

3.5 Accessibility

3.5.2 Supply of health workers

Summary of findings

Overall, health professionals were less prevalent in regional and especially remote areas than in Major Cities.

Two types of numerator have been used in comparisons:

- the number of health workers in each area
- the number of full-time equivalents (FTEs) in each area.

Two types of denominator have been used in comparisons:

- the number of people in the population in each area
- the expected number of consultations that would have taken place if Major Cities age/sex-specific rates of consultation had been experienced everywhere.

Generally, comparisons of numbers of health workers and numbers of people in each area yield the greatest inter-regional differences.

Use of FTEs as the numerator reduces the inter-regional differences because health workers in regional and remote areas generally work longer hours than those in Major Cities.

Use of the 'expected number of consultations' as the denominator generally yields even smaller inter-regional differences (at least for differences between remote areas and the others), because young people are more prevalent in regional and especially remote areas than in Major Cities, and they generally have less need for health professionals.

The following comparisons make no allowance for possible poorer health/greater need in regional and remote areas, fragmentation of regional and especially remote area populations, possible differences in the need for health professionals to spend time travelling between communities, or the lack of information on temporary resident doctors working in Australia.

General practitioners (GPs) were 0.75–0.85 times as prevalent in regional areas as in Major Cities, 0.65–0.75 times in Remote areas, and 0.7–0.95 times as prevalent in Very Remote areas.

Hospital non-specialists were 0.55 and 0.4 times as prevalent in regional areas as in Major Cities, and 0.6 and 0.7–0.85 times as prevalent in Remote and Very Remote areas, respectively.

Specialists were 0.45 and 0.3 times as prevalent in Inner and Outer Regional areas, respectively, as in Major Cities, and less prevalent again in remote areas. The same general pattern is apparent for specialists-in-training. For some specialists, for example paediatricians, general surgeons and orthopaedic surgeons, prevalence in Inner Regional areas was 0.6–0.85 that in Major Cities, and lower still (but not by much for general surgeons) in Outer Regional areas. Table 3.5.2.1 summarises the inter-regional differences for selected specific specialties.

Enrolled nurses were about 1.6–1.8 times as prevalent in regional and Remote areas as they were in Major Cities, and 1.2 times as prevalent in Very Remote areas.

Registered nurses were about 0.9–0.95 times as prevalent in Inner Regional areas, 0.8–0.85 times as prevalent in Outer Regional and Remote areas, and 0.85–0.9 times as prevalent in Very Remote areas as in Major Cities.

Table 3.5.2.1: Ratio of the prevalence of selected specialists in each area to that in Major Cities, ASGC Remoteness Areas, 2001

Speciality	MC	IR	OR	R	VR
			(Ratio)		
Cardiology	1.00	0.27	0.09	0.13	0.00
Paediatrics	1.00	0.61	0.48	0.50	0.00
General surgery	1.00	0.84	0.78	0.37	0.22
Orthopaedics	1.00	0.73	0.34	0.07	0.00
Anaesthetics	1.00	0.50	0.34	0.09	0.00
Radiology	1.00	0.59	0.26	0.00	0.00
Obstetrics & gynaecology	1.00	0.54	0.44	0.18	0.00
Ophthalmology	1.00	0.39	0.17	0.07	0.54
Psychiatry	1.00	0.33	0.19	0.02	0.13

Note: Measures of prevalence are based on numbers of clinicians per 100,000 population and on main location of work.

Source: AIHW Medical Labour Force Survey, 2001.

Pharmacists were 0.75, 0.6–0.7, 0.45–0.55, and 0.35–0.4 times as prevalent in Inner and Outer Regional, Remote and Very Remote areas, respectively, as in Major Cities.

Podiatrists were 0.75–0.85 times as prevalent in Inner Regional areas, 0.35 times as prevalent in Outer Regional areas, 0.35–0.5 times in Remote areas, and 0.15–0.25 times in Very Remote areas as in Major Cities.

Physiotherapists were 0.6–0.65 times as prevalent in Inner Regional areas, 0.55–0.6 times in Outer Regional and Remote areas, and 0.2–0.25 times as prevalent in Remote and Very Remote areas as in Major Cities.

Occupational therapists were 0.6–0.65 times as prevalent in Inner Regional areas, 0.55–0.6 times in Outer Regional, 0.55–0.8 times in Remote and 0.25 times as prevalent in Very Remote areas as in Major Cities.

Background

This indicator of accessibility relates to the supply of health professionals.

Details presented here about the numbers of health workers are taken from the AIHW's national health labour force surveys. At registration renewal, health workers are asked to complete a labour force survey form. Response rates vary, but generally range from 60% to over 90%. Counts of workers provided by the state registration boards are used to 'weight-up' the results from the survey so that the total count is equal to the number registered. Only professions that have a registration process are currently surveyed by AIHW, as the registration boards provide both the vehicle for distribution of the survey forms and the information required to adjust for non-responders.

The less than 100% response rate, and the need to adjust for non-responders means that the results derived from the surveys are indicative rather than absolute. The adjustment process assumes that response rates are the same in metropolitan, regional and remote areas and that

non-responders have the same characteristics as responders in the corresponding age and sex groups.

Comparative statistics other than the number of clinicians per 100,000 population are presented where possible so as to overcome at least some of the following problems:

1. The age and sex structures of the populations in each of the five areas are different, with remote area populations having higher proportions of younger people, proportionally fewer older people, and proportionally more males than females than is the case in Major Cities. Clinicians may be more likely to treat people of one sex or from some age groups than others. For example, females are three times as likely as males to consult a podiatrist, and people over 75 years of age are over thirty times more likely to visit a podiatrist than people under 15 years old (unpublished AIHW analysis of 2001 ABS National Health Survey data).
2. In order to try to meet the demand for services, clinicians in some areas will work longer hours than those in other areas. Some of these hours may be spent travelling
3. The need for services may be greater in some areas than others because of a greater underlying burden of disease.
4. The population in regional and remote areas is distributed over a very large area, but is concentrated in a number of (frequently small) settlements.

The first two of these problems (i.e. 1 and 2) can be solved by:

- using 'expected consultations' as the denominator, rather than the number of people in the population. The number of 'expected consultations' is the number of consultations that would be expected if males and females from each age group in each area consulted the clinician as often as did those from a standard population (in this report, those from Major Cities). The advantage of this approach is that it takes the age and sex structures of the different populations into account, a factor that is particularly important when describing the supply of clinicians such as GPs and podiatrists, who are more likely to be seen by older people than younger people, and by females rather than males.
- using 'full time equivalents' as well as numbers of clinicians as the numerator in comparisons of 'supply' (numbers of clinicians or FTEs) and 'demand' (numbers of people or expected consultations). Comparison of FTEs (the hours worked in an area divided by the length of a standard week, variously defined as 35, 38 or 40 hours) allows comparison of approximately equivalent amounts of clinician 'effort' between areas. Use of FTEs may better describe the 'volume' of services available to the population in an area, but it should always be interpreted with reference to the numbers of available clinicians and the average hours worked by those clinicians in each area. Substantial numbers of FTEs may be a consequence of clinicians working long hours to meet people's health needs, rather than of high numbers of clinicians.

The last two issues above (i.e. 3 and 4) cannot readily be resolved.

- Areas with greater health needs are likely to require greater supply of clinical input (e.g. more GPs). Health outcomes are poorer outside Major Cities (AIHW 2003a), and it is therefore likely that, all other things being equal, there is a need for greater access to clinicians for people who live in regional and remote areas than in Major Cities. What is not clear, however, is how much more. At this stage, no one measure of health is known to validly reflect the size of any unmet need for each type of clinician in country areas.
- In any given area, the ratio of clinicians to population (basically an average between all the settlements and surrounding areas) may be considered 'adequate'. However,

although immediate access may be excellent for people in the same town as the clinician, for those living in the next town (without a clinician) access will be poor. This is not an issue in a Major City, because the population and clinicians live and work in areas that are contiguous and of limited geographical extent, and where transport is more available (see section 2.3.9). The upshot of this is that measures of average supply are likely to overstate availability for much of the population in areas outside Major Cities, particularly in remote areas.

Interpretation of statistics regarding regional supply of clinicians should especially take into account these two issues of 'need' and 'fragmentation'.

In comparing supply of health workers between areas, it may, in some cases, be unreasonable to expect a similar prevalence of workers in each area. For example, whereas it may be reasonable to expect similar levels of supply of generalist medical workers (e.g. nurses and GPs), it may not be reasonable to expect similar levels of specialist workers (e.g. some allied health and the less common medical specialists). This is because specialists require a large population base to provide enough patients for economic viability, and that some may require specialist infrastructure and support staff. It may be more possible to improve equity of access to health workers by other means than improving equity of geographical distribution.

The surveys for each the profession records the location of up to two places where work was conducted, as well as the time spent working there. Where possible, this information is used to report work effort in each location.

Other issues, such as differences in the roles of specific clinicians (e.g. GPs and nurses) in each area may also be relevant, and are discussed later.

Detailed results

Caution

These comparative statistics should be interpreted with caution. Although they reflect the relative supply of health workers to population or the number of consultations that would be expected if Major Cities rates applied, they make no allowance for:

- potentially poorer health and potentially greater need for health workers outside Major Cities
- the fragmentation of regional and remote populations, which reduces levels of access to health workers—for example, although a certain prevalence of health workers provides a certain level of access for people living in Major Cities, the same average prevalence in remote areas is likely to provide a lower level of access, simply because of the distances involved for most of the residents
- the possible presence of proportionally greater numbers of temporary resident doctors in more remote areas
- the need to spend time on travel rather than on treating patients.

The comparisons also do not take into consideration the fact that some health workers may perform different work in response to need. With or without formal endorsement, country nurses and GPs, respectively, may perform some of the functions of GPs and of some specialists (e.g. obstetricians and psychiatrists) to a greater extent than nurses and GPs in Major Cities.

Medical practitioners

Results presented here are restricted to those employed mainly as clinicians in 2001, and are derived from the 2001 AIHW Medical Labour Force Survey (AIHW 2003f). Those employed mainly as researchers, administrators and other non-clinical workers are not included.

Details are presented for GPs/primary care medical practitioners, hospital non-specialists, specialists (including some selected specialities), and specialists-in-training.

These details include the numbers of doctors and of FTEs, as well as the ratio of these to the population in each area. For GPs/primary care medical practitioners (hereafter referred to generically as GPs), the number of doctors and FTEs per 100,000 expected consultations (based on the age and sex structure of the population) have also been presented. This last comparison has not been possible for the other medical groups with currently available data.

Expected consultations are calculated by applying the Major Cities GP Medicare consultation rate for each age group and sex to the population who live in each area. In essence, the expected number of consultations is the number of consultations that would take place if people in each area went to the GP as often as people from Major Cities. It should be understood that the number of expected consultations presented here is not affected in any way by the needs of people in regional and remote areas; it is simply a reflection of the age and sex structure of these populations and the rate of consultation in Major Cities.

GPs/primary care medical practitioners

Table 3.5.2.2: Numbers of employed GPs and other primary care medical practitioners, working in more than one ASGC Remoteness Area, 2001

Main location	Other location						Total
	MC	IR	OR	R	VR	No other location	
MC	4,679	179	24	14	5	10,281	15,181
IR	156	814	97	1	–	2,638	3,706
OR	11	83	392	22	12	1,201	1,721
R	4	3	8	53	12	168	248
VR	1	–	4	8	28	104	145
Total	4,851	1,079	525	98	57	14,393	21,002

Note: 669 respondents did not state the post code of any location where they practised. Details of a third location for a relatively small number of doctors have not been included.

Source: AIHW Medical Labour Force Survey, 2001

Table 3.5.2.2 describes the numbers of GPs who work in more than one location, including the number who work at a location with a different level of remoteness. For example, a total of 1,721 GPs had the main location of their practice in Outer Regional areas: of these, 1,201 worked only at one location, 392 worked at two locations in Outer Regional areas, 11 also worked in Major Cities, 83 in Inner Regional areas, 22 in Remote areas, and 12 in Very Remote areas. In addition, there were another 133 (525 - 392) GPs who worked in Outer Regional areas as their second location, for whom the main location of their practice was outside Outer Regional areas (24 from Major Cities, 97 from Inner Regional areas, 8 and 4 from Remote and Very Remote areas respectively).

Table 3.5.2.3: Numbers of employed GPs and other primary care medical practitioners, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of GPs (main location of practice)	15,170	3,706	1,718	248	145	684	21,671
GPs per 100,000 population	118	92	85	76	81	n.a.	112
GPs per 100,000 expected consultations	21.0	16.1	15.2	14.3	15.9	n.a.	19.9
FTE (main location of practice)	17,563	4,629	2,233	327	214	412	25,377
Rate FTE per 100,000 population	136	115	111	101	120	n.a.	131
Rate FTE per 100,000 expected consultations	24.3	20.1	19.7	18.8	23.5	n.a.	23.2
FTE (main and second locations of practice) ^(a)	17,334	4,599	2,215	325	218	686	25,377
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 208 FTE spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders. For an estimated 684 GPs, insufficient information was provided to allow the allocation of a Remoteness category to the main location of their practice.
3. Expected consultations are the number expected in each area in 2001 if age- and sex-specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using Medicare data.
4. Temporary resident doctors are not included in this table. It is possible that their absence from the data may exacerbate the differences between Major Cities and the other areas.

Source: AIHW, Medical Labour Force Survey, 2001.

Several comparisons are presented in Table 3.5.2.3., each of which should be treated with caution. In addition to the issues raised as points 3 and 4 on page 253, this analysis does not take into account a number of other factors:

- Travel time: country GPs may need to travel between towns to see patients, whereas it is unclear how long metropolitan GPs spend in traffic during their working day.
- Numbers of temporary-residence doctors: these are conditionally registered, and are not required to complete a survey form by the state registration boards. Many work in areas of shortage (for example, remote areas). It is likely that the number of GPs working in more remote areas is therefore greater than that described here, but it is unclear how much greater.

The number of FTEs has been calculated using two methods. The first method, by which most of the comparisons in Table 3.5.2.3 are made, is based on the total number of hours worked by GPs in their main location of practice. This method ignores the fact that for some of these GPs, a proportion of their work is conducted in another area. The second method is based on the number of hours reportedly worked in each area. The estimates are very similar, however, and are both presented in the table.

Comparison of the number of GPs with the number of people in each area shows considerable disparity between Major Cities, regional and remote areas:

1. The ratio of GPs to population was highest in Major Cities, and was 0.78, 0.72, 0.65 and 0.69 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas, respectively.
2. When the number of GPs is compared with the number of 'expected' consultations, the pattern remains the same as in method 1 above in regional areas (i.e. 0.8 and 0.7 times the Major City ratio), but in remote areas the ratios were closer to those in Major Cities (0.7 and 0.75 times the Major Cities rate) than in method 1 above. These higher ratios in remote areas reflect the younger population in these areas and (all other things being equal) their lower per capita need to consult a GP.
3. When the number of FTEs is compared with the population in each area, the ratios in the four regional and remote areas were 0.84, 0.81, 0.74 and 0.88 times those in Major Cities. The differences between Major Cities and regional/remote areas were smaller than in method 1 above, because GPs in regional and remote areas work longer hours.
4. When the number of FTEs is compared with the number of expected consultations, the ratios in the four regional and remote areas were 0.83, 0.81, 0.77 and 0.97 times those in Major Cities – similar to rates in method 3 above, but with a substantially smaller difference between Major Cities and Very Remote areas than in the other methods (because the population is younger, a higher percentage is male, and the GPs in regional and especially remote areas work longer hours than their Major Cities counterparts).

In summary:

- the supply of GPs in regional areas was 0.7–0.8 times the Major City rate (longer GP working days reducing the disparity to 0.8–0.85 times the MC rate)
- the supply of GPs in remote areas was 0.65–0.75 times the Major City rate. In Remote areas, the ratio remained within this range irrespective of the method used to calculate it, whereas in Very Remote areas the consequence of long hours worked by GPs and recognition that younger, and predominantly male, populations typically consult GPs at a lower rate, suggest a higher supply of GP effort equivalent to 0.9–0.95 times that in Major Cities.

This summary should be considered with caution. As stated earlier, these comparisons do not take into account a possible higher need in regional and especially remote areas, or the fragmented nature of settlement in these areas. A comparison taking these issues into account may show greater disparity between the areas than has been shown here.

It is also possible that if temporary resident doctors were included in the analysis, supply in regional and remote areas would probably increase (but it is unclear by how much).

Hospital non-specialists

Table 3.5.2.4 compares the numbers of hospital non-specialists (e.g. resident medical officers and interns) in each area. These doctors are mainly employed in a salaried position in a hospital, and do not have a recognised specialist qualification.

It is not currently possible to describe the number of expected consultations for these clinicians because sex- and age-specific rates of use in Major Cities are unknown.

Table 3.5.2.4: Numbers of employed hospital non-specialist clinicians, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of hospital non-specialists (main location of practice)	3,872	669	231	56	39	302	5,169
Hospital non-specialists per 100,000 population	30	17	11	17	22	n.a.	27
FTE (main location of practice)	5,143	903	318	78	62	256	6,760
Rate FTE per 100,000 population	40	22	16	24	35	n.a.	35
FTE (main and second locations of practice) ^(a)	5,098	897	316	78	60	286	6,736
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 24 FTE spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders.
3. Temporary resident doctors are not included in this table. It is possible that their absence from the data may exacerbate the differences between city and country.

Source: AIHW Medical Labour Force Survey, 2001.

Caution regarding interpretation of the numbers for hospital non-specialists is basically the same as for GPs presented previously (that is, these figures do not take into account the population's need, dispersed patterns of settlement or the possible presence of temporary resident doctors).

Table 3.5.2.4 shows:

- The ratio of hospital non-specialists to population was highest in Major Cities, and was 0.55, 0.38, 0.58 and 0.73 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas, respectively.
- When the number of FTEs is compared with the population in each area, the ratios in the four regional and remote areas were 0.56, 0.40, 0.60 and 0.87 times those in Major Cities. The differences between Major Cities and regional/remote areas were smaller than in method 1, because, like GPs, hospital non-specialists, in remote areas especially, work longer hours.

Specialists

Table 3.5.2.5 compares the numbers of specialists in each area. Specialists are medical practitioners with postgraduate vocational qualifications in various branches of medicine (such as various types of surgery, pathology and internal medicine).

Caution regarding interpretation is basically the same as for GPs presented previously (that is, these figures do not take into account the population's need, dispersed patterns of settlement or the possible presence of temporary resident doctors).

Table 3.5.2.5 shows that the ratio of specialists to population was highest in Major Cities, and was 0.44, 0.28, 0.15 and 0.06 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas. Comparison of the ratio of FTEs to population shows the same pattern.

Table 3.5.2.5: Numbers of employed specialists, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of specialists (main location of practice)	13,845	1,922	604	51	12	691	17,124
Specialists per 100,000 population	108	48	30	16	7	n.a.	88
FTE (main location of practice)	18,845	2,733	845	74	18	563	23,078
Rate FTE per 100,000 population	146	68	42	23	10	n.a.	119
FTE (main and second locations of practice) ^(a)	18,090	2,705	871	74	18	1,320	23,078
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 672 FTEs spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders.

Source: AIHW Medical Labour Force Survey, 2001.

From Table 3.5.2.6, about 3% of specialists whose main location is in Major Cities also worked in another location outside Major Cities, and about 5% of those whose main location was in Inner Regional areas also worked in more remote areas (and 5% also worked at another location in Major Cities).

Table 3.5.2.6: Numbers of employed specialists, working across ASGC Remoteness Areas, 2001

Main location	Other location					No other location	Total
	MC	IR	OR	R	VR		
MC	7,497	304	91	9	3	6,021	13,924
IR	119	691	95	2	–	1,018	1,924
OR	17	19	170	4	2	391	604
R	–	–	–	4	6	42	51
VR	3	–	3	1	–	5	12
Total	7,636	1,014	359	20	10	7,477	16,515

Notes

1. 609 respondents did not state the post code of any location where they practiced.
2. Details of a third location for a relatively small number of doctors have not been included.

Source: AIHW Medical Labour Force Survey, 2001.

Selected specialities

Some specialists (e.g. cardiothoracic surgeons) are unlikely to be found outside Major Cities due to the nature of their work and the supporting infrastructure required. Others (e.g. pathologists) may often not need to have direct access to the patient. On the basis of factors such as these and focusing on the largest specialities, nine have been selected for presentation here. These are:

- cardiologists
- paediatricians
- general surgeons
- orthopaedic surgeons
- anaesthetists
- radiologists
- obstetricians and gynaecologists
- ophthalmologists
- psychologists.

From Figure 3.5.2.1 and Table 3.5.2.7, the general tendency was for ratios of specialists to population to decrease with remoteness. For some specialities (e.g. paediatrics and general surgery), the decrease was relatively gentle, with at least moderate representation in regional areas; for others (e.g. cardiology and psychiatry), representation was low even in regional areas.

Comparison of 'FTE worked in each area' to the 'population living in each area' shows a similar pattern in most cases (except for paediatricians). The ratio of paediatricians to population in Outer Regional and Remote areas was about half that in Major Cities; the ratio of paediatric FTE worked in Remote areas to the population living there was about one-quarter that in Major Cities.

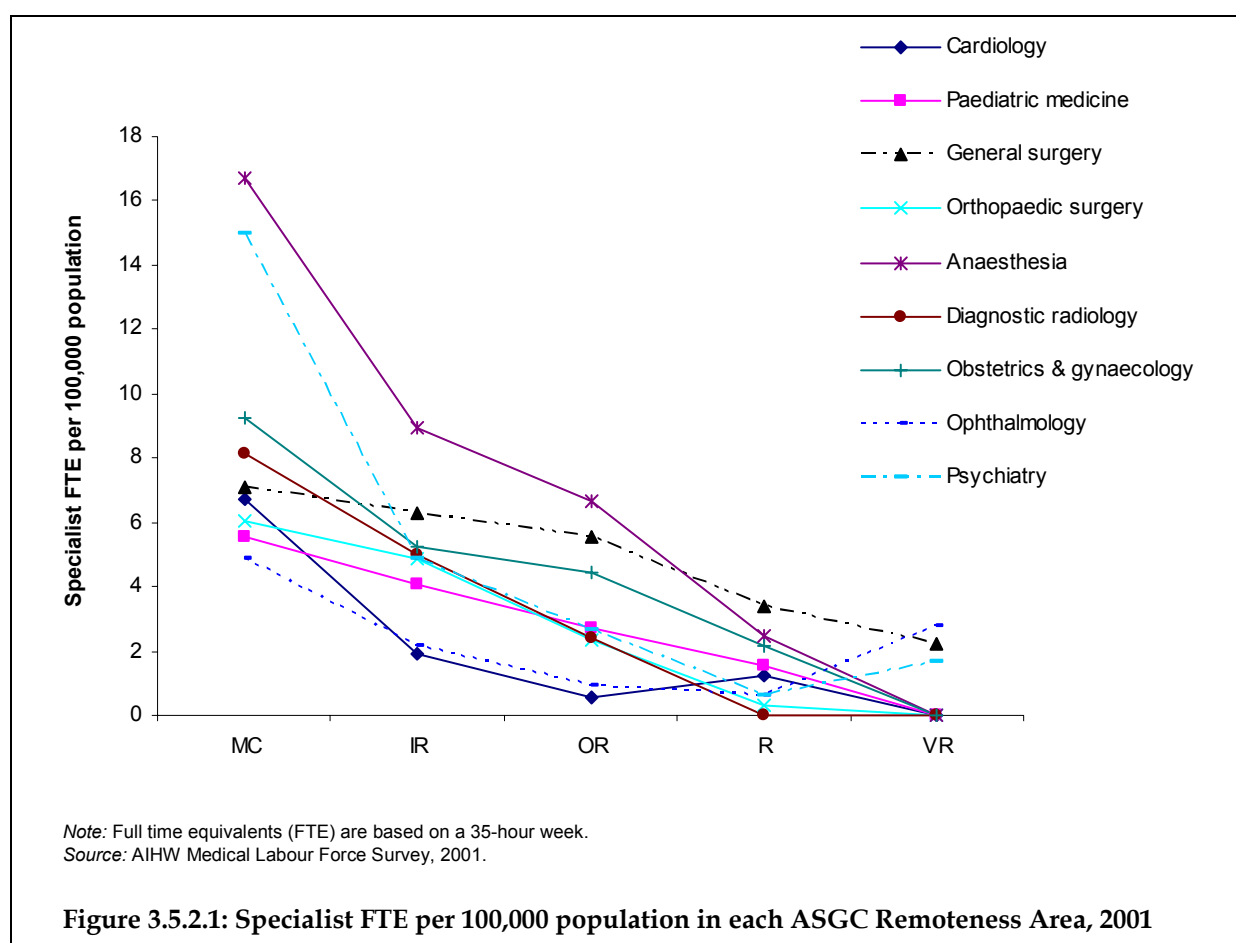


Table 3.5.2.7: Selected specialities: numbers of employed specialists by main location, FTE by area where the service was provided, 2001

	MC	IR	OR	R	VR	Unknown	Total
Numbers of clinicians							
Cardiology	573	49	9	2	–	17	649
Paediatric medicine	565	107	43	7	–	22	744
General surgery	633	167	76	6	2	39	924
Orthopaedic surgery	533	121	28	1	–	20	703
Anaesthesia	1,709	264	91	4	–	130	2,197
Diagnostic radiology	874	160	37	–	–	63	1,135
Obstetric & gynaecology	870	150	60	4	–	39	1,123
Ophthalmology	528	64	15	1	4	29	642
Psychiatry	1,656	168	49	1	3	60	1,937
FTE for clinicians							
Cardiology	865	76	11	4	–	16	972
Paediatric medicine	716	163	55	5	–	21	960
General surgery	913	252	112	11	4	34	1,326
Orthopaedic surgery	776	195	47	1	–	25	1,044
Anaesthesia	2,148	361	134	8	–	133	2,784
Diagnostic radiology	1,049	202	49	–	–	63	1,363
Obstetric & gynaecology	1,194	212	89	7	–	29	1,531
Ophthalmology	625	86	19	2	5	16	753
Psychiatry	1,929	196	54	2	3	47	2,231
Clinicians per 100,000 population							
Cardiology	4.5	1.2	0.4	0.6	–	..	3.3
Paediatric medicine	4.4	2.7	2.1	2.2	–	..	3.8
General surgery	4.9	4.1	3.8	1.8	1.1	..	4.8
Orthopaedic surgery	4.1	3.0	1.4	0.3	–	..	3.6
Anaesthesia	13.3	6.6	4.5	1.2	–	..	11.3
Diagnostic radiology	6.8	4.0	1.8	–	–	..	5.8
Obstetric & gynaecology	6.8	3.7	3.0	1.2	–	..	5.8
Ophthalmology	4.1	1.6	0.7	0.3	2.2	..	3.3
Psychiatry	12.9	4.2	2.4	0.3	1.7	..	10.0
FTE per 100,000 population							
Cardiology	6.7	1.9	0.5	1.2	–	..	5.0
Paediatric medicine	5.6	4.0	2.7	1.5	–	..	4.9
General surgery	7.1	6.3	5.6	3.4	2.2	..	6.8
Orthopaedic surgery	6.0	4.8	2.3	0.3	–	..	5.4
Anaesthesia	16.7	9.0	6.7	2.5	–	..	14.3
Diagnostic radiology	8.2	5.0	2.4	–	–	..	7.0
Obstetric & gynaecology	9.3	5.3	4.4	2.2	–	..	7.9
Ophthalmology	4.9	2.1	0.9	0.6	2.8	..	3.9
Psychiatry	15.0	4.9	2.7	0.6	1.7	..	11.5

Notes

1. FTE are based on the number of hours worked in the main and second location. A number of FTE worked in a third location are omitted.
2. Full time equivalents (FTE) are based on a 35-hour week.
3. ASGC Remoteness Area is that of the main location of the specialist's practice.

Source: AIHW Medical Labour Force Survey, 2001.

With the exception of cardiologists, psychiatrists and obstetricians/gynaecologists, selected specialists based in Inner Regional areas worked longer hours than those in Major Cities (Table 3.5.2.8).

Table 3.5.2.8: Selected specialities: average hours worked by employed specialists based in each area, 2001

Specialty	MC	IR	OR	R	VR	Unknown	Australia
Cardiology	55	54	41	62	..	29	54
Paediatric medicine	46	55	44	33	..	29	47
General surgery	54	55	51	67	64	22	52
Orthopaedic surgery	53	57	58	24	..	43	54
Anaesthesia	46	48	51	72	..	37	46
Diagnostic radiology	45	47	47	..	..	26	44
Obstetric & gynaecology	50	50	50	66	..	19	49
Ophthalmology	44	45	38	31	44	16	43
Psychiatry	42	40	36	54	35	23	41

Notes

1. ASGC Remoteness Area is that of the main location of the specialist's practice.
2. Averages in bold font are based on 10 or more specialists in that area. Where there are fewer than 10 specialists in an area, the average is not bold.

Source: AIHW Medical Labour Force Survey, 2001.

Inner Regional-based paediatricians worked an average 9 hours longer each week than those based in Major Cities, orthopaedic surgeons 4 hours, anaesthetists and radiologists 2 hours, and general surgeons and ophthalmologists 1 hour longer. Obstetricians/gynaecologists worked about 50 hours per week whether based in Major Cities, Inner Regional or Outer Regional areas.

Of the selected specialists based in Outer Regional areas, only orthopaedic surgeons, anaesthetists and radiologists worked longer hours than those based in Major Cities (5, 5 and 2 hours respectively).

Ratios of specialists per 100,000 expected consultations have not been presented because the necessary information required to calculate these (e.g. Major Cities rates of consultation and rate of procedure for each specialty by 5-year age group and sex) is not available. However, it is clear that for specialties such as paediatrics and obstetrics and gynaecology, rates calculated using expected consultations as the denominator may show greater disparity between Major Cities and regional/remote areas because of the relatively greater numbers of children and higher fertility rates in regional and remote areas (see sections 2.3.1 (demography) and 2.3.4 (fertility)). For other specialties, such as cardiology, where patients are typically older, use of expected consultations as the denominator may reduce the apparent differences between Major Cities and regional/remote areas. Further work in this area is needed.

Reduced access to specialists such as paediatricians, obstetricians and psychiatrists, may increase the demand on regional and remote area GPs to service these needs in addition to providing GP services.

So as to access specialists, it is necessary (to a greater or lesser extent depending on the specialty) for people living in regional and remote areas to travel substantial distances. Costs of travel and accommodation during treatment (for both the patient and possibly the

accompanying carer), disruption to work and family life, and in many cases the extra burden of negotiating a city environment are likely to reduce access by residents of regional and remote areas. Financial assistance is provided under such schemes as the NSW Isolated Patients' Travel and Accommodation Assistance Scheme (IPTAAS) (NSW Health 2003) to relieve these problems.

Specialists-in-training

Table 3.5.2.9 compares the numbers of specialists-in-training in each area.

It is not currently possible to describe the number of expected consultations for these clinicians because sex- and age-specific rates of use in Major Cities are unknown.

Table 3.5.2.9: Numbers of employed specialists-in-training, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Number of specialists-in-training (main location of practice)	4,646	355	165	16	2	246	5,429
Specialists-in-training per 100,000 population	36	9	8	5	1	n.a.	28
FTE (main location of practice)	6,665	539	240	26	3	261	7,734
Rate FTE per 100,000 population	52	13	12	8	2	n.a.	40
FTE (main and second locations of practice) ^(a)	6,598	534	239	25	5	333	7,734
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

(a) FTE in main and secondary locations does not include 29 FTE spent working in a third location (which are included among the 'Unknown').

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the 2001 survey have been weighted-up to account for non-responders.

Source: AIHW Medical Labour Force Survey, 2001.

Cautions pertaining to interpretation are basically the same as for GPs presented previously (that is, these figures do not take into account the population's need, dispersed patterns of settlement or the possible presence of temporary resident doctors).

Table 3.5.2.9 shows that the ratio of specialists-in-training to population was highest in Major Cities, and was 0.24, 0.23, 0.14 and 0.02 times the Major Cities rate in Inner and Outer Regional, and Remote and Very Remote areas, respectively. Comparison of the ratio of FTEs to population shows the same pattern.

Nurses

The most recent national data describing nurses are provided by the 2001 AIHW Nursing Labour Force Survey (AIHW 2003g).

Altogether, there were 267,575 registered and enrolled nurses, of whom 228,230 were working in Australia as nurses. Most (88.4%) of these nurses worked as clinicians, the rest worked in administration, in research, education or other non-clinical roles.

Table 3.5.2.10 describes the number of nurses working in each broad ASGC Remoteness Area. Of all registered or enrolled nurses, 77.1% responded to the survey, and of those who responded, about 9% provided insufficient information to allow reporting by Remoteness Area.

From Table 3.5.2.10, the supply of nurses in regional and remote areas was similar to, or slightly lower than supply in Major Cities. There was a greater per capita supply of enrolled nurses (ENs) in regional and remote areas than in Major Cities, but a lower supply of registered nurses (RNs).

In Inner Regional, Outer Regional, Remote and Very Remote areas, based on the number of nurses per 100,000 population, the prevalence of:

- nurses was 1.05, 1.00, 0.98 and 0.90 times that in Major Cities respectively
- ENs was 1.58, 1.76, 1.76 and 1.16 times that in Major Cities respectively
- RNs was 0.94, 0.85, 0.83 and 0.85 times that in Major Cities respectively.

Each week, on average:

- nurses worked 30.5 hours in Major Cities, 30 hours in regional and Remote areas, and 33 hours in Very Remote areas
- ENs worked 30 hours in Major Cities, 28–29 hours in regional and Remote areas, and 32 hours in Very Remote areas
- RNs worked 31 hours in Major Cities, 30.5 hours in regional areas, 31 hours in Remote areas, and 34 hours in Very Remote areas.

Table 3.5.2.10: Numbers of employed nurses, by ASGC Remoteness Areas, 2001

	MC	IR	OR	R	VR	Unknown	Australia
Registered nurses							
Number of nurses (main location of work)	114,068	33,643	15,160	2,371	1,350	16,631	183,223
Nurses per 100,000 population	886	836	753	731	756	n.a.	944
Nurses per 100,000 expected consultations	2,821	2,551	2,312	2,269	2,342	n.a.	2,965
FTE (main location of work)	100,698	29,302	13,243	2,103	1,305	14,676	161,328
Rate FTE per 100,000 population	782	728	658	648	731	n.a.	831
Rate FTE per 100,000 expected consultations	2491	2222	2020	2012	2263	n.a.	2611
Enrolled nurses							
Number (nurses by main location of work)	22,191	10,996	6,104	984	357	4,373	45,005
Nurses per 100,000 population	172	273	303	303	200	n.a.	232
Nurses per 100,000 expected consultations	549	834	931	942	619	n.a.	728.3
FTE (main location of work)	18,914	9,053	5,056	779	323	3,622	37,748
Rate FTE per 100,000 population	147	225	251	240	181	n.a.	194
Rate FTE per 100,000 expected consultations	468	687	771	746	560	n.a.	611
All nurses							
Number of nurses (main location of work)	136,259	44,639	21,264	3,355	1,707	21,003	228,227
Nurses per 100,000 population	1,059	1,109	1,056	1,035	956	n.a.	1,176
Nurses per 100,000 expected consultations	3,370	3,385	3,243	3,210	2,961	n.a.	3693.3
FTE (main location of work)	119,623	38,361	18,303	2,884	1,629	18,320	199,133
Rate FTE per 100,000 population	929	953	909	889	912	n.a.	1026
Rate FTE per 100,000 expected consultations	2,959	2,909	2,792	2,759	2,824	n.a.	3,222
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the survey have been weighted-up to account for non-responders.
3. Expected consultations are the number expected in each area in 2001 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey.

Source: AIHW Medical Labour Force Survey, 2001.

Dentists

Dental labour force data is held by the Dental Statistics and Research Unit in Adelaide. The latest published dental statistics available are for 2000 (Teusner and Spencer 2003). Published data use the older geographic classification, RRMA, rather than ASGC Remoteness Areas, and report for capital cities and 'rest of state'.

In 2000, there were 10,609 dentists registered in Australia, of whom 8,991 were employed in Australia. Of these, 97% worked as clinicians.

The prevalence of dentists was higher in capital cities, where there were 55.7 dentists per 100,000 population, compared with areas outside capital cities, where there were 31.4 dentists per 100,000 population.

Pharmacists

The most recent national data describing pharmacists are provided by the 1999 AIHW Pharmacy Labour Force Survey (AIHW 2003h).

Altogether, there were 18,853 registered pharmacists, of whom 14,717 were working in Australia as pharmacists.

Table 3.5.2.11 describes the number of pharmacists working in each broad ASGC Remoteness Area. Of the 76.3% of pharmacists who responded to the survey (14,391 altogether), 19% provided insufficient information to allow reporting by Remoteness Area.

Table 3.5.2.11: Numbers of employed pharmacists, by ASGC Remoteness Areas, 1999

	MC	IR	OR	R	VR	Unknown	Australia
Number of pharmacists (main location of work)	10,284	2,446	1,037	120	49	781	14,717
Pharmacists per 100,000 population	82	63	52	37	28	n.a.	78
Pharmacists per 100,000 expected consultations	76	59	49	35	26	n.a.	72
FTE (main location of practice)	10,914	2,518	1,164	151	60	551	15,359
Rate FTE per 100,000 population	87	64	58	47	34	n.a.	81
Rate FTE per 100,000 expected consultations	80	61	55	44	32	n.a.	75
FTE (based on hours worked in main and second locations of practice)	10,874	2,515	1,161	152	59	593	15,354
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the survey have been weighted-up to account for non-responders.
3. Expected consultations are the number expected in each area in 1999 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey. The total number of FTEs in Australia, presented by location of main practice and based on the number of hours worked in the main and in the second location, should be identical. Discrepancies are due to incomplete information on the hours worked in the main and the second location in a small number of records.

Source: AIHW Pharmacy Labour Force Survey, 1999.

By all of the comparison statistics, the supply of pharmacists was lower in regional and remote areas than it was inside Major Cities.

Comparison of pharmacists with population shows that ratios were lower outside Major Cities (0.76, 0.63, 0.45 and 0.34 times in the four Remoteness Areas) than in Major Cities.

The same pattern held for the other comparison statistics, but the longer hours worked by pharmacists in Remote and Very Remote areas are reflected in higher ratios of FTEs to population and to expected consultations in these areas (0.54 and 0.39 times the rate in Major Cities, respectively). Pharmacists worked an average of 38 and 37 hours per week in Major Cities and Inner Regional areas, and 41 and 44 hours per week in Outer Regional and remote areas, respectively.

Podiatrists

The most recent national data describing podiatrists is provided by the 1999 AIHW Podiatry Labour Force Survey (AIHW 2002b). These data exclude the Northern Territory (where podiatry is not a registrable profession).

Altogether, there were 2,239 registered podiatrists, of whom 2,011 were working in Australia as podiatrists. Most (98%) of these podiatrists were clinicians; the rest worked in administration, research, education or other roles.

Table 3.5.2.12 describes the number of podiatrists working in each broad ASGC Remoteness Area. A total of 1,448 podiatrists (64.7%) responded to the survey. Of these, 15% provided insufficient information to allow reporting by Remoteness Area.

Table 3.5.2.12: Numbers of employed podiatrists, by ASGC Remoteness Areas, 1999

	MC	IR	OR	R	VR	Unknown	Australia
Number of podiatrists (main location of practice)	1,417	359	80	13	3	140	2,011
Podiatrists per 100,000 population	11.3	9.2	4.0	4.1	1.6	n.a.	10.6
Podiatrists per 100,000 expected consultations	45.3	34.9	16.3	20.4	9.9	n.a.	42.5
FTE (main location of practice)	1,394	352	79	13	3	136	1,977
Rate FTE per 100,000 population	11.1	9.0	4.0	4.1	1.6	n.a.	10.4
Rate FTE per 100,000 expected consultations	44.6	34.27	16.08	20.39	9.93	n.a.	41.73
FTE (main and second locations of practice)	1,366	399	79	14	3	107	1,909
Population ('000s)	12,871	4,026	2,014	324	179	n.a.	19,413

Notes

1. Full time equivalents (FTEs) are based on a 35-hour week.
2. Results from the survey have been weighted-up to account for non-responders.
3. Expected consultations are the number expected in each area in 1999 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey. The total number of FTEs in Australia, presented by location of main practice and based on the number of hours worked in the main and in the second location, should be identical. Discrepancies are due to incomplete information on the hours worked in the main and the second location in a small number of records.

Source: AIHW Podiatry Labour Force Survey, 1999.

All of the comparison statistics show a lower supply of podiatrists in regional and remote areas than in Major Cities.

Comparison of podiatrists with population shows that ratios in Inner Regional areas (9.2) were slightly lower than those in Major Cities (11.3), those in Outer Regional (4.0) and Remote (4.1) areas were about one-third, and those in Very Remote areas (1.6) about one-seventh those in Major Cities. The pattern for the other comparison statistics is similar. Use of 'expected consultations' as the denominator tended to improve the ratios in remote areas, a reflection of the relatively large numbers of children and small numbers of elderly people living there.

Podiatrists worked an average of 34–36 hours per week in Major Cities and regional areas, and an average of 39–41 hours per week in remote areas.

Physiotherapists

The most recent national data describing podiatrists is provided by the 1998 AIHW Physiotherapy Labour Force Survey (AIHW 2000b).

Altogether, there were estimated to be 14,722 registered physiotherapists, of whom 11,304 were working in Australia as physiotherapists. Most (96%) of these physiotherapists were clinicians; the rest worked in administration, research, education or other roles.

Table 3.5.2.13 describes the number of physiotherapists working in each broad ASGC Remoteness Area (excluding those from ACT and Tasmania). The response rate to this survey was approximately 76% (excluding ACT and Tasmania). Of those employed physiotherapists who responded, about 8% provided insufficient information to allow reporting by Remoteness area.

Table 3.5.2.13: Numbers of employed physiotherapists, by ASGC Remoteness Areas, 1998

	MC	IR	OR	R	VR	Unknown	Australia
Number of physiotherapists (main location of practice)	7,703	1,456	643	121	24	813	10,760
Physiotherapists per 100,000 population	61.5	37.2	32.3	37.5	13.7	n.a.	56.9
Physiotherapists per 100,000 expected consultations	120.1	78.6	68.7	77.5	29.7	n.a.	114.0
FTE (main location of practice)	7,034	1,317	597	103	21	724	9,796
Rate FTE per 100,000 population	57.6	36.5	32.6	32.7	12.0	n.a.	54.0
Rate FTE per 100,000 expected consultations	109.7	71.0	63.8	65.9	25.2	n.a.	103.8
FTE (main and second locations of practice)	6,721	1,258	571	96	15	810	9,471
Population ('000s)	12,214	3,610	1,829	315	171	n.a.	18,139

Notes

1. Estimates and population data excludes data from ACT and Tasmania.
2. Full time equivalents (FTEs) are based on a 35-hour week.
3. Results from the survey have been weighted-up to account for non-responders.
4. Expected consultations are the number expected in each area in 1998 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey. The total number of FTEs in Australia, presented by location of main practice and based on the number of hours worked in the main and in the second location, should be identical. Discrepancies are due to incomplete information on the hours worked in the main and the second location in a small number of records.

Source: AIHW Physiotherapy Labour Force Survey, 1998.

All of the comparison statistics indicate that the supply of physiotherapists was lower in regional and remote areas than in Major Cities. Comparison of physiotherapists with population shows that ratios in regional and Remote areas were 0.6 times those in Major Cities, and those in Very Remote areas were 0.2 times those in Major Cities. The patterns for the other comparison statistics are almost identical.

Physiotherapists worked an average of 34–36 hours per week in Major Cities, regional and Remote areas, and an average of 46 hours per week in Very Remote areas.

Occupational therapists

The most recent national data describing occupational therapists are provided by the 1998 AIHW Occupational Therapy Labour Force Survey and relates to all jurisdictions except New South Wales, South Australia and Tasmania, where the survey was not distributed (AIHW 2001d).

Altogether, there were estimated to be 3,688 registered occupational therapists in 1998, of whom 3,115 were working in Australia as occupational therapists. Most (89%) of these were clinicians; the rest worked in administration, research, education or other roles.

Table 3.5.2.14 below describes the number of occupational therapists working in each broad ASGC Remoteness Area. The response rate to this survey was approximately 62%. Of those employed occupational therapists who responded, about 4% provided insufficient information to allow reporting by Remoteness Area.

Table 3.5.2.14: Numbers of employed occupational therapists, by ASGC Remoteness Areas, 1998

	MC	IR	OR	R	VR	Unknown	Australia
Number of occupational therapists (main location of practice)	2,181	436	219	57	12	104	3,009
Occupational therapists per 100,000 population	31.7	20.6	18.7	24.9	8.3	n.a.	28.5
Occupational therapists per 100,000 expected consultations	411.8	261.5	238.2	317.1	105.1	n.a.	367.9
FTE (main location of practice)	2,019	386	197	46	10	55	2,713
Rate FTE per 100,000 population	29.3	18.2	16.8	19.9	6.9	n.a.	25.7
Rate FTE per 100,000 expected consultations	381.2	231.6	214.2	253.8	87.7	n.a.	331.7
FTE (main and second locations of practice)	2,005	385	196	46	10	71	2,713
Population ('000s)	6,879	2,114	1,171	230	149		10,543

Notes

1. Estimates and population data excludes data from NSW, SA and Tasmania.
2. Full time equivalents (FTEs) are based on a 35-hour week.
3. The number of respondents did not provide sufficient information to allocate a Remoteness category.
4. Results from the survey have been weighted-up to account for non-responders.
5. Expected consultations are the number expected in each area in 1998 if age- and sex- specific consultation rates evident in Major Cities in 2001 were experienced everywhere. Rates of consultation in Major Cities in 2001 were calculated using data from the ABS National Health Survey.

Source: AIHW Occupational Therapy Labour Force Survey, 1998.

All of the comparison rates described in Table 3.5.2.14 indicate that the supply of occupational therapists was lower in country areas than it was inside Major Cities. Comparison of occupational therapists with population shows that ratios in regional and Remote areas were 0.6 to 0.7 times those in Major Cities, and those in Very Remote areas were 0.25 times those in Major Cities. The patterns for the other comparison statistics are similar.

Occupational therapists worked an average of 32–33 hours per week in Major Cities and regional areas, and an average of 28–29 hours per week in remote areas.

3.5.5 Dental consultations

Summary of findings

A lack of information with which to calculate statistical significance has reduced the confidence with which these results can be reported. However, compared with their counterparts in Major Cities:

- males from regional areas consulted a dentist as often, or slightly more often
- females from regional areas consulted a dentist less often.

In line with other published results (ABS 2002b), people appear to have been more likely to visit a dentist in 2001 than in 1995. However, without some measure of statistical significance, it is unclear whether people in regional areas visit the dentist less than, more than or to the same extent as people in Major Cities.

Background

Compared with Major Cities, relatively low numbers of dentists in regional areas (Teusner & Spencer 2003) and relatively low incomes (page 146) may affect the opportunity for people in regional areas to consult a dentist.

The basic data from which these indicators have been calculated were the 1995 and 2001 ABS National Health Survey (NHS). About 54,000 and 26,000 people participated in these face-to-face surveys, respectively. The ABS did not sample in sparsely populated areas. It is possible that sampling in regional areas is biased towards people who live in larger centres.

Values of standard error for estimates of the mean number of times a dentist was consulted annually were not available. This prevents discussion of the statistical significance of the differences.

The age-standardisation process was direct, and involved applying the age-specific averages from each sex and area to the 2001 Australian population in each age group. The resultant total 'expected' number of dental visits was then divided by the total 2001 Australian population, to give a direct age-standardised average (see page 302 – statistical methods section).

Detailed results

In 2001, males and females consulted a dentist 1.8 and 2.1 times on average during the year.

Without a measure of statistical significance, it is unclear whether ABS NHS data presented here indicate real regional differences.

However, 2001 survey data suggest that males and females in regional areas consulted a dentist slightly more frequently and slightly less frequently, respectively, than those in Major Cities.

Results from the 1995 survey show lower average numbers of consultations for females in regional areas (similar to the pattern in 2001), and lower average numbers of consultations for males in regional areas (in contrast to the pattern in 2001).

The average number of consultations for non-Indigenous people was similar to that for the total population, except in Outer Regional areas where the average for females was slightly lower than for the total female population.

The 2001 NHS survey results suggested that Indigenous people were slightly less likely than non-Indigenous people to consult a dentist in the 2 weeks prior to the survey, but it is not clear that likelihoods for the two groups were statistically significantly different (ABS 2002a).

Table 3.5.5.1: Direct age-standardised mean number of annual dental consultations by ASGC Remoteness Area, 1995 and 2001

	Males				Females			
	MC	IR	OR	Australia	MC	IR	OR	Australia
2001 total population	1.7	2.0	1.9	1.8	2.2	1.8	1.7	2.1
2001 non-Indigenous	1.7	2.0	1.9	1.8	2.2	1.8	1.8	2.1
1995 total population	1.8	1.5	1.6	1.7	1.9	1.8	1.7	1.9
1995 non-Indigenous	1.8	1.6	1.6	1.7	1.9	1.8	1.8	1.9

Note: Directly age-standardised to the Australian population in 2001.

Source: ABS National Health Survey, Australia, 1995 and 2001.

3.8 Capability

3.8.1 Public hospitals

Summary of findings

The percentage of hospital establishments that are accredited was lower in regional and remote areas than in Major Cities, even when comparison is made across hospital peer groups.

There were more beds per 1,000 population in regional areas (2.6 and 3.4 beds) and especially remote areas (5.2 and 5.0 beds) than in Major Cities (2.5 beds). Hospitals in regional and especially remote areas tended to have fewer beds than those in Major Cities.

Hospital beds in Major Cities tended to be mainly in principal referral hospitals, women's and children's hospitals, and other large hospitals, whereas those in regional areas were in principal referral hospitals, other large hospitals, medium hospitals and small acute hospitals, and those in remote areas were mostly in small acute hospitals, sub- and non-acute hospitals, and 'un-peered and other acute' hospitals.

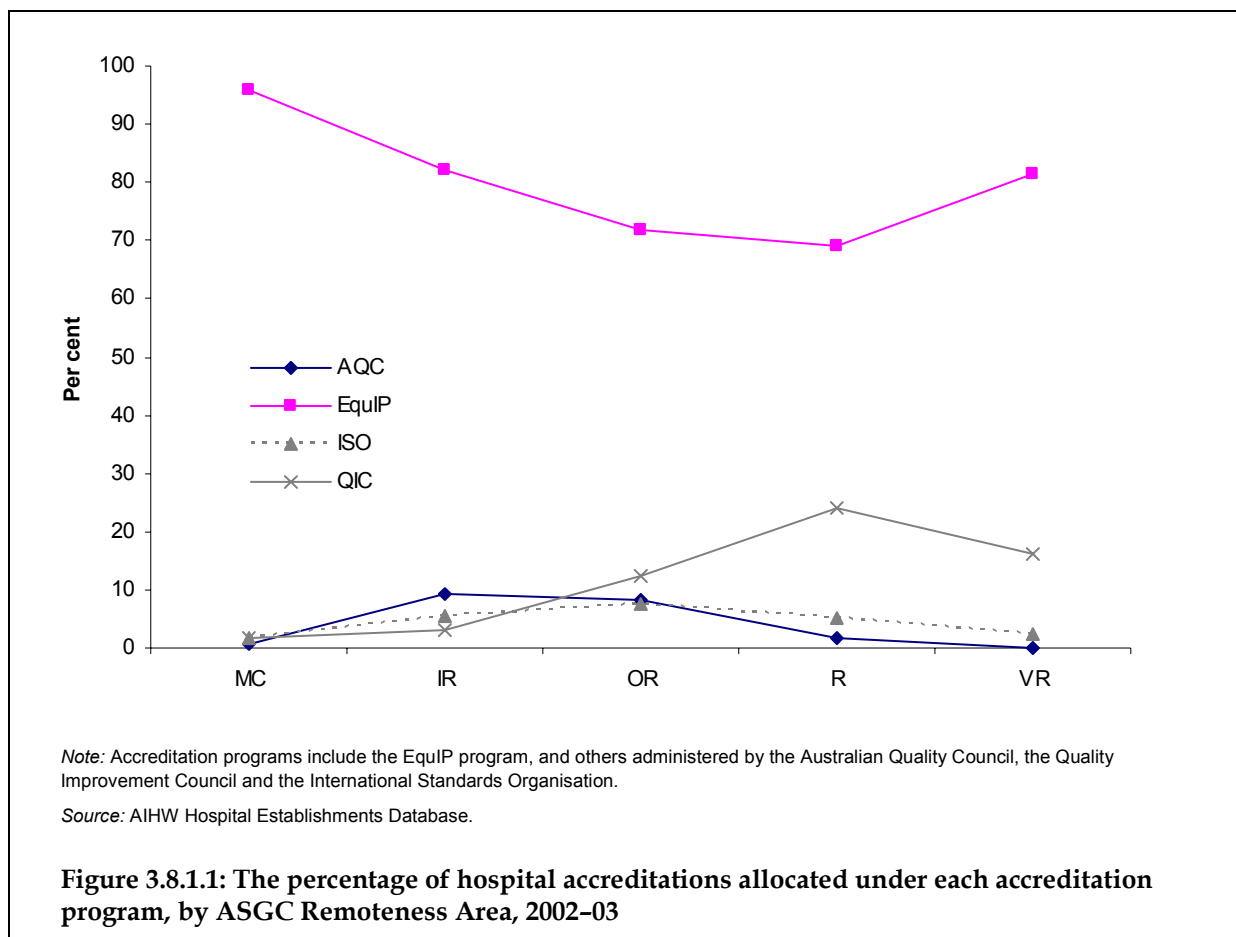
Many hospitals in regional and remote areas had, on average, fewer than 30 beds. However, there were a number (33) of large hospitals in regional (mainly Inner Regional) areas with 100–300 beds.

Background

In this section, national data describing the location of public hospitals by hospital 'peer group' (i.e. group of hospitals with similar activity) are presented for the financial year 2002–03. Details of hospital accreditation are also provided.

The source of the data is the AIHW National Hospitals Establishment Database. Information about private hospitals is not included; this indicator refers only to public hospitals and includes public psychiatric hospitals.

Accreditation of hospitals can be through one of several accreditation programs. Most hospitals are accredited through the Australian Council on Healthcare Standards (ACHS) Evaluation and Quality Improvement Program (Equip), and others through programs administered by the Australian Quality Council (AQC), the Quality Improvement Council (QIC) and the International Standards Organisation (ISO). The different standards used in each program may affect inter-regional comparisons, although the magnitude of the effect is assumed to be small. Figure 3.8.1.1 shows that Equip accreditation is less prevalent in regional and remote areas; AQC and ISO accreditation are both more common in regional hospitals than in the other areas; and QIC accreditation is more common in remote areas.



Peer groups (see Table 3.8.1.1) are groups of hospitals with similar activity and geography. They have been used here for convenience to group broadly similar types of hospitals for inter-regional comparison.

Detailed results

Hospitals in regional areas typically have fewer beds, and whereas the several large hospitals in a major city are likely to be easily accessed by the city's residents, the scattered, smaller hospitals of regional and especially remote areas may be geographically close for some, but distant for many other residents.

Interpretation of tables should take into account the following issues:

- Regional and remote area residents may have to access a 'Principal referral hospital' or other large hospital in a Major City for specialist interventions and care. Comparisons of the ratio of beds to population presented in the tables do not take this into account.
- Residents of Major Cities are very unlikely to access a regional or remote area hospital.
- Patterns of service in regional and remote area hospitals are likely to be different from those in Major Cities, which is reflected in their peer grouping. For example, although small regional/remote area hospitals may have to be able to deal with serious trauma, many of their beds may act as accommodation for nursing home-type patients.

Table 3.8.1.2 describes the number of public hospital establishments that are accredited in each peer group, in each ASGC Remoteness Area.

As would be expected, hospitals in regional and especially remote areas were found to have fewer beds than those in Major Cities. However, there were a substantial number of large hospitals in regional (especially Inner Regional) areas, and of small acute hospitals in regional and remote areas. A proportion of hospitals in regional areas and a large proportion of hospitals in remote areas were categorised as 'un-peered and other'.

Compared with Major Cities hospitals, a smaller proportion of regional and remote area hospitals were accredited: 94% of hospitals in Major Cities were accredited, 84% and 71% were accredited in Inner and Outer Regional areas, respectively, and just over 60% in remote areas. Almost all large hospitals were accredited, but some of the small acute hospitals were not, and typically only about half of the sub- and non-acute hospitals, and those classified as 'un-peered and other', were accredited.

Table 3.8.1.3 describes the number of hospital beds in each ASGC Remoteness Area that are in accredited hospitals of each peer group.

Just over 60% of hospital beds were in hospitals located in Major Cities, and almost 70% of these were in principal referral hospitals or specialist women's and children's hospitals. Almost half of hospital beds in Inner Regional areas were in principal referral or large hospitals, 25% in medium and 16% in small acute hospitals. Only 21% of hospital beds in Outer Regional areas were in principal referral or large hospitals, compared with 25% in medium and 16% in small acute hospitals. In remote areas, larger proportions of beds were in small acute hospitals (59%), sub- and non-acute hospitals (18%) and 'un-peered and other' hospitals (14%).

The percentage of all beds that are in accredited hospitals was lower in regional and remote areas than in Major Cities where 98% of all beds were in accredited hospitals. Beds in larger hospitals (e.g. small acute hospitals and larger) were more likely to be in accredited hospitals than those in sub- and non-acute hospitals.

Table 3.8.1.4 describes the average number of beds per hospital establishment, the ratio of beds to population in each peer group and ASGC Remoteness Area.

As would be expected, there were, on average, fewer beds in Inner (55) and Outer (30) Regional and Remote (18) and Very Remote (13) area hospitals than those in Major Cities hospitals (190).

There were 2.5 hospital beds per 1,000 Major Cities residents, and 2.6, 2.4, 5.2 and 5.0 hospital beds per 1,000 residents in Inner and Outer Regional, Remote and Very Remote areas, respectively.

Table 3.8.1.1: Hospital peer group classification

Peer group	Definition
Principal referral and specialist women's and children's hospitals	A1 Major city hospitals with > 20,000 acute casemix-adjusted separations and Regional hospitals with > 16,000 acute casemix-adjusted separations per annum. A2 Specialised acute women's and children's hospitals with > 10,000 acute casemix-adjusted separations per annum.
Large hospitals	B1 Major city acute hospitals treating > 10,000 acute casemix-adjusted separations per annum. B2 Regional acute hospitals treating > 8,000 acute casemix-adjusted separations per annum and remote hospitals with > 5,000 casemix-weighted separations.
Medium hospitals	C1 Medium acute hospitals in Regional and Major Cities areas, treating between 5,000 and 10,000 acute casemix-adjusted separations per annum. C2 Medium acute hospitals in Regional and Major Cities areas, treating between 2,000 and 5,000 acute casemix-adjusted separations per annum, and acute hospitals treating < 2,000 casemix-adjusted separations per annum but with > 2,000 separations per annum.
Small acute hospitals	Small Regional acute hospitals (mainly small country town hospitals) acute hospitals treating < 2,000 separations per annum, and with less than 40% non-acute and outlier patient-days of total patient-days. Small remote hospitals (< 5,000 acute casemix weighted separations but not 'Multi-purpose service' and not 'Small non-acute'). Most are < 2,000 separations.
Sub-acute and non-acute hospitals	For this category, a majority of patient-days are generally accounted for by rehabilitative, palliative care and non-acute patients: Small non-acute hospitals, treating < 2,000 separations per annum, and with more than 40% non-acute and outlier patient-days of total patient-days. Multi-purpose services Hospices Rehabilitation Mothercraft
Other non-acute hospitals	For example, geriatric treatment centres combining rehabilitation and palliative care with a few acute patients.
Un-peered and other hospitals	Prison medical services, special circumstance hospitals, Major Cities hospitals with < 2,000 acute casemix-adjusted separations, hospitals with < 200 separations, etc.
Psychiatric hospitals	

Source: Australian Hospital Statistics 2002–03 Appendix 4 (AIHW 2004b).

Table 3.8.1.2: The number of public hospitals, and those accredited, by peer group, in each ASGC Remoteness Area, 2002-03

Peer group		Number of accredited establishments						Total number of establishments						Per cent of establishments accredited					
Group name	Key	MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Principal referral	A1	44	11	3	—	—	58	45	11	3	—	—	59	98	100	100	..	..	98
	A2	11	—	—	—	—	11	11	—	—	—	—	11	100	..	..	..	..	100
Large hospitals	B1	26	—	—	—	—	26	26	—	—	—	—	26	100	..	..	..	..	100
	B2	—	16	3	2	—	21	—	17	3	2	—	22	..	94	100	100	..	95
Medium hospitals	C1	13	9	8	—	—	30	13	9	10	—	—	32	100	100	80	..	..	94
	C2	7	38	18	—	—	63	9	41	24	—	—	74	78	93	75	..	..	85
Small hospitals																			
Regional acute		—	33	37	—	—	70	—	37	47	—	—	84	..	89	79	..	..	83
Non-acute		7	29	44	12	4	96	7	40	52	16	6	121	100	73	85	75	67	79
Remote acute		—	—	—	12	15	27	—	—	—	20	22	42	..	..	..	60	68	64
Sub- and non-acute hospitals																			
Multipurpose services		—	5	20	13	3	41	—	5	37	21	8	71	..	100	54	62	38	58
Hospices		3	—	—	—	—	3	3	1	—	—	—	4	100	..	..	..	..	75
Rehabilitation		6	2	—	—	—	8	6	2	—	—	—	8	100	100	..	..	..	100
Mothercraft		7	—	—	—	—	7	9	—	—	—	—	9	78	..	..	..	..	78
Other non-acute		13	7	1	—	—	21	13	8	1	—	1	23	100	88	100	..	..	91
Other hospitals																			
Psychiatric		16	3	2	—	—	21	16	7	2	—	—	25	100	43	100	..	..	84
Un-peered and other		6	8	23	19	21	77	12	14	45	33	33	137	50	57	51	58	64	56
Total		159	161	159	58	43	580	170	192	224	92	70	748	94	84	71	63	61	78

Notes

1. For an interpretation of Key categories, see Table 3.8.1.1.
2. The number of hospitals reported can be affected by administrative and/or reporting arrangements and is not necessarily a measure of the number of physical hospital buildings or campuses.

Source: AIHW Hospital Establishments Database.

Table 3.8.1.3: The number of beds in public hospitals, and the percentage in accredited hospitals, by peer group, by ASGC Remoteness Area, 2002-03

Peer group	Key	Total number of beds						Per cent of beds in accredited hospitals					
		MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Principal referral	A1	19,360	2,866	1,000	..	..	23,226	98	100	100	..	..	99
	A2	2,397	..	..	..	..	2,397	100	..	..	..	..	100
Large hospitals	B1	4,135	..	..	..	..	4,135	100	..	..	..	..	100
	B2	..	2,249	436	250	..	2,935	..	96	100	100	..	97
Medium hospitals	C1	1,349	759	817	..	..	2,925	100	100	81	..	..	95
	C2	697	1,912	1,223	..	..	3,832	93	94	70	..	..	86
Small hospitals													
Regional acute		..	767	1,029	..	..	1,796	..	88	83	..	..	85
Non-acute		302	897	1,294	434	126	3,053	100	79	85	80	54	83
Remote acute		..	..	..	485	465	950	..	..	..	72	81	76
Sub- and non-acute hospitals													
Multipurpose services		..	56	467	318	134	975	..	100	49	56	40	53
Hospices		191	..	..	..	..	191	100	..	..	..	..	100
Rehabilitation		365	47	..	..	..	412	100	100	..	..	..	100
Mothercraft		226	..	..	..	..	226	73	..	..	..	..	73
Other non-acute		1,330	319	23	..	3	1,675	100	90	100	..	..	98
Other hospitals													
Psychiatric		1,751	630	118	..	..	2,499	100	75	100	..	..	94
Un-peered and other		115	133	365	204	158	975	47	71	58	80	70	65
Total		32,218	10,634	6,772	1,691	885	52,200	98	93	81	76	69	94

Note: For an interpretation of key categories, see Table 3.8.1.1.

Source: AIHW Hospital Establishments Database.

Table 3.8.1.4: The average number of beds per hospital and the ratio of beds to population in each peer group and ASGC Remoteness Area, 2002–03

Peer group		Average number of beds per public hospital						Average number of beds per 1,000 residents					
Group name	Key	MC	IR	OR	R	VR	Total	MC	IR	OR	R	VR	Total
Principal referral	A1	430	261	333	..	..	394	1.50	0.71	0.50	—	—	1.20
	A2	218	..	..	..	..	218	0.19	—	—	—	—	0.12
Large hospitals	B1	159	..	..	..	..	159	0.32	—	—	—	—	0.21
	B2	..	132	145	125	..	133	—	0.56	0.22	0.77	—	0.15
Medium hospitals	C1	104	84	82	..	..	91	0.10	0.19	0.41	—	—	0.15
	C2	77	47	51	..	..	52	0.05	0.47	0.61	—	—	0.20
Small hospitals													
Regional acute		..	21	22	..	..	21	—	0.19	0.51	—	—	0.09
Non-acute		43	22	25	27	21	25	0.02	0.22	0.64	1.34	0.71	0.16
Remote acute		..	..	..	24	21	23	—	—	—	1.50	2.60	0.05
Sub- and non-acute hospitals													
Multipurpose services		..	11	13	15	17	14	0.00	0.01	0.23	0.98	0.75	0.05
Hospices		64	0	..	..	..	48	0.01	—	—	—	—	0.01
Rehabilitation		61	24	..	..	..	52	0.03	0.01	—	—	—	0.02
Mothercraft		25	..	..	..	..	25	0.02	—	—	—	—	0.01
Other non-acute		102	40	23	..	3	73	0.10	0.08	0.01	—	0.02	0.09
Other hospitals													
Psychiatric		109	90	59	..	..	100	0.14	0.16	0.06	—	—	0.13
Un-peered and other		10	10	8	6	5	7	0.01	0.03	0.18	0.63	0.88	0.05
Total		190	55	30	18	13	70	2.50	2.64	3.36	5.21	4.96	2.69

Note: For an interpretation of Key categories, see Table 3.8.1.1.

Source: AIHW Hospital Establishments Database.

3.9 Sustainability

3.9.1 Students commencing health-related tertiary education

Summary of findings

With some exceptions, young people from regional and remote areas are generally less likely, or much less likely to commence a health-related degree than young people from Major Cities.

In 1997, young people aged 17–20 years from regional and remote areas were 0.4 or 0.3 times as likely to commence a degree in medicine as those from Major Cities. By 2002, young people from Outer Regional and Remote areas were as likely to commence a degree in medicine as those from Major Cities, but those from Inner Regional and Very Remote areas were 0.6 and 0.4 times as likely, respectively.

Young people from Inner and Outer Regional areas were slightly more, and slightly less likely, respectively, to commence a degree in nursing than their counterparts from Major Cities; those from remote areas were 0.8 and 0.4 times as likely.

Young people from Inner and Outer Regional areas were 0.7 and 0.6 times as likely, respectively, as their counterparts from Major Cities to commence a degree in a selected allied health discipline; those from remote areas were less likely.

Young people from regional areas were one-tenth as likely as their counterparts from Major Cities to commence a degree in dentistry; those from remote areas were even less likely.

Young people from Inner and Outer Regional areas were 0.5 and 0.6 times as likely, respectively, as their counterparts from Major Cities to commence a degree in pharmacy; those from Remote and Very Remote areas were 0.4 and 0.3 times as likely, respectively.

Young people from Inner and Outer Regional areas were 0.2 and 0.3 times as likely, respectively, as their counterparts from Major Cities to commence a degree in optometry; those from remote areas were even less likely.

Background

Many health professions are under-represented in regional and remote areas. Students from regional and remote areas are believed to be more likely to work in those areas when they graduate than are those in Major Cities (Strasser 1992). Greater representation of students from regional and remote areas is likely to lead to better representation of the health professions in these areas.

The data presented here are from the Department of Education, Science and Training (DEST) Higher Education Enrolments database. Identification of the area from which students come is based on the postcode of their home address. Analysis has been restricted to 17–20-year-old Australian citizens and permanent residents commencing a bachelor's degree, on the basis that the home address (rather than the university residential address) of students of this age is likely to be that of their parents. It is assumed that this typically reflects the broad region in which they grew up. The great majority of these students are aged 18 years.

'Commencements' data has been selected rather than 'completions' data, because it is more likely that postcode of home address in the students' first year of study will reflect their parents' address and therefore the remoteness area in which the student grew up.

The classification of the field of study changed in 2001. While health-related courses were successfully concurred between the two classifications, this change may still have had a small effect on the results.

Details of postgraduate and degree commencements other than bachelor (e.g. associated diploma, diploma) have not been reported. Postgraduate degrees are likely to be started when students are older than the 17–20-year age group used here. In the health field, certificates, diplomas, associate degrees and so on constitute a small percentage (2%) of the overall courses started, and usually involve people who are older than 17–20 years.

In calculating the rates at which young people from each area commence study in each discipline, a substitute for the average number of children aged 12 years (based on the average number of 10–14-year-olds) resident in each remoteness area 6 years previously has been used as the denominator. This denominator is not perfect, but its choice does avoid one major problem. The number of people in the 15–19-year age group in each area outside Major Cities is likely to be affected by young people who migrate to Major Cities for work, as well as those who do so to study. The use of the number of 10–14-year-olds six years previously as the denominator avoids this problem. Sensitivity analysis suggests that this approach yields robust answers.

With the aim of broadening the knowledge base and communication skills of clinicians from a number of disciplines, there has been a move by some faculties to enrol graduates from other disciplines rather than high school leavers. For the later years, introduction of graduate enrolment in some courses may complicate comparisons between areas.

There is a clear difference between the regions in the level of courses commenced, with levels other than bachelor and postgraduate degrees (e.g. certificate, diploma) constituting about a third of commencements for people from Very Remote areas, which may indicate difficulties in accessing higher level courses (Table 3.9.1.1).

Table 3.9.1.1: Proportion of commencements in health-related courses by course level, students of all ages, 1997 and 2002

	MC	IR	OR	R	VR	Total
	Per cent					
1997						
Post graduate	37	28	29	30	29	35
Bachelor	61	70	66	60	37	63
Other tertiary	2	2	4	10	34	2
Total	100	100	100	100	100	100
2002						
Post graduate	37	25	28	34	35	34
Bachelor	62	71	66	56	35	64
Other tertiary	1	4	8	10	30	3
Total	100	100	100	100	100	100

Source: DEST Higher Education Enrolments data, 1997 and 2002.

Detailed results

There are substantial and sustained differences between the rate at which school leavers (17–20-year-olds) from each of the areas commence studies in a range of health disciplines (Figures 3.9.1.1–3.9.1.6).

Medicine

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.6, 1.2, 1.0 and 0.4 times as likely, respectively, to commence medicine as those from Major Cities (Figure 3.9.1.1). This represents a substantial change since 1997, when the ratios were lower (0.4, 0.3, 0.3 and 0.0). In 2000, there was a substantial increase in the rate at which young people from Outer Regional and Remote areas commenced medicine, an increase that was sustained through 2001 and 2002.

Possible contributors to the dramatic increase in Outer Regional and Remote areas include:

1. The introduction of the Rural Australia Medical Undergraduate Scheme (RAMUS) in the 1999–2000 Federal Budget with the first scholarships awarded in 2000. It provides \$10,000 per year to students from a rural background and with a demonstrated financial need, to help with their travel and accommodation costs while studying for a medical degree. Scholarship holders' ties to rural Australia are reinforced through a rural doctor mentorship program which is an integral part of the scholarship scheme, as well as membership of their university's rural health club. The scheme has 500 scholarships with approximately 130 new scholarships available each year. There is strong competition for the scholarships with requests for scholarships exceeding the number available each year.
2. The Rural Undergraduate Support and Coordination (RUSC) Program. This commenced operation following the 1993–94 Commonwealth Budget and is an initiative to increase the number of medical graduates adopting a career in rural medicine. The Program provides targeted funding to Australian medical schools to facilitate and enhance change in three key areas: rural student selection, the enhancement of support systems for students and rural GP educators, and the coordination of rural curriculum placements for medical students.
3. The first intake of medical students to the James Cook University, Townsville, in 2000. Many of these are likely to have been sourced from regional/remote areas.
4. The efforts of rural-based health training units and university departments of rural health in encouraging rural high school students to consider a career in medicine.

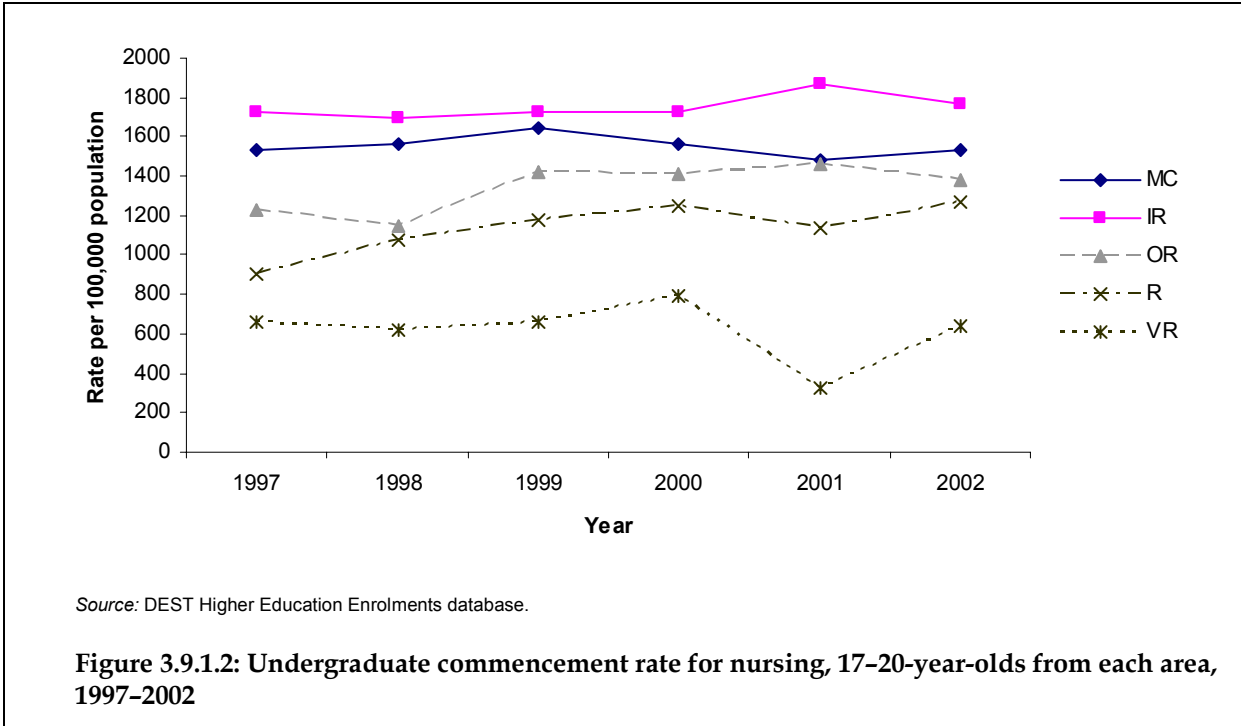
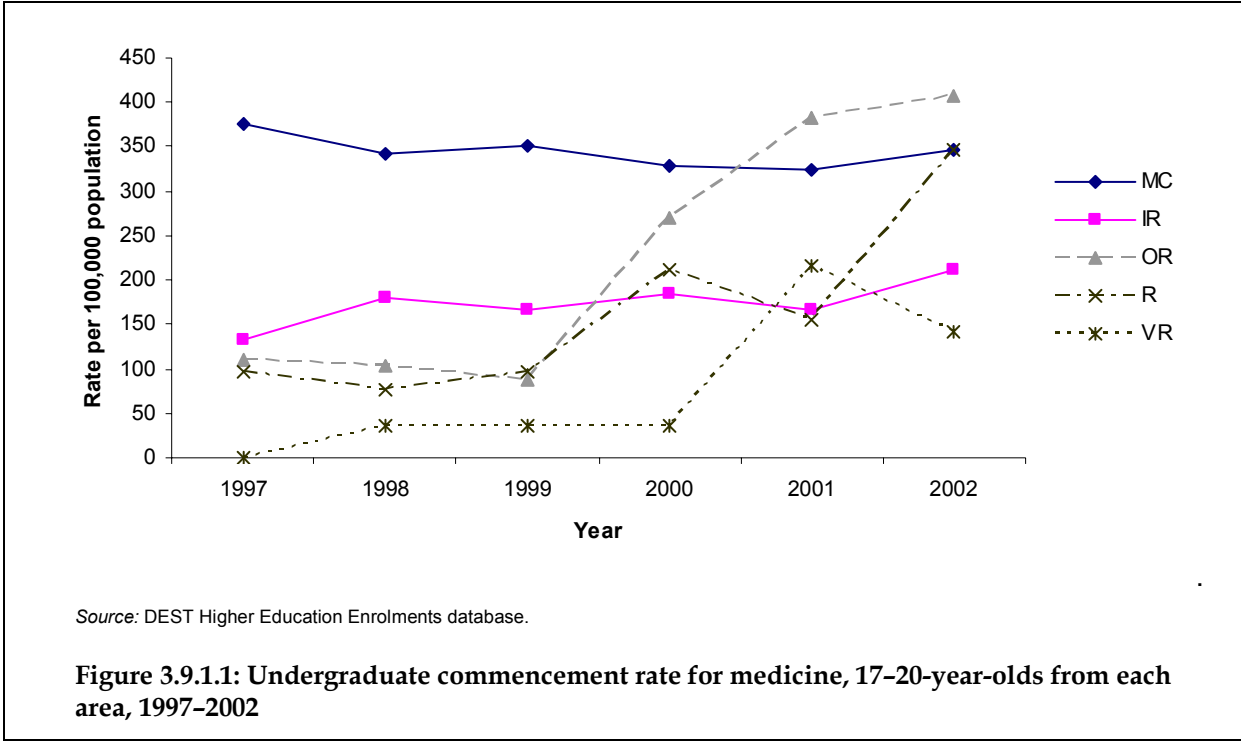
Nursing

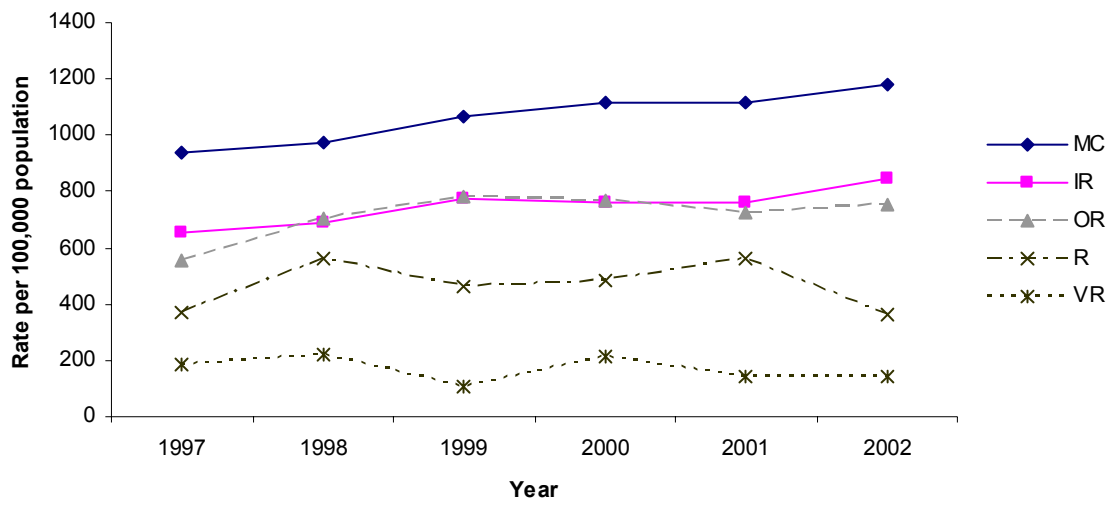
In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 1.2, 0.9, 0.8 and 0.4 times as likely to commence nursing as those from Major Cities (Figure 3.9.1.2). There has been little change in these ratios for Inner Regional and Very Remote areas since 1997, but the rate at which young people from Outer Regional and Remote areas commence nursing has increased progressively; the corresponding ratios for these areas in 1997 were, respectively, 0.8 and 0.6.

Allied health

In 2002, the rate at which young people from Major Cities commenced studies in the selected allied health fields (physiotherapy, occupational therapy, podiatry, radiography, speech pathology and nutrition/dietetics) increased overall since 1997 (Figure 3.9.1.3). The rate at

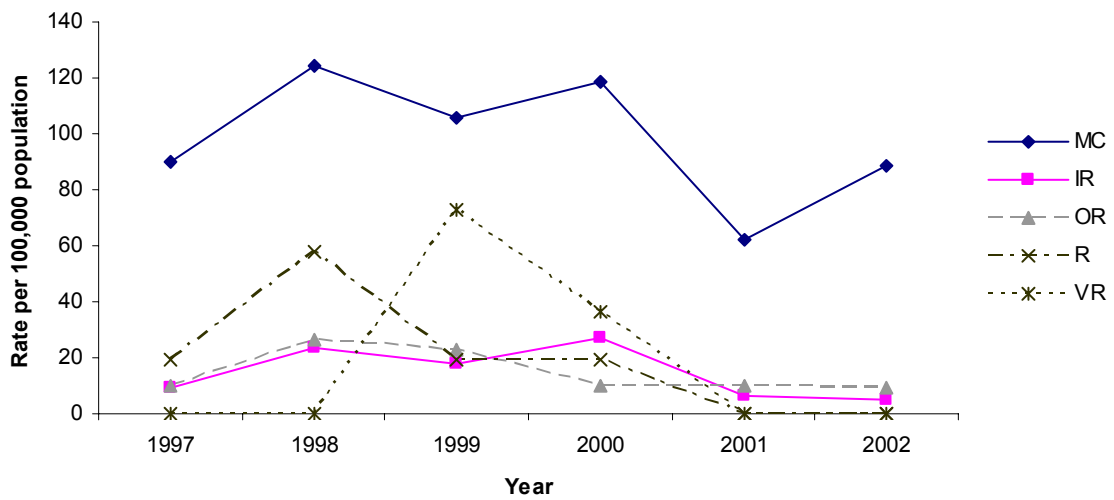
which young people from Inner and Outer Regional areas commence studies increased correspondingly. There is no clear increase in the rate at which young people from remote areas commence a degree in allied health. In 2002, young people from Inner Regional, Outer Regional, Remote and Very Remote areas were 0.7, 0.6, 0.3 and 0.1 times as likely to commence a bachelor's degree in an allied health discipline as those from Major Cities.





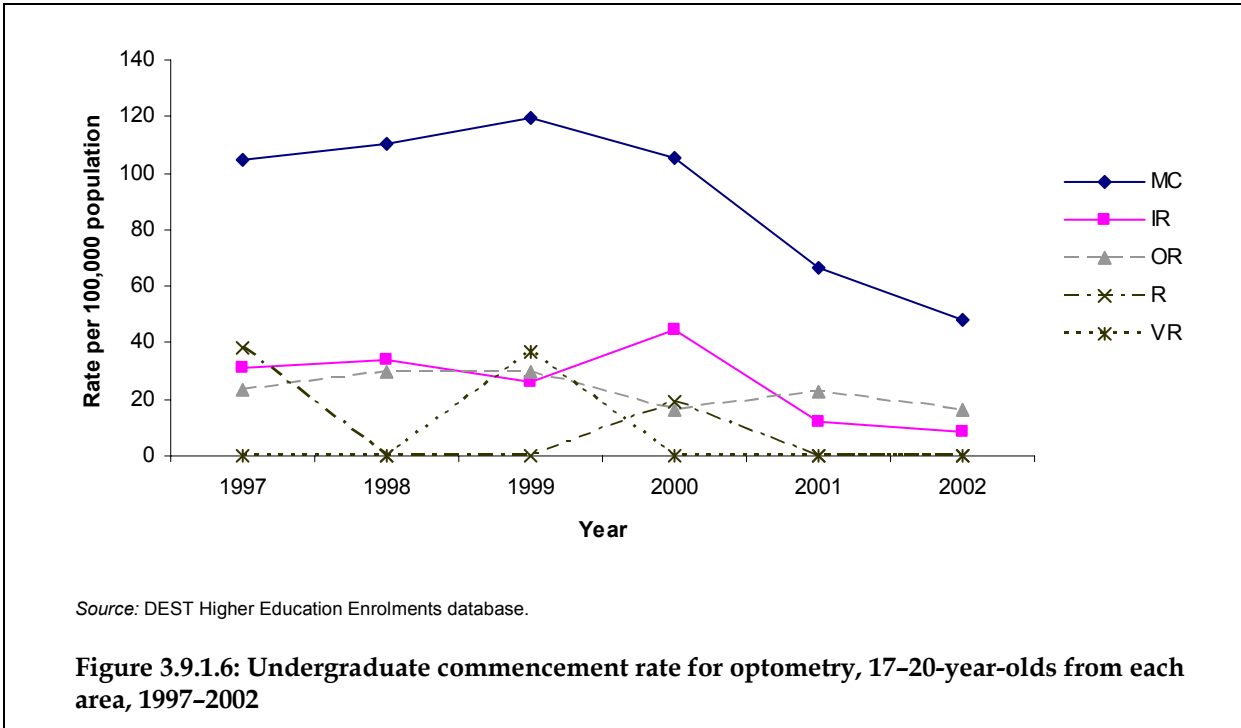
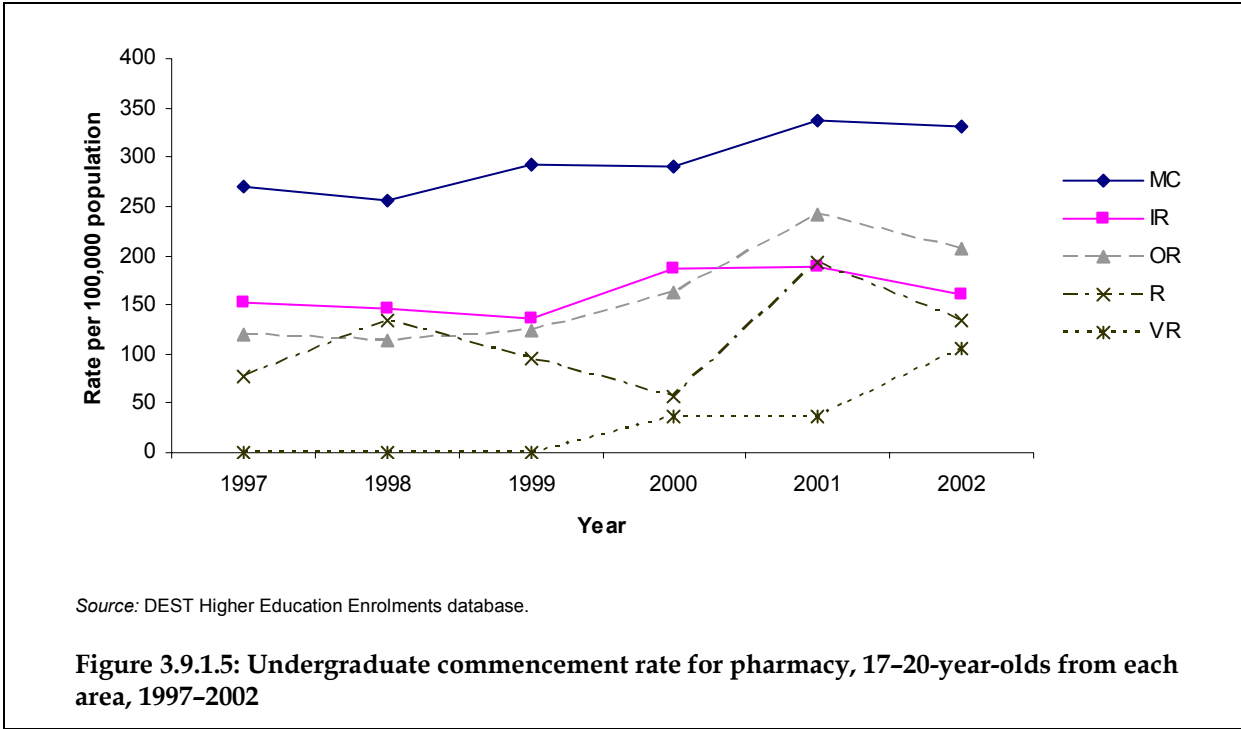
Source: DEST Higher Education Enrolments database.

Figure 3.9.1.3: Undergraduate commencement rate for selected allied health disciplines, 17-20-year-olds from each area, 1997-2002



Source: DEST Higher Education Enrolments database.

Figure 3.9.1.4: Undergraduate commencement rate for dentistry, 17-20-year-olds from each area, 1997-2002



Dentistry

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.1, 0.1, 0.0 and 0.0 times as likely to commence a bachelor’s degree in dentistry as those from Major Cities (Figure 3.9.1.4). This pattern is similar to that in previous years. The introduction of graduate entry is likely to be responsible for the overall decline in the rate at

which young people commence a bachelor's degree in the field, but it is unlikely that this has had any impact on the very low representation of regional and remote students among them. The numbers in remote areas fluctuate substantially from year to year, with some young people from these areas commencing dentistry in 1997–2000, but none in 2001 and 2002.

Pharmacy

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.5, 0.6, 0.4 and 0.3 times as likely to commence a bachelor's degree in pharmacy as those from Major Cities (Figure 3.9.1.5).

In 2002, the rate of commencement for young people from Major Cities was 1.23 times what it had been in 1997. Rates of commencement have also increased for young people from the other areas, such that the relative difference between Major Cities and Outer Regional/remote areas has decreased slightly (in 1997, young people from Outer Regional, Remote and Very Remote areas were, respectively, 0.4, 0.3 and 0.0 times as likely to commence a bachelor's degree in pharmacy).

Optometry

In 2002, young people from Inner and Outer Regional, Remote and Very Remote areas were 0.2, 0.3, 0.0 and 0.0 times as likely to commence a bachelor's degree in optometry as those from Major Cities (Figure 3.9.1.6). These ratios are based on relatively small numbers, but are indicative of the relatively lower rates of commencement for young people from regional and remote areas.

Overall rates of commencement by 17–20-year-olds have decreased from 1999, presumably as a consequence of the introduction of graduate enrolment.

Closing comments

Lower rates of commencement for health-related courses may be due to a number of factors (Heaney 1999):

- Educational disadvantage resulting from less experienced teachers, limited curricula as a result of smaller school size and lower levels of positive peer pressure, professional role models, and career information and advice.
- Financial concerns. Additional costs associated with attending university associated with the need to live away from home, but accentuated by lower average incomes in regional and remote areas than in Major Cities.
- Lower levels of motivation to compete for a place in health-related courses because of self-perceived disadvantage in relation to successful completion (marks) and money.

A study by Fraser et al. (2003) has shown that, when local health services form partnerships with high school careers advisers in order to promote health-related courses, the result, when supported by scholarships and rural entry schemes alone, can be a threefold increase in the number of local students commencing a medical degree.

Table 3.9.1.2: The rate at which school leavers commence selected health-related bachelor's degrees, 1997–2002

	MC	IR	OR	R	VR	Total
Students per 100,000 population ^(a)						
Medicine						
1997	376	133	110	96	—	283
1998	342	179	103	77	37	270
1999	352	167	89	96	36	271
2000	329	184	270	211	36	285
2001	324	167	383	154	215	291
2002	347	211	407	345	142	322
Nursing						
1997	1,536	1,722	1,224	905	662	1,536
1998	1,565	1,700	1,144	1,080	621	1,565
1999	1,641	1,726	1,424	1,173	657	1,641
2000	1,562	1,724	1,410	1,249	794	1,562
2001	1,478	1,865	1,460	1,137	323	1,478
2002	1,533	1,763	1,380	1,267	639	1,533
Selected allied health^(b)						
1997	941	655	557	366	184	811
1998	974	692	706	559	219	862
1999	1,063	777	784	461	109	943
2000	1,115	761	767	481	217	970
2001	1,116	758	728	559	144	966
2002	1,177	844	756	365	142	1,023
Dentistry						
1997	90	9	10	19	—	60
1998	124	23	27	58	—	87
1999	106	18	23	19	73	75
2000	119	27	10	19	36	83
2001	62	7	10	—	—	42
2002	89	5	10	—	—	58

(Continued)

Table 3.9.1.2 : (continued): The rate at which school leavers commence selected health-related bachelor's degrees, 1997–2002

Pharmacy						
1997	269	152	120	77	—	220
1998	256	145	113	135	—	236
1999	292	137	125	96	—	230
2000	290	187	162	58	36	245
2001	337	189	242	193	36	288
2002	332	161	208	134	107	274
Optometry						
1997	105	31	23	39	—	77
1998	111	34	30	—	—	80
1999	119	26	30	—	36	84
2000	106	45	16	19	—	78
2001	67	12	23	—	—	47
2002	48	8	16	—	—	34

(a) School leavers are defined here as students aged 17–20 years.

(b) Selected allied health here comprises physiotherapy, occupational therapy, podiatry, radiography, speech pathology and nutrition/dietetics.

Note: The denominator is the average number of children in a one-year cohort of 10–14 year olds in the area six years prior to the year in question. The use of one year age group as the denominator is based on the premise that an individual will have time to complete only one degree between the age of 17 and 20 years of age. The 10–14 year age group is used as the basis for the denominator, because school leavers tend to move to the cities to obtain either work or to commence study—use of the number of 15–19 year olds as the basis for the denominator is likely to understate the number in the cohort.

Source: DEST Higher Education Enrolments database, 1997–2002.

3.9.3 Hours worked, and age of health workers

Summary of findings

Hours worked

It was characteristic of all health workers, broadly, to work longer hours outside Major Cities, especially in remote areas.

On average, **GPs** worked 10% longer in regional areas, and 26% longer in Very Remote areas, than those in Major Cities – 14% of Major Cities GPs worked 60 hours or more per week; 22–25% of regional GPs and 27–40% of remote area GPs worked these hours.

Hospital non-specialists worked similar hours in Major Cities and Inner Regional areas, but 4% longer in Outer Regional and Remote areas, and 17% longer in Very Remote areas. There were higher proportions working 60 hours or more in Remote and Very Remote areas (30% and 43%, respectively), than in Major Cities (18%).

Specialists worked 4% longer in regional areas, and 7–9% longer in remote areas than in Major Cities – 55% of Major Cities specialists worked 50 hours or more each week; about 60% worked these hours in regional areas, rising to about 70% in remote areas.

Specialists-in-training in regional and Remote areas worked 10% longer than those in Major Cities; the very small number in Very Remote areas all worked 60 hours per week or longer.

Enrolled nurses worked slightly fewer hours per week in regional and Remote areas than those in Major Cities, but slightly more hours per week in Very Remote areas.

The hours worked by **registered nurses** was about the same in all areas, except in Very Remote areas where they worked longer.

Pharmacists worked similar hours in Major Cities and Inner Regional areas, 8% longer hours in Outer Regional areas, and 16% longer hours in remote areas. About 25% of pharmacists in Major Cities and Inner regional areas worked 50 hours or more per week, and 34%, 40% and 50% worked these hours in Outer Regional, Remote and Very Remote areas, respectively.

Podiatrists worked 14% longer hours in Very Remote areas than those in the other areas.

Physiotherapists worked slightly longer in Outer Regional and Remote areas than in Major Cities and Inner Regional areas, but 35% longer in Very Remote areas, where almost 50% worked 50 hours or more per week (compared with 14% in Major Cities).

Occupational therapists worked fewer hours in remote areas than those in Major Cities and regional areas.

Age

The average age of specialists and specialists-in-training did not vary significantly with remoteness, whereas that of GPs decreased with remoteness and that of hospital non-specialists increased with remoteness.

The average age of **GPs** was greatest in Major Cities (49 years), lower in regional areas (46–47 years), and lowest in remote areas (43–44 years).

Hospital non-specialists in Major Cities (34 years) were slightly younger on average than those in regional areas (33–36 years), and younger again than those in remote areas (36–39 years).

Specialists in Major Cities (50 years) were a similar age on average to those in regional (50 and 51 years) and remote areas (47–52 years).

Specialists-in-training in Major Cities (33 years) were a similar age on average to those in Inner and Outer Regional (33 years) and Remote areas (32 years).

The age of **enrolled** and **registered nurses** did not vary substantially with remoteness, ranging from 42 to 43 years.

Pharmacists in regional (48 years) and remote (48 years) areas were, on average, slightly older than those in Major Cities (45 years).

The average age of **podiatrists** decreased with increasing remoteness, from 38 years in Major Cities, to 35 years in Very Remote areas.

The average age of **physiotherapists** decreased with increasing remoteness, from 39 years in Major Cities, to 35 years in remote areas.

Compared with those in Major Cities and Inner Regional areas (36–37 years), the average ages of **occupational therapists** in Outer Regional and Remote areas were low (35 and 32 years), and the age of those in Very Remote areas was relatively high (39 years).

Background

This indicator describes the hours worked and age of general practitioners, hospital non-specialists, specialists, specialists-in-training, enrolled and registered nurses, selected allied health workers and pharmacists working in each area. These features may be relevant to retention in, and therefore sustainability of, these professions outside Major Cities.

The use of full-time workload equivalent (FWE) was also considered. FWE (based on receipts from Medicare for each GP) could be used as an estimate of workload, with those earning more from Medicare than a standard amount (e.g. \$185,000) considered to be 'overworked'.

The indicator used in this indicator is based on hours worked (not income earned) and consequently was thought to be a better measure. A potential complication of using the FWE definition is that rural and remote GPs may need to travel more (therefore reducing the opportunity to earn), and it is possible that, for some GPs, Medicare may be only one source of income.

Data are taken from the AIHW health labour force surveys (AIHW 2000b, AIHW 2001d, AIHW 2002b, AIHW 2003f, AIHW 2003g, AIHW 2003h) described previously (Section 3.5.2 – numbers of health workers, page 252). Where respondents have not reported the number of hours worked or their age, they have been excluded from the analysis. The age and sex of general practitioners in each Remoteness Area is also described under Section 3.2.1 – female GPs, page 242.

The total number of hours worked on call by medical practitioners is not available, but rather is included among the total hours worked and reported here. It is not possible from the data to determine the number of nights or weekends that were spent off-duty for medical practitioners in each area.

The hours reported here are those worked by each practitioner classified according to the main work location. That is, hours do not reflect where they were worked; rather they reflect the hours worked by professionals in the area in which they are based.

Regional comparisons of hours worked and age of dentists has not previously been published by the Dental Research Statistics Unit (Teusner & Spencer 2003).

Detailed results

Hours worked

Table 3.9.3.1: Hours worked by employed medical clinicians, by ASGC Remoteness Area, 2001

Remoteness	Mean	Median	Percentiles		Distribution of working hours (%)						Total
			25th	75th	0–19	20–29	30–39	40–49	50–59	60+	
GPs											
Major Cities	40.7	40	30	50	11	12	18	25	20	14	100
Inner Regional	44.1	45	34	55	8	10	14	24	22	22	100
Outer Regional	45.8	48	36	60	7	9	12	23	23	25	100
Remote	46.9	45	37	60	4	7	16	26	19	27	100
Very Remote	51.5	55	40	60	5	2	7	26	20	40	100
Unknown	41.9	44	30	55	11	12	18	25	20	14	100
Hospital non-specialists											
Major Cities	46.8	48	40	55	4	5	8	34	31	18	100
Inner Regional	47.4	50	40	55	4	8	5	31	29	23	100
Outer Regional	48.8	50	40	55	1	1	4	41	37	17	100
Remote	48.6	50	44	60	3	3	6	27	31	30	100
Very Remote	55.0	55	50	60	—	—	7	15	35	43	100
Unknown	47.8	47	40	56	4	5	8	34	31	18	100
Specialists											
Major Cities	48.0	50	40	60	5	6	10	24	26	29	100
Inner Regional	49.9	50	41	60	5	5	7	22	29	32	100
Outer Regional	49.8	50	42	60	5	4	6	23	31	31	100
Remote	52.3	55	48	63	5	9	2	12	35	37	100
Very Remote	51.6	60	40	60	10	—	12	10	10	57	100
Unknown	45.8	50	40	58	5	6	10	24	26	29	100
Specialists-in-training											
Major Cities	50.5	50	43	56	—	3	4	35	33	24	100
Inner Regional	54.9	55	45	65	1	1	7	25	20	47	100
Outer Regional	51.1	50	45	60	—	—	3	33	36	28	100
Remote	55.6	50	50	60	—	—	—	21	45	34	100
Very Remote	80.0	80	80	80	—	—	—	—	—	100	100
Unknown	51.1	50	43	60	—	3	4	35	33	24	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Medical Labour Force Survey, 2001.

On average, **general practitioners** (GPs) worked 10% longer hours in regional areas, 15% longer hours in Remote and 26% longer hours in Very Remote areas than those in major Cities.

Regional and remote area GPs were, compared with Major Cities GPs:

- less likely to work fewer than 40 hours per week
- as likely to work 40–49 hours per week
- more likely to work 50–59 hours per week
- substantially more likely to work 60 hours or more per week.

For example, whereas 14% of Major Cities GPs worked 60 hours or more each week, 22–25% of regional area GPs and 27–40% of Remote and Very Remote area GPs worked these hours.

On average, **hospital non-specialists** in Inner Regional areas worked similar hours to those in Major Cities, but those in Outer Regional and Remote areas worked 4% longer and those in Very Remote areas worked 17% longer hours.

Hospital non-specialists in Inner Regional areas worked roughly similar hours to those in Major Cities (although they were slightly more likely than those in Major Cities to work 60 hours or more per week).

In Outer Regional areas, a higher proportion (78%) of hospital non-specialists worked 40–59 hours per week than in Major Cities (65%), and similar proportions (about 18% in both areas) worked 60 hours or more per week.

In remote areas, fewer hospital non-specialists worked less than 40 hours per week than those in Major Cities. In Remote and Very Remote areas 30% and 43%, respectively, worked 60 hours or more per week. This compares with 18% working these hours in Major Cities.

On average, **specialists** in regional areas worked 4% longer, and those in Remote and Very Remote areas worked 7% and 9% longer hours, respectively, than those in Major Cities.

Specialists in regional and remote areas were less likely to work fewer than 50 hours per week, and more likely to work 50 hours or more per week. For example, 55% of specialists in Major Cities worked 50 hours or more per week, but 61%, 62%, 71% and 68% worked these hours in Inner Regional, Outer Regional, Remote and Very Remote areas, respectively.

Details of the average hours worked by selected specialties are presented under Section 3.5.2 – numbers of health workers, page 260.

On average, **specialists-in-training** in regional and Remote areas worked up to 10% longer, and the very few in Very Remote areas worked 60% longer hours than those in Major Cities.

Specialists-in-training in regional and remote areas were less likely to work fewer than 50 hours per week, and more likely to work 50 hours or more per week than those in Major Cities.

While 57% worked 50 hours or more per week in Major Cities, 65% worked these hours in regional areas, and 80% worked these hours in Remote areas. All of the small number who worked in Very Remote areas worked 60 hours or more per week.

Table 3.9.3.2: Hours worked by employed nurses, by ASGC Remoteness Area, 2001

Remoteness	Mean	Median	Percentiles		Distribution of working hours (%)					Total
			25th	75th	0–19	20–29	30–39	40–49	50+	
ENs										
Major Cities	29.8	32	22	38	17	24	38	19	2	100
Inner Regional	28.8	30	21	38	16	30	36	17	1	100
Outer Regional	29.0	32	20	38	17	27	37	17	1	100
Remote	27.7	30	20	38	23	26	34	16	1	100
Very Remote	31.6	38	24	40	10	26	36	26	2	100
Unknown	29.0	31	20	38	21	23	35	19	2	100
RNs										
Major Cities	30.9	34	24	38	16	20	40	23	1	100
Inner Regional	30.5	32	24	38	14	25	39	21	1	100
Outer Regional	30.6	32	24	38	15	23	39	22	1	100
Remote	31.0	38	24	38	17	18	40	23	1	100
Very Remote	33.8	38	30	40	12	12	43	32	2	100
Unknown	30.9	32	24	40	17	19	38	25	2	100
All nurses										
Major Cities	30.7	32	24	38	16	21	39	22	1	100
Inner Regional	30.1	32	24	38	14	26	39	20	1	100
Outer Regional	30.1	32	24	38	16	24	39	20	1	100
Remote	30.1	33	20	38	19	20	39	21	1	100
Very Remote	33.4	38	28	40	11	15	42	31	2	100
Unknown	30.5	32	24	40	18	20	37	23	2	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Nursing Labour Force Survey, 2001.

Enrolled nurses, on average, worked slightly fewer hours per week in regional (29 hours) and Remote (28 hours) areas than those in Major Cities (30 hours), but worked longer (32 hours) in Very Remote areas.

Registered nurses, on average, worked about 31 hours per week in Major Cities, regional and Remote areas, but 34 hours per week in Very Remote areas.

There were no very strong inter-regional differences in the percentage of enrolled and registered nurses who worked short or long weeks, apart from those in Very Remote areas. Of those nurses who worked in Very Remote areas, 11% worked 0–19 hours per week, compared with 16% in Major Cities; and 33% worked 40 hours or more, compared with 23% in Major Cities.

Table 3.9.3.3: Hours worked by employed other health workers, by ASGC Remoteness Area, 1998 and 1999

Remoteness	Mean	Median	Percentiles		Distribution of working hours (%)					Total
			25th	75th	0–19	20–29	30–39	40–49	50+	
Pharmacists										
Major Cities	37.8	40	27	48	15	11	17	33	24	100
Inner Regional	37.5	40	26	50	16	12	17	30	26	100
Outer Regional	41.0	45	35	50	12	7	14	32	34	100
Remote	44.4	47	40	54	9	4	10	38	40	100
Very Remote	43.8	47	38	55	12	—	16	22	50	100
Unknown	31.2	36	16	44	28	14	15	31	12	100
Podiatrists										
Major Cities	35.2	38	25	45	15	13	26	30	16	100
Inner Regional	36.0	40	30	45	15	9	26	36	15	100
Outer Regional	34.0	38	25	44	23	10	17	33	16	100
Remote	40.3	40	30	42	—	11	37	29	23	100
Very Remote	38.5	38	37	40	—	—	50	50	—	100
Unknown	29.7	30	16	40	27	21	16	24	11	100
Physiotherapists										
Major Cities	34.2	38	20	40	21	13	24	27	14	100
Inner Regional	33.5	38	20	40	21	15	23	29	11	100
Outer Regional	35.8	38	23	41	19	13	27	26	16	100
Remote	34.7	36	22	40	13	23	32	19	13	100
Very Remote	46.4	40	20	50	22	16	8	8	47	100
Unknown	35.7	36	20	40	25	12	24	26	13	100
Occupational therapists										
Major Cities	32.7	38	24	40	18	13	36	30	3	100
Inner Regional	31.6	36	22	40	18	15	38	26	3	100
Outer Regional	32.1	38	23	40	19	13	36	28	4	100
Remote	28.0	38	16	38	27	9	51	13	—	100
Very Remote	29.2	36	18	38	32	9	45	13	—	100
Unknown	26.2	26	16	38	27	25	26	17	5	100

Note: Excludes those who provided insufficient information to allocate Remoteness, and those who did not specify the number of hours they worked.

Source: AIHW Pharmacy (1999), Podiatry (1999), Physiotherapy (1998) and Occupational Therapy (1998) Labour Force Surveys.

Pharmacists worked about 38 hours per week on average, both in Major Cities and Inner Regional areas, but longer in Outer Regional (41 hours) and remote (44 hours) areas.

In Major Cities and Inner Regional areas, there were similar percentages of pharmacists working short or long weeks. However, in Outer Regional and remote areas, pharmacists were less likely to work fewer than 40 hours, and more likely to work 40 hours or more; and substantially more likely to work 50 hours or more. For example, whereas 24% and 26% of pharmacists in Major Cities and Inner Regional areas worked 50 hours or more per week,

34%, 40% and 50% of those in Outer Regional, Remote and Very Remote areas, respectively, worked these hours.

Podiatrists worked roughly similar hours in Major Cities (35), Inner Regional (36) and Outer Regional (34) areas, but longer hours in Remote and Very Remote areas (40 and 39 hours per week, respectively).

There were no very strong inter-regional differences in the percentage of podiatrists who worked short or long weeks.

Physiotherapists worked about 34 hours per week in Major Cities and Inner Regional areas, slightly longer in Outer Regional and Remote areas (36 and 35 hours, respectively), but much longer (46 hours) in Very Remote areas.

The percentage of physiotherapists in Major Cities, regional and (to a lesser extent) Remote areas who worked short and long weeks was similar. Of those in Very Remote areas, 47% (7 out of 15 who supplied information about hours worked) worked 50 hours or more. This compares with 14% in Major Cities.

Occupational therapists worked, on average, similar hours in Major Cities (33 hours) and regional areas (32 hours), with those in remote areas working fewer (28–29) hours per week.

The percentage of occupational therapists in Major Cities and regional areas who worked short and long weeks is similar. Those in remote areas were more likely to work 0–19 hours and 30–39 hours, and less likely to work longer hours.

Working hours for **dentists** outside Major Cities have not been published (Teusner & Spencer 2003).

Age

Table 3.9.3.4: Age of employed medical clinicians, by ASGC Remoteness Area, 2001

Remoteness	Mean	Median	Percentiles		Age distribution (%)					Total
			25th	75th	< 25	25–34	35–44	45–54	55+	
GPs										
Major Cities	48.7	48	40	56	—	10	30	31	29	100
Inner Regional	47.0	46	39	53	—	11	35	33	21	100
Outer Regional	46.4	45	38	52	—	15	33	31	21	100
Remote	43.8	42	36	50	—	21	32	29	17	100
Very Remote	42.8	41	35	49	—	24	46	14	15	100
Unknown	50.7	49	39	61	—	15	26	23	36	100
Hospital non-specialists										
Major Cities	33.7	29	27	39	2	63	21	9	5	100
Inner Regional	35.8	31	27	42	1	59	18	12	10	100
Outer Regional	33.3	30	26	37	1	66	19	10	4	100
Remote	36.1	34	26	43	8	48	24	15	5	100
Very Remote	38.7	37	32	45	—	41	31	14	14	100
Unknown	32.2	29	27	34	5	73	11	8	3	100
Specialists										
Major Cities	49.6	48	41	57	—	4	34	30	32	100
Inner Regional	49.8	49	42	56	—	3	32	35	30	100
Outer Regional	50.6	50	42	58	—	2	29	33	36	100
Remote	46.6	43	39	51	—	—	57	22	20	100
Very Remote	51.9	50	49	54	—	14	—	64	22	100
Unknown	52.2	51	41	61	—	5	30	24	41	100
Specialists-in-training										
Major Cities	33.0	32	30	34	—	76	19	5	—	100
Inner Regional	33.0	32	29	35	—	73	22	4	—	100
Outer Regional	33.0	32	30	35	—	74	21	5	—	100
Remote	31.5	31	28	32	—	93	—	7	—	100
Very Remote					—	—	—	—	—	100
Unknown	33.8	32	30	36	1	70	21	9	—	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify their age.

Source: AIHW Medical Labour Force Survey, 2001.

GPs in Major Cities (49 years) were older on average than those in regional areas (46–47 years), and even older than those in remote areas (43–44 years).

GPs working in regional and especially remote areas were more likely to be younger, and less likely to be older, than those in Major Cities. For example, 40% of Major Cities GPs were younger than 45 years, but the corresponding percentages in Inner Regional, Outer Regional, Remote and Very Remote areas were 46%, 48%, 54% and 71%, respectively. Whereas 29% of Major Cities GPs were 55 years and over, the corresponding percentages in Inner Regional, Outer Regional, Remote and Very Remote areas are 21%, 21%, 17% and 15%, respectively.

Hospital non-specialists in Major Cities (34 years) were younger than those in remote areas (36–39 years), and were slightly younger on average than those in regional areas (33–36 years).

The age structure of hospital non-specialists working in Major Cities and regional areas was similar (although those in Inner Regional areas were slightly more likely to be 45 years and over). Those in remote areas were less likely to be aged 25–34 years (48% and 41%) than those in Major Cities (63%), and more likely to be 35 years and over (44% and 59%), than those in Major Cities (35%).

Specialists in Major Cities (50 years) were a similar age on average to those in Inner and Outer Regional (50 and 51 years) and Remote and Very Remote areas (47 and 52 years).

Specialists-in-training in Major Cities (33 years) were a similar age on average to those in Inner and Outer Regional (33 years in both areas) and Remote areas (32 years).

Table 3.9.3.5: Age of employed nurses, by ASGC Remoteness Area, 2001

Remoteness	Mean	Median	Percentiles		Age distribution (%)					Total
			25th	75th	< 25	25–34	35–44	45–54	55+	
ENs										
Major Cities	42.3	43	36	49	4	17	38	31	10	100
Inner Regional	42.4	42	37	48	2	16	42	32	8	100
Outer Regional	42.9	43	38	48	2	15	42	32	9	100
Remote	42.7	43	37	48	1	16	43	31	9	100
Very Remote	41.6	42	35	47	3	20	38	30	8	100
Unknown	42.9	43	37	49	3	17	36	33	11	100
RNs										
Major Cities	41.8	42	33	49	4	23	31	29	12	100
Inner Regional	43.4	44	37	50	3	17	35	33	13	100
Outer Regional	43.1	43	36	50	3	19	34	31	14	100
Remote	42.8	43	35	50	2	22	32	30	14	100
Very Remote	41.8	42	34	49	3	24	35	27	12	100
Unknown	40.6	41	32	48	7	26	30	25	12	100
All nurses										
Major Cities	41.9	42	34	49	4	22	32	30	12	100
Inner Regional	43.2	43	37	50	3	16	36	33	12	100
Outer Regional	43.0	43	37	50	2	18	36	31	13	100
Remote	42.8	43	36	50	2	20	35	30	12	100
Very Remote	41.8	42	34	49	3	23	35	27	11	100
Unknown	41.1	41	32	49	6	24	32	26	12	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Medical Labour Force Survey, 2001.

The age distributions and average ages of **enrolled** and **registered nurses** showed little variation across all areas.

Table 3.9.3.6: Age of employed other health workers, by ASGC Remoteness Area, 1998 and 1999

Remoteness	Mean	Median	Percentiles		Age distribution (%)					Total
			25th	75th	< 25	25–34	35–44	45–54	55+	
Pharmacists										
Major Cities	45.3	45	34	56	3	23	23	23	29	100
Inner Regional	47.8	48	38	59	2	17	23	23	34	100
Outer Regional	47.6	47	38	58	2	17	25	21	35	100
Remote	48.0	47	37	61	3	19	20	20	38	100
Very Remote	47.6	48	36	59	—	14	30	19	38	100
Unknown	48.5	49	36	61	4	18	20	17	41	100
Podiatrists										
Major Cities	37.8	35	28	43	8	41	28	13	11	100
Inner Regional	36.2	33	27	41	12	41	28	8	11	100
Outer Regional	36.9	34	28	40	13	40	28	7	12	100
Remote	33.9	27	25	41	17	51	12	—	20	100
Very Remote	34.5	35	29	40	—	50	50	—	—	100
Unknown	40.3	37	30	49	1	40	29	17	13	100
Physiotherapists										
Major Cities	38.5	38	30	45	7	33	33	18	9	100
Inner Regional	39.2	39	32	45	7	25	41	19	8	100
Outer Regional	37.6	37	30	43	7	32	41	14	7	100
Remote	35.2	35	28	40	7	39	41	11	2	100
Very Remote	35.4	38	28	41	—	46	49	5	—	100
Unknown	38.8	38	28	46	8	35	30	16	12	100
Occupational therapists										
Major Cities	35.7	34	27	43	11	42	26	16	4	100
Inner Regional	37.4	37	29	44	12	28	37	18	5	100
Outer Regional	35.4	34	26	43	18	33	28	17	5	100
Remote	32.1	30	26	39	11	56	30	3	—	100
Very Remote	39.0	41	28	45	18	22	28	22	9	100
Unknown	38.4	39	29	45	5	27	40	25	3	100

Note: Excludes those who provided insufficient information to allocate Remoteness Area, and those who did not specify the number of hours they worked.

Source: AIHW Medical Labour Force Survey, 2001.

The average age of **pharmacists** was higher in regional and remote areas (48 years) than in Major Cities (45 years).

A lower proportion of pharmacists in regional and remote areas were young (< 34 years), and a higher proportion were aged 55 years and over than those in Major Cities. One-quarter of Major Cities pharmacists were younger than 35 years, but only one-fifth of regional and Remote area pharmacists, and one-seventh of Very Remote area pharmacists were in this age

group. Whereas 30% of Major Cities pharmacists were 55 years and over, 35% of regional area pharmacists and 40% remote area pharmacists were in this age group.

The average age of **podiatrists** in regional (36–37 years) and remote (34–35 years) areas was less than that in Major Cities (38 years). The age distribution of podiatrists in each of the areas was roughly similar, but with a tendency for those in remote areas to be slightly younger.

The average age of **physiotherapists** was similar (39 years) in Major Cities and Inner Regional areas, slightly lower (38 years) in Outer Regional areas, and lower again (35 years) in remote areas.

In Regional areas, a higher proportion of physiotherapists were aged 35–44 years than in Major Cities.

In remote areas, a higher proportion of physiotherapists were aged 25–45, and a lower proportion were aged 45 years and over.

There was no clear tendency for the average age of **occupational therapists** to increase or decrease with remoteness. Those in Major Cities and Inner Regional areas were, on average, 36–37 years old, those in Outer Regional and Remote areas were 35 and 32 years respectively, and those in Very Remote areas (39 years) were older, on average, than those in any of the other areas.

The age distribution for occupational therapists was not uniform across the areas.

A description of ages for **dentists** outside Major Cities has not been published (Teusner & Spencer 2003).