



THE UNIVERSITY OF ADELAIDE

The Child Dental Health Survey New South Wales 1996

**AIHW Dental Statistics and Research Unit
The University of Adelaide**

**in collaboration with
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Survey methods

The following data were collected during the 1996 calendar year from patients of the NSW Dental Service by dental therapists. Children were targeted who were in Kindergarten and Years 2, 4, 6 and 8. Of the 394,266 students in these targeted years in 1996, 280,529 responses were received to an offer of assessment with 67 per cent of all eligible children having explicit or implicit parental consent for the assessment. A total of 8,581 of these 264,623 children were absent on the day of assessment.

A random sampling procedure was used to select approximately one in 16 children from those receiving assessments. This was achieved by selecting those children whose birthday fell on the 3rd or 30th day of any month. Sampling was adopted to maintain consistency with previous NSW reports. When an individual child was sampled more than once during the calendar year, the information from only the first examination was included in Tables 1 to 7 (inclusive).

Introduction of the Save Our Kids Smiles (SOKS) Program

Previous NSW Child Dental Health Survey reports have been based on data collected by dental staff on children undergoing examinations within the School Dental Service. However, in 1996 the Dental Health Branch of NSW Health introduced the Save Our Kids Smiles (SOKS) program. SOKS operates on a two-year cycle, providing oral health risk assessment to children at every school in NSW from Kindergarten to Year 8. Child Oral Health teams visit each Government, Catholic parochial and Independent school where they conduct an education/motivation session and provide an oral health assessment.

The major implications of the change to the SOKS program on data published in this report are:

- Because only children from Kindergarten and Years 2, 4, 6 and 8 are approached each year, children aged 6, 8, 10, 12 and 14 years old are under-represented in the survey, with each of these age groups providing approximately half the cases provided by children in the other age groups. Figures for children of these ages may express a bias as those children who are in a school class either above or below the majority of their age cohort may not be representative of the age cohort as a whole.
- Because the level of clinical control is significantly lower under the SOKS program than in traditional treatment facilities, and screenings are not conducted in explicit accordance with a study protocol, there is a question as to both the validity and reliability of oral health observations.

It should be noted that the caveats mentioned above do not mean that the current NSW data are invalid. However, the limitations introduced by the SOKS program should be kept in mind when interpreting the present results and, in particular, assessing differences in results between 1995 and 1996.

Purpose of this report

This report is part of the annual series providing descriptive statistics concerning child dental health in New South Wales. The report contains tables and figures. Information listed in the tables includes: the demographic characteristics of children in the sample, their deciduous and permanent caries experience, frequency of fissure sealants, and immediate treatment needs. The figures combine and summarise information from four of the tables.

The following sections briefly describe each table (see pages 6-13) and provide a simple, summary statement highlighting differences between the 1996 and 1995 findings. However, no formal hypothesis tests have been undertaken and descriptions of difference between years are intended as a guide to the reader rather than an evaluation of trends.

Demographic composition of the sample

As shown in Table 1, the majority of the children in the sample were aged between 5 and 13 (94.6%). Consistent with the sampling pattern used for SOKS, the most common ages of sampled children were 5, 7, 9, 11 and 13. Less than half the number in these age groups were represented in the age groups of 6, 8, 10, 12 and 14. Children aged less than five years old or greater than 14 years old were represented in small numbers which resulted in low reliability for some computed statistics in Tables 4 to 8. Furthermore, these children are likely to be less representative of the respective population age groups than is the case for the majority of the sample aged 5 to 13.

The gender distribution within the sample was relatively unequal, with 666 more females than males being sampled.

Changes since 1995

There was an increase of 4,617 in the sampled number of cases from 1995. This is an increase of approximately 35 per cent and represents the change from sampling within the School Dental Service to the sampling scheme adopted with SOKS.

Region of birth and Indigenous status

The large majority of children (92.5%) were born in Australia (see Table 2). Of those children born outside of Australia the most common region was Asia (3.7%). Children of Indigenous descent comprised 1.9 per cent of the sample (see Table 3)

Changes since 1995

These data were not collected in 1995.

Deciduous teeth: age-specific caries experience

The mean number of decayed (d) teeth among those children aged from under 5 years to children aged 10 years old decreased from 0.90 to 0.35 (see Table 4). This decline can be explained by the exfoliation of deciduous teeth with increasing age and should not

be seen as reflecting a reduction in the percentage of teeth with decay in older age groups. Mean dmft did not follow the same consistent trend as deciduous decay. Rather, it declined to the 5 years-old age group, increased to 7 year-olds and then commenced to decline again, consistent with the exfoliation of deciduous teeth. The mean dmft for six year-olds was 0.94.

The percentage of caries experience due to decay (d/dmft) showed an age-associated decline, more than halving from 85.4 per cent among those aged less than five years old to 41.2 per cent among 10 year-olds. By comparison, the percentage of caries-free children (% dmft=0) showed considerably less variation, ranging from 72.3 per cent among five year-olds to 62.3 per cent among 7 year-olds. Children aged 6 years of age and less had the highest percentage with dmft=0.

Changes since 1995

The mean number of detectable decayed teeth and mean dmft scores were appreciably lower in 1996 for all ages. The magnitude of reductions in deciduous decay ranged from 27.1 to 48.5 per cent (for 10 year-olds and five year-olds respectively). Similarly, dmft scores ranged from between 28.6 and 46.3 per cent lower in 1996 than in 1995. Six year-old dmft, for example, decreased from 1.75 in 1995 to 0.94 in 1996.

Due to the substantial decrease in both clinical decay and dmft, the d/dmft ratio did not differ systematically between 1996 and 1995. However, the percentage of children with dmft=0 was higher across all age groups in 1996 than in 1995. The average increase across all age groups in the percentage of children with dmft=0 was approximately 12.1 per cent.

Permanent teeth: age-specific caries experience

It can be seen from Table 5 that the mean number of detectable decayed permanent teeth (D) was smaller than the mean number of decayed deciduous teeth. Detectable decay increased fairly consistently across the age range of 5–14 years (0.01 to 0.37 teeth). The mean DMFT also increased quite consistently across age groups, from 0.01 for 5 year-olds to 1.31 for children aged 13, although there was a subsequent decline in DMFT for older age groups. The age-related increase in D and DMFT scores reflects the increase in permanent teeth which occurs with age as well as the progressive nature of disease accumulation measured by these indices. The mean DMFT for 12 year-olds was 0.64.

The percentage of DMFT due to decay (D/DMFT) generally declined across age groups, decreasing from 81.3 per cent for five year olds to the low 40 per cent range for 11 to 14 year-olds. The percentage of caries free children (DMFT=0) also decreased from 99.5 per cent for 5 year-olds to 61.5 per cent for children aged 15 years and older. It is noteworthy that more than 72.3 per cent of children in each age-group up to age 12 had no detectable caries experience in their permanent teeth (DMFT=0).

Changes since 1995

In comparison to the deciduous dentition, the reported change in caries experience between 1995 and 1996 in permanent teeth was modest. In relation to detectable decay

(D), changes between years are predominantly seen from the age of 12 onwards where scores are considerably lower in 1996 than in 1995. Mean DMFT scores, on the other hand, are lower for children aged 8 to 12 years in 1996 compared to 1995. A number of changes characterise differences between years in D/DMFT, with some age groups showing an increase and others a decrease. In general, D/DMFT was lower in both the youngest and oldest age groups and higher for children aged 8 to 11 years old in 1996 than in 1995. Not surprising given the reduction in DMFT, the percentage of children with DMFT=0 increased for all ages in 1996.

All teeth: age-specific caries experience

Untreated detectable decay in the combined deciduous and permanent dentitions ($d+D=1, 2, 3$ or $4+$) existed for between 29.7 and 17.1 per cent of children (see Table 6). The greatest likelihood of detectable untreated decay existed for seven year-olds. However, the most extensive levels of untreated decay ($d+D=4$ or more) occurred in the younger age groups with the percentage $d+D=4+$ generally declining with increasing age.

More than 96 per cent of children in each age group had no deciduous or permanent teeth missing due to caries. However, smaller percentages of children avoided fillings, with between 11.5 and 28 percent of 6 to 15 year-olds having at least one filling present. The percentage of children without fillings declined to age 10 before increasing for older age groups. There was a similar pattern in the percentage of children with no caries experience in either deciduous or permanent dentition ($dmft+DMFT=0$), decreasing to 56.6 per cent at age 9 before increasing to the low 60 per cent mark among 11 to 15 year-olds. More than 55 per cent of children at every specific age group had no detectable caries experience.

Changes since 1995

Consistent with changes in the experience of deciduous and permanent caries between 1995 and 1996, there was a significant increase in the percentage of children with $d+D=0$ across all age groups. Appreciable reductions can be seen in the percentage of children with $d+D\geq 4$ across most age groups, however reductions also occur in relation to other levels of caries experience. The pattern for detectable decay was mirrored by the increase in the percentage of children both with $f+F=0$ and $dmft+DMFT=0$ across all ages between 1996 and 1995. Again, these changes should be interpreted in light of the alterations in data collection between 1995 and 1996.

Fissure sealants: age-specific experience

The mean number of fissure sealants generally increased in prevalence with increasing age (see Table 7). There is evidence of preferential use of fissure sealants among those with some caries experience in comparison to those with no caries experience ($DMFT=0$). Among 12 year-olds, for example, 23.3 per cent with $DMFT\geq 1$ had at least one fissure sealant compared to 14.8 per cent with $DMFT=0$.

Changes since 1995

There have been considerable reductions in the mean number of sealants reported for each age group between 1995 and 1996. Interestingly, this change mainly reflects a reduction in the number of fissure sealants in children with DMFT=0.

Immediate treatment needs

Immediate treatment needs were indicated when children were judged to be requiring immediate care (within a 24-48 hour period) due to the existence of pain, a dental condition likely to cause pain within the foreseeable future, the presence of a carious lesion or lesions in the permanent anterior teeth, or oral infection. Between 2.0 per cent and 5.4 per cent of children up to the age of 14 were deemed to be requiring immediate care (see Table 8). These children had substantially greater caries experience than the overall sample (see Tables 4 and 5). In particular, a high percentage of these children had $d+D \geq 4$. Immediate treatment needs appear to be predominantly driven by deciduous caries experience in children aged up to 10 and by caries experience in the permanent dentition in older age groups.

Changes since 1995

The percentage of children with immediate treatment needs were considerably lower in 1996 than in 1995. In 1995, between 10.8 and 18.7 per cent of children up to the age of 14 were indicated as needing immediate care compared to the 2.0 to 5.4 per cent of this age range in 1996. This may be explained by changes in the criteria used for designating immediate treatment needs. Previously, immediate treatment needs were accorded to children who had, or who were likely to develop within four weeks, oral pain or infection. This change in criteria can be seen in the higher dmft and DMFT scores of children with immediate needs in 1996 compared to 1995. Also, the percentage of children needing immediate care and with $d+D=0$ was substantially lower in 1996 than in 1995.

Time since last examination

This data is no longer applicable since initiation of the SOKS program. All children will have the opportunity for a dental check every two years from Kindergarten through to Year 8.

Changes since 1995

The large majority of children in 1995 had had their last dental examination with the School Dental Service within the previous 7 to 24 month period. Among children aged up to 10 years old previous examinations were most likely to have occurred 7 to 12 months prior. The move to biyearly oral health screenings will see an increase for children in time since last examination.

TABLES

Table 1: Demographic composition of the sample

Data for the Child Dental Health Survey were collected from children whose parents provided consent for them to participate in an oral health assessment. In New South Wales the sampling ratio was approximately 1:16. The following table describes the number of records processed from selected children in New South Wales.

Age (years)	No. of children in sample		
	Males	Females	Persons
0	1	0	1
1	0	0	0
2	1	0	1
3	2	1	3
4	87	101	188
5	1513	1619	3132
6	628	597	1225
7	1385	1460	2845
8	640	562	1202
9	1174	1342	2516
10	608	588	1196
11	938	1219	2157
12	530	479	1009
13	662	852	1514
14	359	374	733
15	11	10	21
16	1	3	4
17	0	0	0
18	1	0	1
Total	8541	9207	17748

Table 2: Region of birth

The region of birth of children is determined from information concerning country of birth. The number and percentage of children in each group is provided in this State-wide report.

	Number	%	Cumulative %
Australia	16418	92.5	92.5
UK and Ireland	85	0.5	93.0
Other English speaking (e.g. Canada, NZ)	172	1.0	94.0
Southern European (e.g. Italy, Greece, Malta)	55	0.3	94.3
Other European (e.g. Bosnia, Finland, Russia)	99	0.6	94.8
Middle East (e.g. Iran, Israel, Turkey)	97	0.5	95.4
South East Asia (e.g. Singapore, Indonesia, Vietnam)	249	1.4	96.8
Other Asia (e.g. Afghanistan, Hong Kong, India)	400	2.3	99.0
Other (e.g. Egypt, Fiji, Peru)	165	0.9	100.0
Not known	8	0.0	100.0

Table 3: Indigenous status

	Number	%	Cumulative %
Non-Indigenous	17405	98.1	98.1
Indigenous	343	1.9	100.0

Table 4: Deciduous teeth: age-specific experience¹

This table uses State-wide data to describe the dmft index and its components for individual (year of birth) ages. Where children received more than one examination during this period, the information derived from examinations other than the first is excluded.

Age (years)	No. of children in sample	Decayed		dmft		d/dmft	Children with dmft=0	
		mean	sd	mean	sd	%	%	
≤4	193	0.90	2.06	1.06	2.31	85.4	70.5	
5	1332	0.68	1.63	0.89	2.04	80.3	72.3	
6	1225	0.66	1.62	0.94	1.98	72.4	69.1	
7	2845	0.62	1.37	1.16	2.00	56.1	62.3	
8	1202	0.51	1.23	1.12	1.92	48.4	63.0	
9	2516	0.42	1.02	1.01	1.72	45.0	63.2	
10	1196	0.35	0.96	0.90	1.63	41.2	65.8	

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

Table 5: Permanent teeth: age-specific experience ¹

This table uses State-wide data to describe the DMFT index and its components for individual (year of birth) ages. 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 considered to be statistically unreliable.

Age (years)	No. of children in sample	Decayed		DMFT		D/DMFT	Children with DMFT=0
		mean	sd	mean	sd	%	%
5	3132	0.01	0.09	0.01	0.12	81.3	99.5
6	1225	0.03	0.21	0.03	0.27	81.5	97.8
7	2845	0.10	0.44	0.14	0.52	78.0	91.6
8	1202	0.16	0.57	0.24	0.72	72.8	87.4
9	2516	0.15	0.50	0.28	0.75	54.8	83.8
10	1196	0.15	0.64	0.31	0.86	49.6	83.2
11	2157	0.22	0.67	0.53	1.22	44.5	74.7
12	1009	0.21	0.63	0.64	1.82	40.3	72.3
13	1514	0.31	0.82	1.31	3.93	43.6	66.6
14	733	0.37	0.98	1.08	2.92	43.2	65.1
15+	26	0.54*	1.10*	0.81	1.33	63.0	61.5

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

Table 6: All teeth: age-specific experience¹

This table uses State-wide data to describe the combined dmft and DMFT indices and their components for individual (year of birth) ages. 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 considered to be statistically unreliable.

Age (years)	No. 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	193	72.5	8.8	5.2	2.6*	10.9	98.4	93.8	69.9
5	3132	75.4	8.7	6.3	3.1	6.5	98.9	92.9	72.1
6	1225	73.6	11.2	6.3	2.4	6.5	98.3	88.5	68.0
7	2845	70.3	13.0	6.5	3.8	6.4	98.0	78.2	59.4
8	1202	71.3	12.0	7.7	4.2	4.8	96.3	75.5	57.9
9	2516	73.3	12.4	7.5	3.2	3.7	98.2	72.6	56.6
10	1196	75.0	12.7	6.8	2.3	3.3	98.0	72.0	58.4
11	2157	80.3	10.3	5.2	2.2	1.9	99.2	75.6	63.3
12	1009	82.9	9.4	5.4	1.7	0.7	98.9	74.2	64.1
13	1514	81.6	9.8	5.4	1.6	1.7	99.4	78.3	65.9
14	733	81.3	8.7	4.9	2.3	2.7	98.4	77.2	64.4
15+	26	73.1	15.0*	0.0*	0.0*	12.0*	96.2	84.6	61.5

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 7: Fissure sealants: age-specific experience ¹

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. 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 considered to be statistically unreliable.

Age (years)	No. of children in sample	No. of sealants		Children with DMFT=0		Children with DMFT=1+	
		mean	sd	No.	F/S=1+	No.	% with F/S=1+
6	1225	0.02	0.23	1198	0.4*	27	7.4
7	2845	0.16	0.72	2606	4.7	239	13.8
8	1202	0.27	0.90	1050	8.9	152	11.8
9	2516	0.41	1.12	2108	12.4	408	19.4
10	1196	0.45	1.18	995	13.1	201	26.4
11	2157	0.44	1.17	1611	12.9	546	24.2
12	1009	0.55	1.48	730	14.8	279	23.3
13	1514	0.58	1.71	1009	12.8	505	25.0
14	733	0.40	1.37	477	8.2	256	20.3
15+	26	0.38*	1.40*	16	13.0*	10	0.0*

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

Table 8: Immediate treatment needs: age-specific experience¹

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 require immediate care (within 24-48 hours) due to pain at the time of assessment, a condition likely to cause pain within the foreseeable future, carious lesion/s in the permanent anterior teeth, or oral infection. The dental caries experience of this group of children is also described. Where children received more than one examination 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 considered to be statistically unreliable.

Age (years)	No. of children in sample	Children in need of immediate treatment										
		No.	% of age group	dmft		DMFT		% with d+D=				
				mean	sd	mean	sd	0	1	2	3	4+
≤4	193	6	3.1	7.50	5.61	–	–	0.0*	0.0*	17.0*	0.0*	83.3
5	3132	114	3.6	4.72	3.37	0.04*	0.28*	4.4*	14.9	14.0	13.2	53.5
6	1225	48	3.9	5.25	3.74	0.25*	0.70*	2.1*	8.3*	14.6	14.6	60.4
7	2845	111	3.9	4.31	2.80	0.82	1.20	4.5*	16.2	10.8	8.1	60.4
8	1202	65	5.4	3.63	2.84	0.98	1.36	4.6*	13.8	27.7	13.8	40.0
9	2516	88	3.5	2.92	2.16	1.07	1.19	6.8	23.9	20.5	17.0	31.8
10	1196	37	3.1	2.73	2.67	1.43	2.51	8.1*	18.9	35.1	11.0*	27.0
11	2157	58	2.7	1.09	1.34	1.91	1.88	10.3	29.3	20.7	17.2	22.4
12	1009	26	2.6	1.50	1.73	2.54	3.11	7.7*	30.8	34.6	12.0*	15.0*
13	1514	30	2.0	0.17*	0.75*	2.73	2.21	23.0*	26.7	26.7	13.0*	20.0
14	733	16	2.2	0.25*	0.45*	3.81	3.02	13.0*	19.0*	13.0*	6.3*	50.0
15+	26	2	7.7*	2.00*	2.80*	3.50*	2.10*	0.0*	0.0*	0.0*	0.0*	100.0

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

FIGURES

Figure 1: Percentage of children with dmft=0, DMFT=0 and d+D=4+

