93.8	91.5	96.2

Note: Scripts—prescriptions, encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval.

Distribution of medications prescribed by ATC medication group

Table 9.3 shows the distribution of prescribed medications using the WHO ATC classification (WHO 1997) as an alternative method of grouping. This allows comparison with other data classified in ATC such as those produced by the HIC.

With this classification analgesics were the most frequently prescribed group, followed by penicillins and NSAIDs. Other beta-lactam antibacterials, principally cephalosporins, were fourth, followed by inhaled adrenergics and ACE inhibitors.

Table 9.3: Distribution of medications prescribed by ATC medication group

ATC medication group	Number	Per cent of scripts	Rate per 100 encs	95% LCI	95% UCI
Other analgesics & antipyretics	7,904	8.0	7.5	7.1	8.0
Beta-lactam antibacterials: penicillins	6,492	6.6	6.2	5.8	6.6
Anti-inflammatory/antirheumatic products, non-steroids	4,753	4.8	4.5	4.3	4.8
Other beta-lactam antibacterials	4,239	4.3	4.0	3.7	4.4
Adrenergics inhalants	3,474	3.5	3.3	3.1	3.6
ACE inhibitors plain	3,454	3.5	3.3	3.1	3.5
Other anti-asthmatics inhalants	3,176	3.2	3.0	2.8	3.3
Antidepressants	3,076	3.1	2.9	2.8	3.1
Macrolides & lincosamides	2,949	3.0	2.8	2.6	3.0
Viral vaccines	2,728	2.8	2.6	2.2	3.0
Corticosteroids plain	2,372	2.4	2.3	2.1	2.4
Cholesterol & triglyceride reducers	2,302	2.3	2.2	2.0	2.4
Medications for treatment of peptic ulcer	2,299	2.3	2.2	2.0	2.4
Anxiolytics	2,205	2.2	2.1	1.9	2.3
Hypnotics & sedatives	1,998	2.0	1.9	1.7	2.1
Beta-blocking agents plain	1,983	2.0	1.9	1.7	2.1
Hormonal contraceptives for systemic use	1,946	2.0	1.9	1.7	2.0
Opioids	1,819	1.8	1.7	1.3	2.1
Selective calcium channel blockers with mainly vascular effects	1,713	1.7	1.6	1.4	1.8
Decongestants & other nasal preparations for topical use	1,530	1.6	1.5	1.3	1.6
Oral blood glucose lowering medications	1,523	1.5	1.5	1.2	1.7
Corticosteroids for systemic use plain	1,472	1.5	1.4	1.2	1.6
Antipsychotics	1,430	1.5	1.4	1.2	1.5
Anti-infectives	1,277	1.3	1.2	1.1	1.3
Tetracyclines	1,203	1.2	1.1	1.0	1.3
Propulsives	1,065	1.1	1.0	0.9	1.2
Estrogens	1,033	1.1	1.0	0.9	1.1
Antihistamines for systemic use	966	1.0	0.9	0.7	1.2
Vasodilators used in cardiac disease	941	1.0	0.9	0.7	1.1
Sulfonamides & trimethoprim	910	0.9	0.9	0.7	1.0
<i>Subtotal</i>	<i>74,232</i>	<i>75.5</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total medications prescribed	98,372	100.0	93.8	91.5	96.2

Note: Encs–encounters, Scripts–prescriptions, UCI–upper confidence interval, LCI–lower confidence interval.

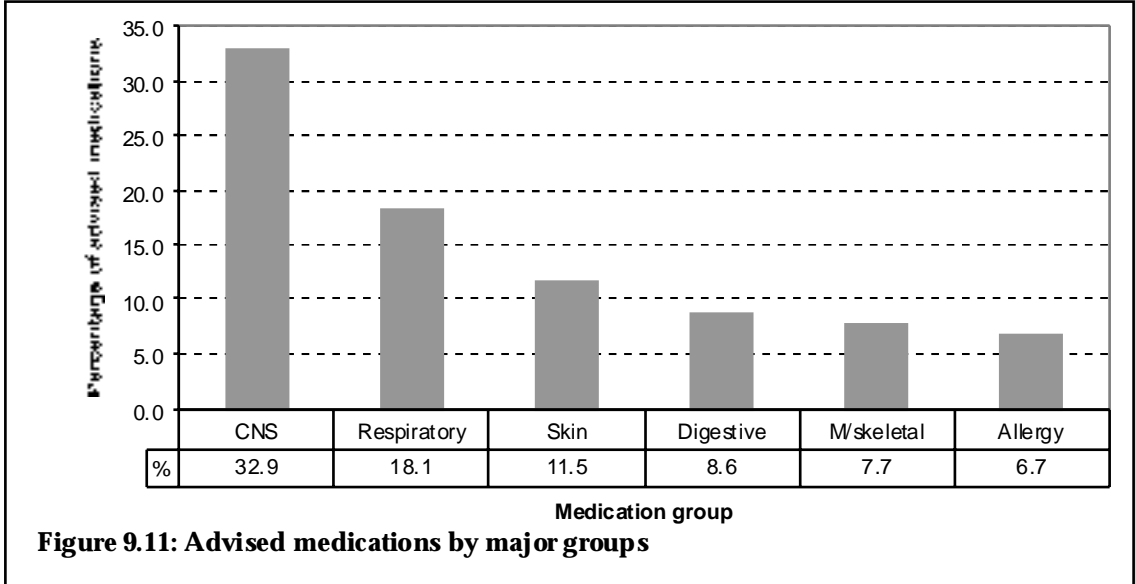
9.4 Medications advised for over-the-counter purchase

The total number of medications recorded as recommended by the GP for over-the-counter purchase was 9,842, at a rate of 9.4 per 100 encounters and 6.4 per 100 problems managed. At least one medication was recorded as advised at 8.3% of encounters and for 5.8% of problems.

9.4.1 Types of medications advised

Medications advised by major groups

Central nervous system medications predominated in those advised to patients, with almost a third of the advised medications being in this group. They were followed by respiratory medications and those in the skin and digestive medication groups (Figure 9.11).



The distribution of the most frequently advised medications by generic name shows that paracetamol was the most common (26.4% of all advised over-the-counter medications), and together with the paracetamol/codeine combination accounted for 29.9% of all medications advised (Table 9.4). While other medications were advised in relatively small numbers, the range of medications was wide. Most frequent of these included analgesics, cold relief and antihistamines.

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

Generic medication	Number	Per cent of OTCs	Rate per 100 encs	95% LCI	95% UCI
Paracetamol	2,601	26.4	2.5	2.0	3.0
Paracetamol/codeine	344	3.5	0.3	0.0	0.8
Ibuprofen	313	3.2	0.3	0.0	0.7
Pseudoephedrine/paracetamol	287	2.9	0.3	0.0	1.1
Chlorpheniramine/phenylephrine	266	2.7	0.3	0.0	0.7
Loratadine	265	2.7	0.3	0.0	0.6
Diclofenac diethyl topical	231	2.3	0.2	0.0	0.5
Clotrimazole topical	220	2.2	0.2	0.0	0.4
Aspirin	172	1.8	0.2	0.0	0.6
Brompheniramine/pseudoephedrine	172	1.8	0.2	0.0	0.6
Pseudoephedrine	170	1.7	0.2	0.0	0.6
Sodium/potassium/citric/glucose	147	1.5	0.1	0.0	0.5
Pholcodine	142	1.4	0.1	0.0	0.5
Fexofenadine	132	1.3	0.1	0.0	0.9
Clotrimazole vaginal	121	1.2	0.1	0.0	0.4
Chlorpheniramine/pseudoephedrine	101	1.0	0.1	0.0	0.7
Povidone—iodine topical	96	1.0	0.1	0.0	0.4
<i>Subtotal</i>	<i>5,780</i>	<i>58.7</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total medications advised	9,842	100.0	9.4	8.6	10.2

Note: Encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval.

9.5 Medications supplied by general practitioners

General practitioners supplied their patients with a total of 7,218 medications in this study, at a rate of 6.9 medications per 100 encounters and 4.7 per 100 problems. At least one medication was supplied at 5.1% of encounters and for 3.7% of problems.

9.5.1 Types of medications supplied by GPs

Medications supplied by GPs by major groups

The distribution of supplied medications by medication group showed that allergy/immune medications constituted almost 42% of all medications supplied. This result probably reflects the direct GP supply of childhood vaccines in most parts of Australia. Cardiovascular and central nervous system medications made up 8.8% and 7.2% of GP-supplied medications (Figure 9.12).

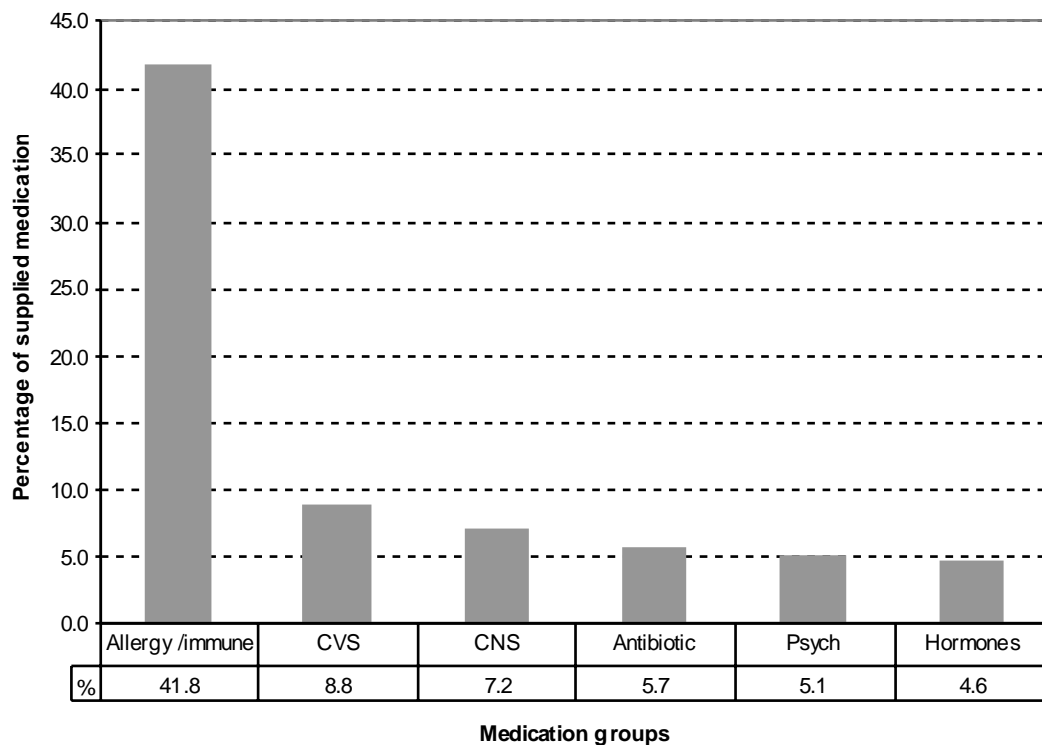


Figure 9.12: GP-supplied medications by major groups

Of the top ten most common medications supplied by the GP eight were vaccines, principally influenza virus vaccine which accounted for over 10% of GP-supplied medications (Table 9.5). There was a wide spread of other medications supplied, mostly prescription medications, presumably from manufacturers' sample packs. They reflect a range of medications which may be needed acutely in a situation (such as out of pharmacy hours) where prescription medications cannot be obtained from other sources or where cost is an issue. Some of the most commonly supplied of these were the anti-emetic, metoclopramide, the antidepressant, sertraline and the asthma medication, salbutamol.

Table 9.5: Medications most frequently supplied by GPs

Generic medication	Number	Per cent of GP-supplied	Rate per 100 encs	95% LCI	95% UCI
Influenza virus vaccine	751	10.4	0.7	0.0	1.7
Polio Sabin oral vaccine	407	5.6	0.4	0.1	0.7
Triple antigen (Diphtheria/Pertussis/Tetanus vaccine)	366	5.1	0.3	0.1	0.6
Haemophilus influenzae type b vaccine	338	4.7	0.3	0.1	0.6
ADT/CDT (Diphtheria/Tetanus) vaccine	290	4.0	0.3	0.0	0.5
Hepatitis B vaccine	182	2.5	0.2	0.0	0.6
Mumps/measles/rubella vaccine	177	2.5	0.2	0.0	0.5
Metoclopramide	112	1.5	0.1	0.0	0.4
Tetanus toxoid vaccine	94	1.3	0.1	0.0	0.5
Sertraline	90	1.2	0.1	0.0	0.4
Salbutamol	86	1.2	0.1	0.0	0.7
Levonorgestrel/ethinyloestradiol	80	1.1	0.1	0.0	0.5
Prochlorperazine	77	1.1	0.1	0.0	0.5
Piroxicam oral	75	1.0	0.1	0.0	0.7
Pneumococcal vaccine	74	1.0	0.1	0.0	1.4
Paracetamol	71	1.0	0.1	0.0	0.8
Amoxicillin	66	0.9	0.1	0.0	1.7
Pethidine hcl inject/tab	64	0.9	0.1	0.0	0.4
Hepatitis A and B vaccine	62	0.9	0.1	0.0	0.7
Paracetamol/codeine	61	0.9	0.1	0.0	0.8
Hepatitis A vaccine	60	0.8	0.1	0.0	0.8
Celecoxib	57	0.8	0.1	0.0	0.7
Irbesartan	56	0.8	0.1	0.0	0.5
Roxithromycin	55	0.8	0.1	0.0	0.9
Monetasone	55	0.8	0.1	0.0	0.4
Vitamin B12 (cyanocobalamin)	54	0.7	0.1	0.0	0.6
Methylprednisolone	51	0.7	0.0	0.0	0.4
Paroxetine	47	0.7	0.0	0.0	0.8
Betamethasone	47	0.6	0.0	0.0	0.5
Diclofenac sodium systemic	45	0.6	0.0	0.0	1.0
<i>Subtotal</i>	<i>4050</i>	<i>55.1</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total medications supplied	7,024	100.0	6.9	5.8	7.9

Note: Encs=encounters, UCI=upper confidence interval, LCI=lower confidence interval.

10 Non-pharmacological management

For each problem managed, GPs could record up to two non-pharmacological treatments provided at the encounter. These were divided into two categories: clinical treatments, the majority of which were advice and counselling, and procedural treatments, which encompassed all procedures carried out by general practitioners (e.g. removal of sutures, application/removal of plaster). Observations of the patient such as measurements of blood pressure, regarded as routine clinical measurements, were not included in the data collection program.

At least one non-pharmacological treatment was provided at over one-third of all encounters. Overall 48,194 non-pharmacological treatments were recorded, a rate of 46 per 100 encounters, and 31 per 100 problems managed. These results are similar to those reported in the annual report for general practice activity, 1998–1999 (Britt et al. 1999c). Clinical treatments (22.8 per 100 problems, 95% CI: 21.7–23.9) were provided by GPs significantly more often than procedural treatments (8.5 per 100 problems, 95% CI: 8.1–8.9) (Table 10.1).

Table 10.1: Non-pharmacological treatments—summary table

	Number	Rate per 100 encs ^(a)	95% LCI	95% UCI	Rate per 100 problems ^(a)	95% LCI	95% UCI
At least one non-pharmacological treatment	37,957	36.2	35	37.4	24.7	23.9	25.5
Non-pharmacological treatments	48,194	46.0	44.1	47.8	31.3	30.1	32.5
Clinical treatments	35,102	33.5	31.8	35.2	22.8	21.7	23.9
Procedural treatments	13,092	12.5	11.9	13.0	8.5	8.1	8.9

(a) Figures do not total 100.0 as more than one treatment can be described at each encounter and for each problem.

Note: Encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval.

10.1 Clinical treatments

10.1.1 Number of clinical treatments at encounter

There were 35,102 clinical treatments provided, at a rate of 33.5 per 100 encounters (Table 10.1). Types of clinical treatments include general and specific advice, counselling or education, family planning and administrative processes related to problem management. Appendix 4 lists all treatments classified as ‘clinical’.

10.1.2 Most frequent clinical treatments

Advice or education pertaining to the management of the patient’s problem was the most frequent clinical treatment provided by GPs, accounting for 13.4% of all non-pharmacological treatments, and occurring at a rate of 6.2 per 100 encounters.

General/unspecified advice/education and advice about weight and nutrition were both provided at 4.2 per 100 encounters, counselling about the problem being managed (3.4 per 100 encounters) and advice/education concerning medication (2.9 per 100 encounters) were also provided frequently. Table 10.2 lists a range of clinical treatments provided in order of decreasing frequency. These treatments relate to various aspects of health such as medication and alcohol use, smoking, exercise, lifestyle, occupational and relationship issues.

Table 10.2: Most frequent clinical treatments

Treatment*	Number	Per cent of non-pharmacological treatments	Rate per 100 encs ^(a) (N=104,856)	95% LCI	95% UCI
Advice/education–treatment*	6,460	13.4	6.2	5.5	6.8
Advice/education*	4,440	9.2	4.2	3.6	4.9
Counsel/advice–nutrition/weight*	4,423	9.2	4.2	3.8	4.6
Counselling–problem*	3,607	7.5	3.4	2.8	4.1
Advice/education–medication*	2,995	6.2	2.9	2.5	3.2
Counselling–psychological*	2,716	5.6	2.6	2.3	2.9
Counsel/advice–exercise*	1,714	3.6	1.6	1.3	2.0
Reassurance, support	1,654	3.4	1.6	1.2	2.0
Other admin/documentation*	1,087	2.3	1.0	0.8	1.2
Counsel/advice–smoking*	764	1.6	0.7	0.4	1.0
Sickness certificate	647	1.3	0.6	0.3	0.9
Counsel/advice–health/body*	615	1.3	0.6	0.0	1.2
Observe/wait*	586	1.2	0.6	0.2	0.9
Counsel/advice–relationship*	401	0.8	0.4	0.2	0.6
Counsel/advice–drug abuse*	391	0.8	0.4	0.0	2.2
Counsel/advice–alcohol*	380	0.8	0.4	0.1	0.6
Counsel/advice–prevention*	353	0.7	0.3	0.0	0.8
Counsel/advice–relaxation*	340	0.7	0.3	0.1	0.6
Family planning*	332	0.7	0.3	0.1	0.5
Counsel/advice–lifestyle*	322	0.7	0.3	0.0	0.7
<i>Subtotal: most frequent clinical treatments</i>	<i>34,227</i>	<i>71.0</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total clinical treatments	35,102	72.8	33.5	31.8	35.2
Total non-pharmacological treatments	48,194	100.0	46.0	44.1	47.8

(a) Figures do not total 100.0 as more than one treatment can be recorded at each encounter.

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

Note: Encs–encounters; UCI–upper confidence interval, LCI–lower confidence interval.

10.1.3 Problems managed with clinical treatments

A total of 31,885 problems included a clinical treatment as part of their management. The ten most common accounted for over one-quarter (28.5%) of all problems for which a clinical treatment was provided. The problem most often managed with a clinical treatment was depression (5.3% of problems managed with a clinical treatment), followed by URTI (4.6%), hypertension (3.5%), diabetes and anxiety (2.6%) (Table 10.3).

Table 10.3: The ten most common problems managed with a clinical treatment

Problem managed	Number	% probs managed with a clinical treatment	Rate per 100 encs ^(a) (N=104,856)	95% LCI	95% UCI
Depression*	1,693	5.3	1.6	1.4	1.8
Upper respiratory infection, acute	1,460	4.6	1.4	1.1	1.7
Hypertension*	1,120	3.5	1.1	0.8	1.3
Diabetes (all)*	834	2.6	0.8	0.6	1.0
Anxiety*	827	2.6	0.8	0.6	1.0
Lipid disorder	811	2.5	0.8	0.6	1.0
Back complaint*	636	2.0	0.6	0.4	0.8
Asthma	625	2.0	0.6	0.3	0.8
Sprain/strain*	549	1.7	0.5	0.3	0.7
Gastroenteritis, presumed infection	546	1.7	0.5	0.3	0.8
<i>Subtotal: top ten probs managed with clinical treatment</i>	<i>9,102</i>	<i>28.5</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total problems managed with a clinical treatment	31,885	100.0	30.4	28.9	31.9

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

Note: Probs—problems, Encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval.

10.1.4 The inter-relationship of a clinical treatment with other variables. Example: counselling and advice for smoking

A clinical treatment of counselling/advice for smoking was assigned when the GP recorded counselling, advice or education about smoking. This group was the tenth most frequent clinical treatment provided, accounting for 1.6% of all clinical treatments (Table 10.2) and was recorded at 756 encounters. This treatment was given for 764 problems managed at these encounters. About half the patients were female (51.1%), and this advice was most often given to patients aged 25–44 years (40.3%) or 45–64 years (31.2%) (Figure 10.1).

Rates for RFEs are presented as a rate per 100 encounters where counselling/advice for smoking occurred, while problems managed, prescriptions, other treatments, pathology and imaging, and referrals are presented as rates per 100 problems managed.

Reasons for encounter

A total of 1,298 reasons for encounter were described at a rate of 172.0 per 100 encounters by patients who received smoking advice or education. This is notably higher than that of the total dataset (148.5).

The most commonly reported RFE was a cough (19.7 per 100 encounters where counsel/advice for smoking was given), a need for a prescription (8.8), cardiac check-up

(7.0) and tobacco abuse (7.0). That is, at only 7 per 100 encounters at which counselling/advice about smoking was provided by the GP, the smoking habit was one of the patient's reasons for consulting the GP.

Problems managed

Based on the assumption that the majority of patients who received advice or counselling for smoking were current smokers, the most frequent problems managed for these patients appear to reflect a range of health implications that are commonly associated with smoking, particularly problems related to the respiratory and cardiovascular systems (Figure 10.1).

Almost one in five of the problems for which counselling/advice for smoking was given were labelled as tobacco abuse by the GP (19.2 per 100 problems). The following four most frequent problems were respiratory related: acute bronchitis/bronchiolitis (13.9 per 100 problems), chronic obstructive pulmonary disease (6.5 per 100 problems), asthma (6.0) and URTI (5.3). Oral contraception was also a common problem (grouped label see Appendix 3) for which smoking counselling or advice was provided. This is not surprising given that one of the contraindications to oral contraceptive use is smoking.

Prescriptions

Pharmacological treatments given together with smoking counselling/advice were varied, reflecting the range of problems under management. Overall, prescribing rates for problems concurrently managed with smoking counselling/advice were greater (88.6) than for all problems managed (75.0). Salbutamol was most frequently prescribed (7.2 per 100 problems managed), followed by roxithromycin (4.8), levonorgestrel/ethinyloestradiol (4.8) and nicotine (4.6). Respiratory medications ipratropium inhalant (3.3), terbutaline (3.0) and budesonide (2.6) also appeared in the most frequent medications, reflecting the number of respiratory problems under management.

Other treatments

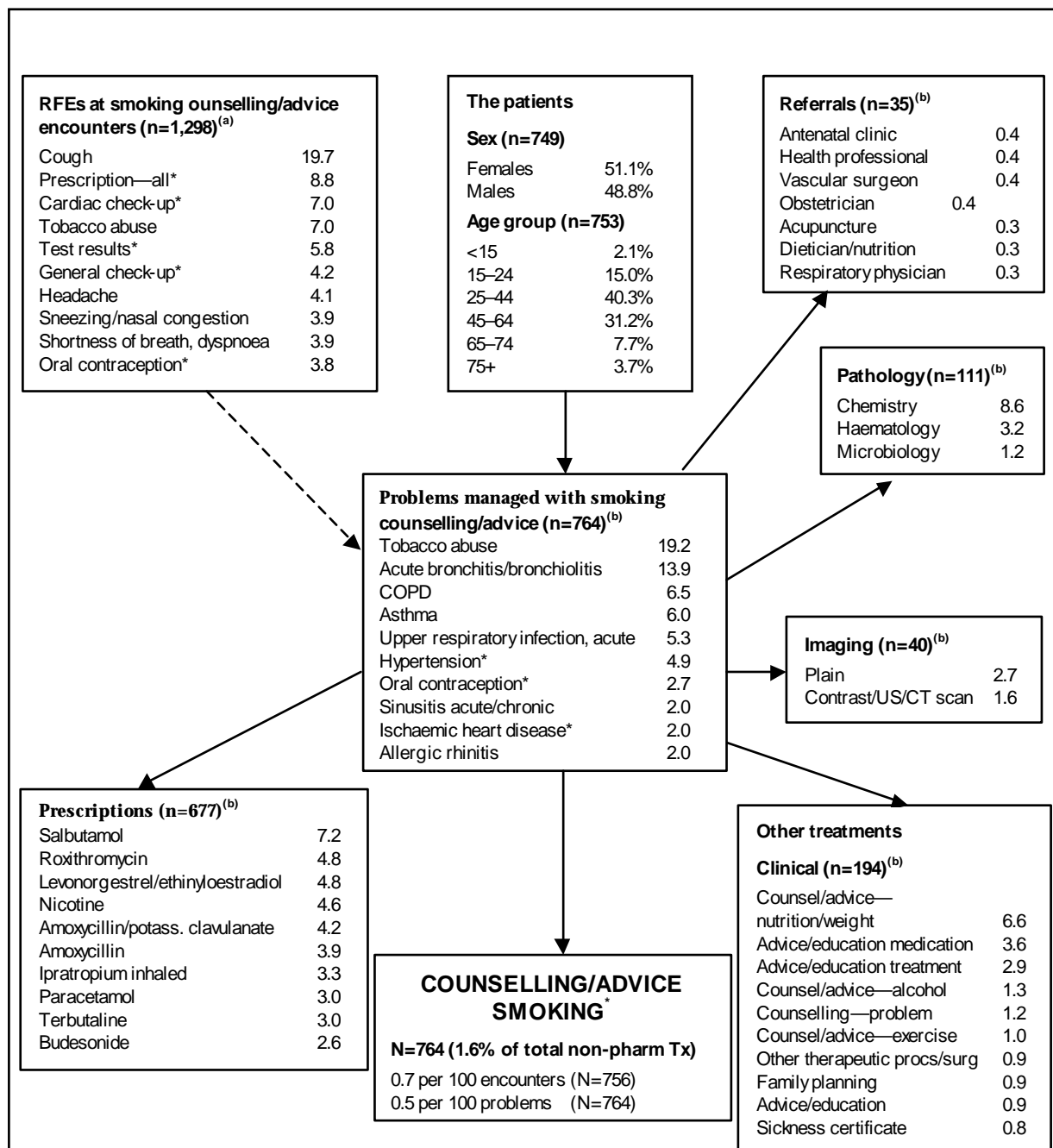
In addition to the provision of advice and counselling to patients regarding smoking, some patients at these encounters were advised/counselled about their weight/diet (6.6 per 100 encounters), medication (3.6 per 100 encounters), and the treatment of their problem (2.9).

Referrals, tests and investigations

Referrals for patients receiving advice/counselling for smoking (4.6 per 100 problems) were less frequent than the average for the total dataset (11.2 per 100 problems). The referrals recorded were to a variety of health specialists and professionals. The relatively low referral rates do not indicate a strong association between smoking advice/counselling and a particular type of referral but rather reflect the range of problems managed.

Pathology was ordered at a rate of 14.5 per 100 problems managed with smoking advice/counselling. This was higher than the pathology rate for the total dataset (10.4 per 100 problems). The most frequent type of pathology ordered was chemistry (8.6 per 100 problems at which smoking/advice counselling was provided), followed by haematology (3.2 per 100 problems).

Imaging was ordered at a rate of 5.2 per 100 problems managed with smoking advice/counselling. This rate was slightly higher than in the total dataset (4.7 per 100 problems). The most common imaging test ordered was a plain x-ray (2.7 per 100).



(a) Expressed as rates per 100 encounters at which counselling and advice for smoking was given (N=756).

(b) Expressed as rates per 100 problems at which counselling and advice for smoking was given (N=764).

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

Note: Encs—encounters, non-pharm Tx—non-pharmacological treatments, COPD—chronic obstructive pulmonary disease, US—ultrasound, CT—computerised tomography.

Figure 10.1: Inter-relationship of counselling with other variables. Example: counselling and advice for smoking

10.2 Procedural treatments

10.2.1 Number of procedures at encounter

Procedural treatments included therapeutic actions and diagnostic procedures undertaken by the GP. ICPC-2 level codes were grouped across chapters for this analysis due to small numbers within each chapter. There were 13,092 procedural treatments recorded, at a rate of 12.5 per 100 encounters (Table 10.1). The procedural codes and groupings are listed in Appendix 5.

10.2.2 Most frequent procedures

The most common procedure was the excision or removal of tissue (including destruction, debridement or cauterisation). It accounted for 6.4% of all non-pharmacological treatments and occurred at a rate of 3.0 per 100 encounters (see Table 10.4). This was followed by procedures of dressing, compressing or applying pressure (2.2 per 100 encounters).

Physical medicine or rehabilitation (including physiotherapy, massage and therapeutic exercises) occurred at a rate of 1.7 per 100 encounters, and accounted for 3.6% of all non-pharmacological treatments. Other therapeutic procedures included the draining of fluids (1.1 per 100 encounters) and applying, removing and repairing casts or prosthetic devices (1.0 per 100 encounters).

Diagnostic procedures included taking Pap smears, electrical tracings, physical function tests such as peak flow readings, and pregnancy tests. (Note that the majority of diagnostic tests were ordered, and are therefore described in Chapter 12 Investigations.)

10.2.3 Problems managed with a procedural treatment

A total of 12,373 problems involved a procedure in their management. The top 10 problems accounted for 41.7% of all problems for which a procedure was used. These problems were commonly associated with skin complaints, injuries of various types, musculoskeletal problems and female genital check-ups.

The individual problems most frequently managed with a procedure were solar keratosis/sunburn (6.5% of problems managed by a procedure), followed by lacerations and cuts (5.7%), warts (4.6%), excessive ear wax (4.2%) and female genital check-ups (4.2%) (Table 10.5).

Table 10.4: Most frequent procedural treatments

Treatment	Number	% of non-pharm treatments	Rate per 100 encs ^(a) (N=104,856)	95% LCI	95% UCI
Excision/removal tissue/biopsy/destruction/debridement/cauterisation*	3,100	6.4	3.0	2.7	3.2
Dressing/pressure/compression/tamponade*	2,253	4.7	2.2	1.9	2.4
Physical medicine/rehabilitation	1,743	3.6	1.7	1.4	2.0
Other therapeutic procedures/surgery NEC*	1,129	2.3	1.1	0.2	1.9
Incise/drain/flush/aspirate/remove body fluid*	1,117	2.3	1.1	0.9	1.2
Repair/fixation—suture/cast/prosthetic device (apply/remove)*	1,076	2.2	1.0	0.9	1.2
Pap smear	816	1.7	0.8	0.5	1.1
Electrical tracings	419	0.9	0.4	0.2	0.6
Physical function test*	340	0.7	0.3	0.0	0.7
Pregnancy test	285	0.6	0.3	0.0	0.5
Test, glucose*	245	0.5	0.2	0.0	0.7
Local injection/infiltration*	221	0.5	0.2	0.0	0.6
<i>Subtotal: most frequent procedural treatments</i>	<i>12,743</i>	<i>26.4</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total procedural treatments	13,092	27.2	12.5	11.9	13.0
Total non-pharmacological treatments	48,194	100.0	46.0	44.1	47.8

(a) Figures do not total 100.0 as more than one treatment can be described for each problem and only per cents >=0.5% included.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 5).

Note: Non-pharm—non-pharmacological, Encs—encounters, UCI—upper confidence interval, LCI—lower confidence interval, NEC—Not elsewhere classified.

Table 10.5: The ten most common problems managed with a procedural treatment

Problem managed	Number	% of probs managed by a procedure	Rate per 100 encs ^(a) (N=104,856)	95% LCI	95% UCI
Solar keratosis/sunburn	798	6.5	0.8	0.6	1.0
Laceration/cut	700	5.7	0.7	0.5	0.8
Warts	572	4.6	0.5	0.4	0.7
Excessive ear wax	516	4.2	0.5	0.3	0.6
Female genital check-up*	515	4.2	0.5	0.1	0.8
Sprain/strain*	496	4.0	0.5	0.2	0.8
Chronic ulcer skin (incl. varicose ulcer)	489	4.0	0.5	0.2	0.7
Malignant neoplasm skin	421	3.4	0.4	0.2	0.6
Back complaint*	398	3.2	0.4	0.1	0.7
Fracture*	249	2.0	0.2	0.0	0.4
<i>Subtotal: top ten problems with procedural treatments</i>	<i>5,154</i>	<i>41.7</i>	<i>..</i>	<i>..</i>	<i>..</i>
Total problems managed with a procedural treatment	12,373	100.0	11.8	11.3	12.3

(a) Figures do not total 100.0 as more than one problem can be described at each encounter.

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

Note: Probs—problems, Encs—encounters, UCI—Upper confidence interval, LCI—lower confidence interval.