

11 Patient wellbeing and risk factors

11.1 Background

General practice is commonly identified as a significant intervention point for health care and health promotion because general practitioners have considerable exposure to the health of the population. As about 80% of the population visit a GP in any one year (DHAC 1996), general practice would appear to provide a suitable basis from which to monitor many aspects of the health of the populations seen by GPs in metropolitan and rural areas.

Since BEACH began in April 1998, a section on the bottom of each encounter form has been allocated to investigate other aspects of patient health or health care delivery not covered by the standard general practice consultation-based information. These additional sub-studies are referred to as SAND (supplementary analysis of nominated data).

Two parts of SAND remain constant for the year. In every participant's recording pack of 100 encounter forms there are 40 forms that include SAND questions about height and weight, patient-assessed wellbeing, and alcohol consumption. A single smoking status item is included on another 40 forms in each pack. Questions in the remaining space vary through the year and cover other aspects of patient health and health care delivery in general practice, effectively sub-sampling the overall sample (Britt et al. 2000).

The consistent inclusion of questions about wellbeing, height and weight, smoking status and alcohol consumption ensured sufficient sample size across the 1998–2000 BEACH program for comparison of these patient health and risk factors between the three strata. Significant differences in wellbeing or health risk behaviour between strata would suggest that the GPs in different strata deal with populations that differ in their need for education and health interventions.

11.2 Patient-assessed wellbeing by stratum

GPs were instructed to ask the patients (or their carer):

In general would you say your health is:	Excellent
	Very good
	Good
	Fair
	Poor?

Responses to this question were recorded at 45,515 encounters in metropolitan areas, 4,314 encounters in large rural areas and at 10,915 encounter in small rural areas. There were no significant differences between the strata in the proportion of patient-reported health status, approximately 6% of each population assessing their health as poor and 13% as excellent (Table 11.1).

Table 11.1: Patient-assessed wellbeing by stratum

	Metropolitan (n = 45,515)			Large rural (n = 4,314)			Small rural (n = 10,915)		
	Rate per 100 encs	95% LCI	95% UCI	Rate per 100 encs	95% LCI	95% UCI	Rate per 100 encs	95% LCI	95% UCI
Excellent	13.9	13.2	14.6	12.5	10.7	14.4	14.2	13.0	15.4
Very good	28.7	28.1	29.3	28.7	26.8	30.6	27.5	26.3	28.6
Good	33.4	32.8	34.1	33.4	31.3	35.4	32.5	31.3	33.6
Fair	18.2	17.7	18.7	19.1	17.6	20.6	19.4	18.5	20.3
Poor	5.8	5.4	6.2	6.4	5.4	7.3	6.5	5.8	7.2

Note: Encs— encounter; UCI—upper confidence interval; LCI—lower confidence interval.

11.3 Patient body mass by stratum

Body mass is commonly assessed through the body mass index (BMI). A person's BMI is calculated by dividing weight (kilograms) by height (metres) squared. A BMI that is less than 20 is considered underweight, 20–24 is normal, 25–29 is overweight and more than 30 is considered to be obese.

The GPs were instructed to ask the patients (or their carer in the case of children)

What is your height in centimetres?

What is your weight in kilograms?

Metric conversion tables (feet and inches; stones and pounds) were provided to the GP.

Responses were received at 47,294 patient encounters in the metropolitan stratum, at 4,488 encounters in the large rural stratum and at 11,272 encounters in the small rural stratum. The BMI patterns differed significantly between the patient populations in each stratum. The proportion of responding patients who were in the normal range was largest in metropolitan areas (40.5%) and decreased with rurality, being 38.0% in large rural areas and (36.9%) in small rural areas.

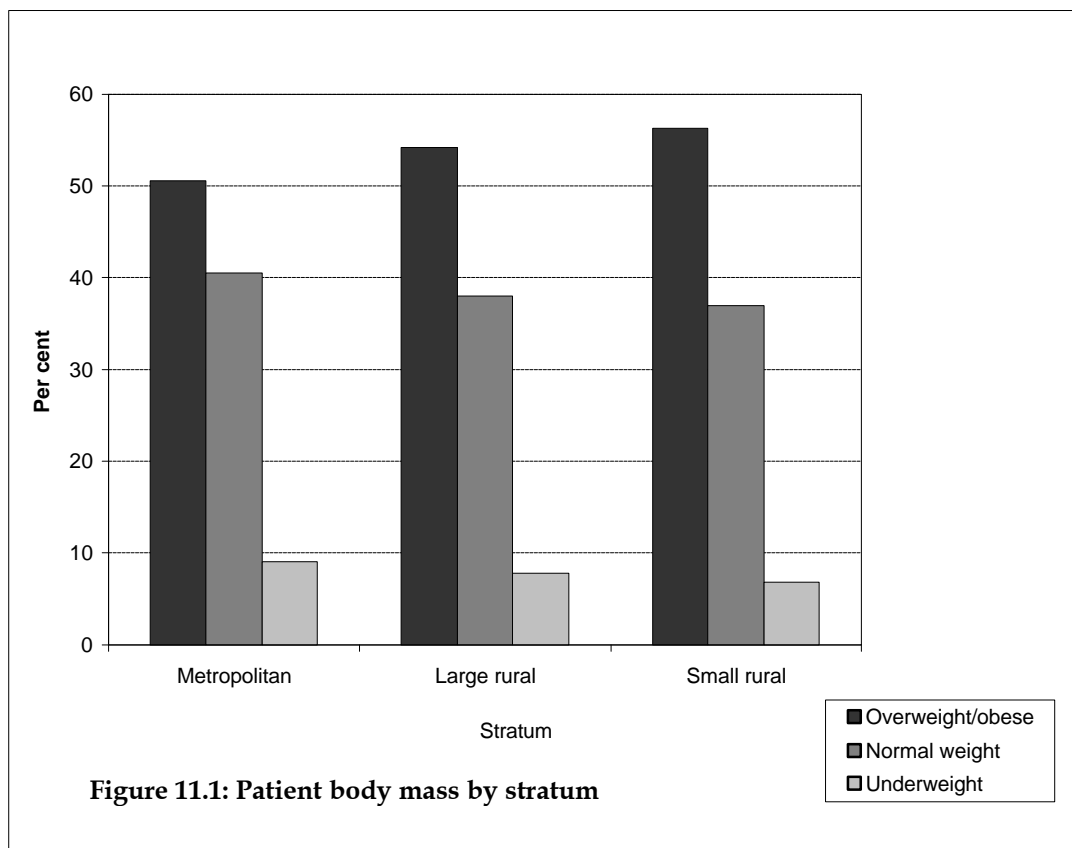
Respondents were more likely to be obese in both rural strata (20.4% in large and 21.5% in small rural areas) than in the metropolitan stratum (18.1%). There was also a significantly higher proportion of persons classified as overweight in the small rural stratum (34.8%) than in metropolitan areas (32.4%). In contrast, the proportion of responding patients classified as underweight was significantly higher in metropolitan areas (9.0%) than in the small rural stratum (6.8%) (Table 11.2). The summarised results are graphically presented in Figure 11.1.

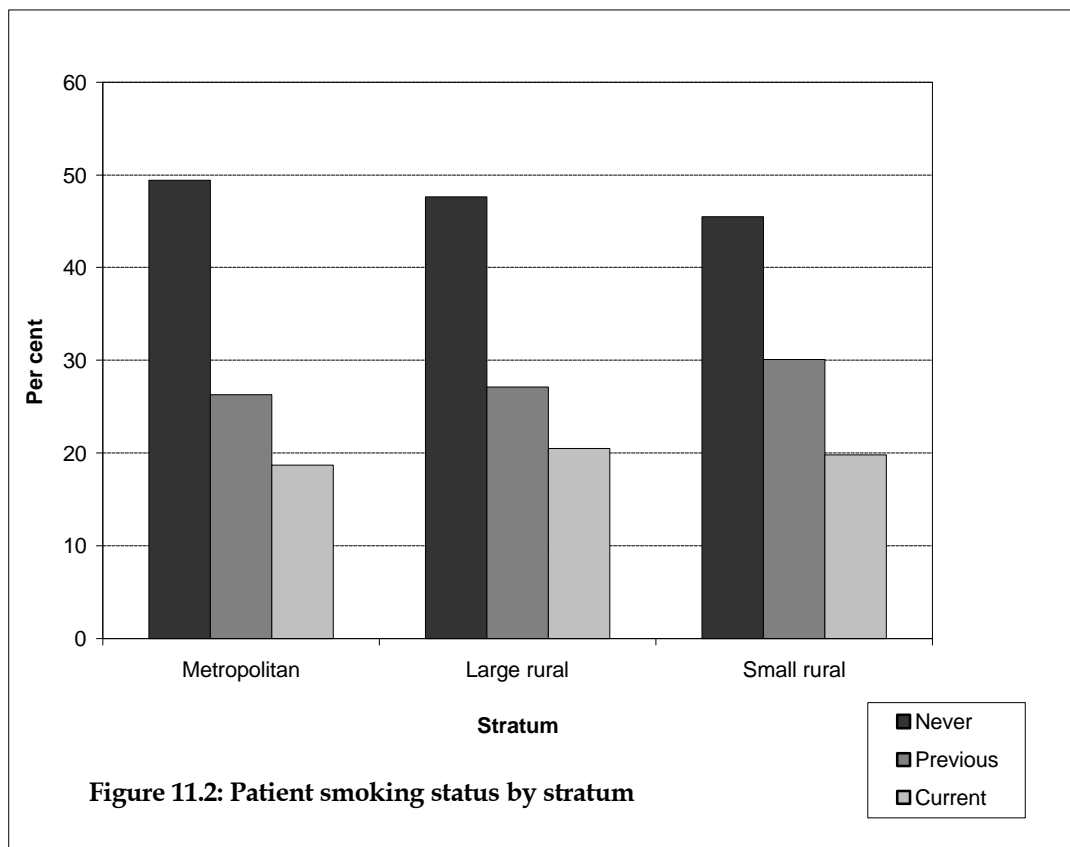
These results raised questions as to the extent to which GPs manage obesity and overweight in each of the stratum. Further analysis demonstrated there were no significant differences in the relative rate of management of obesity/overweight by strata, these problems being managed at a rate of 0.7 in metropolitan and small rural areas and at a rate of 0.5 per 100 encounters in the large rural stratum.

Table 11.2: Patient body mass by stratum

	Metropolitan (n = 47,294)			Large rural (n = 4,488)			Small rural (n = 11,272)		
	Rate per 100 encs	95% LCI	95% UCI	Rate per 100 encs	95% LCI	95% UCI	Rate per 100 encs	95% LCI	95% UCI
Obese	18.1	17.6	18.6	20.4	18.9	21.9	21.5	20.5	22.5
Overweight	32.4	31.9	33.0	33.8	32.1	35.5	34.8	33.7	35.8
Normal	40.5	39.9	41.1	38.0	36.1	39.9	36.9	35.8	38.0
Underweight	9.0	8.7	9.4	7.8	6.7	8.9	6.8	6.3	7.4

Note: Shading indicates statistically significant differences between strata. Encs— encounter; UCI—upper confidence interval; LCI—lower confidence interval.





11.5 Patient-reported alcohol consumption by stratum

To measure alcohol consumption, BEACH uses three items based on Section A of the WHO Alcohol Use Disorders Identification Test (international version) (Saunders et al. 1993) and the Australian version (Centre for Drug and Alcohol Studies 1993). Together these three questions assess at-risk alcohol use. The scores for each question range from 0 to 4. A score of 5+ for males or 4+ for females suggests that the person's drinking level is placing them at-risk (Centre for Drug and Alcohol Studies 1993). GPs were instructed to ask the patient (18+ years):

How often do you have a drink containing alcohol? Never
 Monthly or less
 Once a week
 2-4 times a week
 5+ times a week

How many standard drinks do you have on a typical day when you are drinking? _____

How often do you have 6 or more standard drinks on one occasion? Never
 Monthly or less
 Once a week
 2-4 times a week
 5+ times a week

A standard drinks chart was provided to each GP to assist the patient in identifying the number of standard drinks consumed.

Responses to these questions were received from patients at 46,152 encounters in metropolitan areas, 4,376 in the large rural stratum and 11,103 in the small rural stratum. The results indicate that there were no significant differences across the strata in the proportion of patients at encounter who reported that they did not drink alcohol (approximately 33.0%). However, the proportion of patients assessed as consuming at-risk levels of alcohol was significantly higher in both rural strata than in metropolitan areas (Table 11.4). When the data were analysed separately for male and females it became clear that this increased level of at-risk alcohol consumption was gender-specific. While there were no significant differences across the strata in the prevalence of at-risk levels of alcohol consumption for females, male patients in rural areas were significantly more likely to be consuming alcohol at hazardous levels (Figure 11.3).

Table 11.4: Patient-reported alcohol consumption by stratum

Alcohol intake status	Metropolitan (n = 46,152)			Large rural (n = 4,376)			Small rural (n = 11,103)		
	Rate per 100 encs	95% LCI	95% UCI	Rate per 100 encs	95% LCI	95% UCI	Rate per 100 encs	95% LCI	95% UCI
Non drinker	33.1	32.1	34.0	33.3	30.6	35.9	32.2	30.7	33.6
Responsible drinker	43.4	42.6	44.1	40.2	38.2	42.1	41.4	40.0	42.8
At-risk drinker	23.6	22.9	24.3	26.6	24.4	28.7	26.4	25.2	27.7
Male at-risk	29.5	28.5	30.4	36.0	32.7	39.2	34.6	32.7	36.5
Female at-risk	19.8	19.0	20.5	20.5	18.1	22.8	20.8	19.5	22.2

Note: Shading indicates statistically significant differences between strata. Encs—encounter; UCI—upper confidence interval; LCI—lower confidence interval.

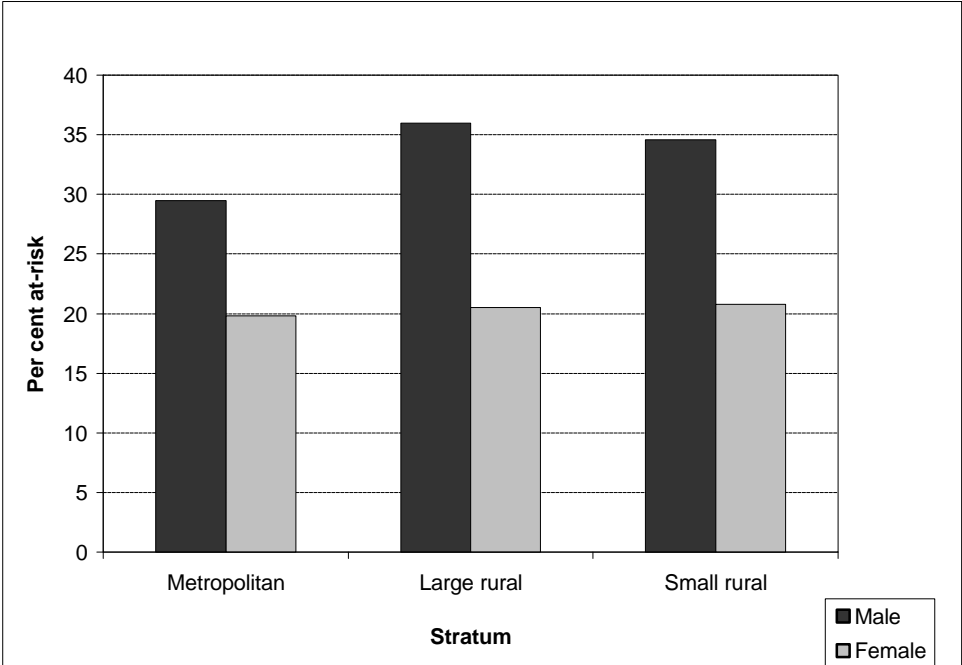


Figure 11.3: Sex-specific at-risk alcohol rates by stratum

12 Level of computer usage in the practice

Computer usage in general practice is being stimulated by the Commonwealth Department of Health and Aged Care through the provision of incentive payments under the Practice Incentive Program (PIP). Practices are paid a grant for use of prescribing software for over 50% of all prescriptions by more than 50% of the GPs in the practice. Additional payments are made if the practices are connected to the Internet, as demonstrated by having an email address (DHAC 1999).

In mid-1999 some new questions about computer usage in the practice were introduced to the GP characteristic questionnaire. In the second year of the BEACH program this subject was assessed for 825 participating GPs for whom a RRMA category was available. The question remains in the GP characteristic questionnaire for years three and four of the program and this will allow future measurement of adoption rates of computers over time.

In Table 12.1 the use of computers in the practice is measured in terms of use for administrative purposes only, use for clinical purposes (with or without administrative use), and no computer use in the practice. Clinical use includes use of electronic prescribing systems or full electronic health records.

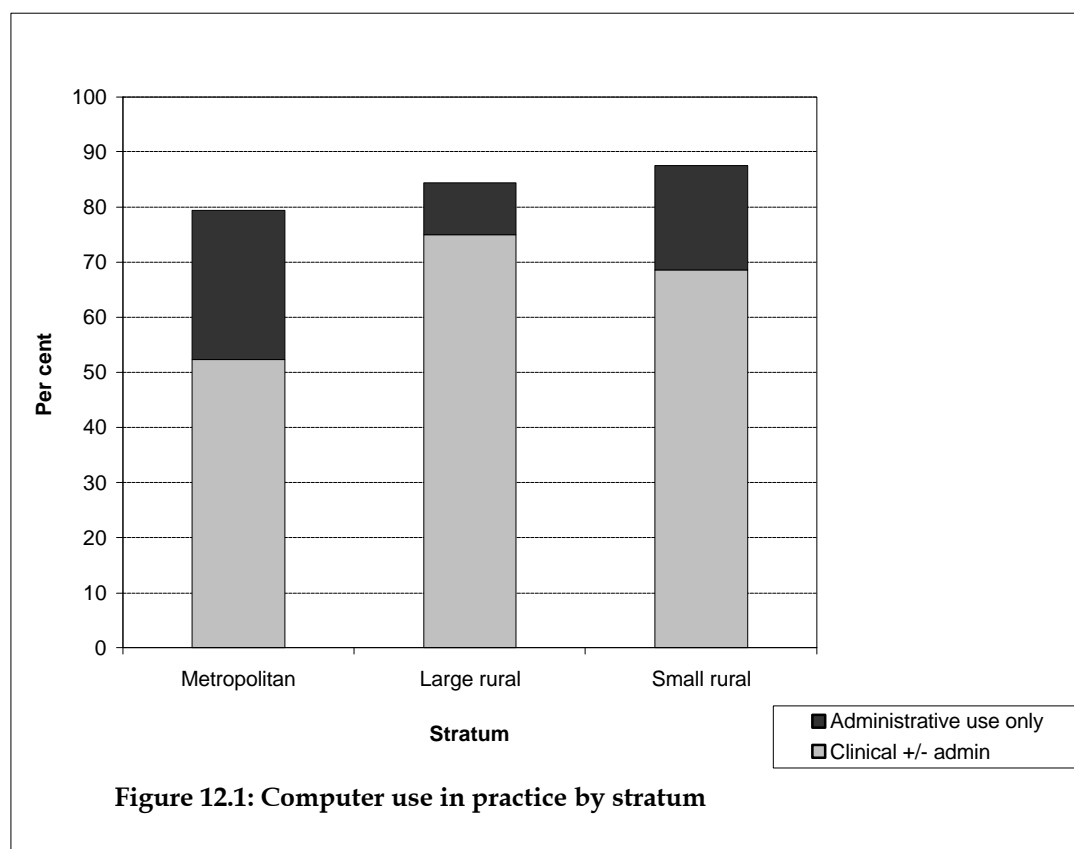
Of the 825 respondents, 670 (81.2%) indicated that they used computers in their practice. Use of computers for either administrative or clinical purposes increased with rurality from 79.4% in metropolitan areas, through 84.4% in large rural areas to 86.5% in small rural areas. Overall reported usage was significantly higher in the small rural stratum than the metropolitan stratum.

However, the proportion of practices said to be using computers for clinical purposes was highest in the large rural stratum (75.0%, 95% CI: 67.9 82.1) and this was followed by usage in practice in the small rural stratum (67.5%, 95% CI: 61.4 73.6). Both these clinical usage rates were significantly greater than that in metropolitan practices where just over half the practices reported clinical use of computers (52.3%, 95% CI: 47.1 57.6) (Figure 12.1).

Table 12.1: Computer usage levels by stratum

c Computer use	Metropolitan (n = 598)			Large rural (n = 64)			Small rural (n = 163)		
	Per cent of GPs	95% LCI	95% UCI	Per cent of GPs	95% LCI	95% UCI	Per cent of GPs	95% LCI	95% UCI
Use computers in practice	79.4	77.6	81.3	84.4	80.2	88.6	86.5	84.3	88.7
Clinical use +/- admin	52.3	47.1	57.6	75.0	67.9	82.1	67.5	61.4	73.6
Admin but no clinical	27.1	15.9	38.3	9.4	0.0	82.5	19.0	0.0	47.6
No computer use	20.6	6.5	34.6	15.6	0.0	68.3	13.5	0.0	49.8

Note: Shading indicates statistically significant differences between strata. UCI—upper confidence interval; LCI—lower confidence interval.



13 After-hours arrangements of the practice

GPs who participate in the Practice Incentive Program (PIP) have to ensure that their patients have access to after-hours services. There are three possible levels of coverage allowed by the PIP. Level 1 requires that the practice make arrangements for after-hours care for its patients, Level 2 requires that the practice provide its own after-hours care for at least 15 hours per week, and Level 3 requires that the practice provide all of its own after-hours care (DHAC 1999). The PIP payments to practices should, in theory, provide an incentive for better after hours coverage.

In mid-1999 a new question was introduced in the GP characteristic questionnaire, asking about the normal after-hours arrangements for their practice. Six tick box options were provided and multiple response was allowed. The options were:

- practice does its own
- cooperative with other practices
- deputising service
- referral to other service (e.g. hospital Emergency Departments)
- other
- none.

Responses were received from 598 GPs in the metropolitan stratum, 64 in the large rural stratum and 163 in the small rural stratum. The results are provided in Table 13.1 which shows the proportion of practices in each stratum that use each of the service options and the proportion who rely totally on each service option.

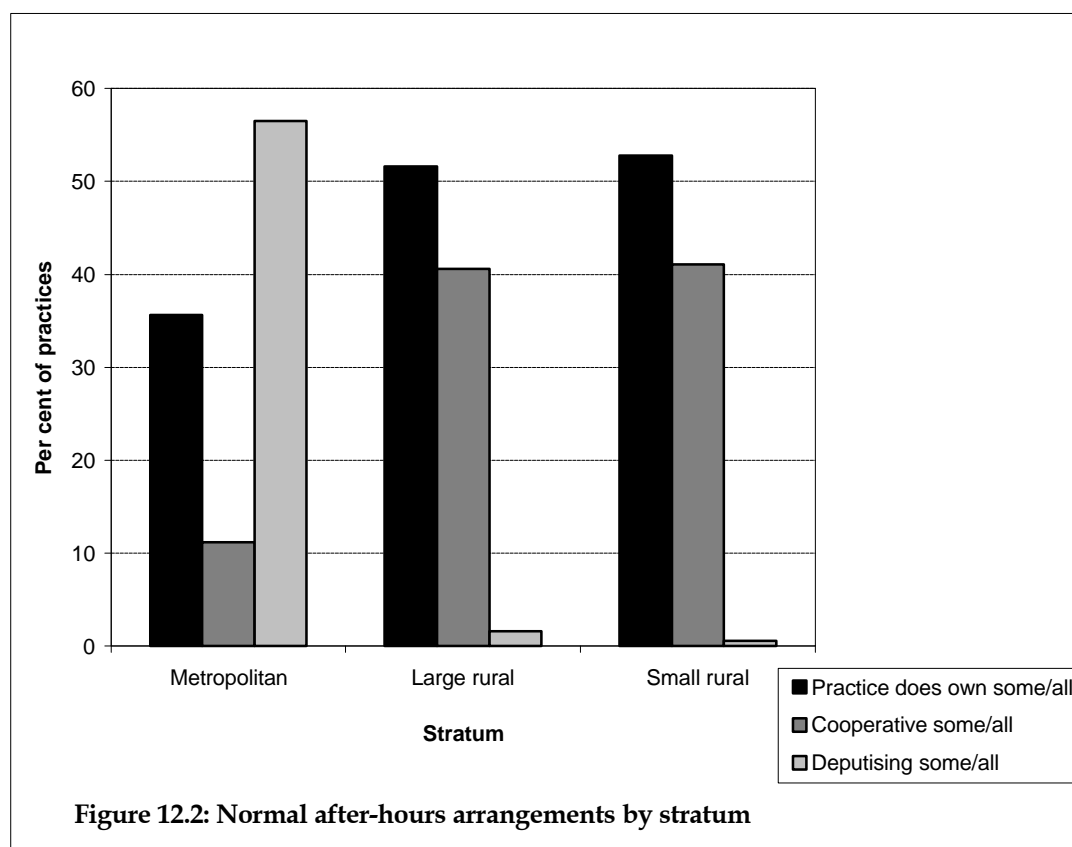
The pattern of after-hours arrangements was significantly different across the strata. A significantly higher proportion of GPs in both large (51.6%) and small (52.8%) rural areas worked in practices that provided their own after-hours patient care, either some or all of the time (Figure 13.1). Total reliance on practice coverage of after-hours care was described by 39.1% of GPs in large rural areas and by 46.0% of those in small rural areas. Only one in five metropolitan GPs (19.7%) said that their practice did not use any other form of coverage for their after-hours services.

More than half (56.5%) of the practices in metropolitan areas used deputising services at some time and by far the majority of these (40.8% of all metropolitan practices) relied on deputising services for all their after-hours patient care. In contrast, this method of coverage was almost non-existent in both rural strata.

Referral of patients requiring after-hours care to the other services such as a hospital Emergency Department was far less common in small rural areas (8.6%) than in large rural areas (20.3%) or metropolitan areas (16.9%). However, the proportion of practices relying totally on this method of provision of after-hours care was less than 10% in all strata.

Table 13.1: After-hours arrangements of practices by stratum

After hours arrangements(s)	Metropolitan (n = 598)	Large rural (n = 64)	Small rural (n = 163)
	Per cent of GPs	Per cent of GPs	Per cent of GPs
Practice does own	35.6	51.6	52.8
Always	19.7	39.1	46.0
Cooperative with other practice	11.2	40.6	41.1
Always	6.4	34.4	35.0
Deputising service	56.5	1.6	0.6
Always	40.8	0.0	0.6
Refer to Emergency Department	16.9	20.3	8.6
Always	8.0	9.4	6.1



In summary, practices in rural areas relied far more heavily on provision of their own after-hours services with or without the addition of a cooperative arrangement with other practices. Very few used a deputising service, even in combination with direct practice care. In contrast, practices in metropolitan areas relied heavily on use of deputising services although about one in three practices provided some or all of their own after-hours services.

Figure 13.1 demonstrates the heavy reliance of practices in metropolitan areas on deputising services and the almost total lack of use of such services in rural areas. It further demonstrates the far higher proportion of practices in rural areas that provide all or some of their own after-hours care and the far heavier reliance on cooperative arrangements with other practices.

The level of cooperative arrangements established among practices in metropolitan areas was surprising low. This could be due to the oversupply of GPs in metropolitan areas (DHAC 2000) creating high competition levels. This may deter most practices from establishing cooperative arrangement for after-hours patient care for fear of losing patients to local competitors.

Although the PIP data includes information only about practices participating in the program, in the recently reported PIP statistics (DHAC 2000) similar trends emerged. Approximately 20% of PIP practices in RRMA groups 1 and 2 were participating at level 3 and approximately 65% of participating practices in RRMA 4, 5 and 7 were fully reliant on their own practice for after-hours care of their patients. Of the PIP practices, only 41% were participating at level 1 (make arrangements for after-hours care). This is supported for general practice more broadly by the current results which indicate that 40% of metropolitan general practices are totally reliant on deputising services for their after-hours care provision.

14 Summary of differences between strata

This section provides a summary of the statistically significant differences between small and large rural practice and metropolitan general practice demonstrated earlier in this report. Table 14.1 also includes summary statements of results for the 1990–91 comparative study. Where the differences found in the current study were supported by previous (1990–91) findings, they are in bold. Where differences identified in the 1990–91 study were not substantiated in the 1998–2000 study they are in italics. Results from the 1990–91 study that are in conflict with those from the current study are underlined.

Table 14.1: Summary of differences between strata

Variable	Large rural stratum differs from metropolitan	Small rural stratum differs from metropolitan	1990–91 comparative study
The GPs	<p>More males</p> <p>Younger</p> <p>NS</p> <p>NS</p> <p>More likely to have graduated Australia or UK</p> <p>Fewer GPs working in non-English</p> <p>NS</p>	<p>More males</p> <p>Younger</p> <p>Fewer part-time</p> <p>Fewer work 10+ sessions per week</p> <p>More likely to have graduated Australia or UK</p> <p>Fewer GPs working in non-English</p> <p>NS</p>	<p>More males in rural</p> <p><u>Older in small towns</u></p> <p>Fewer part-time in rural</p> <p>NA</p> <p><u>Less likely to have graduated Australia in small towns <</u></p> <p>Fewer GPs working in non-English</p> <p><i>More solo practices in small towns</i></p>
The encounters	<p>Lower proportion Medicare-claimable</p> <p>Lower proportion long consultations</p> <p>More indirect consultations</p> <p>NS</p> <p><i>NS</i></p> <p><i>NS</i></p>	<p>Lower proportion Medicare-claimable</p> <p>Lower proportion long consultations</p> <p>More indirect consultations</p> <p>More non A1 Medicare items</p> <p><i>NS</i></p> <p><i>NS</i></p>	<p><u>NS</u></p> <p><u>NS</u></p> <p>More indirect in rural</p> <p>More non A1 items in rural</p> <p><i>Fewer home visits in rural</i></p> <p><i>More hospital /State paid in rural</i></p>
The patients	<p>NS</p> <p>Fewer NESB</p> <p>More health care card holders</p> <p>NS</p> <p><i>NS</i></p>	<p>Older</p> <p>Fewer NESB</p> <p>More health care card holders</p> <p>More VA gold card holders</p> <p><i>NS</i></p>	<p><u>Younger in rural</u></p> <p>NA</p> <p>NA</p> <p>NA</p> <p><i>More male in rural</i></p>

(continued)

Table 13.1 (continued): Summary of differences between strata

Variable	Large rural stratum differs from metropolitan	Small rural stratum differs from metropolitan	1990–91 comparative study
RFEs	NS	Fewer RFEs	Fewer RFEs in small rural
	Fewer respiratory	Fewer respiratory	Fewer respiratory in rural
	NS	Fewer cough	Fewer cough in rural
	Fewer throat complaints	Fewer throat complaints	Fewer throat complaints in rural
	NS	Fewer URTI	<u>NS</u>
	NS	Fewer fever	<u>NS</u>
	NS	Fewer headaches	<u>NS</u>
	Fewer cardiac check-ups	NS	<u>NS</u>
	<i>NS</i>	<i>NS</i>	<i>Fewer circulatory in rural</i>
	NS	More general check-ups	<u>NS</u>
	NS	Fewer digestive	<u>NS</u>
	NS	Fewer psychological	<u>NS</u>
	NS	More pregnancy/family planning	More preg/fam plan in rural
	NS	More pre/postnatal care	More pre/postnatal care in rural
	NS	Fewer rash	<u>NS</u>
	<i>NS</i>	<i>NS</i>	<i>Fewer female genital in rural</i>
<i>NS</i>	<i>NS</i>	<i>More acute bronchitis in small rural</i>	
Problems managed	NS	Fewer new problems	<u>NS</u>
	Fewer lipid disorders	NS	<u>NS</u>
	More depression	NS	<u>NS</u>
	NS	More general check-ups	<u>NS</u>
	NS	Fewer respiratory problems	Fewer respiratory problems in rural
	Fewer URTI	Fewer URTI	Fewer URTI
	<i>NS</i>	<i>NS</i>	<i>More acute bronchitis in small rural</i>
	<i>NS</i>	<i>NS</i>	<i>Fewer asthma in small rural</i>
	More skin problems	More skin problems	More skin problems in rural
	NS	Less contact dermatitis	NS
	More solar keratosis	More solar keratosis	NS
	More malignant neoplasms skin	More malignant neoplasms skin	NS
	NS	More circulatory	<u>Less circulatory in rural</u>
	<i>NS</i>	<i>NS</i>	<i>More heart failure in small rural</i>
	More ear problems	NS	<u>NS</u>
	More oesophageal disease	More oesophageal disease	<u>NS</u>
NS	More pregnancy/family planning	More preg/fam plan in rural	

(continued)

Table 13.1 (continued): Summary of differences between strata

Variable	Large rural stratum differs from metropolitan	Small rural stratum differs from metropolitan	1990–91 comparative study
Problems managed (cont.)	NS	NS	<i>Less female genital check and Pap smears in rural</i>
	NS	NS	<i>More arthritis in rural</i>
Advised meds	NS	Fewer advised OTCs	NA
Prescribed meds	NS	NS	<i>Fewer prescribed in small rural than medium and large</i>
	Fewer simple analgesics	NS	NS
	NS	NS	<i>More CNS in medium rural</i>
	NS	NS	<i>More compound analgesic in rural</i>
	NS	NS	<i>More narcotic analgesics in rural</i>
	NS	NS	<i>More anticonvulsants in rural</i>
	NS	NS	<i>Fewer antibiotics in small rural</i>
	NS	NS	<i>More NSAIDs in small rural</i>
	NS	NS	<i>Fewer paracetamol in rural</i>
	NS	NS	<i>Fewer cardiovascular in small rural</i>
	More psychological medications	NS	<u>NS</u>
	More anti-depressants	NS	<u>NS</u>
	NS	More hormones	<u>NS</u>
	NS	More corticosteroids	<u>NS</u>
	NS	Fewer skin medications	<u>NS</u>
	NS	Fewer topical steroids	<u>NS</u>
	NS	More anti-ulcerants	<u>NS</u>
	NS	More urogenital medications	<u>NS</u>
	NS	More diuretics	<u>NS</u>
Other non-pharm'l treatments	NS	Fewer non-pharmacological treatments	<u>NS</u>
	NS	Fewer clinical treatments	Fewer clinical treatments in rural
	Fewer counsel/advice nutrition/weight	Fewer counsel/advice nutrition/weight	NA
	More therapeutic procedures	More therapeutic procedures	<u>NS</u>
	More excision/removal/biopsy/ destruction/cauterise	More excision/removal/biopsy/ destruction/cauterise	More excise/ remove in small rural
NS	More repair / fixate	<u>NS</u>	
Referrals	NS	NS	<i>Fewer referrals (all types) in small rural than large rural</i>
	NS	NS	<i>Fewer specialist referrals in small rural</i>

	NS	More referrals to allied health professionals	<u>More referrals to AHPs in large rural than other rural</u>
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(continued)

Table 13.1 (continued): Summary of differences between strata

Variable	Large rural stratum differs from metropolitan	Small rural stratum differs from metropolitan	1990–91 comparative study
Pathology ordering	NS	More pathology tests ordered	<u>NS</u>
	NS	More blood chemistry	NA
	NS	More EUCs	NA
	More haematology	More haematology	NA
	NS	More full blood counts	NA
Imaging orders	NS	NS	NS
Patient sub-samples			
Wellbeing	NS	NS	NA
BMI	More obese	More obese	NA
	NS	More overweight	NA
	NS	Fewer underweight	NA
Smoking status	More previous smokers	More previous smokers	NA
	NS	Fewer never smoked	NA
alcohol consumption	More at-risk drinkers (particularly male)	More at-risk drinkers (particularly male)	NA
Computer use in practice	NS	More use computers in practice	NA
	More clinical use +/- administrative use	More clinical use +/- administrative use	NA
After-hours services	More practice covers its own	More practice covers its own	NA
	More cooperative arrangements with other practices	More cooperative arrangements with other practices	NA
	Less use deputising services	Less use deputising services	NA

Note: NS—not statistically significant, NA—not applicable/not tested.

15 Discussion

This comparative study has demonstrated a number of differences in the clinical activities of rural and metropolitan general practice. However, the majority of these are between the small rural stratum and metropolitan areas. In most respects GPs working in the large rural stratum appear to have more in common with those practising in metropolitan areas than with their counterparts in the small rural areas.

The GPs

There have been several notable changes in the characteristics of rural GPs over the last decade. Those practising in rural areas are now somewhat younger than those in metropolitan areas and this may be the result of a wide range of programs recently instituted by the DHAC to encourage young practitioners to work in rural areas.

There has also been a significant increase in the number of female GPs working in rural areas, but there has been little change in the proportion of metropolitan GPs who are female. This change may have resulted from a combination of government initiatives to encourage rural practice and the increasing feminisation of the GP Registrar population. Nevertheless there is still a lower proportion of women practising in rural areas (approximately one in four being female) than in metropolitan areas (approximately 1 in 3).

This increase in female practitioners in rural practice is probably largely responsible for one major change in the morbidity patterns of this study when compared with the 1990-91 study. Ten years ago female genital problems were less frequently managed in rural general practice, but there is now no difference between rural and metropolitan practice in this respect. This suggests that rural women now have greater opportunity to see a female GP locally and are therefore not travelling to the city for the management of these problems.

Practice size has also changed over the last decade. There has been a general move away from solo general practice in all areas, but particularly in the small rural stratum. Though average practice size in remote areas is still a little smaller than in other areas (DHAC 2000), the proportion of practices that are solo does not differ now between the strata.

The distribution of Australian graduates has changed significantly between 1990-91 and 1998-2000. In the earlier study GPs practising in small rural towns were less likely to have graduated in Australia and more likely to have graduated in the United Kingdom. Now the GPs in rural areas are more likely to have graduated in Australia than GPs in metropolitan areas. This change could also be the result of government rural initiatives.

GP activity level was measured by the number of A1 Medicare items claimed in the previous quarter. This was significantly different across the three strata, busyness being inversely related to rurality. The activity pattern reflected the number of sessions per week in general practice, where the rural GPs tended towards the norm (6-10 sessions per week), with fewer working more than 10 sessions per week. However, A1 Medicare items of service represent a lower proportion of the rural GPs workload than in metropolitan areas. After adjustment for the amount of non-A1 Medicare activity and for the greater proportion of encounters in rural areas that were payable through other sources or for which no charge was made, there were no significant differences between the strata in overall activity level. This study provides no support for the often expressed contention that rural GPs are busier than their metropolitan counterparts, if busyness is measured by the total number of GP-patient encounters. However these results must be considered in combination with those of the sub-study of after-hours care arrangements discussed below.

The sub-sample study of after-hours service provision demonstrated a major difference in the time demands placed on many rural practitioners and on metropolitan GPs. Almost half the GPs in small rural areas and 40% of those in the large rural stratum stated that they relied totally on their own practice to provide all after-hours care. While some 20% of GPs in metropolitan areas followed this practice, 40% always used deputising services, a method rarely available to the rural GPs. Provision of after-hours care through local cooperative arrangements with other practices was also far more common in rural than in metropolitan areas. These differences may account in part for the longer weekly working hours of rural GPs reported elsewhere (DHAC 2000 p 70).

In the sub-study of computerisation of general practice, rural GPs demonstrated higher rates of adoption of computers overall and particularly for clinical use. Whether this adoption rate is associated with the higher proportion of GPs using local cooperative arrangements for the after-hours care of their patients or with the fact that they are generally younger than metropolitan GPs cannot be determined from this study.

The encounters

Rural GPs continued to provide significantly more indirect services than their metropolitan counterparts just as they did in 1990-91, and the main service provided at these encounters was provision of a prescription. This could reflect the undersupply of GPs in the smaller rural areas evidenced by the fact that small rural centres, other rural areas and remote areas have significantly lower primary care workforce provision than other locations (DHAC 2000 p 52). Busy GPs are probably more likely to provide a repeat prescription without seeing the patient than those in high competition for services in metropolitan areas.

As noted above, for GPs in small rural areas, A1 Medicare-claimable items represented a lower proportion of total recorded clinical workload than for metropolitan GPs. GPs in small rural areas recorded twice as many other Medicare items than metropolitan GPs. However, ten years ago rural GPs did significantly more work funded by State health departments and other organisations. Although this trend was still apparent the difference was no longer significant. This may be due to the relatively small sample who reported such services.

Obstetric service item numbers were recorded at few encounters in all strata. While the differences were not statistically significant, the number of GPs who recorded at least one Medicare item indicating work in obstetrics increased steadily with rurality, as did the rate of these item numbers per 100 encounters. Only 11% of GPs in metropolitan areas recorded item numbers in this group but this proportion increased to 23% in large rural areas and to 32% in the small rural stratum. The rate per 100 encounters ranged from 0.4 in metropolitan areas to 1.5 in small rural areas. These results parallel those of the 1990-91 comparative study where it was demonstrated that 32% of rural GPs and 7% of metropolitan GPs recorded at least one of these Medicare item numbers and these items accounted for 1.4% of rural practice and only 0.2% of metropolitan practice. These results suggest that while obstetrics work accounts for a similar proportion of the rural GPs workload as it did a decade ago, there may have been a decrease in the proportion of GPs (particularly in large rural areas) who undertake such clinical activity.

The proportion of GPs involved in operations (as measured by Medicare item number recorded) was considerably lower in this study than it was in 1990–91. Operations were conducted by about one-third of the GPs in both large and small rural areas (compared with 63% ten years ago) and by 16% of those in metropolitan areas (compared with 50% ten years ago). Item numbers associated with anaesthetics were rare and involved very few GPs in both metropolitan and large rural areas but 8% of those in small rural areas.

Recent media publicity suggests that GPs providing services such as obstetrics, anaesthetics, and some therapeutic procedures are to soon face a large (though possibly temporary) increase in their indemnity insurance payments. Whether this increased cost of insurance will deter GPs from continuing to provide such services is yet to be seen. The results of this study suggest that the effect of GPs withdrawing from this type of work would be considerable in the small rural communities of Australia.

The patients

Ten years ago the proportion of encounters with male patients was significantly higher in rural than in metropolitan practice. This is no longer the case, there now being no significant difference in the sex distribution of patients at metropolitan and rural encounters. This is probably due, at least in part, to the wider availability of female GPs in rural areas earlier discussed.

While rural GPs have become somewhat younger over the last decade, their patients at encounter are older than they used to be, and are now significantly older than patients encountered in metropolitan areas. In turn this means that rural GPs attend more patients who held a Medicare health care card or a Veterans Affairs health card. As the age and gender of the patient is reflected in the nature of the encounter (e.g. hospital, indirect), these results should be viewed in the context of the distribution of patient services discussed above. Encounters with Aboriginal people and Torres Strait Islanders occurred at four to five times the rate in rural areas than in metropolitan areas.

With an older population attending rural general practice, it might be expected that the number of reasons for encounter would be higher than in metropolitan areas, reflecting higher morbidity levels. It might also be expected that patients with long distances to travel in small rural areas might store up their complaints, bringing more to the rural GP at a single encounter than in large centres where access to the GP is so much greater. However, this was not the case. GPs practising in small rural areas recorded significantly fewer RFEs than GPs in the other two strata. It is interesting that this was reflected in significantly less RFEs related to the respiratory system, especially coughs, and upper respiratory tract infections, and fewer symptom RFEs such as headaches and fever. Strasser suggests that people living in rural areas are more stoic than those in metropolitan areas (Strasser 1995). However, our results suggest that if there is a difference in stoicism it is in those living in the small rural towns and remote areas, rather than in residents of large rural towns. Distance may also be a deterrent to more frequent presentation of minor ailments.

The population health factors measured in the sub-studies demonstrated that while the self-assessed health status of patients attending rural general practice did not differ from that of patients attending metropolitan GPs, there were some significant differences in their health risk behaviours. Patients in both rural strata were more likely to be obese and those in the small rural stratum also more likely to be overweight than those in metropolitan areas.

Further, the proportion of male patients who reported at-risk drinking levels was significantly higher in both rural strata and they were more likely to be ex-smokers. In combination, these results suggest that patients attending rural practice are at higher risk than those in metropolitan areas and GPs are in a prime position to provide education and support in encouraging life style changes.

Morbidity managed

There were some differences in the patterns of morbidity managed in rural areas, some of which reflect the patterns of reasons for encounter, and some of which reflect the difference in age distribution of the patients encountered in small rural areas.

The lower management rate of new problems in small rural areas is likely to reflect the fact that the patients are less likely to present with minor illness, particularly URTI and rash. Strasser's hypothesised stoicism (Strasser 1995) and travel distances may again play a part in this result.

Being an older patient population in the small rural stratum, it is not surprising that the rate of management of circulatory problems is now higher than in metropolitan areas. In contrast, it was lower in most rural areas ten years ago when the rural population was younger. Skin problems (particularly solar keratosis and malignant neoplasms) have remained more frequently managed in rural general practice, just as they were some ten years ago. This is probably due to greater exposure to the sun in both recreational and occupational activity in rural areas.

The overall management rate of psychological problems had increased only slightly in all strata since 1990-91. This overall increase has been reported elsewhere (Britt et al. 1999b) and may reflect either an increase in prevalence and/or an increase in its recognition and acceptance of its treatability by GPs and the wider community. Depression was managed at almost double the rate of ten years ago in all three strata. However, for the first time large rural areas showed a significantly higher rate of management of depression than metropolitan areas, its management rate having more than doubled over the decade, from 2.1 to 4.6 per 100 encounters. It is now managed at a significantly higher rate in this stratum than in the metropolitan stratum.

The 1969-74 study suggested that there were more accidents and injuries managed in rural general practice than in the capital cities. In 1990-91 the results suggested that in rural areas many injuries (such as laceration) were more commonly managed but that sprains and strains were less common. In the current study no significant differences were found between the strata in the relative rate of management of any specific injury type or any group of injuries. However, it is worthy of note that fractures were the most common cause of referral for hospital admissions, and skin injuries (such as lacerations) were relatively commonly referred to specialists, across all strata.

In the current study a higher rate of management of problems associated with pregnancy and family planning was apparent only in the small rural and not in the large rural stratum. Ten years ago the highest management rates were found in the larger towns, followed by the small, and then by metropolitan areas. This change may reflect better access to female GPs in rural areas (but particularly in remote areas) (DHAC 2000 p 52), giving women the more opportunity to be cared for in pregnancy by their local GP. It may also reflect better access to specialists and hospital services in large rural towns, compared with ten years ago. Nevertheless, it is clear that GPs practising in small rural and remote areas remain significantly more likely to deal with such problems than their counterparts in more populous locations.

Management

Prescribing rates did not differ between the strata though more over-the-counter drugs were advised by the metropolitan GPs than the rural. This may reflect the higher rate of management of minor illness, particularly URTI and rash, in the metropolitan stratum.

Higher prescribing rates of psychological medications (particularly anti-depressants) and some cardiovascular medications in large rural areas, of anti-ulcerants and diuretics in small rural areas, and the lower prescribing rates of skin medications (particularly topical steroids) in small rural areas, all align with the differences between the strata in the morbidity managed.

Non-pharmacological management techniques were recorded more frequently in metropolitan areas than in small rural areas. Counselling and advice were recorded far less often in small rural areas. However, advice about nutrition and weight was significantly less frequent in both large rural areas and in small, the relative rates decreasing steadily with level of rurality. In Chapter 11 it was shown that the proportion of encounters with people who were overweight or obese increased steadily with rurality, 54% of those in the large rural stratum and 56% of those in the small fitting these categories. This inverse relationship between frequency of provision of advice on nutrition and weight and the proportion of patients who are overweight or obese is of some concern. An educational intervention in rural areas, either in the community or in general practice, may help to better align these two factors.

As was the case ten years ago, procedural work was more frequent in both rural strata than in metropolitan general practice. In line with higher rates of solar keratosis in both rural stratum and of malignant neoplasms in the small rural, the procedure that stood out as being significantly more frequent was excision/removal tissues/biopsy. Though accidents and injuries were not managed at a higher rate in rural areas, GPs in the small rural stratum also did more repair/fixation than other GPs. This may suggest that GPs in small rural areas are undertaking more of their own work in this area rather than referring the patient to other services.

While overall referral rates to specialists did not differ between the strata, referrals to surgeons were relatively more frequent in the small rural stratum. This is not surprising since the most common problem referred was malignant skin neoplasms and this is a problem managed more frequently by GPs in small rural areas. The higher relative rate of referrals to allied health professionals in small rural areas may reflect greater reliance on allied health services due to lack of easy patient access to some specialist groups. Musculoskeletal problems were by far the most often referred, usually to a physiotherapist. The very small number of referrals for admission to hospital meant that they were no more common in rural areas than in the metropolitan area. However, a trend for higher levels of referral for admission with increased rurality was apparent and may well prove of interest for further analysis as the size of the BEACH rural GP sample increases over time.

15.1 Methodological issues

In a comparative study of this type it is important to consider the possible influence of the chosen methods on the results.

This study by necessity relied on grouping a number of RRMA categories together to provide two rural strata and one metropolitan stratum. The small rural stratum was made up of data from GPs practising in RRMA 4 (rural SLAs with urban centres of population 10,000–24,999), RRMA 5 (other rural areas with populations less than 10,000) and RRMA 7 (remote areas with populations less than 6,000). There were only 15 GPs (and 1,500 encounters) representing RRMA group 7, while RRMA group 4 included 123 GPs and RRMA 5, 233 GPs. It is likely that the practice patterns of GPs in the remote areas are more different than those demonstrated by combining these three RRMA groups but the influence of such large numbers in RRMA groups 4 and 5 reduces the effect.

Ideally, in studying rural general practice we would have a sufficient sample in each of the RRMA groups to deal with each independently. However, BEACH was established with the prime objective of describing general practice on a national basis and providing a measure of national change over time. By its nature, the national random sample of GPs reflects the distribution of GPs practising in each of the RRMA categories. In 1999 there were only 176 GPs satisfying the BEACH selection criteria who practised in other remote areas (i.e. outside remote centres) and they represented only 1.0% of the sample frame. If general practice in remote areas is ever to be described and compared without the influence of small rural and other rural areas, an intentional over-sampling of these GPs will be required. A study of this type would be of benefit to those wishing to describe the activities of GPs in remote areas and would provide a baseline against which future changes in GP activity, resulting from altered government policy in remote areas, may be measured.

The extent to which rural GPs are completing the BEACH form for all clinical activities, irrespective of site or funding source, is also worth consideration. Recently a participant from a small rural town sent us a letter with his completed BEACH forms. He reported (with an apology) that he had not taken the forms to his in-patient hospital encounters because he had too many patients to see in too short a time. The extent to which this applies to other participants is not known. However, if the rural general practice community wish to provide a valid and reliable description of their clinical activity, and to demonstrate the ways in which it is different in the bush, participants will need to ensure that all their clinical work is recorded. An extra note to this effect will be added to the instructions for all GPs in the coming BEACH year.

The slightly lower response rate to BEACH by younger GPs (in all RRMA categories) can currently be validly dealt with in the national sample by post-stratification weighting. As mentioned earlier, this lower response rate is likely to be associated with the fact that GPs currently in the training program are not required to undertake quality assurance activities. Nor are QA activities required (during the triennium of completion) of GPs who have recently completed the training program.

Of concern for future rural studies is the increasing number of temporary resident doctors (TRDs) being recruited for area-of-need positions. These TRD positions are most commonly in remote areas of Australia. In 1997 TRDs represented 2.1% of the primary care medical workforce, 1.3% in metropolitan areas and 4.6% of that in rural areas (DHAC 2000 p 55). TRDs are not vocationally registered but are allowed to claim A1 items of service. However, they are also not currently required to undertake the QA activities required of registered GPs.

This means that, like GPs currently in the Training Program, TRDs will have a chance to be selected in the BEACH random sample but will have no incentive to agree to participate. As TRDs gradually represent an increasing proportion of GPs practising in remote areas, this may well skew the results. The implications of this need to be considered by both the DHAC and the RACGP. Introduction of QA requirements for both Registrars and TRDs could overcome the problem.

Use of the RRMA classification

Some aspects of the RRMA classification remain contentious. It relies heavily on population of SLA, the existence of urban centres within the SLA and the proportion of that population who reside in the urban centres. It does not consider level of isolation from support services. The new Accessibility/Remoteness Index of Australia (ARIA) developed by the National Centre for Social Applications of Geographic Information Systems (GISCA) on behalf of the Department of Health and Aged Care (GISCA 2000), uses distances to population centres as the basis for quantifying service access and hence remoteness. As this classification becomes more widely used it may provide a better approach to comparisons of rural and metropolitan general practice. However, comparability with earlier work will be lost and future trend analysis may require re-analyses (using ARIA) of previously reported data.