AIH DENTAL STATISTICS AND RESEARCH UNIT

ACT COMMUNITY HEALTH SERVICES

THE UNIVERSITY OF ADELAIDE

The Child Dental Health Survey Australian Capital Territory1990

by

The AIH Dental Statistics
and Research Unit

Published by:
AIH Dental Statistics and Research Unit
The University of Adelaide
GPO Box 498
ADELAIDE SA 5001

July, 1991

Phone: (08) 228-5027
Fax: (08) 224-4062

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.

DSRU Staff:

Head:	Professor John Spencer
Research Officers:	Mr Fearnley Szuster
	Mr Michael Davies
Consultant Oral Epidemiologist:	Dr Gary Slade
Technical Assistant:	Mr David Brennan

THE CHILD DENTAL HEALTH SURVEY - AUSTRALIAN CAPITAL TERRITORY 1990

Purpose of this report.

This report follows the 1989 report and establishes the series of annual reports providing descriptive statistics concerning child dental health in the Australian Capital Territory. 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 ACT School Dental Service by dental therapists and dentists. A random sampling procedure was used to select approximately one in two (1:2.5) patients. This was achieved by selecting those children whose birthday was between the 1st and 12th (inclusive) of any month. Provision was made for inclusion and numerical weighting of data from children whose date of birth was unknown, although during 1990, there were no such occurrences.

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 statistics were collected only during the second half of that calendar year. 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 great majority of children in the sample (94 per cent) were aged between 5 and 11 years inclusive, with approximately equivalent numbers in individual ages within this range. Twelve year-olds were less than half as likely as those aged 5-11 to be in the sample, while 4-year-olds and those aged 13+ were infrequent. Males were more frequent than females, although they did not exceed 57 per cent in any of the main age groups (5-12 years).

This distribution of the sample is closely related to the main target groups of children served by the School Dental Service in the ACT. This also reinforces the notion that the sample is representative of primary school aged children served by the School Dental Service, rather than all children in the ACT. Moreover, the small numbers of children aged 4 and 13+ results in less reliability of computed statistics for those ages, and they have been suppressed where indicated in the following tables. It is also 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 ACT population.

Table 3: Deciduous teeth: age-specific prevalence.

The mean number of decayed teeth among children aged 5 to 9 years varies across a narrow range (0.54 to 0.83) and is lower among older children. The magnitude of variation in mean dmft in this age group is slightly greater (1.01 to 1.59), although the prevalence is higher among older children. Mean dmft declines over the age of 9, and this must be interpreted in

view of the exfoliation of deciduous teeth as children grow older. The mean d and dmft of 4-year-olds is exceptionally high, but caution should be used in interpreting these statistics. While the estimates are sufficiently reliable, it should be recalled the 4-year-olds were less likely to be represented in the sample, and they probably differ in key characteristics from the child population in the ACT. In contrast, those aged 5 to 9 years are likely to be more representative of the ACT population in that age range.

The percentage of caries experience due to decay (d/dmft) shows an age-associated decline, more than halving from 81.6 per cent among 5-year-olds to 36.6 per cent among 10-year-olds. This is the strongest and most consistent age-associated effect for deciduous teeth. By comparison, the percentage of caries-free children (% dmft=0) shows a more modest reduction from 69.6 per cent among 5-year-olds to 49.2 per cent among 9-year-olds. The percentage of caries free children therefore mirrors the mean dmft prevalence.

Changes since 1989.

Most changes in deciduous caries experience among 5- to 9-year-olds between 1989 and 1990 were small, and generally do not appear to represent clear trends. Mean dmft for 5-year-olds decreased from 1.12 to 1.01, but increased (by slightly greater magnitudes) among 7- to 9-year-olds. It appears that some of the increases can be attributed to an observed increase in the mean number of decayed teeth among 7 to 9-year olds. There is some indication of small increases (generally less than five percentage points) in d/dmft. Changes in percentage caries free (dmft=0) generally correspond to the small differences observed in dmft prevalence.

Table 4: Permanent teeth: age specific prevalence.

The mean number of decayed permanent teeth is smaller than the mean number of decayed deciduous teeth and is relatively consistent across the range of 7 to 11 years. However, the mean DMFT increases quite consistently across age groups, as expected. As a consequence, the percentage of DMFT due to decay (D/DMFT) and the percentage of caries free children (DMFT=0) declines across age groups. Age-specific D/DMFT percentages are higher than d/dmft percentages between the ages of five and nine. However this phenomenon is due largely to the very low DMFT values which are the denominators in D/DMFT and which drive the percentage upwards. It is noteworthy that more than 50 per cent of children aged 12 or less are caries free (DMFT=0).

Changes since 1989.

Changes in the mean number of decayed permanent teeth are inconsequential, and for most ages, the mean DMFT differs by less than 0.1 teeth. An exception is 12-year-old DMFT which in 1989 was 1.14 and in 1990 is 1.03. However, as noted in the 1989 report, the 1989 estimate may have been larger than expected due to a relatively small sample size. Hence, this apparent reduction in 1990 may be an artefact. The 1990 D/DMFT percentages for ages 6 to 8 years are marginally higher than those observed in 1989, however as noted above, these percentages are most sensitive to the very small denominators (DMFT) in those ages. The percentage of children caries free (DMFT=0) appear to be stable across the two years, except for increases of approximately four per cent among of 11- and 12-year-olds although, as discussed already, the 1989 data may have been underestimates.

Table 5: All teeth: age specific prevalence.

Untreated caries in the combined deciduous and permanent dentitions (d+D=1, 2, 3 or 4+) exists for between 25 and 37 per cent of children in the age range 5 to 12 years. The greatest likelihood of untreated decay occurs for 9-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 (d+D=4 or more) occur in the younger age groups, with six per cent or more of children aged 8 years or less being affected to this extent. This age distribution suggests that the greatest contribution comes from the deciduous dentition.

While more than 97 per cent of children have no deciduous or permanent teeth missing due to caries, smaller percentages avoid fillings, and this is clearly associated with age. Similarly, there is a reasonably consistent decline in the percentage of children with no caries experience in either deciduous or permanent dentition (dmft+DMFT=0), from 69.6 per cent at age five to 38.1 per cent at age 12. Nonetheless, this latter statistic serves to demonstrate that more than one third of children at any given age have no experience of dental caries experience.

Changes since 1989.

The observations concerning small increases in prevalence of decayed deciduous teeth among 7- to 9-year-olds carry through to this table which indicates slight decreases (approximately 6 percentage points) in percentage of children with zero d+D compared with 1989. There were very few differences in the percentage of children with two, three or four or more teeth affected by decay, suggesting that the small decreases in zero d+D probably can be attributed to a minor increase in the percentage of children in those ages with one decayed tooth. Changes in percentages of children with no missing or filled teeth were inconsequential, while there were inconsistent (and minor) differences in percentage of children with dmft+DMFT equal to zero.

Table 6: Fissure sealants: age-specific prevalence.

Fissure sealants are prevalent in children aged 7 to 12 years, and at those ages the mean number of fissure sealants exceeds the mean number of decayed teeth, being close to the mean number of filled teeth. There is clear evidence of preferential use of fissure sealants among those with caries experience: children aged 8 to 12 years with some caries experience (DMFT=1+) were approximately twice as likely to have fissure sealants as those with DMFT equal to zero.

Changes since 1989.

The mean number of fissure sealants in 1990 is greater than that observed in 1989; among those aged 9 to 12 years, the mean number is almost double. During both years, the percentage of children with fissure sealants is greater among those with caries experience and those without, although in 1990 the differential between the two groups (almost twice the likelihood of fissure sealants in those with DMFT=1+) is larger.

Table 7: Immediate treatment needs.

Immediate treatment needs for existing or imminent pain or infection are infrequent in the key age groups (6 to 11 years). Fewer than three per cent of children required immediate treatment, with the greatest percentage occurring among 8-year-olds. This correlates with the peak in mean dmft and may suggest that most forms of immediate treatment are due to disease in deciduous teeth. Certainly the small group of children with immediate treatment needs have a very high mean dmft prevalence.

Changes since 1989.

The percentage of children with immediate treatment needs, and their levels of caries experience, are virtually identical to the 1989 estimates.

Table 8: School Dental Service examinations.

The left hand side of this table describes the percentage of children who are new patients (having had no previous dental examination) in the ACT School Dental service. As expected, the figure is highest for the youngest ages (6 years or less) with fewer than 10 per cent of those aged 8 years or more having 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 one third of children received examinations within 7 to 12 months of their previous examination, with the majority (generally between 50 and 60 per cent) receiving examinations within one to two years. An exception exists for 6-year-olds, where 49.2 per cent received an examination within 7 to 12 months. Very few children were re-examined within six months, or after two years.

Changes since 1989.

The distribution of children receiving their first examination in the School Dental Service is very similar to the 1989 data, as is the time since last examination. The only observable difference was a small increase in the percentage of children receiving an examination within 7 to 12 months of the previous examination, and a corresponding reduction in the percentage whose previous examination was within one to two years. However, as noted previously, the 1990 data are more complete than the August-December 1989 statistics, and these apparent differences in re-examination may be artefacts of variation in sample bases.

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. The bars, using data from those children who received a subsequent examination by the School Dental Service during 1990, indicate that more than 50 per cent of 6-year-olds received a subsequent examination within 12 months of the previous School Dental Service examination, while for 12-year-olds, the figure was 29.4 per cent.

For further information contact: Mr Michael Davies or Dr Gary Slade
AIH Dental Statistics and Research Unit
The University of Adelaide
GPO Box 498 Phone: (08) 228-5027
ADELAIDE SA 5001 Fax: (08) 224-4062

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. In Australian Capital Territory the sampling is 1:2.5. This ratio is achieved by systematically selecting every fifth record of data from all children examined in the School Dental Service. The following table describes the number of records processed from children in Australian Capital Territory.

State/Territory: **Australian Capital Territory** Sampling Ratio: **1:2.5**

Data for period January-December 1990 Date of Report: 30th June 1991

	UNWEIGHTED NUMBER OF RECORDS PROCESSED						WEIGHTED NUMBER OF CHILDREN IN SAMPLE[1]		
	TYPE OF SAMPLING								
Age (years)	**Known date of birth**			**Age only known**					
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
≤4	40	40	80	0	0	0	40	40	80
5	435	372	807	0	0	0	435	372	807
6	499	513	1012	0	0	0	499	513	1012
7	519	465	984	0	0	0	519	465	984
8	521	504	1025	0	0	0	521	504	1025
9	470	478	948	0	0	0	470	478	948
10	501	512	1013	0	0	0	501	512	1013
11	461	433	894	0	0	0	461	433	894
12	183	137	320	0	0	0	183	137	320
13	7	6	13	0	0	0	7	6	13
14	1	3	4	0	0	0	1	3	4
≥15	1	5	6	0	0	0	1	5	6
Total	3638	3468	7106	0	0	0	3638	3468	7106

---

[1] Processed records are weighted to reflect the sampling scheme. Records from children with a known date of birth are weighted up, while records from children for whom age only is known are weighted down. The sum of the weighted records is equivalent to the number of children sampled for the survey. The number of cases have been rounded to the nearest integer.

TABLE 2: COUNTRY OF BIRTH (INCLUDING ABORIGINALITY)

These data were not collected in Australian Capital Territory during the period January-December 1991.

TABLE 3: DECIDUOUS TEETH: AGE-SPECIFIC PREVALENCE[1]

This table uses Statewide 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: **Australian Capital Territory** Sampling ratio: **1:2.5**

Data for period January-December 1990 Date of report: 30th June 1991

Age (years)	Number of children in sample	decayed		dmft		d/dmf	Children with dmft=0
		mean	sd	mean	sd	%	%
≤4	80	1.46	2.79	1.70	3.05	87.4	63.8
5	807	0.83	1.91	1.01	2.17	81.6	69.6
6	1012	0.74	1.55	1.15	2.23	69.7	62.9
7	984	0.78	1.50	1.54	2.40	53.3	54.9
8	1025	0.65	1.31	1.59	2.29	42.8	51.0
9	948	0.54	1.07	1.57	2.14	36.8	49.2
10	1013	0.39	0.82	1.20	1.84	36.6	57.4
11	894	0.26	0.67	0.88	1.53	31.3	63.8
12	320	0.13	0.46	0.57	1.19	22.0	73.7

---

[1] Legend: d - decayed deciduous teeth
dmft - decayed, missing or filled deciduous teeth
sd - standard deviation

TABLE 4: PERMANENT TEETH: AGE-SPECIFIC PREVALENCE[1]

This table uses Statewide 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: **Australian Capital Territory** Sampling ratio: **1:2.5**

Data for period January-December 1990 Date of report: 30th June 1991

Age (years)	Number of children in sample	DECAYED mean	DECAYED sd	DMFT mean	DMFT sd	D/DMFT %	Children with DMFT=0 %
5	807	*	*	*	*	100.0	99.8
6	1012	0.04	0.26	0.05	0.30	91.7	97.0
7	984	0.12	0.46	0.16	0.54	76.8	90.0
8	1025	0.14	0.50	0.25	0.69	59.3	85.5
9	948	0.20	0.63	0.45	0.96	47.5	75.8
10	1013	0.19	0.66	0.56	1.07	34.9	69.9
11	894	0.18	0.55	0.68	1.15	26.3	66.1
12	320	0.28	0.70	1.03	1.43	25.9	52.8

---

[1] Legend: D - decayed permanent teeth
DMFT - decayed, missing or filled permanent teeth
sd - standard deviation

TABLE 5: ALL TEETH: AGE-SPECIFIC PREVALENCE[1]

This table uses Statewide 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: **Australian Capital Territory** Sampling ratio: **1:2.5**

Data for period January-December 1990 Date of report: 30th June 1991

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
≤4	80	66.3	*	*	*	17.5	100.0	91.3	61.3
5	807	72.6	9.4	6.8	3.3	7.8	99.1	92.4	69.6
6	1012	68.5	13.4	6.8	4.6	6.6	98.1	83.8	62.1
7	984	63.9	15.3	7.7	5.2	7.8	98.2	70.6	52.4
8	1025	64.7	17.0	8.5	3.9	6.0	98.2	62.0	48.2
9	948	62.6	19.6	8.3	5.4	4.1	97.6	54.7	40.8
10	1013	68.4	17.1	7.7	3.9	2.9	98.7	56.1	45.1
11	894	73.8	16.0	6.0	2.5	1.7	99.6	54.1	45.4
12	320	75.0	15.0	5.6	*	*	97.8	47.2	38.1

---

[1] 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[1]

This table uses Statewide 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: **Australian Capital Territory** Sampling ratio: **1:2.5**

Data for period January-December 1990 Date of report: 30th June 1991

Age (years)	Number of children in sample[2]	Number of sealants		CHILDREN WITH DMFT=0		CHILDREN WITH DMFT=1+	
		mean	sd	number	% with F/S=1+	number	% with F/S=1+
6	1012	*	*	982	*	30	6.7
7	984	0.19	0.76	886	6.4	98	8.2
8	1025	0.37	1.05	876	10.7	149	27.5
9	948	0.50	1.18	719	15.4	229	24.9
10	1013	0.50	1.21	708	15.1	305	23.3
11	894	0.47	1.19	591	13.4	303	25.7
12	320	0.61	1.36	169	16.0	151	27.2

---

[1] Legend: DMFT - decayed, missing or filled permanent teeth

[2] Legend: F/S - number of fissure sealed teeth
sd - standard deviation

TABLE 7: IMMEDIATE TREATMENT NEEDS: AGE-SPECIFIC DISTRIBUTION[1]

This table, based on Statewide 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: **Australian Capital Territory** Sampling ratio: **1:2.5**

Data for period January-December 1990 Date of report: 30th June 1991

Age (years)	Number of children in sample	CHILDREN IN NEED OF IMMEDIATE TREATMENT					
		No.	% of all children	dmft mean	dmft sd	DMFT mean	DMFT sd
≤4	80	3	*	*	*	*	*
5	807	13	*	5.46	3.38	*	*
6	1012	17	1.7	5.18	3.59	*	*
7	984	21	2.1	4.05	3.19	*	*
8	1025	27	2.6	3.44	2.97	*	*
9	948	22	2.3	3.86	3.04	*	*
10	1013	15	1.5	2.13	2.07	1.60	1.40
11	894	15	1.7	*	*	*	*
12	320	3	*	*	*	*	*

---

[1] 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.

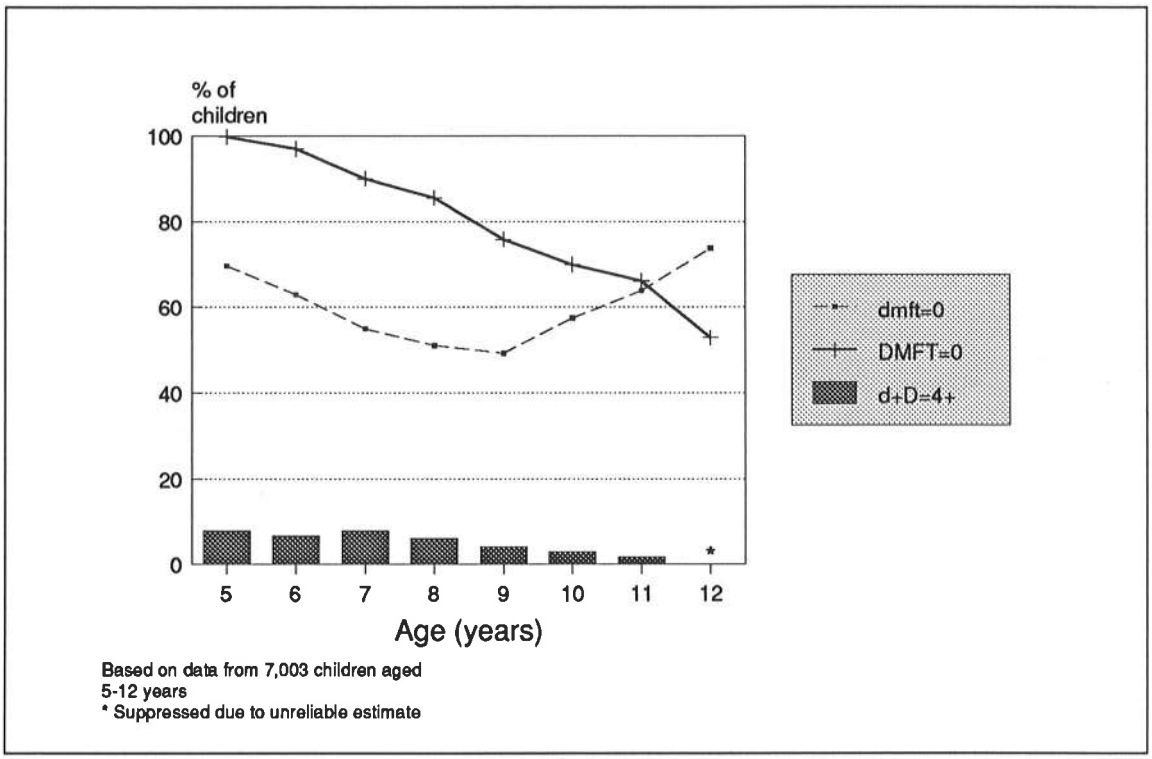
State/Territory: **Australian Capital Territory** Sampling ratio: **1:2.5**

Data for period January-December 1990 Date of report: 30th June 1991

Age (years)	Number of children examined	Previous examination in School Dental Service (%)			CHILDREN WITH PREVIOUS EXAMINATION Months since last examination[1](%)			
		No	Yes	Unknown	0-6	7-12	13-24	25+
≤4	81	76.5	*	*	*	*	*	0.0
5	814	77.3	7.9	14.9	*	37.5	51.6	*
6	1028	38.8	46.7	14.5	3.3	49.2	45.2	*
7	995	11.5	75.8	12.8	2.3	35.0	58.2	4.5
8	1035	8.1	77.6	14.3	4.1	32.4	55.9	7.6
9	959	6.7	78.2	15.1	2.8	33.1	57.2	6.9
10	1021	6.7	80.3	13.0	4.4	37.1	52.7	5.9
11	908	5.1	84.0	10.9	3.9	37.6	51.9	6.6
12	325	*	82.5	14.5	*	27.2	64.6	6.0

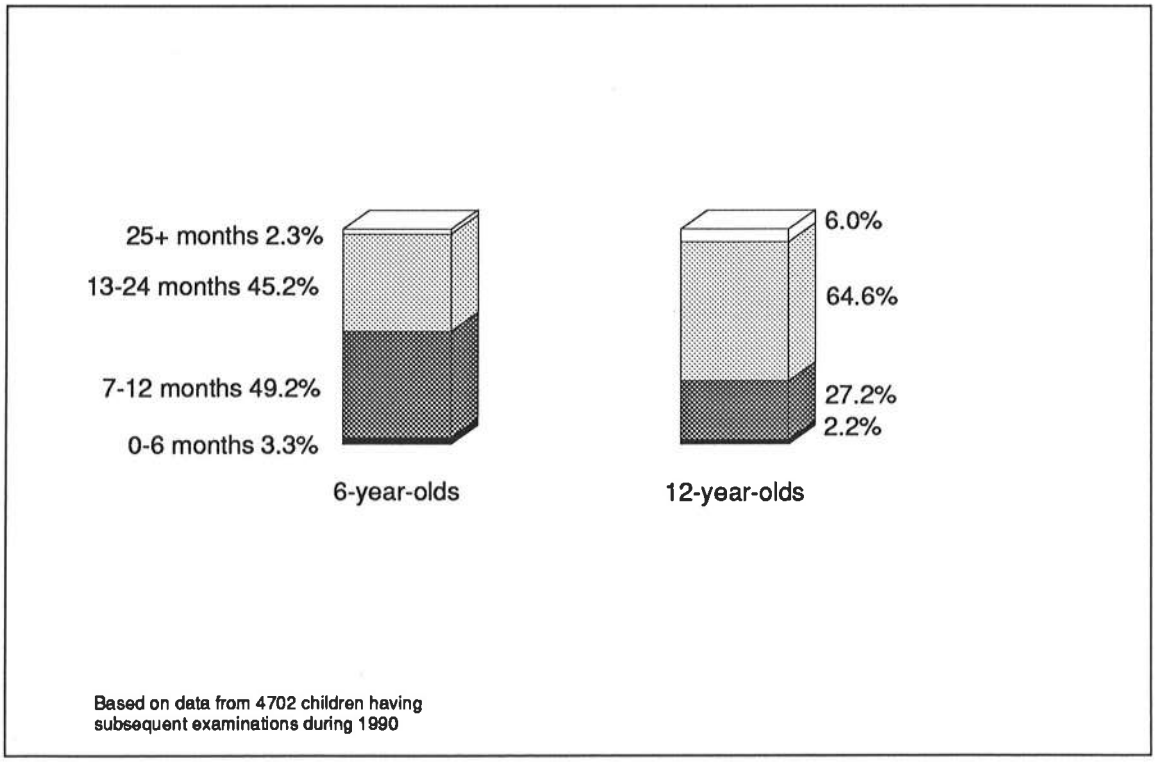
[1] Excludes those with no previous examination and where the date of previous examination is unknown.

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



Based on data from 7,003 children aged 5-12 years
* Suppressed due to unreliable estimate

FIGURE 2: TIME SINCE LAST DENTAL EXAMINATION



Based on data from 4702 children having subsequent examinations during 1990