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Trends in Dental Practice by Geographic Location

A large percentage (63.4%) of the Australian population live in capital cities. This geographic distribution of the population is also reflected in the distribution of Australian dentists; over 70 per cent of practising dentists in 1992 had their main practice located in a capital city.

The rate of practising dentists per 100,000 population varies considerably between capital city (51.0) and rest of State (28.6), with lower availability of dentists outside of capital cities.

Oral health status is also known to vary between geographic locations, with a higher percentage of edentulism (complete tooth loss) in non-capital (14.8%) compared to capital city (9.2%) locations.

This Newsletter uses data from the Longitudinal Study of Dentists' Practice Activity to examine variation in dental practice between dentists in capital city and non-capital locations.

Longitudinal Study of Dentists' Practice Activity

The Longitudinal Study of Dentists' Practice Activity is a five-yearly survey of Australian dentists. The Study commenced in 1983–84 (response rate 73%) and has also been collected in 1988–89 (response rate 75%) and 1993–94 (response rate 74%).

This Newsletter presents data from the Study on trends in practice activity among Australian private general practice dentists between capital city and non-capital locations over the 10-year period 1983–84 to 1993–94. This includes measures of hours per year worked, patients per hour and patient visits per year.

Dentist age and location by time

The age distribution of responding private general practitioners is presented in Table A by geographic location of the main practice of each dentist. At all three survey times, the majority of dentists in the Study were from capital city locations, ranging from 73.2% (1983–84), to 74.8% (1988–89) and 71.8% (1993–94). The highest percentage of dentists were in the 30–39 year age group at all three survey times and for both capital city and non-capital locations.

Table A: Dentist age and location by time (private general practitioners)

Dentist age (years)	Location: Capital city n	(%)	Non-capital n	(%)	All n	(%)
1983-84						
20-29	53	(20.1)	27	(28.0)	80	(22.2)
30-39	71	(26.7)	32	(32.8)	102	(28.4)
40-49	51	(19.4)	17	(17.4)	68	(18.9)
50-59	67	(25.4)	16	(16.4)	83	(23.0)
60+	22	(8.4)	5	(5.4)	27	(7.6)
Total	***264***		***97***		***361***	
1988-89						
20-29	81	(23.0)	18	(15.0)	99	(21.0)
30-39	107	(30.4)	43	(36.2)	151	(31.9)
40-49	71	(20.2)	21	(17.3)	92	(19.5)
50-59	53	(15.1)	27	(22.4)	80	(17.0)
60+	40	(11.2)	11	(9.0)	50	(10.6)
Total	***353***		***119***		***472***	
1993-94						
20-29	44	(14.2)	21	(17.6)	65	(15.1)
30-39	96	(30.9)	39	(32.0)	134	(31.2)
40-49	85	(27.5)	29	(23.8)	114	(26.4)
50-59	43	(14.0)	18	(14.8)	61	(14.2)
60+	42	(13.4)	14	(11.8)	56	(13.0)
Total	***310***		***121***		***431***	

The findings presented in this Newsletter are based on data which have been weighted using the estimated number of practising private general practice dentists (December 1983 and 1988), with the age and sex distribution of dentists (1981 and 1986 population censuses), and dental board registration statistics (1992). This weighted measure is representative of the age and sex distribution of Australian private practice dentists at each wave of the study.

Dentists' Practice Activity 1983–84 to 1993–94

General trends in practice activity were presented in a previous Newsletter (Volume VI, No. 1, July 1995). These results showed that over the period 1983–84 to 1993–94 annual time worked by private practitioners remained stable, but the number of patients treated per hour declined across the 10-year period, resulting in a drop in the number of patient visits per year. However, the number of services provided per visit increased over the period of the study.

Practice activity by location

A number of measures of practice activity were recorded by each dentist. These included the number of patients per day, hours per day, days per week, and weeks per year spent in dental practice. A breakdown of these measures is presented by location in Table B.

Table B: Measures of practice activity by location (private general practitioners)

	Capital city Mean (95% CI)		Non-capital Mean (95% CI)	
1983–84				
Patients per day*	15.2	(14.5–15.9)	18.0	(16.7–19.3)
Hours per day	8.1	(7.9–8.3)	8.1	(7.9–8.4)
Days per week*	4.5	(4.4–4.6)	4.7	(4.6–4.8)
Weeks per year	46.0	(45.3–46.8)	46.3	(45.1–47.5)
1988–89				
Patients per day*	13.8	(13.2–14.3)	16.5	(15.3–17.7)
Hours per day	8.2	(8.1–8.4)	8.1	(7.8–8.4)
Days per week	4.6	(4.5–4.7)	4.6	(4.5–4.8)
Weeks per year	46.0	(45.5–46.6)	46.0	(44.9–47.1)
1993–94				
Patients per day*	12.4	(11.9–12.9)	14.7	(13.9–15.6)
Hours per day	8.0	(7.8–8.2)	8.2	(8.0–8.5)
Days per week	4.6	(4.5–4.7)	4.6	(4.4–4.8)
Weeks per year	46.1	(45.5–46.8)	46.8	(46.2–47.5)

* significant difference (Mann-Whitney; P<0.05)

There was a consistent trend for the number of patients per day to be higher in non-capital compared to capital city locations. For 1983–84, the number of days per week worked was also higher for non-capital compared to capital city locations. No significant differences between non-capital and capital city locations were observed for the number of hours per day or weeks per year worked in any year of the study.

While the number of patients per day was consistently higher in non-capital compared to capital city locations, there was a trend for these numbers to decrease over the period of the study. In capital city locations, the number of patients per day declined from 15.2 in 1983–84, to 13.8 in 1988–89, and 12.4 in 1993–94. In non-capital city locations the number of patients per day declined from 18.0 in 1983–84, to 16.5 in 1988–89, and 14.7 in 1993–94.

Measures of productivity

The measures of practice activity presented in Table B can be used to calculate other measures of productivity, such as the number of patient visits per year. The approach is outlined in Table C below:

Table C: Calculation of practice productivity

Hours per year =
hours per day x days per week x weeks per year

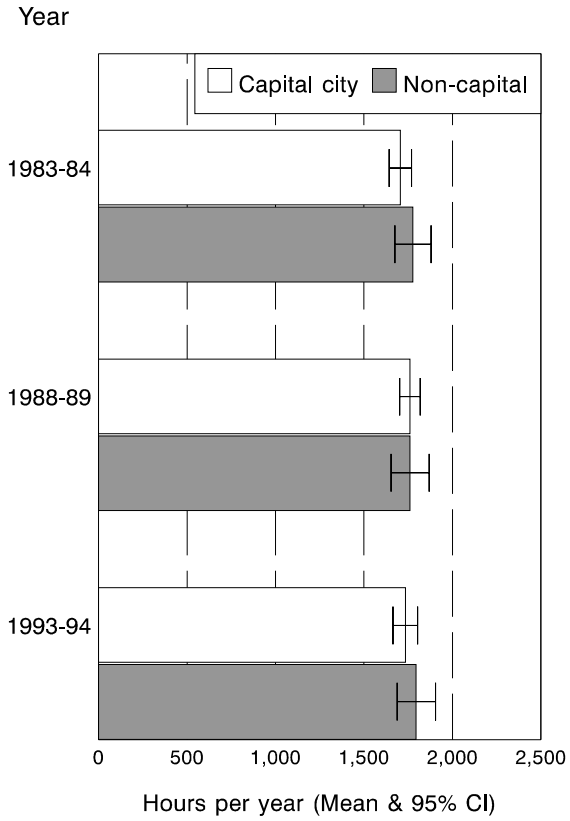
Patients per hour =
patients per day/hours per day

Patient visits per year =
hours per year x patients per hour

(a) Time devoted to work by location

Figure 1 shows the mean hours per year devoted to work for the period 1983–84 to 1993–94, broken down by geographic location. There were no differences in annual time devoted to work by geographic location at any of the three points during the study period. This reflects the lack of variation by geographic location shown in Table B for hours per day, days per week and weeks per year worked. There was also no discernible change over time, with time devoted to work remaining stable across the study period.

Figure 1: Annual time worked by location and time of study

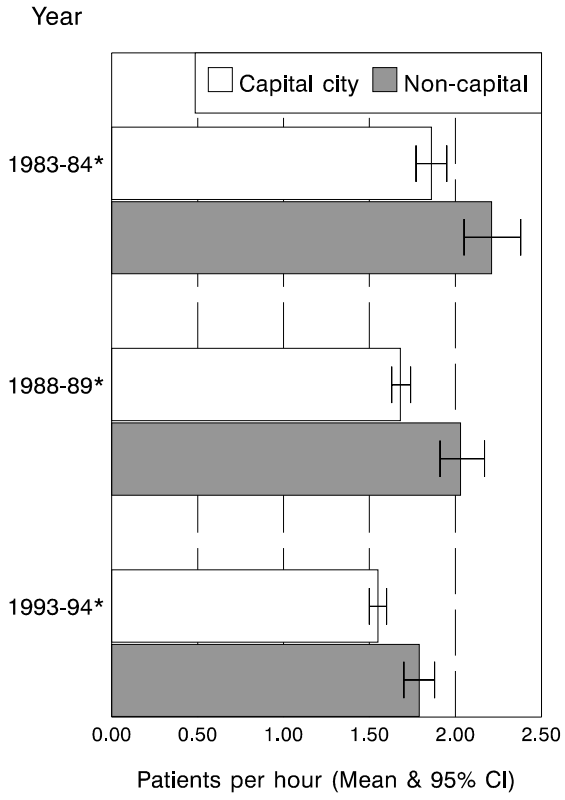


(b) Patients per hour by location

Patients per hour are presented in Figure 2 by location and time of study. At all three points across the study period the number of patients per hour was higher for non-capital compared to capital city locations. This reflects the consistently higher number of patients per day in non-capital locations presented in Table B.

For both capital city and non-capital locations there was a consistent trend over time towards reduced numbers of patients per hour. A difference between capital city and non-capital locations still remained at the end of the 10-year study period.

Figure 2: Hourly productivity by location and time of study



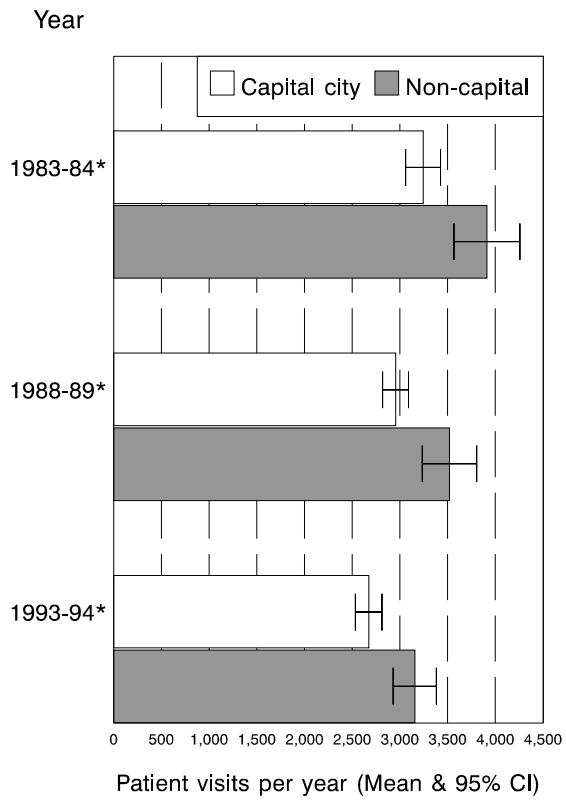
*significant difference (Mann-Whitney; P<0.05)

(c) Patient visits per year by location

The number of patient visits per year is presented in Figure 3 by location and time of study. At all three points across the study period the number of patient visits per year was higher for non-capital compared to capital city locations. This reflects the higher numbers of patients per hour in non-capital locations.

There was a consistent trend over time towards lower numbers of patient visits per year for both capital city and non-capital locations. However, as was the case for patients per hour, a difference in patient visits per year by location remained at the end of the 10-year study period.

Figure 3: Patient visits per year by location and time of study



*significant difference (Mann-Whitney; P<0.05)

Practice activity by location and time

The results presented in this Newsletter indicate that patterns of practice activity differ between geographic location, and have changed over time.

During the 10-year period of the study, time devoted to work has remained stable for both capital city and non-capital locations. A similar pattern of declining numbers of patients per hour and patient visits per year was observed for both capital city and non-capital locations. However, consistently higher numbers of patients per hour and patient visits per year were observed for non-capital compared to capital city locations.

Findings presented in the July 1995 DSRU Newsletter showed that declines in patients per hour and patient visits per year over time were associated with increases in the number of services provided per visit. This also appears to be operating in the comparison by geographic location.

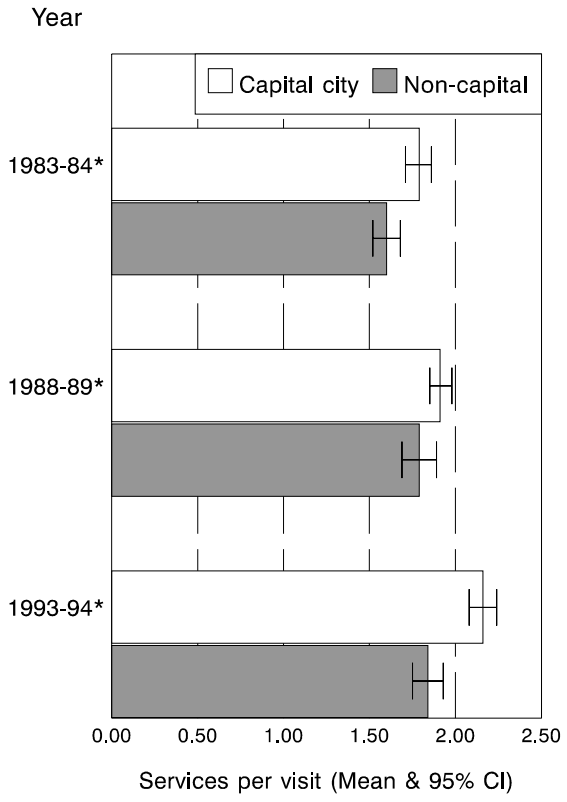
For example, while the number of patient visits per year is higher for non-capital locations compared to capital city locations (*eg* 3156 *cf* 2673 in 1993–94), the number of services provided per visit was lower.

In 1993–94, 1.84 services per visit were provided in non-capital locations compared to 2.16 services per visit in capital city locations.

Total services per visit by location

Figure 4 shows that the number of services per visit was higher at capital city compared to non-capital locations. There was a trend over the study period for the number of services per visit to increase at both capital city and non-capital locations. However, a difference between locations in the number of services per visit remained at the end of the study period.

Figure 4: Services per visit by location and time of study



*significant difference (one-way anova; P<0.05)

An estimate of the number of services per year supplied by a dentist was obtained by multiplying the number of services per visit by the number of patient visits per year. At each point of the study, the number of services supplied per year was higher for non-capital compared to capital city locations, but the margin was small and has decreased over time. There was a difference of 8% in the number of services per year at non-capital versus capital city locations in 1983–84, 10% in 1988–89, but only 1% in 1993–94.

Summary

Compared to capital city locations, dentists at non-capital locations reported:

- similar levels of time devoted to work
- higher numbers of patients treated per hour
- higher numbers of annual patient visits
- lower numbers of services per visit.

For both capital city and non-capital locations the pattern of practice activity changed over time. These changes included:

- decreased numbers of patients treated per hour
- decreased numbers of patient visits per year
- increased numbers of services per visit.

Differences in patterns of practice activity between capital city and non-capital locations persisted over the 10-year period.

Acknowledgements

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The AIHW Dental Statistics and Research Unit (DSRU) is an external unit of the Australian Institute of Health and Welfare and was established in 1988 at The University of Adelaide. The DSRU aims to improve the range and quality of dental statistics and research on the dental workforce, dental health status, dental practices and use of dental services.

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