



THE UNIVERSITY OF ADELAIDE

# The Child Dental Health Survey Tasmania 1996

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AIHW Dental Statistics and Research Unit  
The University of Adelaide

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in collaboration with  
The Tasmanian Dental Service

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The AIHW Dental Statistics and Research Unit (DSRU) is a collaborative unit of the AIHW established in 1988 at The University of Adelaide. The DSRU aims to improve the oral health of Australians through the collection, analysis and reporting of dental statistics and research on the dental workforce, dental health status, dental practices and the use of dental services.

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## **Purpose of this report**

This report is part of the annual series providing descriptive statistics concerning child dental health in Tasmania. Information listed in the report includes the age and sex of children in the sample, their deciduous and permanent caries experience, frequency of fissure sealants, immediate treatment needs and children's history of school dental service examinations.

The sections below briefly describe each table and provide a simple, summary statement highlighting differences between the 1996 and 1995 findings. However, no formal hypothesis tests have been undertaken, and descriptions of differences between years are intended as a guide to the reader rather than an evaluation of the significance of any trends.

## **Sources of subjects and sampling**

The data for this report were collected during the 1996 calendar year from patients of the Tasmania Dental Service by dental therapists and dentists. A random sampling procedure was used to select slightly less than one in two (1:2.5) patients. This was achieved by selecting those children whose birthday fell on the first sixteen days of any month.

Data were weighted for all analyses to more accurately reflect the population in Tasmania. Children from the Southern region (including Greater Hobart) were initially under-represented in the sampling whereas children from the Northern and North Western regions were over-represented relative to actual distribution. Weighting was carried out so that the regional contributions for the study equalled the distribution of children aged 0–15 years in Tasmania in 1996.

## **Demographic composition of the sample**

There was a total of 9129 children sampled for analysis during 1996 (see Table 1). The majority of the children were aged between 4 and 15 years of age (98.2%) with the highest frequencies being for children aged between 5 and 11 years of age. This corresponds to the predominant ages of the primary school population, and reflects the targeting of care principally to children at primary school. For all subsequent analyses children aged 2–4 years old were collapsed into a single group, as were children aged 16–19 years.

Males and females were represented in approximately equal proportions although slightly more males than females were represented.

Weighting of the data did not produce appreciable differences in the age and sex composition of the sample.

## **Changes in demographic composition since 1995**

Slightly more children were sampled in 1996 than 1995. This was chiefly driven by an increase in eight and nine year-old children who were under-represented in 1995. The sex distribution across years was comparable.

## **Deciduous teeth: age-specific experience**

Table 2 shows the age specific caries experience in deciduous teeth for children up to 10 years of age. The mean dmft score among children aged up to 10 years varied across a range of 0.93 to 1.74 with eight year olds having the highest dmft. The deciduous caries experience of children aged 9 years or more declined due to the exfoliation of teeth.

The range in the mean number of decayed deciduous teeth was less than that observed for dmft, decreasing from 0.85 among children up to 4 years old to 0.42 among 10 year-olds. The percentage of caries experience represented as clinically detectable decay was highest for young children. For those children up to the age of four, 91.4 per cent of their dmft score could be attributed to untreated decay. This figure declined systematically with increasing age so that by 10 years of age children only have 30.7 per cent of their dmft score attributable to clinical decay.

The percentage of children up to the age of 10 with dmft=0 declined with age. Approximately 70 per cent of children up to the age of 4 had dmft=0 while only 46.7 per cent of children aged 9 years had no detectable clinical caries experience. The rise in this statistic for children aged over 9 again reflects the increasing exfoliation of deciduous teeth.

### **Changes in deciduous caries experience since 1995**

In 1996, compared to 1995, the mean number of teeth with clinically detectable decay decreased for five and six year-old children yet increased for seven and eight year-old children. The decline in mean decay with age shows a more linear trend in 1996. Consistent with the changes in mean decay, mean dmft scores also decreased markedly for five and six year-olds while increasing for eight year-olds. The peak in mean dmft is similar across years but in 1996 the highest dmft score was obtained at a younger age. There were also small increases in the percent d/dmft for six to eight year-olds in 1996.

Little difference is evident in the percentage of children with dmft=0 between 1995 and 1996.

## **Permanent teeth: age-specific experience**

The mean number of decayed and DMF teeth increased in a fairly consistent manner, but at differing rates, across increasing age groups (see Table 3). As a consequence, the percentage of DMFT due to decay (D/DMFT) declined across age groups. The percentage of caries free children (DMFT=0) also declined regularly with increasing age. It is noteworthy that at least 54.5 per cent of any age group up to 12 years were caries free (DMFT=0). The 12 year-old DMFT was 0.96.

Among those aged 12 years or more, the age-associated increase in mean DMFT was greater than that for younger children. This pattern suggests either that new caries progression accelerates from the age of 12, or that these older children represent a cohort with a higher historical caries experience.

### **Changes in permanent caries experience since 1995**

Appreciably more clinically detectable decay was found for 12–15 year-old children in 1996 than in 1995. Mean decay in 12 year-olds was almost 50 per cent higher in 1996. There were no systematic changes in mean dmft however, although increases are again demonstrated by 12 and 13 year old children in 1996. Nonetheless, the percentage d/dmft shows an increase for these two age groups in 1996 compared to 1995. Changes in the percentage of children with dmft=0 have not changed substantially.

### **All teeth: age-specific experience**

It can be seen from Table 4 that untreated clinical decay in the combined deciduous and permanent dentitions ( $d+D=1, 2, 3$  or  $4+$ ) existed for between 28.2 and 37.4 per cent of children in the age range 5 to 12 years. The greatest likelihood of untreated decay occurred for 9 year-olds. However, the most extensive levels of untreated clinical decay ( $d+D=4$  or more) occurred most frequently in children aged 7 years or less.

While more than 96 per cent of children aged up to 15 years old had no deciduous or permanent teeth missing due to caries, smaller percentages avoided fillings. The prevalence of fillings increased to almost 50 per cent for 9 year olds, decreased to 35.7 per cent for 13 year olds, and then increased again.

There was a reasonably consistent decline in the percentage of children with no caries experience in either deciduous or permanent dentition ( $dmft+DMFT=0$ ), from 70.6 per cent among the youngest children to 39.0 per cent at age 9. The percentage fluctuated around the mid 40 per cent range among most older ages, reflecting the pattern of exfoliation of deciduous teeth. More than one third of children in any of the key primary school ages had no experience of dental caries.

### **Changes in caries experience for all teeth since 1995**

Not surprisingly given changes in the caries experience of permanent teeth, the percentage of 12 and 13 year-old children with  $d+D=0$  has reduced with an increase in these children having higher rates of detectable decay. Overall there was a slight increase in the percentage of children with  $d+D\geq 4$  in 1996 than in 1995. No other systematic changes in caries experience are detectable between these years.

### **Fissure sealants: age-specific experience**

Data for fissure sealants are presented in Table 5. Fissure sealants were most common among children aged 8 years or more, and at those ages the mean number of fissure sealants exceeded the mean number of permanent teeth with caries experience (DMFT). In all ages there was evidence of preferential use of fissure sealants among those with caries experience. For example, 43.8 per cent of 12 year olds with permanent caries experience ( $DMFT=1+$ ) had fissure sealants, compared with 26.0 per cent among those with  $DMFT=0$ .

## **Changes since 1995**

There are appreciable reductions in the number of children with fissure sealants across all age groups between 1995 and 1996. This can be explained principally by the decline in fissure sealant placement in children with DMFT=0, although children with some caries experience also had fewer sealants in a number of age groups.

## **Immediate treatment needs**

Only 11 children were indicated as being in immediate need of treatment. This classification is accorded to children who have, or who are likely to develop within four weeks, oral pain or infection. Six of these 11 children were aged under 6 years old.

## **Changes in immediate treatment needs since 1995**

In 1995, 41 children were classified as being in need of immediate treatment.

## **School Dental Service examinations**

The left hand side of Table 6 describes the percentage of children who were new patients (having had no previous dental examination) in the Tasmania Dental Service. The figure was highest for the youngest ages (6 years or less) while no more than 8 per cent of those aged 7 years or more had no previous examination. This pattern is expected, and indicates that most patients are enrolled during their early school years.

The right hand side of the table refers to children with previous examinations, and indicates their distribution according to time since last dental examination. Approximately 40–46 percent of children in most ages received examinations within 7 to 12 months of their previous examination. A re-examination interval of 13–24 months years occurred for most of the remaining children. Re-examination within six months was most common among the youngest children ( $\leq 4$  years of age) whereas re-examination after a period of two or more years occurred most frequently among the oldest children (aged 13 years or more). Average recall periods for 6 and 12 year-old children are shown in Figure 1.

## **Changes in Dental Service examination patterns since 1995**

In 1996 slightly fewer children had had a previous examination than in 1995. Of those children who had received a previous exam, there was an increase for those aged 8–13 having received the exam 7–12 months previously and a decrease in having had the exam 13–24 months previously. The anomalous finding in 1995 of 11.6 per cent of 12 year-olds having been examined in the previous 6 months is not born out for 12 year-olds in 1996 and no cohort effect is evident from viewing results for 13 year-olds in 1996.

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

Figure 2 presents data contained in tables 3, 4 and 5 and summarises percentage of children with no caries experience and the extent of more extensive untreated decay, represented by the percentage with d+D=4 or more.

# TABLES

**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 Tasmania, the sampling ratio for children whose date of birth is known is 1:2.5.

Age (years)	No. of children in sample <sup>1</sup>			No. of children in sample (weighted) <sup>2</sup>		
	Males	Females	Persons	Males	Females	Persons
2	20	15	35	19	14	34
3	27	37	64	25	37	62
4	216	220	436	223	219	442
5	447	423	870	452	429	881
6	464	422	886	465	425	891
7	478	421	899	484	424	907
8	491	485	976	503	477	980
9	488	466	954	498	468	966
10	502	450	952	503	452	954
11	451	497	948	449	492	941
12	301	304	605	308	295	602
13	264	227	491	270	221	491
14	265	242	507	251	237	488
15	207	240	447	204	220	424
16	27	19	46	29	22	51
17	3	6	9	2	4	7
18	4	4	8	3	3	6
19	2	–	2	1	–	1
<b>Total</b>	<b>4657</b>	<b>4478</b>	<b>9135</b>	<b>4689</b>	<b>4439</b>	<b>9129</b>

<sup>1</sup> The number of children included in the sample equals the total number of records sampled where date of birth is known less second and subsequent examinations of children already sampled within the reporting period.

<sup>2</sup> Weighting is used to adjust for the differential sampling of children from different regions in Tasmania.



**Table 2: Deciduous teeth: age-specific experience<sup>1</sup>**

This table uses State-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. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

Age (years)	No. of children in sample <sup>2</sup>	Decayed		dmft		d/dmf	Children with dmft=0
		mean	sd	mean	sd	%	%
≤4	545	0.85	1.85	0.93	1.99	91.4	70.7
5	886	0.78	1.67	1.07	2.12	73.8	66.9
6	895	0.75	1.71	1.37	2.55	58.1	61.5
7	908	0.70	1.37	1.58	2.46	48.8	55.0
8	982	0.64	1.15	1.74	2.28	39.8	47.1
9	969	0.52	0.96	1.73	2.22	33.2	46.7
10	956	0.42	0.91	1.48	2.13	30.7	53.5

<sup>1</sup> Legend    d - decayed deciduous teeth  
              dmft - decayed, missing or filled deciduous teeth  
              sd - standard deviation

<sup>2</sup> Data relating to second or subsequent examinations of children within this reporting period are eliminated.

**Table 3: Permanent teeth: Age-specific experience<sup>1</sup>**

This table uses State-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. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

Age (years)	No. of children in sample <sup>2</sup>	Decayed		DMFT		D/DMFT	Children with DMFT=0
		mean	sd	mean	sd	%	%
5	886	0.02	0.22	0.02*	0.26*	93.3	99.3
6	895	0.06	0.32	0.07	0.34	93.8	94.7
7	908	0.12	0.47	0.16	0.56	74.6	89.8
8	982	0.16	0.51	0.26	0.67	63.0	83.0
9	969	0.19	0.55	0.40	0.84	49.8	75.8
10	956	0.26	0.75	0.58	1.09	43.6	68.9
11	942	0.30	0.77	0.69	1.21	43.1	66.1
12	605	0.40	0.86	0.96	1.42	40.4	54.5
13	492	0.60	1.28	1.25	1.98	48.2	51.7
14	488	0.65	1.31	1.58	2.22	41.1	46.9
15	424	0.67	1.47	1.87	2.35	33.2	38.2
16+	65	1.31	2.45	2.73	3.78	48.7	38.9

<sup>1</sup> Legend    D - decayed permanent teeth  
               DMFT - decayed, missing or filled permanent teeth  
               sd - standard deviation

<sup>2</sup> Data relating to second or subsequent examinations of children within this reporting period are eliminated.

**Table 4: All teeth: Age-specific experience<sup>1</sup>**

This table uses State-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. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

Age (years)	No. of children in sample <sup>2</sup>	% of children with d+D=					% of children with		
		0	1	2	3	4+	m+M=0	f+F=0	dmft+DMFT=0
5	880	71.8	8.6	7.5	4.6	7.6	99.1	87.4	66.8
6	891	69.0	12.7	7.6	3.5	7.1	97.2	79.6	59.9
7	907	63.2	17.0	8.6	4.6	6.6	97.8	68.2	51.7
8	982	63.0	15.3	10.3	5.9	5.5	97.2	57.7	43.8
9	963	62.6	17.6	11.6	4.4	3.8	96.3	50.9	39.0
10	953	66.9	16.0	9.1	3.0	5.0	97.9	53.2	41.6
11	939	71.7	13.8	7.0	3.8	3.7	99.1	60.0	48.4
12	605	70.7	15.5	8.2	3.3	2.4	99.2	57.6	45.4
13	491	67.5	18.5	7.1	2.3	4.7	99.3	64.3	47.1
14	488	68.7	14.0	8.4	3.0	5.9	97.9	58.7	44.2
15	422	68.4	16.8	5.4	4.5	4.9	98.4	50.5	38.7
16+	65	54.5	22.2	6.7	7.8	8.9	93.3	54.4	38.9

<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

<sup>2</sup> Data relating to second or subsequent examinations of children within this reporting period are eliminated.

**Table 5: Fissure sealants: Age-specific experience<sup>1</sup>**

This table uses State-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. Age-specific indices denoted with an asterisk (\*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

Age (years)	No. of children in sample <sup>2</sup>	No. of sealants		Children with DMFT=0		Children with DMFT=1+	
		Mean	sd	No.	% with F/S=1+	No.	% with F/S=1+
5	886	0.00*	0.14*	879	0.0	6	11.2
6	894	0.03	0.30	848	0.8	46	13.3
7	907	0.16	0.66	816	6.1	91	13.4
8	977	0.39	1.02	815	13.3	162	27.9
9	965	0.63	1.23	735	20.5	230	36.2
10	952	0.65	1.31	659	19.0	293	35.1
11	939	0.73	1.41	623	20.5	316	39.7
12	603	0.94	1.56	330	26.0	274	43.8
13	492	0.81	1.57	254	23.6	238	30.6
14	487	1.16	1.90	229	27.0	258	47.1
15	421	1.40	2.30	162	29.8	259	46.9
16+	65	0.59*	2.40*	25	17.2	40	18.2

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

<sup>2</sup> Data relating to second or subsequent examinations of children within this reporting period are eliminated.

**Table 6: 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 40 per cent, and population estimates of these percentages are statistically unreliable.

Age (years)	No. of children examined	Previous examination in School Dental Service %		Children with previous examination <sup>1</sup> (%)			
		Yes	No	0-6	7-12	13-24	25+
≤4	553	26.1	73.6	9.3	52.3	38.4	0.0
5	894	46.9	53.1	6.4	55.9	36.3	1.5
6	904	85.4	14.5	2.0	45.6	50.8	1.7
7	932	91.4	8.0	2.6	42.9	52.8	1.7
8	998	94.7	4.9	2.5	43.3	52.0	2.2
9	986	95.9	3.9	2.2	45.8	49.1	2.9
10	974	94.8	4.8	2.0	45.9	50.4	1.7
11	956	95.1	4.5	3.3	45.2	48.5	3.0
12	613	95.5	4.0	4.1	35.9	56.9	3.2
13	505	96.6	3.4	3.5	42.4	47.3	6.9
14	503	97.0	3.0	4.7	40.1	48.1	7.0
15	436	97.8	2.2	5.9	39.9	46.3	7.9
16+	68	100.0	0.0	2.2*	45.7	41.3	10.9

<sup>1</sup> Excludes those with no previous examination and where the date of previous examination is unknown.

# FIGURES

Figure 1. Time since last dental examination

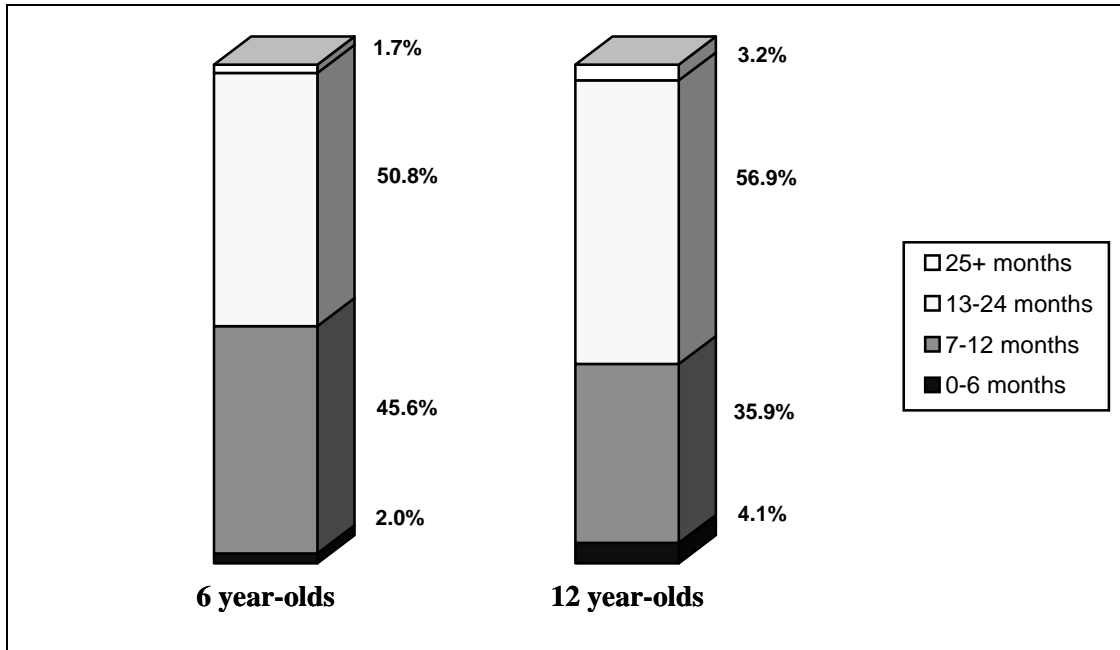


Figure 2. Percentage of children with dmft=0, DMFT=0 and d+D=4+

