16 Encounters with Indigenous Australians

The gap in life expectancy between Indigenous and non-Indigenous Australians has been estimated to be 19–21 years.[41] Ring and Brown suggest that although there has been a substantial narrowing of such differences in other countries, in Australia the gap in median age death appears to have widened. They suggest that health professionals can play a major role in improving the health of the Indigenous population by providing high quality primary healthcare services for prevention and early treatment.[42]

Indigenous Australians represent 2.4% of the total population in Australia.[43] They are more likely to live outside urban areas than are non-Indigenous people, and this may affect their access to, and use of, general practice services. There are a number of Aboriginal Community Controlled Health Services (ACCHS) available in many parts of the country, including remote areas[44] and these may sometimes substitute for general practice services, or GPs may provide services in them, and in turn these may or may not be represented in BEACH.

Better knowledge of the extent to which Indigenous Australians utilise general practice and the problems they have managed in this setting will assist in developing an improved understanding of the health of the Indigenous community and in planning future health services for this population.

Each GP was instructed to ask the patient whether he or she identified as an Aboriginal person and/or as a Torres Strait Islander. Note that this chapter reports results based on unweighted encounters with Indigenous Australians during 2002–03, and the combined five year data for both Indigenous and total encounters (see Chapter 2, 'Methods'). Though the annual data are presented in the Tables for interested readers, the text refers to the more reliable data drawn from the total first five years of the BEACH program.

16.1 Number of encounters

In the most recent BEACH year (April 2002–March 2003) there were 1,375 encounters (1.4%) at which the patient responded positively to one or both questions. The vast majority of these (84.7%) stated they were Aboriginal persons, and 10.2% stated they were Torres Strait Islanders; 5.1% said they were both. The 1,375 encounters were distributed among 317 GPs, representing 31.4% of the GP participants.

There has been some variation over the five years of BEACH in the proportion of encounters at which the patient identified as an Aboriginal person or a Torres Strait Islander. This has ranged from 0.7% to 1.4% and has depended to some degree on the format of the question. Estimates have been lower in years when only a single 'yes' tick box was offered for each option than where both a 'yes' and a 'no' tick box were offered. It is notable however, that even with this variation in identification rates, and the high likelihood that these are an underestimate of the true proportion, the data pertaining to age, sex, morbidity and management at these subsamples of encounters have been remarkably consistent over each of the five years of the study. A more reliable estimate of the characteristics of encounters with Indigenous Australians can therefore be gained by combining data for the full five year period.

Over the first five years of the BEACH program, there were 502,100 records of encounters completed by 5,021 GPs. The GPs indicated the patient was an Aboriginal person and/or a Torres Strait Islander at 5,476 of these encounters. These represented 1.1% of total encounters.

The encounters with Indigenous Australians were recorded by 1,354 GPs, with an average of 4.0 contacts per GP. This means that about one in four GPs (27%) recorded at least one such encounter during their BEACH recording period. A simple extrapolation of these results to all GP–patient encounters across Australia in any one year would suggest, on average approximately 1.1 million Indigenous consultations annually with about 5,000 GPs.

Distribution of Indigenous encounters across GPs

It was thought that some of the GPs who recorded encounters with Indigenous Australians may have been working in an ACCHS, either part-time or full-time while participating in BEACH and therefore (correctly) recorded clinical activity claimed through Medicare but conducted in this clinical environment. If this was the case, the BEACH data could be counting some consultations that are also counted through the ACCHS. This possibility was investigated through a more detailed study of the distribution of Indigenous encounters across participating GPs.

The relative number of encounters with Indigenous Australians was calculated for each GP who recorded at least one such encounter. The distribution of these encounters across the 1,375 practitioners is shown in Figure 16.1. The range across these GPs was 1 to 96 encounters (where the maximum was 100 per GP) with Indigenous Australians, the mean being 4.0 consultations.

By far the majority (83.2%) of the 1,375 GPs recorded less than five of their 100 encounters as being with a patient who identified as an Indigenous person. This means that 95.5% of the 5,021 GPs participating over the five year period saw either no Indigenous Australians, or less than five during their recording period. A further 10.0% of the 1,375 GPs (2.7% of all participants) recorded between 5 and 9 encounters (accounting for 15.1% Indigenous encounters), and 4.1% recorded between 10 and 19 encounters with Indigenous Australians (accounting for 12.6% of the total). However, in total, encounters with these GPs accounted for only half (49.5%) of all encounters with Indigenous Australians. The remaining 37 GPs (2.7% of the subsample, 0.7% of all participants) who each recorded 20 or more encounters with Indigenous Australians, accounted for 37.9% of all encounters with Indigenous Australians. Of these 37 GPs, 20 recorded more than 60 such encounters. If we assume that these 37 GPs worked either full-time or part-time in an ACCHS during their BEACH recording period and that these consultations were undertaken in an ACCHS, their recorded encounters with Indigenous Australians should be removed before extrapolating from BEACH if private general practice is defined as excluding ACCHSs. After removal of encounters recorded by these 37 GPs, the estimated number of consultations with Indigenous Australians in the non-ACCHS private general practice environment was considerably reduced, to be approximately 700,000 per annum.

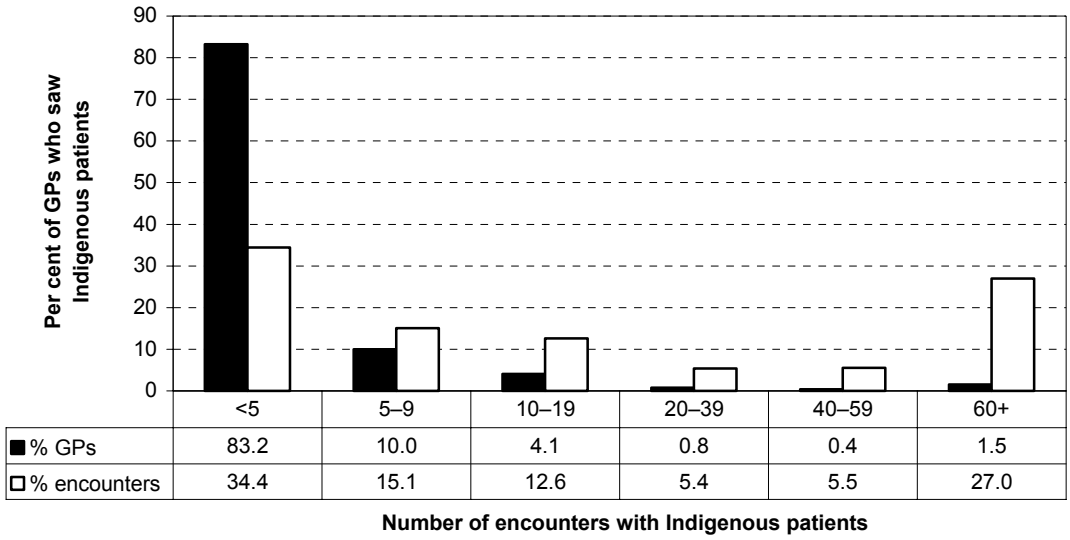


Figure 16.1: Distribution of Indigenous encounters by GP

16.2 The GPs

The characteristics of the 1,354 GPs who recorded at least one encounter with a patient identifying as an Indigenous Australian, between 1998 and 2003, are compared with those of the total GP sample for that period in Table 16.1. The age and sex distribution of these GPs parallelled that of the total GP sample. Only marginal differences were apparent in the number of sessions per week, the size of their practice and their place of graduation. However, only half of these GPs (52.3%) practised in capital cities compared with more than two-thirds (67.1%) of the total GP sample. They were more likely to be practising in other rural, remote or offshore locations (20.4%) when compared with the total sample (13.1%).

Table 16.1: Characteristics of GPs who saw Indigenous Australians compared with the total GP sample

	2002–03			1998–99 to 2002–03		
	GPs who saw Indigenous people		Total GP sample	GPs who saw Indigenous people		Total GP sample
GP characteristic	Number	Per cent of GPs[(a)] (*n*=317)	Per cent of GPs[(a)] (*n*=1,008)	Number	Per cent of GPs[(a)(b)] (*n*=1,354)	Per cent of GPs[(a)(b)] (*n*=5,021)
Sex (missing)	(0)	—	(0)	(4)	—	(0)
Male	206	65.0	64.8	912	67.6	67.4
Female	111	35.0	35.2	438	32.4	32.6
Age (missing)	(0)	—	(0)	(4)	—	(18)
< 35 years	25	7.9	7.3	101	7.6	7.2
35–44 years	82	25.9	26.6	421	31.2	30.2
45–54 years	109	34.4	35.2	450	33.3	34.2
55+ years	101	31.9	30.9	378	28.0	28.4
Sessions per week (missing)	(3)	—	(8)	(13)	—	(58)
<6 per week	56	17.8	18.7	197	14.7	15.8
6–10 per week	219	69.5	67.9	934	69.6	67.7
11+ per week	40	12.7	13.4	210	15.7	16.5
Size of practice (missing)	(2)	—	(8)	(35)	—	(121)
Solo	46	14.6	13.7	234	17.7	16.9
2–4 GPs	138	43.8	38.4	536	40.6	39.2
5+ GPs	131	41.6	47.9	549	41.6	44.0
Place of graduation (missing)	(0)	—	(0)	(0)	—	(35)
Australia	226	71.3	72.0	972	72.2	74.3
United Kingdom	35	11.0	9.1	146	10.8	8.5
Asia	29	9.1	9.9	117	8.7	8.3
Other	27	8.5	8.9	119	8.8	8.8
Practice location	—	—	—	—	—	—
Capital	161	50.8	64.7	708	52.3	67.1
Other metropolitan	33	10.4	8.5	106	7.8	7.7
Large rural	26	8.2	5.1	131	9.7	6.1
Small rural	36	11.4	7.7	133	9.8	6.1
Other rural	47	14.8	12.0	222	16.4	11.6
Remote central	4	1.3	0.6	25	1.8	0.6
Other remote, offshore	10	3.2	1.4	29	2.1	0.9

(a) Missing data removed.

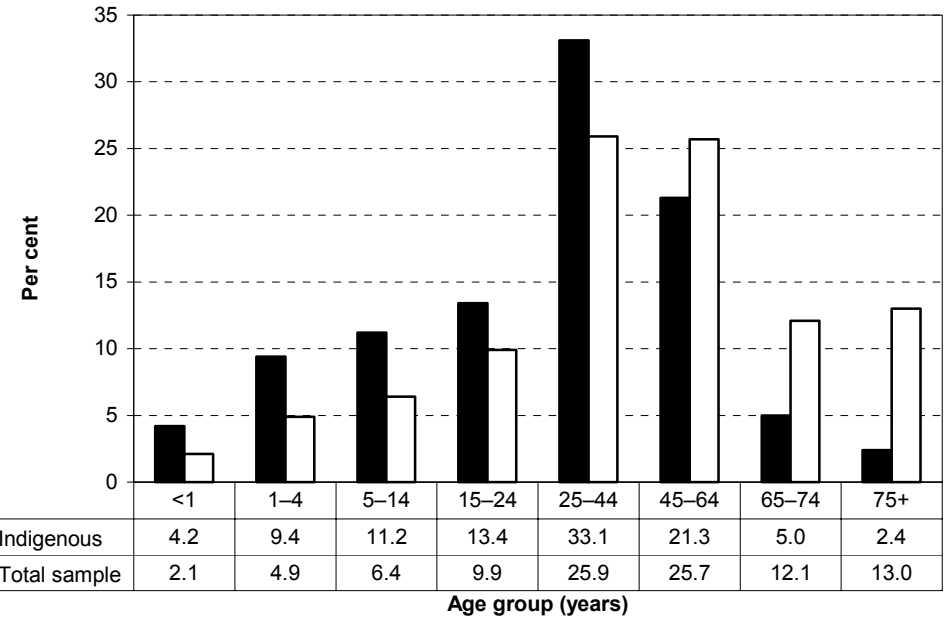
(b) Unweighted data.

16.3 Patient characteristics

Age and sex

The sex distribution of the 5,476 Aboriginal and Torres Strait Islander patients was identical to that of the total sample of patients at 502,000 encounters (40.9% male). However, the age distribution of the Indigenous Australians differed markedly from that of patients at all encounters (Figure 16.2 and Table 16.2).

Overall, Indigenous Australians were significantly younger than the total sample of patients encountered, the proportion of persons aged under 45 years being 71.3% compared with 49.3% in the total data set. This difference was apparent in all the younger age groups. In contrast, the proportion of encounters with older Indigenous Australians was lower than that of the total data set, 21.3% being between 45 and 64 years of age (compared with 25.7% of the total sample) and only 7.4% being 65 years or more (compared with 25.1% in the total sample).



	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
■ Indigenous	4.2	9.4	11.2	13.4	33.1	21.3	5.0	2.4
□ Total sample	2.1	4.9	6.4	9.9	25.9	25.7	12.1	13.0

Figure 16.2: Age distribution of Indigenous persons encounters and the total sample 1998–2003

Age-specific rates

The age-specific rates of encounters with Indigenous Australians are presented in Figure 16.3 and more clearly demonstrate these trends. Although more than 4% of total encounters with children aged under five years were with Indigenous Australians, this proportion steadily decreased with increasing age to less than 1% for the 45–64 age group, and less than 0.5% in older age groups.

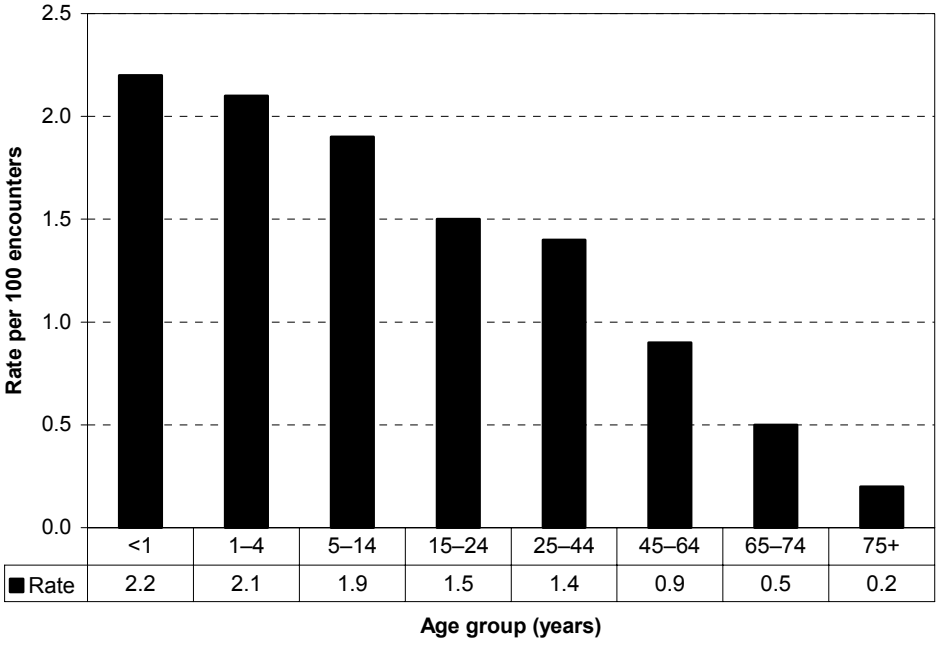


Figure 16.3: Age-specific rates of encounters with Indigenous people 1998–2003

Other patient characteristics

Table 16.2 describes the other characteristics of Indigenous Australians compared with the total sample. These patients were more likely to be new to the practice (11.6%) compared with the patients at all encounters (9.2%). They were significantly more likely than all sampled patients to hold a Commonwealth health care card (59.2% of Indigenous Australians compared with 39.3% of all patients). In contrast, they were significantly less likely to hold a Department of Veterans' Affairs card (1.4% of Indigenous Australians compared with 3.4% of the total sample). Those patients who reported being from a non-English-speaking background represented 6.6% of the Indigenous subsample which did not differ significantly from the total sample (8.8%).

Table 16.2: Comparison of characteristics of Indigenous Australians and patients at all encounters: 2002–03 and 1998–2003

	2002–03				1998–99 to 2002–03			
	Encounters with Indigenous people		Total encounters		Encounters with Indigenous people		Total encounters	
Patient variable	Number	Per cent of encs (*n*=1,375) 95% CI	Number	Per cent of encs (*n*=100,987) 95% CI	Number	Per cent of encs (*n*=5,476)[a] 95% CI	Number	Per cent of encs (*n*=502,100) 95% CI
Sex (Missing)	(20)	—	(911)	—	(69)	—	(5,652)	—
Males	525	38.8 (32.3–45.2)	42,189	42.2 (41.4–42.9)	2,209	40.9 (38.8–42.9)	202,881	40.9 (40.5–41.2)
Females	830	61.3 (54.8–67.7)	57,887	57.8 (57.0–58.6)	3,198	59.1 (57.1–61.2)	293,567	59.1 (58.8–59.5)
Age group (Missing)	(8)	—	895	—	47	—	4,354	—
< 1 year	46	3.4 (2.2–4.5)	1,944	1.9 (1.8–2.1)	230	4.2 (3.7–4.8)	10,560	2.1 (2.1–2.2)
1–4 years	113	8.3 (6.6–9.9)	5,030	5.0 (4.7–5.3)	509	9.4 (8.5–10.2)	24,232	4.9 (4.8–5.0)
5–14 years	129	9.4 (7.4–11.5)	6,632	6.6 (6.3–6.9)	607	11.2 (10.1–12.3)	32,049	6.4 (6.3–6.6)
15–24 years	174	12.7 (10.8–14.6)	10,068	10.1 (9.7–10.4)	728	13.4 (12.4–14.5)	49,237	9.9 (9.7–10.1)
25–44 years	470	34.4 (31.2–37.6)	25,685	25.7 (24.9–26.4)	1,799	33.1 (31.7–34.6)	129,060	25.9 (25.6–26.2)
45–64 years	331	24.2 (20.6–27.9)	26,497	26.5 (25.9–27.0)	1,155	21.3 (19.7–22.8)	127,705	25.7 (25.4–25.9)
65–74 years	72	5.3 (4.1–6.5)	11,566	11.6 (11.1–12.0)	273	5.0 (4.3–5.8)	60,316	12.1 (11.9–12.3)
75+ years	32	2.3 (1.4–3.3)	12,671	12.7 (11.9–13.4)	128	2.4 (1.9–2.8)	64,587	13.0 (12.7–13.3)
Other characteristics	—	—	—	—	—	—	—	—
New patient to practice	140	10.3 (7.9–12.7)	9,805	9.9 (9.0–10.8)	627	11.6 (10.2–13.1)	45,678	9.2 (8.9–9.5)
Commonwealth health care card	822	59.8 (49.8–69.7)	41,762	40.4 (38.8–41.9)	3,243	59.2 (54.6–63.8)	197,164	39.3 (38.7–39.9)
Veterans' Affairs card	26	1.9 (0.9–2.9)	3,316	3.3 (3.0–3.6)	78	1.4 (1.0–1.8)	17,205	3.4 (3.3–3.5)
Non-English-speaking background	183	13.3 (2.6–24.0)	10,706	10.6 (7.8–13.4)	356	6.6 (3.4–9.8)	42,975	8.8 (8.3–9.3)
Aboriginal only	1,165	84.7 (76.0–93.5)	837	0.8 (0.0–1.7)	4,833	88.34 (85.6–90.9)	4,833	1.0 (0.8–1.1)
Torres Strait Islander (TSI) only	140	10.2 (5.1–15.2)	145	0.1 (0.0–0.9)	494	9.0 (7.1–10.9)	494	0.1 (0.1–0.1)
Aboriginal person and TSI	70	5.1 (1.0–9.2)	50	0.1 (0.0–1.3)	149	2.7 (1.6–3.9	149	0.03 (0.0–0.0)

(a) Missing data removed in calculation of rates. *Note:* Encs—encounters; CI—confidence interval; TSI–Torres Strait Islander; shading indicates statistically significant difference between groups.

Geographic location

The GPs were asked to record the postcode of the patient's home residence at each encounter. The postcodes were classified by state/territory and by the Rural, Remote and Metropolitan Area (RRMA) classification.[22]

Distribution by state

The distribution of Indigenous patient residence by state is presented in Figure 16.4. More than a quarter of these patients resided in New South Wales (28.8%) o and another quarter in Queensland (27.8%). Approximately one in five (19.2%) lived in Western Australia and almost one in ten (8.7%) in the Northern Territory. Few resided in South Australia (7.1%), Victoria (6.9%), Tasmania (1.4%) and the Australian Capital Territory (0.6%).

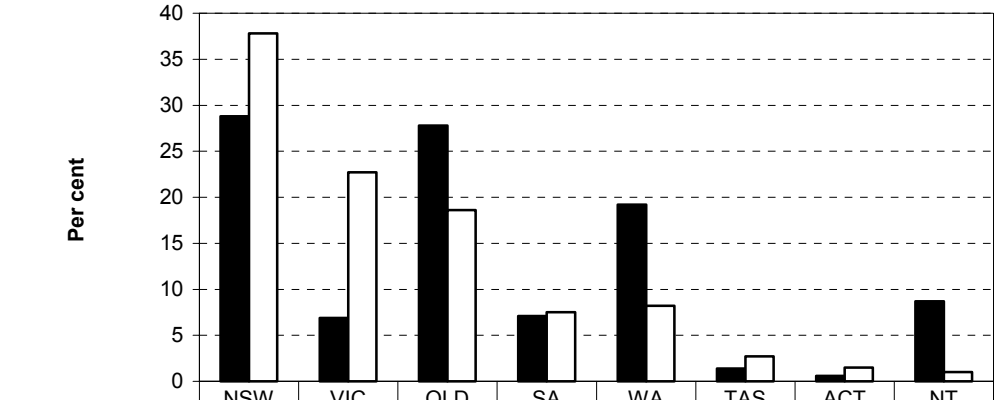


Figure 16.4: State distribution of Indigenous encounters and total encounters 1998–2003

State-specific encounter rate

When the number of encounters with Indigenous Australians was viewed relative to the total number of encounters in each state/territory, it was apparent that their relative frequency was highest in the Northern Territory (9.1%), followed by Western Australia (2.5%) and then by Queensland (1.6%). In each of the remaining states and territories, the rate of Indigenous encounters was 1.0% or less (Figure 16.5).

Figure 16.5: State-specific rate of Indigenous encounters 1998–2003

Distribution by RRMA

These Indigenous Australians were far less likely to live in capital cities (30.2%) than were patients in the total sample (66.4%). More than 20% resided in remote areas and a further 20% were from 'other rural' areas (Figure 16.6).

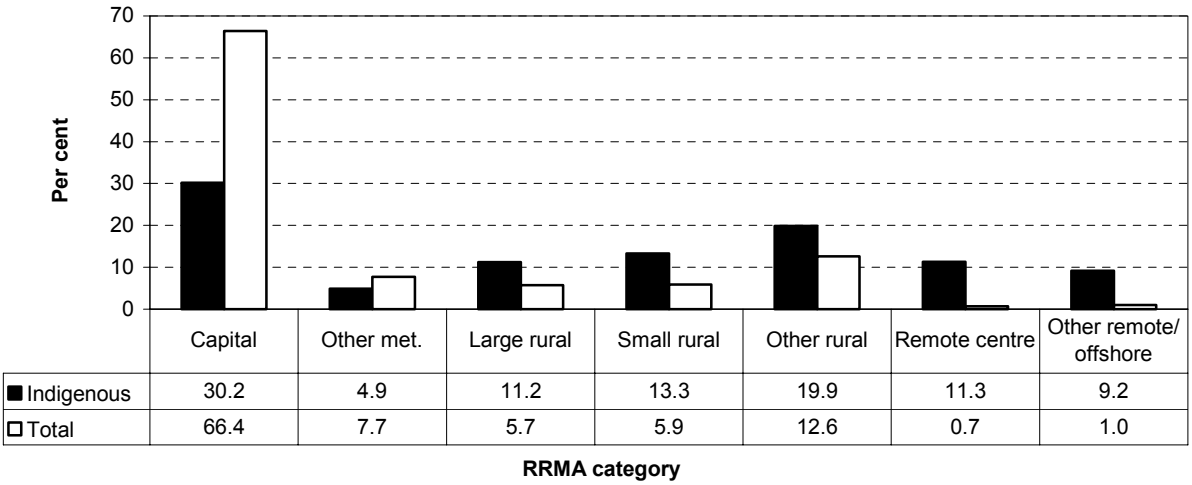


Figure 16.6: Distribution of Indigenous and total encounters 1998–2003, by RRMA

RRMA-specific encounter rates

The distribution of encounters with Indigenous Australians was considered in relation to the distribution of all encounters across RRMAs. Encounters with Indigenous Australians accounted for 18.2% of the total in remote centres and for 9.6% of those in other remote/offshore locations. The lowest relative rate of encounters with Indigeous people was in capital cities, where they accounted for less than 1% of the sample. Relative rates in other RRMAs were also small (Figure 16.7).

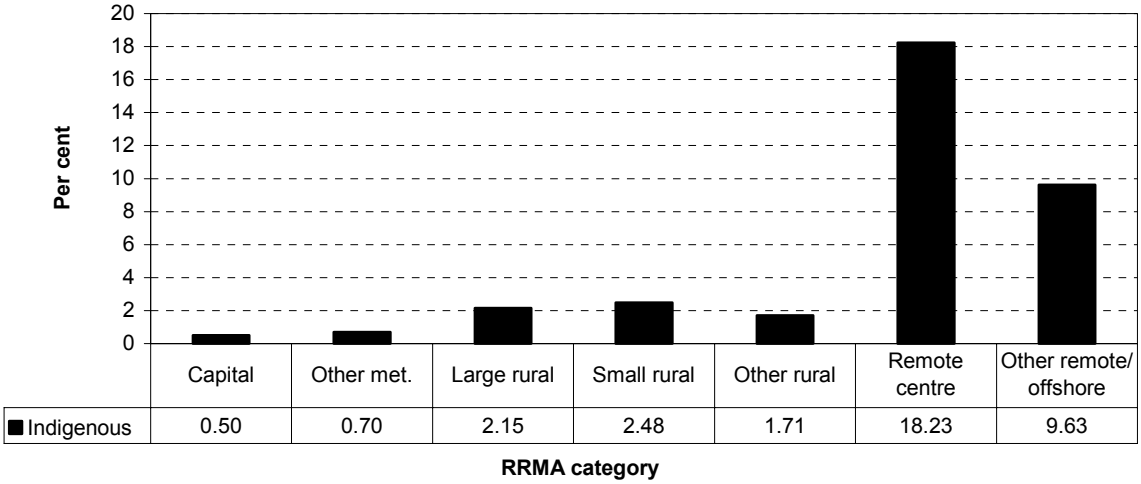


Figure 16.7: RRMA-specific rates of Indigencous encounters 1998–2003

16.4 Characteristics of the encounters

In the five year data set there was only one significant differences in the distribution of encounters across payment source or by Medicare item number for encounters with Indigenous Australians compared with all encounters. Encounters with Indigenous Australians were significantly less likely to be claimable through workers compensation. The main categories are compared in Table 16.3.

Table 16.3: Type of encounter with Indigenous Australians and total sample: 2002–03 and 1998–2003

	2002–03			1998–99 to 2002–03		
	Encounters with Indigenous people		Total encounters	Encounters with Indigenous people		Total encounters
Variable	Number	Rate per 100 encs[(a)] (*n*=1,375) 95% CI	Rate per 100 encs[(a)] (*n*=100,987) 95% CI	Number	Rate per 100 encs[(a)] (*n*=5,476) 95% CI	Rate per 100 encs[(a)] (*n*=502,100) 95% CI
Direct consultations	1,187	97.8 (96.6–98.9)	98.4 (98.2–98.6)	4,954	97.8 (96.6–98.9)	97.1 (96.9–97.2)
No charge	7	0.6 (0.1–1.0)	0.5 (0.2–0.8)	49	1.0 (0.5–1.5)	0.7 (0.6–0.8)
Medicare claimable[(b)]	1,131	93.2 (90.8–95.5)	95.0 (94.6–95.3)	4,686	92.5 (91.1–93.9)	92.6 (92.3–92.9)
Standard surgery consultations	855	70.4 (64.0–76.8)	78.7 (77.6–79.7)	3,710	73.3 (70.3–76.2)	75.2 (74.7–75.7)
Workers compensation	15	1.2 (0.5–2.0)	1.9 (1.6–2.2)	56	1.1 (0.8–1.4)	1.9 (1.8–2.0)
Other paid (hospital, state etc.)	34	2.8 (1.0–4.6)	1.0 (0.2–1.8)	149	2.9 (1.9–4.0)	1.8 (1.6–2.1)
Indirect consultations	27	2.2 (1.1–3.4)	1.6 (1.2–2.0)	125	2.5 (1.8–3.1)	2.9 (2.8–3.1)

(a) Missing data removed.

(b) Includes encounters that were recorded as claimable for the Commonwealth Department of Veterans' Affairs.

Note: Encs—encounters; CI—confidence interval; shading indicates statistically significant difference between groups.

16.5 Content of encounters

Table 16.4 summarises the major elements of encounters with Indigenous Australians and these are compared with total encounters, for the BEACH 2002–03 year and for the full five year period. Between 1998 and 2003, patients who identified themselves as Indigenous described significantly fewer reasons for encounter (145.5 per 100 encounters) than did those at all encounters (150.2). However, the number of problems managed at encounter was almost identical (147.7 per 100 Indigenous encounters compared with 148.1 per 100 total encounters). There were significantly more new problems managed with Indigenous Australians (56.5 per 100 encounters) than for the total sample (51.2).

Total medication rates were significantly higher at encounters with Indigenous Australians (115.8 per 100 encounters) than for the total sample (106.5 per 100) but this difference was almost entirely due to far higher rates of medications supplied by the GP direct to the patient (18.9 per 100 Indigenous encounters compared with 8.1 per 100 total encounters). Conversely GPs advised over-the-counter medications significantly less often at encounters with Indigenous Australians (6.2 per 100) than at all encounters (9.0 per 100). There was no significant difference in the relative rate of prescribed medications.

There were also no significant differences in the relative rate of provision of non-pharmacological treatments, nor more specifically in rates of clinical treatments or procedures, between encounters with Indigenous Australians and all encounters. Data for referrals, pathology and imaging cannot be combined for the full five year period, either for Indigenous encounters or total encounters, because of changes in data collection or coding methods over the period of the study. However, these data elements can be compared for the single year 2002–03, though the small sample size gives less statistical power to the comparisons.

In 2002–03, pathology test order rates were significantly higher at Indigenous encounters (46.8 per 100 encounters) than at all encounters (32.9). Though there was a trend for higher referral rates, reflected particularly in referrals to allied health services rather than to medical specialists, these failed to reach statistical significance in this single year.

16.6 Patient reasons for encounter

Over the five years of BEACH, patients who identified as Aborignal people or Torres Strait Islanders described significantly more reasons for encounter associated with pregnancy and family planning (5.6 per 100 encounters compared with 3.9 per 100 in the total sample) and more of a social nature (2.1 per 100 compared with 1.0). In contrast they described significantly fewer reasons associated with the musculoskeletal (14.7 compared with 16.9 per 100), circulatory (7.4 compared with 11.4 per 100) and female genital (4.7 compared with 6.4 per 100) systems (results not shown).

16.7 Morbidity managed

Distribution by ICPC-2 chapter

The distribution of the problems managed in encounters with Indigenous Australians across ICPC–2 chapters are compared with the distributions for all encounters in Table 16.5. Results

are listed in decreasing order of frequency for all Indigenous encounters over the five years. The five year data demonstrate a considerable number of significant differences in the relative rate of management of some types of morbidities.

When compared with all encounters, those with Indigenous Australians involved significantly fewer problems that were:

- related to the musculoskeletal system (13.6 per 100 compared with 17.4)
- associated with the circulatory system (13.0 per 100 compared with 16.6)
- of a general and unspecified nature (12.9 compared with 15.0 per 100)
- related to the female genital system (5.5 compared with7.3 per 100).

In contrast these encounters involved significantly more problems that were:

- associated with pregnancy and family planning (6.6 compared with 4.3 per 100)
- related to the ear (5.9 compared with 4.3 per 100)
- of the endocrine and metabolic system (13.0 compared with 9.9 per 100)
- of a social nature (1.7 compared with 0.9).

Most common problems managed

Table 16.6 provides comparative results for the most frequently managed problems at encounters with Indigenous Australians in decreasing order of frequency in the five year data set, and provides comparative data from the annual sample in 2002–03 and for the full five year period. The top 17 problems (arising at a rate of 1.5 per 100 encounters or more) accounted for 36% of all problems managed at Indigenous encounters, and this set of problems accounted for 31% of all problems at all encounters.

Diabetes was the problem most frequently managed at encounters with Indigenous Australians, at a significantly higher rate (2.5 times as often) than at all encounters (7.1 per 100 Indigenous encounters compared with 2.8 per 100 total encounters). This was followed by hypertension which was managed significantly less often at Indigenous encounters (6.7 per 100) than at all encounters (8.8 per 100). Also less frequently managed at Indigenous encounters was immunisation/vaccination.

Both asthma (4.3 per 100 encounters) and acute bronchitis (3.8 per 100) were managed more frequently at Indigenous encounters than average (2.9 and 2.8 per 100 respectively). Other problems with significantly higher management rates at Indigenous encounters were:

- acute otitis media, managed at more than twice the average for all encounters
- pre/postnatal care, managed at a rate more than twice the average
- pregnancy (1.6 per 100 compared with the average 0.8)
- tonsillitis (1.8 per 100 Indigenous encounters compared with 1.2 per 100 average) and
- boil/carbuncle (1.5 per 100 compared with 0.5).

Table 16.4: Summary of morbidity and management at encounters with Indigenous Australians and in the total sample: 2002–03 and 1998–2003

	2002–03				1998–99 to 2002–03			
	Encounters with Indigenous people		Total encounters		Encounters with Indigenous people		Total encounters	
Variable	Number	Rate per 100 encs[a] (*n*=1,375) 95% CI	Number	Rate per 100 encs[a] (*n*=100,987) 95% CI	Number	Rate per 100 encs[a] (*n*=5,476) 95% CI	Number	Rate per 100 encs[a] (*n*=502,100) 95% CI
Reasons for encounter	1,968	143.1 (134.9–151.3)	152,341	150.9 (149.0–152.7)	7,968	145.5 (142.1–148.9)	753,925	150.2 (149.5–150.8)
Problems managed	2,033	147.9 (137.0–158.7)	146,336	144.9 (143.0–146.8)	8,086	147.7 (143.7–151.6)	743,625	148.1 (147.3–148.9)
New problems	832	60.5 (53.9–67.2)	57,509	57.0 (55.6–58.3)	3,094	56.5 (52.9–60.1)	257,027	51.2 (50.6–51.8)
Medications	1,576	114.6 (99.6–129.7)	104,813	103.8 (101.4–106.2)	6,343	115.8 (110.0–121.7)	534,826	106.5 (105.5–107.5)
Prescribed	1,118	81.3 (67.2–95.4)	85,161	84.3 (81.8–86.9)	4,970	90.8 (83.8–97.8)	449,013	89.4 (88.4–90.4)
Advised OTC	88	6.4 (4.2–8.6)	10,270	10.2 (9.2–11.1)	337	6.2 (5.2–7.1)	45,141	9.0 (8.7–9.2)
GP supplied	370	26.9 (3.6–50.2)	9,382	9.3 (7.6–11.0)	1,036	18.9 (11.4–26.4)	40,672	8.1 (7.7–8.5)
Other treatments	902	65.6 (54.6–76.6)	52,292	51.8 (49.3–54.3)	2,915	53.2 (48.1–58.4)	255,617	50.9 (50.0–51.8)
Clinical	667	48.5 (38.0–59.0)	37,543	37.2 (35.0–39.4)	2,218	40.5 (36.0–45.0)	186,268	37.1 (36.3–37.9)
Procedural	235	17.1 (14.4–19.7)	14,748	14.6 (13.9–15.3)	697	12.7 (11.2–14.3)	69,349	13.8 (13.5–14.1)
Referrals	191	13.9 (10.9–16.9)	11,254	11.1 (10.7–11.6)	. .	. .	. .	. .
Specialist	86	6.3 (4.8–7.7)	7,743	7.7 (7.3–8.0)	. .	. .	. .	. .
Allied health services	58	4.2 (2.7–5.7)	2,536	2.5 (2.3–2.8)	. .	. .	. .	. .
Pathology	644	46.8 (36.7–57.0)	33,234	32.9 (31.5–34.4)	. .	. .	. .	. .
Imaging	114	8.3 (5.8–10.8)	8,678	8.6 (8.2–9.0)	. .	. .	. .	. .

Note: Encs—encounters; CI—confidence interval; OTC—over-the-counter; shading indicates statistically significant difference between groups. Changes in recording format during the five years do not allow the production of five year total results for some management actions.

Table 16.5: Distribution of problems managed at Indigenous encounters by ICPC–2 chapter for 2002–03 and 1998–2003, compared with the total sample

	2002–03				1998–99 to 2002–03			
	Encounters with Indigenous people		Total encounters		Encounters with Indigenous people		Total encounters	
Variable	Number	Rate per 100 encs[(a)] (*n*=1,375) 95% CI	Number	Rate per 100 encs[(a)] (*n*=100,987) 95% CI	Number	Rate per 100 encs[(a)] (*n*=5,476) 95% CI	Number	Rate per 100 encs[(a)] (*n*=502,100) 95% CI
Respiratory	261	19.0 (15.4–21.6)	20,828	20.6 (20.0–21.3)	1,235	22.5 (21.0–24.1)	108,865	21.7 (21.4–21.9)
Skin	208	15.1 (13.3–16.9)	16,642	16.5 (16.0–17.0)	891	16.3 (14.8–17.8)	83,469	16.6 (16.4–16.8)
Musculoskeletal	185	13.5 (10.8–16.1)	17,221	17.1 (16.5–17.6)	747	13.6 (12.5–14.8)	87,092	17.4 (17.1–17.6)
Psychological	183	13.3 (10.2–16.4)	10,405	10.3 (9.8–10.8)	734	13.4 (11.9–14.9)	56,950	11.3 (11.1–11.6)
Circulatory	193	14.0 (11.2–16.9)	16,142	16.0 (15.3–16.7)	712	13.0 (11.6–14.4)	83,461	16.6 (16.3–16.9)
Endocrine and metabolic	210	15.3 (12.1–18.5)	10,717	10.6 (10.2–11.0)	712	13.0 (11.6–14.4)	49,906	9.9 (9.8–10.1)
General and unspecified	180	13.1 (10.5–15.7)	15,909	15.8 (15.2–16.3)	704	12.9 (11.7–14.0)	75,522	15.0 (14.8–15.3)
Digestive	144	10.5 (8.5–12.5)	10,186	10.1 (9.8–10.4)	571	10.4 (9.5–11.3)	50,412	10.0 (9.9–10.2)
Pregnancy, family planning	87	6.3 (4.3–8.3)	4,203	4.2 (3.8–4.5)	359	6.6 (5.7–7.5)	21,757	4.3 (4.2–4.5)
Ear	79	5.8 (4.3–7.2)	4,035	4.0 (3.8–4.2)	325	5.9 (5.2–6.6)	21,611	4.3 (4.2–4.4)
Female genital system	82	6.0 (4.4–7.5)	6,727	6.7 (6.2–7.1)	302	5.5 (4.7–6.3)	36,601	7.3 (7.1–7.5)
Neurological	61	4.4 (3.1–5.8)	4,278	4.2 (4.0–4.4)	221	4.0 (3.4–4.7)	20,133	4.0 (3.9–4.1)
Urology	71	5.2 (2.0–8.3)	2,844	2.8 (2.7–3.0)	214	3.9 (2.9–4.9)	14,871	3.0 (2.9–3.0)
Eye	24	1.8 (0.9–2.6)	2,639	2.6 (2.5–2.7)	124	2.3 (1.8–2.7)	13,386	2.7 (2.6–2.7)
Social problems	27	2.0 (0.3–3.6)	719	0.7 (0.5–0.9)	91	1.7 (1.2–2.2)	4,585	0.9 (0.9–1.0)
Male genital system	17	1.2 (0.5–2.0)	1,458	1.4 (1.3–1.6)	84	1.5 (1.2–1.9)	6,974	1.4 (1.3–1.4)
Blood	21	1.5 (0.9–2.1)	1,383	1.4 (1.2–1.5)	60	1.1 (0.8–1.4)	8,030	1.6 (1.5–1.7)
Total problems	**2,033**	**147.9 (137.0–158.7)**	146,336	**144.9 (143.0–146.8)**	**8,086**	**147.7 (143.7–151.6)**	**743,625**	**148.1 (147.3–148.9)**

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

Note: Encs—encounters; CI—confidence interval; shading indicates statistically significant difference between groups.

Table 16.6: Most frequent individual problems managed (in decreasing order of frequency for all Indigenous encounters: 1998–2003)

	2002–03				1998–99 to 2002–03			
	Encounters with Indigenous people		Total encounters		Encounters with Indigenous people		Total encounters	
Variable	Number	Rate per 100 encs[(a)] (*n*=1,375) 95% CI	Number	Rate per 100 encs[(a)] (*n*=100,987) 95% CI	Number	Rate per 100 encs[(a)] (*n*=5,476) 95% CI	Number	Rate per 100 encs[(a)] (*n*=502,100) 95% CI
Diabetes, non-gestational*	126	9.2 (6.8–11.5)	2,936	4.6 (4.2–5.1)	389	7.1 (6.0–8.2)	14,019	2.8 (2.7–2.9)
Hypertension*	111	8.1 (5.6–10.5)	8,935	8.9 (8.4–9.3)	368	6.7 (5.7–7.7)	44,315	8.8 (8.6–9.0)
Upper respiratory tract infection	65	4.7 (3.4–6.0)	6,451	6.4 (5.9–6.8)	310	5.7 (4.8–6.5)	30,348	6.0 (5.9–6.2)
Asthma	52	3.8 (2.7–4.6)	2,752	2.7 (2.5–2.9)	236	4.3 (3.6–5.0)	14,492	2.9 (2.8–3.0)
Acute bronchitis/bronchiolitis	52	3.8 (2.6–4.9)	2,599	2.6 (2.3–2.8)	210	3.8 (3.2–4.5)	13,853	2.8 (2.7–2.8)
Depression*	50	3.6 (2.7–4.6)	3,560	3.5 (3.3–3.8)	185	3.4 (2.9–3.9)	19,008	3.8 (3.7–3.9)
Immunisation all*	41	3.0 (1.9–4.0)	4,678	4.6 (4.2–5.1)	180	3.3 (2.6–3.9)	24,195	4.8 (4.6–5.0)
Acute otitis media/myringitis	38	2.8 (1.5–4.0)	1,314	1.3 (1.1–1.5)	167	3.1 (2.5–3.6)	7,126	1.4 (1.4–1.5)
Back complaint*	35	2.6 (1.6–3.5)	2,624	2.6 (2.3–2.8)	120	2.2 (1.7–2.6)	13,234	2.6 (2.5–2.7)
Pre/postnatal check*	29	2.1 (1.1–3.1)	800	0.8 (0.4–1.2)	112	2.1 (1.5–2.5)	4,785	1.0 (0.9–1.0)
Anxiety	15	1.1 (0.4–1.8)	1,562	1.6 (1.4–1.7)	103	1.9 (1.4–2.3)	8,737	1.7 (1.7–1.8)
Urinary tract infection*	28	2.0 (1.2–2.9)	1,686	1.7 (1.6–1.8)	102	1.9 (1.5–2.3)	8,515	1.7 (1.7–1.7)
Tonsillitis	18	1.3 (0.6–2.1)	1,134	1.1 (0.9–1.3)	98	1.8 (1.4–2.2)	5,921	1.2 (1.1–1.2)
Sprain/strain*	28	2.0 (1.1–3.0)	1,702	1.7 (1.5–1.9)	91	1.7 (1.3–2.1)	8,875	1.8 (1.7–1.8)
Pregnancy*	20	1.5 (0.7–2.2)	855	0.9 (0.6–1.1)	89	1.6 (1.2–2.0)	4,218	0.8 (0.8–0.9)
General check-up*	23	1.7 (0.7–2.6)	1,952	1.9 (1.7–2.1)	88	1.6 (1.2–2.1)	9,431	1.9 (1.8–1.9)
Boil/carbuncle	21	1.5 (0.9–2.2)	532	0.5 (0.5–0.6)	84	1.5 (1.1–2.0)	2,410	0.5 (0.5–0.5)
Subtotal (n, % of total problems)	*752*	*37.0*	*46,072*	*27.4*	*2,932*	*36.2*	*233,482*	*31.4*
Total problems	**2,033**	**147.9 (137.0–158.7)**	**146,336**	**144.9 (143.0–146.8)**	**8,086**	**147.7 (143.7–151.6)**	**743,625**	**148.1 (147.3–148.9)**

(a) Figures do not total 100 as more than one problem can be managed at each encounter. * Includes multiple ICPC–2 or ICPC–2 PLUS codes (see Appendix 3)

Note: Encs—encounters; CI—confidence interval; shading indicates statistically significant difference between groups. The table includes only morbidities that arose at a rate of 1.5 per 100 encounters or more in the five year data 1998–2003.

16.8 Patient risk factors

The methods used to collect data pertaining to patient BMI, smoking status and alcohol consumption for subsamples of patients have been reported in Chapter 15. Because of the relatively small size of the subsamples for risk factors of Aboriginal or Torres Strait Island people, this section again utilises the data for all five years of the BEACH program. In 1998–99 and 1999–00, the question asked of patients about their current smoking status was on a different subsample of forms from those asking about alcohol consumption and body mass index. The sizes of the subsamples for both Indigenous Australians, and for all respondents therefore vary according to the risk factor measured.

Body mass index of Indigenous Australians

BMI was calculated for 159,667 patients aged 18 years and over. Of these, 1,480 patients identified themselves as Aboriginal people or Torres Strait Islanders.

Overall, 31.8% of these Indigenous Australians were classed as obese and a further 30.6% as overweight. Those defined as underweight accounted for 6.7% of the total, and the remaining 31.0% were in the normal range. Almost two-thirds of the respondents of both sexes were classed as obese or overweight with females being significantly more likely to be obese than males. A significantly larger proportion of the Indigenous patient sample were classed as obese (31.8%) than total respondents (20.0%), but the Indigenous Australians were less likely to be classed as overweight (30.6%) than the total sample (33.5%). A significantly lower proportion were of normal BMI than in the total sample (Table 16.7).

In total, about 62% of the Indigenous respondents were overweight or obese compared with 53.5% of all respondents (Table 16.7). Indigenous Australians aged between 45 and 64 years had the highest prevalence of obesity/overweight at 73.2% and two-thirds of those aged 25-44 years and 65–74 years fell into this category. When compared with the total sample over the five years, the higher obesity/overweight rates in Indigenous Australians were particularly apparent in those aged 18–64 years, there being no difference in age-specific rates of the two samples in older age groups (Figure 16.8).

Table 16.7: Patient body mass index of Indigenous adult respondents (aged 18+ years) and the total subsample

	Indigenous respondents						All respondents	
	Male[(a)] (*n*=551)		Female[(a)] (*n*=907)		Total (*n*=1,480)		Total (*n*=159,667)	
BMI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI
Obese	26.5	22.6–30.4	34.4	30.9–37.9	31.8	29.0–34.5	20.0	19.8–20.3
Overweight	34.5	30.2–38.7	28.2	25.2–31.2	30.6	28.1–33.1	33.5	33.2–22.8
Normal	34.5	30.4–38.6	29.2	26.0–32.5	31.0	28.4–33.5	38.4	38.1–38.8
Underweight	4.5	2.8–6.3	8.2	6.1–10.2	6.7	5.3–8.1	8.1	7.9–8.3

(a) Missing data removed—patient sex was not recorded for 22 respondents.

Note: BMI—body mass index; CI—confidence interval.; shading indicates statistically significant difference between groups.

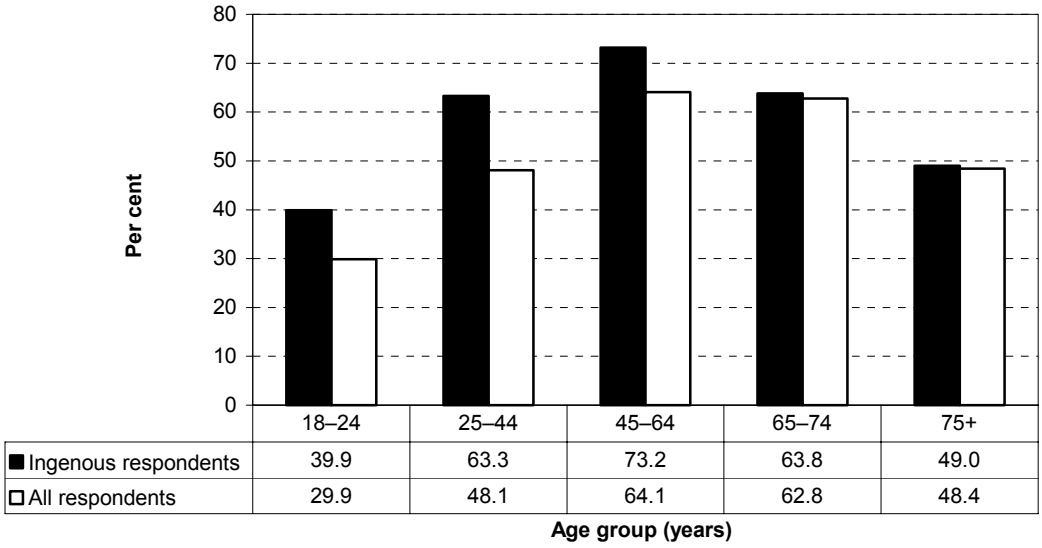


Figure 16.8: Age-specific rates of overweight and obesity in Indigenous adults and in the total subsample

Note: Missing data removed—age was missing for 82 Indigenous Australians and for 7,684 patients in the total subsample

Smoking

The smoking status of 159,489 patients aged 18 years and over was recorded and 1,454 of these were identified as Indigenous Australians.

Almost half (45.2%) of the Indigenous respondents reported they were daily smokers and a further 8.5% were occasional smokers. The prevalence of daily smoking was 2.5 times higher than in the total sample surveyed over the five years of BEACH (18.6%). Further, a significantly greater proportion of Indigenous respondents reported smoking occasionally (8.5%) than in the total sample (4.7%).

A significantly larger proportion of Indigenous women than men had never smoked (29.9% and 18.8% respectively). However, although there was an indication of higher daily smoking prevalence among Indigenous male respondents, this did not reach statistical significance (Table 16.8).

Table 16.8: Smoking status of Indigenous adult respondents (aged 18+ years) and the total subsample

	Indigenous respondents						All respondents	
	Male[(a)] (*n*=537)		Female[(a)] (*n*=897)		Total (*n*=1,454)		Total (*n*=159,489)	
Smoking status	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI
Daily	49.4	44.5–54.2	42.7	38.8–46.6	45.2	42.0–48.4	18.6	18.3–18.9
Occasional	8.0	4.4–11.6	8.8	6.5–11.1	8.5	6.3–10.6	4.7	4.5–4.8
Previous	23.8	20.0–22.3	18.6	16.0–21.3	20.7	18.5–22.9	27.3	26.9–27.6
Never	18.8	15.4–22.3	29.9	26.6–38.2	25.7	23.1–28.2	49.5	49.0–49.9

(a) Missing data removed—patient sex was unknown for 20 Indigenous respondents.

Note: CI—confidence interval; shading indicates statistically significant difference between groups.

More than half (57.1%) the Indigenous respondents in the 18–24 age group reported smoking daily and the proportion was almost as high in the 25–44 age group (52.2%). These rates were about double those from the total subsample who responded to the smoking questions. The age-specific rate of daily smoking in the Indigenous sample was less than 10% in patients aged 75 years or more but this was still about double that of the total sample (Figure 16.9).

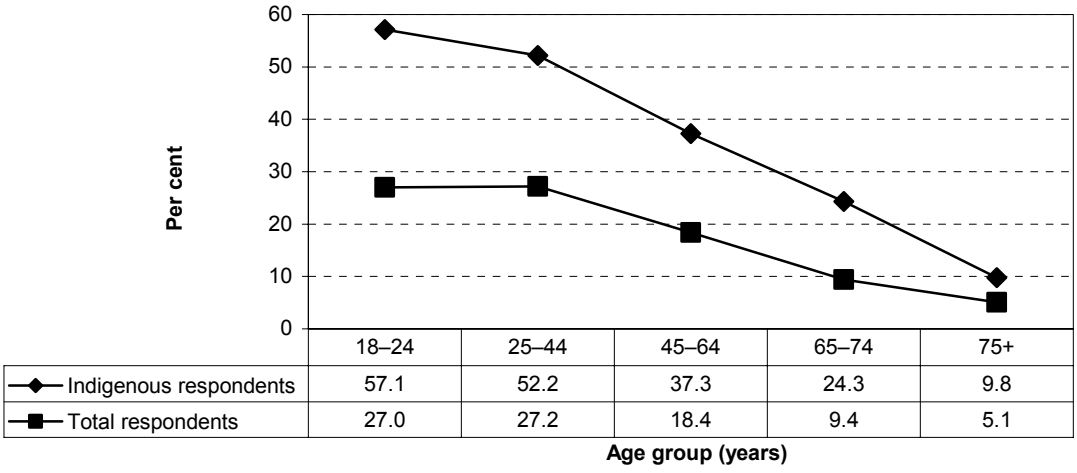


Figure 16.9: Age-specific rates of smoking status of Indigenous adults and the total subsample

Note: Missing data removed—age was missing for 71 Indigenous respondents and 7,888 patients in the total subsample.

Alcohol consumption

Responses to the questions on alcohol consumption were recorded for 157,380 adult patients (18+ years), of which 1,436 identified themselves as Indigenous Australians. Overall, 60.2% of Indigenous respondents reported drinking alcohol, and 63.1% of these (38.0% of respondents) reported drinking at 'at-risk' levels. The proportion of 'at-risk' drinkers was significantly higher among males (45.6%, 67.5% of those who consumed any alcohol) than female patients (33.4%, 59.8% of those who drank at all). About one in five respondents (both male and female) reported drinking alcohol at responsible levels and two in five were non-drinkers (Table 16.9).

Table 16.9: Alcohol consumption among adult Indigenous respondents (18+ years) and the total subsample

	Indigenous respondents						All respondents	
	Male (*n*=537)		Female (*n*=899)		Total (*n*=1,436)		Total (*n*=157,380)	
Alcohol consumption	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI
'At-risk' drinker	45.6	40.8–50.5	33.4	30.0–36.8	38.0	34.9–41.1	25.0	24.6–25.4
Responsible drinker	22.0	18.1–25.8	22.4	19.0–25.7	22.2	19.4–24.5	43.9	43.4–44.3
Non-drinker	32.4	28.2–36.7	44.3	40.1–48.4	39.8	36.6–43.1	31.2	30.7–31.6

Note: CI—confidence interval; shading indicates statistically significant difference between groups.

'At-risk' drinking was most commonly reported by Indigenous Australians aged 25–44 years (47.9%), a considerably higher proportion than in the total subsample (29.0%). Prevalence of 'at-risk' drinking in the youger adults aged 18–24 years (40.4%) was only marginally higher than in the total subsample (36.4%). 'At-risk' drinking levels in older Indignous patients decreased dramatically, to sit at lower levels than in the wider population (Figure 16.10).

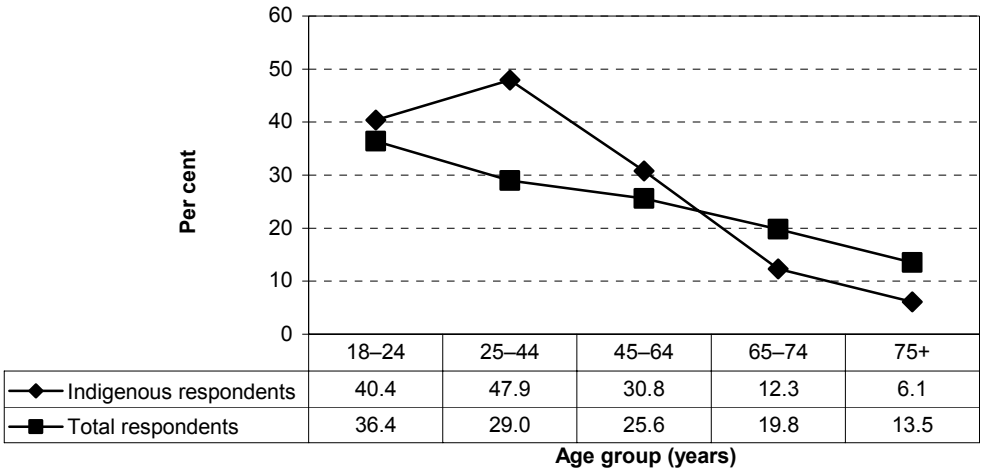


Figure 16.10: Age-specific rates of 'at-risk' alcohol consumption by Indigenous respondents and by all respondents

Risk factor profile

Data about all three risk factors were available for 92,343 patients encountered in general practice between 2000 and 2003, and 867 of these respondents were Indigenous Australians. These data allow a comparison of the multiple nature of risk factors in the Indigenous subsample and in the total sample. As shown in Table 16.11 only 12.0% of the Indigenous respondents reported none of the three risk factors, a significantly lower proportion than in the total sample (28.4%). Two of the three measured risk factors were present in ovemore than one-third (35.6%) of the Indigenous Australians, a significantly greater proportion than in the total subsample (19.6%). All three risk factors were three times more likely to be present among the Indigenous respondents (10.8%) than in the total subsample (3.6%) (Table 16.10).

Table 16.10: Risk factor profile of Indigenous adult respondents and the total subsample

	Indigenous respondents		All respondents	
Number of risk factors	Per cent (*n*=867)[(a)]	95% CI	Per cent (*n*=92,343)[(a)]	95% CI
None	12.0	9.7–14.3	28.4	27.9–28.9
One	41.5	37.8–45.2	48.4	48.0–48.8
Two	35.6	32.2–39.1	19.5	19.2–19.9
Three	10.8	8.6–13.1	3.6	3.4–3.8

(a) Missing data removed. Data for at least one risk factor data was missing for 109 of 976 Indigenous respondents who were asked all three questions, and for 7,914 of the 100,257 patients in the total sample who were asked all three questions.

Note: CI—confidence interval; shading indicates statistically significant difference between groups.

16.9 Discussion

The proportion of total encounters over the 1998–2003 period that were identified as being with Indigenous Australians (1.1%) was low, relative to the proportion of Indigenous Australians in the total population (2.4% at 30 June 1999).[44] We do not know the extent to which GPs regularly ask the questions about Indigenous status and the manner in which they ask it; nor do we know the extent to which Indigenous Australians, when asked the question, are willing to identify themselves as such in this environment. In early 2003, we conducted a SAND study which investigated the cultural background of patients attending general practice, among a subsample of 8,943 patients attending 294 GPs. One question, asking patients if they identified themselves as an Aboriginal person and/or as a Torres Strait Islander was included in a series of broader questions regarding cultural background and languages spoken. This substudy suggested that 2.4% (95% CI: 1.3–3.4) of the respondents identified as Indigenous Australians, more than double the proportion estimated in the encounter data reported here.[45] The results of this SAND study suggest that the structured question may be more successful in identifying Aboriginal and Torres Strait Islander respondents in general practice than the unstructured tick box. However further research is needed before any firm conclusions can be drawn.

In Section 16.1 we discussed the extent to which some encounters with Indigenous Australians recorded in the BEACH program are likely to have been conducted in an ACCHS. We estimated that some 37 GPs could have been working in such an environment and removed them from our extrapolation to the total estimated number of encounters with Indigenous Australians that would be conducted in non-ACCHS private general practice. However, it is notable that the proportion of total encounters that were claimable through Medicare was the same for encounters with Indigenous Australians as in the total sample (see Section 16.4), so the encounters likely to have occurred in an ACCHS still fall under the Medicare arrangements. They seem not to include GPs working in ACCHSs that are funded under other Commonwealth arrangements, since such GPs would not be claiming from Medicare and would not be in the sample frame from which the BEACH samples are drawn.

One could therefore combine the total extrapolated figure (1.1 million per year) with any data available from non-Medicare-claiming ACCHSs to provide a more reliable indication of the total number of encounters conducted in general practice (both private and ACCHS) with Indigenous Australians.

In spite of the fact that the encounters reported here are clearly an under-representation of the total GP encounters with Indigenous Australians, the reliability of the results surrounding the problems managed is supported by other evidence.

Characteristics of the patients at encounter

The relatively small proportion of these encounters that were with people of Torres Strait Islander origin (9.0%) or as both Aboriginal and Torres Strait Islander origin (2.7%) reflected the distribution within the Indigenous population, where the comparable proportions are 6% and 4% respectively.[43]

The relatively small proportion of encounters with older Indigenous people (7.4% over 65 years) clearly reflects their shorter life expectancy, which leads to a generally younger age distribution with a lesser proportion of older people than for the total population. In fact, the age-specific rates of encounters by age group reflected well the overall age distribution of the Indigenous population.[43]

The distribution of the encounters across states was a relatively good reflection of the geographic distribution of the Indigenous population as a whole, 29% of whom reside in New South Wales, 27% in Queensland, 14% in Western Australia and 12% in the Northern Territory. The distribution of the encounters across rural and metropolitan areas also reflected the population distribution, 30% of encounters and 30% of the population being in metropolitan areas and 20% of the encounters (compared with 25% of the population) being in remote or very remote areas.[43]

Problems and management

Endocrine and metabolic problems were managed significantly more often at encounters with Indigenous Australians than at all encounters. This was almost entirely explained by the very high management rate of diabetes, which was the most frequently managed problem at Indigenous encounters, at a rate that was 2.5 times the rate for all encounters. This probably reflects its high self-reported prevalence in this community (11%, age-standardised, compared with 3% in the non-Indigenous population)[43] and suggests that GPs are playing an important role in its management for Indigenous Australians. Although hypertension has consistently been the most frequently managed problem at all BEACH encounters, it rated second place at encounters with Indigenous Australians.

The high management rate of asthma may well reflect its prevalence in the Indigenous population (17% compared with 12% in non-Indigenous people)[43] and together with the relatively high management rate of acute bronchitis may be associated with the high proportion of daily smokers in this population.

Management rates of ear problems were significantly higher at encounters with Indigenous Australians than at all encounters but this was wholly explained by the relatively high management rate of otitis media.

The significantly lower management rates of circulatory problems and female genital problems are of some concern in light of the known prevalence of circulatory disease in the Indigenous population[43] and the need for regular Pap smears in women.

The relative rate of immunisations and vaccinations was significantly lower at Indigenous encounters. This was surprising considering that special government funded vaccination programs for the influenza vaccine are available to Indigenous Australians at a lower age than for other Australians and a greater proportion of encounters with Indigenous patients are with young children who should be receiving their childhood immunisations.

It is possible that such preventive care is being accessed through services other than private general practice.

The GPs managed issues related to pregnancy and family planning far more often at encounters with Indigenous Australians than at all encounters, particularly pre/postnatal care. This may explain the very high proportion of encounters with Indigenous people in the 25-44 age group, when compared with the total sample.

Otitis media, tonsillitis, acute bronchitis and boil/carbuncle were infections often managed at Indigenous patient encounters, all at significantly higher rates than average. Together, these four infectious diseases were managed more often than diabetes, at a rate of more than 9 per 100 encounters. This may reflect the poor socioeconomic situation of many Indigenous Australians.

The results pertaining to pharmacological management demonstrated that encounters with Indigenous Australians resulted in far higher relative rates of direct supply of medications to the patient by the GPs, almost three times higher than encounters with non-Indigenous people. This may well reflect the introduction of the 'Section 100 Scheme' for Aboriginal health services in remote areas, which allows the service to receive medications that are on the PBS in bulk from the community pharmacy and supply these direct to the patient.[46] This gives further support to the hypothesis that some of the GPs in the sample were recording in an ACCHS environment.

Risk factors

The substudy investigating BMI showed that Indigenous Australians were more likely to be overweight and obese (62.4%) than was the total sample (53.5%). These results align well with those from the National Health Survey (NHS) which found that 61% of Indigenous Australians were classified as overweight or obese (based on self-reported weight and height) compared with non-Indigenous Australians (48%).[47] Both studies found that males and females were more likely to be classified as obese than their comparison groups.

We found that 45.2% of the Indigenous respondents in the SAND subsample study were current daily smokers compared with 18.6% of the total subsample. These estimates are a little lower than those made from the NHS after age standardisation (51% and 24% respectively)[47] but parallel the findings of the 2001 National Drug Strategy Household Survey (NDSHS), of 45% of adult (14+) Indigenous people and 19% of non-Indigenous people being daily smokers.[43] It must be remembered however, that both the NHS and NDSHS are population based studies, while BEACH samples the patient at the GP encounter, so that frequent attenders have more chance of being included than infrequent attenders, and non-attenders are not in the sample at all.

The comparability of findings from BEACH and the NHS does not extend to those for alcohol consumption. The 2001 NHS found that Indigenous adults were less likely (42%) than non-Indigenous adults (62%) to have consumed alcohol in the week prior to interview. In the BEACH study a far greater proportion of Indigenous respondents reported drinking alcohol (60.2%), though this was still a lower proportion than in the total sample (68.9%).

More importantly, however, we found far higher rates of 'at-risk' alcohol consumption among the Indigenous patients (38%) than among the total sample (25.0%). Viewed in terms of the porportion who do consume some alcohol, 67.5% of Indigenous people who drink were drinking levels defined as 'at risk', compared with 58.9% of the drinkers in the total sample. The comparable figures from the 2001 NHS for 'at-risk' drinkers are 12% of

Indigenous Australians (29% of those who drink) and 11% for non-Indigenous Australians (17% of those who drink).[43] The age groups included in the studies were identical (18 + years) and both used the National Health and Medical Research Council (NHMRC) guidelines to define 'at-risk' drinking levels. However the calculation of 'at-risk' in the NHS is based on a single reference week and may not therefore include counts of 'binge drinking' where high levels of alcohol are consumed less often than weekly.

Further analysis of the BEACH data for all patients who had been classified as 'at-risk' consumers of alcohol showed that a considerable proportion of these patients reported drinking alcohol weekly or less often. Since their consumption still led them to be classified as 'at-risk', this would suggest they may ' binge drink'. The proportion was far higher in the Indigenous subsample (46.6%) than in the total sample (22.0%). However, if we remove this group of patients from our estimates of the prevalence of 'at-risk' drinking, the results remain far higher than those of the NHS, at 20.3% of Indigenous Australians and 19.5% of the total patient sample. It is possible that the difference lies in our reliance on reports of 'usual' behaviour whereas the NHS relies on information about the current week.

The risk factor profile suggested that multiple risk factors were more common among the Indigenous Australians (almost half having more than one) than in the total patient subsample, 24.1% of whom had more than one of the three measured risk factors.

16.10 Conclusion

This comparative summary of the characteristics of Indigenous Australians who visited GPs participating in BEACH over a five year period provides an indication of the health services provided to the Indigenous population by GPs. The distribution of the Indigenous patients by state broadly reflects the state distribution of the estimated Indigenous resident population. Further, the proportion living in capital cities parallels the estimated proportion of the Indigenous population living in major cities. However, the proportion of Indigenous people in the BEACH program who reside in remote and very remote areas appears to be somewhat under-representative of the proportion of the Indigenous population who live in such areas. This suggests a greater reliance by the Indigenous people on other services, such as ACCHS, in more remote locations.[43]

The data demonstrate large differences in the relative rates of management of some problems when compared with those at all GP encounters, particularly diabetes, asthma and some infectious conditions. It also demonstrates high levels of measured risk factors in the Indigenous patient population when compared with all patients. In particular, the relatively high prevalence of 'at-risk' alcohol consumption among the Indigenous respondents, particularly in light of the irregular consumption by nearly half the drinkers, should raise concern. Almost half the Indigenous respondents in this study carried two or more risk factors out of the three measured—BMI, smoking and alcohol consumption. In light of the relatively high rates of management of diabetes and asthma, together with usual management levels of hypertension, this pattern of behaviour should raise concern.

The extent to which these services were provided in ACCHS can only be roughly estimated from the current data. However, the results suggest that private general practice has an important role to play in the care of the Indigenous population. In any assessment of the healthcare of the Indigenous population, these services must be considered.

17 Discussion

This report has provided a picture of the current activities of GPs, particularly the more frequent events which together make up a large part of their workload. The generalist nature of their practice has been demonstrated by the breadth of problems managed and the wide variety of management techniques utilised. This report has shown that medication is the most common form of problem management, but that the management of a problem by a medication alone applies to less than 40% of all problems managed. It has demonstrated the importance of counselling and advice in a GP's working day as it is used in the management of one in five problems. The relatively small number of patients admitted to hospital or referred to the emergency department or to specialists indicates the extent to which patients are cared for by GPs in the community.

These data provide other researchers with a national average against which they can compare smaller study samples. The large sample size underlying these national data and the consequent accuracy of the estimates reported also allow researchers to plan studies of specific problems and their management by providing better estimates of required GP sample size through a knowledge of the likely occurrence of the event of interest. They provide healthcare planners with an up-to-date view of the common issues taken to and managed by GPs, and an opportunity to relate prescribing patterns and costs to the management of specific types of conditions.

17.1 The advantages of BEACH

We are often asked to outline the advantages the BEACH over general practice activity from other data sources. These are summarised below.

- We have access to a regular random sample of recognised GPs who are currently in active practice, through the Australian Department of Health and Ageing. This ensures that the sample of GPs is drawn from a very reliable sample frame of currently active GPs.
- The ever-changing nature of the sample (where each GP can only participate once per triennium) ensures reliable representation of what is happening in general practice across the country. Where programs use a fixed set of GPs over the long term practise, they are measuring what that group is doing at any one time, or how that group has changed over time. Such measures cannot be generalised to the whole of general practice. Further, where the GPs in the groups have a particular characteristic in common (e.g. they all belong to a professional organisation to which not all GPs belong; they all use a selected software system which is not used by all GPs), the group is biased and cannot be said to represent all GPs.
- We are provided with sufficient details about the characteristics of all GPs in the sample frame to allow statistical testing of the representativeness of the final sample and to allow post-stratification weighting to correct for any under-representation or over-representation in the sample (e.g. in BEACH this applies to GPs aged less than 35 years).

- Each GP records for a set number of 100 encounters, but there is wide variance among them in terms of the number of patient consultations they conduct in any one year. We aim to represent all encounters conducted in general practice across the country. The Department of Health and Ageing (DoHA) therefore provides an individual count of activity level (i.e. number of A1 Medicare item numbers claimed in the previous quarter) for all randomly sampled GPs, allowing us to give a weighting to each GP's set of encounters, commensurate with their contribution to total general practice encounters. This ensures that the final encounter data set represents encounters with all GPs (demonstrated in Chapter 4).
- The structured paper encounter form leads the GP participants through each step in the patient encounter, encouraging entry of data for each element. This is in contrast to relying on such systems as electronic health records, which may not be completed in all data fields of interest.
- The activities described in BEACH include all clinical activity associated with a specific patient, not just those that are covered by Medicare.
- The sheer size of the GP sample (1,000 per year) and the relatively small cluster of encounters around each GP provides more reliable estimates than a smaller number of GPs with large clusters of patients and/or encounters around each participating GP.[25]
- The medication data include prescriptions, GP-supplied medications and advised over-the-counter (OTC) drugs, rather than being limited to those prescribed medications covered by the Commonwealth Pharmaceutical Benefits Scheme. BEACH is the only source of information about the medications supplied directly to the patient by the GP.
- The inclusion of non-pharmacological management such as clinical counselling and therapeutic procedures provides a broader view of the interventions used by GPs in the care of their patients, than other data sources.
- The link from all management actions (e.g. prescribing, ordering tests etc.) to the problem under management provides the user with a measure of the 'quality' of care rather than just a count of the number of times an action has occurred (e.g. how frequently a specific drug has been prescribed).
- The use of a well structured classification system designed specifically for general practice, together with the use of an extended vocabulary of terms which facilitates reliable classification of the data by trained secondary coders, removes the guesswork often applied in word searches of available records and in the allocation of a concept to the correct place in the classification.
- The analytical techniques applied to the BEACH data ensure that the cluster sample inherent in the methods is dealt with and that results are provided with 95% confidence intervals. Users are therefore aware of how reliable (or unreliable) any estimate might be.
- The reliability of the methods is demonstrated by the consistency of the results over the five years in areas where change is not expected and by the ability to identify change when it might be expected (e.g. the pattern of Cox-2 prescriptions since these medications were first released).

17.2 Changes over time

In this report we have presented a summary of the results from each of the first five years of the BEACH program and given the estimates based on the five year data set as a whole (Appendix 4). The five year data clearly provides the most precise estimates of the frequency of a selected event, if the reader is not interested in looking at changes over the period of the study.

We further investigated changes in rates of management of selected morbidity and changes in treatments provided by GPs since April 1998. Where changes identified in earlier years of BEACH have remained steady or have continued, the reader can be assured that real change is occurring and that the measured change was not a chance statistical event.

Changes in rates of management of specific types of morbidity and changes in prescribing rates of some medications were demonstrated in Chapter 13. On the basis of these findings, some topics were selected to investigate the relationship between changes in pharmacological management and changes in morbidity rates (Chapter 14). Some of these results are further discussed below.

The steady increase in the management rate of lipid disorders continued in the fifth BEACH year but the number of new cases identified was no higher than in each of the previous years. The measured increase in attendance rates for this problem suggested that each year across the country there has been an average of 110,000 additional GP contacts for this problems—that is, in 2002–03, there would have been an additional 550,000 such contacts in Australia than in 1998–99. This suggests that each year a relatively small number of new cases of lipid disorder are identified and this, combined with the long term nature of treatment, produces an ever increasing number of GP visits involving its management.

BEACH data also provide an opportunity to measure the short and long term impact of PBS listing of new pharmacological preparations. In 1998–99 the provision/prescription rate of NSAIDs was 5.0 per 100 encounters. This rose by 14% (to 5.7 per 100 encounters) in 2000–01 and a further 19% (to 6.8 per 100) in 2001–02, largely due to the rise in Cox-2 inhibitors which were listed on the PBS in 2000–01.[6] This early adoption of the Cox-2 medications by GPs in Australia after the PBS listing has been noted in earlier reports and has recently been been supported by Kerr et al.[48] In 2001–02 the rate of NSAID prescribing levelled off to 6.4 per 100 encounters but this was not due to any levelling of the Cox-2 inhibitors, which rose again from 2.7 medications per 100 encounters to 3.0 per 100. This year (2002–03) the prescribing rate of NSAIDs remained steady as did the rate for Cox-2 inhibitors. However, as noted in Chapter 14, the established steadying in overall NSAID prescribing rates could reflect an increased patient reliance on OTC purchase of ibuprofen.

A significant decrease in the management rate of asthma was found in 2000–01. This change was quite sudden and has remained in the fourth and fifth years of BEACH but there was no further decrease in either year. Since November 2001, GPs have been able to claim from Medicare for completion of the Asthma 3+Visit Plan.[1] Its introduction appears not to have affected a change in management rates for asthma, as the decrease occurred before its introduction. However, there were other types of asthma plans being promoted before the Asthma 3+Visit Plan and these may have caused the measured decrease in management rates in 2000–01. The extent to which such plans have improved patient education in self-management of this problem and in turn led to this decrease in management rate is not known.

BEACH is the only data source that provides an indication of GP use of non-pharmacological management. With increasing attention being paid to the need for improved health preventive behaviour in the overall population, it was notable last year to see that GP provision of lifestyle counselling and advice had increased significantly since 1998–99. However, in 2002–03 the rate remained steady, no additional increase in the rate of lifestyle counselling being apparent. It will be interesting to see next year whether this is just a settling period, with the use of lifestyle counselling increasing again in future.

The effect of GP and patient educational interventions on practice patterns cannot easily be measured. Often, multiple interventions occur in parallel to system changes. For example, Chapter 13 showed a measured increase in the relative rate of management of diabetes since 1998–99, from 2.6 per 100 encounters to 3.1 per 100 encounters in 2001–02. This may be a result of the introduction of a Medicare incentive item number for completion of annual diabetes programs.[1] This year the Medicare incentive payment was available for the full 12 month study period, and one might have expected a further increase in management rates of diabetes as a result. No increase was apparent, the rate remaining steady.

Changes in pathology order rates have recently been the subject of another study, the results of which are reported in *Changes in pathology ordering by general practitioners in Australia, 1998–2001*.[30]

17.3 Methodological issues

Cluster sampling

The statistical techniques applied in BEACH recognise that the sampling is based on GPs and that for each GP there is a cluster of encounters. Each cluster may have its own characteristics, being influenced by the characteristics of the GP. While ideally the sample should be a random sample of GP–patient encounters, such a sampling method is impractical in the Australian healthcare system. The reader should, however, be aware that the larger the GP sample and the smaller the cluster, the better. The sample size of 100,000 encounters from a random sample of 1,000 GPs has been demonstrated to be the most suitable balance between cost and statistical power and validity.[25]

GP participation rates

The response rate of GPs in the fifth year of BEACH was 28.9% of those with whom contact could be established. This was a little lower than the response rate for the fourth (32.3%)[24] BEACH year, similar to the previous year (29.8%)[6], but far lower than that gained in the first (38.4%)[23] and second (39.1%) BEACH years.[5] The participating GPs were found to be older and slightly less busy than those who declined to participate, and post-stratification weighting was applied to the encounter data to deal with these differences.

The continued low response rate is of concern and the research team believes that a number of system factors have contributed to it.

- One of the main reasons many GPs agree to participate in BEACH is because they receive audit points towards their Quality Assurance requirements. In recent years a wide range of new options have become available to GPs through the Quality Assurance Program. When refusing to participate, many GPs have voiced the opinion that there are many other options 'easier' than BEACH but which gain a similar number of points. These comments led us to request the RACGP to reconsider the point allocation for completion of the BEACH program. In mid 2003 the RACGP increased the points for BEACH from a maximum of 35 to a maximum of 65 (if the cycle is competed). This increase was made retrospective to the beginning of the current QA triennium and all GPs who participated earlier in the triennium have been allocated the additional points by the RACGP. All GPs who had declined to participate since the beginning of the current BEACH year (April 1 2003) were notified of the increased point allocation and offered the opportunity to reconsider their decision. It will be interesting to see the overall impact of this increase in QA points on the final response rate in year 6 of the BEACH program.
- There are increasing demands being made on GPs to participate in a wide range of non-clinical activities such as divisional projects and programs and other audits (such as those offered by the National Prescribing Service), and this may influence the extent to which they are willing to participate in BEACH. In fact, there is widespread concern about the extent of the demands being made on GPs for such activities.
- As in previous BEACH years, GPs aged less than 35 years were under-represented in the final GP sample and this could be due to the fact that general practice registrars are not required to undertake QA activities during training and during the QA triennium of completion of training. While post-stratification weighting of the final dataset overcomes this problem, it would be better id some incentives were to be introduced to encourage participation of these younger GPs in BEACH.
- A similar issue has arisen with recruitment of the increasing number of unrecognised GPs now allowed to practise in needy rural areas, who by special arrangement can claim A1 Medicare items of service but who are not required to undertake QA activities. The majority of these practitioners work in rural and remote areas, and these are areas in which more detailed information about clinical activity is currently needed.
- Sampling issues also affect recruitment levels but these have been reasonably constant influences over the period of the BEACH program. In the sample of GPs provided by the DoHA from the HIC records 8% could not be contacted. A large proportion of these were not practising at the time of recruitment, having retired, died, gone overseas or taken maternity leave since their selection from the HIC records. As the aim is to represent active, practising GPs, the exclusion of these GPs from the sample is a valid and necessary action. However, there were also some GPs who had left the practice to which the BEACH approach letter was sent and could not be traced. In many of these cases, the practice informed recruiting staff that the GP selected had not been at the practice for some years. The number of GPs for whom the current address and/or phone number (provided by the DoHA for this study) are out of date has increased in recent years. This may reflect a change in processes of address recording with increased use by GPs of electronic payment mechanisms. In any case, these problems suggest that the HIC system of practice address registration is not error-free.

Sampling issues

Encounters with Indigenous people

In Chapter 16 we reported that the annual estimates on the proportion of all GP encounters with Indigenous people (around 1% per annum) are clearly an under-representation. The SAND substudy found that if the question is asked of the patient within the context of a series of questions about origin, 2.2% will identify as Aboriginal or Torres Strait Island people.

It is possible that where GPs are offered a simple yes/no tick box for this question at every encounter, they often do not ask the patient the question. However, there is remarkable consistency in the age–sex distribution of these patients each year, and in the patterns of problems managed. These patterns also reflect what is known from other sources about the prevalence of certain diseases in the Indigenous population. Therefore, while the reader should keep the under-representation of these encounters in mind, there is no reason to believe it is biased in any consistent way. The use of the full five years data for reporting encounters with Indigenous people in this report provides a more reliable picture of what happens at encounters with Aboriginal people and Torres Strait Islanders.

The large disparity between the five year BEACH result and the SAND sub-study merits further investigation, and it is hoped that further use of SAND for this purpose will be possible in the near future.

Remote areas

It is often said that practising in remote areas is very different from practising in other locations. Only 2.4% of GPs practise in remote areas. As a result, when a random sample of all GPs is drawn, the final sample in remote areas is relatively small (n=20) (see Chapter 4). Earlier research has suggested that we should have a minimum of 40 GPs each providing data regarding 100 encounters (giving a sample of 4,000 encounters) to reliably describe their activity and compare it with others.

A suitable sample could be gained for remote areas if we actively over-sample these GPs. The co-operation of this small group of practitioners would first need to be established. As there are relatively few, a very high response rate would be required if sufficient numbers of GPs are to be recruited. Further, as discussed above, with increasing numbers of non-recognised GPs working in these areas (GPs who are not required to complete the Quality Assurance Program), efforts would need to be made to include them in the over-sample. Such a study would provide a far better understanding of the health needs of these communities and the type of work being undertaken by these providers. In turn, this may assist in planning educational programs for practitioners intending to work in these areas.

Electronic BEACH data collection

The BEACH program is currently a paper-based data collection program. Many people have suggested that with the increased GP uptake of electronic prescribing systems or full clinical systems (electronic health records, EHRs), national data could soon be drawn passively, directly from the GPs' computers. Although an attractive proposition, there are many barriers to its implementation:

- To obtain a national random sample of practising GPs, each GP must have an equal chance of selection. Until all GPs are using EHRs, this would not be the case. Further, with the recognised variance between GPs[49] it is likely that those who do not have EHRs differ from those who do. Sampling of only GPs with EHRs would therefore give a biased national result.
- Many GPs currently use electronic prescribing systems rather than full EHRs. The extent to which data are entered at encounters that do not involve a prescription is not known. Further, this report has demonstrated that drug prescription is only one of many management techniques used by GPs. The measurement of GP clinical activity should not be confined to the measurement of prescribing behaviour any more than it should be limited to activities claimed only through the MBS.
- The structure of electronic clinical systems varies, as do the coding and classification systems used. Drawing reliable and representative data from electronic clinical systems is likely to require the introduction of a standardised minimum data set and use of standard coding and classification systems in all electronic clinical systems. Such coding systems will be required for each of the data elements within the minimum data set (i.e. variables such as patient cultural background, pathology orders, clinical services, procedures etc.) as well as the problems under management.
- Issues of privacy and confidentiality also need to be resolved.

Active electronic data collection: a controlled trial

Another possibility is for data to be actively collected on computer, either as the sole method of data collection (when all GPs have EHRs) or in parallel with paper-based data collection. The General Practice Statistics and Classification Unit (GPSCU) recently completed a longitudinal, matched, controlled trial of active computerised data collection compared with paper-based data collection in the western, north-western and south-western areas of Sydney. Interactive software was developed that reflects the data elements collected in BEACH. This software does not interact with any clinical system being used by GPs so that they had to actively complete each field covered by the recording form.

The trial aimed to demonstrate that electronic data collection systems can be used for the systematic collection of general practice activity data; to assess the validity and reliability of data collected in this manner compared with paper-based collection; to assess the acceptability and feasibility of data collection by this mechanism for use in the national program, for use by divisions of general practice and for use in GP training program evaluation and assessment.

GPs who participated in this trial had completed BEACH (on paper) within the previous 18 months. Matched comparisons were made between the data collected on paper with that collected on computer.

Response rates and completion rates were poor, and subjective responses from GPs indicated that in the vast majority they would prefer to collect the BEACH data on paper.

The results demonstrated that a semi-forced entry of patient characteristics resulted in extremely complete data sets for each of the characteristics investigated: age, sex, Commonwealth health care card status, non-English speaking background status, Veterans' Affairs Card status and patient status to the practice (new/seen before). Whereas many of these data elements have a response rate of less than 80% in Paper BEACH, missing data in Computer BEACH for these elements was extremely rare. In contrast, the completeness of the remainder of the data elements was poor. When compared with Paper BEACH,

Computer BEACH had significantly lower recording rates of almost all variables, including patient reasons for encounter, problems managed, medications, non-pharmacological treatments, pathology tests ordered imaging ordered and referrals. The majority of these differences were very large.

Investigation of the types of encounters recorded suggested the GPs were not being particularly selective in the encounters they chose to record. Rather there was a general move to record fewer cases of every event.

This study demonstrated that active GP computerised data collection in structured, stand alone software does not provide a reliable and valid measure of GP activity and could not be adopted at this stage as an acceptable alternative to paper based data collection methods currently being used.

A more detailed report of the results of this study is currently being prepared for publication.

Other BEACH applications

Under DoHA funding, the National Consortium for Education in Primary Medical Care established an alternative pathway to general practice recognition. Practitioners who wish to take this pathway to the FRACGP examination must complete 400 hours of education before sitting for the examination. These unrecognised GPs first must assess their educational needs so that the educational program can be planned around the individual practitioner. The GPs complete the BEACH process as a tool to assist in identifying specific educational needs.

The GPSCU is currently applying the BEACH methods in a small study of the experience gained by GP registrars. These data may assist in better defining the areas in which registrars should receive training and may identify areas in which they are not gaining experience. Combined with the BEACH encounters data from registrars who have completed BEACH in the last few years, this will provide a comparative picture of their clinical activity compared with the 'average' GP in Australia.

17.4 Comparing BEACH data with those from other sources

Users of the data reported in this publication might wish to compare the results with those from other sources, such as that from the HIC.[28] Although integration of data from multiple sources can provide a more comprehensive picture of the health and healthcare of the Australian community, the user must keep in mind the limitations of each data set and the differences between them. Some examples are presented below.

The Pharmaceutical Benefits Scheme (PBS)

If comparing BEACH prescribing data with data from the PBS, the reader should be aware of the following:

- Total medications in BEACH include those prescribed, supplied to the patient directly by the GP, and those advised for OTC purchase.

- Each prescription recorded in the BEACH program reflects the GP's intent that the patient receives the prescribed medication and the specified number of repeats. The prescription, irrespective of the number of repeats ordered, is counted only once.
- Prescriptions are counted in BEACH irrespective of whether the medication is covered by the PBS for all patients, for those holding a Commonwealth health care card or for those who have reached the safety net threshold.
- The BEACH data do not provide information on the number of prescriptions not filled by the patient (and neither does the PBS).

In contrast, the PBS data:

- count the prescription each time it crosses the pharmacist's counter
- count only prescribed medications subsidised by the PBS and costing more than the minimum subsidy and which are therefore covered by the PBS for all patients, or are prescribed for those holding a Commonwealth health care card or for those who have reached the safety net threshold.

These differences will influence not only the numbers of prescriptions counted but also their distribution. For example, the majority of hormone replacement therapies (HRTs) fall under the PBS minimum subsidy level and would not be counted in the PBS data unless patients receive the medication under the PBS because they are a Commonwealth health care card holder or have reached the annual safety net threshold. The PBS would therefore underestimate the number of HRT prescriptions filled and the proportion of total medications accounted for by HRTs.

The Medicare Benefits Schedule (MBS) items

If comparing the BEACH data with Medicare data, the reader should remember the following:

- The MBS data provided by the DoHA do not usually include data about patients and encounters funded through the Department of Veterans' Affairs. The effect of this on comparisons between data sets was demonstrated in Chapter 4 (Section 4.3) in the comparison of the age–sex distribution of patients at A1 encounters in BEACH with that for the MBS A1 items of service.
- The BEACH participants have the opportunity to record only one Medicare item number on each encounter form. They are instructed to select the more general item number where two item numbers apply to the consultation because additional services attracting their own item number (e.g. 30026—repair of wound) are counted as actions in other parts of the form. This results in a lesser number of 'other' Medicare items than would be counted in the Medicare data.
- The BEACH database includes data about all clinical activities, not only those billed to the MBS. Both direct (patient seen) and indirect (patient not seen but a clinical activity undertaken) consultations are recorded. Some of these are paid by other funding sources (e.g. State health departments, private insurance companies, workers compensation), and some are provided free of charge by the GP (see Chapter 5). In contrast, the MBS data include only those GP services that have been billed to Medicare.

- In activities of relatively low frequency with a skewed distribution across individual GPs, the relative frequency of the event in the BEACH data may not reflect that reported in the MBS data. For example, a study of early uptake of some ECP items by GPs, demonstrated that almost half the EPC items claimed through the MBS came from about 6% of active GPs.[50] Where activity is so skewed across the practising population, a national random sample will provide an under-estimate of activity because the sample reflects the whole population rather than the minority.

Pathology data from the MBS

The BEACH database includes details of pathology tests ordered by the participating GPs. When comparing these data with those in the MBS, readers should remember the following:

- BEACH reflects the GP's intent that the patient have the pathology test(s) done, and information about the extent to which patients do not have the test done is not available.
- Each pathology company can respond differently to a specific test order label recorded by the GP. Further, the pathology companies can charge through the MBS only for the three most expensive tests undertaken even where more were actually undertaken. This is called 'coning' and is part of the DoHA pathology payment system.
- Pathology MBS items contain pathology tests grouped on the basis of cost. An item may therefore not give a clear picture of the precise tests performed.

The effect of these factors is that the MBS pathology data includes only those tests billed to the MBS after interpretation of the order by the pathologist and after selection of the three most expensive tests. This effect will not be random. For example, in an order for four tests to review the status of a patient with diabetes, it is likely that the HbA1c will be the least expensive and will 'drop' off the billing process due to coning. This would result in an under-estimate of the number of HbA1cs being ordered by GPs.

The distributions of the two data sets will differ, reflecting on the one hand the GP order and on the other the MBS-billed services after coning and assignment of MBS item number.

Those interested in GP pathology ordering will find more detailed information from the BEACH program in *Pathology ordering by general practitioners in Australia 1998*.[27] A study of changes in pathology ordering patterns between 1998–99 and 2000–01 has also recently been released [30] and is available through our web site http://www.fmrc.org.au/publications/ (go to Books—General Practice Series).

Imaging data from the MBS

Some of the issues discussed regarding pathology data also apply to imaging data. Although coning is not an issue for imaging, radiologists are free to decide whether or not the test ordered by the GP is the most suitable and whether to undertake other tests of their choosing. The MBS data therefore reflect the tests that are actually undertaken by the radiologist, whereas the BEACH data reflect those ordered by the GP. Those interested in GP imaging ordering will find more detailed information from the BEACH program in *Imaging orders by general practitioners in Australia 1999–00,*[29] also available from our web site.

18 Conclusion

This report has provided an updated description of the major aspects of general practice activity in Australia in 2002–03. It has also provided a further measure of the changes that have occurred in general practice since 1998–99.

Readers should be aware that Appendix 4 provides a summary of the results of the more common events recorded in BEACH in each of the 5 years reported to date. This acts as an easy reference point for trends in data pertaining to the more common aspects of general practice. This appendix also includes a summary of the results for the total five year data set. This provides more accurate estimates with tighter confidence intervals for most events than does any single year's data.

18.1 Current status of BEACH

The BEACH program is now in its sixth year. The database for the first 5 years includes data pertaining to approximately 500,000 GP–patient encounters from about 5,000 GPs. Each year the GPSCU publishes an annual report of BEACH results through the Australian Institute of Health and Welfare. This publication reports results from the previous BEACH data year on a national basis for the more common events. Other reports use the database for secondary analyses of a selected topic or for a specific research question. The most recent examples are a study of encounters with male patients in general practice and a study investigating data about older patients (aged 65 years and over) in general practice. These and other BEACH reports can be downloaded from http://www.fmrc.org.au/publications/ (go to Books — General Practice Series) or from http://www.aihw.gov.au/publications/.

18.2 Access to BEACH data

Public domain

In line with standard Australian Institute of Health and Welfare practice, this annual publication provides a comprehensive view of general practice activity in Australia.

Abstracts of results for the substudies conducted in the fifth 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 GPSCU is a part) at http://www.fmrc.org.au/beach-pubs.htm#6. The subjects covered in the abstracts are listed in Table 18.1 with an indication of the number of GPs and the number of encounters in each subsample.

Analysis of the BEACH data is a complex task. The GPSCU has therefore designed standard report formats that cover most aspects of the subject under investigation. Examples of a problem based standard report (the subject is Warts) and a pharmacological based standard report (subject Allopurinol) for a single year's data are available on our web site, http://www.fmrc.org.au/purchase.htm. They give potential users an opportunity to see the types of information provided in such a report.

Standard reports are also available for selected groups of patients (e.g. children aged less than 15 years, or all women with a cardiovascular problem, or all patients residing in NSW), or a for a specific non-pharmacological management action (e.g. all recorded cases of provision of psychological counselling; all orders for a full blood count).

Individual data analyses are conducted where the specific research question is not adequately answered through standard reports.

Table 18.1: SAND abstracts for 2002–03 and sample size for each

Abstract Number	Subject	Number of encounters	Number of GPs
38	Prevalence of chronic heart failure, its management and control	3,082	106
39	Severity of asthma, medications and management	3,070	105
40	Type 2 diabetes mellitus, prevalence and management	2,876	97
41	After-hours consultations and billing	5,546	200
42	Prevalence and management of chronic pain	2,800	99
43	Initiation and purpose of pathology orders	3,001	100
44	Severity of illness	6,742	225
45	Diabetes mellitus, management and risk factors	3,165	108
46	CHD, risk factors and lipids	3,151	108
47	Management of depression and anxiety disorders	2,698	92
48	Asthma prevalence and management	2,686	92
49	Health status and management of patients on non-steroidal anti-inflammatory drugs	5,554	192
50	Risk factors of patients on lipid lowering medications	2,701	94
51	Use of proton pump inhibitors for gastrointestinal problems	2,648	91
52	Language and cultural background of patients	8,943	294
53	Smoking status of adults and their attempts to quit (repeat from 2001–02)	2,510	97
54	Secondary prevention of heart attack or stroke	2,833	97

Participating organisations

Organisations providing funding for the BEACH program receive summary reports of the encounter data quarterly and standard reports about their subjects of interest.

The GPSCU now provides participating organisations direct access to straightforward analyses on any selected problem or medication in real time, through our interactive web server.

External purchasers of standard reports

Non-contributing organisations may purchase standard reports or other ad hoc analyses. Charges are available on request. The General Practice Statistics and Classification Unit should be contacted for further information. Contact details are provided at the front of this publication.