



The Child Dental Health Survey, Victoria 1997

AIHW Dental Statistics and Research Unit The University of Adelaide

in collaboration with Dental Health Services Victoria

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Abbreviations

d – deciduous decayed teeth

m – deciduous missing teeth

f – deciduous filled teeth

dmft - deciduous decayed, missing and filled teeth

D - permanent decayed teeth

M – permanent missing teeth

F – permanent filled teeth

DMFT - permanent decayed, missing and filled teeth

SD - standard deviation

Purpose of this report

This report continues the series of annual reports providing descriptive statistics concerning child dental health in Victoria and follows the 1996 report. Information listed in the tables includes: the age and sex of children in the sample, their deciduous and permanent caries experience, frequency of fissure sealants and history of school dental service examinations.

The following sections also provide a simple, summary statement highlighting differences between the 1996 and 1997 results. However, no formal hypothesis tests have been undertaken and descriptions of differences between years are intended as a guide to the reader rather than as an evaluation of trends.

Sources of subjects and sampling

Data were collected during the 1997 calendar year on Victoria School Dental Service patients by dental therapists and dentists. A random sampling procedure was used to systematically select one in eight patients. This was achieved by maintaining a count of all examined patients and collecting data for every eight patient counted.

For the first time in the series of Child Dental Health Survey reports for Victoria, data were weighted for all analyses to more accurately reflect the child population in Victoria. Children from the Hume, Gippsland, Northern Metropolitan, Eastern Metropolitan, and Southern Metropolitan regions were initially under-represented in the sampling whereas children from the Barwon South Western, Loddon Mallee and Western Metropolitan regions were over-represented relative to actual population distribution and were weighted down in the analyses (see Table 1).

Table 1. Sample size and assigned weight by region

Region	Number Sampled	Weight
Barwon South Western	1,085	0.74
Grampions	458	0.99
Loddon Mallee	933	0.67
Hume	600	1.17
Gippsland	504	1.20
Western Metropolitan	1,495	0.80
Northern Metropolitan	1,260	1.16
Eastern Metropolitan	1,818	1.09
Southern Metropolitan	1,919	1.20

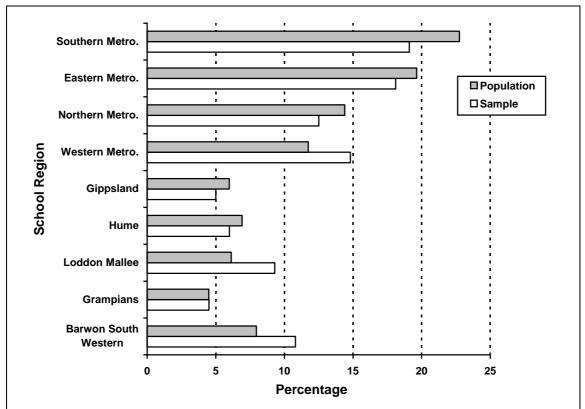


Figure 1. Percentage of children (aged 5–14) by region for sample and Victorian population.

Weighting was carried out so that the regional contributions for the study equalled the distribution of children aged 5–14 years in Victoria as provided by the Australian Bureau of Statistics as at 30 June 1997. A comparison of the percentage of children across regions for both the current sample and for the Victorian population is given in Figure 1. One of the repercussions of the weighting was to slightly increase the weights for children from Metropolitan Melbourne (average weight = 1.06) while decreasing the weights for children from both Rural areas (average weight = 0.92) and those from areas classified as Metropolitan Other (average weight = 0.74).

Data analysis

The data were extensively cleaned prior to analysis to correct data entry errors. In addition, checks were carried out to identify the presence of duplicate cases. As a result, 978 cases were removed from the data set prior to analysis. These cases varied from the remaining sample in that they were on average approximately 1 year older, had less clinically detectable decay and more fillings in their deciduous dentition and had a higher DMFT index.

All indices are calculated from data collected over a 12-month period. Where children received more than one examination during this period the information derived from examinations other than the first were excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40% and population estimates of these indices may be considered to be statistically unreliable and should be interpreted with due care.

Demographic composition of the sample

A total of 10,115 children aged 4 to 16 years were included in the sample for 1997 (see Table 2). The frequency distribution of children's ages peaked at 6 years, and few children aged less than 5, or more than 12 years, were sampled. Accordingly, it is important to note that the sample was greatest for primary school aged children, and that some caution should be used when considering the representativeness of the sample for older children.

Due to the very small number so children aged 15 and 16 years old results for these age groups have been suppressed in the results to follow.

Changes since 1996

The total number of children sampled in 1997 was 2,193 fewer than in 1996. There were decreases in the number of children sampled across all age categories, except for the 13-year-old and 14-year-old categories.

Table 2: Demographic composition of the sample

Age (years)		Children in samp	le	Children in sample (weighted)				
	Males	Females	Persons	Males	Females	Persons		
	n	n	n	n	n	n		
4	10	2	12	10	2	12		
5	232	291	523	232	293	525		
6	883	866	1,749	885	856	1,741		
7	862	835	1,697	868	831	1,699		
8	752	751	1,503	751	753	1,504		
9	734	667	1,401	745	674	1,420		
10	630	584	1,214	631	584	1,215		
11	586	581	1,167	588	571	1,160		
12	344	344	688	339	344	683		
13	59	49	108	58	46	104		
14	17	23	40	16	23	40		
15	4	4	7	4	4	8		
16	2	3	6	2	3	6		
Total	5,115	5,000	10,115	5,130	4,985	10,115		

Deciduous teeth: age-specific experience

As can be seen in Table 3, the mean number of clinically detectable decayed teeth among children aged 5 to 10 years varied from 1.47 to 0.77 and is lowest among older children. In contrast, the mean number of filled deciduous teeth increased to 1.35 for 9 year-old children before declining due to the exfoliation of deciduous dentition. The variation in mean dmft across the age range showed a similar pattern, increasing from 1.05 for 4-year-olds to 2.40 for 9-year-old children before declining to 0.83 for 12-year-olds.

The percentage of caries experience due to clinically detectable decay (d/dmft) showed an age-associated decline, more than halving from 81.1% among 6-year-olds to 40.0% among 10-year-olds. In addition, the percentage of caries-free children (% dmft=0) reduced from 72.0% among 4-year-olds to a low of 39.2% among 9-year-olds. It is noteworthy that less than one half of children were free of deciduous caries experience between the ages of 7 and 10. The percentage of caries free children therefore inversely mirrors the mean dmft prevalence.

Changes since 1996

There were consistent and often large increases in the mean number of clinically detectable decayed teeth between 1996 and 1997. However, there were similar increases in dmft scores for several age groups meaning there was little change in the d/dmft ratio for these children. There was also a decrease in the percentage of children with dmft=0 for children aged 6 to 9 years old.

Table 3: Deciduous teeth: age-specific caries experience

Age (years)	Children	Children Decayed (d)		Filled (f)		dmft		d/dmft	dmft=0
	n	mean	SD	mean	SD	mean	SD	%	%
4	12	0.70*	2.32*	0.34*	1.04*	1.05*	2.44*	45.7*	72.0
5	525	1.30	2.54	0.39	1.47	1.78	3.28	79.7	61.5
6	1,741	1.47	2.66	0.37	1.16	1.92	3.26	81.1	55.4
7	1,699	1.17	2.00	0.72	1.60	2.01	2.89	62.5	48.8
8	1,504	1.04	1.73	1.11	1.86	2.32	3.04	50.0	43.6
9	1,420	0.90	1.45	1.35	1.92	2.40	2.77	40.5	39.2
10	1,215	0.77	1.32	1.17	1.81	2.07	2.63	40.0	44.0
11	1,160	0.55	1.06	0.80	1.40	1.44	2.13	41.5	53.5
12	683	0.33	0.78	0.43	1.01	0.83	1.64	45.2	69.1

Permanent teeth: age-specific experience

The mean number of clinically decayed permanent teeth increased continuously across the age groups (see Table 4). A similar pattern is apparent for filled teeth although at every age children presented with more clinically decayed teeth than filled teeth. The mean DMFT also rose quite consistently across age groups, increasing from 0.03 for 5-year-olds to 1.28 for 13-year-olds. The DMFT for 12 year-old children in 1997 was 1.04.

The percentage of DMFT due to decay (D/DMFT) and the percentage caries free (DMFT=0) declined steadily across age groups. In contrast to the deciduous dentition, over 69% of children in each age group 9 or less had no detectable caries experience in their permanent dentition. At age 12, 54.6% of children had no clinically detectable levels of decay.

The mean DMFT of 14-year-olds appeared to be greater than expected based on the age-associated pattern in younger ages. As noted already, children aged 12 years or more were outside the main target groups for universal care in Victoria and, in addition, there are relatively small numbers of such children in the sample. For these reasons the data for 14-year-olds may be less representative of the population.

Changes since 1996

There were generally few changes in permanent caries experience between 1996 and 1997.

Table 4: Permanent teeth: age-specific caries experience

Age (years)	Children	Iren Decayed (D)		Filled (F)		DMFT		D/DMFT	DMFT=0
	n	mean	SD	mean	SD	mean	SD	%	%
5	525	0.03*	0.43*	-	_	0.03*	0.43*	100.0	99.3
6	1,741	0.08	0.41	0.01*	0.29*	0.09	0.55	95.5	95.3
7	1,699	0.18	0.57	0.02	0.18	0.20	0.60	90.3	87.7
8	1,504	0.33	0.77	0.11	0.48	0.45	0.93	77.9	75.5
9	1,420	0.37	0.86	0.19	0.60	0.56	1.07	67.7	69.1
10	1,215	0.38	0.92	0.25	0.66	0.65	1.18	58.9	66.2
11	1,160	0.43	0.89	0.34	0.80	0.79	1.34	56.4	62.5
12	683	0.56	1.03	0.45	1.01	1.04	1.56	57.8	54.6
13	104	0.81	1.61	0.47	1.09	1.28	1.99	63.1	52.9
14	40	1.56	2.92	0.89	1.30	2.71	3.04	51.5	23.8

All teeth: age-specific experience

Untreated caries in the combined deciduous and permanent dentitions (see Table 5) existed for between 28.0% and 51.1% of children in each age range from 4 to 12 years. Within this range, the greatest likelihood of untreated decay occurred for 9-year-olds where only 48.9% of children had d+D of zero. The most extensive levels of untreated decay (4 or more deciduous or permanent teeth) declined across ages, ranging from 15.8% of 6-year-olds to 6.3% of 13-year-olds. This age trend suggests that the greatest contribution came from the deciduous dentition.

While 90% or more children had no deciduous or permanent teeth missing due to caries, smaller percentages avoid fillings and this was clearly associated with age. Although 90% of 5-year-olds had no fillings, this declined to 50.6% for 9-year-olds before increasing again to 72.4% for 13-year-old children. Similarly, the percentage of children with no caries experience (dmft+DMFT=0) was age associated, reducing to 31.5% for 9-year-old children before increasing to 43.3% for children aged 13 years old.

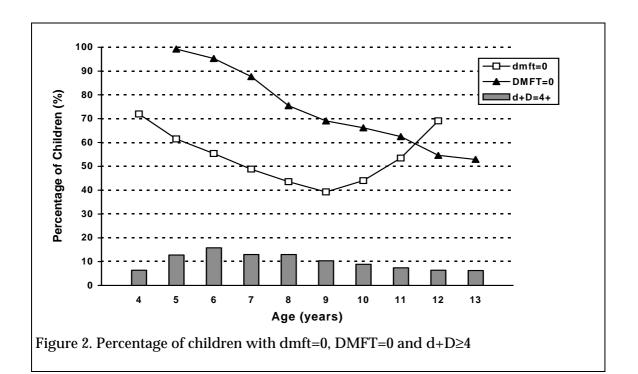
Figure 2 shows the percentages of children with dmft=0, DMFT=0 and d+D≥4.

Changes since 1996

Children aged 6 to 11 years of age had more caries experience in 1997 than in 1996 with reductions in the percentage d+D=0 across these years. This finding was also reflected in statistics for dmft+DMFT=0 where, again, children aged 6 to 9 years old were less likely to have a score of 0 in 1997 than in 1996.

Table 5: All teeth: age-specific caries experience

Age				d+D=					
(years)	Children	0	1	2	3	4+	m+M=0	f+F=0	dmft+DMFT=0
	n	%	%	%	%	%	%	%	%
Up to 4	12	72.0	8.8*	6.4*	6.4*	6.4*	100.0	84.8	72.0
5	525	65.1	8.2	8.9	5.1	12.8	96.3	90.0	61.0
6	1,741	57.4	11.3	9.5	6.0	15.8	95.6	86.7	53.9
7	1,699	54.4	13.7	11.5	7.3	13.0	93.6	74.1	45.4
8	1,504	50.6	16.6	11.9	7.9	13.0	90.8	60.3	38.6
9	1,420	48.9	19.9	13.7	7.1	10.4	90.3	50.6	31.5
10	1,215	51.4	19.7	13.3	6.7	8.9	91.1	51.5	33.6
11	1,160	54.4	20.5	12.3	5.4	7.4	94.0	56.0	37.1
12	683	56.4	20.0	11.9	5.3	6.4	95.7	62.1	39.4
13	104	55.4	16.5	18.0	3.7*	6.3	98.8	72.4	43.3
14	40	45.0	26.1	8.6*	4.9*	15.4	83.0	55.4	20.8



Fissure sealants: age-specific experience

The use of fissure sealants increased sharply for children across the age range of 7 to 11 (see Table 6), going from a mean of 0.20 to a mean of 2.05 across these age groups. There was a higher frequency of fissure sealants among children with permanent caries experience (DMFT=1+) for children up to 9 years of age with few differences evident for children over this age.

Table 6: Fissure sealants: age-specific experience

Age (years)	Children	No. of sealants		Children w	ith DMFT=0	Children with DMFT=1+		
	n	mean	SD	n	%	n	%	
5	525	0.01*	0.16*	521	0.2*	4	0.0	
6	1,741	0.02	0.22	1,660	0.5	81	5.5	
7	1,699	0.20	0.79	1,490	5.7	209	15.8	
8	1,504	0.72	1.38	1,136	22.7	368	31.9	
9	1,420	1.37	1.66	981	43.7	439	50.9	
10	1,215	1.88	1.73	804	61.5	411	58.8	
11	1,160	2.05	1.72	724	67.0	435	68.9	
12	683	2.03	1.83	373	66.0	310	65.1	
13	104	1.92	1.88	55	61.5	49	58.1	
14	40	1.69	2.08	9	36.9	30	55.7	

Changes since 1996

There were few changes between 1996 and 1997 in either the mean number of fissure sealants or the distribution of fissure sealants according to caries status.

School Dental Service examinations

Table 7 describes the percentage of children who were new patients within the School Dental Service (having had no previous dental examination). As expected, the figure was highest for the youngest ages (7 years or less) indicating that most patients were enrolled during their early school years. For children up to 14 years of age, the highest percentage with a known previous examination was 77.4% for 11-year-olds

Table 8 refers only to children with previous examinations, and indicates their distribution according to time since last dental examination. More than 60% of 5-year-old children had had an examination within the previous 12 months. However, fewer than 20% of children aged 8 years or more had had a previous examination within the preceding 12 months. The most common time period since a previous examination for older children was between 1 and 2 years. Substantial percentages of children aged 8 years or more had had their previous examination more than 2 years previously. For 12-year-old children who had previously had an examination, 31.1% had not had an examination within the previous 2 years. The dramatic change across age groups in the time since last exam can be seen in Figure 2. For 6-year-olds, 60.7% had their last exam 6–12 months previously whereas 59.1% of 12-year-olds had their last exam 13–24 months previously.

The mean time since last examination increased from 15.09 months for 6-year-old children to 30.71 months for children aged 14 years old, with the mean time for 12-year-olds being just over 2 years.

Table 7: School Dental Service examinations: age-specific distribution

		Previous examination in School Dental Service					
Age (years)	Students	No	Yes	Unknown			
	n	%	%	%			
4	12	41.5	31.3	27.3*			
5	524	74.3	2.7	23.0			
6	1,742	70.8	6.0	23.2			
7	1,703	42.1	33.1	24.7			
8	1,506	16.4	65.0	18.6			
9	1,421	9.0	72.8	18.2			
10	1,216	6.1	76.3	17.6			
11	1,159	5.6	77.4	17.0			
12	686	7.2	74.6	18.2			
13	104	9.4	54.4	36.2			
14	40	5.9*	23.9	70.2			

Table 8: School Dental Service examinations: time since last visit

Age (years)	Students	0–6	7–12	13–24	25+	Time since last examination	
	n	months	months	months	months	mean	SD
4	4	_	_	_	_	_	_
5	14	62.8*	0.0	0.0	37.2*	24.47*	34.17*
6	105	13.6*	60.7	18.6*	7.2*	15.09*	17.70*
7	564	10.2	25.4	56.7	7.7	18.20	10.00
8	978	4.5	13.8	63.0	18.8	20.85	7.26
9	1033	4.7	16.4	61.5	17.4	21.03	8.38
10	927	2.9*	15.2	58.2	23.7	21.90	9.23
11	896	4.3	7.2	59.0	29.5	25.19	13.25
12	512	6.1*	3.7	59.1	31.1	24.61	11.04
13	56	0.0	0.0	21.0*	79.0	28.49*	4.53*
14	10	0.0	0.0	34.5*	65.5*	30.71*	10.99*

Changes since 1996

The changes during 1997 in frequency and timing of examinations indicate a greater percentage of children over the age of 7 known to have had a previous examination in the school dental service. Of those children with previous examinations, there were considerably larger percentages of children across most age groups in 1997 compared to 1996 having received their last examination 13–24 months previously and considerably lower percentages with their last examination more than 2 years previously.

