13. Changes since 1991

This chapter compares findings from BEACH 1998 with those from the Australian Morbidity and Treatment Survey 1990–91 (AMTS), the most recent national survey of general practice (Bridges-Webb et al. 1992). The purpose in examining these findings from the two in-depth studies of morbidity managed and treatment provided in general practice is to ascertain whether changes have occurred during the eight year period 1990–91 to 1998–99. Documenting change provides an understanding of the trends that are taking place in general practice activity.

The AMTS, a paper-based random survey of doctor–patient encounters, was the culmination of a number of studies undertaken by a group of researchers from the University of Sydney exploring and testing the methodology of research into general practice. These same methods have formed the basis of the BEACH 1998 method.

In the AMTS, a random, stratified (by State) sample of 495 general practitioners recorded all consultations that took place in the surgery or in the patient's home for two periods of one week, six months apart. The data were weighted to adjust for an over-representation from the smaller States and Territories, which had been over-sampled to allow for individual State analysis. The weighted dataset contained 98,796 encounters, which were analysed in terms of patient reasons for encounter, problems managed and their treatments, type of consultation, tests, referrals and follow-up. A total of 145,799 problems were managed and 98,563 drugs were prescribed or provided.

In BEACH 1998, a random sample of 984 participants each recorded details of 100 consecutive encounters, providing a database of 98,400 records. These data were then weighted to correct for GP activity level and for a slight under-representation of young GPs (see Methods). The AMTS included only direct encounters, that is, those at which the patient was seen, either in the surgery or at home visits. Therefore, to ensure comparability, only the direct encounters in the surgery or home were extracted from the BEACH dataset and analysed for the results shown in this chapter. The weighted data from these BEACH 1998 encounters, comprising 92,758 consultations, form the basis of the following comparisons.

Both the AMTS and BEACH 1998 relied on GPs actively recording details about consecutive consultations on paper encounter forms. The forms used for each consultation in BEACH 1998 contained all but one of the features of the original AMTS form. The elimination of the question on 'follow-up' was the only change made to the 'core' of the data-gathering instrument. The morbidity and treatment section remained essentially comparable with the 1990–91 AMTS. Additions to the BEACH 1998 recording form, the 'SAND' section, provide a rich data source but have no comparable elements in the AMTS. The additions of more specific pharmaceutical data and expanded patient demographic data are other data elements of BEACH that cannot be compared with results from the earlier study.

The GP profile questionnaire, which gathered demographic data on the GP participants, has remained almost the same since the AMTS, thus enabling comparison of the characteristics of participants in the two studies.

Statistical methods for the measurement of difference were applied incorporating the single stage cluster sampling design used in both studies. In most cases, statistical difference was determined on the basis of non-overlapping confidence intervals (CI) where specific comparisons were made between two estimates. Chi-square tests at the 5% level were used to measure differences between the characteristics of GP participants in both studies. Only

those differences that were proven to be statistically significant can be regarded with any certainty.

13.1 Characteristics of participating GPs

The GP profile questionnaire was completed by 95.5% of the AMTS GPs and 100% of BEACH participants. Results are shown in Table 13.1.

There was a statistically significant increase in the proportion of participating GPs who were female, reflecting the increased number of women practising as GPs. There was no significant change in the age group distribution of participants. The proportion of GPs who worked in solo practice decreased from 25.9% in 1991 to 16.4% in 1998 but no statistically significant difference was found.

There were changes in the percentage of participants who had graduated in Australia in the 1998 study and the proportion of participants who had graduated overseas, particularly Asia and Europe. GPs in BEACH 1998 were also much more likely than participants in the AMTS 1990–91 to report conducting more than 50% of consultations with patients who spoke a language other than English at home. However, chi-square tests found no significant differences in any of these results.

Fellows of the Royal Australian College of General Practitioners comprised a significantly higher proportion of participants in BEACH, rising from 12.9% in 1991 to 32.3% in 1998. The proportion of GPs who had completed the RACGP training program also showed a statistically significant increase from 1991 when the program had only recently been introduced. It rose from 4% in the AMTS to 35.1% in 1998, reflecting a cumulative total of GPs who had gone through the training program during the past seven years.

Table 13.1: Comparison of GP participants 1991––1998

	AMTS 1990–91(a)	BEACH 1998–99(a)
GP characteristic	**%**	**%**
Sex (c^2=4.08, p=0.04)	. .	. .
Male	80.5	68.0
Female	19.5	32.0
Age (c^2=0.66, p=0.71)	. .	. .
<35 years	14.2	15.7
35–54 years	67.9	62.5
>54 years	18.0	21.8
Size of practice (c^2=2.70, p=0.10)	. .	. .
Solo	25.9	16.4
Place of graduation (c^2=0.36, p=0.54)	. .	. .
Australia	80.0	76.5
United Kingdom	9.7	9.0
Asia	6.2	8.6
Europe	1.3	2.4
Africa	1.1	1.5
New Zealand / Pacific	0.2	1.3
Other	1.5	0.6
Consult in language other than English (c^2=2.68, p=0.10)	. .	. .
>50% consultations	4.9	11.2
Medical post-graduate qualifications	. .	. .
Fellow of RACGP (χ^2=10.75, p<0.01)	12.9	32.3
RACGP training program (χ^2=30.74, p<0.01)	4.0	35.1

(a) Missing data removed.

13.2 Distribution of services

Doctors in both studies were instructed to record only one Medicare item number per encounter. If an encounter included more than one item, for example a standard consultation plus a procedure (e.g. acupuncture or excision), they were told to record the standard item number because the procedure would be recorded elsewhere on the form.

Of all encounters recorded by AMTS GPs, 89.1% took place in the doctor's surgery and 4.3% were home visits. Medicare paid standard surgery consultations made up 81.1% of all encounters. A third category 'Other' incorporated all item numbers for specific procedures, miscellaneous work such as insurance or workers' compensation and pre-employment check-ups which are not covered by Medicare, plus encounters at which no item number was recorded. These made up 6.6% of the total.

Surgery consultations in BEACH 1998 accounted for 84.2% of the total direct encounters, while home visits showed a statistically significant relative decrease at just 1.7%. Medicare

paid standard surgery consultations made up 75.5% of all encounters, a significant decrease from the earlier study. There was a statistically significant relative decrease in the percentage of short consultations in the BEACH 1998 and a significant increase in the proportion of long surgery consultations. This could reflect an increasing complexity of doctor–patient encounters in general practice. Factors related to this change could include the age distribution of patients (in an aging population) and possibly the trend towards earlier discharge of patients from hospitals.

In BEACH 1998 14.1% of encounters met the same criteria for inclusion in the grouped 'Other' category. This is more than double the AMTS finding and may be partially attributed to the more structured arrangement of this section of the BEACH encounter form, which encouraged more specificity from participants. This difference may also have contributed to the significant changes in patterns of practice noted above.

A comparison of the distribution of items of service is shown in Table 13.2.

Table 13.2: Distribution of items of service

	AMTS 1990–91				BEACH 1998–99			
Items of service	**Number**	**% (a)**	**95% LCI**	**95% UCI**	**Number**	**% (a)**	**95% LCI**	**95% UCI**
Short surgery	2,938	3.0	2.5	3.4	1,241	1.3	0.9	1.8
Standard surgery	80,089	81.1	80.1	82.0	70,024	75.5	74.3	76.7
Long surgery	4,612	4.7	4.0	5.3	6,378	6.9	6.3	7.5
Prolonged surgery	416	0.4	0.0	1.1	473	0.5	0.0	1.5
Home visit	4,249	4.3	4.7	4.9	1,604	1.7	1.3	2.4
Other (includes missing item no.)	6,491	6.6	5.6	7.5	13,037	14.1	12.9	15.2

(a) Percentage of all direct encounters.

Note: Abbreviations: UCI – Upper confidence interval, LCI – Lower confidence interval.

13.3 Age and sex of patient

13.3.1 Age of patient

There was a similar pattern of distribution across most age groups of patients at AMTS and BEACH encounters. However, significant differences were found in the 15–24 age group where there was a lower proportion of patients, and in the 45–64 age group where there was a higher proportion of patients in BEACH than in the AMTS (Table 13.3).

13.3.2 Sex of patient

There was no significant difference in the patient gender distribution in the two studies. There were more encounters with female than with male patients in the AMTS (58.1% compared with 42.1% male). BEACH 1998 data presented a similar finding: encounters with female patients made up 58.6% of the total while 41.4% of encounters were with males.

Table 13.3: Age distribution of patients in AMTS and BEACH

	AMTS 1990–91				BEACH 1998–99			
Age group of patients	Number	% (a)	95% LCI	95% UCI	Number	% (a)	95% LCI	95% UCI
<1 year	2,264	2.3	2.1	2.5	2,210	2.4	2.2	2.6
1–4 years	5,458	5.5	5.2	5.9	4,994	5.4	5.1	5.7
5–14 years	7,934	8.0	7.6	8.4	6,843	7.4	7.1	7.7
15–24 years	10,713	10.8	10.4	11.3	9,249	10.0	9.6	10.3
25–44 years	25,268	25.6	24.7	26.4	24,301	26.2	25.5	26.9
45–64 years	21,920	22.2	21.5	22.8	22,711	24.5	24.0	25.0
65–74 years	13,249	13.4	12.7	14.1	11,619	12.5	12.0	13.0
75+ years	10,907	11.0	10.3	11.8	10,869	11.7	11.0	12.3

(a) Percentage of all patients at direct encounters (missing data excluded)

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

13.4 Comparison of problems managed

The following description of problems managed applies to both studies. A problem was defined as any disease, complaint, social problem or ill-defined condition managed at the encounter. GPs were instructed to record at least one and up to four problems at the most specific level possible from the information available. The order in which problems were recorded was unimportant as all problems managed were of interest.

There was no statistically significant difference between the rates of problems managed in the two studies. In the AMTS, GPs managed a total of 145,799 problems at 98,796 patient encounters, an average rate of 148 problems per 100 encounters. A total of 135,672 problems were recorded in BEACH 1998 at 92,758 direct patient encounters, an average of 146 per 100 encounters.

13.4.1 Most common problems managed

The 30 most frequently managed problems are compared in Table 13.4. The problems are listed in order of decreasing frequency as they appeared in the BEACH 1998 data.

A considerable amount of change in the relative management rates of the most common problems can be seen. Although hypertension remained the most commonly managed problem, the relative rate per 100 encounters decreased significantly from 9.5 to 8.4.

Immunisation/vaccination rose from the sixth to the third most frequently managed problem and a statistically significant increase was found in its rate of management. In 1991 immunisation/vaccination showed a rate of 3.2 per 100 encounters, whereas in 1998 the rate was 5.3 per 100 encounters. A number of developments in the 1990s may have contributed to this finding. The General Practice Immunisation Incentive (GPII) introduced by the Federal Government to increase vaccination in general practice, and the downgrading of the Local Government Immunisation Program, would have had some effect. The introduction of new vaccines may also have been a factor. The increasingly wide-spread use of influenza vaccine for at-risk and elderly patients, as demonstrated by the relatively high frequency of

influenza vaccine as a prescribed medication (see Chapter 13.5 below), would also have affected the result.

A statistically significant increase in the management rate of depression was found. From a rate of 2.1 in 1991 when depression was the tenth most frequently managed, it rose to a rate of 3.5 per 100 encounters in 1998, becoming the fourth most commonly managed problem in general practice.

It is possible that a real increase in the rate of depression in the community has occurred and that this was reflected in problems managed in 1998 by general practitioners, the most accessible members of the health care workforce. The status of depression as a new problem for the patient is an indication of a real rise in the incidence of depression in general practice. The rate of new depression presentations per 100 encounters rose significantly between the two studies, from 0.5 per 100 encounters in 1991 to 0.7 in 1998.

A number of other factors may have some bearing on the increase in total depression problems. A significant decrease was found in the frequency of recorded cases of anxiety as a problem managed. This might indicate that some patients were diagnosed with depression in the later study where previously a diagnosis of anxiety might have been recorded. A growing acceptability of depression may have led to less hesitancy on the part of the GP to record this diagnosis.

A more open attitude to depression has evolved in the 1990s, led by media exposure. These changing attitudes may have encouraged patients to go to their GP seeking new and effective management methods of which they have heard. A concomitant rise in overall prescribing for depression did occur. Prescriptions were written at 62.7% of contacts with depression in 1991 and 68.6% in 1998, a statistically significant increase. In line with the increased relative frequency of depression, the prescription rate for anti-depressants has also risen by more than 50%, from 1.8 to 2.9 per 100 encounters.

A number of other problems managed showed statistically significant increases in rate per 100 encounters between the two studies. They were back complaint, diabetes, lipid disorder, oesophageal disease and prescription requests. The increase in back complaint and diabetes in general practice points to an increase in these problems in the population of Australia, or an increase in rates of identification of the problems. A more thorough investigation of these two diagnoses than is possible here would help to clarify this point.

Lipid disorder (usually hypercholesterolaemia) could be an example of a condition which has received a lot of attention during the 1990s, raising GP and public awareness of the need to control cholesterol level and leading to an increase in the relative frequency of its management. Media reports and vigorous marketing strategies by the pharmaceutical industry may have influenced patients to visit a GP for this 'at-risk' cardiovascular condition. GPs may also be testing cholesterol levels in their patients more often, leading to an increase in the identification of lipid disorder. The fact that the most common hypolipidaemic drug, simvastatin, was recorded at the significantly higher rate of 0.9 in the 1998 study, compared to 0.4 per 100 encounters in 1991, supports these assumptions (see Table 13.6 below).

Oesophageal disease, a rubric that covers a group of diseases associated with the oesophagus such as reflux, spasm, achalasia, ulcerative and other oesophagitis, showed a significant increase between the two studies. A major factor in this increase would be the advent of new drugs onto the market to treat this disease (see Chapter 13.5.1 below).

Table 13.4: Comparison of most frequently managed problems

Problem managed	AMTS 1990–91				BEACH 1998–99			
	Number	Rate per 100 encs(a)	95% LCI	95% UCI	Number	Rate per 100 encs(a)	95% LCI	95% UCI
Hypertension*	9,356	9.5	8.9	10.0	7,779	8.4	8.0	8.8
URTI	7,017	7.1	6.7	7.5	6,585	7.1	6.6	7.6
Immunisation/vaccination all*	3,195	3.2	3.0	3.5	4,922	5.3	4.8	5.8
Depression*	2,053	2.1	1.9	2.2	3,229	3.5	3.3	3.7
Acute bronchitis/bronchiolitis	3,484	3.5	3.3	3.8	3,137	3.4	3.1	3.7
Asthma	3,692	3.7	3.5	4.0	2,972	3.2	3.0	3.4
Back complaint*	2,062	2.1	1.9	2.2	2,476	2.7	2.4	3
Diabetes*	1,908	1.9	1.8	2.1	2,388	2.6	2.4	2.8
Lipid disorder	1,744	1.8	1.6	1.9	2,312	2.5	2.3	2.7
Osteoarthritis*	3,601	3.6	3.4	3.9	2,028	2.2	2.0	2.4
Sprain/strain*	2,146	2.2	2.0	2.3	1,779	1.9	1.6	2.2
Contact dermatitis	2,040	2.1	2.0	2.2	1,739	1.9	1.7	2.1
Acute otitis media/myringitis	1,921	1.9	1.8	2.1	1,737	1.9	1.7	2
Female genital check-up/Pap smear*	1,508	1.5	1.3	1.7	1,558	1.7	1.4	1.9
Anxiety*	2,475	2.5	2.3	2.7	1,549	1.7	1.5	1.8
Sinusitis acute/chronic	1,659	1.7	1.5	1.8	1,502	1.6	1.4	1.8
Sleep disturbance	1,543	1.6	1.4	1.7	1,469	1.6	1.4	1.7
UTI*	1,635	1.7	1.6	1.7	1,446	1.6	1.4	1.7
General check-up*	1,450	1.5	1.3	1.6	1,429	1.5	1.3	1.7
Tonsillitis*	1,715	1.7	1.6	1.9	1,413	1.5	1.3	1.7
Oesophageal disease	682	0.7	0.6	0.8	1,374	1.5	1.3	1.6
Menopausal complaint	1,291	1.3	1.1	1.5	1,372	1.5	1.3	1.6
Viral disease NOS	1,438	1.5	1.3	1.6	1,267	1.4	1.1	1.6
Cardiac check-up*	780	0.8	0.7	1.0	1,200	1.3	0.9	1.7
Prescription all*	527	0.4	0.3	0.7	1,140	1.2	0.9	1.6
Gastroenteritis, presumed infection	1,370	1.4	1.3	1.5	1,039	1.1	0.9	1.3
IHD without angina	1,347	1.4	1.2	1.5	999	1.1	0.8	1.3
Fracture*	1,001	1.0	0.9	1.1	997	1.1	0.7	1.4
Pre/post natal check-up*	963	1.0	0.7	1.3	987	1.1	0.9	1.2
Solar keratosis/sunburn[b]	n.a.	n.a.	n.a.	n.a.	952	1.0	0.8	1.2
Subtotal	*70,338*	. .	. .	. .	*64,775*	. .	. .	. .
Total problems	**145,799**	**147.6**	**143.2**	**152.0**	**135,672**	**146.3**	**144.3**	**148.2**

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

(b). Rubric was not seperable in the 1990–91 study.

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

– *Note:* Abbreviations: Encs – encounters, UCI – Upper confidence interval, LCI – Lower confidence interval, n.a. – not available

No comparison can be made of the rate of management of solar keratosis/sunburn because of classification changes in the revision of ICPC, which has rendered the codes and their rubrics incomparable in the two studies.

Asthma was the most common problem that showed a statistically significant relative decrease in management rates. The management rate in the 1991 study was 3.7, compared to 3.2 per 100 encounters in 1998. One possible explanation for the decrease in asthma is the availability of salbutamol from the pharmacy without need for a prescription. This is borne out by overall prescription results, which show a significant decrease in salbutamol from 3.1 to 2.4 per 100 encounters (see Table 13.6 below). However, even with the advent of 'over the counter' salbutamol, it remains the fourth most commonly prescribed medication in BEACH 1998, leading to the conclusion that salbutamol is not the only influence here. There has been a greater emphasis on education of asthma sufferers and their families over the last few years. With more information to guide them regarding asthma preventive drugs, and encouragement from their doctors, patients may be more able to apply self-management methods.

Two other problems, anxiety and osteoarthritis, showed a significantly lower relative rate per 100 encounters in the later study. Anxiety as a problem managed decreased significantly from a rate of 2.5 per 100 encounters to 1.7 in 1998. The rise in the diagnosis of depression discussed earlier may have been a factor in this finding.

The management of osteoarthritis also showed a significantly lower relative management rate. One factor which could have contributed to this result is the recent availability 'over the counter' of some brands of the NSAID, ibuprofen. However, total NSAIDs have dropped slightly in frequency between the two studies, pointing to a diversification of treatments, such as acupuncture and herbal remedies, for this condition. It is possible that patients are turning to health providers other than general practitioners for treatment of osteoarthritis.

13.4.2 Comparison of problems by ICPC-2 chapter

Problems managed, grouped within ICPC-2 chapters, can also be compared between the two studies. This comparison is shown in Table 13.5.

Statistically significant increases were found in the relative management rate of general and unspecified problems, in endocrine and metabolic problems and in problems of the male genital system between the 1991 and 1998 studies. Problems associated with the skin, the circulatory system, the eye and those of a social nature all demonstrated a statistically significant relative decrease in BEACH 1998 when compared to the AMTS 1991.

Table 13.5: Comparison of problems managed across ICPC-2 chapter

ICPC chapter	AMTS 1990–91				BEACH 1998–99			
	Number	Rate per 100 encs(a)	95% LCI	95% UCI	Number	Rate per 100 encs(a)	95% LCI	95% UCI
Respiratory	24,283	24.6	23.7	25.5	23,053	24.9	24.1	25.6
Musculoskeletal	17,533	17.8	17.0	18.5	15,915	17.2	16.5	17.8
Skin	18.100	18.3	17.7	19.0	15,652	16.9	16.4	17.4
Circulatory	18,203	18.4	17.5	19.4	14,905	16.1	15.4	16.8
General & unspecified	9,652	9.8	9.3	10.2	11,951	12.9	12.4	13.4
Digestive	10,396	10.5	10.1	10.9	9,574	10.3	10	10.6
Psychological	9,664	9.8	9.2	10.3	9,506	10.3	9.8	10.7
Endocrine & metabolic	7,197	7.3	6.9	7.7	8,218	8.9	8.4	9.3
Female genital system	7,141	7.2	6.7	7.7	5,893	6.4	6	6.7
Ear	5,294	5.4	5.1	5.6	4,714	5.1	4.8	5.3
Pregnancy & family planning	4,140	4.2	3.8	4.5	3,827	4.1	3.8	4.4
Neurological	3,911	4.0	3.8	4.1	3,721	4.0	3.8	4.2
Eye	3,310	3.4	3.2	3.5	2,628	2.8	2.7	3
Urology	2,852	2.9	2.7	3.0	2,541	2.7	2.6	2.9
Blood	1,848	1.9	1.7	2.0	1,536	1.7	1.4	1.9
Male genital system	1,066	1.1	1.0	1.2	1,320	1.4	1.3	1.5
Social problems	1,208	1.2	1.1	1.4	713	0.8	0.6	0.9
Total	***145,799***	***147.6***	***143.2***	***152.0***	**135,672**	**146.3**	**144.3**	**148.2**

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

Note: Abbreviations: Encs – encounters, UCI – Upper confidence interval, LCI – Lower confidence interval.

13.5 Comparison of medications prescribed

In the AMTS, only medications prescribed or provided from the GP's own supply were recorded. This comparison, therefore, does not include the 'over the counter' drugs recorded by BEACH participants.

The total number of prescriptions recorded during the AMTS was 98,563, a rate of 100per 100 encounters. This does not mean that a prescription was recorded at 99 out of every 100 encounters, because multiple prescriptions were often written at one encounter. For every 100 problems managed, 67.7 prescriptions were recorded.

There were 87,381 prescriptions recorded during BEACH 1998 at a rate of 94.2 per 100 encounters. Per 100 problems managed, the rate was 64.4.

Overall rates of medication prescribing declined significantly between the two studies both as a rate per 100 encounters and as a rate per 100 problems. As there have been few changes between 1991 and 1998 in the number of repeats allowable, this decline cannot be due to an effect of legislation. However, some widely used medications such as salbutamol can now be obtained without prescription and this could have affected the results.

13.5.1 Individual drugs prescribed

The 30 most frequently prescribed medications in BEACH, with their corresponding results from the AMTS, are shown in Table 13.6.

There was a statistically significant relative increase in the rate per 100 encounters of the most commonly prescribed drug, paracetamol, and of the third and fifth most common drugs in BEACH, paracetamol/codeine and cefaclor monohydrate.

Amoxycillin, erythromycin and doxycycline, three of the most frequently prescribed drugs in the AMTS all decreased significantly in BEACH. Cotrimoxazole and flucloxacillin dropped out of the top 30 drugs in BEACH after having been among the most common in the AMTS. Conversely, roxithromycin was not recorded in the AMTS as it was not available in 1990, but became the seventh most commonly prescribed drug in the 1998 study. These results suggest that the reason for the most notable changes in prescribing habits between 1991 and 1998 was the availability of new drugs on the market. The two antibiotics, cefaclor and roxithromycin, recent additions to the market, became the fifth and seventh most commonly prescribed drugs in the 1998 study, probably due to their efficacy and lack of side effects. The significant decreases in BEACH of many of the other anti-infective medications could be directly linked to this result.

As would be expected, there was a significant decrease in prescribed salbutamol, from a rate of 3.1 to 2.4 per 100 encounters. Beclomethasone also decreased significantly from a rate of 1.5 per 100 encounters in 1991 to 0.7 in 1998. On the other hand, budesonide topical nasal spray was not recorded in 1990 but in 1998 it became one of the top 30 most frequently prescribed. This was despite the drop in allergic rhinitis, which was among the Top 30 most common problems in 1990 but not in 1998, and may indicate a trend in managing asthma-related conditions.

The only skin preparation to appear in the top 30 was the topical corticosteroid, betamethasone, and it showed a statistically significant decrease in prescription rate between the two studies. The anti-anxiety agent, oxazepam, also declined significantly in rate from 1991 to 1998, in line with the decrease in anxiety as a problem managed.

The relative rate of prescribing the influenza virus vaccine rose from 1.0 to 1.7 per 100 encounters. However, the drug tended to cluster around certain GPs, causing the cluster effect to prevent any statistical significance being found.

The combined oral contraceptive levonorgestrel/ethinyloestradiol was high on the list of most frequent drugs in 1998, having increased significantly since 1991. The rate of prescribing of drugs such as levonorgestrel/ethinyloestradiol and the compound analgesic, paracetamol/codeine could be examples of changing prescribing habits led by changing preferences among doctors and their patients.

The digestive system drug, ranitidine, was a fairly new medication in 1991 and rose significantly in rate of prescribing by 1998. In BEACH it was prescribed at a rate of 1.0 per 100 encounters making it one of the most common drugs in the study. This coincided with the significant rise in the rate per 100 encounters of oesophageal disease as a problem managed, which was mentioned previously. It could be assumed that more patients attended in 1998 to receive this new and effective pharmaceutical treatment for the problem.

Table 13.6: Comparison of top 30 most frequent medications

Medications	AMTS 1990–91				BEACH 1998–99			
	Number	Rate per 100 encs(a)	95% LCI	95% UCI	Number	Rate per 100 encs(a)	95% LCI	95% UCI
Paracetamol	3,086	3.1	2.8	3.5	3,681	4.0	3.6	4.3
Amoxycillin	5,313	5.4	5.0	5.7	3,109	3.4	3.0	3.7
Paracetamol/Codeine	1,325	1.3	1.1	1.5	2,451	2.6	2.4	2.9
Salbutamol	3,051	3.1	2.9	3.3	2,238	2.4	2.2	2.6
Cefaclor monohydrate	371	0.4	0.1	0.6	2,093	2.3	1.9	2.7
Cephalexin	1,737	1.8	1.5	2.0	1,975	2.1	1.9	2.4
Roxithromycin(b)	—	—	—	—	1,710	1.8	1.6	2.1
Amoxycillin/potass.clavulanate	1,327	1.3	1.1	1.6	1,706	1.8	1.6	2.1
Influenza virus vaccine	974	1.0	0.7	1.3	1,598	1.7	0.4	3.1
Temazepam	1,234	1.3	1.1	1.4	1,277	1.4	1.2	1.5
Diclofenac sodium systemic	1,424	1.4	1.3	1.6	1,213	1.3	1.1	1.5
Levonorgestrel/Ethinyloestradiol	459	0.5	0.4	0.6	1,162	1.3	1.1	1.4
Doxycycline hcl	1,908	1.9	1.8	2.1	1,097	1.2	1.0	1.4
Erythromycin	2,068	2.1	1.9	2.3	1,028	1.1	0.8	1.4
Diazepam	916	0.9	0.8	1.0	1,022	1.1	0.9	1.3
Ranitidine	561	0.6	0.5	0.6	921	1.0	0.9	1.1
Atenolol	1,052	1.1	0.9	1.2	920	1.0	0.8	1.2
Betamethasone topical	1,576	1.6	1.5	1.7	895	1.0	0.8	1.1
Simvastatin	397	0.4	0.3	0.5	863	0.9	0.8	1.1
Chloramphenicol eye	909	0.9	0.8	1.0	861	0.9	0.8	1.1
Frusemide (Furosemide)	1,198	1.2	1.1	1.4	826	0.9	0.7	1.1
Naproxen	1,034	1.1	0.9	1.2	816	0.9	0.7	1.1
Amlodipine(b)	—	—	—	—	703	0.8	0.6	0.9
Oxazepam	1,120	1.1	1.0	1.3	698	0.8	0.6	0.9
Prochlorperazine	1,048	1.1	0.9	1.2	685	0.7	0.6	0.9
Enalapril mal	760	0.8	0.7	0.9	680	0.7	0.6	0.9
Aspirin	855	0.9	0.8	1.0	675	0.7	0.5	0.9
Budesonide topical nasal(b)	—	—	—	—	662	0.7	0.5	0.9
Beclomethasone	1,505	1.5	1.4	1.7	657	0.7	0.5	0.9
Metformin	191	0.2	0.1	0.3	651	0.7	0.5	0.9
Subtotal	*43,243*	*. .*	*. .*	*. .*	*38,874*	*. .*	*. .*	*. .*
Total	**98,563**	**99.9**	**97.2**	**102.6**	**87,381**	**94.2**	**91.7**	**96.7**

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

(b) Drug was not available or not prescribed during the 1990–91 study.

Note: Abbreviations: Encs – encounters, UCI – Upper confidence interval, LCI – Lower confidence interval.

The relative prescribing rate of simvastatin increased significantly in 1998. As mentioned earlier, this finding is presumably linked to the rise in management of lipid disorder. Amlodipine, a relatively new anti-hypertensive, was not recorded in the AMTS but became one of the most frequently prescribed drugs in 1998. Metformin showed a statistically significant increase in prescribing rate consistent with the rise in diabetes as a problem managed.

13.6 Conclusion

The AMTS provided a monitoring method, which was used as a basis for the ongoing BEACH study. Detailed information from BEACH on the doctor–patient encounter can be measured in terms of various research questions, a major one being the assessment of changes that have taken place over time.

This chapter has summarised some of the most significant changes that have taken place in general practice during the 1990s. More specific analysis similar to that shown in the flow charts of earlier Chapters of this report could explore causal factors for those changes. Other problems managed, medications prescribed, or other aspects of the encounter could be analysed in a similar manner as long as the particular topic of interest occurred at sufficient frequency to present a meaningful result.

This comparative analysis has demonstrated that changes did take place between 1991 and 1998 and that measurement of change over time in general practice is a viable and useful endeavour.