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# The Child Dental Health Survey Tasmania January - December 1990

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by

The AIH Dental Statistics  
and Research Unit

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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 - TASMANIA 1990

### Purpose of this report

This report follows the 1989 report and establishes the annual series providing descriptive statistics concerning child dental health in Tasmania. The report contains tables and figures. 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, immediate treatment needs and children's history of school dental service examinations. The figures combine and summarize information from four of the tables.

These data were collected during the 1990 calendar year from patients of the Tasmania School 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.

The following sections briefly describe each table and provide a simple, summary statement highlighting differences between the 1990 and 1989 data. It should be recalled that the current data relate to a full year of examinations, while the 1989 report covered the period from March to September. 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

The age distribution of sampled children was wide, there being more than one thousand children in individual ages in the range 5 to 15 years (inclusive). The most frequently represented ages were in the range 6 to 12 years (accounting for 71 per cent of the sample), and this conforms with the predominant ages of the primary school population. Children aged 4 years or less and those aged 16 years or more were infrequent in this sample. The small numbers of children aged 4 and 16+ years results in less reliability of computed statistics for those ages. Furthermore, children in those ages are outside the main target group of the School Dental Service, and it is likely that they have some special characteristics which make them less representative of their respective age groups within the Tasmanian population.

Males and females were represented in approximately equal numbers in the full sample, and within individual ages the percentage of males fell within the range of 49 to 53 per cent.

### *Changes since 1989*

Other than the larger total sample size (which corresponds with the longer period of sampling during 1990), there were very few changes in the proportional distribution of age- or sex-groups in 1990.

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

The mean dmft prevalence among children aged 5 to 9 years varied across a narrow range, from 1.43 to 1.95 teeth. Four year olds had the highest mean dmft, although (as noted above), four year olds in the School Dental Service probably comprise a special, non-representative group. The deciduous caries experience of children aged 10 years or more naturally declines as teeth exfoliate. The range in the mean number of decayed deciduous teeth was less than that observed for dmft, decreasing from 0.80 among five year olds to 0.51 among nine year olds. As a consequence, the d/dmft ratio is high among the youngest ages, and declines through successive ages. The percentage of children without deciduous caries experience (dmft=0) mirrors the mean dmft prevalence.

This pattern could suggest that children enter the School Dental Service with moderate caries experience at a young age, and that new caries activity in additional teeth is infrequent as children age, at least to the age of nine years. If this was the case, then much of the untreated decay presumably occurs in previously filled teeth. However there could be more complex interactions with exfoliation and rates of caries progression which influence this pattern of deciduous caries.

#### *Changes since 1989*

There was a pattern of reduced mean dmft during 1990, generally in the range of 0.1 to 0.2 teeth among those aged 5 to 9 years, compared with 1989. There was a corresponding increase of around four per cent among most of those ages in the percentage of caries free children. This may in part reflect differences in the sampling periods between the two years. However, it could also indicate that the recent secular declines in caries experience is continuing among these children.

**Table 4: Permanent teeth: age-specific prevalence**

The mean numbers of decayed permanent teeth and DMFT were smaller than the corresponding means for deciduous teeth across the range of 5 to 11 years. In addition, the mean number of decayed and DMF teeth increased in a fairly consistent manner across increasing age groups. As a consequence, the percentage of DMFT due to decay (D/DMFT) and the percentage of caries free children (DMFT=0) declined across age groups. It is noteworthy that more than 50 per cent of children aged 12 years or less were caries free (DMFT=0).

Among those aged 13 years or more, the mean DMFT and number of decayed teeth was much higher, and the age-associated increase in DMFT was more dramatic. This pattern suggests either that new caries progression accelerates after the age of 12, or that these older children represent a cohort with a higher historical caries experience.

#### *Changes since 1989*

Changes in the mean number of decayed permanent teeth were inconsequential, and for most ages, the mean DMFT differed by less than 0.1 teeth. The 12 year-old mean DMFT of 1.12 was virtually identical to the 1989 figure of 1.06. The only consistent change between the years was an increase during 1990 in the ratio of decayed teeth (D/DMFT), principally in the range of 3 to 6 per cent. It is important to note that this ratio is very sensitive to the generally low mean DMFT prevalence. However the increase is apparent among most ages, and it may reflect the different sampling periods or possibly some changes in clinical practice during 1990.

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

Untreated decay in the combined deciduous and permanent dentitions ( $d+D=1, 2, 3$  or  $4+$ ) existed for between 28 to 37 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 decay ( $d+D=4$  or more) occurred in the younger age groups, although the percentage of children affected to this extent did not exceed 10 per cent.

While more than 96 per cent of children aged over four years had no deciduous or permanent teeth missing due to caries, smaller percentages avoided fillings, and this was associated with age. There was a reasonably consistent decline in the percentage of children with no caries experience ( $dmft+DMFT=0$ ) in either deciduous or permanent dentition, from 60.4 per cent at age five to 36.2 per cent at age 10. The percentage remained relatively constant among older ages, reflecting the pattern of exfoliation of deciduous teeth. This statistic serves to demonstrate that more than one third of children at any given age have no experience of dental caries.

#### *Changes since 1989*

There was a notable, albeit small, change in the distribution of caries severity, with a slight (2 or 3 per cent) reduction in the percentage of children with one decayed tooth ( $d+D=1$ ). Although this was apparent among all ages in the range of 5 to 12 years the increase in percentage of decay free children ( $d+D=0$ ) was not consistently reflected. Hence, it may be wise to regard this as a small aberration associated with the different sampling periods between the two years.

Consistent with previous observations, there was a small increase of around two per cent during 1990 in the percentage of children with no caries experience ( $dmft+DMFT=0$ ). This small increase was apparent in most ages in the range of 5 to 14 years.

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

Fissure sealants were prevalent among children aged 8 or more years, and at those ages the mean number of fissure sealants exceeded the mean number of teeth with caries experience. In all ages there was evidence of preferential use of fissure sealants among those with caries experience. For example, some 60 per cent of 12 year olds with permanent caries experience ( $DMFT=1+$ ) had fissure sealants, compared with 42 per cent among those with a mean  $DMFT$  of zero.

#### *Changes since 1989*

The mean number of fissure sealants in 1990 increased among children aged over 10 years. The increase appeared to be fairly consistent both in children with past caries experience ( $DMFT=1+$ ) and those without ( $DMFT=0$ ).

### **Table 7: Immediate treatment needs**

Immediate treatment needs were most infrequent, affecting one per cent or less of children in all ages. This pattern was similar to the one observed in 1989.

### Table 8: School Dental Service examinations

The left hand side of this table describes the percentage of children who were new patients (having had no previous dental examination) in the Tasmania School Dental service. The figure was highest for the youngest ages (6 years or less) while fewer than 10 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. More than one half of children received examinations within 7 to 12 months of their previous examination. A re-examination interval of one to two years occurred for most of the remaining children, although approximately 10 per cent (somewhat higher among younger ages) received a re-examination within six months. Very few children were re-examined after a period of two or more years.

#### *Changes since 1989*

There was a consistent decrease during 1990 (apparent in virtually all age groups) in the percentage of children receiving a re-examination within a 7 to 12 month period. There were corresponding increases in the percentage of children receiving re-examinations within a one to two year period and (to a lesser extent) within six months. As noted elsewhere, changes of this sort could reflect the different sampling periods between the two years. Alternatively, it may indicate that there has been a systematic shift in patterns of recall and re-examination.

#### **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 percentage with no caries experience) and the extent of more extensive untreated decay (represented by the percentage with d+D=4 or more).

#### **Figure 2: Time since last dental examination**

This figure draws on information from Table 8, and selects 6- and 12-year-olds to demonstrate the variation in time since last examination.

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

State/Territory: **Tasmania**

Sampling ratio: **1:2.5**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	NUMBER OF RECORDS PROCESSED		
	Males	Females	Persons
2	0	3	3
3	12	20	32
4	92	117	209
5	581	605	1186
6	1016	895	1911
7	1006	932	1938
8	1013	994	2007
9	996	922	1918
10	983	976	1959
11	932	892	1824
12	741	761	1502
13	635	634	1269
14	611	629	1240
15	610	571	1181
16	67	79	146
17	33	48	81
18	12	13	25
<b>Total</b>	<b>9340</b>	<b>9091</b>	<b>18431</b>

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

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



**TABLE 3: DECIDUOUS TEETH: AGE-SPECIFIC PREVALENCE<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. 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: **Tasmania**

Sampling ratio: **1:2.5**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample <sup>2</sup>	decayed		dmft		d/dmf %	Children with dmft=0 %
		mean	sd	mean	sd		
4	209	1.29	2.67	2.25	3.86	61.1	54.1
5	1186	0.80	1.81	1.43	2.63	56.3	60.6
6	1911	0.77	1.57	1.59	2.52	47.6	54.6
7	1938	0.61	1.26	1.67	2.44	40.3	51.7
8	2007	0.54	1.01	1.95	2.48	31.6	44.5
9	1918	0.51	1.00	1.95	2.38	29.7	41.6
10	1959	0.41	0.90	1.67	2.13	25.9	45.9
11	1826	0.25	0.70	1.10	1.78	24.0	59.6
12	1502	0.11	0.39	0.60	1.28	23.0	74.6

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<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 4: PERMANENT TEETH: AGE-SPECIFIC PREVALENCE<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. 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: **Tasmania**

Sampling ratio: **1:2.5**

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children in sample <sup>2</sup>	DECAYED		DMFT		D/DMFT	Children with
		mean	sd	mean	sd	%	DMFT=0 %
6	1911	0.06	0.33	0.07	0.38	89.6	95.1
7	1938	0.13	0.49	0.20	0.61	70.6	88.0
8	2007	0.16	0.61	0.34	0.86	48.0	80.8
9	1918	0.19	0.52	0.54	0.99	38.0	70.2
10	1959	0.17	0.49	0.60	1.09	32.2	69.0
11	1826	0.22	0.59	0.86	1.31	28.0	59.4
12	1502	0.30	0.74	1.12	1.61	26.9	52.3
13	1269	0.40	0.97	1.47	1.99	27.5	46.2
14	1240	0.45	0.94	1.96	2.25	24.6	37.9
15	1181	0.42	0.93	2.26	2.68	20.5	36.1
16	146	0.44	1.20	2.86	3.11	13.6	25.3

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<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 5: ALL TEETH: AGE-SPECIFIC PREVALENCE<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. 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: Tasmania

Sampling ratio: 1:2.5

Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number 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
4	209	63.6	12.4	8.1	*	12.4	91.9	78.0	54.1
5	1186	70.5	10.2	7.8	4.5	7.1	96.7	77.9	60.4
6	1911	68.0	11.7	8.9	3.8	7.6	97.3	69.4	53.4
7	1938	65.0	16.7	9.1	3.9	5.3	96.6	64.0	48.3
8	2007	64.1	17.9	10.1	4.0	3.9	96.5	51.7	39.9
9	1918	62.7	18.9	10.8	4.3	3.2	96.6	45.3	34.3
10	1959	68.4	16.9	8.3	3.9	2.5	98.2	44.9	36.2
11	1826	71.9	16.8	7.4	2.1	1.9	98.0	47.9	38.9
12	1502	74.3	16.1	6.1	2.0	1.5	98.5	49.7	39.7
13	1269	74.9	15.0	5.6	2.0	2.6	98.2	53.1	42.7
14	1240	72.7	15.3	7.0	3.3	1.6	97.9	45.3	36.6
15	1181	73.5	17.1	5.7	2.1	1.6	97.4	42.4	35.2
16	146	80.8	9.6	*	*	*	95.9	32.9	25.3

- <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 6: FISSURE SEALANTS: AGE-SPECIFIC PREVALENCE<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. 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: Tasmania

Sampling ratio: 1:2.5

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+
5	1186	*	*	1180	*	6	33.3
6	1911	0.07	0.43	1817	2.1	94	14.9
7	1938	0.33	0.97	1705	10.3	233	30.0
8	2007	0.82	1.42	1622	25.5	385	46.5
9	1918	1.07	1.51	1346	33.7	572	53.3
10	1959	1.30	1.64	1352	40.3	607	56.2
11	1826	1.46	1.75	1085	44.0	741	54.4
12	1502	1.64	1.98	785	43.6	717	59.7
13	1269	1.84	2.24	586	42.5	683	60.5
14	1240	2.07	2.52	470	41.5	770	61.2
15	1181	2.30	2.59	426	44.4	755	63.0
16	146	2.08	2.55	37	45.9	109	56.9
17	81	2.51	3.34	19	42.1	62	54.8

<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<sup>1</sup>**

This table, based on State-wide data, describes the number and proportion of children in immediate need of dental treatment. This classification is accorded to children who have, or who are likely to develop within four weeks, oral pain or infection. The dental caries experience of this group of children is also described. 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: **Tasmania**

Sampling ratio: **1:2.5**

Data for period January-December 1990

Date of report: 3rd February 1992

CHILDREN IN NEED OF IMMEDIATE TREATMENT												
Age (years)	Number of children in sample	No.	% of all children	dmft		DMFT		% with d+D=				
				mean	sd	mean	sd	0	1	2	3	4+
4	209	1	*	8.00	-	-	-	100.0	-	-	-	-
5	1186	2	*	*	*	-	-	-	*	*	-	-
6	1911	10	0.5	3.40	1.65	*	*	*	*	*	*	*
7	1938	9	*	4.33	3.12	*	*	*	*	*	*	*
8	2007	7	*	*	*	*	*	*	*	*	-	-
9	1918	6	*	*	*	*	*	*	*	*	-	-
10	1959	10	0.5	*	*	*	*	*	*	*	*	-
11	1826	4	*	*	*	*	*	75.0	*	-	-	-
12	1502	15	1.0	-	-	*	*	86.7	-	-	-	*
13	1269	3	*	-	-	-	-	*	*	-	-	-
14	1240	14	1.1	*	*	*	*	*	*	*	-	*
15	1181	9	*	-	-	*	*	*	*	-	-	*

<sup>1</sup> Legend      dmft - number of decayed, missing or filled deciduous teeth  
 DMFT - number of decayed, missing or filled permanent teeth  
 d - number of decayed deciduous teeth  
 D - number of decayed permanent teeth

**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: **Tasmania**

Sampling ratio: **1:2.5**

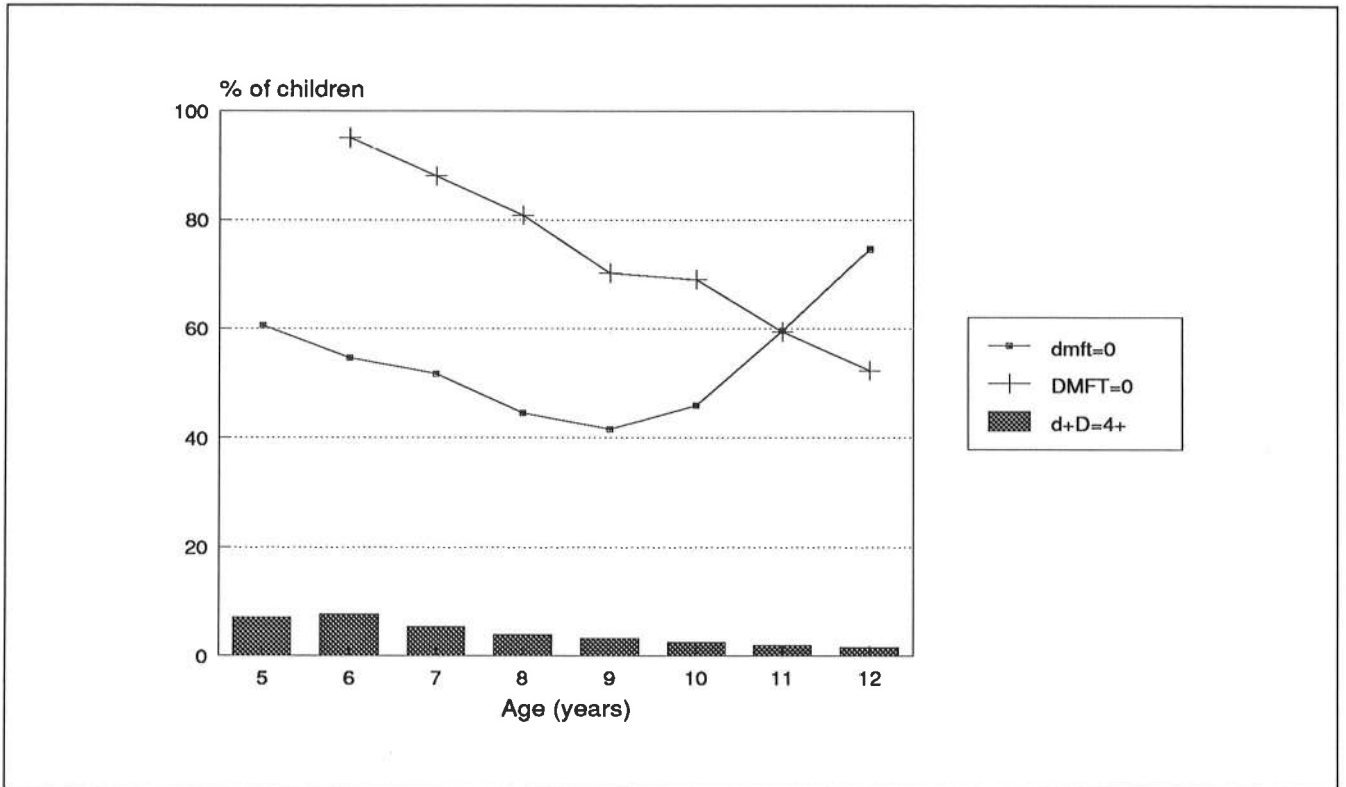
Data for period January-December 1990

Date of report: 3rd February 1992

Age (years)	Number of children examined	Previous examination in School Dental Service (%)		CHILDREN WITH PREVIOUS EXAMINATION			
		Yes	No	Months since last examination <sup>1</sup> (%)			
				0-6	7-12	13-24	25+
3	163	19.6	80.4	*	59.4	*	-
4	1006	21.1	78.9	28.2	53.1	18.7	-
5	2068	57.4	42.6	18.1	59.3	22.3	*
6	2125	89.9	10.1	14.5	58.3	26.9	*
7	2050	94.5	5.5	14.1	57.5	27.9	*
8	2105	95.3	4.7	11.2	58.8	29.7	*
9	1985	96.6	3.4	11.7	55.5	32.1	0.7
10	2015	97.2	2.8	12.0	57.1	30.5	*
11	1873	97.5	2.5	10.2	59.0	30.0	0.7
12	1543	97.3	2.7	9.2	56.1	33.6	1.2
13	1307	97.1	2.9	8.8	52.6	37.0	1.7
14	1269	97.7	2.3	11.1	55.7	30.3	2.8
15	1221	96.7	3.3	13.3	59.9	24.0	2.8
16	152	96.1	*	*	39.7	47.9	6.8
17	87	93.1	*	*	35.8	50.6	12.3

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

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



**FIGURE 2: TIME SINCE LAST DENTAL EXAMINATION**

