1 Introduction

The BEACH (Bettering the Evaluation and Care of Health) program is a continuous national study of general practice activity in Australia. This publication is the fifth annual report of the program and provides a summary of results for the period April 2002 to March 2003 inclusive. It uses details of more than 100,000 encounters (about a 0.1% sample of total encounters) between general practitioners (GPs) and patients, from a random sample of 1,008 recognised practising GPs from across the country.

GPs perform a gatekeeper role for entry into the secondary and tertiary sectors of the Australian healthcare system. Most of the 19.7 million Australians (85%) attended a GP at least once during the year 2002 (personal communication, GP Branch, Australian Department of Health and Ageing DoHA). By far the majority of visits to GPs are funded through the Commonwealth Medicare Benefits Schedule (MBS) scheme on a fee for service basis, Medicare paying for 85% of the government recommended consultation fee.[1] Some patients are not charged the additional 15% of the fee, the GPs accepting the Medicare payment as the total payment. Others are charged the difference between the Medicare payment and the government recommended fee, while still others may be asked to pay more for the service.

There are more than 17,000 recognised GPs in Australia and about 1,500 registrars enrolled in general practice training programs,[2] or one GP per 90 persons. GPs provide by far the majority of the (approximately) 100 million non-specialist services to the population that were paid by Medicare,[2] at an average rate of 5.2 per person per year.[3] Knowledge of the content of these encounters and of the services and treatments provided by the GPs gives an important insight into the health of a large proportion of the community.

There have been many initiatives that aim to improve the care provided to the community through general practice, and it is important to ask what impact they have on practice behaviour at a national level. It is therefore essential to measure changes that occur in the clinical care of the population, even if we are unable to demonstrate a direct causal effect from any single intervention being undertaken.

This year of the program provides the fifth measured data point, allowing further measurement of changes over time. Changes that were identified in 2000–01 and 2001–02 in the patterns of morbidity managed and the medications prescribed are followed up in this fifth year, and additional changes are reported in this publication.

A second part of the BEACH program collects information about patient health and risk factors. This section is called SAND (Supplementary Analysis of Nominated Data) and it relies on GPs asking patients questions about specific aspects of their health. Between ten and twenty topics are covered in SAND each year (depending on the subsample size for each topic). However, there are three that are consistent across the whole year and in which all participating GPs are involved. Due to their standard nature, summary results for patient-derived body mass index, smoking status and alcohol consumption are included in this annual report.

1.1 Aims

The BEACH program has three main aims:

- to provide a reliable and valid data collection process for general practice which is responsive to the ever-changing needs of information users
- to establish an ongoing database of GP–patient encounter information
- to assess patient risk factors and health states and the relationship these factors have with health service activity.

This report aims to provide an updated reference point for the activities of general practice in 2002–03. It also provides a summary of results for each year of the BEACH program to date and the total results for the five year data set.

2 Methods

The methods adopted in the BEACH program have been described in detail elsewhere.[4-6] In summary, each of the recognised GPs in a random sample of approximately 1,000 per year records details about 100 doctor–patient encounters of all types. The information is recorded on structured encounter forms (on paper). It is a rolling sample, recruited approximately 3 weeks ahead. Approximately 20 GPs participate each week, 50 weeks a year.

2.1 Sampling methods

The source population includes all GPs who claimed a minimum of 375 general practice A1 Medicare items in the most recently available 3-month Health Insurance Commission (HIC) data period. This equates with 1,500 Medicare claims a year and ensures inclusion of the majority of part-time GPs while excluding those who are not in private practice but claim for a few consultations a year. The General Practice Branch of the Australian Department of Health and Ageing (DoHA) draws a sample on a regular basis.

2.2 Recruitment methods

The randomly selected GPs are approached initially by letter, then by telephone follow-up. GPs who agree to participate are set an agreed recording date approximately 3 to 4 weeks ahead. A research pack is sent to each participant about 10 days before the planned recording date. A telephone reminder is made to each participating GP in the first days of the agreed recording period. Non-returns are followed up by regular telephone calls.

Participating GPs earn 20–35 Clinical Audit points towards their quality assurance (QA) requirements. As part of this QA process, each receives an analysis of his or her results compared with those of nine other unidentified GPs who recorded at approximately the same time. Comparisons with the national average and with targets relating to the National Health Priority Areas are also made. In addition, GPs receive some educational material related to the identification and management of patients who smoke or consume alcohol at hazardous levels.

2.3 Data elements

BEACH includes three interrelated data collections: encounter data, GP characteristics, and patient health status. An example of the forms used to collect the encounter data and the data on patient health status is included in Appendix 1. The GP characteristics questionnaire is included in Appendix 2.

Encounter data include date of consultation, type of consultation (direct, indirect), Medicare/Veterans' Affairs item number (where applicable) and specified other payment source (tick boxes).

Information about **the patient** includes date of birth, sex and postcode of residence. Tick boxes are provided for Commonwealth health care card holder, Veterans' Affairs white card

holder, non-English-speaking background (NESB), an Aboriginal person (self-identification) and Torres Strait Islander (self-identification). Space is provided for up to three patient reasons for encounter (RFEs).

The **content of the encounter** is described in terms of the problems managed and the management techniques applied to each of these problems. Data elements include up to four diagnoses/problems. Tick boxes are provided to denote the status of each problem as new to the patient (if applicable).

Management data for each problem include medications prescribed, over-the-counter medications advised and other medications supplied by the GP. Details for each **medication** comprise brand name, form (where required), strength, regimen, status (if new medication for this problem for this patient) and number of repeats. **Non-pharmacological management** of each problem includes counselling and procedures, new referrals, and pathology and imaging ordered.

GP characteristics include age and sex, years in general practice, number of GP sessions worked per week, number of GPs working in the practice (to generate a measure of practice size), postcode of major practice address, country of graduation, postgraduate general practice training and FRACGP status, after-hours care arrangements, use of computers in the practice, whether the practice is accredited and whether it is a teaching practice, work undertaken by the GP in other clinical settings, hours worked in direct patient care and hours on call per week.

Supplementary analysis of nominated data (SAND): A section on the bottom of each recording form investigates aspects of patient health or healthcare delivery in general practice not covered by the consultation-based data. The year-long data collection period is divided into 10 blocks, each of 5 weeks. Each block is designed to include data from 100 GPs. Each GP's recording pack of 100 forms is made up of 40 forms that contain questions about patient height and weight (for calculation of body mass index, BMI), alcohol intake and smoking status. The remaining 60 forms in each pack are divided into two blocks of 30 forms. Different questions are asked of the patient in each block and these vary throughout the year. The results of topics in the SAND substudies for alcohol consumption, smoking status and BMI are included in this report. Abstracts of results for the substudies conducted in the fourth year of the program and not reported in this document are available through the web site of the Family Medicine Research Centre (of which the General Practice Statistics and Classification Unit is a part) at http://www.fmrc.org.au/beach-pubs.htm#6.

2.4 The BEACH relational database

The BEACH relational database is described diagrammatically in Figure 2.1. Note that all variables can be directly related to GP and patient characteristics and to the encounter. Reasons for encounter have only an indirect relationship with problems managed. All types of management are directly related to the problem being treated.

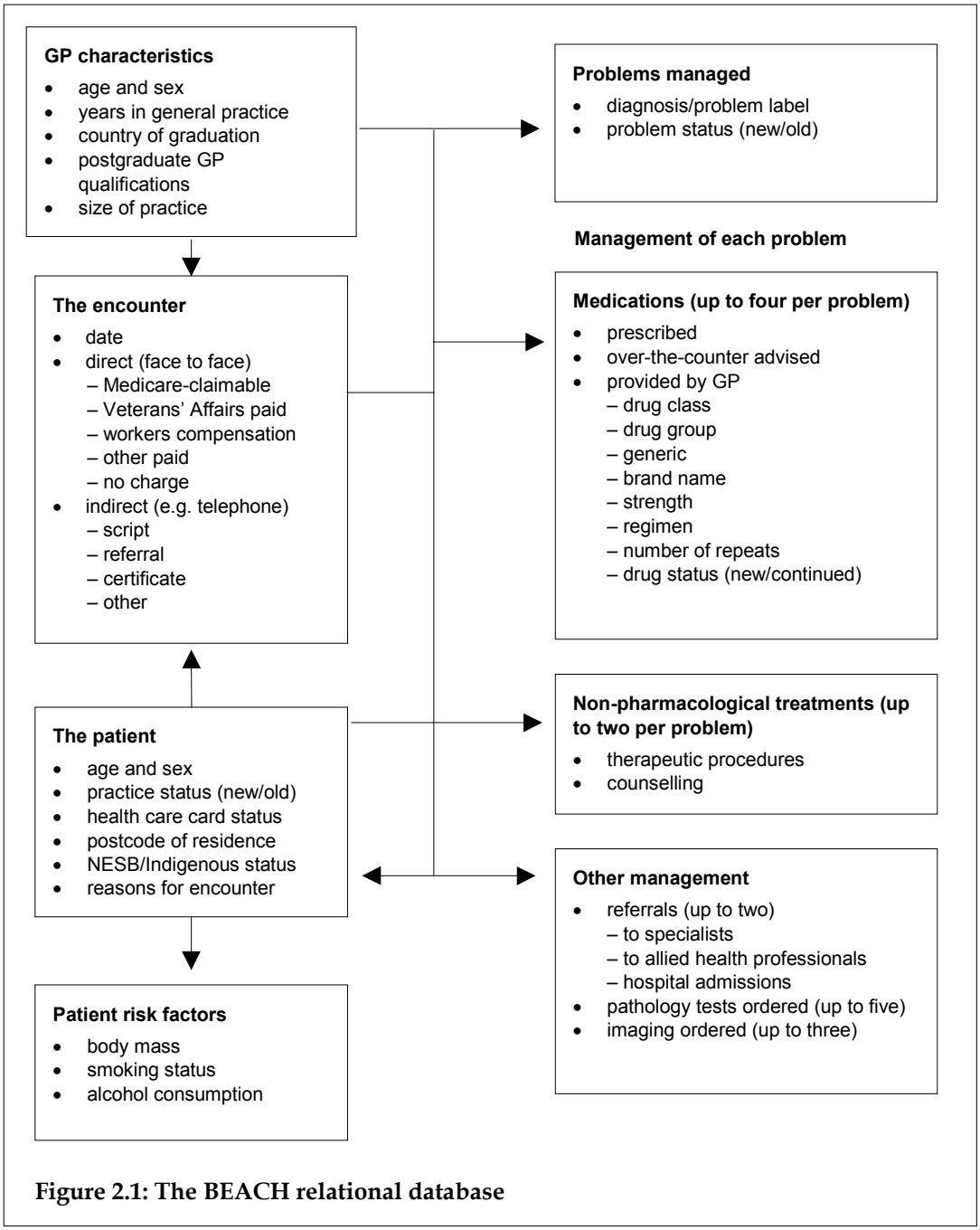

Figure 2.1: The BEACH relational database

2.5 Statistical methods

The analysis of the BEACH database is conducted with SAS versions 6.12[7] and 8.2[8] and the encounter is the primary unit of analysis. Proportions (%) are used only when describing the distribution of an event that can arise only once at a consultation (e.g. age, sex or item numbers) or to describe the distribution of events within a class of events (e.g. problem *A* as a percentage of total problems). Rates per 100 encounters are used when an event can occur more than once at the consultation (e.g. RFEs, problems managed or medications). Rates per 100 problems are also sometimes used when a management event can occur more than once per problem managed. In general, the following results present the number of observations *(n)*, rate per 100 encounters and the 95% confidence intervals.

The BEACH study is essentially a random sample of GPs, each providing data about a cluster of encounters. Cluster sampling study designs in general practice research violate the simple random sample (SRS) assumption because the probability of an encounter being included is a function of the probability of the GP being selected.[9]

There is also a secondary probability function of particular encounters being included in the GP's cluster (associated with the characteristics of the GP or the type and place of the practice) and this increases the likelihood of sampling bias. In addition, there will be inherent relationships between encounters from the same cluster and this creates a potential statistical bias. The probability of gaining a representative sample of encounters is therefore reduced by the potential sampling and statistical bias, decreasing the accuracy of national estimates.

When a study design other than SRS is used, analytical techniques that consider the study design should be employed. In this report the standard error calculations used in the 95% confidence intervals accommodate both the single-stage clustered study design and sample weighting according to Kish's description of the formulae.[10] SAS 6.12 is limited in its capacity to calculate the standard error for the current study design, so additional programming was required to incorporate the formulae. For comparability with previous years, we have continued to use SAS 6.12 for the tables in the body of the report. SAS version 8.2[8] now includes procedures that calculate the robust standard error to adjust for the intra-cluster correlation of the cluster sample. SAS version 8.2 procedures were used in the analysis of trends over time, the summary of Aboriginal and Torres Strait Islander encounters and the combined five year data.

The investigation of the relationship between changes in medication rates and changes in the management rates of related morbidities used multiple linear regression and these methods are described in Chapter 14.

Post-stratification weighting was applied to the raw data before analysis (see Chapter 4).

Weights are calculated for each year's sample and are used to estimate national general practice encounter rates for that year. Weights are valid for summarising a complete year's sample and for analysing trends from year to year. Sampling weights are therefore used for the summary tables in the report and the trend analysis across time.

Because weights are specific for each sample year they are not valid for the analysis of subgroups of patients or when combining data across years. Therefore, the summary of the combined five year data appended to this document and the analysis of the encounters with Aboriginal and Torres Strait Island patients were unweighted.

2.6 Classification of data

The imaging tests ordered, patient reasons for encounter, problems managed, procedures, other non-pharmacological treatments, referrals, pathology and imaging are coded using ICPC-2 PLUS.[11] This is an extended vocabulary of terms classified according to the International Classification of Primary Care—Version 2 (ICPC-2), a product of the World Organization of Family Doctors (WONCA).[12] The ICPC is used in more than 45 countries as the standard for data classification in primary care.

The ICPC has a bi-axial structure, with 17 chapters on one axis (each with an alphabetic code) and seven components on the other (numeric codes) (Figure 2.2). Chapters are based on body systems, with additional chapters for psychological and social problems. Component 1 includes symptoms and complaints. Component 7 covers diagnoses. These are independent in each chapter and both can be used for patient reasons for encounter or for problems managed.

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

Component 2 (diagnostic screening and prevention) is also often applied in describing the problem managed (e.g. check-up, immunisation).

	Chapters																
Components	**A**	**B**	**D**	**F**	**H**	**K**	**L**	**N**	**P**	**R**	**S**	**T**	**U**	**W**	**X**	**Y**	**Z**
1. Symptoms, complaints																	
2. Diagnostic, screening, prevention																	
3. Treatment, procedures, medication																	
4. Test results																	
5. Administrative																	
6. Other																	
7. Diagnoses, disease																	

A	General	L	Musculoskeletal	U	Urinary
B	Blood, blood-forming	N	Neurological	W	Pregnancy, family planning
D	Digestive	P	Psychological	X	Female genital
F	Eye	R	Respiratory	Y	Male genital
H	Ear	S	Skin	Z	Social
K	Circulatory	T	Metabolic, endocrine, nutritional		

Figure 2.2: The structure of the International Classification of Primary Care—Version 2 (ICPC–2)

The ICPC-2 is an excellent epidemiological tool. The diagnostic and symptomatic rubrics have been selected for inclusion on the basis of their relative frequency in primary care settings or because of their relative importance in describing the health of the community. It has only about 1,370 rubrics and these are sufficient for meaningful analyses. However, reliability of data entry, using ICPC-2 alone, would require a thorough knowledge of the classification if correct classification of a concept were to be ensured. In 1995, recognising a need for a coding and classification system for general practice electronic health records, the Family Medicine Research Centre (then Unit) developed an extended vocabulary of terms classified according to the ICPC. These terms were derived from those recorded by GPs on more than half a million encounter forms. The terms have developed further over the past 8 years in response to the use of terminology by GPs participating in the BEACH program and in response to requests from GPs using ICPC-2 PLUS in their electronic clinical systems. This allows far greater specificity in data entry and ensures high inter-coder reliability between secondary coding staff. It also facilitates analyses of information about more specific problems when required.[11]

Classification of pharmaceuticals

Pharmaceuticals prescribed or provided and over-the-counter medications advised by the GP are coded and classified according to an in-house classification, the Coding Atlas for Pharmaceutical Substances (CAPS). This is a hierarchical structure that facilitates analysis of data at a variety of levels, such as medication class, medication group, generic composition and brand name. CAPS is mapped to the Anatomical Therapeutic Chemical classification (ATC)[13] which is the Australian standard for classifying medications at the generic level. Strength and regimen are independent fields which, when combined with the CAPS code, give an opportunity to derive prescribed daily dose for any medication or group of medications.

2.7 Quality assurance

All morbidity and therapeutic data elements are automatically coded and classified by the computer as secondary coding staff enter key words or word fragments and select the required term or label from a pick list. A quality assurance program to ensure reliability of data entry includes ongoing development of computer-aided error checks ('locks') at the data entry stage and a physical check of samples of data entered versus those on the original recording form. Further logical data checks are conducted through SAS on a regular basis.

2.8 Validity and reliability

In the development of a database such as BEACH, data gathering moves through specific stages: GP sample selection, cluster sampling around each GP, GP data recording, and secondary coding and data entry. At each stage, the data can be invalidated by the application of inappropriate methods.

The methods adopted to ensure maximum reliability of coding and data entry have been described above. The statistical techniques adopted to ensure valid reporting of recorded data are described in Chapter 4.

Previous work has demonstrated the extent to which a random sample of GPs recording information about a cluster of patients represents all GPs and all patients attending GPs.[14] Other studies have reported the degree to which GP-reported patient reasons for encounter and problems managed accurately reflect those recalled by the patient[15] and the reliability of secondary coding of RFEs[16] and problems managed.[17] The validity of ICPC as a tool with which to classify the data has also been investigated in earlier work.[18]

Limitations regarding the reliability and validity of practitioner-recorded morbidity have been discussed elsewhere and should always be borne in mind. However, these apply equally to data drawn from medical records (whether paper-based or electronic) and to active data collection methods.[19,20] There is as yet no more reliable method of gaining detailed data about morbidity and its management in general practice. Further, irrespective of the differences between individual GPs in their labelling of problems, morbidity data collected by GPs in active data collection methods have been shown to provide a reliable overview of the morbidity managed in general practice.[21]

3 The general practitioners

3.1 Results of recruitment

Contact was attempted with 3,866 GPs, and established with 3,487 (90.2%) of these. Of the 379 who could not be contacted (9.8% of those approached), there were 60 for whom telephone numbers could not be established, 187 had moved and were untraceable, or were retired or deceased, and 49 were not currently practising (e.g. overseas, on maternity or other leave). A further 83 were unable to be contacted after five attempts by telephone recruiters. Of the 3,487 available practitioners, 1,248 (35.8%) agreed to participate but 240 (6.9%) failed to complete the study. The final participating sample consisted of 1,008 practitioners, representing 28.9% of those who were contacted and available, and 26.1% of those with whom contact was attempted (Table 3.1).

Table 3.1: Recruitment and participation rates

	Number	Per cent of approached (*n*=3,866)	Per cent of contacts established (*n*=3,487)
Letter sent and phone contact attempted	3,866	100.0	—
No contact	379	9.8	—
No phone number	60	1.6	—
Moved/retired/deceased	187	4.8	—
Unavailable	49	1.3	—
No contact after five calls	83	2.1	—
Telephone contact established	3,487	90.2	100.0
Declined to participate	2,239	57.9	64.2
Agreed but withdrew	240	6.2	6.9
Agreed and completed	1,008	26.1	28.9

3.2 The participating GPs

All participants returned a GP profile questionnaire although some were incomplete. Of the 1,008 participants, 64.8% were male and 66.1% were 45 years of age or older. Three-quarters (78.4%) had been in general practice for more than 10 years, and 18.7% could be regarded as practising part-time, working fewer than six sessions per week. Fewer than one in seven (13.7%) were in solo practice. The majority (72.0%) had graduated in Australia and just under two-thirds (64.7%) practised in capital cities. More than one-third (35.5%) were Fellows of the RACGP. Twenty-eight GPs (2.9%) were currently undertaking the RACGP Training Program, and 39.5% had already completed it. Just over half (55.2%) provided their own after-hours practice arrangements or worked in co-operation with other practices to provide after-hours services, rather than relying on locum services or not providing after-hours care. More than three-quarters (79.3%) of practices were accredited. Almost half of participants

(46.9%) spent more than 40 hours each week on direct patient care services. Fifty per cent spent additional time on call apart from their hours of direct patient care, with half of these (26.2%) spending more than 20 hours per week on call. The GPs who spent more than 60 hours per week on call (11.4%) were those who indicated that they are always on call when not on duty. Slightly fewer than half the participants (42.1%) had provided patient care in a residential aged care facility during the month prior to their participation in this study, but only 11.3% had worked as a salaried or sessional hospital medical officer during that period. Almost half (48.4%) of the GPs worked in a teaching practice, either for undergraduates only (25.5%), GP registrars only (8.8%) or both (14.1%) (Table 3.2).

Table 3.2: Characteristics of participating GPs

GP characteristic	Number[(a)]	Per cent of GPs[(a)] (*n*=1,008)
Sex		
Male	653	64.8
Female	355	35.2
Age		
< 35 years	74	7.3
35–44 years	268	26.6
45–54 years	355	35.2
55+ years	311	30.9
Years in general practice (missing=6)		
<2 years	6	0.6
2–5 years	75	7.5
6–10 years	135	13.5
11–19 years	281	28.0
20+ years	505	50.4
Sessions per week (missing=8)		
<6 per week	187	18.7
6–10 per week	679	67.9
11+ per week	134	13.4
Size of practice (missing=8)		
Solo	137	13.7
2–4 GPs	384	38.4
5+ GPs	479	47.9
Place of graduation		
Australia	726	72.0
UK	92	9.1
Asia	100	9.9
Europe	16	1.6
Africa	43	4.3
New Zealand	22	2.2
Other	9	0.9

(continued)

Table 3.2 (continued): Characteristics of participating GPs

GP characteristic	Number[(a)]	Per cent of GPs[(a)] (*n*=1,008)
Practice location		
Capital	652	64.7
Other metropolitan	86	8.5
Large rural	51	5.1
Small rural	78	7.7
Other rural	121	12.0
Remote central	6	0.6
Other remote, offshore	14	1.4
RACGP Training Program status (missing=53)		
Currently training	28	2.9
Completed training	377	39.5
Fellow of RACGP (missing=8)	355	35.5
Own or co-operative after-hours arrangements (missing=10)	551	55.2
Accredited practice (missing=19)	784	79.3
Direct patient care hours (worked) per week (missing=12)		
<10 hours	3	0.3
10–20 hours	112	11.2
21–40 hours	414	41.6
41–60 hours	426	42.8
60+ hours	41	4.1
Hours on call (not worked) per week (missing=46)		
0 hours	479	49.8
<10 hours	58	6.0
10–20 hours	173	18.0
21–40 hours	90	9.4
41–60 hours	52	5.4
60+ hours	110	11.4
Patient care provided in previous month		
As a locum	61	6.1
In a deputising service	29	2.9
In a residential aged care facility	424	42.1
As a salaried/sessional hospital medical officer	114	11.3
Major practice a teaching practice (missing=13)		
For undergraduates only	254	25.5
For GP registrars only	88	8.8
For both undergraduates and registrars	140	14.1

(a) Missing data removed.

Note: RACGP—Royal Australian College of General Practitioners

3.3 Computer use by participating GPs

Computers were used in 91.7% of practices, mainly for prescribing (79.6%) and billing (73.5%) purposes. Almost two-thirds (65.1%) of practices used computers for administrative processes and 60.9% used them for medical records. More than half (58.8%) used the Internet or email (Table 3.3).

Table 3.3: GP computer use

Computer use	Number	Per cent of GPs (*n*=1,008)	Per cent of GPs with computers (*n*=920)
Not at all	83	8.3	—
Billing	737	73.5	80.1
Prescribing	798	79.6	86.7
Medical records	611	60.9	66.4
Other administrative	653	65.1	71.0
Internet/email	590	58.8	64.1
Missing	5	0.5	—

The top ten combinations of computer use by participants are listed in Table 3.4. One-third of the GPs (33.7%) indicated that their practice used computers for all five purposes—billing, prescribing, medical records, other administrative and Internet/email. Prescribing was the only usage included in all of the top ten combinations. Billing was the second most common usage, with medical records and Internet/email usage ranking equal third. Fewer than half the GPs (43.5% of participants; 47.4% of participants with computers) reported computer use for both medical records and Internet/email purposes.

Table 3.4: Top ten combinations of computer use for GPs

Combination	Number	Per cent of GPs (*n*=1,008)	Per cent of GPs with computers (*n*=920)
All five uses	338	33.7	36.7
Billing + prescribing + medical records + other administrative	81	8.1	8.8
Billing + prescribing + other admin + Internet/email	58	5.8	6.3
Billing + prescribing + medical records	49	4.9	5.3
Billing + prescribing + other administrative	39	3.9	4.2
Billing + prescribing + medical records + Internet/email	36	3.6	3.9
Billing + prescribing	36	3.6	3.9
Billing + prescribing + Internet/email	30	3.0	3.3
Prescribing + medical records + other admin + Internet/email	26	2.6	2.8
Prescribing + medical records + Internet/email	25	2.5	2.7

3.4 Comparison of participating and non-participating GPs

The General Practice Branch of the DoHA provided some information about each of the GPs drawn in the initial sample from HIC data. This information was used to determine the extent to which the final participating GPs were representative of the initial sample of practitioners. These data included the number of general practice A1 Medicare items claimed in the previous 12 months and in the previous quarter. For the purposes of this analysis, the number of items in the previous quarter is referred to as 'activity level'.

In Table 3.5 the characteristics of the final participants are compared with those of all other GPs drawn in the initial sample using DoHA data elements. There were considerable discrepancies between the DoHA's information about participants (Table 3.5) and that self-reported by the GPs (Table 3.2), suggesting that the reliability of DoHA GP characteristic data may be questionable. There is, however, no reason to assume that the accuracy of DoHA data should differ for participants and non-participants.

Differences between participants and non-participants were tested using the chi-square statistic (significance at the 5% level), using the DoHA characteristic data from both groups. There were no significant differences between participants and non-participants in place of graduation and location of practice in terms of the Rural, Remote and Metropolitan Area (RRMA) classification.[22]

The sex and age distributions for participants and non-participants were significantly different. There were slightly fewer males and slightly more females in the participating group, and GPs under the age of 35 years were under-represented in the participant population whereas those aged 55 years and over were over-represented (Table 3.5). The difference in years since graduation of participants compared with non-participants reflected this age difference (results not shown).

For State or Territory, the statistically significant difference in distribution resulted from a higher participation rate by GPs from New South Wales. The proportion of participants in other States was similar to that of non-participants. There was a statistically significant difference in mean activity level in the previous quarter (measured by the number of A1 Medicare items of service claimed) between participants and non-participants. GPs with an activity level of 375–750 services in the previous quarter were considerably more likely to participate than those in the 751–1,500 or >1,500 groups. However, comparisons of the median scores for each group showed a difference of only six consultations per week. It is possible that the time required to participate in BEACH may be a greater issue for full-time GPs than part-time GPs. BEACH also may offer an avenue for fulfilling RACGP Clinical Audit requirements to part-time GPs who may not be as able to take up other avenues.

3.5 Discussion

The response rate of GPs to BEACH was 28.9% of those with whom contact was established. This rate is slightly lower than last year (32.3%) but similar to the previous year (29.8%) and lower than in the initial two years of BEACH (38.4% and 39.1%). These variations are possibly a reflection of the stage of triennium for each year of recruitment. The wide variety of QA options currently available to GPs may also affect the response rate. In recognition of the work involved in BEACH participation, the RACGP has recently announced an increase

in the number of points available commensurate with the amount of work involved. It will be interesting to see how this change affects response rates in the future.

The continued under-representation of GPs aged less than 35 years also may reflect the fact that GP registrars are not required to undertake QA activities during training or during the QA triennium on completion of training. We are currently undertaking a separate study (using BEACH methods) of a sample of registrars in city and rural practice. It will be interesting to see whether registrars do practise differently from other GPs. If not, the above adjustment for age of GP is not really necessary. If so, incentives are needed to encourage the participation of these younger GPs to ensure their sufficient representation in the future.

Of particular interest in the above results is the combination of computerised medical records and Internet/email use. Only 436 GPs (43.5% of participants; 47.4% of participants with computers) reported using computers for both purposes in their practice. Given the current trend toward supplying clinicians with guidelines and other information via the Internet, the use of these facilities to claim for bulk billed patients and the transfer of information from computerised records via electronic download for data collection, this is a surprising outcome. We hypothesised that this result was an effect of rural GPs having limited Internet access as a consequence of limited telecommunications infrastructure in many areas. On investigation of the location of GPs using Internet and email facilities, it appears that this is not the case. Applying the RRMA classification to investigate this group of participants, rural and metropolitan GPs were found to differ significantly in their Internet/email use (χ^2=8.4463, p=0.004), however, it is the rural GPs who (proportionally) use Internet/email facilities the most. It would seem that, although metropolitan GPs may have better access, they are less inclined to use these facilities.

Table 3.5: Comparison of characteristics of participating and non-participating GPs

	Participants[a] (*n*=1,008)		Non-participants[a] (*n*=2,479)	
GP characteristics	**Number**	**Per cent of GPs[b]**	**Number**	**Per cent of GPs[b]**
Sex (χ^2=7.88, p=0.0193)				
Male	653	64.8	1,727	69.7
Female	355	35.2	752	30.3
Age (χ^2=23.01, p=4.02E-05)				
< 35 years	73	7.5	226	9.5
35–44 years	240	24.7	660	27.7
45–54 years	338	34.8	900	37.8
55+ years	319	32.9	593	24.9
Missing	38	—	100	—
Place of graduation (χ^2=1.33, p=0.5127)				
Australia	734	72.8	1,852	74.7
Overseas	274	27.2	627	25.3
State (χ^2=15.64, p=0.0285)				
New South Wales	400	39.7	911	36.8
Victoria	190	18.8	497	20.1
Queensland	214	21.2	507	20.5
South Australia	62	6.2	202	8.2
Western Australia	90	8.9	239	9.7
Tasmania	28	2.7	62	2.5
Australian Capital Territory	13	1.3	47	1.9
Northern Territory	11	1.1	8	0.3
Missing	—	—	6	0.2
RRMA (χ^2=7.1, p=0.31)				
Capital	654	64.9	1,606	68.1
Other metropolitan	86	8.5	218	8.5
Large rural	51	5.1	170	6.0
Small rural	76	7.5	182	6.3
Other rural	121	12.0	259	9.4
Remote centre	6	0.6	16	0.5
Other remote	14	1.4	22	0.8
Missing	—	—	6	0.2
Activity (χ^2=18.74, p=8.51E-05)				
375–750 services in previous quarter	240	23.8	436	17.6
751–1,500 services in previous quarter	408	40.5	1,129	45.5
>1,500 services in previous quarter	360	35.7	914	36.9
Mean activity level (*t* =2.10, p=0.036)	1,362.9	—	1,422.7	—
Median activity level	1,182.0	—	1,264.0	—
Standard deviation	771.3	—	758.1	—

(a) Data provided by the GP Branch, Australian Department of Health and Ageing. (b) Missing data removed.

3.6 Trends in characteristics of the GPs, 1998–2003

Over the first 5 years of BEACH, there were some notable trends in the characteristics of the GPs who participated in the program (see Appendix 4, Table A4.1).

The proportion of GP participants who are female has maintained a gradual increase from 30.0% to 35.2% since 1998–99. Participants in BEACH 2002–03 tended to be older than those from 1998–99, there being a gradual decrease in the proportion younger than 45 years (from 42.5% to 33.9%). Although the proportion in the 44–54 year age group did not increase further during the past year, the proportion of participants aged 55 years and over continued an upward trend (from 25.2% to 30.9%). From comparisons with the national data in each year,[5,6,23,24] these changes appear to reflect changes in the characteristics of the total practising GP population. Reflecting the ageing population of participating GPs, decreases were noted in the proportion who had practised for 6–10 years (17.2% to 13.5%) and for 11–19 years (33.7% to 28.0%), and the proportion who had spent more than 20 years in general practice increased from 42.2% to 50.4%.

Although there was no obvious change in the proportion of GPs working six to ten sessions per week, there has been a general increase in the proportion working fewer than six sessions per week (12.3% to 18.7%) and a decrease in the proportion who work 11 or more sessions per week (19.1% to 13.4%). In parallel, the proportion of participants working in larger practices of five or more GPs increased over the 5 years from 38.9% to 47.9%. The greater proportion working fewer sessions per week, and the decrease in the proportion working more than 11 sessions per week probably reflect a combination of factors—an increasing proportion of females in the general practice workforce, who may tend to work part-time during child rearing years; older GPs may be working fewer sessions rather than retiring; the increasing size of practices may reduce pressure on individual GPs to work as many sessions as they may have previously.

The proportion of GPs who conducted more than 50% of their consultations in a language other than English showed an upward trend over the first 3 years of BEACH, rising from 11.3% to 13.5%. These data were not collected in the fourth and fifth years of the program but will be reported again at the end of the sixth year, BEACH 2003–04. An increase from 30.4% to 39.5% was noted in the percentage of participating GPs who had completed the Training Program. The proportion of participants who held Fellowship of the Royal Australian College of General Practitioners also increased over the 5 years, from 27.3% to 35.5%. Data on computer use by GPs has only been collected in BEACH since 2000–01, but has shown a steady increase in usage over the three years, from 87.4% to 91.3%. A summary of these results can be found in Appendix 4, Table A4.1.