

5.4 Health workforce

The health industry

The health industry is highly labour intensive. In 1997–98, total health services expenditure in Australia was \$47.03 billion. Based on the 1994–95 input–output tables of the Australian national accounts constructed by the Australian Bureau of Statistics (ABS), an estimated 65% of this expenditure can be attributed to the labour costs of wages and salaries and employer contributions to workers' compensation and superannuation (ABS 1999b).

In 1998 there were 610,000 persons employed in the health industry, 7.1% of the total civilian workforce in Australia. Of these, 378,000 or 62.0% were employed in hospitals and nursing homes.

In the health industry workforce, 38.1% of persons worked part-time, i.e. less than 35 hours per week. Although 76.6% of persons employed were female, this proportion was higher in hospitals and nursing homes in which 79.3% were female.

Between 1993 and 1998, the health industry workforce increased by 9.7%, compared with an 11.9% increase in the civilian workforce and a 6.1% increase in the population. In both, growth in part-time employment was much stronger than growth in full-time employment. In the health industry, male part-time employment growth of 13.6% was similar to full-time growth of 13.4%, but female part-time employment increased by 14.0%, much faster than the full-time increase of 4.4% (Table 5.15).

Table 5.15: Composition of the health industry and civilian population workforces, 1993 and 1998

	Full-time		Part-time		Total			Per cent	
	Males	Females	Males	Females	Males	Females	Persons	Part-time	Female
Hospitals and nursing homes									
1993	64,583	170,346	7,354	124,475	71,937	294,821	366,758	35.9	80.4
1998	69,755	167,249	8,445	132,599	78,200	299,848	378,048	37.3	79.3
Increase	8.0%	-1.8%	14.8%	6.5%	8.7%	1.7%	3.1%		
Other health industry									
1993	47,322	70,282	6,838	65,121	54,160	135,403	189,563	38.0	71.4
1998	57,107	83,892	7,683	83,620	64,790	167,512	232,302	39.3	72.1
Increase	20.7%	19.4%	12.4%	28.4%	19.6%	23.7%	22.5%		
Total health industry									
1993	111,905	240,628	14,192	189,595	126,097	430,223	556,320	36.6	77.3
1998	126,862	251,141	16,127	216,218	142,989	467,359	610,348	38.1	76.6
Increase	13.4%	4.4%	13.6%	14.0%	13.4%	8.6%	9.7%		
Total civilian workforce ('000s)									
1993	3,958	1,889	438	1,359	4,396	3,248	7,644	23.5	42.5
1998	4,256	2,094	587	1,618	4,843	3,712	8,555	25.8	43.4
Increase	7.5%	10.9%	34.0%	19.1%	10.2%	14.3%	11.9%		

Note: Quarterly survey statistics have been averaged for 1993 and 1998 to minimise volatility in estimates due to sampling.

Source: ABS Labour Force Survey.

International health workforce trends

The OECD maintains a time series of selected health statistics for OECD countries. The data need to be interpreted with care because of inconsistencies in the definitions used among countries for enumerating doctors, dentists, pharmacists and nurses, and because of differences in the health systems.

Nevertheless, Australia appears to be similar in a number of respects to other countries in some key workforce trends. The medical workforce has increased at a much faster rate than population growth and the proportion of doctors who are female has increased from around 11% in 1960 to nearly 30% now (Table 5.16, page 260).

In nursing, Australia and New Zealand with almost 10 nurses per 1,000 population in 1996 appear to have a relatively high level of nurse employment compared with Canada (7.6), the United States (8.1) and the United Kingdom (4.5). In Australia, nurse workforce numbers per 1,000 population have been declining during the 1990s because of relatively stable total nurse employment numbers. According to the ABS labour force survey, there were 197,700 employed nurses in 1998 compared with 197,100 in 1989. Part-time employment increased from 39.2% to 44.0% during the period, so that the numbers of full-time equivalent nurses fell by 1.6%, and numbers of full-time equivalent nurses per 1,000 population fell by 11.8%. In Canada, there has been a similar, but more pronounced, pattern. Employed nurses per 1,000 population climbed from 5.3 in 1966 to 11.0 in 1986, and stayed at this level until 1992 after which there was a sharp decline to 7.6 in 1997, the most recent year of data.

Growth in the dentist and pharmacist workforces per 1,000 population has been much slower than in medicine. Supply requirements for dentists are influenced by changes in work practices, productivity and labour force participation on the one hand and changes in patient demand on the other. Influences on demand include population growth, oral health status, cost and propensity to visit a dentist for preventive health reasons. Largely as a result of public health measures (such as water fluoridation and childhood screening) and rising education and real income levels, there has been a considerable improvement in the oral health of the population since the 1960s. This has led to a change in both the nature and number of dental consultations, which have increased in annual number per capita in Australia from 1.1 in 1979 to 1.5 in 1995. A similar trend occurred overseas. In the United States dental consultations per capita have increased from 1.6 in 1962 to 2.1 in 1989 and in the United Kingdom from 0.3 in 1960 to 0.7 in 1990 (OECD 1999).

In pharmacy, there have been significant workforce productivity gains in Australia through pre-packaging drugs and economies of scale achieved through restructuring the community pharmacy industry to increase the average number of pharmacists per pharmacy. The number of approved pharmacies fell from 5,606 in 1990 to 4,942 in 1999. The number of community pharmacists increased by 13.3% from 8,713 to 9,870 between 1991 and 1996, with pharmacist registrations rising a further 4.9% between 1996 and 1998. In 1996, pharmacist numbers of 0.6 per 1,000 population in Australia were the same as in New Zealand, Canada and the United Kingdom, and only just below the 0.7 per 1,000 population in the United States.

Table 5.16: Provision of doctors, dentists, pharmacists and nurses in selected countries, selected years

	Medical practitioners			Dentists		Pharmacists		Nurses	
	No.	No. per 1,000 popn	Per cent female	No.	No. per 1,000 popn	No.	No. per 1,000 popn	No.	No. per 1,000 popn
Australia									
1961	10,881	1.1	11.0	3,315	0.3	8,351	0.8	63,821	5.9
1981	27,127	1.8	18.9	5,586	0.4	10,189	0.7	106,565	7.1
1996	45,416	2.5	27.4	7,601	0.4	12,310	0.6	174,770	9.5
New Zealand									
1960	2,573	1.1	7.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1980	4,881	1.6	16.4	1,145	0.4	2,277	0.7	19,195	6.1
1996	7,634	2.2	29.4	1,364	0.4	2,401	0.6	36,303	9.8
Canada									
1961	21,290	1.2	n.a.	5,708	0.3	n.a.	n.a.	n.a.	n.a.
1981	45,542	1.8	17.1	11,484	0.5	13,034	0.5	235,606	9.7
1996	63,209	2.1	28.4	15,869	0.5	17,808	0.6	227,830	7.6
United States									
1960	259,400	1.4	6.0	90,120	0.5	101,000	0.6	527,000	2.9
1980	453,165	2.0	10.8	126,240	0.6	142,400	0.6	1,272,900	5.6
1996	701,249	2.6	21.2	166,100	0.6	185,000	0.7	2,161,700	8.1
United Kingdom									
1960	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1980	72,198	1.3	19.5	17,604	0.3	n.a.	n.a.	197,900	3.5
1996	98,800	1.7	n.a.	22,200	0.4	34,418	0.6	264,744	4.5

Source: OECD 1999.

Distribution of the medical practitioner, dental and nursing workforces

Medical practitioners

In 1998, there were substantial differences in the supply of doctors among the States and Territories and between metropolitan, rural and remote areas. Both Western Australia and Queensland, with 236 medical practitioners per 100,000 population, were below the national average of 260, whereas South Australia (293) and the Australian Capital Territory (310 per 100,000 population) were well above this average. Supply in metropolitan areas of 306 practitioners per 100,000 population was much higher than the 144 practitioners per 100,000 population in rural and remote areas. In the latter, there were also large differences – 267 per 100,000 population in large rural centres compared with 154 in small rural centres, 91 in other rural areas and 105 in remote areas.

Reducing this imbalance has been a high priority of government and the medical profession. Longer term strategies have included increasing the numbers of medical students of rural origins and from the Aboriginal and Torres Strait Islander populations.

Table 5.17: Distribution of Medicare general practice providers, 1984–85 and 1998–99

Locality	1984–85	1998–99	Per cent change 1984–85 to 1998–99
Head count numbers			
Capital city	12,135	16,512	36.1
Other metropolitan	1,024	1,709	66.9
Large rural centre	852	1,375	61.4
Small rural centre	948	1,374	44.9
Other rural	1,695	2,426	43.1
Remote centre	137	295	115.3
Other remote area	157	485	208.9
Total	16,948	24,176	42.6
Full-time workload equivalents^(a)			
Capital city	7,050	11,428	62.1
Other metropolitan	809	1,277	57.8
Large rural centre	596	939	57.6
Small rural centre	653	918	40.6
Other rural	1,116	1,458	30.6
Remote centre	87	115	32.2
Other remote area	98	133	35.7
Total	10,410	16,268	56.3
Population per full-time workload equivalent			
Capital city	1,407	1,045	–25.7
Other metropolitan	1,353	1,115	–17.6
Large rural centre	1,517	1,190	–21.6
Small rural centre	1,491	1,328	–10.9
Other rural	1,906	1,690	–11.3
Remote centre	2,318	1,952	–15.8
Other remote area	3,421	2,674	–21.8
Total	1,494	1,153	–22.9

(a) The full-time workload equivalent (FWE) is defined by the Department of Health and Aged Care (DHAC) on the basis of income from fees charged for Medicare services rendered. The FWE for each doctor is calculated by dividing this income by the mean billing of doctors considered to be working full-time. The mean billing of full-time doctors was \$183,332 in 1998–99.

Source: AIHW analysis of DHAC data.

Because undergraduate and postgraduate medical training takes 10 years or more, little change will be seen in the characteristics of the workforce due to these strategies for some years.

The medical colleges have greatly expanded rural outreach programs, including telemedicine, to improve access to medical services by rural populations, and State Governments have increased the numbers of temporary resident overseas-trained doctors entering Australia from 667 in 1992–93 to 2,224 in 1998–99. There are also many incentive schemes to attract doctors to rural areas and to reduce the level of attrition of doctors from rural areas.

There has been considerable improvement in the provision of general practitioners (GPs) since the commencement of Medicare in 1984–85 (Table 5.17). Large rural centres now have, on average, a similar supply of GPs per 100,000 population as non-capital city metropolitan areas. Between 1984–85 and 1998–99, the GP workforce per 100,000 population for other rural and remote areas increased by about one-third, although some areas are less well-off than others.

Dental workforce

The national dental workforce in clinical practice consists of dentists and dental auxiliaries (dental therapists, dental prosthetists and dental hygienists). There are major geographic differences in the distribution of both dentists and dental auxiliaries in Australia.

In 1994, there were 43.0 dentists per 100,000 population in Australia, with the Australian Capital Territory and South Australia having the highest rates (57.5 and 49.7 respectively) and Tasmania the lowest (25.2). Capital cities had 51.2 dentists per 100,000 population and the rest of Australia 28.7 per 100,000 population.

The number of practising clinical dental auxiliaries per 100,000 population varies according to the type of auxiliary and the State and Territory of practice. Dental therapists who worked in School Dental Services were the most numerous in 1997, there being 7.1 per 100,000 population, which is equivalent to a full-time rate of 5.8. Western Australia (17.8), Tasmania (14.6) and Queensland (12.3) had the highest numbers of dental therapists per 100,000 population, and New South Wales (3.6) and Victoria (2.7) had the lowest.

Dental prosthetists predominantly work in their own practices making removable dentures. In 1998 there were 4.2 per 100,000 population in Australia. Tasmania had the highest number with 11.2 per 100,000 population, and South Australia had the lowest with 1.7 per 100,000 population.

There were only 1.5 dental hygienists per 100,000 population in 1997. The Australian Capital Territory (7.7) and South Australia (6.6) had the highest numbers per 100,000 population.

In contrast, in the early 1990s the United States had 60.8 dentists and 39.5 hygienists per 100,000 population, Canada 52.4 dentists and 22.8 hygienists per 100,000 population, and the Netherlands 52.8 dentists and 6.7 hygienists per 100,000 population.

Nursing workforce

There are significant differences in the supply of nurses among the States and Territories and between metropolitan and rural areas, but not to the same extent as for medicine and dentistry.

In 1996, there were 1,064 full-time equivalent nurses per 100,000 population. Western Australia with 1,236 nurses per 100,000 population, Victoria 1,178, the Australian Capital Territory 1,142 and Tasmania 1,120 were above the national average. Queensland with 962 nurses per 100,000 population and New South Wales with 984 were well below the national average. South Australia and the Northern Territory had close to the national average.

Nurse employment in rural areas was much higher than employment of other health professions. In 1996, nurse employment per 100,000 population in large rural centres (1,705), small rural centres (1,363) and remote centres (1,220) exceeded that of capital cities (1,183). However, in small rural centres, other rural and remote areas, around 30% of nurses were enrolled nurses whose minimum training involves 1 year of post-school nursing education compared with 3 years for registered nurses. In capital cities, 17% of nurses were enrolled nurses.

Tertiary education entrants to the health workforce

The number of Australian citizens and permanent residents who completed undergraduate degrees in health fields at universities increased only slightly between 1992 and 1997, from 12,645 to 12,999. However, non-nursing course completions increased by 35.2%, from 4,373 to 5,914. Basic nursing course commencements fell by 8.3% and post-basic commencements by just over two-thirds, mainly because of a fall in school leavers applying to undertake nurse training.

Table 5.18: Undergraduate course commencements in health fields, 1993 and 1998

Field of study	1993		1998	
	Total	Per cent female	Total	Per cent female
Medicine	1,293	47.3	1,221	50.3
Dentistry	224	48.7	267	50.2
Pharmacy	465	61.1	699	62.8
Physiotherapy	624	60.6	713	59.0
Medical radiography	396	63.6	574	62.9
Occupational therapy	549	85.2	749	88.1
Speech pathology	285	94.7	410	95.6
Optometry	180	63.3	231	63.6
Podiatry	120	47.5	193	59.6
Nursing				
Basic	8,543	85.2	7,830	86.3
Post-basic	3,441	91.8	1,105	92.3
Dental therapy	24	91.7	28	85.7
Rehabilitation	162	82.1	363	83.2
Nutrition and dietetics	73	87.7	160	90.6
Health administration	404	79.0	341	75.7
Medical science	454	60.1	550	63.6
Medical technology	357	65.8	384	67.2
Science and technology	250	68.4	795	71.2
Health surveying and environmental health	215	53.0	203	57.1
Health counselling	48	89.6	142	83.8
Other health ^(a)	351	77.2	807	81.2
Total	18,458	79.2	18,050	76.8
Total excluding nursing	6,474	64.7	9,115	66.7

(a) Mainly public health and Aboriginal health courses.

Note: Australian citizen or permanent resident students only.

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

Statistics on undergraduate course commencements provide a guide to future workforce supply. Between 1993 and 1998 there was a 40.8% increase in non-nursing commencements, from 6,474 to 9,115, with the female proportion increasing from 64.7% to 66.7%. In 1998, female medical and dentistry commencements exceeded the number of male commencements for the first time. Overall, 76.8% of all those commencing undergraduate health courses in 1998 were females (66.7% if nursing courses are excluded) (Table 5.18), compared with 57.5% for undergraduate commencements in all university courses in 1998.

Table 5.19: Undergraduate course commencements by Aboriginal and Torres Strait Islander persons in health fields, 1993 and 1998

Field of study	1993			1998		
	Indigenous	Non-Indigenous	Per cent Indigenous	Indigenous	Non-Indigenous	Per cent Indigenous
Medicine	7	1,286	0.54	10	1,211	0.83
Dentistry	1	223	0.45	0	267	0.00
Pharmacy	0	465	0.00	2	697	0.29
Physiotherapy	4	620	0.64	4	709	0.56
Medical radiography	3	393	0.76	3	571	0.53
Occupational therapy	2	547	0.36	1	748	0.13
Speech pathology	2	283	0.70	2	408	0.49
Optometry	0	180	0.00	1	230	0.43
Podiatry	0	120	0.00	2	191	1.05
Nursing						
Basic	80	8,463	0.94	102	7,728	1.32
Post-basic	10	3,431	0.29	6	1,099	0.55
Dental therapy	0	24	0.00	1	27	3.70
Rehabilitation	1	161	0.62	1	362	0.28
Nutrition and dietetics	0	73	0.00	1	159	0.63
Health administration	2	402	0.50	2	339	0.59
Medical science	0	454	0.00	2	548	0.36
Medical technology	2	355	0.56	4	380	1.05
Science and technology	26	224	10.40	17	878	1.94
Health surveying and environmental health	1	214	0.47	1	202	0.50
Health counselling	1	47	2.08	0	142	0.00
Other health ^(a)	67	284	19.09	171	821	20.83
Total	209	18,249	1.13	333	17,717	1.88

(a) Mainly public health and Aboriginal health courses.

Note: Australian citizen or permanent resident students only.

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

Aboriginal and Torres Strait Islanders peoples are underrepresented in all fields of study except Aboriginal health and public health training. Excluding the latter, 79 Aboriginal and Torres Strait Islander persons completed undergraduate degrees in health fields in 1997, with 62 of these in nursing. This is an increase on the 54 undergraduate degree completions in 1992, when there were 40 nursing graduates.

Overall, there were 333 Aboriginal and Torres Strait Islander persons commencing undergraduate courses in 1998, with 162 in fields other than Aboriginal and public health, including 10 in medicine (Table 5.19).

Immigration of health professionals

There are stringent immigration and professional registration board requirements for health professionals trained in overseas countries who wish to migrate permanently or work temporarily in Australia. New Zealand is an exception to this as Australian health professional registration boards recognise the qualifications of New Zealand graduates as equivalent to those gained in Australian universities, and trans-Tasman immigration agreements facilitate migration between the two countries.

During the 1990s, State health authorities have increasingly used temporary employment of overseas-trained health professionals in an attempt to remedy shortages in the Australian workforce, particularly in hospitals and in rural and remote areas. Between 1993–94 and 1998–99, the numbers of temporary resident health professionals increased from 1,282 to 3,395 (Table 5.20). The most popular countries of origin in 1998–99 were the United Kingdom and Ireland (1,867), New Zealand (632) and Asian countries (333).

During this period, the number of Australian health professionals travelling to overseas countries for temporary employment of 12 months or more increased from 1,569 to 1,770, a 12.8% increase.

Table 5.20: Health professionals arriving in Australia, 1993–94 and 1998–99

Field of study	Permanent migrants			Temporary residents for the purpose of employment		
	1993–94	1998–99	Per cent change	1993–94	1998–99	Per cent change
Medical practitioners	445	408	-8.3	893	2,224	149.0
Nurses and midwives	870	1,080	24.1	261	772	195.8
Dental practitioners	79	80	1.3	11	42	281.8
Pharmacists	72	120	66.7	27	89	229.6
Occupational therapists	27	29	7.4	12	18	50.0
Optometrists	15	98	553.3	23	101	339.1
Physiotherapists	77	90	16.9	10	32	220.0
Speech pathologists	20	16	-20.0	3	6	100.0
Chiropractors and osteopaths	5	9	80.0	9	18	100.0
Podiatrists	7	8	14.3	3	7	133.3
Medical imaging professionals	44	53	20.5	18	68	277.8
Other health occupations	54	39	-27.8	12	19	58.3
Total	1,715	2,030	18.4	1,282	3,395	164.8

Source: AIHW analysis of Department of Immigration and Multicultural Affairs data.