4 Representativeness

4.1 Comparison of BEACH GPs with GP population

The extent to which one can generalise results from a sample depends on how well the sample represents the population from which it is drawn. Random sampling of GPs improves the likelihood that a study will be representative, because each GP has an equal probability of being selected in the study sample. Random sampling error and GP response rates, however, may result in some under-representation or over-representation in the sample of certain population groups.

Inferences about population characteristics from a sample can be improved by calculating weights that adjust for any under-sampling or over-sampling of particular groups of GPs. Weights are assigned by comparing the distribution of the sample against the distribution in the benchmark population on those characteristics that may influence the final results (e.g. age group and sex). Distribution weights are calculated as the proportion of each subgroup in the population divided by the proportion in the sample. Over-representation results in a weight less than one, under-representation in a weight greater than one.

When each observation is multiplied by its weight, the weighted sample distribution will conform to the population distribution. The weights are then used to adjust the sample estimate to give a better representation of the true population value.

If possible, the final study group of GPs should be compared with the population from which the GPs were drawn to identify and, if necessary, adjust for any sample bias that may have an impact on the findings of the study. Comparisons of the characteristics of participants and non-participants were reported in Chapter 3 (Table 3.5).

Statistical comparisons, using the chi-square statistic (χ^2), were then made between BEACH participants and all recognised GPs in Australia who claimed 375 or more general practice Medicare item numbers in the last quarter of 2002 (Table 4.1). The GP characteristics data for the BEACH participants have been drawn from the GP profile questionnaire to ensure highest reliability. The GP Branch of the Australian Department of Health and Ageing provided the data for Australia.

Results

No statistical differences were apparent for GP sex and place of graduation. However, as in previous BEACH samples, the BEACH participants were significantly less likely to be under 35 years of age ($\chi^2=8.23$, $p=0.04$). This is likely to be due to the fact that the national GP profile utilises a sample frame that includes GPs who are currently undertaking the RACGP Training Program. These GPs are not required to complete QA activities during training, nor in the QA triennium in which they complete training. This means that the offer of QA points is less likely to attract them. In the majority these GPs would be less than 35 years.

GPs from New South Wales and Queensland were somewhat over-represented in the sample, while Victoria was under-represented, compared with the national profile of GPs ($\chi^2=65.9$, $p<0.001$). There were no significant differences in terms of metropolitan, rural or remote location of GPs ($\chi^2=6.16$, $p=0.41$).

Table 4.1: Comparison of BEACH participants and all active recognised GPs in Australia

	BEACH[(a)(b)]		Australia[(a)(c)(d)]	
Variable	**Number**	**Per cent of GPs**	**Number**	**Per cent of GPs**
Sex (χ^2=1.72, p =0.19)				
Male	653	64.8	11,929	66.8
Female	355	35.2	5934	33.2
Age (χ^2=8.23, p=0.04)				
< 35 years	74	7.3	1,743	9.7
35–44 years	268	26.6	4,493	25.1
45–54 years	355	35.2	5,922	33.1
55+ years	311	30.9	5,726	32.0
Place of graduation (χ^2=0.21, p =0.65)				
Australia	726	72.0	12,999	72.7
Overseas	282	28.0	4,885	27.3
State (χ^2=65.90, p<0.001)				
New South Wales	399	39.6	5,949	33.6
Victoria	190	18.8	4,333	24.5
Queensland	214	21.2	3,282	18.5
South Australia	62	6.2	1,535	8.7
Western Australia	90	8.9	1,685	9.5
Tasmania	28	2.8	510	2.9
Australian Capital Territory	14	1.4	271	1.5
Northern Territory	11	1.1	142	0.8
RRMA (χ^2=6.16, p=0.41)				
Capital	652	64.7	11,519	65.1
Other metropolitan	86	8.5	1,302	7.4
Large rural	51	5.1	1,092	6.2
Small rural	78	7.7	1,253	7.1
Other rural	121	12.0	2,102	11.9
Remote centre	6	0.6	183	1.0
Other remote	14	1.4	256	1.4

(a) Missing data removed.

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

(c) Data provided by GP Branch, Australian Department of Health and Ageing.

(d) All GPs who claimed at least 375 A1 Medicare items during the most recent 3-month HIC data period.

4.2 Sample weights

Most research studies rely on random sampling to reduce the impact of any sampling bias. It is unusual to have information about the benchmark population from which the sample is drawn, with which the sample can be compared. When such information is available, it is important to consider the possible effect of any differences between the sample and the population on the generalisability of the findings. The data were only weighted for factors thought to have an important effect on morbidity and management. Although there were differences between the sample and the Medical Benefits Schedule (MBS) data in terms of the proportion of GPs from each State, it was assumed that the morbidity and management profile of GPs was similar across States and therefore weighting by State was not undertaken.

The raw data were, however, assigned sample weights according to GP age (stratified by sex) to adjust for the slight under-representation of younger GPs in the sample, and this age weighting was multiplied by the activity level of the participating GPs.

GP weights

We have shown (Table 4.1) that there was a difference in GP age between BEACH GPs and all GPs in Australia and this may influence any national estimates made from unweighted data. Therefore post-stratification weights were calculated for the BEACH GPs to match the age distribution of all GPs in Australia. Simply, the GPs aged less than 35 years were given greater weighting than GPs of other age groups. This increases the contribution of the encounters from these GPs to any national estimate. Weightings for age were stratified by sex, with age weights being calculated separately for male and female GPs.

Encounter weights

The BEACH process requires that each GP provides details of 100 consecutive encounters. The assumption based on previous research is that 100 encounters provide a reliable sample of the GP's patients and practice style.[25] However, there is considerable variation in the number of services provided by different GPs in a given year. This may impact on the reliability of any estimate due to the differences in the sampling fraction for each GP— a GP who provides 6,000 services in a given year should make a greater contribution to any national estimate than a GP who provides 3,000 services. Encounters were therefore assigned an additional weight that was directly proportional to the busyness of the GP who recorded the encounter. GP activity level was measured as the number of A1 items claimed by the GP in the previous 12 months (MBS data supplied by the Australian Department of Health and Ageing).

The values of the final encounter weights were a multiplicative function of the raw data values, GP age weighting and GP sampling fraction of services in the previous 12 months. Table 4.2 shows the precision ratio calculated before and after weighting the data.

4.3 Comparison of BEACH consultations with all GP consultations in Australia

The aim of this study is to gain a representative sample of GP–patient encounters. Representativeness of the GP sample is used to weight the encounters, based on the assumption that the characteristics of the patient encounter are related to the characteristics of the GP. It is therefore important to compare the distribution of the sample patient encounters to the population of general practice encounters in Australia, to assess the representativeness of the sample encounters. The GP Branch of the Australian Department of Health and Ageing provided the age–sex distribution of all A1 Medicare general practice items claimed during 2002, against which the age–sex distribution of the BEACH sample of patient encounters was compared.

The BEACH data include patient encounters that are paid by funding sources other than the MBS and include indirect (and some direct) encounters that cannot be or are not (by GP or patient choice) claimed against any funding body. Further, the BEACH program counts only a single Medicare item number for each encounter covered by the MBS. In reality, more than one Medicare claim can result from a single encounter. Due to the large size of the data sets used, any statistical comparison (e.g. χ^2) would generate statistical significance for even the most minor differences between the two sources of data. Therefore, it is necessary to consider whether any difference is likely to have a strong influence on the results and whether the precision of any estimate from BEACH complies with statistical standards. In determining whether any estimate is reliable, power calculations use a precision of 0.2 or 20% of the true proportion (or value). For example, if the true value were 15% then it would be desirable that any estimate was in the range of 12% to 18% if it is to be considered to have 20% precision.

The age–sex distribution of the final sample of encounters was compared with the known age–sex distribution of all MBS annual A1 claims data. For comparability with the equivalent Medicare data, only those BEACH encounters where a Medicare A1 item was recorded were included in the age and sex distributions shown in Table 4.2. BEACH encounters that were paid for by Veterans' Affairs were also excluded as these services are not included in the Medicare claims database.

As can be seen in Table 4.2, there is a good fit of the MBS and BEACH age and sex distribution both with and without weighting, with no age–sex category varying by more than 20% from the population distribution. The range of raw precision ratios (0.92–1.17) indicate that the BEACH sample of encounters is a good representation of Australian general practice patient encounters. After weighting, the range of precision ratios improved slightly to within less than 15% (range 0.89–1.10) of the population distribution.

4.4 The weighted data set

The final unweighted data set from the fifth year of collection contained encounters, reasons for encounters, problems and management/treatments. The apparent number of encounters and medications increased after weighting, while reasons for encounter, problems managed, number of referrals and amount of imaging and pathology all decreased. Raw and weighted totals for each data element are shown in Table 4.3.

Table 4.2: Comparison of BEACH encounters with age–sex distribution of patients at MBS A1 services

	BEACH[a]		Australia[b]	Precision ratios	
Variable	**Number**	**Per cent**	**Per cent**	**Raw[a]**	**Weighted[c]**
Male	32,996	39.3	41.7	1.06	1.00
< 1 year	886	1.1	1.1	1.07	1.10
1–4 years	2,304	2.7	3.0	1.10	1.03
5–14 years	2,778	3.3	3.9	1.17	1.07
15–24 years	2,863	3.4	3.6	1.06	1.01
25–44 years	7,529	9.0	9.3	1.04	0.97
45–64 years	8,879	10.6	11.3	1.07	1.00
65–74 years	4,163	5.0	5.5	1.12	1.06
75+ years	3,594	4.3	3.9	0.91	0.89
Female	50,613	60.2	58.3	0.97	1.00
< 1 year	862	1.0	1.0	0.95	0.95
1–4 years	2,038	2.4	2.7	1.11	1.05
5–14 years	2,761	3.3	3.7	1.13	1.07
15–24 years	5,660	6.7	6.2	0.92	0.94
25–44 years	13,732	16.3	15.4	0.94	0.96
45–64 years	13,474	16.0	15.1	0.94	0.99
65–74 years	5,551	6.6	6.5	0.98	1.02
75+ years	6,535	7.8	7.8	1.01	1.09

(a) Unweighted data, A1 items only, *excluding* encounters claimable from the Department of Veterans' Affairs.

(b) Data provided by GP Branch, Australian Department of Health and Ageing.

(c) Calculated from BEACH weighted data, *excluding* encounters claimable from the Department of Veterans' Affairs.

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

Table 4.3: The BEACH data set

Variable	Raw	Weighted
GPs	1,008	1,008
Encounters	100,800	100,987
Reasons for encounter	153,094	152,352
Problems managed	149,976	146,336
Medications	103,289	104,813
Non-pharmacological treatments	56,343	53,676
Referrals	13,002	12,265
Imaging	9,019	8,678
Pathology	36,332	33,234

5 The encounters

5.1 Overview of the data set

Using weighted data, there were 100,987 encounters from 1,008 GPs. An average of 151 patient reasons for encounter were described per 100 encounters. Of the 146,336 problems managed (at an average rate of 145 per 100 encounters), 39.3% were designated as new problems to the patient arising at a rate of 57.0 per 100 encounters (Table 5.1).

Table 5.1: Summary of morbidity and management

Variable	Number	Rate per 100 encounters (*n*=100,987)	95% LCL	95% UCL	Rate per 100 problems (*n*=146,336)	95% LCL	95% UCL
General practitioners	1,008	—	—	—	—	—	—
Encounters	100,987	—	—	—	—	—	—
Reasons for encounter	152,341	150.9	149.0	152.7	—	—	—
Problems managed	146,336	144.9	143.0	146.8	—	—	—
New problems	57,509	57.0	55.6	58.3	39.3	38.3	40.3
Medications	104,813	103.8	101.4	106.2	71.6	70.1	73.1
Prescribed	85,161	84.3	81.8	86.9	58.2	56.6	59.8
Advised OTC	10,270	10.2	9.2	11.1	7.0	6.3	7.7
GP supplied	9,382	9.3	7.6	11.0	6.4	5.3	7.5
Non-pharmacological treatments	52,292	51.8	49.3	54.3	35.7	34.1	37.3
Clinical	37,543	37.2	35.0	39.4	25.7	24.2	27.1
Procedural	14,748	14.6	13.9	15.3	10.1	9.6	10.6
Referrals	11,254	11.1	10.7	11.6	7.7	7.4	8.0
Specialist	7,743	7.7	7.3	8.0	5.3	5.1	5.5
Allied health services	2,536	2.5	2.3	2.8	1.7	1.6	1.9
Hospital	566	0.6	0.3	0.8	0.4	0.2	0.6
Emergency department	137	0.1	0.0	0.4	0.1	0.0	0.3
Other referral	271	0.3	0.0	0.5	0.2	0.0	0.4
Pathology	33,234	32.9	31.5	34.4	22.7	21.8	23.6
Imaging	8,678	8.6	8.2	9.0	5.9	5.7	6.2
Other investigation	1,012	1.0	0.8	1.2	0.7	0.5	0.8

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

Medications were prescribed, advised or supplied at a rate of 103.8 per 100 encounters. The prescription rate (84.3 per 100 encounters) does not take into account the number of repeats provided as part of a prescription. GPs advised patients to use over-the-counter (OTC) medications at a slightly higher rate (10.2 per 100 encounters) than they gave medications directly to the patient (9.3 per 100 encounters), although these rates were not significantly different. Non-pharmacological treatments were recorded less often than medications, with

clinical treatments (e.g. counselling, advice or psychotherapy) being recorded more often (37.2 per 100 encounters) than procedural treatments (14.6 per 100 encounters) such as excisions and physical therapies.

Approximately 11 referrals per 100 encounters were made to specialists, allied health services, hospitals and emergency departments. Specialist referrals were the most common (7.7 per 100 encounters), followed by those to allied health professionals (2.5 per 100 encounters). Referrals to hospitals and emergency departments were relatively rare.

Orders for a pathology test (or batch of tests, e.g. FBC, HIV) were recorded more frequently (32.9 per 100 encounters) than were referrals (11.1 per 100), and orders for imaging (e.g. x-rays, scans) occurred less often (8.6 per 100 encounters) (Table 5.1).

5.2 Encounter type

The distribution of encounter types shows the varied nature of general practice (Table 5.2). The funding of Australian general practice reflects this variety, with a mixture of patient contribution, government rebate scheme (MBS) through Medicare, payment by other government programs (e.g. Department of Veterans' Affairs, Correctional Services) and insurance schemes (e.g. workers compensation).

Encounters can be direct consultations (the patient was seen by the GP) or indirect consultations (the patient was not seen but a clinical service was provided). Direct consultations represented 98.4% of all encounters for which direct/indirect status was recorded, and these direct encounters could result in no charge, a claim to Medicare, a workers compensation claim or a charge to another government funding program. By far the majority (95.0%) of consultations and 96.5% of direct consultations were claimable through Medicare. This is not to say that in all cases the Medicare claim was 'bulk billed', nor does it mean no additional amount (above the Medicare rebate) was paid by the patient.

More than 90% of Medicare-paid consultations (91.2% of direct consultations) took place in the GPs' consultation rooms. Note that some items grouped under 'other items' could also have taken place in the GPs' rooms and that case conferences can occur in places other than the GPs' rooms (e.g. nursing homes or offices of other healthcare professionals). Standard surgery consultations were the most frequent Medicare item recorded (78.7% of total encounters and 82.9% of Medicare-claimable encounters). Hospital, nursing home and home visits were relatively rare and accounted for only 2.6% of all encounters and 2.9% of Medicare-paid encounters. Workers compensation claims represented 1.9% of all recorded encounters.

Indirect consultations (1.6 per 100 encounters) are those at which the patient is not seen by the GP but which generate a prescription, a referral, a certificate or other service. They are often the result of a phone call by a patient. Many indirect consultations are a free service provided by the GP (as they do not qualify for payment by Medicare), although they clearly generate costs to the health sector (prescriptions, referrals etc.) and contribute to patient care and problem management. These results suggest that GP services provided free of cost to Medicare or other formal funding sources (no charge and indirect consultations) made up approximately 2% of total clinical services provided by GPs. Whether or not these services were provided free of charge to the patient could not be determined (Table 5.2).

Table 5.2: Type of encounter

Variable	Number	Rate per 100 encounters (*n*=100,987)[(a)]	95% LCL	95% UCL	Per cent of direct encounters	Per cent of Medicare-paid
General practitioners	1,008	—	—	—	—	—
Direct consultations	92,256	98.4	98.2	98.6	100.0	—
No charge	485	0.5	0.2	0.8	0.5	—
MBS items of service[(b)]	89,068	95.0	94.6	95.3	96.5	100.0
Short surgery consultations	1,058	1.1	0.6	1.7	—	1.2
Standard surgery consultations	73,804	78.7	77.6	79.7	—	82.9
Long surgery consultations	8,551	9.1	8.5	9.7	—	9.6
Prolonged surgery consultations	674	0.7	0.0	1.5	—	0.8
Home visits	1,178	1.3	0.4	2.1	—	1.3
Hospital	345	0.4	0.0	2.7	—	0.4
Nursing home	1,078	1.2	0.0	2.9	—	1.2
Case conference*Ψ	8	0.0	0.0	1.4	—	0.0
Care plan Ψ	90	0.1	0.0	1.0	—	0.1
Health assessments Ψ	109	0.1	0.0	0.6	—	0.1
Other items	2,170	2.3	1.1	3.5	—	2.4
Workers compensation	1,806	1.9	1.6	2.2	2.0	—
Other paid (hospital, State, etc.)	899	1.0	0.2	1.8	1.0	—
Indirect consultations	1,542	1.6	1.2	2.0	—	—
Missing	7,190	—	—	—	—	—

(a) Missing data removed from analysis. Per cent base *n*=93,797.

(b) Include 1,760 encounters that were recorded as claimable for the Commonwealth Department of Veterans' Affairs.

* One case conference was indirect consultation.

Ψ Enhanced primary care (EPC) items include case conferences, care plans and health assessments.

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

5.3 Changes from 1998–99 to 2002–03

Over the five years of BEACH to date, the proportion of encounters where the patient was seen ('direct encounters') increased significantly from 96.7% (95% CI: 96.4–97.0) to 98.4% (95% CI: 98.2–98.6). Therefore, the proportion of GP services that were provided free to Medicare or other formal funding sources ('no charge' plus 'indirect' non-chargeable consultations) decreased significantly from 4.1% in 1998–99 to 2.0% in 2002–03).

There was a significant increase in the proportion of encounters designated as standard surgery consultations, from 76.3 per 100 encounters (95% CI: 75.2–77.5) in 1998–99 to 79.0 per 100 (95% CI: 78.0–79.9) in 2001–02. This proportion remained stable in 2002–03 (78.7 per 100 encounters, 95% CI: 77.6–79.7) (Appendix 4, Table A4.3).

6 The patients

6.1 Patient characteristics

Age–sex distribution of patients

The age–sex distribution of patients at the 100,987 encounters recorded in the survey is shown in Figure 6.1. At 0.9% of encounters, age and sex were not recorded (Table 6.1). Overall, there were more encounters with female than male patients (57.8% compared with 42.2%). This was reflected across all age groups except for patients aged less than 15 years, where there were slightly more male than female encounters. Differences in the distribution of male and female patients were greatest in the reproductive years (25–44 year age group) and in the middle age group (45–64 years).

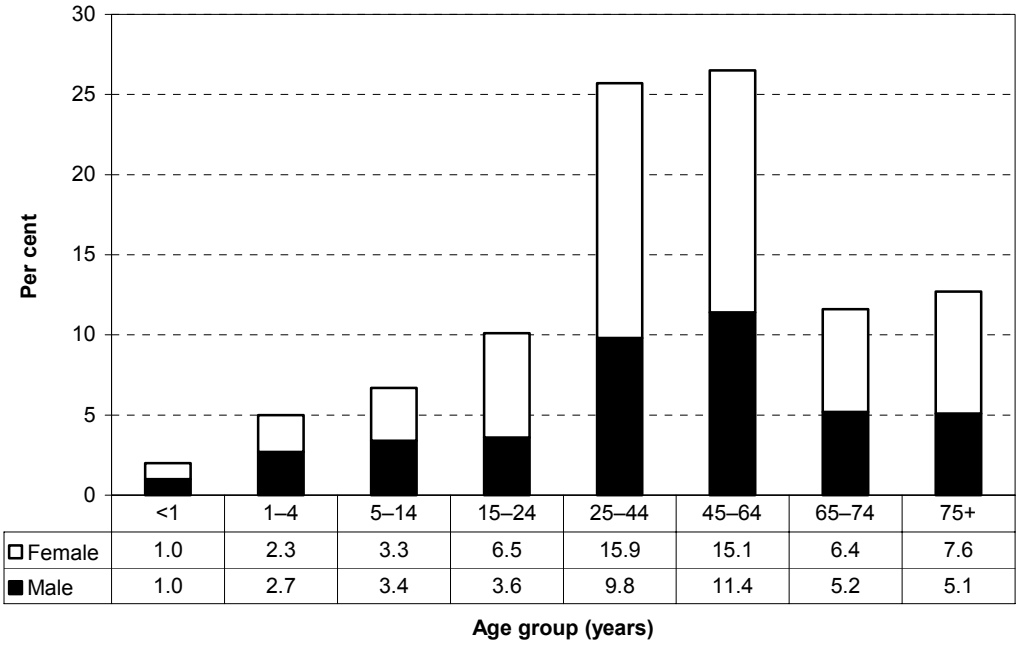


Figure 6.1: Age–sex distribution of patients at encounter

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

Approximately one in seven encounters were with children aged less than 15 years (13.6%), one in ten were with young adults (10.1%), and approximately one in four with patients in each of the following age groups, 25–44 years (25.7%), 45–64 years (26.5%), and 65 years and older (24.2%) (Table 6.1).

Other patient characteristics

The patient was new to the practice at one in ten (9.9%) encounters. Two in five encounters were with patients who held a Commonwealth health care card (40.4%), and 3.3% were with persons who held a Department of Veterans' Affairs card. At 10.6% of encounters, the patient was from a non-English-speaking background, and at 1.0% the patient was an Aboriginal person and/or Torres Strait Islander.

Table 6.1: Characteristics of the patients at encounters

Patient variable	Number	Per cent of encounters (*n*=100,987)[(a)]	95% LCL	95% UCL
Sex	—	—	—	—
Male	42,189	42.2	41.4	42.9
Female	57,887	57.8	57.0	58.6
Missing sex	911	—	—	—
Age group	—	—	—	—
< 1 year	1,944	1.9	1.8	2.1
1–4 years	5,030	5.0	4.7	5.3
5–14 years	6,632	6.6	6.3	6.9
15–24 years	10,068	10.1	9.7	10.4
25–44 years	25,685	25.7	24.9	26.4
45–64 years	26,497	26.5	25.9	27.0
65–74 years	11,566	11.6	11.1	12.0
75+ years	12,671	12.7	11.9	13.4
Missing age	895	—	—	—
Other characteristics	—	—	—	—
New patient to practice	9,805	9.9	9.0	10.8
Commonwealth health care card	40,762	40.4	38.8	41.9
Veterans' Affairs Card	3,316	3.3	3.0	3.6
Non-English-speaking background	10,706	10.6	7.8	13.4
Aboriginal person	837	0.8	0.0	1.7
Torres Strait Islander	145	0.1	0.0	0.9
Aboriginal person and Torres Strait Islander	50	0.1	0.0	1.3

(a) Missing data removed.

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

6.2 Patient reasons for encounter

International interest in reasons for encounter (RFEs) has been developing over the past three 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.[26]

RFEs are those concerns and expectations that patients bring to the GP. Participating GPs were asked to record at least one and up to three patient RFEs in words as close as possible to those used by the patient, before the diagnostic or management process had begun. These reflect the patient's view of their reasons for consulting the GP. RFEs can be expressed in terms of one or more symptoms (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 multiple symptoms that relate to a single problem managed at the encounter or may describe one RFE that relates to multiple problems.

Number of RFEs at encounter

There were 152,341 patient RFEs recorded at a rate of 150.9 per 100 encounters. For three out of five encounters (60.7%) only one RFE was recorded, and at 11.6% of encounters the maximum of three RFEs was recorded (Table 6.2).

Table 6.2: Number of patient reasons for encounter

Number of RFEs (*n*=152,341)	Number of encounters	Per cent of encounters	95% LCL	95% UCL
One RFE	61,297	60.7	59.5	61.9
Two RFEs	28,026	27.8	27.1	28.4
Three RFEs	11,664	11.6	10.8	12.3
Total	**100,987**	**100.0**	—	—

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

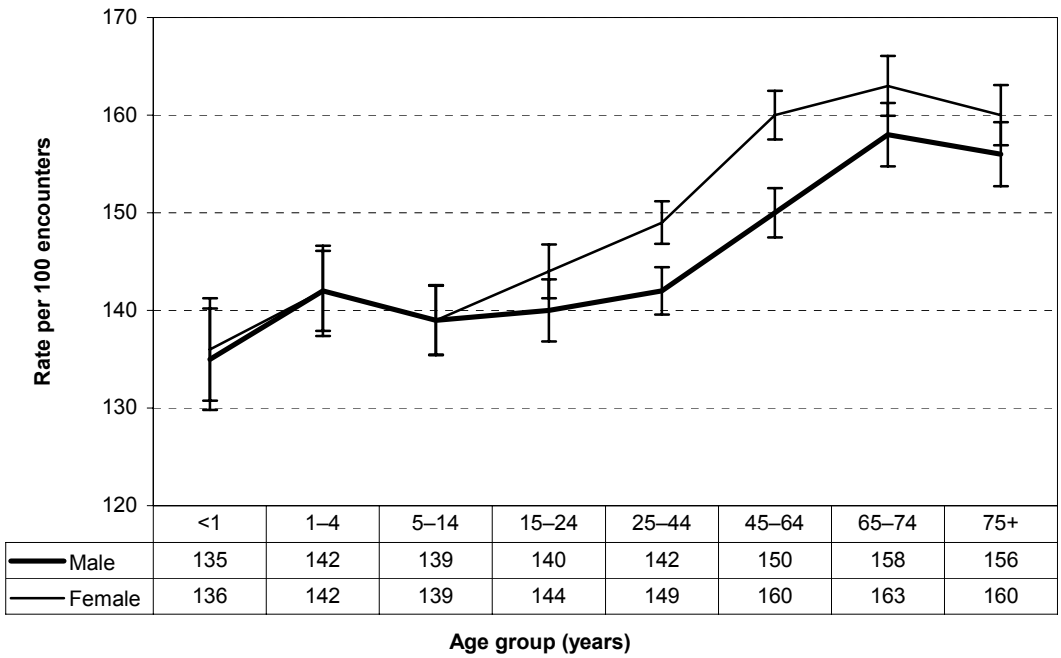


Figure 6.2: Age–sex-specific RFE rates per 100 encounters with 95% confidence limits

Note: Missing data removed.

Age–sex-specific rates of RFEs

Overall, significantly more RFEs were recorded at encounters with female patients (153.3 per 100 encounters, 95% CI: 151.5–155.2) than at those with male patients (147.5, 95% CI: 145.6–149.5), but particularly at encounters with females aged between 25 and 64 years.

Figure 6.2 shows the number of RFEs per 100 encounters for male and female patients in each age group. The age–sex-specific rate of RFEs per 100 encounters increased with advancing age for both males and females, with two exceptions: patients aged 1–4 years had more RFEs than the rest of encounters with children less than 15 years, and the rates of RFEs decreased in patients aged 75 years and over.

Reasons for encounter by ICPC-2 chapter

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

Almost one in five RFEs (22.9%, 34.6 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, for test results or a check-up. However, there were also some general symptoms frequently described, such as fever, weakness and tiredness, and chest pain (of unspecified origin).

Approximately half the RFEs related to the respiratory, musculoskeletal, skin, circulatory and digestive systems. Less common were RFEs related to the eye, urological, male genital and blood systems and those of a social nature.

RFEs related to the respiratory system arose at a rate of 23.0 per 100 encounters, the most common being cough, throat complaints and upper respiratory tract infection (URTI) (often expressed as a 'cold'). Requests for respiratory system immunisation (mainly influenza vaccination) presented at a rate of 2.0 per 100 encounters; asthma and nasal congestion were also relatively common RFEs.

RFEs related to the musculoskeletal system were described at a rate of 16.7 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 (3.5 per 100 encounters), followed by those related to the knee, foot/toe, neck, shoulder and leg.

Reasons associated with the skin were described at a rate of 14.7 per 100 encounters, rash being the most frequent RFE, followed by skin complaints (not elsewhere classified). Localised or generalised swelling and 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 10.6 per 100 encounters. Patients also frequently presented for their 'hypertension' or 'high blood pressure' problems.

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

Patient reasons for encounter	Number	Per cent of total RFEs (*n*=152,341)	Rate per 100 encounters[(a)] (*n*=100,987)	95% LCL	95% UCL
General & unspecified	**34,942**	**22.9**	**34.6**	**33.6**	**35.6**
Prescription NOS	7,222	4.7	7.2	6.7	7.6
Results tests/procedures NOS	4,492	3.0	4.5	4.1	4.8
Check-up NOS*	3,439	2.3	3.4	3.1	3.7
Fever	2,231	1.5	2.2	1.8	2.6
Immunisation/vaccination–general	2,125	1.4	2.1	1.8	2.4
Weakness/tiredness	1,480	1.0	1.5	1.3	1.6
Administrative procedure NOS	1,446	1.0	1.4	1.2	1.6
Chest pain NOS	1,114	0.7	1.1	1.0	1.2
Blood test NOS	1,043	0.7	1.0	0.7	1.4
Other reason for encounter NEC	1,036	0.7	1.0	0.6	1.4
Trauma/injury NOS	910	0.6	0.9	0.8	1.1
Follow-up encounter unspecified NOS	821	0.5	0.8	0.4	1.3
Respiratory	**23,226**	**15.3**	**23.0**	**22.0**	**24.0**
Cough	6,785	4.5	6.7	6.3	7.2
Throat symptom/complaint	3,835	2.5	3.8	3.4	4.2
Upper respiratory tract infection	2,187	1.4	2.2	1.8	2.5
Immunisation/vaccination–respiratory	1,995	1.3	2.0	1.1	2.8
Nasal congestion/sneezing	1,747	1.2	1.7	1.2	2.3
Asthma	1,072	0.7	1.1	0.9	1.3
Shortness of breath, dyspnoea	861	0.6	0.9	0.7	1.0
Musculoskeletal	**16,843**	**11.1**	**16.7**	**16.1**	**17.3**
Back complaint*	3,575	2.4	3.5	3.3	3.8
Knee complaint	1,342	0.9	1.3	1.2	1.5
Foot/toe complaint	1,196	0.8	1.2	1.1	1.3
Neck complaint	1,136	0.8	1.1	1.0	1.3
Shoulder complaint	1,118	0.7	1.1	1.0	1.2
Leg/thigh complaint	1,101	0.7	1.1	1.0	1.2
Skin	**14,885**	**9.8**	**14.7**	**14.3**	**15.2**
Rash*	2,830	1.9	2.8	2.7	3.0
Skin complaint	1,326	0.9	1.3	1.1	1.5
Swelling*	1,084	0.7	1.1	1.0	1.2
Skin check-up*	926	0.6	0.9	0.6	1.2
Circulatory	**10,692**	**7.0**	**10.6**	**10.0**	**11.1**
Cardiac check-up*	5,006	3.3	5.0	4.5	5.4
Hypertension/high blood pressure*	1,809	1.2	1.8	1.4	2.2

(continued)

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

Patient reasons for encounter	Number	Per cent of total RFEs (*n*=152,341)	Rate per 100 encounters[(a)] (*n*=100,987)	95% LCL	95% UCL
Digestive	**10,501**	**6.9**	**10.4**	**10.0**	**10.8**
Abdominal pain*	1,962	1.3	1.9	1.8	2.1
Diarrhoea	1,569	1.0	1.6	1.4	1.7
Vomiting	1,126	0.7	1.1	1.0	1.3
Psychological	**7,382**	**4.9**	**7.3**	**6.9**	**7.8**
Depression*	1,902	1.3	1.9	1.7	2.1
Insomnia	1,170	0.8	1.2	1.0	1.4
Anxiety*	937	0.6	0.9	0.8	1.1
Female genital system	**6,179**	**4.1**	**6.1**	**5.7**	**6.6**
Check-up/Pap smear*	1,907	1.3	1.9	1.6	2.2
Menstrual problems*	849	0.6	0.8	0.7	1.0
Endocrine & metabolic	**6,054**	**4.0**	**6.0**	**5.7**	**6.3**
Diabetes (non-gestational)*	828	0.5	0.8	0.6	1.0
Prescription–endocrine/metabolic	796	0.5	0.8	0.6	1.0
Neurological	**5,785**	**3.8**	**5.7**	**5.5**	**6.0**
Headache	2,148	1.4	2.1	1.9	2.4
Vertigo/dizziness	1,153	0.8	1.1	1.0	1.3
Ear	**3,997**	**2.6**	**4.0**	**3.8**	**4.1**
Ear pain	1,675	1.1	1.7	1.5	1.8
Pregnancy & family planning	**3,627**	**2.4**	**3.6**	**3.3**	**3.9**
Pre/postnatal check-up*	952	0.6	0.9	0.6	1.3
Oral contraception*	840	0.6	0.8	0.7	1.0
Eye	**2,734**	**1.8**	**2.7**	**2.6**	**2.9**
Urology	**2,473**	**1.6**	**2.5**	**2.3**	**2.6**
Male genital system	**1,042**	**0.7**	**1.0**	**0.9**	**1.2**
Blood	**993**	**0.7**	**1.0**	**0.8**	**1.2**
Social	**986**	**0.7**	**1.0**	**0.8**	**1.2**
Total RFEs	**152,341**	**100.0**	**150.9**	**149.0**	**152.7**

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

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

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

Digestive problems accounted for 6.9% 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. RFEs of a psychological nature were recorded at a rate of 7.3 per 100 encounters, and these were frequently 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 6.3.

Distribution of RFEs by ICPC-2 component

Almost half of the RFEs were expressed in terms of a symptom or complaint (e.g. back pain, cough), presented at a rate of 74.0 per 100 encounters. RFEs expressed in diagnostic terms (e.g. 'about my diabetes') accounted for 17.3% of all RFEs and were described at a rate of 26.0 per 100 encounters. Requests for diagnostic and preventive procedures were made at a rate of 23.8 per 100 encounters, and these were most often requests for a check-up or for immunisation/vaccination (demonstrated in Table 6.5). Patient requests for medication and non-pharmacological treatments were made at a rate of 13.0 per 100 encounters, while requests for referrals, results, and administrative procedures were relatively few (Table 6.4).

Table 6.4: Distribution of RFEs by ICPC-2 component

ICPC-2 component	Number	Per cent of total RFEs (*n*=152,341)	Rate per 100 encounters[(a)] (*n*=100,987)	95% LCL	95% UCL
Symptoms & complaints	74,755	49.1	74.0	72.0	76.1
Diagnoses, diseases	26,294	17.3	26.0	24.6	27.4
Diagnostic & preventive procedures	23,990	15.8	23.8	22.8	24.7
Medications, treatments & therapeutics	13,141	8.6	13.0	12.4	13.6
Referral & other RFEs	7,113	4.7	7.0	6.6	7.5
Results	5,408	3.6	5.4	5.0	5.7
Administrative	1,639	1.1	1.6	1.4	1.8
Total RFEs	**152,341**	**100.0**	**150.9**	**149.0**	**152.7**

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

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

Most frequent patient reasons for encounter

The 30 most commonly recorded RFEs, listed in order of frequency in Table 6.5, accounted for 55.6% of all RFEs. In this analysis the specific ICPC-2 chapter to which an across chapter RFE 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.

A request for a check-up was the most common RFE, accounting for 9.0% of all RFEs, being recorded at a rate of 13.6 per 100 encounters. Requests for medication were also frequent (10.8 per 100 encounters). It is notable that RFEs described as 'hypertension' or 'high blood pressure' also arose at a rate of 1.8 per 100 encounters, and these are likely to be closely associated with the need for a check-up and/or medication. A request for test results was the fourth most often expressed RFE (5.4 per 100 encounters), followed by presentations for immunisation or vaccination (4.7 per 100 encounters).

The remaining RFEs in the top 30 were largely symptom-based, led by cough (6.7 per 100 encounters), throat complaints (3.8 per 100 encounters), back complaints (3.5 per 100 encounters), rash, fever and URTI (often described as 'a cold').

Undifferentiated symptoms such as headache, abdominal pain, nasal congestion, ear pain, diarrhoea, and weakness were also common. Many musculoskeletal symptoms also appeared in the top 30 RFEs. It is notable that chronic conditions such as depression and insomnia were also frequently recorded.

Table 6.5: Most frequent patient reasons for encounter

Patient reason for encounter	Number	Per cent of total RFEs (n=152,341)	Rate per 100 encounters[(a)] (*n*=100,987)	95% LCL	95% UCL
Check-up–all*	13,698	9.0	13.6	12.9	14.2
Prescription–all*	10,853	7.1	10.8	10.2	11.3
Cough	6,785	4.5	6.7	6.3	7.2
Test results*	5,408	3.6	5.4	5.0	5.7
Immunisation/vaccination–all*	4,732	3.1	4.7	4.2	5.1
Throat complaint	3,835	2.5	3.8	3.4	4.2
Back complaint*	3,575	2.3	3.5	3.3	3.8
Rash*	2,830	1.9	2.8	2.7	3.0
Fever	2,231	1.5	2.2	1.8	2.6
Upper respiratory tract infection	2,187	1.4	2.2	1.8	2.5
Headache	2,148	1.4	2.1	1.9	2.4
Abdominal pain*	1,962	1.3	1.9	1.8	2.1
Depression*	1,902	1.3	1.9	1.7	2.1
Hypertension/high blood pressure*	1,809	1.2	1.8	1.4	2.2
Nasal congestion/sneezing	1,747	1.2	1.7	1.1	2.3
Ear pain	1,675	1.1	1.7	1.5	1.8
Diarrhoea	1,569	1.0	1.6	1.4	1.7
Weakness/tiredness	1,480	1.0	1.5	1.3	1.6
Administrative procedure NOS	1,446	1.0	1.4	1.2	1.6
Knee complaint	1,342	0.9	1.3	1.2	1.5
Skin complaint	1,326	0.9	1.3	1.1	1.5
Foot & toe complaint	1,196	0.8	1.2	1.1	1.3
Insomnia	1,170	0.8	1.2	1.0	1.3
Vertigo/dizziness	1,153	0.8	1.1	1.0	1.3
Neck complaint	1,136	0.8	1.1	0.9	1.3
Vomiting	1,126	0.7	1.1	1.0	1.3
Shoulder complaint	1,118	0.7	1.1	1.0	1.2
Chest pain NOS	1,114	0.7	1.1	1.0	1.2
Leg/thigh complaint	1,101	0.7	1.1	1.0	1.2
Swelling*	1,084	0.7	1.1	1.0	1.2
Subtotal	*84,737*	*55.6*	—	—	—
Total RFEs	**152,341**	**100.0**	**150.9**	**149.0**	**152.7**

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

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

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

6.3 Changes from 1998–99 to 2002–03

Changes in characteristics of the patients at the encounters

The age distribution of patients encountered in general practice changed significantly over the first 5 years of the BEACH program. In 2002–03 the GPs' workloads included a significantly smaller proportion of encounters with children under the age of 15 years (13.6%, 95% CI: 13.0–14.2) than in 1998–99 (15.8%, 95% CI: 15.1–16.6). In contrast, a significantly greater proportion of the workload was devoted to the management of patients aged between 45 and 64 years (26.5%, 95% CI: 25.9–27.0) in 2002–03 than in 1998–99 (24.4%, 95% CI: 23.8–25.0 in 1998–99) (Appendix 4, Table A4.4).

Changes in rates of RFEs by ICPC-2 chapter

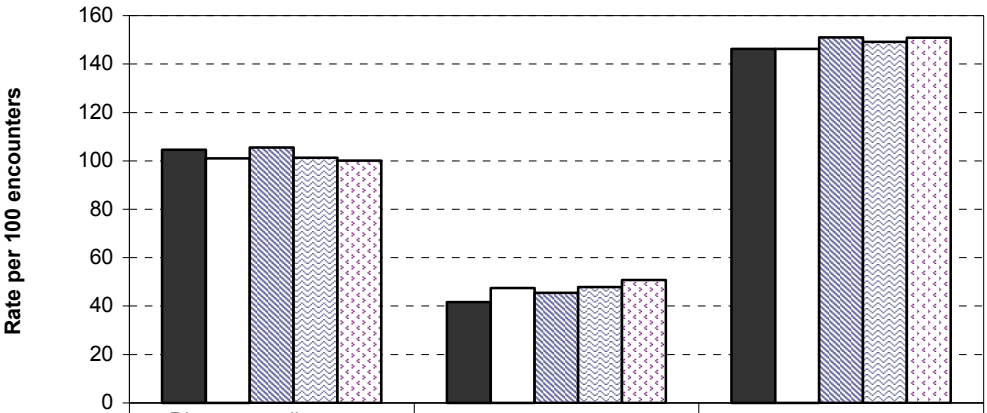
Total RFEs increased steadily from 146.3 (95% CI: 144.6–148.0) per 100 encounters in 1998–99 to 150.9 (95% CI: 149.0–152.7) in 2002–03. There was a significant increase in the rate of RFEs classified as general and unspecified, from 26.6 (95% CI: 25.7–27.4) per 100 encounters in 1998–99 to 34.6 (95% CI: 33.6–35.6) in 2002–03 (Appendix 4, Table A4.5).

Changes in rate of RFEs (ICPC-2 component)

The increase in total RFEs was reflected particularly in a rising rate of RFEs described in terms of the processes of care, including request for diagnostic & preventive procedures, medications, therapeutics, referrals, results and administrative processes. These types of RFEs increased significantly from 41.6 (95% CI: 40.1–43.1) per 100 encounters in 1998–99 to 50.8 (95% CI: 49.2–52.4) in 2002–03 (Figure 6.3 and Appendix 4, Table A4.6).

In parallel, there has been a decrease in RFEs described in terms of diagnoses/diseases from 33.6 (95% CI: 31.9–35.2) per 100 encounters in 1998–99 to 26.0 (95% CI: 24.6–27.4) in 2002–03. In contrast, the relative rate of RFEs classified as symptoms and complaints showed a steady but insignificant increase from 71.1 (95% CI: 69.4–72.9) per 100 encounters in 1998–99 to 74.0 (95% CI: 72.0–76.1) in 2002–03 (Appendix 4, Table 4.6).

The increase in the relative rate of requests for results identified in the fourth year of the BEACH program, continued through the fifth year. This trend again supported last year's hypothesis that there has been an increase in the rate at which patients are being asked to return to the GP to receive their test results (with a hypothesised decrease in the likelihood of GPs giving results over the telephone to their patients). This hypothesis also aligned with a further decrease in the proportion of encounters for which 'no charge' was made for the service and in the proportion of indirect encounters. The Privacy Legislation released at the end of 2001 together with economic reasons may have led to an increase in call-back of patients for receipt of test results.



	Diagnoses, diseases, symptoms, complaints	Process codes	Total RFEs
1998–99	104.7	41.6	146.3
1999–00	101.1	47.4	146.3
2000–01	105.6	45.4	151.0
2001–02	101.4	47.8	149.2
2002–03	100.1	50.8	150.9

RFEs

Figure 6.3: Changes in rates of reasons for encounter (RFEs) over time

Note: Diagnoses, disease, symptoms, complaints—Diagnoses, diseases (ICPC-2 component 7) and Symptoms & complaints (ICPC-2 component 1); Process codes—Diagnostic & preventive procedure, Medications, Treatments & therapeutics, Referral & other RFEs, Results, Administrative (ICPC-2 components 2–6).