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# The Child Dental Health Survey South Australia January - December 1993

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by

The AIHW Dental Statistics  
and Research Unit

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This report is the South Australian component of the Child Dental Health Survey, a project in which all States and Territories are participating.

The AIHW Dental Statistics and Research Unit (DSRU) is an external unit of the Australian Institute of Health and Welfare 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 - SOUTH AUSTRALIA 1993

### Purpose of this report

This report establishes the series of annual reports providing descriptive statistics concerning child dental health in South Australia, and follows the 1992 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 and children's history of School Dental Service examinations. These data were collected during the 1993 calendar year from SA School Dental Service patients by dental therapists and dentists. A random sampling procedure was used to select patients aged 5 to 15 years during June 1992 to May 1993. This was achieved in metropolitan Adelaide by selecting those children whose birthdays were on the 13th, 30th or 31st day of any month. Non-metropolitan areas included birthdays falling on the 13th, and 26th through to 31st.

A sample of this cohort, based on participation in the Child Fluoride Study,<sup>1</sup> of cases was re-examined during the 1993 calendar year. To allow for the ageing of this cohort, 5 year-old children new to the SDS were also sampled at the above-mentioned ratios.

This sampling scheme represents a modification from the procedures used in 1992.

The following sections describe briefly each table and contain a simple summary statement highlighting differences between the 1993 and 1992 data. However, 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 first table lists at the left the number of children sampled according to their date of birth. The majority of children were aged 5 years or more, and there were large numbers of children in the range 5 to 15 years. There was a tendency for younger children within this age range to be represented in slightly greater numbers. Males and females were represented in approximately equivalent numbers. There was not more than 15 per cent variation in the gender balance within any age group.

The age distribution of the sample is related to the main target groups of children served by the School Dental Service in SA. This illustrates that the sample is representative of children in primary school and early secondary school, rather than all children in South Australia. Consequently, those children who are outside the main school dental service target groups (less than 5 or more than 15 years) may differ on key characteristics and are likely to be less representative of their respective age groups in the SA population.

### *Changes since 1992*

The 1993 sample is smaller than the 1992 sample by approximately 2,987 children, reflecting the different sampling arrangements described previously. In other respects, the proportional distribution of ages and sexes is similar to the 1992 sample.

<sup>1</sup> An NHMRC funded project conducted in collaboration with SADS designed to examine the effect of water fluoridation on 3 year caries incidence.

### Table 2: Country of birth

This information, collected for the first time in 1990, highlights the large percentage of sampled children who were born in Australia. Fewer than six per cent of children were born in other countries. A higher percentage of mothers were born outside Australia, with Europe and the United Kingdom being the most frequent overseas birthplace.

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

The mean number of decayed teeth shows considerable variation among ages, ranging from a high of 0.53 among children aged 5 years to a low of 0.24 among 10 year-olds. The age-associated decline in number of decayed teeth is fairly linear. Variation in mean dmft is less consistently associated with age, being highest among 9 year-olds (mean = 1.61), and tending to be smaller among younger and older ages. A pattern of reducing dmft among older children is consistent with natural exfoliation of teeth.

The percentage of caries experience due to decay (d/dmft) shows a strong age-associated decline, reducing from 63.2 per cent among children aged 5 years or less to approximately 20 per cent for children aged 9 years or more. This pattern of deciduous caries experience among the youngest groups (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-free children (% dmft = 0) also shows an age-associated reduction from 64.9 per cent among 5 year-old children to 45-46 per cent among 8 and 9 year-olds. The percentage of caries free children therefore mirrors the mean dmft prevalence.

#### *Changes since 1992*

The mean number of decayed teeth showed no substantial change from 1992. There were noticeable declines in the mean dmft, ranging from 0.11 to 0.23 in the age range 5 to 9 years. Related to this, the percentage of caries experience due to decay (d/dmft) increased marginally in that age range. There were also indications of modest decreases (one to four per cent) in the percentage of children with no deciduous caries experience (dmft=0).

### 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 11 years or less. Although the figure increases among older ages, it is substantially less than the highest mean number of decayed deciduous teeth. As expected, the mean DMFT increases quite consistently across age groups. The D/DMFT ratio indicated a corresponding decline, although the D component appeared to increase with age. The DMFT for 12 year-old children for 1992 was 0.69, and more than 64 per cent of children aged over 12 years have no caries experience.

#### *Changes since 1992*

There were substantial reductions of up to 0.35 teeth in the mean DMFT, although most age groups in the range 5 to 12 years had small reductions of less than 0.1 teeth. Similarly, noticeable reductions were observed in the percentage of caries experience due to untreated decay (D/DMFT) and the percentage of caries-free children.

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

Untreated caries in the combined deciduous and permanent dentitions exist for 16 to 26 per cent of children in most ages. 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 five per cent of children aged 5 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.

More than 98 per cent of children across all ages have no deciduous or permanent teeth missing due to caries ( $m+M=0$ ). As expected, the percentage of children with neither deciduous or permanent caries experience ( $dmft+DMFT=0$ ) declines among older ages, and less than 50 per cent of those aged 13 years or more have no caries experience.

#### *Changes since 1992*

There were no systematic changes in the percentage of children with decay ( $\% d+D=1$ ) in ages 7 to 12 years, and there were small but consistent increases (generally in the range of one to three per cent) in the percentage of children with no caries experience ( $dmft+DMFT=0$ ). Those changes in dental health status are consistent with the changes noted separately for the deciduous and permanent dentitions.

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

Fissure sealants were recorded for the first time during 1990 in South Australia. Sealants were frequent in children aged 8 years or more. The prevalence of fissure sealants among those without permanent caries experience ( $DMFT=0$ ) was consistently greater than among those with some permanent caries experience ( $DMFT=1+$ ). This indicates that fissure sealants were being used preferentially in children with past caries experience.

There were no substantial changes in the mean number of teeth with fissure sealants across most ages.

### Table 7: Immediate treatment needs

This data item was recorded for the first time in 1990 and refers to children who at the time of examination have, or are likely to develop within four weeks, pain, infection or serious life threatening conditions. It is intended to capture the more severe clinical conditions which may not be apparent from statistics such as the number of teeth affected with some caries experience. Extremely low percentages of children had immediate treatment needs, due probably to the sampling method of the Child Fluoride Study. Both deciduous and permanent caries experience ( $dmft$  and  $DMFT$ ) were high for this group.

#### *Changes since 1992*

There has been a substantial decrease across most age groups in the percentage of children sampled in need of immediate treatment, not all of which can be attributed to changes in sampling methodology. This is probably due to the sampling methods described in the introduction.

### Table 8: School Dental Service examinations

This table demonstrates that the great majority (over 90 per cent) of children over the age of 5 years had previously been examined within the School Dental Service. The percentage of children aged 4 years or less with a previous examination is difficult to interpret, as it may be expected that virtually all of them would receive a first examination.

The right hand side of the table refers to the period since the previous school dental service examination among children with a previous record of examination. There was a distinctive age-related pattern with younger children more likely than older children to have received a previous examination within the last 12 months. Approximately 50 per cent of children aged 5 years or less had received a previous examination within the previous 12 months.

#### *Changes since 1992*

The months since last examination reveal stable proportions of children who last received care over 12 months ago, and a slight decrease in the proportion who had an exam more than two years ago, or less than six months ago.

#### **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 summarise 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. In South Australia the sampling is 1:19. This ratio is achieved by systematically selecting every nineteenth record of data from all children examined in the School Dental Service. The following table describes the number of records processed from children in South Australia.

State/Territory: **South Australia**

Sampling Ratio: **1:19**

Data for period **January-December 1993**

Date of Report: **31st August 1993**

Age (years)	NUMBER OF RECORDS PROCESSED		
	Males	Females	Persons
2	5	8	13
3	15	21	36
4	48	46	94
5	58	58	116
6	157	151	308
7	265	261	526
8	289	272	561
9	298	254	552
10	278	265	543
11	272	252	524
12	246	229	475
13	218	207	425
14	187	193	380
15	145	169	314
16	119	120	239
17	31	29	60
18	2	0	2
19	0	1	1
20	0	1	1
<b>Total</b>	<b>2633</b>	<b>2537</b>	<b>5170</b>

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

The country of birth of children is determined from information concerning birthplace of the child and mother. The number and percentage of children in each group is provided in this Territory-wide report.

State/Territory: **South Australia**

Sampling Ratio: **1:19**

Data for period January-December 1993

Date of Report: 31st August 1993

COUNTRY OF BIRTH	CHILDREN		MOTHERS	
	Number <sup>1</sup>	%	Number	%
Australia (non-Aboriginal)	4194	81.1	3293	63.7
Australia (Aboriginal or TSI)	42	0.8	33	0.6
United Kingdom and Eire	61	1.2	563	10.9
Other English speaking	45	0.9	68	1.3
Southern Europe	7	0.1	95	1.8
Other Europe	20	0.4	103	2.0
Middle East	4	0.1	7	0.1
South East Asia	61	1.2	86	1.7
Other Asia	13	0.3	24	0.5
Other	7	0.1	22	0.4
Not recorded	716	13.9	878	17.0
<b>Total</b>	<b>5170</b>	<b>100.0</b>	<b>5170</b>	<b>100.0</b>

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<sup>1</sup> Data are weighted to reflect the sampling scheme by correcting for the over-representation in the sample of children with an unknown date of birth and children from outside the Darwin region. Data relating to second or subsequent examinations of children within this reporting period are eliminated.



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

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 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **South Australia**

Sampling ratio: **1:19**

Data for period January-December 1993

Date of report: 31st August 1993

Age (years)	Number of children in sample	decayed <sup>2</sup>		dmft		d/dmf %	Children with dmft=0 %
		mean	sd	mean	sd		
4	114	0.46	1.18	0.77	1.82	73.8	71.7
5	146	0.53	1.28	1.00	2.13	63.2	64.9
6	324	0.46	1.10	1.38	2.14	37.6	53.8
7	511	0.29	0.67	1.30	1.94	28.6	56.0
8	569	0.25	0.58	1.47	1.93	19.8	46.0
9	539	0.29	0.67	1.61	2.02	21.5	45.0
10	526	0.24	0.62	1.38	1.86	20.6	51.0

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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> Filled but otherwise sound teeth which needed a replacement filling were included in the decayed index resulting in a very small over-estimation of the decayed and dmft indices of four per cent or less.

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

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 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **South Australia**

Sampling ratio: **1:19**

Data for period **January-December 1993**

Date of report: **31st August 1993**

Age (years)	Number of children in sample	DECAYED <sup>2</sup>		DMFT		D/DMFT	Children with DMFT=0
		mean	sd	mean	sd	%	%
5	146	*	*	*	*	100.0	99.0
6	324	0.08	0.40	0.11	0.46	77.3	93.5
7	511	0.11	0.39	0.19	0.64	72.1	88.2
8	569	0.08	0.32	0.18	0.54	46.1	87.1
9	539	0.11	0.41	0.28	0.68	40.4	81.0
10	526	0.10	0.39	0.38	0.81	25.9	76.4
11	528	0.15	0.47	0.57	1.03	28.0	68.6
12	480	0.16	0.47	0.69	1.14	23.5	64.1
13	409	0.25	0.66	1.17	1.46	22.4	46.5
14	366	0.19	0.49	1.25	1.81	19.3	50.1
15	314	0.25	0.72	1.61	1.95	14.7	41.7
16	219	0.24	0.58	2.31	2.37	10.4	29.5
17	64	0.36	0.94	2.12	2.41	12.2	33.8

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

<sup>2</sup> Filled but otherwise sound teeth which needed a replacement filling were included in the decayed index resulting in a very small over-estimation of the decayed and DMF indices of two per cent or less.

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

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 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1993

Date of report: 31st August 1993

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	114	76.9	13.3	5.2	*	*	98.7	89.3	71.7
5	146	73.7	14.4	6.1	*	3.8	98.6	84.6	64.9
6	324	75.0	11.3	6.9	3.4	3.5	98.2	67.4	52.2
7	511	74.5	15.5	6.0	2.6	1.3	99.0	61.5	52.0
8	569	77.6	14.5	6.5	*	*	98.9	50.6	42.6
9	539	73.6	16.7	7.2	1.6	*	98.6	48.6	39.7
10	526	76.5	17.0	4.5	*	1.1	98.3	50.4	43.3
11	528	77.1	16.3	3.9	1.5	1.2	99.3	52.5	43.7
12	480	82.2	11.1	5.0	*	*	98.7	57.8	51.3
13	409	81.2	11.7	4.7	1.5	*	99.7	48.6	41.8
14	366	83.5	13.5	2.2	*	0.0	99.8	55.6	49.2
15	314	82.9	12.9	*	2.0	*	99.6	45.2	40.8
16	219	81.3	14.6	2.7	*	*	99.7	30.4	27.6
17	64	83.8	*	*	*	*	100.0	33.8	33.8

<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 State-specific 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 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **South Australia**

Sampling ratio: **1:19**

Data for period January-December 1993

Date of report: 31st August 1993

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	324	0.07	0.43	303	2.5	21	17.0
7	511	0.24	0.76	451	9.4	60	29.3
8	569	0.68	1.25	496	22.7	73	58.6
9	539	0.95	1.37	437	34.0	102	62.2
10	526	1.15	1.51	402	39.3	124	66.8
11	528	1.34	1.55	362	44.3	166	70.6
12	480	1.50	1.72	308	47.1	172	70.7
13	409	1.81	1.88	191	51.5	219	73.6
14	366	2.05	2.31	183	54.1	182	70.6
15	314	2.21	2.29	131	57.9	183	69.0
16	219	2.49	2.51	64	52.4	154	76.9
17	64	2.66	2.41	22	57.5	42	75.5

<sup>1</sup> Legend: DMFT - decayed, missing or filled permanent teeth

**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 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1993

Date of report: 31st August 1993

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	169	0	0.0	-	-	-	-	-	-	-	-	-
5	141	0	0.0	-	-	-	-	-	-	-	-	-
6	323	4	*	8.42	4.26	*	*	0.0	*	0.0	*	*
7	511	1	*	5.00	-	-	-	0.0	100	0.0	0.0	0.0
8	564	5	*	1.34	0.92	-	-	*	65.6	*	0.0	0.0
9	545	0	0.0	-	-	-	-	-	-	-	-	-
10	528	3	*	*	*	-	-	*	77.1	0.0	0.0	0.0
11	530	3	*	-	-	-	-	100	0.0	0.0	0.0	0.0
12	478	1	*	-	-	3.00	-	0.0	0.0	100	0.0	0.0
13	414	4	*	*	*	*	*	0.0	*	*	*	0.0
14	370	1	*	-	-	5.00	-	0.0	0.0	0.0	100	0.0
15	597	0	0.0	-	-	-	-	-	-	-	-	-

<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 40 per cent, and population estimates of these percentages are statistically unreliable.

State/Territory: **South Australia**

Sampling ratio: **1:19**

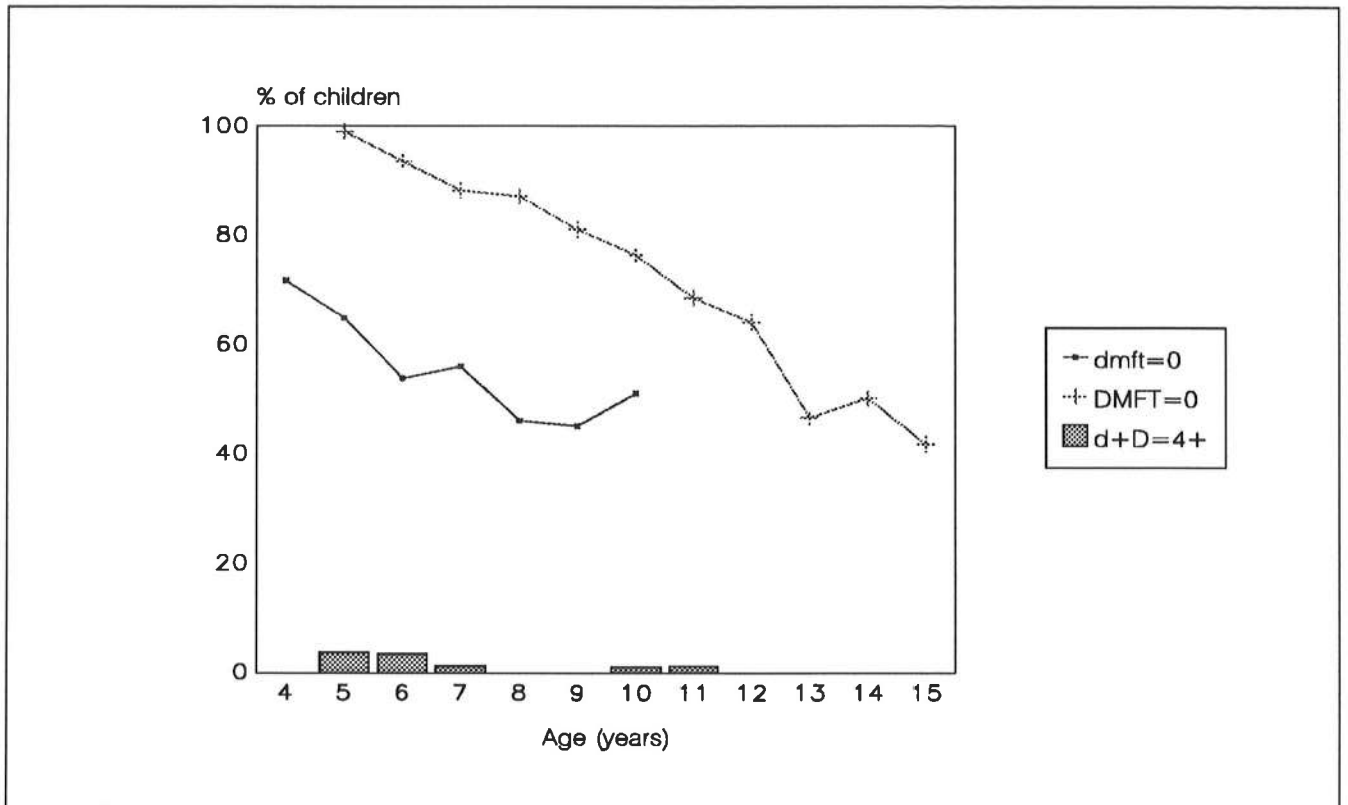
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Age (years)	Number of children examined	Previous examination in School Dental Service (%)			CHILDREN WITH PREVIOUS EXAMINATION			
		No	Yes	Unknown	Months since last examination <sup>1</sup> (%)			
					0-6	7-12	13-24	25+
3	36	77.8	19.4	*	0.0	57.1	*	0.0
4	95	63.2	32.6	*	*	38.7	58.1	0.0
5	119	34.5	63.9	*	*	38.2	60.5	0.0
6	322	*	97.8	*	6.3	41.9	50.8	*
7	568	*	99.6	*	6.4	42.1	51.0	*
8	597	0.0	99.8	*	6.5	38.6	54.2	*
9	581	*	99.5	*	4.3	38.5	56.3	*
10	574	0.0	100.0	0.0	4.0	37.2	58.3	*
11	556	0.0	100.0	0.0	3.1	33.3	61.7	2.0
12	494	0.0	100.0	0.0	3.2	31.2	64.7	*
13	436	0.0	99.8	*	2.5	28.8	67.3	1.4
14	388	0.0	100.0	0.0	1.8	24.5	72.7	*
15	321	0.0	100.0	0.0	1.9	21.8	75.1	*
16	247	0.0	100.0	0.0	4.0	24.3	70.4	*
17	64	0.0	100.0	0.0	*	27.0	71.4	0.0

<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=4+**



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

