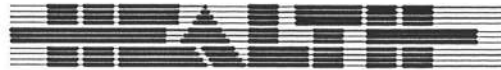




AUSTRALIAN  
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Dental Health Services



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## The Child Dental Health Survey Western Australia 1990

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by

The AIH Dental Statistics  
and Research Unit

and

Dental Health Services  
Health Department of WA

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**The AIH Dental Statistics and Research Unit (DSRU) is an external unit of the Australian Institute of Health and was established in 1988 at The University of Adelaide. The DSRU was funded 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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## THE CHILD DENTAL HEALTH SURVEY - WESTERN AUSTRALIA 1990

### Purpose of this report

This report establishes the series of annual reports providing descriptive statistics concerning child dental health in Western Australia, and follows the 1989 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, children's history of school dental service examinations, and calculus and debris indexes. These data were collected during the 1990 calendar year from WA School Dental Service patients by dental therapists and dentists. A random sampling procedure was used to select one 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, one 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.

The following sections briefly describe each table and contain a simple, summary statement highlighting differences between the 1990 and 1989 data. It should be noted that the 1989 data collection was collected retrospectively from those children sampled in 1990 who had a previous dental chart from 1989 in their dental records. Hence, the 1989 sample represents a more specialized group of patients than the ones for whom 1990 data were collected. Hence, it is necessary to be cautious in drawing inferences concerning changes between the years. Moreover, 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.

### Table 1: Demographic composition of the sample

Some 80 per cent of sampled children were aged between five and twelve years inclusive, with approximately equivalent numbers in individual ages within this range. This distribution of the sample is closely related to the main target groups of children served by the school dental service in the WA. However, there were also substantial numbers of children aged 4, 13 and 14 years. Males were more frequent than females, although they did not exceed 52.7 per cent in any of the main age groups (5-12 years).

The age distribution illustrates that the sample is representative of primary school aged children, rather than all children in Western Australia. Consequently, those children who are outside the main school dental service target groups (less than 5 or more than 12 years) may differ on key characteristics and are likely to be less representative of their respective age groups in the WA population.

### *Changes since 1989*

The 1990 sample is approximately twice as large as the previous year, reflecting the different sampling arrangements described previously. In other respects, the proportional distribution of ages and sexes is similar to the 1989 sample.

### Table 3: Deciduous teeth: age-specific prevalence

The mean number of decayed teeth shows considerable variation among ages, decreasing from 0.91 among three year olds to 0.22 among 10 year olds. Variation in mean dmft is less consistently associated with age, being highest among eight year olds, and tending to be smaller among younger and older ages. A pattern of reducing dmft among children aged over eight is consistent with natural exfoliation of teeth, while the pattern of deciduous caries experience of the youngest groups (which are dominated by patients new to the School Dental Service) indicates that they enter the dental program with a relatively high level of untreated caries.

The percentage of caries experience due to decay (d/dmft) shows an age-associated decline, reducing from 80.6 per cent among four year olds to 24.3 per cent among 10-year-olds. Older children more frequently have an established pattern of dental care, and the reduction in percentage of caries experience due to decay in part reflects the efficacy of that care in treating caries. The percentage of caries-free children (% dmft=0) also shows an age-associated reduction from 70.6 per cent among 4 year olds to 45.2 per cent among 9-year-olds. The percentage of caries free children therefore mirrors the mean dmft prevalence.

#### *Changes since 1989*

The key indices of deciduous caries experience (mean number of decayed and dmft teeth) were virtually equivalent between the two years for children aged 4 to 10 years.

### Table 4: Permanent teeth: age specific prevalence

The mean number of decayed permanent teeth is consistently smaller than the mean number of decayed deciduous teeth for children aged 10 years or less. Although the figure increases among older ages to 0.45 teeth, this is substantially less than the highest mean number of decayed deciduous teeth. As expected, the mean DMFT increases quite consistently across age groups, and the total permanent caries experience of 15 year olds is almost twice the equivalent maximum observed in the deciduous dentition.

As a consequence of these age-associated trends, the percentage of DMFT due to decay (D/DMFT) and the percentage caries free (DMFT=0) declines across age groups. Indeed, fewer than one half of children aged 12 years or more have no caries experience.

#### *Changes since 1989*

There are observable reductions of approximately 0.3 teeth in the mean DMFT of children aged 12 to 14 years. It is not possible to assess whether this reflects a true decline in caries experience, or whether such a difference could be attributable to the different sampling bases used in 1989 and 1990. Indeed, the 1989 report identified mean DMFT prevalences which were higher than expected among these older children.

Among most other ages, there are negligible differences in the mean number of decayed or DMF permanent teeth. However, there is a general pattern of small increases in the percentage of caries experience due to decay (D/DMFT), generally in the range of 3 to 5 per cent. Since this statistic is computed the D and DMFT data, which themselves show negligible changes, it is likely that the small differences reflect some chance variation rather than a clear trend.

**Table 5: All teeth: age specific prevalence**

Untreated caries in the combined deciduous and permanent dentitions exists for a relatively constant percentage (25 to 30 per cent) of children. 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 six per cent or more of children aged 6 years or less being affected to this extent. This is further evidence that the most extensive levels of untreated decay occur in the deciduous dentition.

While more than 97 per cent of children in most ages have no deciduous or permanent teeth missing due to caries ( $m+M=0$ ), the figure declines among those aged 12 or more, suggesting that permanent tooth loss due to caries occurs for a significant minority of these older children. As expected, the percentage of children with neither deciduous or permanent caries experience declines among older ages, and less than one quarter of those aged 13 years or more have no caries experience.

*Changes since 1989*

The previous observations of negligible changes in deciduous or permanent caries for most ages carry through to Table 5. The magnitude of change in most statistics generally is two per cent or less, and these are no trends consistently discernible among all ages.

**Table 6: Fissure sealants: age-specific prevalence**

Fissure sealants are frequent in children aged 7 years or more, and in that range the mean number of fissure sealants exceeds the mean number of decayed teeth. The prevalence of fissure sealants among those without permanent caries experience ( $DMFT=0$ ) and with some permanent caries experience ( $DMFT=1+$ ) is similar in most children aged 9 years or more. Among younger children, there is greater likelihood of fissure sealants among those with caries experience.

*Changes since 1989*

There are negligible differences in the mean number of fissure sealants or percentage of children with fissure sealants between 1989 and 1990.

**Table 8: School Dental Service examinations**

This table demonstrates that the great majority (over 90 per cent) of children over the age of six years have previously received examinations within the School Dental Service. The figure for 3 year olds is difficult to interpret, as it may be expected that virtually all of them would receive a first examination. Furthermore, the youngest children appear to constitute a particularly discontinuous group of patients, since some 70 per cent of three year olds in 1989 received a first examination, and in the following year (1990) a higher proportion (77 per cent) of four year olds received a first examination. This indicates either that the small group of three year olds is unlikely to receive care in the following year, or that there are administrative difficulties in identifying their previous examination date.

*Changes since 1989*

There are negligible differences between 1989 and 1990 in the frequency of first examinations.

**Table S1: Calculus and inflammation indices**

The WA data collection includes a gingival inflammation index, which is a count of the number of dental sextants in which gingival inflammation is observed (range = 0 to 6) and a calculus index, which records the number of sextant in which calculus is observed (and which has the same range). Reports for children aged 12, 15 and 17 were requested by Dental Services Western Australia. Inflammation is approximately twice as frequent as calculus in the two age groups with sufficient representation, although neither condition affects (on average) more than one sextant.

***Changes since 1989***

The data can be compared for 12 year olds alone, where there is no meaningful difference in mean indices.

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

This figure presents data contained in Tables 3, 4 and 5 to summarize the extent of dental health (represented by percentages with no caries experience) and the extent of more severe levels of untreated decay (represented by the percentage with d+D=4+).

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**TABLE 1: DEMOGRAPHIC COMPOSITION OF THE SAMPLE**

Data for the Child Dental Health Survey are collected from a stratified random sample of children in all Australian States and Territories. The sampling procedure selects a constant proportion of children for whom date of birth is known by selecting only those children born on particular dates. Within Western Australia, the sampling ratio for children whose date of birth is known is 1:13.

State/Territory: **Western Australia**

Sampling ratio: 1:13

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	NUMBER OF RECORDS PROCESSED		
	Males	Females	Persons
2	6	8	14
3	56	50	106
4	302	317	619
5	633	569	1202
6	676	750	1426
7	620	686	1306
8	654	593	1247
9	618	617	1235
10	621	618	1239
11	579	617	1196
12	521	499	1020
13	403	378	781
14	317	292	609
15	144	137	281
16	6	7	13
17	0	2	2
18	1	0	1
<b>Total</b>	<b>6157</b>	<b>6140</b>	<b>12297</b>

**TABLE 2: COUNTRY OF BIRTH (INCLUDING ABORIGINALITY)**

These data were not collected in Western Australia during the period January-December 1990.



**TABLE 3: DECIDUOUS TEETH: AGE-SPECIFIC PREVALENCE<sup>1</sup>**

This table uses Territory-wide data to describe the dmft index and its components for individual (year of birth) ages. 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 is excluded. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 25 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **Western Australia**

Sampling ratio: **1:13**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample	decayed		dmft		d/dmf %	Children with dmft=0 %
		mean	sd	mean	sd		
3	120	0.91	1.99	1.13	2.11	75.1	65.8
4	619	0.83	1.78	1.02	2.04	80.6	70.6
5	1202	0.72	1.73	1.21	2.41	61.2	65.4
6	1426	0.66	1.47	1.54	2.51	45.5	56.3
7	1306	0.51	1.10	1.65	2.35	33.2	49.7
8	1247	0.36	0.77	1.77	2.33	24.5	47.3
9	1235	0.35	0.82	1.69	2.13	24.3	45.2
10	1239	0.22	0.58	1.42	1.90	18.0	48.4
11	1196	0.18	0.59	0.99	1.63	20.7	61.5
12	1020	0.07	0.29	0.50	1.11	17.2	75.8

<sup>1</sup> Legend

d - decayed deciduous teeth  
 dmft - decayed, missing or filled deciduous teeth  
 sd - standard deviation

**TABLE 4: PERMANENT TEETH: AGE-SPECIFIC PREVALENCE<sup>1</sup>**

This table uses Territory-wide data to describe the DMFT index and its components for individual (year of birth) ages. 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 is excluded. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 25 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **Western Australia**

Sampling ratio: **1:13**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample	DECAYED		DMFT		D/DMFT	Children with
		mean	sd	mean	sd	%	DMFT=0 %
6	1426	0.04	0.25	0.04	0.27	86.4	96.9
7	1306	0.10	0.37	0.19	0.62	58.2	87.6
8	1247	0.14	0.48	0.32	0.78	42.7	80.0
9	1235	0.17	0.53	0.58	1.02	30.9	68.0
10	1239	0.22	0.59	0.84	1.25	26.7	57.5
11	1196	0.24	0.64	1.15	1.73	23.0	51.3
12	1020	0.29	0.73	1.76	2.52	17.3	40.8
13	781	0.37	0.92	2.62	3.25	15.3	28.0
14	609	0.43	1.07	3.27	3.19	14.2	19.7
15	281	0.45	0.96	3.68	2.71	12.0	14.9

<sup>1</sup> Legend

D - decayed permanent teeth  
 DMFT - decayed, missing or filled permanent teeth  
 sd - standard deviation

**TABLE 5: ALL TEETH: AGE-SPECIFIC PREVALENCE<sup>1</sup>**

This table uses Territory-wide data to describe the combined dmft and DMFT indices and their components for individual (year of birth) ages. 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 is excluded. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 25 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **Western Australia**

Sampling ratio: **1:13**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample	% of children with d+D=					% of children with		
		0	1	2	3	≥4	m+M=0	f+F=0	dmft+DMFT=0
3	106	71.7	10.4	*	*	*	98.1	89.6	67.0
4	619	74.3	6.0	6.5	3.9	9.4	98.7	92.6	70.6
5	1202	73.7	9.6	7.2	3.2	6.3	98.1	82.0	64.9
6	1426	70.2	13.3	6.9	3.5	6.0	99.0	69.8	55.6
7	1306	69.8	14.9	8.1	3.4	3.8	97.9	57.6	45.1
8	1247	71.4	16.1	7.8	2.9	1.8	98.7	51.1	42.0
9	1235	70.8	16.0	8.2	3.0	2.0	98.2	44.9	35.1
10	1239	72.6	16.9	6.8	2.3	1.4	98.2	38.6	30.1
11	1196	75.1	14.8	6.5	1.8	1.8	96.8	42.8	34.2
12	1020	77.5	14.2	5.2	1.5	1.6	94.2	39.9	32.5
13	781	77.3	14.2	4.9	1.7	1.9	90.3	32.5	25.0
14	609	74.5	16.4	5.4	1.8	1.8	83.1	27.9	19.0
15	281	74.0	14.9	6.8	*	*	82.2	20.6	14.9

<sup>1</sup> Legend

- d - decayed deciduous teeth
- D - decayed permanent teeth
- m - deciduous teeth missing due to caries
- M - permanent teeth missing due to caries
- f - deciduous teeth restored due to caries
- F - permanent teeth restored due to caries
- dmft - decayed, missing or filled deciduous teeth
- DMFT - decayed, missing or filled permanent teeth

**TABLE 6: FISSURE SEALANTS: AGE-SPECIFIC PREVALENCE<sup>1</sup>**

This table uses Territory-wide data to describe the distribution of fissure sealants for individual (year of birth) ages, along with the caries experience of those who have fissure sealants and those who do not. 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 is excluded. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 25 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **Western Australia**

Sampling ratio: **1:13**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample	Number of sealants		CHILDREN WITH DMFT=0		CHILDREN WITH DMFT=1+	
		mean	sd	number	% with F/S=1+	number	% with F/S=1+
6	1426	0.10	0.52	1382	4.1	44	22.7
7	1306	0.42	1.02	1144	16.6	162	27.8
8	1247	0.61	1.19	998	24.6	249	29.3
9	1235	0.75	1.30	840	30.1	395	32.7
10	1239	0.67	1.22	713	30.7	526	25.9
11	1196	0.51	1.06	613	23.3	583	24.0
12	1020	0.45	1.01	416	21.4	604	22.7
13	781	0.61	1.27	219	20.1	562	26.3
14	609	0.57	1.15	120	18.3	489	27.2
15	281	0.67	1.19	42	28.6	239	31.4

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<sup>1</sup> Legend    DMFT - decayed, missing or filled permanent teeth  
                   F/S - number of fissure sealed teeth  
                   sd - standard deviation

**TABLE 7: IMMEDIATE TREATMENT NEEDS AGE-SPECIFIC DISTRIBUTION**

**These data were not collected in Western Australia  
during the period January-December 1990.**

**TABLE 8: SCHOOL DENTAL SERVICE EXAMINATIONS:  
AGE-SPECIFIC DISTRIBUTION**

This table describes the percentage distribution of children who have received initial and subsequent dental examinations in the School Dental Service. Data from all examinations of children who were examined during the report period are included in this table; percentage estimates denoted with an asterisk (\*) are those in which the relative standard error exceeds 25 per cent, and population estimates of these percentages are statistically unreliable.

State/Territory: **Western Australia**

Sampling ratio: **1:13**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children examined	% OF CHILDREN	
		Previously examined	First examination
3	106	27.4	72.6
4	619	23.4	76.6
5	1202	55.6	44.4
6	1426	88.3	11.7
7	1306	93.0	7.0
8	1247	92.1	7.9
9	1235	93.1	6.9
10	1239	93.9	6.1
11	1196	93.2	6.8
12	1020	94.8	5.2
13	781	94.5	5.5
14	609	96.6	3.4
15	281	95.7	4.3

**TABLE S1: CALCULUS AND INFLAMMATION INDICES<sup>1</sup>**

This table describes the distribution of calculus and inflammation indices among specific ages. These data were requested by Dental Services (Western Australia) as a specific report. Data from all children who were examined during the report period are included in this table; percentage estimates denoted with an asterisk (\*) are those in which the relative standard error exceeds 25 per cent, and population estimates of these percentages are statistically unreliable.

State/Territory: **Western Australia**

Sampling ratio: **1:13**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample	CALCULUS INDEX		INFLAMMATION INDEX	
		mean	sd	mean	sd
12	1020	0.24	0.59	0.86	1.69
15	281	0.36	0.75	0.73	1.66
17	2	*	*	-	-

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<sup>1</sup> Legend:      sd - standard deviation

**FIGURE 1: PERCENTAGE OF CHILDREN WITH dmft=0, DMFT=0 and d+D=0**

