



THE UNIVERSITY OF ADELAIDE

The Child Dental Health Survey New South Wales 1997

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

**in collaboration with
The Dental Health Branch, NSW Health**

AIHW Catalogue No. DEN 54

**AIHW Dental Statistics and Research Unit
The University of Adelaide
SOUTH AUSTRALIA 5005**

**Phone: (08) 8303 4051
(08) 8303 5027
Fax: (08) 8303 4858**

The Australian Institute of Health and Welfare (AIHW) is an independent health and welfare statistics and information agency in the Commonwealth Health and Family Services portfolio. The Institute's mission is to inform community discussion and decision making through national leadership in the development and provision of authoritative and timely information on the health and welfare of Australians.

The AIHW Dental Statistics and Research Unit (DSRU) is a collaborative unit of the AIHW established in 1988 at The University of Adelaide. The DSRU aims to improve the oral health of Australians through the collection, analysis and reporting of dental statistics and research on the dental workforce, dental health status, dental practices and the use of dental services.

Suggested citation

AIHW Dental Statistics and Research Unit (2000). *Child Dental Health Survey, New South Wales 1997*.

Acknowledgments

The data used for this report were collected by the Dental Health Branch, NSW Health. The support of the service and their staff was crucial to the successful reporting of results for this survey.

DSRU Staff:

Director:	Professor John Spencer
Acting Deputy Director:	Dr Kaye Roberts-Thomson
Research Officers:	Mr Jason Armfield Mr David Brennan Mr Knute Carter Dr Jane Chalmers Dr Janet Fuss Ms Liana Luzzi Mrs Judy Stewart
Research Associates:	Ms Kelly Jones Dr Suzanna Mihaildis
General Staff:	Mrs Leonie Jeffery Mrs Lorna Lucas Mrs Ruth Wass
Consultants:	Dr Mike Morgan (<i>University of Melbourne</i>) Dr Gary Slade (<i>University of North Carolina</i>)

Any comments or information relevant to the subject matter of this report would be welcome. Correspondence should be directed to:

The Director
AIHW Dental Statistics and Research Unit
The University of Adelaide
SOUTH AUSTRALIA 5005

Tel: (08) 8303 4051
Fax: (08) 8303 4858
E-mail: aihw.dsru@dentistry.adelaide.edu.au
Website: <http://www.adelaide.edu.au/socprev-dent/dsru>

Contents

Survey methods.....	1
Introduction of the Save Our Kids Smiles (SOKS) Program.....	1
Purpose of this report	2
Data analysis	2
Demographic composition of the sample	2
Region of birth and Indigenous status	2
Deciduous teeth: age-specific caries experience	4
Permanent teeth: age-specific caries experience	5
All teeth: age-specific caries experience	6
Fissure sealants: age-specific experience	7
Immediate treatment needs	7
Time since last examination.....	8

Tables

Table 1: Demographic composition of the sample	3
Table 2: Region of birth.....	3
Table 3: Indigenous status.....	3
Table 4: Deciduous teeth: age-specific experience.....	4
Table 5: Permanent teeth: age-specific experience	5
Table 6: All teeth: age-specific experience	6
Table 7: Fissure sealants: age-specific experience.....	7
Table 8: Immediate treatment needs.....	8

Figures

Figure 1: Percentage of children with dmft=0, DMFT=0 and d+D=4+	9
---	---

Abbreviations

d – deciduous decayed teeth

m – deciduous missing teeth

f – deciduous filled teeth

dmft – deciduous decayed, missing and filled teeth

D – permanent decayed teeth

M – permanent missing teeth

F – permanent filled teeth

DMFT – permanent decayed, missing and filled teeth

dift – deciduous decayed, indicated for extraction and filled teeth

SD – standard deviation

Survey methods

The following data were collected during the 1997 calendar year from patients of the NSW Dental Service by dental therapists. The targeted children were in Kindergarten and Years 2, 4, 6 and 8. Of the 376,851 students in these years in 1997, 301,149 responses were received to an offer of assessment with 75 per cent of all eligible children having explicit or implicit parental consent for the assessment. A total of 9,059 of these 283,867 children were absent on the day of assessment.

A random sampling procedure was used to select approximately 1 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.

Introduction of the Save Our Kids Smiles (SOKS) Program

Prior to 1996 NSW Child Dental Health Survey reports were 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.
- The level of clinical control is lower under the SOKS program than in traditional treatment facilities.

Therefore, the limitations introduced by the SOKS program should be kept in mind when interpreting the present results.

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 1997 and 1996 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.

Data analysis

The data were cleaned prior to analysis to remove duplicates. In addition, cases with ages more than 4 standard deviations from the mean age for a given grade were removed from the analysis or corrected where this could be determined. These cases most likely represent data input errors.

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 has been excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40% and population estimates of these indices may be considered to be statistically unreliable.

Demographic composition of the sample

As shown in Table 1, the majority of the children in the sample were aged between 5 and 13 (95.2%). Consistent with the sampling pattern used for SOKS, the most common ages of sampled children were 5, 7, 9, 11 and 13. Only approximately one-third 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 1,294 more females than males being sampled. This bias was most evident for students in the 5, 7, 9 and 11-year-old age groups.

Changes since 1996

There was an increase of 1,192 in the sampled number of cases from 1996. This is an increase of approximately 7% and is due primarily to an increase in the percentage of children having parental consent for an examination in 1997 as compared to 1996.

Region of birth and Indigenous status

The large majority of children (93.1%) were born in Australia (see Table 2). Of those children born outside of Australia the most common region was Asia (3.5%). Children of Indigenous descent comprised 1.5% of the sample (see Table 3).

Changes since 1996

The percentage of Australian-born children in 1997 increased slightly from 1996, while there was a small decrease in the percentage of Indigenous students sampled.

Table 1: Demographic composition of the sample

Age (years)	Number of children in sample			Persons
	Males	Females	Unknown	
3	3	1	0	4
4	138	158	0	296
5	1,521	1,867	1	3,388
6	590	605	0	1,195
7	1,404	1,641	0	3,045
8	598	524	0	1,122
9	1,262	1,479	0	2,741
10	558	559	0	1,117
11	1,150	1,525	0	2,675
12	466	511	0	977
13	812	958	0	1,770
14	309	278	0	587
15	12	11	0	23
Total	8,823	10,117	1	18,940

Table 2: Region of birth

	Number	%	Cumulative %
Australia	17,633	93.1	93.1
UK and Ireland	90	0.5	93.6
Other English speaking (e.g. Canada, NZ)	183	1.0	94.5
Southern European (e.g. Italy, Greece, Malta)	92	0.5	95.0
Other European (e.g. Bosnia, Finland, Russia)	66	0.3	95.4
Middle East (e.g. Iran, Israel, Turkey)	91	0.5	95.9
South East Asia (e.g. Singapore, Indonesia, Vietnam)	244	1.3	97.1
Other Asia (e.g. Afghanistan, Hong Kong, India)	408	2.2	99.3
Other (e.g. Egypt, Fiji, Peru)	133	0.7	100.0
Not known	1	0.0	100.0

Table 3: Indigenous status

	Number	%	Cumulative %
Non-Indigenous	18,663	98.4	98.4
Indigenous	278	1.6	100.0

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 0.84 to 0.35 (see Table 4). This decline can be largely 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 that shown by deciduous decay. Rather, increased to the 8 year-old age group and then commenced to decline again, consistent with the exfoliation of deciduous teeth. The mean dmft for six year-olds was 0.97.

The percentage of caries experience due to decay (d/dmft) showed an age-associated decline, more than halving from 90.6% among those aged less than five years old to 44.1% among 10 year-olds. By comparison, the percentage of caries-free children (% dmft=0) showed considerably less variation, ranging from 73.8% among five year-olds to 61.0% among 9 year-olds. Children aged 6 years of age and less had the highest percentage with dmft=0.

Changes since 1996

The mean number of detectable decayed teeth showed a decrease for students up to the age of 5 years old with a small increase in those age groups thereafter. Changes in mean dmft between 1996 and 1997 were less consistent with several age groups showing a small decrease and several showing a small increase. Seven year-old dmft, for example, decreased from 1.16 in 1996 to 1.10 in 1997 while 8-year-old mean dmft scores increased from 1.12 to 1.18.

The d/dmft ratio increased slightly for most age groups between 1996 and 1997. However, there was little difference in the percentage of children with dmft=0 across age groups from 1996 to 1997.

Table 4: Deciduous teeth: age-specific experience

Age (years)	Students <i>n</i>	Decayed		dmft		d/dmft	dmft=0
		mean	SD	mean	SD	%	%
≤4	300	0.84	1.87	1.00	2.32	90.6	72.0
5	3,389	0.63	1.56	0.80	1.83	82.8	73.8
6	1,195	0.67	1.59	0.97	2.06	72.1	70.4
7	3,045	0.65	1.38	1.10	1.93	62.7	63.6
8	1,122	0.56	1.28	1.18	2.01	50.1	61.1
9	2,741	0.48	1.08	1.12	1.84	46.5	61.0
10	1,117	0.35	0.85	0.87	1.58	44.1	67.1
11	2,675	0.15	0.60	0.37	0.97	39.0	81.9
12	977	0.10	0.44	0.24	0.79	39.8	87.6

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 (0.00 to 0.43 teeth). The mean DMFT also increased quite consistently across age groups, from 0.01 for 5 year-olds to 0.83 for children aged 14 years-old. 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 83.3% for 5 year-olds to 45.4% for 13 year-olds before increasing again into the older age groups. The percentage of caries free children (DMFT=0) also decreased consistently from 99.7% for 5 year-olds to 60.9% for children aged 15 years and older. It is noteworthy that more than 70% of children in each age-group up to age 12 had no detectable caries experience (DMFT=0) in their permanent teeth.

Changes since 1996

In relation to detectable decay (D), there was an increase between 1996 and 1997 for children aged between 9 and 14 years of age. Mean DMFT scores, on the other hand, are less variable, however scores for 13 and 14 year-olds were substantially lower in 1997 than in 1996. As a result of the decrease in mean decay scores and the consistency of DMFT scores since 1996, the ratio of D/DMFT increased across most age groups. As was the case in the deciduous dentition the percentage of children with DMFT=0 showed only small changes between 1996 and 1997 for most age groups.

Table 5: Permanent teeth: age-specific experience

Age (years)	Students <i>n</i>	Decayed		DMFT		D/DMFT	DMFT=0
		mean	SD	mean	SD	%	%
5	3,389	0.00	0.09*	0.01	0.12	80.0	99.7
6	1,195	0.03	0.22	0.03	0.27	83.3	98.0
7	3,045	0.09	0.42	0.12	0.49	81.4	92.4
8	1,122	0.12	0.46	0.18	0.60	71.6	89.7
9	2,741	0.17	0.58	0.30	0.78	59.3	83.0
10	1,117	0.19	0.64	0.39	0.91	51.6	79.4
11	2,675	0.26	0.72	0.48	1.05	55.2	75.9
12	977	0.32	0.91	0.64	1.28	48.8	70.2
13	1,770	0.35	0.99	0.79	1.52	45.4	67.3
14	587	0.43	1.03	0.83	1.56	52.5	67.5
15+	23	0.48*	1.30*	0.83*	1.70*	66.7	60.9

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 31.0 and 18.9% of children (see Table 6). The greatest likelihood of detectable untreated decay existed for 7 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 95 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 10.8 and 28.7% 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 54.8% at age 9 before increasing to the low to mid 60 percent mark among 11 to 15 year-olds. More than 54 per cent of children at every specific age group had no detectable caries experience.

Changes since 1996

Consistent with changes in the experience of deciduous and permanent caries between 1996 and 1997, there was a small decrease in the percentage of children with $d+D=0$ across most age groups. Additionally, small increases can be seen in the percentage of children both with $d+D=3$ and $d+D\geq 4$ across most age groups. However there was a small increase in the percentage of children with $f+F=0$ which has contributed to an increase in the percentage of students with $dmft+DMFT=0$ across several age groups between 1996 and 1997.

Table 6: All teeth: age-specific experience

Age (years)	Students <i>n</i>	Students with $d+D=$					Students with		
		0	1	2	3	≥ 4	$m+M=0$	$f+F=0$	$dmft+DMFT=0$
		%	%	%	%	%	%	%	%
≤ 4	300	73.0	8.7	6.3	2.7	9.3	98.3	96.7	72.0
5	3,389	76.4	8.9	5.9	2.4	6.3	99.1	93.9	73.7
6	1,195	74.6	9.0	6.8	3.2	6.4	97.5	89.2	69.5
7	3,045	69.0	13.0	7.5	3.9	6.5	97.0	81.7	60.7
8	1,122	70.1	13.8	7.8	3.7	4.6	95.7	75.6	58.0
9	2,741	69.6	14.2	7.7	3.5	4.9	96.9	71.6	54.8
10	1,117	71.9	14.7	6.7	3.3	3.4	98.1	71.3	56.0
11	2,675	78.9	11.2	5.0	2.3	2.5	98.9	78.6	65.1
12	977	77.9	12.3	5.6	1.8	2.4	99.4	76.3	63.4
13	1,770	81.1	10.1	4.7	1.8	2.3	99.0	78.6	66.2
14	587	78.2	10.1	5.8	2.9	3.1	98.0	80.7	66.6
15+	23	73.9	21.7	0.0	0.0	4.3*	100.0	87.0	60.9

Fissure sealants: age-specific experience

The mean number of fissure sealants generally increased in prevalence with increasing age (see Table 7). There is consistent evidence of preferential use of fissure sealants among students with some caries experience (DMFT \geq 1) in comparison to those with no caries experience (DMFT=0). Among 12 year-olds, for example, 23.7% with DMFT \geq 1 had at least one fissure sealant compared to 13.7% with DMFT=0.

Changes since 1996

There have been small reductions in the mean number of sealants reported for several age groups between 1996 and 1997. These change mainly reflect reductions in the number of fissure sealants in children with DMFT \geq 1.

Table 7: Fissure sealants: age-specific experience

Age (years)	Students	Sealants		DMFT=0		DMFT=1+	
				Students	F/S=1+	Students	F/S=1+
	<i>n</i>	mean	SD	<i>n</i>	%	<i>n</i>	%
6	1,195	0.02	0.23	1,171	0.8	24	4.2
7	3,045	0.13	0.67	2,815	4.0	230	10.4
8	1,122	0.27	0.93	1,006	8.6	116	8.6
9	2,741	0.38	1.08	2,274	11.4	467	20.8
10	1,117	0.40	1.11	887	12.5	230	19.1
11	2,675	0.40	1.10	2,030	12.1	645	20.6
12	977	0.50	1.35	686	13.7	291	23.7
13	1,770	0.44	1.29	1,192	11.1	578	19.4
14	587	0.44	1.32	396	12.9	191	17.3
15+	23	0.61*	1.40*	14	7.1*	9	33.3

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 2.6% and 5.1% 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.

Table 8: Immediate treatment needs: age-specific experience

Age (years)	Students in need of immediate treatment															
	Students			dmft				DMFT				d+D=				
	<i>n</i>	<i>n</i>	%	mean	SD	mean	SD	0	1	2	3	4+				
≤4	300	15	5.0	5.87	4.12	–	–	0.0	26.7*	13.3*	6.7*	53.3				
5	3,389	117	3.5	4.57	3.28	0.02*	0.18*	4.3*	18.8	13.7	12.8	50.4				
6	1,195	45	3.8	5.84	3.79	0.33	0.88	2.2*	8.9*	11.1*	15.6	62.2				
7	3,045	146	4.8	4.10	2.59	0.55	1.04	3.4*	15.1	18.5	21.2	41.8				
8	1,122	57	5.1	3.89	2.73	0.65	0.94	7.0*	28.1	21.1	14.0	29.8				
9	2,741	127	4.6	3.06	2.51	1.24	1.46	5.5	21.3	24.4	11.0	37.8				
10	1,117	47	4.2	2.60	2.05	1.13	1.33	4.3*	27.7	19.1	21.3	27.7				
11	2,675	85	3.2	1.31	1.54	2.19	2.02	3.5*	34.1	14.1	21.2	27.1				
12	977	37	3.8	0.92	1.91	2.92	2.34	8.1*	24.3	18.9	24.3	24.3				
13	1,770	57	3.2	0.33	0.87	3.56	2.83	8.8*	22.8	19.3	14.0	35.1				
14	587	15	2.6	0.07*	0.26*	3.67	2.85	0.0	40.0	6.7*	13.3*	40.0				
15+	23	1	4.3*	–	–	6.00	–	0.0	0.0	0.0	0.0	100.0				

Changes since 1996

The percentage of children with immediate treatment needs was slightly higher in 1997 than in 1996, though still low in terms of overall percentage. Changes in the percentage of children needing immediate care and with $d+D \geq 4$ showed considerable variation between 1996 and 1997, increasing appreciably for several age groups while decreasing for other age groups.

Time since last examination

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

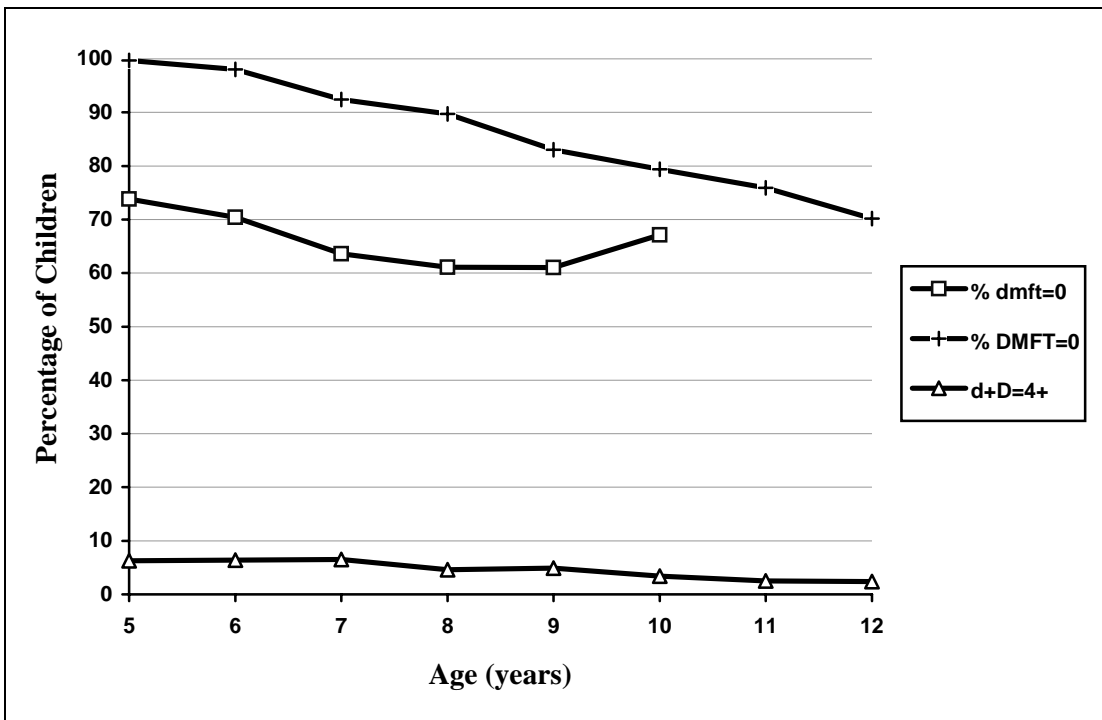


Figure 1: Percentage of students with dmft=0, DMFT=0 and d+D=4+