



THE AUSTRALIAN
INSTITUTE OF HEALTH



THE UNIVERSITY
OF ADELAIDE

The Child Dental Health Survey New South Wales January - December 1990

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

June 30, 1991

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

THE CHILD DENTAL HEALTH SURVEY - NEW SOUTH WALES 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 New South Wales. 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 NSW School Dental Service by dental therapists and dentists. A random sampling procedure was used to select approximately one in 16 (1:15.9) patients. This was achieved by selecting those children whose birthday was on the 3rd or 30th (inclusive) of any month. Provision was made for inclusion and numerical weighting of data from all children whose date of birth was unknown.

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 (96 per cent) were aged between 5 and 12 years inclusive. There were approximately equivalent numbers of children in individual ages within the range 5-11 years, and males and females were quite evenly represented in all ages. Children aged 4 years or less and those aged 13 years or more were infrequent in this sample.

This distribution of the sample is closely related to the main target groups of children served by the School Dental Service in NSW. 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 NSW. 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 NSW population.

Table 2: Country of birth including Aboriginality

This table describes the distribution of children and their mothers according to the stated country of birth or Aboriginality of each. Australian born children comprised 86.6 per cent of the sample, and 72.4 per cent of mothers were born in Australia. Each other country of birth represents less than four per cent of children or mothers, and these estimates are in close approximation with the distribution of the NSW child population reported in Australian Bureau of Statistics publications.

Changes since 1989

The distribution of country of birth and Aboriginality differed by 2 per cent or less among children, and by smaller amounts among mothers. However, there was a small increase (from 3.2 per cent to 5.6 per cent) in the number of children for whom country of birth was not known in 1990.

Table 3: Deciduous teeth: age-specific prevalence

The mean dmft prevalence among children aged 5 to 9 years varies across a very narrow range, from 2.0 to 2.3 dmft. Older children have a lower mean dmft - an effect which occurs as deciduous teeth exfoliate. In contrast, there is a larger range in the mean number of decayed deciduous teeth, decreasing from 1.8 among five year olds to 0.7 among nine year olds. As a consequence, the d/dmft ratio is high among the youngest ages, and declines through to the age of 11 years. This pattern may suggest that children enter the school dental service with a relatively high caries experience at a young age, and that new caries activity in additional teeth is infrequent as children age. This presumes that the same children who begin school dental service care at a young age continue with that service through primary school. Alternatively, it is possible that distinct cohorts of children with high caries experience dominate the clientele of the school dental service at a young age, but that they discontinue care in later years.

The percentage of children without deciduous caries experience (dmft=0) mirrors the mean dmft prevalence. However the decline in percentage of caries-free children (from 53.1 to 40.0 per cent) between the ages of 5 and 9 years is more pronounced than the increase in mean number dmft. This pattern suggests that relatively high levels of caries experience are confined to a smaller group of children in younger ages, and may support the notion that the youngest age groups represent distinct cohorts who dominate the clientele of the school dental service.

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. The mean number of decayed teeth and dmft decreased only slightly (by 0.2 teeth or less) in the range 5 to 9 years. The ratio of decayed to dmft teeth (d/dmft) was higher for five year olds in 1990, but it should be recalled that much smaller numbers of children were available for 1989, and that earlier estimate may have been subject to greater variation. The percentage of five-year-old children without caries experience (dmft=0) was also higher in 1990, but this small difference may also reflect differences in representativeness of that age group.

Table 4: Permanent teeth: age-specific prevalence

The mean number of decayed permanent teeth and DMFT is smaller than the corresponding means for deciduous teeth across the range of 7 to 11 years. In addition, each increases in a fairly consistent manner with increasing age. 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. It is noteworthy that more than 50 per cent of children aged 11 or less are caries free (DMFT=0).

Among the small numbers of children aged 13 years or more, the mean DMFT and number of decayed teeth is much higher, and the age-associated increase in DMFT is more dramatic. Presumably this reflects some special characteristics of those aged 13 years or more who receive care within the school dental service.

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. The 12 year-old mean DMFT of 1.32 is identical in 1989 and 1990. The only notable variation occurs for 11-year-old DMFT which in 1989 was 1.10 and in 1990 is 0.87. It is possible that the those aged 11 years in 1989 (the cohort born in 1978) had particularly high caries experience which has two consequences: first, a noticeable drop is observed for 11-year-olds in 1990; and second, the 12-year-old DMFT in 1990 is kept at a relatively high as 11 year-olds from 1989 age.

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 34 and 55 per cent of children in the age range 5 to 12 years. The greatest likelihood of untreated decay occurs for 8-year-olds. Furthermore, it is noteworthy that the most extensive levels of untreated decay ($d+D=4$ or more) occur in the younger age groups, with more than 10 per cent of children aged 8 years or less being affected to this extent. The percentage of children with four or more decayed teeth is greatest for five year olds, and supports the notion (discussed earlier) that these children enter the school dental service with a relatively high need for care.

While more than 94 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. 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 52.4 per cent at age five to 33.0 per cent at age 10. However, the percentage then increases again through to age 12, this pattern reflecting the 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 experience.

Changes since 1989

Changes in the distribution of combined deciduous and permanent caries experience since 1989 are inconsequential, differing by less than five per cent for each statistic in each age group.

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. In some ages (9- and 12-year olds), there is evidence of preferential use of fissure sealants among those with caries experience, although in other ages, the percentage of children with fissure sealants is virtually identical between those with and without past caries experience.

Changes since 1989

The mean number of fissure sealants in 1990 is almost identical to that observed in 1989. During both years, the percentage of children with fissure sealants tends to be greater among those with caries experience ($DMFT=1+$) than those without ($DMFT=0$), although in 1990 the differential between the two groups is smaller.

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

Table 7: Immediate treatment needs

Immediate treatment needs for existing or imminent pain or infection are not infrequent in the key age groups (6 to 12 years) affecting 10 per cent or more of children. The youngest children are most likely to have immediate treatment needs, and this observation is consistent with earlier observations about those aged 5 years or less. Those with immediate treatment needs have much higher caries experience (dmft and DMFT) than is observed for the entire sample in Tables 3 and 4, and this is particularly true of the deciduous dentition. This suggests that deciduous caries constitutes a particular problem for new patients in the school dental service.

Changes since 1989

The percentage of children with immediate treatment needs, and their levels of caries experience in 1990 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 NSW School Dental service. The figure is highest for the youngest ages (6 years or less) while fewer than 10 per cent of those aged 9 years or more have 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 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 approximately one quarter of children. The shortest interval (within six months) was observed most frequently for the youngest age groups, with more than 20 per cent of children aged 7 years or less receiving a subsequent examination in this time. Fewer than 10 per cent of children were re-examined after two or more years.

Changes since 1989

The distribution of children receiving their first examination in the School Dental Service is similar to the 1989 data, as is the time since last examination. However, in 1990 the initial examination status was more likely to be recorded as "unknown" for older children. Older children with a known date of previous examination, were less likely to receive a re-examination within six months, and more likely to be re-examined after a one- to two-year interval during 1990.

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.

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 New South Wales the sampling is 1:15.9. The following table describes the number of records processed from children in New South Wales.

State/Territory: **New South Wales**

Sampling Ratio: **1:15.9**

Data for period **January-December 1990**

Date of Report: **30th September 1991**

Age (years)	UNWEIGHTED NUMBER OF RECORDS PROCESSED						WEIGHTED NUMBER OF CHILDREN IN SAMPLE ¹		
	TYPE OF SAMPLING			TYPE OF SAMPLING			TYPE OF SAMPLING		
	Known date of birth			Age only known			Males	Females	Persons
	Males	Females	Persons	Males	Females	Persons			
≤4	46	46	92	2	1	3	48	48	96
5	341	375	716	30	33	63	358	394	752
6	481	408	889	30	36	66	505	429	933
7	406	406	812	36	17	53	427	425	852
8	453	399	852	23	17	40	475	418	893
9	431	420	851	9	7	16	451	439	890
10	362	425	787	12	11	23	379	445	824
11	358	351	709	2	6	8	374	367	741
12	155	139	294	10	8	18	163	146	308
13	48	35	83	2	2	4	50	37	87
14	25	29	54	0	0	0	26	30	56
≥15	12	8	20	1	0	1	13	8	21
Total	3118	3041	6159	157	138	295	3268	3186	6454

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)

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 State-specific report.

State/Territory: **New South Wales**

Sampling Ratio: **1:15.9**

Data for period January-December 1990

Date of Report: 30th September 1991

COUNTRY OF BIRTH	CHILDREN		MOTHERS	
	Number ¹	%	Number	%
Australia (non-Aboriginal)	5573	86.4	4689	72.7
Australia (Aboriginal or TSI)	109	1.7	104	1.6
United Kingdom and Eire	59	0.9	192	3.0
Other English speaking	57	0.9	88	1.4
Southern Europe	31	0.5	200	3.1
Other Europe	14	0.2	71	1.1
Middle East	35	0.5	187	2.9
South East Asia	79	1.2	123	1.9
Other Asia	52	0.8	101	1.6
Other	52	0.8	91	1.4
Not known	393	6.1	605	9.4
Total	6454	100.0	6454	100.0

¹ 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 PREVALENCE¹

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: **New South Wales**

Sampling ratio: **1:15.9**

Data for period **January-December 1990**

Date of report: **30th September 1991**

Age (years)	Number of children in sample	decayed		dmft		d/dmf %	Children with dmft=0 %
		mean	sd	mean	sd		
≤4	96	2.09	3.58	2.30	3.70	88.8	53.2
5	752	1.77	3.05	2.11	3.43	85.0	52.7
6	933	1.52	2.59	2.20	3.23	68.6	48.0
7	852	1.13	2.08	2.10	2.92	55.5	46.3
8	893	1.06	1.75	2.32	2.78	47.4	39.1
9	890	0.76	1.33	2.07	2.45	41.1	40.0
10	824	0.64	1.13	1.75	2.37	42.3	45.5
11	741	0.40	0.94	1.22	2.16	35.5	60.2
12	308	0.22	0.67	.53	1.26	46.5	77.6

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

TABLE 4: PERMANENT TEETH: AGE-SPECIFIC PREVALENCE¹

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: **New South Wales**

Sampling ratio: **1:15.9**

Data for period **January-December 1990**

Date of report: **30th September 1991**

Age (years)	Number of children in sample	DECAYED		DMFT		D/DMFT %	Children with DMFT=0 %
		mean	sd	mean	sd		
5	752	*	*	*	*	99.8	98.7
6	933	0.07	0.39	0.08	0.44	96.8	95.9
7	852	0.18	0.56	0.24	0.67	76.3	86.2
8	893	0.22	0.61	0.35	0.78	62.9	78.8
9	890	0.22	0.66	0.46	1.07	47.6	75.7
10	824	0.28	0.82	0.70	1.26	39.2	67.1
11	741	0.37	0.95	0.88	1.42	39.0	61.8
12	308	0.58	1.28	1.31	1.83	38.1	49.9
13	87	0.85	1.93	1.90	2.51	35.5	40.8
14	56	1.44	2.33	2.65	3.16	49.1	33.3
≥15	21	*	*	3.61	3.88	*	*

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

TABLE 5: ALL TEETH: AGE-SPECIFIC PREVALENCE¹

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: **New South Wales**

Sampling ratio: **1:15.9**

Data for period **January-December 1990**

Date of report: **30th September 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	96	56.5	*	*	*	21.8	98.8	92.3	53.2
5	752	55.5	12.1	8.9	4.6	18.8	96.6	90.5	52.4
6	933	56.0	11.5	10.6	4.8	17.2	97.2	75.8	47.2
7	852	56.7	13.3	12.1	5.8	12.1	94.7	66.8	43.2
8	893	54.6	14.2	12.0	6.8	12.3	93.6	56.3	35.4
9	890	56.4	21.0	9.3	5.6	7.6	95.6	51.4	34.4
10	824	59.0	17.7	11.1	6.5	5.7	94.4	51.3	33.0
11	741	65.6	15.5	8.9	3.7	6.4	94.8	55.0	40.2
12	308	65.6	15.0	8.9	*	8.2	95.2	57.1	40.4
13	87	65.0	16.8	*	*	*	95.2	49.2	36.0
14	56	55.6	*	*	*	*	98.1	51.9	29.6
≥15	21	54.8	*	*	0.0	*	80.1	*	*

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 PREVALENCE¹

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: **New South Wales**

Sampling ratio: **1:15.9**

Data for period **January-December 1990**

Date of report: **30th September 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	933	0.06	0.41	895	2.2	38	2.8
7	852	0.16	0.72	734	4.7	117	9.8
8	893	0.27	0.91	704	8.6	189	12.8
9	890	0.34	1.02	674	10.4	217	18.8
10	824	0.38	1.15	552	12.3	271	13.5
11	741	0.35	1.12	458	9.8	283	14.4
12	308	0.50	1.55	154	13.6	154	17.8
13	87	*	*	36	*	51	24.5
14	56	*	*	19	*	38	*
≥15	21	*	*	8	*	13	*

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 DISTRIBUTION¹

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: New South Wales

Sampling ratio: 1:15.9

Data for period January-December 1990

Date of report: 30th September 1991

CHILDREN IN NEED OF IMMEDIATE TREATMENT												
Age (years)	Number of children in sample	% of all children	dmft		DMFT		% with d+D=					
			No.	mean	sd	mean	sd	0	1	2	3	4+
≤4	96	28	29.4	5.96	4.47	*	-10.0	*	*	*	*	63.1
5	752	161	21.4	5.72	4.39	*	*	*	18.9	15.6	11.8	52.4
6	933	188	20.2	5.09	3.96	0.23	0.71	*	18.4	20.0	11.7	47.7
7	852	163	19.1	4.58	3.41	0.55	0.93	*	18.8	25.7	16.8	34.2
8	893	158	17.7	4.50	3.17	0.71	1.05	*	23.8	21.8	11.3	37.1
9	890	155	17.4	3.36	2.42	0.83	1.27	*	40.5	20.3	*	23.0
10	824	124	15.0	3.17	2.56	1.31	1.66	*	33.0	20.3	16.9	21.3
11	741	74	10.0	2.23	2.50	1.93	1.97	*	26.7	26.7	*	28.3
12	308	34	11.0	*	*	3.03	2.30	*	30.9	*	*	31.7
13	87	9	*	*	*	*	*	*	*	*	*	*
14	56	5	*	*	*	4.80	2.57	*	0.0	*	0.0	*
≥15	21	5	*	*	*	8.20	3.52	0.0	*	*	0.0	*

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: New South Wales

Sampling ratio: 1:15.9

Data for period January-December 1990

Date of report: 30th September 1991

Age (years)	Number of children examined	Previous examination in School Dental Service (%)			CHILDREN WITH PREVIOUS EXAMINATION			
		No	Yes	Unknown	Months since last examination ¹ (%)			
					0-6	7-12	13-24	25+
≤4	98	75.5	*	13.9	0.0	80.0	*	0.0
5	831	60.3	19.0	20.7	35.8	47.0	11.9	*
6	1067	27.8	53.4	18.8	23.4	51.1	24.4	*
7	1007	16.8	70.6	12.6	20.5	45.2	30.1	4.3
8	1035	12.7	74.2	13.1	15.6	48.4	30.2	5.8
9	1042	8.5	74.3	17.2	17.5	46.4	28.6	7.6
10	980	6.8	78.2	14.9	18.4	45.3	28.7	7.6
11	888	7.1	78.7	14.2	16.6	46.1	29.2	8.1
12	388	4.4	81.3	14.3	13.9	51.3	27.5	7.3
13	102	*	87.7	*	*	46.4	25.5	*
14	65	*	74.2	19.4	*	39.1	23.9	26.1
≥15	26	*	79.8	*	*	50.0	*	*

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