





The Child Dental Health Survey South Australia January - December 1990

by

The AIHW Dental Statistics and Research Unit

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Phone: (08) 228-5027 Fax: (08) 232-4062 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 1990

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 1989 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 1990 calendar year from SA School Dental Service patients by dental therapists and dentists. A random sampling procedure was used to select one in 19 patients. This was achieved by selecting those children whose birthday was on the 13th or 31st day of any month. Provision was made for inclusion and numerical weighting of data from all children whose date of birth was unknown.

This sampling scheme represents a change from the procedures used in previous years. Before 1990, systematic sampling was undertaken by recording data from every fifth child in the sequence of examinations. The new sampling procedure therefore differs in that it is a simple random sample, and is at a smaller ratio.

The following sections briefly describe each table and contain a simple, summary statement highlighting differences between the 1990 and 1989 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 at the ratio of 1:19 according to their date of birth. The constituted the greater majority (97 per cent) of children sampled in 1990. The small percentage of records with unknown date of birth (represented in the middle columns of the table) represent data from all children whose birthdate was unknown. Data from those children were weighted during computation to avoid their over-representation in comparison with children with known date of birth who were sampled at the ratio of 1:19. The weighted sample is represented in the columns at the right.

The majority of children were aged five years or more, and there were large numbers of children in the range five 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, and the percentage of males in any single age group did not exceed 55 per cent.

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 1989

The 1990 sample is smaller than the 1989 sample by approximately 12,000 children, reflecting the different sampling arrangements described previously. In other respects, the proportional distribution of ages and sexes is similar to the 1989 sample.

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. Even after allowing for 15 per cent of children with unknown country of birth, fewer than two 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 1.04 among children aged 3 years or less to a low of 0.11 among 12 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=2.20), and tending to be smaller among younger and older ages. A pattern of reducing dmft among older children consistent with natural exfoliation of teeth.

The percentage of caries experience due to decay (d/dmft) shows a strong age-associated decline, reducing from 85.6 per cent among children aged 3 years or less to below 20 per cent for children aged 8 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 68.2 per cent among the youngest children to 43.4 per cent among 9-year-olds. The percentage of caries free children therefore mirrors the mean dmft prevalence.

Changes since 1989

The mean number of decayed teeth was similar between the two years for children aged 4 to 10 years. However there were noticeable reductions in the mean dmft, ranging from 0.1 to 0.3 in the age range 4 to 10 years. As a consequence, the percentage of caries experience due to decay (d/dmft) decreased by between 2 and 9 percentage points in that age range. There were also indications of modest increases (2 to 5 per cent) in the percentage of children with no deciduous caries experience (dmft=0).

Taken together, these changes demonstrate reductions in both untreated caries experience (d component) and additional reductions in total deciduous caries experience (dmft) in 1990.

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. Permanent caries experience of children age 14 year or more is of a similar magnitude to the equivalent maximum observed in the deciduous dentition among 8 and 9 year olds.

As a consequence of these age-associated trends, the percentage of DMFT due to decay (D/DMFT) and the percentage caries free (DMFT=0) each decline across age groups. Indeed, fewer than one half of children aged over 12 years have no caries experience.

Changes since 1989

There were observable reductions of approximately 0.2 teeth in the mean DMFT of most age groups in the range 10 to 14 years. However, the mean number of decayed permanent teeth did not differ appreciably. Larger differences were observed in the percentage of caries experience due to untreated decay (D/DMFT), which reduced by between 1 and 12 per cent in all ages. This appears to represent a reduction in the denominator of that ratio rather than in the mean number of decayed (D) teeth. The percentage of caries free children (DMFT=0) increased in most ages by between 3 and 11 per cent.

In summary, there is evidence of reductions in caries experience (mean DMFT), although there appears to be no significant variation in untreated decay (D component) as observed in the deciduous dentition.

Table 5: All teeth: age-specific prevalence

Untreated caries in the combined deciduous and permanent dentitions exists for 20 to 30 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 six 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 96 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 one third of those aged 13 years or more have no caries experience. Conversely, approximately one third of children reach secondary school with no caries experience in either deciduous or permanent dentition.

Changes since 1989

There were increases in the percentage of children with no decay (% d+D=0) in all ages and there were small but consistent increases (generally in the range of 2 to 5 per cent) in the percentage of children with no caries experience (dmft+DMFT=0). Those improvements 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, and in that range the mean number of fissure sealants was at the same order of magnitude as the mean DMFT. 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.

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. Fewer than 10 per cent of children had immediate treatment needs, and there was little variation among ages with only a tendency for older children to have a higher prevalence. Both deciduous and permanent caries experience (dmft and DMFT) were high among those with permanent caries experience, being approximately twice the mean level as the population overall (Tables 3 and 4). In addition, large percentages, particularly among the youngest age groups, had four or more teeth with untreated decay.

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 3 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. Indeed, more than 10 per cent of children aged 5 years or less had received a previous examination within the previous 6 months.

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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

Data for period January-December 1990 Date of Report: 31st August 1992

Sampling Ratio: 1:19

NUMBER OF RECORDS PROCESSED NUMBER OF CHILDREN IN SAMPLE1 **TYPE OF SAMPLING** Known date of birth Age only known Age Males Females Persons (years) Males Females Persons Males Females Persons 5 6 5 Total 100.0

¹ The number of children included in the sample equals the number of records sampled where date of birth is known plus the product of the number of records of children with unknown birthdate and sampling ratio. Second and subsequent examinations of children within the reporting period are eliminated. These are rounded numbers of children.

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 coding scheme is described in Appendix A. 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 1990

Date of Report: 31st August 1992

COUNTRY OF BIRTH	CHILD	REN	MOTHERS		
	Number ¹	%	Number	%	
Australia (non-Aboriginal)	4658	79.9	3220	55.3	
Australia (Aboriginal or TSI)	40	0.7	49	0.8	
United Kingdom and Eire	66	1.1	426	7.3	
Other English speaking	51	0.9	<i>7</i> 5	1.3	
Southern Europe	14	0.2	146	2.5	
Other Europe	30	0.5	118	2.0	
Middle East	10	0.2	22	0.4	
South East Asia	55	0.9	74	1.3	
Other Asia	12	0.2	25	0.4	
Other	18	0.3	23	0.4	
Not known	871	15.0	1631	28.0	
Blank			19	0.3	
Total	5827	100.0	5827	100.0	

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: South Australia

Sampling ratio: 1:19

Data for period January-December 1990

Date of report: 31st August 1992

Age	Number of children in	deca	yed ²	dn	nft	d/dmf	Children with dmft=0	
(years)	sample	mean	sd	mean	sd	%	%	
3	140	1.04	2.23	1.31	2.66	85.6	68.2	
4 5	2 99	0.66	1.44	1.05	2.09	69.5	66.8	
5	511	0.75	1.71	1.51	2.63	51.4	57.9	
6	523	0.55	1.16	1.88	2.89	34.6	51.3	
7	495	0.42	0.92	1.94	2.54	24.4	46.9	
8	520	0.31	0.76	2.18	2.68	17.8	44.5	
9	506	0.25	0.63	2.20	2.62	13.5	43.4	
10	454	0.32	0.83	1.89	2.42	17.2	46.0	
11	476	0.16	0.51	1.18	1.91	16.0	60.2	
12	462	0.11	0.42	0.64	1.33	18.5	74.0	

¹ Legend:

d - decayed deciduous teeth

dmft - decayed, missing or filled deciduous teeth

sd - standard deviation

² 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 four per cent or less.

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: South Australia

Sampling ratio: 1:19

Data for period January-December 1990

Date of report: 31st August 1992

9	Number of						Children with
Age	children in	DECA	DECAYED ²		IFT	D/DMFT	DMFT=0
(years)	sample	mean	sd	mean	sd	%	%
6	523	0.06	0.31	0.09	0.53	79.2	95.0
7	495	0.11	0.43	0.18	0.58	61.9	88.5
8	520	0.10	0.39	0.29	0.74	37.6	82.5
9	506	0.11	0.38	0.48	0.95	26.8	73.4
10	454	0.14	0.57	0.63	1.20	20.4	70.2
11	476	0.14	0.45	0.89	1.28	16.6	56.8
12	462	0.23	0.59	1.29	1.69	17.1	50.3
13	422	0.21	0.57	1.54	1.87	13.2	43.4
14	384	0.28	0.71	2.18	2.14	13.9	27.0
15	337	0.29	0.84	2.49	2.65	11.1	31.3
16	199	0.14	0.51	2.79	2.36	4.1	27.6
17	51	0.33	0.75	3.80	3.30	7.6	18.3
18	1	0.00	-	2.00	-	0.0	0.0

DMFT - decayed, missing or filled permanent teeth

sd - standard deviation

Legend: D - decayed permanent teeth

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 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. Agespecific 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: South Australia

Data for period January-December 1990

Date of report: 31st August 1992

Sampling ratio: 1:19

Age	Number of children	%	of chile	dren w	ith d+	D=	% of children with				
(years)	in sample	0	1	2	3	≥4	m+M=0		mft+DMFT=0		
3	140	70.4	8.9	4.4	4.4	11.8	99.3	93.3	68.2		
4	299	73.7	9.0	7.3	4.5	5.5	99.0	86.9	66.1		
4 5	511	72.0	10.9	6.9	3.7	6.5	98.4	74.7	57.6		
6	523	69.7	14.2	9.5	3.0	3.6	96.8	61.2	49.5		
7	495	72.4	14.4	7.5	2.5	3.1	98.7	51.9	45.0		
8	520	<i>7</i> 5.3	14.9	5.8	2.0	2.0	99.0	45.9	39.8		
9	506	76.5	16.2	4.3	2.0	1.0	96.7	41.7	36.8		
10	454	74.0	14.8	6.8	2.3	2.0	99.3	40.1	35.5		
11	476	80.4	11.5	5.9	1.5	*	98.9	42.4	38.3		
12	462	77.2	14.1	6.5	1.8	*	99.1	43.3	39.0		
13	422	83.6	11.3	3.9	1.0	*	99.5	43.9	39.7		
14	384	81.1	12.1	3.8	2.2	*	99.7	30.2	25.4		
15	337	83.1	8.6	6.7	0.0	1.5	99.4	33.7	30.3		
16	199	89.1	7.3	2.6	*	*	99.5	27.1	27.1		
1 7	51	77.6	14.3	*	*	0.0	98.0	18.3	18.3		
18	1	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0		

¹ Legend:

d - decayed deciduous teeth

D - decayed permanent teeth

m - deciduous teeth missing due to caries

M - permanent teeth missing due to cariesf - 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 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 25 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1990

Date of report: 31st August 1992

Age	Number of children in	Number of sealants		CHILDRI DMI		CHILDREN WITH DMFT=1+ % with		
(years)	sample ²	mean	sd	number	F/S=1+	number	F/S=1+	
6	523	*	*	497	1.0	26	4.0	
7	495	0.26	0.85	438	6.9	57	34.6	
8	520	0.63	1.23	429	21.0	91	47.7	
9	506	0.90	1.39	372	27.0	134	58.4	
10	454	0.94	1.41	319	31.5	136	52.7	
11	476	1.04	1.48	270	36.4	206	51. <i>7</i>	
12	462	1.26	1.64	232	44.7	230	48.2	
13	422	1.37	1.97	183	37.8	239	52.9	
14	384	1.42	1.95	104	33.1	281	55.4	
15	337	1.78	2.27	105	44.1	232	63.0	
16	199	2.07	2.28	55	49.0	144	66.1	
<i>17</i>	51	2.27	2.60	9	77.8	41	57.6	
18	1	2.00	-	0	-	1	100.0	

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

² 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.

TABLE 7: IMMEDIATE TREATMENT NEEDS: AGE-SPECIFIC DISTRIBUTION1

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

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1990

Date of report: 31st August 1992

CHILDREN IN NEED OF IMMEDIATE TREATMENT

ľ	Number o	f										
Age children		% of all	dmft		DMFT		% with d+D=					
(years)	in sample	No.	children	mean	sd	mean	sd	0	1	2	3	4+
4	107	26	E O	4 50	2 55			*	160	u.	240	44.0
$\frac{4}{2}$	486	26	5.3	4.52	3.55	-	-		16.0	*	24.0	44 .0
5	511	37	7.3	3.94	2.79	*	*	*	27.9	22.3	11.1	36.0
4	486	26	5.3	4.52	3.55	-	-	*	16.0	*	24.0	44.0
5	511	37	7.3	3.94	2.79	*	*	*	27.9	22.3	11.1	36.0
6	523	47	8.9	4.16	3.72	*	*	15.5	35.5	26.6	8.9	13.4
7	495	45	9.2	4.02	3.10	0.57	0.90	18.2	34.1	20.5	*	20.5
8	520	42	8.2	3.78	2.65	0.63	1.04	26.8	39.1	21.9	*	*
9	506	33	6.5	5.00	2.61	1.19	1.09	15.6	50.0	12.5	*	12.5
10	454	44	9.6	3.17	3.07	1.21	1.69	21.5	45.3	21.4	*	9.5
11	476	35	7.4	1.62	2.00	1.24	1.28	44.1	38.2	14.7	*	0.0
12	462	36	7.8	1.17	1.95	2.20	1.84	40.0	34.3	22.9	0.0	*
13	422	32	7.6	0.52	1.12	2.77	2.12	35.5	45.2	*	*	0.0
14	384	24	6.2	*	*	2.61	2.50	47.7	30.4	*	*	*
15	588	32	5.5	*	*	4.42	3.46	38.7	35.5	12.9	*	*

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: South Australia

Sampling ratio: 1:19

Data for period January-December 1990

Date of report: 31st August 1992

CHILDREN WITH PREVIOUS EXAMINATION Number of Previous examination in Age children School Dental Service (%) Months since last examination 1(%) (years) examined Yes No Unknown 0-67-12 13-24 25+2 32 71.9 25.0 62.5 3 148 * 37.8 60.1 21.4 57.1 12.5 8.9 4 5 6 7 327 47.4 50.8 1.8 18.7 53.6 23.5 4.2 541 28.4 68.0 3.5 10.7 48.4 34.2 6.8 564 5.5 92.6 2.0 6.5 53.3 35.1 5.2 520 2.5 94.8 2.7 7.1 50.4 36.0 6.5 8 541 1.3 95.6 3.1 50.6 6.6 33.9 8.9 9 532 1.5 96.2 2.3 4.3 52.1 38.3 5.3 10 479 96.4 3.1 4.8 49.0 39.3 6.9 * 11 492 97.4 2.9 50.5 2.0 38.8 7.7 12 480 * 98.8 3.2 0.8 47.9 39.2 9.7 13 440 0.9 97.3 1.8 2.6 49.8 41.8 5.8 14 97.5 402 1.7 5.6 43.1 41.6 9.7 15 344 * 98.3 1.5 2.4 51.2 40.8 5.6 16 207 1.9 96.1 1.9 3.0 47.0 43.9 6.1 17 50 96.0 0.0 47.9 39.6 12.5 0.0 18 1 100.0 0.0 0.0 100.0 0.0 0.0

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