

## Longitudinal Study of Dentists' Practice Activity

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

**The study involves a random sample of 10% of male dentists and 40% of female dentists from the dental registers in each State/Territory of Australia who have been followed over time. Sample supplementation at each follow-up wave ensures representative cross-sectional estimates for each point in time.**

**This study allows the practice activity of dentists in Australia to be monitored over time, facilitating the detection of patterns in dental practice and the identification of trends over time.**

### Trends in dental practice

Changes in current practice patterns of dentists, measured through productivity variables, may reflect factors such as population demographics, oral health, labourforce structure and service-mix provided.

This *Newsletter* presents data on trends in productivity of Australian private general practice dentists over the ten year period 1983-84 to 1993-94. This includes measures of hours per year worked, patients per hour and patients per year treated, patient age distribution, and number of services per visit.

## Dentist age and sex distribution

The age and sex distribution of responding private general practitioners are presented in Table A. In total, there were 367 dentists from 1983-84, 481 from 1988-89 and 441 from 1993-94. The highest percentage of dentists was in the 30-39 year age group with higher percentages of female dentists in the two youngest age groups, while the highest percentage of male dentists were in the 30-39 and 40-49 year age groups.

Dentist age (years)	Sex of dentist				All		
	Male		Female		n	%	
	n	%	n	%			
1983-84	20-29	37	(13.1)	32	(37.6)	69	(18.8)
	30-39	87	(30.9)	31	(36.5)	118	(32.2)
	40-49	63	(22.3)	12	(14.1)	75	(20.4)
	50-59	65	(23.0)	7	(8.2)	72	(19.6)
	60+	30	(10.6)	3	(3.5)	33	(9.0)
Total	282		85		367		
1988-89	20-29	40	(13.2)	67	(37.9)	107	(22.2)
	30-39	105	(34.5)	68	(38.4)	173	(36.0)
	40-49	77	(25.3)	22	(12.4)	99	(20.6)
	50-59	39	(12.8)	15	(8.5)	54	(11.2)
	60+	43	(14.1)	5	(2.8)	48	(10.0)
Total	304		177		481		
1993-94	20-29	35	(12.8)	46	(27.5)	81	(18.4)
	30-39	83	(30.3)	76	(45.5)	159	(36.1)
	40-49	78	(28.5)	30	(18.0)	108	(24.5)
	50-59	42	(15.3)	10	(6.0)	52	(11.8)
	60+	36	(13.1)	5	(3.0)	41	(9.3)
Total	274		167		441		

Data were subsequently 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). The following results use this weighted measure, which is representative of the age and sex distribution of Australian private practice dentists at each wave of the study.

## Practice productivity: historical trends

Trends in practice productivity (presented in Table B) have shown decreased hours per year worked between 1960-61 and 1974-75, with a plateau to 1982-83, while annual productivity (patient visits per year) has shown a 23.3 per cent decline from 1960-61 to 1982-83.

Explanations for these trends have included historical moves in the labourforce towards shorter working weeks, and specific changes within general practice related to increased length of appointment times.

Year	Hours per year	Patient visits per year	Appointment time
1960-61	1947	4257	23.7
1965-66	1873	4423	22.4
1970-71	1851	4276	23.0
1974-75	1796	4071	23.1
1977-78	1754	3647	25.1
1982-83	1801	3267	33.1

Data sources: Barnard PD. *Australian Dental Practice Surveys 1961-75*. Sydney: ADA, 1977.  
 Barnard PD. *Australian Dental Practice Survey 1977-1978*. Sydney: ADA, 1981.  
 Barnard PD. *Dental Practice Survey 1982/1983*. *ADA News Bulletin*, 1985;111:7-12.

## Dentists' practice activity 1983-84 to 1993-94

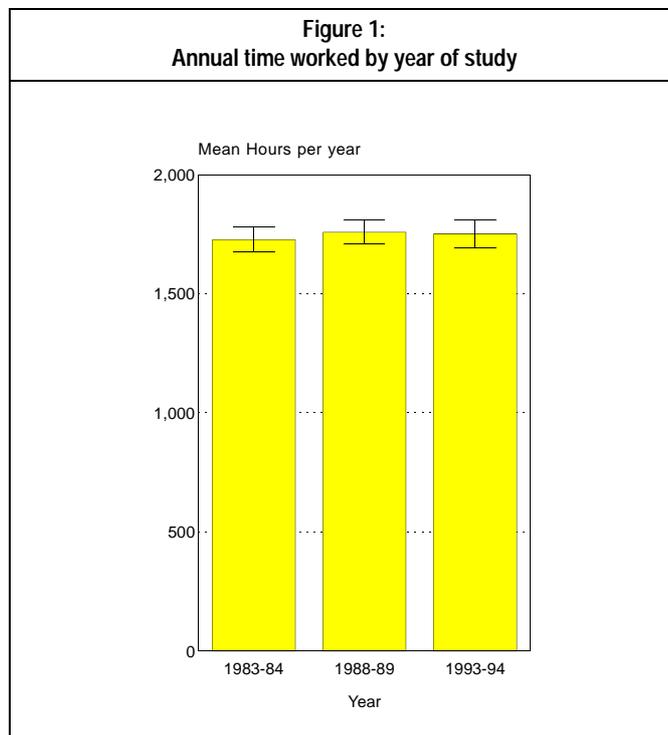
### Measures of productivity

In this study practice productivity was measured through dentists' providing estimates of their current practice activity for a range of variables. These were used to calculate the main measure of productivity, namely patient visits per year. The approach is outlined in Table C below:

<p><b>Hours per year =</b> hours per day x days per week x weeks per year</p> <p><b>Patients per hour =</b> patients per day/hours per day</p> <p><b>Patient visits per year =</b> hours per year x patients per hour</p>
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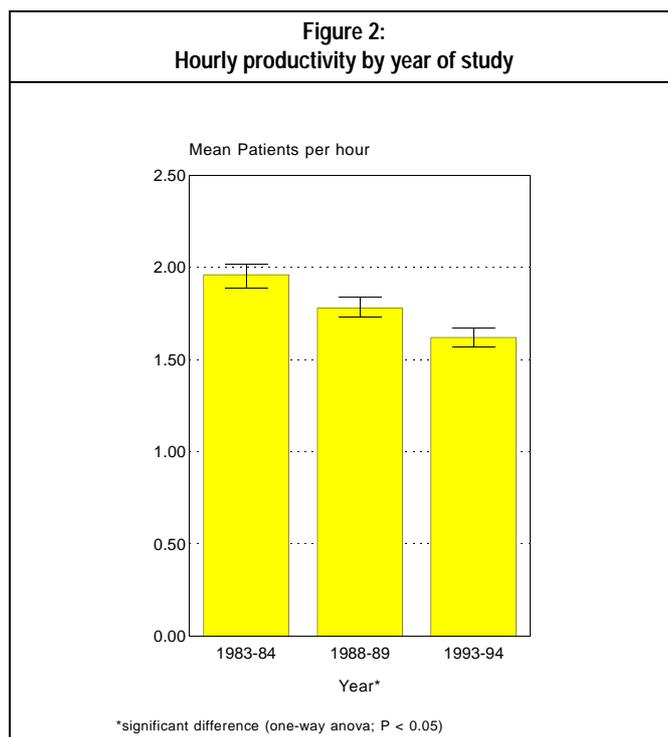
### Time devoted to work

Figure 1 shows mean hours per year devoted to work by year for the period 1983-84 to 1993-94. There was no change in annual time worked by dentists across this period.

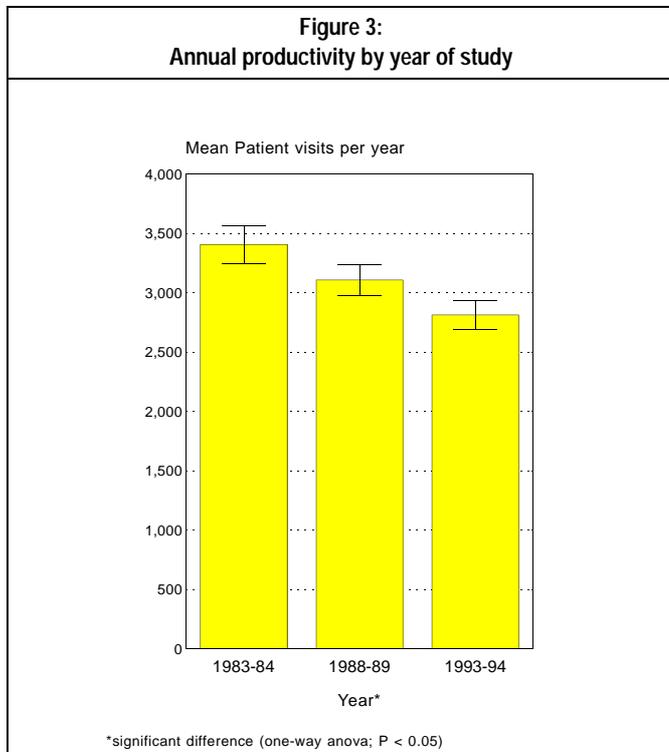


### Productivity

Patients per hour treated are presented in Figure 2 by year of study. This measure of hourly productivity declined across the ten year period.



Annual productivity, measured as patient visits per year, is presented in Figure 3 by year of study. This annual measure of productivity was calculated by multiplying hours per year worked by patients per hour treated for each dentist. Annual productivity declined across the ten year study period.



These findings are consistent with historical trends for time devoted to work and productivity (presented in Table B). Annual time worked has remained stable between 1700 and 1800 hours per year since the mid-1970s, while patient visits per year have declined since the 1960s.

Between 1983-84 and 1993-94 this drop in annual productivity can be directly related to the decrease in the number of patients treated per hour. This decline in hourly productivity may be a continuation of the historical trend towards increased length of appointment time which emerged during the 1970s and early 1980s.

### Measures of service provision

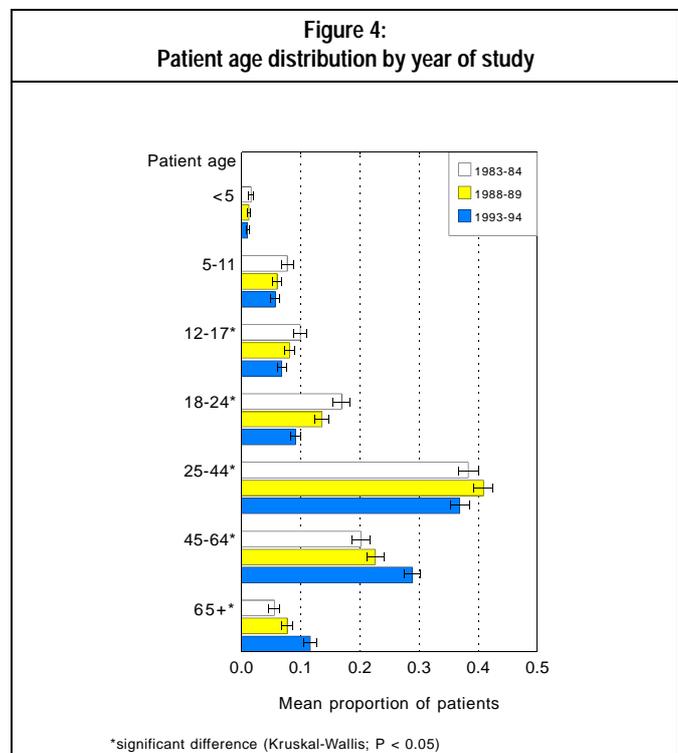
In addition to estimates of time devoted to work and practice productivity, other measures of dentists' practice activity were collected. Dentists provided a one day log of services provided and characteristics of patients treated, such as age, from a self-selected typical practice day.

These service log data provide the measures of the age distribution of patients treated and the services provided per visit by year of study which are presented in the following sections.

### Patient age distribution

Figure 4 presents the proportion of patient age groups treated by private general practitioners by year of study. At all three times, the 25-44 year age group comprised the highest proportion of patients treated.

Trends were evident in the proportion of patients by age group by year, with decreased proportions of younger patients (aged 12-17 and 18-24 years) and increased proportions of older patients (aged 45-64 and 65+ years).

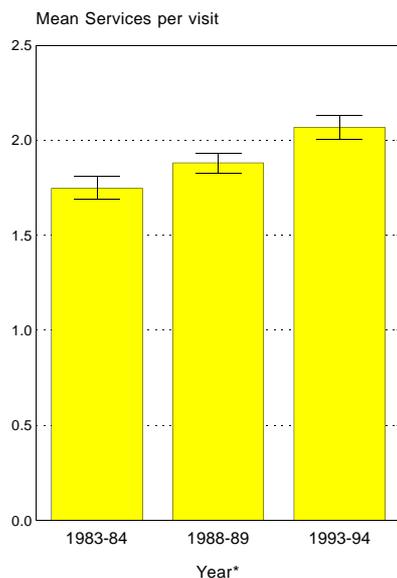


### Services provided per visit

Figure 5 shows the total number of services provided per visit by year of study. The number of services per visit increased across the ten year study period.

This increase was made up of increased numbers of services per visit in the areas of diagnostic, preventive, endodontic, crown and bridge, and general/miscellaneous services (as defined by the ADA *Schedule of Dental Services*).

**Figure 5:**  
Number of services per visit by year of study



\*significant difference (Kruskal-Wallis;  $P < 0.05$ )

## Discussion: trends in practice activity

The data presented in this *Newsletter* show that although dentists in private general practice have continued to work the same amount of time per year across the period 1983-84 to 1993-94 there was a decline in the annual number of patient visits.

This decline in annual visits can be related to the observed decrease in patients treated per hour across the ten year study period.

A number of factors may be related to this decline. Historical trends have indicated increased length of appointment times. Data from this survey have demonstrated increased proportions of older patients and greater numbers of services provided per visit.

With declining levels of edentulism there is an increased pool of teeth at risk of dental disease, particularly among older patients. These patients may have complex treatment needs which require more services and take longer to complete.

Other considerations in declining productivity include increased change-over time between patients associated with sterilisation of equipment and infection control procedures.

## Summary

Data presented in this *Newsletter* show decreased levels of hourly and annual productivity as measured by patients treated per hour and patient visits per year.

However, during the ten year study period there was an increase in the proportion of older patients treated and greater numbers of services provided per visit.

## Acknowledgments

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**DSRU Director** Professor A. John Spencer  
**Research Fellow** Mr Murray Thomson  
**Research Officers** Mr Fearnley Szuster  
 Mr Michael Davies  
 Mr David Brennan

**Research Associates** Mr Knute Carter  
 Ms Judy Stewart  
 Ms Danae Kent  
 Ms Anna Puzio

**Consultant Oral Epidemiologist** Dr Gary Slade

**Published by:**

AIHW Dental Statistics and Research Unit  
 The University of Adelaide  
 AUSTRALIA 5005

Phone: (08) 303 4051  
 Fax: (08) 303 3444

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