

Geographic distribution of the dentist labour force

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Introduction

There are projected shortages in the supply of dentists in Australia, and these shortages are likely to be more evident in areas outside of capital cities.^{1,2} This report explores the geographic distribution of dentists and the differences in supply of dental services to regions defined by remoteness.

Remoteness may be thought as the travel time to obtaining goods and services. Australian Statistics Geographical Codes (ASGC) Remoteness Areas describe the relative remoteness of an area by using road distance as a proxy for remoteness and population size of a service centre as a proxy for the availability of services.³

Methods

Data in this report came from the 2001 national dental labour force data collection conducted by AIHW Dental Statistics and Research Unit with the assistance of the dental boards and the State and Territory health departments.

Data are collected in all States and Territories on an annual basis in tandem with registration renewal. Dentists who are currently practising in dentistry are asked to provide practice activity data on up to three practice locations, in order of usual hours worked per week. Practice activity data include usual hours worked per week, practice postcode, and practice type.

Only practising respondents providing complete practice activity data were used in this report. Full enumeration of dentists was calculated by weighting data to account for non-response, non-respondents were assumed to have the same demographic and practice characteristics as respondents.

Rates of practising dentists per 100 000 population were calculated by dividing the estimated number of dentists per area, based on main practice location, by estimated resident population.⁴

The numbers of full-time equivalent (FTE) dentists were calculated by multiplying the estimated number of dentists by the mean number of hours worked and then dividing by 37.5 hours. The mean numbers of hours were calculated independently for the main, second and third practice locations in each State and Territory.

Regional distribution of the dentist labour force was determined by assigning remoteness codes to the dentists main practice location, but in the case of FTE dentists, hours worked were assigned to remoteness areas for all locations reported by respondents. There are six ASGC Remoteness

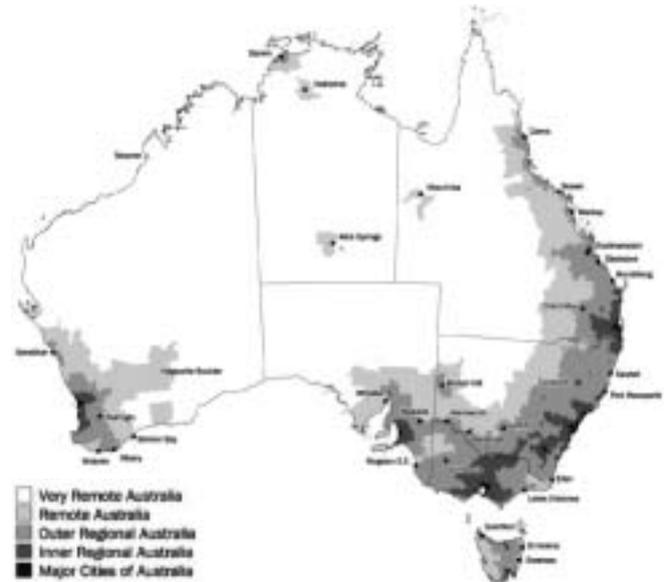


Fig 1. ASGC Remoteness Areas of Australia, 2001.

Area classifications: Major city; Inner regional; Outer regional; Remote; Very remote; and Migratory (Fig 1). The classification of Migratory was not used in this report and dentists working in Remote and Very remote areas were combined.

Results

Response rates

Overall there was a response rate of 78 per cent. Of the responding dentists who were currently practising, 87.5 per cent provided complete practice activity data (Table 1).

Demographic characteristics

In 2001 there was an estimated 9192 practising dentists, of which female dentists comprised 23.9 per cent (Fig 2). The age distribution of female dentists was younger than for male dentists; the highest percentage of practising female dentists was between 30 and 39 years of age (8.4 per cent) and for male dentists the highest percentage was between 40 and 49 years (23.8 per cent).

Practice characteristics

Overall, 82.5 per cent of all practising dentists worked mainly in private sector practice, 15.1 per cent worked in public sector practice and 2.3 per cent worked in other types of practice.

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Table 1. National dental labour force data collection response rates, 2001*

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
Total Registered 2001	4012	2497	1970	910	1013	159	74	199	10834
All respondents	3396	1947	1463	836	487	129	53	136	8447
Respondents	84.6	78.0	74.3	91.9	Per cent 48.1	81.1	71.6	68.3	78.0
Respondents practising in dentistry (labour force participation rate)	80.4	88.0	84.6	90.9	90.1	83.7	69.8	89.7	84.6
Practising respondents providing complete practice activity data	90.4	89.1	87.2	86.6	67.2	88.0	100.0	78.7	87.5

*There was no collection conducted in the Northern Territory (NT) in 2001, the results of the 2002 collection have been used as a substitute.

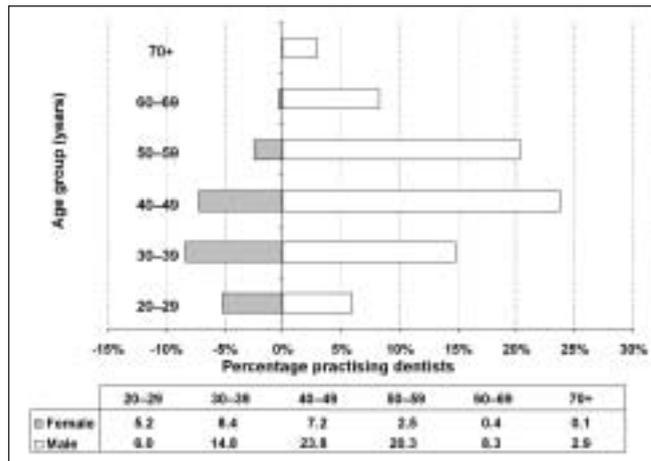


Fig 2. Practising dentists by sex and age, 2001.

Of those dentists employed in the private sector, the most predominant practice types were solo practice (or solo practice with assistant) (44.3 per cent), associateships (14.5 per cent) and assistants (12.5 per cent). Amongst dentists working in the public sector the most common practice types were dental hospitals (4.8 per cent) and general dental service (3.9 per cent).

The average number of hours usually worked per week by practising dentists was 39.5. There was little variation between the State/Territory average hours worked and the overall average.

Nearly three quarters of all practising dentists (73.5 per cent) practised in one location. One fifth practised in two locations (20 per cent) and only 6.5 per cent reported practising in three.

Regional distribution of dentist labour force

The main practice location for the majority of practising dentists (78.7 per cent) was in a Major city area, 14.7 per cent worked in an Inner regional area, 5.8 per cent in an Outer regional area and 0.8 per cent in a Remote/Very remote area (Table 2). The distribution of dentists across remoteness areas was not consistent with the population distribution. Overall the rate of practising dentists per 100 000 population was 56.2 for Major city areas, whereas for Inner regional areas the rate was substantially less at 33.6. For Outer regional and Remote/Very remote areas, the rates of practising dentists per 100 000 population were less than half the rate for Major city areas, (26.9 and 22.9 respectively).

The overall rates of FTE practising dentists were higher than the rates of practising dentists in all remoteness areas

Table 2. Estimated practising dentists and dentists per 100 000 population by ASGC Remoteness Area of main practice location, 2001

State/Territory	Major city	Inner regional	Estimated practising dentists			Australia
			Outer regional	Remote/Very remote	Total	
New South Wales	2678	454	88	5	3224	
Victoria	1850	289	58	0	2197	
Queensland	1057	374	221	15	1667	
South Australia	716	44	50	16	827	
Western Australia	749	74	65	25	913	
Tasmania	n.a.	118	15	0	133	
Northern Territory	n.a.	n.a.	39	13	52	
Australian Capital Territory	179	0	n.a.	n.a.	179	
Total	7229	1352	536	74	9192	
Total per cent	78.7%	14.7%	5.8%	0.8%	100%	
Practising dentists per 100 000 population						
New South Wales	57.0	33.6	18.1	11.1	49.0	
Victoria	52.4	28.4	22.8	0.0	45.7	
Queensland	55.7	39.8	34.2	10.6	45.9	
South Australia	66.0	23.5	28.1	27.1	54.7	
Western Australia	55.8	32.0	34.9	17.7	48.0	
Tasmania	n.a.	39.2	9.6	0.0	28.2	
Northern Territory	n.a.	n.a.	36.6	13.8	26.1	
Australian Capital Territory	56.0	0.0	n.a.	n.a.	55.9	
Total	56.2	33.6	26.6	22.9	47.4	

Note: n.a. denotes not applicable.

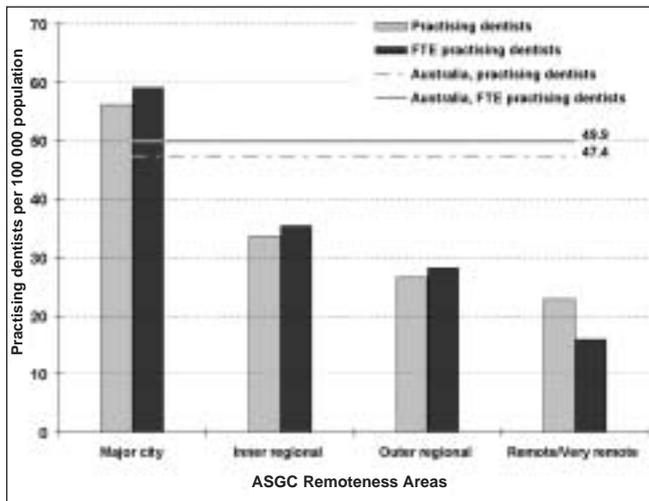


Fig 3. Practising dentists and FTE practising dentists per 100 000 population by ASGC Remoteness Areas, 2001.

except for the Remote/Very remote areas. In Remote/Very remote areas there was 22.9 practising dentists per 100 000 population, but when converted to FTE the rate declined to 16 (Fig 3).

Queensland had the least difference between the Major city FTE practising rate and the rate for Inner regional areas, 59.2 and 42.6 respectively, and South Australia had the largest difference, 65 and 23.9 (Table 3).

Dentists whose main practice location was in a Remote/Very remote area were younger than dentists working in other areas (Fig 4). The average age for dentists in Remote/Very remote areas was 41.8 years, for the other areas the average age was 44.7 years or older. The percentage of female dentists was highest in Remote/Very remote areas, 30 per cent (Fig 5).

There were only marginal differences in the average hours usually worked per week by area. Dentists whose main practice location was in a Remote/Very remote area had the highest average hours usually worked per week (40.1), followed by Major city (39.8), Outer regional, (39.7) and Inner regional (39.5).

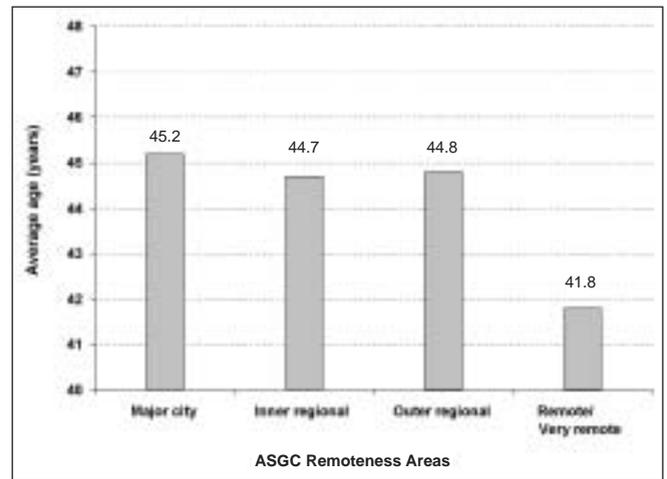


Fig 4. Average age of practising dentists by ASGC Remoteness Areas, 2001.

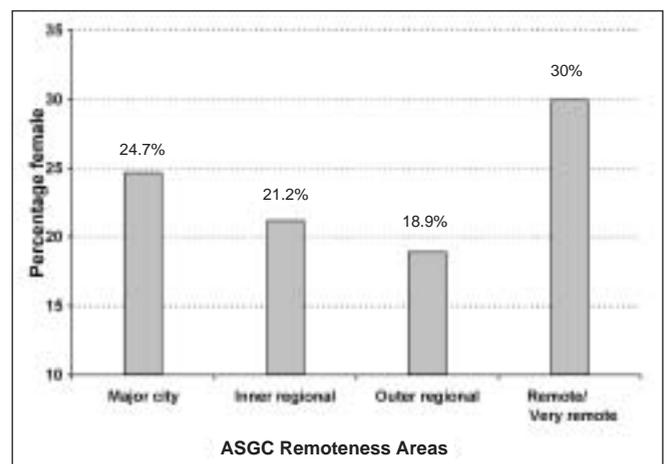


Fig 5. Percentage of female practising dentists by ASGC Remoteness Areas, 2001.

Table 3. Estimated FTE practising dentists per 100 000 population by ASGC Remoteness Area, hours usually worked assigned by location of main, second and third practice, 2001

State/Territory	Major city	FTE practising dentists per 100 000 population			Australia
		Inner regional	Outer regional	Remote/Very remote	
New South Wales	61.8	36.2	20.7	1.2	53.2
Victoria	54.2	28.5	24.4	0.2	47.1
Queensland	59.2	42.6	35.7	2.5	48.8
South Australia	65.0	23.9	29.8	8.0	54.3
Western Australia	57.7	34.5	36.0	8.9	49.8
Tasmania	n.a.	40.5	11.7	0.2	29.8
Northern Territory	n.a.	n.a.	36.1	8.5	25.9
Australian Capital Territory	58.2	159.0	n.a.	n.a.	58.4
Australia	59.1	35.4	28.3	16.0	49.9

Notes

1. FTE based on 37.5 hours per week.
2. n.a. denotes not applicable
3. ACT Inner regional: there were 1.0 FTE practising dentists for an estimated resident population of 657, resulting in an disproportionately high FTE practising rate, 159.

of one to two weeks per year. The degree to which the dental labour force data collection captures this periodical or short-term activity is unknown and hence the supply of services to Regional/Remote Australia may be underestimated. Nevertheless, with such large differences in supply, it is unlikely that any greater precision will have a substantial impact on closing the gap between Major city and Regional/Remote areas.

Although supply of dentists in Regional/Remote areas is substantially lower than for Major city areas, this does not automatically mean that people living in those areas access dental services less than those living in Major city areas. Those living in Regional/Remote areas may routinely access services in Major city locations. Furthermore, accessibility to services may depend more significantly on factors such as car ownership, road conditions, and socio-economic issues, factors that are not reflected in the ASGC Remoteness classifications. Although unmet demand and equity of access must be examined by the analysis of service user data, lower rates of supply in areas outside major cities may be indicative of a reduced capacity of persons living in those areas to access dental services.

The examination of the supply of dentists in regions defined by the ASGC Remoteness Areas can be viewed as one useful indicator of emerging shortages of dentists in Australia. It has been speculated that Regional/Remote areas are commonly seen as less attractive practice locations, if employment opportunities exist in Major city areas, dentists would more likely choose to work in the latter location. Therefore, any decrease over time of dentist practising rates per 100 000 population in Regional/Remote areas could be indicative of a dentist shortage.

Alternatively, if overall dentist practising rates remain stable or increase overtime, but the relative distribution of supply between areas alters, it may reflect changes in the attractiveness/viability of practising in a Regional/Remote versus a Major city area. In addition, monitoring of dentist practising rates by ASGC Remoteness Areas could be effective in determining the success of any policies implemented with the aim of improving supply of dental services in Regional/Remote areas.

References

1. Teusner DN, Spencer AJ. Projections of the Australian dental labour force. AIHW Cat No. POH 1. Canberra: Australian Institute of Health and Welfare (Population Oral Health Series No 1), 2003.
2. Spencer AJ, Teusner DN, Carter KD, Brennan DS. The dental labour force in Australia: the position and policy directions. AIHW Cat No. POH 2. Canberra: Australian Institute of Health and Welfare (Population Oral Health Series No 2), 2003.
3. Australian Institute of Health and Welfare. Rural, regional and remote health: a guide to remoteness classifications. AIHW Cat No. PHE 53. Canberra: AIHW, 2004.
4. Australian Bureau of Statistics. Population by age and sex, Australian States and Territories, 30 June 2001. ABS Cat No. 3201.0. Canberra: ABS, 2001.

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