

**Table 5.16: Allocated health expenditure per person by age, sex and burden of disease chapter, Australia, 2000–01**

Selected burden of disease chapter and sex	Age (years)									Total
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	
<i>Cardiovascular</i>										
Male	128	33	43	48	94	228	552	1,090	1,969	285
Female	316	12	20	50	88	193	363	718	1,735	274
<i>Neoplasms</i>										
Male	39	13	18	54	42	126	269	602	951	147
Female	22	17	27	46	89	183	245	381	492	135
<i>Musculoskeletal</i>										
Male	61	50	102	155	185	230	345	500	855	213
Female	71	35	94	132	181	269	395	598	1,373	277
<i>Nervous system</i>										
Male	178	70	48	68	76	115	167	439	1,747	189
Female	127	57	66	72	80	121	166	493	2,862	309
<i>Injuries</i>										
Male	181	160	339	235	173	165	211	298	694	238
Female	111	132	137	119	126	143	165	300	812	191
<i>Maternal conditions</i>										
Female	9	1	236	541	152	2	0	0	15	137
<b>Total</b>										
<b>Male</b>	<b>2,426</b>	<b>1,146</b>	<b>1,357</b>	<b>1,300</b>	<b>1,363</b>	<b>1,798</b>	<b>2,958</b>	<b>5,191</b>	<b>10,719</b>	<b>2,277</b>
<b>Female</b>	<b>2,248</b>	<b>1,294</b>	<b>1,721</b>	<b>2,083</b>	<b>1,835</b>	<b>2,160</b>	<b>2,998</b>	<b>4,842</b>	<b>11,346</b>	<b>2,821</b>
<b>Female (excl. maternal)</b>	<b>2,238</b>	<b>1,293</b>	<b>1,485</b>	<b>1,542</b>	<b>1,683</b>	<b>2,158</b>	<b>2,998</b>	<b>4,842</b>	<b>11,332</b>	<b>2,684</b>

Health expenditure per person is \$2,426 on average per year for males aged 0 to 4 years. It then decreases to \$1,146 for boys aged 5 to 14 years and from there increases with age to \$10,719 for men aged 75 years and over. For females, the pattern is the same for children, but in adulthood expenditure peaks in the 25–34 years age group, reflecting child-bearing expenditure; it then declines for the age range 35 to 44 years and from there increases steadily with age to \$11,346 per year for women aged 75 years or over (Figure 5.8).

## 5.4 Health workforce

In a climate of rapid change over recent years, the present and future capability of the health workforce has come under question. Some of the factors contributing to this concern include: an ageing population; the emergence of new diseases, treatments and technologies; changing employment patterns; an increasing focus on rural and Indigenous health; trends in litigation; and the limited growth expected in the workforce, reflecting the low fertility rates of recent years.

According to the ABS Census, in 2001 there were 450,792 people in Australia who were employed in health occupations, but not all of these were working in health industries. For example, many safety inspectors work in government administration or the mining and

construction industries, and most pharmacists work in the retail industry. Moreover, there are many non-health occupations in health industries, such as managers, tradespeople, labourers, clerical and service workers, who provide infrastructure and support, as well as welfare professionals for whom there is some overlap with health workers. There is, however, considerable overlap in health occupations and industries (Figure 5.9). In this section, the health workforce refers mainly to paid workers in health occupations (outlined by the shaded boxes), although paid workers in health industries are also discussed briefly.

	Health services industry	Other industries	Total
<b>Health occupations</b>	356,088 employed persons e.g. doctors, nurses, dentists, allied health workers, ambulance officers, etc.	94,704 persons employed in health occupations in other industries e.g. retail pharmacists, safety inspectors, environmental health officers, etc.	450,792
<b>Other occupations</b>	201,693 persons employed in other occupations in health industries e.g. clerical workers, service workers, welfare professionals, etc.		
<b>Total</b>	557,781		

*Note:* Within the following discussion, the total number of people employed in health occupations differs between tables due to random adjustment of Census figures to protect the confidentiality of individuals, as well as the exclusion or inclusion of non-respondents.

*Source:* AIHW & ABS 2003.

**Figure 5.9: The relationship of health occupations to the health services industries and other industries, 2001**

## Health workers

Of the 450,711 people employed in a health occupation in 2001, more than half (244,473 or 54%) were in nursing occupations (Table 5.17). Apart from other health workers (the broad occupation group comprising all the smaller occupations), medical workers and allied health workers formed the next largest occupation groups, at 11% and 9% of the total health workforce, respectively. Between 1996 and 2001 there was an overall growth of 12% in the number of health workers (AIHW and ABS 2003). There was growth in each of the broad occupation groups, the largest occurring for complementary therapy workers (30%) and the smallest for nursing workers (5%).

For every 100,000 people living in Australia in 2001, there were 2,322 health workers, an increase from 2,206 in 1996 (Table 5.17). The largest increases in rates occurred in Other health workers (up from 252 to 302 per 100,000 population in 1996 and 2001, respectively) and Allied health workers (up from 170 to 203). Nursing workers were the only broad occupation group in which the number of workers per 100,000 population decreased (down from 1,267 in 1996 to 1,259 in 2001).

**Table 5.17: Persons employed in health occupation groups, numbers and rates, 1996 and 2001**

Occupation	1996		2001		% growth 1996–2001
	Number	Per 100,000 population	Number	Per 100,000 population	
Medical workers	45,923	251	51,809	267	12.8
Medical imaging workers	6,524	36	8,111	42	24.3
Dental workers	23,306	127	25,853	133	10.9
Nursing workers	231,926	1,267	244,473	1,259	5.4
Pharmacy workers	12,305	67	13,902	72	13.0
Allied health workers	31,185	170	39,457	203	26.5
Complementary therapy workers	6,584	36	8,533	44	29.6
Other health workers	46,210	252	58,573	302	26.8
<b>Total</b>	<b>403,963</b>	<b>2,206</b>	<b>450,711</b>	<b>2,322</b>	<b>11.6</b>

Sources: AIHW 2001b; AIHW & ABS 2001.

## Age and sex of people in health occupations

The health workforce, like the workforce in general, is ageing (see Box 5.7). The most rapidly ageing occupations (that is, those with the largest increases in the proportion of workers aged 45 years and over) were nursing (up from 32% to 42% between 1996 and 2001), medical imaging workers (up from 22% to 28%), dental workers (up from 21% to 26%) and medical workers (up from 41% to 46%).

### Box 5.7: The ageing of the population and labour force

*Between 1996 and 2001, Australia's population increased from 18.3 million to 19.4 million (up 6.0%) and the median age rose from 34 years to 35 years. The proportion of the population aged 65 years and over increased from 12.1% in 1996 to 12.6% in 2001. These trends are projected to continue, increasing the demand for health services.*

*In August 2001, there were an estimated 9,124,200 persons employed in Australia, of whom almost a third were approaching retirement age. The proportion of workers aged 45 years or more rose from 29.8% in 1996 to 32.8% in 2001. The health labour force is also ageing. Of the 450,711 people employed in health occupations, 38.6% were aged 45 years or more, a strong proportional increase over the 31.3% recorded in 1996. This proportion increased at a faster rate for females (from 29.0% to 37.1%) than for males (from 37.6% to 43.2%), reflecting the rapid ageing of the largest component – the female nursing labour force. The number of female nurses aged 45 years or over rose from 31.6% to 41.6% between 1996 and 2001.*

*A likely decline in the number of health workers as older workers retire, coupled with an increase in the number of older people in the population, places pressure on the capacity of the health labour force to provide care to all who need it.*

Source: AIHW 2001b; AIHW & ABS 2003; ABS 2001a; ABS 1996 and 2001b.

In 2001, the broad occupational groups with the highest proportions of workers aged 45 years and over were medical workers (46%), complementary therapy workers (43%), pharmacy workers (42%) and nursing workers (41%) (Table 5.18). The broad occupation groups with the highest proportion of workers aged less than 35 years of age were dental workers (47%), medical imaging workers (44%) and allied health workers (42%). In almost all occupations the proportion of males aged 45 and over was higher than that for females. Conversely, in all occupations except nursing, the proportion of females aged over 35 exceeded that for males.

**Table 5.18: Persons employed in health occupations: age and sex, 2001**

Occupation	Sex	Age distribution (years)			Total	Number
		<35	35-44	45+		
		Per cent				
Medical workers	M	20.1	27.6	52.4	100.0	33,636
	F	33.3	34.0	32.8	100.0	18,173
	<i>P</i>	24.7	29.8	45.5	100.0	51,809
Medical imaging workers	M	43.1	30.2	26.7	100.0	2,501
	F	43.8	28.1	28.0	100.0	5,610
	<i>P</i>	43.6	28.8	27.6	100.0	8,111
Dental workers	M	23.7	29.2	47.1	100.0	8,641
	F	59.1	26.2	14.7	100.0	17,212
	<i>P</i>	47.3	27.2	25.5	100.0	25,853
Nursing workers	M	33.9	30.9	35.2	100.0	26,778
	F	26.4	32.0	41.6	100.0	217,695
	<i>P</i>	27.2	31.9	40.9	100.0	244,473
Pharmacy workers	M	27.3	20.0	52.7	100.0	6,685
	F	44.1	24.3	31.5	100.0	7,217
	<i>P</i>	36.1	22.3	41.7	100.0	13,902
Allied health workers	M	38.8	29.1	32.1	100.0	8,799
	F	42.5	26.7	30.9	100.0	30,658
	<i>P</i>	41.6	27.2	31.2	100.0	39,457
Complementary therapy workers	M	24.4	28.2	47.4	100.0	3,604
	F	31.5	28.9	39.6	100.0	4,929
	<i>P</i>	28.5	28.6	42.9	100.0	8,533
Other health workers	M	28.3	31.2	40.5	100.0	25,365
	F	40.5	30.2	29.3	100.0	33,208
	<i>P</i>	35.2	30.6	34.2	100.0	58,573
<b>Total</b>	<b>M</b>	<b>27.8</b>	<b>29.0</b>	<b>43.2</b>	<b>100.0</b>	<b>116,009</b>
	<b>F</b>	<b>32.1</b>	<b>30.9</b>	<b>37.1</b>	<b>100.0</b>	<b>334,702</b>
	<b><i>P</i></b>	<b>31.0</b>	<b>30.4</b>	<b>38.6</b>	<b>100.0</b>	<b>450,711</b>

M = males, F = females, P = persons.

Note: Components may not add to totals due to rounding.

Source: ABS Census of Population and Housing, 2001.

There were higher proportions of males than females in the oldest age bracket (45 years and over) and lower proportions of males than females aged less than 35 years in every broad occupational group except Nursing and Medical imaging workers (both with a majority of female workers). This is a reflection of increases over the last decade in the number of females graduating from tertiary institutions, particularly in less 'traditionally female' fields of study, and then entering the workforce. For example, 50% of these completing medical undergraduate degrees in 2001 were female compared with 41% in 1991. For dentistry, the corresponding rise was from 33% to 59%.

### Box 5.8: Indigenous people in the health labour force

*In the 2001 Census of Population and Housing, 3,742 people reported being Indigenous and employed in a health occupation (Table S.59). Of these, 1,916 (51%) were employed in nursing, with the largest category of these (789, or 41%) being registered nurses. The next most numerous occupation, Indigenous health workers (853, or 23%), was the only occupation in which the Indigenous people made up the majority of workers (93%). There were also 155 dental workers and 151 medical workers who reported that they were Indigenous in the 2001 Census.*

*Between 1996 and 2001, there was a large increase (up 28% or 186) in the number of Indigenous people working as Indigenous health workers (i.e. those working in the area of Indigenous health) and a relatively small overall increase (5% or 89) in nursing workers. In line with the changing structure of the nursing workforce in general, there were increases in Indigenous registered nurses (up 180) and personal care assistants (up 172), and a decrease in enrolled nurses (down 362).*

*The most popular health field of study for Indigenous students completing degrees in 2001 was nursing, with 73 students (Table 5.19). This was a rise of 18% from 1996. This rise occurred solely in the postgraduate level (from 8 postgraduate Indigenous students in 1996 to 25 in 2001, compared to a fall from 54 to 48 undergraduate Indigenous students).*

*With 58 completions, Indigenous health was also a popular field of study for Indigenous students in 2001.*

**Table 5.19: Indigenous students completing selected higher education courses in health, 1996 and 2001**

Field	1996	2001
Nursing	62	73
Medical studies	6	8
Physiotherapy	1	5
Rehabilitation services—other	6	6
Radiography	—	3
Pharmacy	—	1
Indigenous health <sup>(a)</sup>	n.a.	58

— Nil.

n.a. Not available.

(a) Indigenous health was not available as a unique category in the 1996 'field' classification.

Note: The classifications for 'field' differed between 1996 and 2001. Those fields with a best match are presented here.

Source: AIHW analysis of Department of Education, Science and Training data.

### Hours worked

Of the broad health occupation groups, medical workers stand out as the profession with the longest working week, with nearly half (47%) working 'long hours' (49 or more hours per week), far higher than any other broad occupational group (Table S.58). Among the

medical workers, specialist medical practitioners recorded the highest proportion working long hours (55%), slightly ahead of medical practitioners-in-training (53%).

Conversely, more than half (51%) of nursing workers worked part-time (under 35 hours per week), and most of the rest (another 37%) worked 40 hours or less. Over three-quarters of medical imaging workers (79%) and dental workers (77%) worked between 35 and 40 hours per week. This is a reflection of the high proportion of females in these three occupations (89%, 69% and 67%, for nurses, medical imaging workers and dental workers, respectively). Females are more likely to work part-time than males.

Within each of the broad occupational groups, there was considerable variation between the individual occupations. For example, medical administrators generally worked shorter hours than others in the medical workers group, but much longer hours than people in other health occupations. Similarly, directors of nursing/nursing managers worked much longer hours than other nursing workers, with 22% working 49 or more hours per week compared with 6% for all nursing workers (Table S.58). Also, a higher percentage of retail pharmacists worked 49 or more hours per week (27%) than other pharmacists (11%).

Between 1996 and 2001, the proportions of people in health occupations working part-time (less than 35 hours per week) and working long hours (49 hours or more per week) both increased. The net result was an overall decrease in the average hours worked from 30.9 to 30.8 per week (AIHW and ABS 2003). This decrease was more marked for doctors and nurses: AIHW labour force surveys show that total average weekly hours for medical practitioners decreased from 48.1 in 1996 to 45.4 in 2001, and that for nurses decreased from 32.3 in 1995 to 30.5 in 2001. When changes in the numbers of doctors and nurses, and population growth are also taken into account, the overall supply of doctors remained steady at 357 full-time equivalent (FTE) practitioners per 100,000 population in 1996 and 2001, while the supply of nurses dropped from 1,127 FTE per 100,000 in 1995 to 1,024 in both 1999 and 2001 (AIHW 2003b and AIHW 2003c).

## Geographic distribution of health occupations and industries

### Health occupations

The provision of health services outside the main population centres has been subject to increasing attention over recent years. Access to a wide range of health workers, particularly medical specialists, may be limited in more sparsely settled and remote areas.

The concentration of medical practitioners was much higher in Major cities (296 per 100,000 population) than in all other areas, with remote areas (108 per 100,000) having approximately one-third the rate of Major cities, and Very remote areas (73) having less than one-quarter (Table 5.20). However, it must be remembered that the work of many medical practitioners relies on the infrastructure and services of hospitals. These rates also do not capture those practitioners who make regular visits to regions outside of their place of residence. The AIHW medical labour force surveys show that primary care practitioners are more evenly spread, with 118, 92, 85, 76 and 81 per 100,000 in 2001, respectively, in Major cities, Inner regional, Outer regional, Remote and Very remote areas of Australia (AIHW 2003b).

The geographic spread of nursing professionals was more even than that of medical practitioners, although there was still considerable variation (ranging from 911 per 100,000 population in Inner regional areas down to 514 in Very remote areas). This was not the case with enrolled nurses, for whom the highest rate occurred in Outer regional areas (152 per 100,000 population), followed by Inner regional (141).

**Table 5.20: Persons employed in selected health occupations per 100,000 population: remoteness areas (ASGC<sup>(a)</sup>), 2001**

Occupation	Major cities	Inner regional	Outer regional	Remote	Very remote	Total <sup>(b)</sup>
<b>Number</b>						
Medical practitioners	38,137	6,691	2,632	349	131	48,211
Nursing professionals	115,241	36,668	15,416	2,057	918	171,607
Enrolled nurses	10,050	5,671	3,067	440	127	19,496
Other health workers <sup>(c)</sup>	52,644	12,565	4,818	561	147	71,238
<b>Number per 100,000 population</b>						
Medical practitioners	296	166	131	108	73	248
Nursing professionals	895	911	766	634	514	884
Enrolled nurses	78	141	152	136	71	100
Other health workers <sup>(c)</sup>	409	312	239	173	82	367

(a) Australian Standard Geographic Classification Remoteness Areas.

(b) Includes 2,222 people whose remoteness area was coded as 'Migratory/Not stated'.

(c) Includes dental practitioners, pharmacists, occupational therapists, optometrists, physiotherapists, speech pathologists, chiropractors/osteopaths and podiatrists.

Note: Components may not add to totals due to rounding.

Source: ABS Census of Population and Housing, 2001.

The rate of other health workers per 100,000 population decreased with increasing remoteness even more sharply than medical practitioners. There were 409 other health workers per 100,000 population in Major cities in 2001, steadily dropping with remoteness to 82 in Very remote areas (Table 5.20).

## Health industries

As a rule, the rate of employees decreased with increasing remoteness for most health industries. For example, in 2001 there were almost twice as many workers per head of population employed in hospitals in Major cities than in Very remote areas (1,147 and 601 per 100,000 population, respectively) (Table 5.21). Small industries, in particular, were not as well represented in more remote regions. For example, in the optometry and optical dispensing industry, there were 53 workers per 100,000 population in Major cities, compared to 14 and 2 in Remote and Very remote areas, respectively.

Nevertheless, there were some notable exceptions to the rule. In particular, the rate of people employed in community health centres increased with remoteness (from 93 per 100,000 population in Major cities to 222 in Very remote areas) (Table 5.21).

**Table 5.21: Persons employed in health industries per 100,000 population: remoteness areas (ASGC<sup>(a)</sup>), 2001**

Industry	Major cities	Inner regional	Outer regional	Remote	Very remote	Total
Health services, undefined	216	260	258	307	320	234
Hospitals and nursing homes, undefined	8	11	11	15	11	9
Hospitals (except psychiatric hospitals)	1,147	995	891	816	601	1,085
Psychiatric hospitals	13	14	6	4	—	12
Nursing homes	334	380	322	144	71	338
Medical & dental services, undefined	14	9	8	5	3	12
General practice medical services	351	280	228	198	109	320
Specialist medical services	147	105	59	26	15	126
Dental services	168	127	104	71	35	151
Other health services, undefined	16	15	11	12	7	15
Pathology services	93	64	47	19	11	81
Optometry and optical dispensing	53	44	30	14	2	48
Ambulance services	37	59	54	56	31	44
Community health centres	93	103	105	165	222	100
Physiotherapy services	48	37	27	22	7	43
Chiropractic services	26	31	21	10	2	26
Health services, nec	242	195	133	92	53	218
Total health services	3,005	2,729	2,314	1,975	1,498	2,862

(a) Australian Standard Geographic Classification Remoteness Areas.

Note: Components may not add to totals due to rounding.

Source: AIHW & ABS 2003.

## Specific health occupations

The Australian Institute of Health and Welfare's periodic national health labour force surveys, conducted by the state and territory health departments in conjunction with relevant state and territory occupation registration boards, provide more specific information on various health occupations. For each occupation the most recent results available are presented in this section.

There are differences between the ABS Census of Population and Housing and the AIHW health labour force surveys in the number of workers reported in each of the professional groups. This is due to differences in the collection methods. The Census

tends to capture health professionals who are in clinical practice only, in the week of the Census—not those in administration, research or education. The AIHW health labour force surveys, on the other hand, count all registered workers, regardless of whether they are clinicians or non-clinicians, in each of the surveyed health professions.

## The medical labour force

According to the Medical Labour Force Survey, there were 53,384 employed medical practitioners in 2001, an increase of 12.2% from 1996 (Table 5.22). The jurisdictions with the highest rates of practitioners in 2001 were the Australian Capital Territory, the Northern Territory and South Australia (354, 327 and 303 per 100,000 population, respectively). The rates increased in all jurisdictions between 1996 and 2001 except Queensland, where the rate decreased slightly from 235 to 233 per 100,000 population.

**Table 5.22: Employed medical practitioners, states and territories, 1996 and 2001**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	<b>Number</b>								
1996	16,885	11,972	7,852	4,151	4,244	1,117	913	439	47,573
2001	18,677	14,147	8,453	4,529	4,586	1,212	1,131	647	53,384
	<b>Number per 100,000 population</b>								
1996	272	263	235	235	288	235	296	241	260
2001	284	294	233	238	303	257	354	327	275

*Note:* Components may not add to totals due to rounding.

*Source:* AIHW Medical Labour Force surveys, 1996 and 2001.

The great majority (93%) of employed medical practitioners in 2001 were clinicians, of whom just under half (44%) were primary care practitioners and about a third (35%) were specialists (Table 5.23). Administrators and researchers made up a large proportion of the non-clinical workforce (32% and 26%, respectively), which also included teachers/educators, public health physicians and occupational health physicians.

Overall, in 2001 medical practitioners in Remote and Very remote areas were more likely to be younger than those in other regions, and they tended to work more hours per week. For example, they were, on average, 3 years younger and they worked longer by some 3 hours and 7.5 hours per week, respectively, than their colleagues in Major cities (Table 5.22). They were also more likely to be female (38% in Very remote areas, compared with 31% in Major cities).

For vocationally registered general practitioners the pattern was similar. Although they were older, on average, than other doctors in each region, their average age decreased with increasing remoteness (from 49.6 years in major cities to 43.8 years in very remote areas); and their average weekly hours, while lower than those of other doctors in each region, also increased with increasing remoteness (from 41.4 hours to 51.3 hours) (AIHW 2003b, unpublished data).

**Table 5.23: Employed medical practitioners, by type of practitioner, remoteness areas (ASGC<sup>(a)</sup>), 2001**

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total <sup>(b)</sup>
<b>Type of medical practitioner</b>						
Clinicians	37,532	6,652	2,717	371	198	49,393
Primary care practitioners	15,170	3,706	1,718	248	145	21,671
Hospital non-specialists	3,872	669	231	56	39	5,169
Specialists	13,845	1,922	604	51	12	17,124
Specialists-in-training	4,646	355	165	16	2	5,429
Non-clinicians	3,387	285	132	30	4	3,991
<b>Total</b>	<b>40,919</b>	<b>6,937</b>	<b>2,849</b>	<b>401</b>	<b>203</b>	<b>53,384</b>
No. per 100,000 population	318	172	141	124	113	275
% female	31.3	26.3	29.7	36.0	37.6	30.7
Average age (years) <sup>(c)</sup>	46.1	46.4	45.5	43.0	42.6	46.1
Average hours worked per week	45.1	46.6	47.1	48.2	52.6	45.4

(a) Australian Standard Geographic Classification Remoteness Areas.

(b) Includes 2,075 medical practitioners who did not provide information on the location of their main job.

(c) Excludes Tasmania.

Source: AIHW Medical Labour Force Survey, 2001.

## The nursing labour force

There were 228,230 employed nurses in 2001 (Table 5.24). Although this was an increase of 3.4% since 1995, the Australian population rose by 7% during this time. This resulted in a decrease of 45 in the rate of nurses per 100,000 population (from 1,221 in 1995 to 1,176 in 2001). Across the states and territories, only Queensland, the Australian Capital Territory and the Northern Territory recorded an increase in the rate of nurses from 1995 to 2001. Tasmania had the largest decrease, from 1,375 to 1,208.

The vast majority (80%) of employed nurses in 2001 were registered nurses, while the remaining nurses were enrolled (20%) (Table 5.24). The proportion of registered nurses increased by 2.5 percentage points since 1995, with Tasmania having the highest level in 2001 at 86% and Victoria the lowest level at 76%.

**Table 5.24: Employed registered and enrolled nurses, states and territories, 1995 and 2001**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
<b>Number</b>									
1995	67,545	63,942	35,069	21,435	20,981	6,511	3,338	1,846	220,667
2001	70,906	63,805	39,297	21,613	21,071	5,700	3,751	2,087	228,230
<b>Number per 100,000 population</b>									
1995	1,102	1,415	1,074	1,236	1,428	1,375	1,095	1,040	1,221
2001	1,078	1,328	1,083	1,137	1,394	1,208	1,175	1,055	1,176
<b>% registered</b>									
1995	81.7	72.7	80.9	75.2	75.5	82.8	83.5	85.0	77.8
2001	82.6	76.2	83.5	80.3	76.8	85.8	81.4	85.1	80.3

Source: AIHW Nursing Labour Force Surveys, 1995 and 2001.

Across geographic regions, the distribution of nurses closely matched that of the general population in 2001. The highest rate occurred in Inner regional areas (1,109 nurses per 100,000 population), while the lowest (959) was in Very remote areas.

Nursing is a mainly female occupation. In 2001, the great majority (92%) of nurses were female: a proportion that had been decreasing only slightly over the previous six years). This proportion ranged from 91% in Inner regional and Very remote areas to 95% in Remote areas. Remote areas had the lowest proportion of registered nurses (71%), while Major cities and Very remote areas had the highest (84% and 79%, respectively).

Both the average age of nurses and their average hours worked per week were fairly consistent across geographic regions. The average age of nurses ranged from 41.9 years in Major cities and Very remote areas to 43.0 years in Outer regional areas (Table 5.25). Similarly, the average hours worked per week by nurses was about 30 hours in all regions except Very remote areas, where it was 33 hours.

**Table 5.25: Employed registered and enrolled nurses by remoteness areas (ASGC<sup>(a)</sup>) of main job, 2001**

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total <sup>(b)</sup>
Number	136,256	44,635	21,270	3,353	1,713	228,230
No. per 100,000 population	1,059	1,109	1,056	1,034	959	1,176
% female	91.6	91.2	94.2	94.9	91.2	91.6
% registered	83.7	75.4	71.2	70.6	78.7	80.3
Average age (years)	41.9	43.2	43.0	42.8	41.9	42.2
Average hours worked per week	30.7	30.1	30.1	30.0	33.3	30.5

(a) Australian Standard Geographic Classification Remoteness Areas.

(b) Includes 21,003 nurses who did not provide information on the location of their main job.

Source: AIHW Nursing Labour Force Survey, 2001.

## The pharmacy labour force

In 1996, there were 13,834 employed pharmacists in Australia, providing a rate of 75.6 pharmacists per 100,000 population. From 1996 the number of pharmacists grew by 7% to 14,747 in 1999 and the rate grew to 77.9 (Table 5.26). The highest rates of pharmacists occurred in New South Wales (84.7 pharmacists per 100,000 population) and Tasmania (84.6). The Northern Territory had just over half these rates in 1999, at 43.1 pharmacists per 100,000 population. This can be entirely attributed to the very low rate of community pharmacists (24.9 per 100,000 population compared with the national rate of 62.5) rather than hospital/clinic pharmacists, for which the Northern Territory had the highest rate of all the jurisdictions (14.5).

The rate of pharmacists per 100,000 population increased between 1996 and 1999 in most jurisdictions except Queensland (down from 72.9 to 72.3) and the Australian Capital Territory (down from 86.3 to 83.2) (Table 5.26). In 1999, 47% of employed pharmacists were females, slightly higher than in 1996 (45%). The pharmacy labour force aged slightly between 1996 and 1999, from an average of 45.5 years to 46.1 years.

However, there was a considerable age difference between the sexes. Over 60% of females were aged under 45 years in 1999, compared with 35% for males, while 44% of males were aged 55 years or more compared with 16% of females.

**Table 5.26: Employed pharmacists, states and territories, 1996 and 1999**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	<b>Number</b>								
1996	4,936	3,587	2,433	1,224	959	355	266	73	13,834
1999	5,430	3,703	2,531	1,344	996	399	260	83	14,747
	<b>Number per 100,000 population</b>								
1996	79.6	78.7	72.9	69.3	65.0	74.8	86.3	40.1	75.6
1999									
Community pharmacists	69.1	60.8	61.4	59.2	52.7	65.8	49.0	24.9	62.5
Hospital/clinic pharmacists	10.2	13.6	9.1	10.2	11.1	12.7	13.1	14.5	11.1
Other pharmacists	5.4	4.6	1.8	3.2	2.6	6.2	21.1	3.6	4.4
<b>All employed pharmacists</b>	<b>84.7</b>	<b>79.0</b>	<b>72.3</b>	<b>72.7</b>	<b>66.5</b>	<b>84.6</b>	<b>83.2</b>	<b>43.1</b>	<b>77.9</b>

*Note:* Components may not add to totals due to rounding.

*Source:* AIHW Pharmacy Labour Force surveys, 1996 and 2001.

## The dental labour force

The dental labour force is made up of dentists, dental therapists, dental hygienists and dental prosthetists. Information about dentists is collected annually from registration boards in each state and territory. However, states and territories do not uniformly register practitioners of other dental occupations and some of those occupations are not permitted to practise in some jurisdictions. Hence, information about dental occupations other than dentists is derived from a range of sources, including state/territory dental boards and questionnaires mailed directly to practitioners who are members of professional associations.

The distribution of practising dentists per 100,000 population varies widely across Australia. The highest rates in both 1994 and 2000 occurred in the Australian Capital Territory (57.5 and 59.3, respectively) and South Australia (49.7 and 54.8, respectively) (Table 5.27). The lowest rates in 1994 and 2000 occurred in Tasmania (25.2 and 25.3, respectively, which represented very little change). The largest increase between 1994 and 2000 in the rate of dentists occurred in Western Australia (from 39.7 to 48.5), while the rate in the Northern Territory fell (from 32.1 to 30.5).

In 2000, 23% of practising dentists were female, up from 18% in 1994. The average age of female dentists in 2000 was 38.2 years, while for males it was 46.2 years. Females worked on average 33.7 hours per week in 2000, while males worked 41.1 hours.

Dental therapists and prosthetists were more evenly spread among the states and territories than dentists were, with a few exceptions. Western Australia had a high number of dental therapists per 100,000 population, although there was a slight decrease between 1997 and 2000 (17.8 and 17.6, respectively), well above the national rates of 7.1 and 6.6 per 100,000 population in those years, respectively (Table 5.27). This was also the case for the rate of dental prosthetists in Tasmania in 2000 (11.1 per 100,000 population compared with 4.4 nationally).

The number of dental hygienists nationally is very small. In 2000, there were an estimated 398 dental hygienists across all states and territories except Tasmania. This was a rise of 74% from 1996 (up from 227 per 100,000 population), which can, in part, be attributed to the introduction of Western Australia into the collection in 1997.

**Table 5.27: Employed dental labour force, states and territories, 1994, 1997, 1998 and 2000**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
<b>Number per 100,000 population</b>									
<b>Practising dentists</b>									
1994	45.2	41.7	41.1	39.7	49.7	25.2	57.5	32.1	43.0
2000	48.4	46.3	43.9	48.5	54.8	25.3	59.3	30.5	46.9
<b>Dental therapists</b>									
1997	3.6	2.7	12.3	17.8	9.2	14.6	5.5	9.1	7.1
2000	3.3	2.9 <sup>(a)</sup>	10.1	17.6	8.5	10.6	6.1	8.2	6.6
<b>Dental prosthetists</b>									
1998	4.4	5.0	3.5	2.9	1.7	11.2	3.9	.. <sup>(b)</sup>	4.2
2000	4.7	5.5 <sup>(a)</sup>	3.3	3.2	1.8	11.1	5.1	.. <sup>(b)</sup>	4.4

.. Not applicable.

(a) Victoria was not included in the 2000 collection of dental therapists and prosthetists. Estimates were imputed.

(b) Dental prosthetists were not permitted to practise in the Northern Territory.

Source: AIHW Dental Labour Force surveys, 1994, 1997, 1998 and 2000.

## The podiatry labour force

There were 2,011 employed podiatrists in Australia in 1999 (Table 5.28). This was an increase of 22% since 1994. The largest increases in the labour force between 1994 and 1999 were in South Australia (up 32%) and Queensland (up 26%).

**Table 5.28: Employed podiatrists, states and territories, 1994 and 1999**

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	Total
<b>Number</b>								
1994	456	590	196	169	185	57	n.a.	1,653
1999	566	667	247	194	245	63	29	2,011
<b>Number per 100,000 population</b>								
1994	7.5	13.1	6.1	9.9	12.6	12.1	n.a.	9.3
1999	8.8	14.2	7.1	10.5	16.4	13.4	9.3	10.6

n.a. Not available.

Note: Podiatrists are not required to be registered in order to work in the Northern Territory, therefore podiatrists in that jurisdiction were not included in the Podiatry Labour Force surveys; this was also the case for the Australian Capital Territory in 1994.

Source: AIHW Podiatry Labour Force surveys, 1994 and 1999.

Nationally, there were 10.6 podiatrists for every 100,000 people in Australia (Table 5.28). The highest rate occurred in South Australia (16.4), while Queensland recorded the lowest (7.1).

Podiatry remained a mostly female field, but males made up a larger proportion (36%) of the labour force in 1999 than in 1994 (32%). The podiatry workforce is also relatively young, with just over half (51%) aged under 35 years. In 1999, the average age of male podiatrists was 36.9 years, which was younger than in 1994 (38.2 years). For females the average age was 37.7 years, which, in contrast to males, was older than in 1994 (33.3 years). The average age for all employed podiatrists in 1999 was 37.4 years.

## The physiotherapy and occupational therapy labour forces

In 1998, there were 11,304 employed physiotherapists in Australia, representing about 60 per 100,000 population (Table 5.29). The rates for South Australia (74.4), Western Australia (71.9) and the Australian Capital Territory (68.4) were all above the national average (60.4), with Queensland and the Northern Territory having rates (52.2 and 43.2 respectively) that were well below the national average.

Physiotherapy is mainly a female field, with males making up less than a quarter (23%) of physiotherapists in 1998. The average age of employed physiotherapists was 38.6 years and they worked an average of 34.4 hours per week.

**Table 5.29: Employed physiotherapists and occupational therapists, states and territories, 1998**

Occupation	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	<b>Number</b>								
Physiotherapists	3,844	2,688	1,799	1,311	1,108	259	212	82	11,304
Occupational therapists <sup>(a)(b)</sup>	n.a.	1,418	766	786	n.a.	n.a.	86	60	..
	<b>Number per 100,000 population</b>								
Physiotherapists	60.6	58.0	52.2	71.9	74.4	54.9	68.4	43.2	60.4
Occupational therapists	..	30.6	22.2	43.1	..	..	27.8	31.6	..

.. Not applicable.

n.a. Not available.

(a) Occupational therapists are not required to be registered in order to work in New South Wales, Victoria, Tasmania and the Australian Capital Territory. With assistance from OT Australia, occupational therapists in Victoria and the Australian Capital Territory were able to be included in the Occupational Labour Force Survey in 1998. This survey was not conducted in South Australia.

(b) Includes occupational therapists on extended leave of three months or more.

Note: Components may not add to totals due to rounding.

Source: Physiotherapy and Occupational Therapy Labour Force surveys, 1998.

Occupational therapists provide support to a wide range of people with physical, psychological or developmental injuries or disabilities. The information presented here relates only to Queensland, Western Australia, the Northern Territory, Victoria and the Australian Capital Territory.

There were 3,116 occupational therapists employed in 1998 in Victoria, Queensland, Western Australia, the Australian Capital Territory, and the Northern Territory (Table 5.28). Of these jurisdictions, Western Australia had the highest number of therapists per 100,000 population (43.1) while Queensland had the lowest (22.2).

Occupational therapy had the highest proportion of female employees (95%) of all the health occupations surveyed. Male and female occupational therapists were virtually the same age on average (35.5 and 35.7 years, respectively). Males worked more hours per week on average than females (39.3 and 31.8 hours, respectively).

## Entrants to the workforce

### Higher education

In 2001, the highest number of students completing an undergraduate or postgraduate health-related course was in the field of nursing (8,216) (Table 5.30). This was, however, a fall of 19% from 1996 when there were 10,110 students who completed a nursing course. However, it is likely that the number completing courses at either the undergraduate or postgraduate level will start to increase in a few years' time: there was a sharp increase in the number commencing undergraduate medical courses between 2001 (8,051 students) and 2002 (8,803 students). Although the proportion of females who completed a nursing course remained stable at 90%, more students completed their nursing course at a postgraduate level in 2001 than in 1996 (from 20% in 1996 to 30% in 2001). This difference may be due, in part, to a change in the classification of the field of study in the intervening years.

The next largest field was medical studies. In 2001, 2,058 students completed an undergraduate or postgraduate course in medical studies, an increase of 18% from 1996 (Table 5.30). More female students completed a medical course in 2001 than male students, a reversal from 1996 (52% female in 2001 compared to 48% in 1996). Furthermore, the proportion of students completing medical studies who did so at the postgraduate level increased from 24% to 32% between 1996 and 2001.

Rehabilitation services in general had the largest percentage increases between 1996 and 2001 in the number of students completing courses. Speech pathology and audiology rose by more than half (59%, from 252 to 401), as did occupational therapy (51%, from 440 to 665), podiatry rose by a quarter (27%, from 114 to 145) and the remainder more than doubled (116%, from 299 to 646) (Table 5.30).

**Table 5.30: Australian citizens/residents completing selected health-related higher education courses, sex and course level, 1996 and 2001**

Field	1996			2001			% change 1996 to 2001
	Number	% female	% undergrad	Number	% female	% undergrad	
Dentistry	303	49.8	89.4	339	54.9	81.1	11.9
Medical studies	1,743	47.7	76.1	2,058	52.2	67.7	18.1
Nursing	10,110	89.7	80.4	8,216	89.6	69.8	-18.7
Radiography	493	67.1	92.9	571	69.7	67.1	15.8
Nutrition and dietetics	229	84.7	27.1	248	89.5	51.2	8.3
Speech pathology/Audiology	252	92.5	81.7	401	94.0	80.5	59.1
Podiatry	114	57.0	80.7	145	57.9	93.8	27.2
Physiotherapy	681	61.4	77.7	784	60.1	80.9	15.1
Occupational therapy	440	88.6	89.1	665	90.2	88.4	51.1
Rehabilitation services—other	299	69.6	27.1	646	61.5	50.0	116.1
Optometry	184	60.3	89.1	172	59.9	58.1	-6.5
Pharmacy	536	60.8	82.3	682	63.2	88.3	27.2
<b>Total</b>	<b>15,384</b>	<b>80.1</b>	<b>79.0</b>	<b>14,927</b>	<b>78.4</b>	<b>71.1</b>	<b>-3.0</b>

*Note:* The classifications for 'field' differed between 1996 and 2001. Those fields with a best match are presented here.

*Source:* AIHW analyses of Department of Education, Science and Training data.

## Migration

In 2001–02, 10,394 health professionals entered Australia and 8,122 left Australia for stays of 12 months or more (defined as long-term) (Table 5.31). This resulted in a net gain of 2,272 health professionals. Note, however, that these arrivals and departures are for all purposes, not just employment, and can therefore not be equated with additions to the health labour force. Also, they exclude short-term arrivals (of less than 12 months' duration), some of whom could temporarily work in the Australian health labour force.

**Table 5.31: Migration of health professionals: overseas arrivals and departures, 2001–02**

Occupation	Arrivals				Departures			
	Long-term residents	Permanent settlers	Long-term visitors	Total arrivals	Long-term residents	Permanent residents	Long-term visitors	Total departures
General medical practitioner	646	386	1,459	2,491	713	287	827	1,827
Specialist medical practitioner	72	73	178	323	79	21	58	158
Nurses (incl. midwives)	1,831	1,091	1,962	4,884	2,066	804	921	3,791
Dental practitioners	111	121	182	414	91	49	65	205
Pharmacists	171	164	211	546	171	58	126	355
Occupational therapists	156	42	48	246	231	53	26	310
Optometrists	76	83	105	264	96	48	99	243
Physiotherapists	299	116	149	564	404	85	91	580
Speech pathologists	57	13	16	86	79	13	10	102
Chiropractors/osteopaths	51	10	26	87	51	24	12	87
Podiatrists	19	9	3	31	18	4	7	29
Medical imaging professionals	89	69	104	262	148	34	51	233
Other health professionals	92	51	53	196	109	44	49	202
<b>Total</b>	<b>3,670</b>	<b>2,228</b>	<b>4,496</b>	<b>10,394</b>	<b>4,256</b>	<b>1,524</b>	<b>2,342</b>	<b>8,122</b>

*Note:* This table includes all movements, regardless of the purpose (i.e. employment, holiday, etc.) but excludes short-term movements (i.e. less than 12 months).

*Source:* ABS, data available on request, Overseas Arrivals and Departures, Australia, July 2001 database.

The largest group of movements were nurses, with a total of 4,884 arrivals and 3,791 departures, a net gain of 1,093 (Table 5.31). Generalist medical practitioners formed the next largest group, with 2,491 arrivals and 1,827 departures, a net gain of 664.

In most occupations the total number of professionals arriving in Australia outnumbered those departing, but there were some occupations with a net loss in 2001–02. These were occupational therapists (246 arrivals and 310 departures), physiotherapists (564 arrivals and 580 departures) and speech pathologists (86 arrivals and 102 departures), as well as the miscellaneous group of ‘other health professionals’ (196 arrivals and 202 departures) (Table 5.31).

Overseas-trained medical practitioners who wish to have unconditional registration in any state or territory and who did not receive their initial qualifications from an accredited overseas medical school, are required to pass a series of exams and assessments conducted by the Australian Medical Council (AMC) or a relevant specialist college. While statistics on successful AMC applicants do not provide a complete picture of all the overseas-trained doctors who register each year, they can provide an indication.

There are two pathways for recognition of overseas medical qualification. For those doctors seeking registration as a specialist in Australia, they must apply to the relevant specialist college (through the AMC who administer the pathway). Due to the time required for recognition, it is difficult to report the number of successful applicants for each year. However, in the financial year 2001–02 there were 279 applications for specialist assessment made, an increase from 123 in 1997–98 (AMC 2002).

Overseas-trained practitioners applying for registration as a general practitioner or hospital non-specialist must apply for recognition through the general registration pathway. Applicants must pass a multiple choice questionnaire (MCQ) and clinical assessments. In the financial year 2001–02, 499 applicants passed the MCQ (out of a total of 884 applicants), while 319 applicants passed the two-stage clinical examination (out of a total of 619 applicants). This compares with 234 passing the MCQ and 151 passing the clinical assessments in 1997–98 (out of a total of 779 and 427 applicants, respectively) (AMC 2002).

## Australian and international health workforces

Table 5.32 shows the number and rates per 1,000 population of workers in four key health professions in Australia and four other selected OECD countries, namely New Zealand, Canada, the United States of America and the United Kingdom.

Overall, the rates per 1,000 population varied somewhat across the five countries. Australia had higher rates than the other four countries for general practitioners and nurses, and was centrally placed for specialists and dentists.

Between 1996 and 2001, Australia recorded a fall in the rate of general practitioners and nurses, while the rates of specialists and dentists increased. There was also a decrease in the rate of nurses per 1,000 population in New Zealand (between 1996 and 2000) and Canada, and an increase in the United Kingdom. The United Kingdom recorded the highest increases in two out of the four occupations (medical specialists and nurses).

Table 5.32: Health professionals in selected OECD countries, number and rate<sup>(a)</sup>, 1996 and 2001

Occupation/ year	Australia		New Zealand		Canada		USA		United Kingdom	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
<b>General practitioners</b>										
1996	25,089	1.4	2,935	0.8	29,805	1.0	189,431	0.7	35,922	0.6
2001	24,307	1.3	3,166 <sup>(b)</sup>	0.8 <sup>(b)</sup>	31,115	1.0	215,225 <sup>(c)</sup>	0.8 <sup>(c)</sup>	37,837	0.6
<b>Medical specialists</b>										
1996	20,209	1.1	2,319	0.6	32,033	1.1	358,597	1.3	78,284	1.3
2001	23,381	1.2	2,653 <sup>(b)</sup>	0.7 <sup>(b)</sup>	34,111	1.1	391,866 <sup>(c)</sup>	1.4 <sup>(c)</sup>	91,763	1.6
<b>Dentists</b>										
1996	8,000	0.4	1,364	0.4	15,819	0.5	160,400	0.6	22,928	0.4
2001	9,000	0.5	1,591 <sup>(b)</sup>	0.4 <sup>(b)</sup>	17,648	0.6	164,700 <sup>(c)</sup>	0.6 <sup>(c)</sup>	25,840	0.4
<b>Nurses</b>										
1996	197,500	10.8	36,303	9.7	307,209	10.4	2,161,700	8.0	475,000	8.2
2001	205,000	10.6	36,976 <sup>(b)</sup>	9.6 <sup>(b)</sup>	305,471 <sup>(b)</sup>	9.9	2,271,300 <sup>(c)</sup>	8.1 <sup>(c)</sup>	530,000	9.0

(a) Number of workers per 1,000 population.

(b) 2000 figures.

(c) 1999 figures.

Source: OECD 2003.

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