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The Child Dental Health Survey Western Australia 1997

AIHW Dental Statistics and Research Unit
The University of Adelaide

in collaboration with
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Health Department of Western Australia

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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

Information listed in the tables of this report 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 briefly describe each table and provide a simple summary statement highlighting differences between the 1997 and 1996 data. It is necessary to be cautious in drawing inferences concerning changes between the years. No formal hypothesis tests have been undertaken and descriptions of difference between years are intended as a guide to the reader rather than an evaluation of trends.

Sampling and data analysis

The data used for this report were collected during the 1997 calendar year from WA School Dental Service patients by dental therapists and dentists. A random sampling procedure was used to select approximately 1 in 13 patients. This was achieved by selecting those children whose birthday was on the 29th, 30th or 31st day of any month. Where children had an unknown date of birth, 1 in 13 of their records were sampled. Consequently, the data constitute a simple random sample and no statistical weighting has been applied in their analysis.

Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40% and population estimates of these indices should be viewed as statistically unreliable.

Demographic composition of the sample

The majority of children in the sample (74.6%) were aged between 5 and 12 years inclusive, with approximately equivalent numbers in individual ages within this range (see Table 1). However, children aged up to 16 years, or less than 5 years were also represented in substantial numbers. Females and males were represented in similar proportions in all ages although males were over-represented in the 6 and 11 year-old age groups.

The relatively small numbers of children aged either less than 5 years or greater than 16 years result in less reliability of computed statistics for those ages. In addition, it is important to note that those children who are outside the main school dental service target groups may differ on key characteristics and are likely to be less representative of their respective age groups in the WA population.

Changes since 1996

There has been an appreciable increase of 743 students sampled in 1997 from 1996. The increase occurred across all principal age groups

The gender balance is less evenly matched across age groups in 1997 than in 1996.

Table 1: Demographic composition of the sample

Age (years)	Number of records processed			Persons
	Males	Females	Unknown	
2	3	0	0	3
3	8	7	0	15
4	251	220	0	471
5	516	546	0	1,062
6	564	469	0	1,033
7	513	529	0	1,042
8	543	551	0	1,092
9	586	548	0	1,134
10	500	519	0	1,019
11	535	470	0	1,005
12	470	438	0	908
13	413	430	0	843
14	352	336	0	688
15	244	267	0	511
16	131	141	0	272
17	9	7	0	16
Total	5,638	5,478	0	11,116

Deciduous teeth: age-specific caries experience

The mean number of clinically detectable decayed teeth among children aged 5 to 12 years old declined steadily with age from 0.83 to 0.09 (see Table 2). In contrast, mean dmft increased to 1.68 for 9 year-old children before declining. These findings must be interpreted in view of the exfoliation of deciduous teeth as children grow older. Additionally, scores are increasingly deflated for the oldest age groups due to assigning children with no deciduous teeth a dmft score of zero.

The percentage of caries experience due to decay (d/dmft) shows an age-associated decline, reducing from 85.9% for children less than 5 years old to 26.5% among 11 year-olds. By comparison, the percentage of caries-free children (% dmft=0) shows a more modest reduction from 71.6% among children up to 5 years old to 44.7% among 9 year-olds, before increasing to 83.0% for 12 year-olds.

Table 2: Deciduous teeth: age-specific caries experience

Age (years)	Children	Decayed		dmft		d/dmft	Children with dmft=0
		mean	SD	mean	SD		
Up to 4	489	0.85	1.97	1.00	2.17	85.9	71.6
5	1,062	0.83	1.96	1.16	2.38	75.2	65.9
6	1,033	0.77	1.59	1.45	2.43	55.5	56.9
7	1,042	0.53	1.18	1.43	2.19	40.2	55.9
8	1,094	0.43	0.93	1.54	2.13	32.3	50.9
9	1,134	0.41	0.87	1.68	2.09	28.3	44.7
10	1,019	0.32	0.73	1.32	1.88	28.0	53.6
11	1,005	0.20	0.58	0.87	1.56	26.5	66.4
12	908	0.09	0.38	0.35	0.94	28.0	83.0

Changes since 1996

Between 1996 and 1997 there were increases in both clinically decayed and dmft teeth for children aged up to 6 years, however decreases were evident for 7, 8 and 10 year-olds. Few differences elsewhere were observed.

Permanent teeth: age-specific caries experience

As can be seen in Table 3, the mean number of clinically decayed permanent teeth was consistently smaller than the mean number of decayed deciduous teeth. Clinically detectable decay generally increased with increasing age, although it displayed an unusual 'saw-shaped' trend. The mean DMFT increased more consistently across age groups, from 0.02 for children up to 5 years of age to 2.19 for children aged 15 years old. The mean DMFT score for 12 year-old children was 0.87.

The percentage of DMFT due to decay (D/DMFT) and the percentage caries free (DMFT=0) both declined across age groups. It is noteworthy that more than 60% of children in all age groups up to 12 years of age were caries free.

Changes since 1996

Apart from decreases in the DMFT index for 6, 12, 13 and 16+ year-old children, there have been few changes in disease experience between 1996 and 1997. Changes in the D/DMFT ratio for several age groups between 1996 and 1997 were non-systematic and the percentage of children with DMFT=0 has not changed significantly.

Table 3: Permanent teeth: age-specific caries experience

Age (years)	Children	Decayed		DMFT		D/DMFT	Children with DMFT=0
	<i>n</i>	mean	SD	mean	SD	%	%
5	1,062	0.00	0.03*	0.02*	0.39*	33.0*	99.7
6	1,033	0.04	0.27	0.05	0.31	92.9	97.8
7	1,042	0.11	0.42	0.18	0.59	69.0	88.9
8	1,094	0.15	0.45	0.28	0.65	58.1	80.5
9	1,134	0.12	0.41	0.36	0.82	35.1	78.6
10	1,019	0.20	0.59	0.51	1.04	39.8	70.9
11	1,005	0.18	0.53	0.69	1.38	29.2	65.2
12	908	0.27	0.75	0.87	1.67	32.9	61.5
13	843	0.40	0.97	1.34	2.14	32.0	52.1
14	688	0.37	0.88	1.71	2.24	23.3	42.9
15	511	0.44	1.12	2.19	2.97	23.1	38.0
16+	288	0.35	0.79	2.11	2.40	18.2	36.1

All teeth: age-specific experience

Untreated clinically detectable caries in the combined deciduous and permanent dentitions existed for between 21.0 and 32.5% of children in all age ranges (see Table 4). The greatest likelihood of untreated decay occurred for 6 year-olds. Based on observations from previous tables, much of this untreated decay can be attributed to the deciduous dentition. Furthermore, it is noteworthy that the most extensive levels of untreated decay (4 or more deciduous or permanent teeth) occur in the younger age groups, with more than 7% of children aged 7 years or less being affected to this extent.

While no more than 5% of children aged 5 to 12 years had at least one deciduous or permanent tooth missing due to caries, much larger percentages presented with fillings, for which there is a consistent age-associated increase in children up to 9 years of age (51.5% with 1 or more fillings). There was also an increase in the percentage of children with some caries experience in the combined deciduous and permanent dentition, from 34.4% for children aged 5 years old to 61.3% at age 9. For both $f+F=0$ and $dmft+DMFT=0$ there is an increase from age 9 to age 12, with a subsequent decline in percentages into the oldest age groups.

Changes since 1996

The earlier observations of minor changes in deciduous and permanent caries experience carry through to this table which showed no systematic changes in the percentages of children with $d+D \geq 4$ or $dmft+DMFT=0$ compared with the 1996 data. However, the percentage of 12 and 13 year-old children with no evident caries experience increased and this can be attributed to a decrease in the percentage of children presenting with fillings in these age groups.

Table 4: All teeth: age-specific caries experience

Age (years)	Children <i>n</i>	<i>d+D=</i>					<i>m+M=0</i>	<i>f+F=0</i>	<i>dmft+DMFT=0</i>
		0	1	2	3	4+			
5	1,062	70.6	6.1	7.0	3.4	7.5	98.8	88.7	65.6
6	1,033	67.5	11.5	7.4	3.9	7.5	99.1	74.1	55.8
7	1,042	69.2	13.8	8.3	3.6	7.3	99.1	65.6	52.7
8	1,094	67.8	14.6	9.1	2.6	3.1	99.5	56.5	44.1
9	1,134	68.5	17.4	7.8	2.5	2.4	99.1	48.5	38.7
10	1,019	68.8	18.9	8.8	2.6	1.5	98.2	51.1	39.7
11	1,005	75.2	18.3	5.7	1.2	1.5	98.1	54.3	44.3
12	908	79.0	16.4	4.5	1.3	1.8	96.8	65.7	52.2
13	843	75.4	13.4	6.2	3.2	2.0	93.0	62.2	48.2
14	688	77.2	13.2	7.3	1.3	1.6	89.8	54.9	41.3
15	511	75.7	14.7	4.5	2.7	2.3	85.5	50.7	37.6
16+	288	77.8	11.5	8.3	2.1	0.3*	86.8	47.9	35.8

Fissure sealants: age-specific experience

The age-specific experience with fissure sealants is shown in Table 5. Fissure sealants are most prevalent in the older students. There is evidence of preferential use of fissure sealants among those with caries experience, indicated by the percentage of children with fissure sealants among those with caries experience compared to those with no caries experience.

Changes since 1996

The mean number of fissure sealants in 1997 was lower than that observed in 1996 for several age groups. An increase in the number of children with fissure sealants is evident for a number of age groups among both those with caries experience and those without.

Table 5: Fissure sealants: age-specific experience

Age (years)	Children	No. of sealants		Children with DMFT=0		Children with DMFT≥1	
	<i>n</i>	mean	SD	<i>n</i>	%	<i>n</i>	%
6	1,033	0.02	0.24	1,000	0.9	33	6.1
7	1,042	0.11	0.51	926	5.3	116	10.3
8	1,094	0.24	0.76	881	10.4	213	16.0
9	1,134	0.24	0.74	891	11.0	243	19.3
10	1,019	0.23	0.70	722	12.9	297	14.8
11	1,005	0.24	0.77	655	11.5	350	12.9
12	908	0.27	0.92	558	8.8	350	18.9
13	843	0.29	0.88	439	12.8	404	15.6
14	688	0.30	0.87	296	11.5	393	16.8
15	511	0.40	1.18	194	13.9	317	21.1
16-18	288	0.57	1.79	104	16.3	184	21.7

School Dental Service examinations

Table 6 demonstrates that the great majority (over 87%) of children 7 years of age or older have previously received examinations within the School Dental Service.

Changes since 1996

There are only small differences between 1996 and 1997 in the frequency of first examinations.

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

Age (years)	Children	Has prior examination	First examination
	<i>n</i>	%	%
Up to 4	489	8.6	91.4
5	1,062	33.1	66.9
6	1,033	81.8	18.2
7	1,042	87.2	12.8
8	1,094	91.3	8.7
9	1,134	91.3	8.7
10	1,019	91.8	8.2
11	1,005	92.7	7.3
12	908	92.1	7.9
13	843	93.8	6.2
14	688	93.9	6.1
15	511	94.9	5.1
16+	288	92.0	8.0

Percentage of children with dmft=0, DMFT=0 and d+D≥4

Figure 1 presents data contained in tables 3, 4 and 5 to summarise the extent of dental health (represented by percentage with no caries experience) and the extent of more extensive clinically detectable untreated decay.

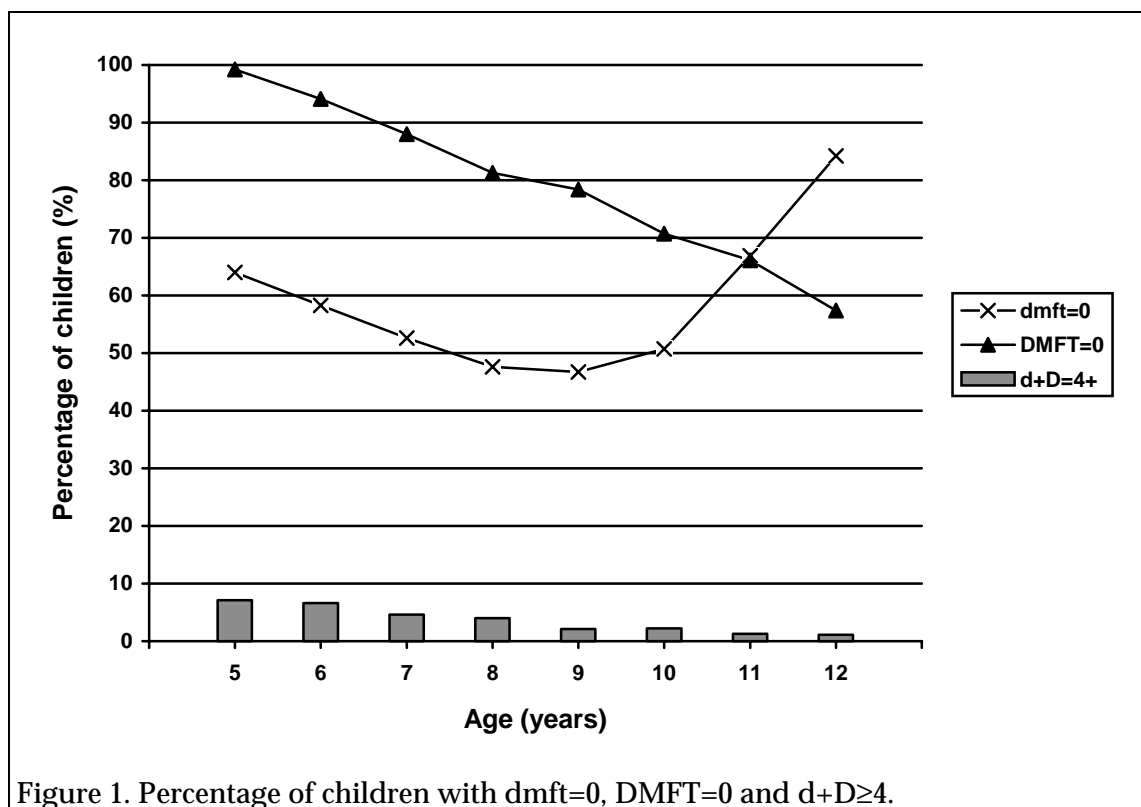


Figure 1. Percentage of children with dmft=0, DMFT=0 and d+D≥4.