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# The Child Dental Health Survey, South Australia 2000

AIHW Catalogue No. DEN 120

AUSTRALIAN RESEARCH CENTRE  
FOR POPULATION ORAL HEALTH



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### **Suggested citation**

Armfield JM, Roberts-Thomson KF, Slade GD, Spencer AJ (2003). *Child Dental Health Survey, South Australia 2000*. Adelaide: The University of Adelaide.

### **Acknowledgments**

The data used for this report were collected in collaboration with South Australian Dental Services, Department of Human Services, South Australia. The support of the service and its staff was crucial to the successful reporting of results for this survey.

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# Abbreviations

d	deciduous decayed teeth or surfaces
D	permanent decayed teeth or surfaces
dmfs	deciduous decayed, missing and filled surfaces
dmft	deciduous decayed, missing and filled teeth
DMFS	permanent decayed, missing and filled surfaces
DMFT	permanent decayed, missing and filled teeth
f	deciduous filled teeth or surfaces
F	permanent filled teeth or surfaces
m	deciduous missing teeth or surfaces
M	permanent missing teeth or surfaces
SD	standard deviation



## Purpose of this report

The Child Dental Health Survey, originally established in 1977 by the (then) Commonwealth Department of Health, is intended to provide time-series data for the purpose of monitoring the dental health status of Australian school students. This report continues the series of annual reports providing descriptive statistics concerning child dental health in South Australia, and follows the 1999 report. There are four aims of the Survey:

1. To maintain the time-series of statistics providing annual estimates of children's dental health status;
2. To examine temporal changes in caries experience among children;
3. To examine the distribution of dental health status by geographic location and demographic factors;
4. To identify high risk groups according to geographic location and demographic status.

The following sections of this report describe: the age and sex of participants in the sample; their deciduous and permanent caries experience; frequency of fissure sealants; history of School Dental Service examinations; and geographic differences in disease experience. In addition, there is a simple summary statement highlighting differences between the 2000 and 1999 data. However, no tests of statistical significance have been undertaken and descriptions of difference between years are intended as a guide to the reader rather than a formal evaluation of trends.

## Survey methods

Data for the Child Dental Health Survey were collected during the 2000 calendar year from a sample of patients of the South Australian School Dental Service by dental therapists and dentists. They transcribed data items from routine clinical records on to Optical Mark Reader (OMR) data sheets that were forwarded to the Australian Institute of Health and Welfare (AIHW) Dental Statistics and Research Unit (DSRU) for processing and analysis.

Data were also obtained from the Nganampa Health Council, representing all people living on the Anunga Pitjantjatjara Aboriginal Lands, situated in the far north-west of South Australia. The South Australian SDS does not traditionally capture data for this area of the State. Dentists conducted dental examinations and data items were again recorded on to OMR data sheets that were processed and analysed by AIHW DSRU.

## Data preparation

Prior to analysis a check was made for missing or erroneous data. Where tooth level information was incorrect (e.g., a tooth indicated as both fissure sealed and unerupted) or where required fields were missing, the OMR form was returned to the relevant clinic for correction.

Linear regression of age on the number of deciduous teeth present and the number of permanent teeth present revealed several outliers with standardised residuals greater than 3 standard deviations from the mean. These cases were corrected where they evidently resulted from a data recording error. A small number of cases that could not be corrected and were highly implausible were eliminated from the data set.

## Sampling procedure

A random sampling procedure was used by selecting those students whose birthdays were on the 13th, 30th or 31st day of any month, a sampling ratio of approximately 1:12. Participants from non-metropolitan clinics who had previously participated in the Child Fluoride Study<sup>1</sup> were sampled at a higher rate by including students born on the 13th or between the 26th and 31st of any month, a sampling rate of approximately 1:4.7. Actual sampling rates varied widely across South Australian clinics and generally fell short of the intended sampling rate.

## Data analyses

All data were weighted by both the sampling ratio used for selection and months since last visit (which was used due to the under-representation of students on longer recall schedules in the sample). Effectively this resulted in reducing the contribution of those students from non-metropolitan areas who had previously participated in the Child Fluoride Study and students whose last School Dental Service examination was more recent.

Unit records were further weighted to reflect the Estimated Resident Population (ERP) of 5–14-year-olds according to Statistical Divisions within South Australia as at 30 June 2000, as published by the Australian Bureau of Statistics (2000). Statistical Divisions are shown in Figure 1. For reporting purposes, the Adelaide Statistical Division was analysed by the four Subdivisions of which it is comprised: Northern Adelaide, Eastern Adelaide, Southern Adelaide and Western Adelaide (Figure 2). Assignment of Statistical Divisions to all unit records was based on the location of the clinic to which a child attended.

In addition to weighting by region, due to the large number of cases obtained from the Far North Statistical Subdivision of the Northern region, weighting was carried out by SSD within this region. This resulted in a downward weighting of cases from the Far North (which comprises 15.9% of the Northern region) and a weighting up of cases from Whyalla, Pirie and Flinders Ranges SSDs.

The relative sample sizes and population estimates by Statistical Division as a percentage of the total sample and South Australian 5–14-year-old population are shown in Figure 3. While the results of sampling were relatively consistent with ERP by Statistical Division, as a result of sampling Murray Lands, Eastern Adelaide, Yorke and Lower North, Outer Adelaide, Northern Adelaide and Eyre were weighted up in the analysis (mean weights = 1.81, 1.72, 1.45, 1.31, 1.21 and 1.03 respectively) while Northern, Western Adelaide, South East and Southern Adelaide were weighted down (mean weights = 0.37, 0.89, 0.90 and 0.92 respectively).

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

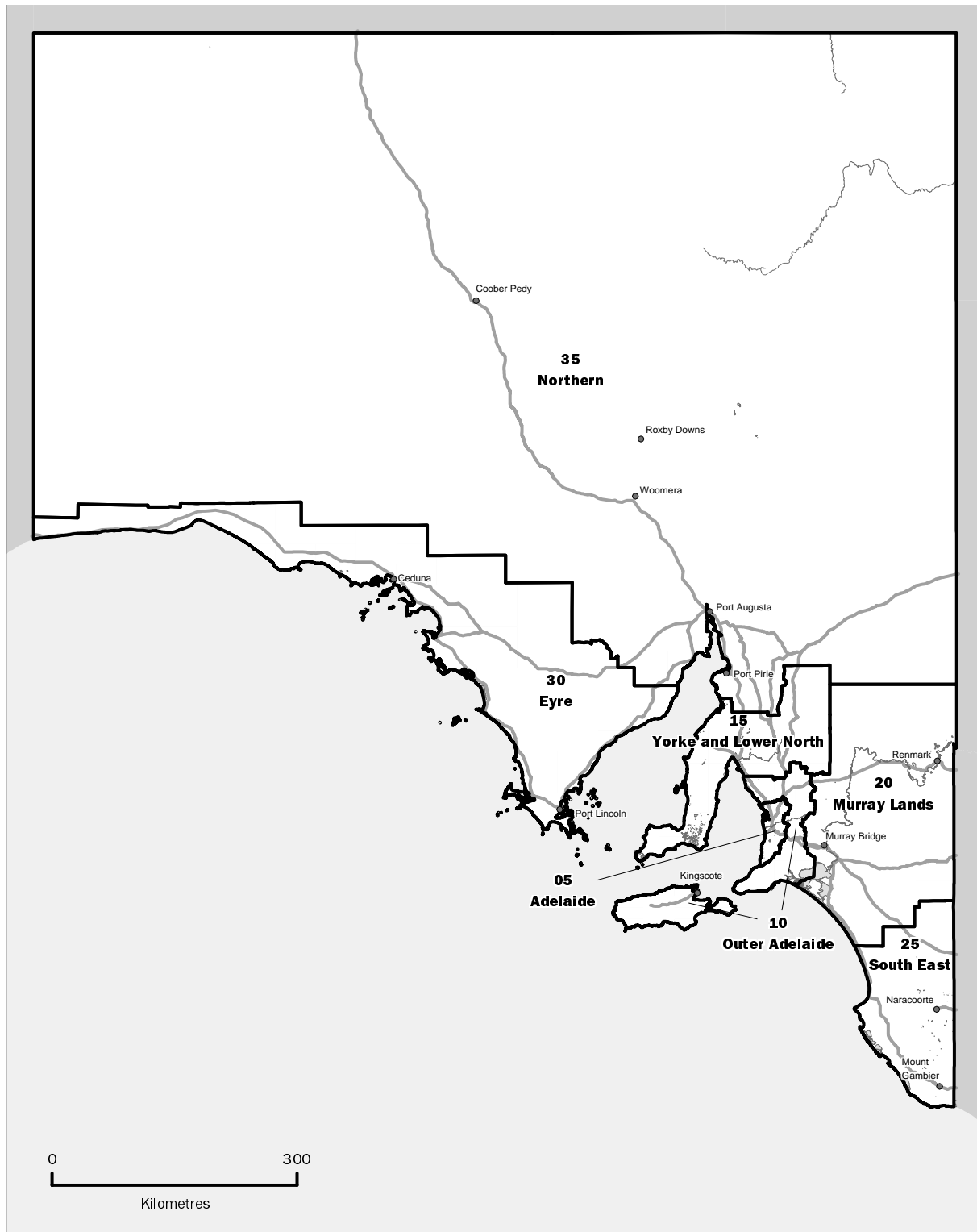


Figure 1: South Australian Statistical Districts (Australian Bureau of Statistics, 2000)

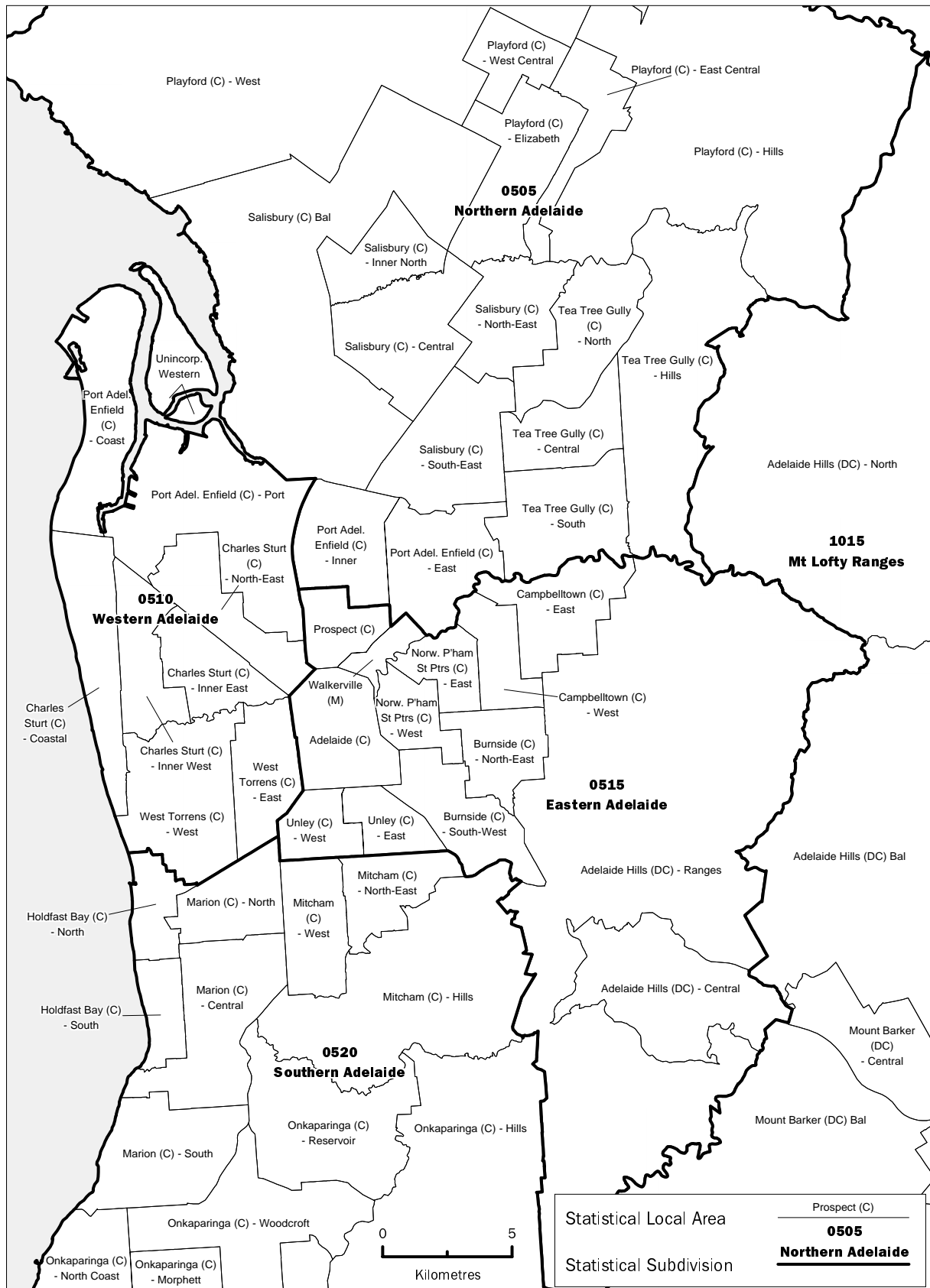


Figure 2: Subdivisions of Adelaide Statistical Division (Australian Bureau of Statistics, 2000)

The purpose of the weighting protocol was to produce estimates that are representative of the population covered by the School Dental Service for 2000. However, the estimates in this report cannot be applied to children who are not enrolled in the South Australian School Dental Service. Consequently, the results in this report do not represent the complete South Australian child population, but only that portion of the population that is enrolled in the South Australian School Dental Service. In South Australia, approximately 78% and 48% of pre and primary school children and secondary school children respectively are enrolled in the School Dental Service. Hence, estimates for primary school aged children in this report may not differ substantially from estimates that would be obtained if all children in the State were surveyed, however estimates for secondary school children may vary from those obtained if all the children in the State were surveyed.

The final unit record weights were applied to all statistics computed for Tables 2 to 13 such that the weighted contribution of each Statistical Division was proportional to the percentage represented by that Statistical Division in the South Australian population. It should be noted that all analyses use the weighted distribution of children to derive results. However, months since last visit was not used to weight the data in Tables 11 and 12 because the results included time since last visit. Weighted numbers are rounded to the nearest whole number for ease of interpretation.

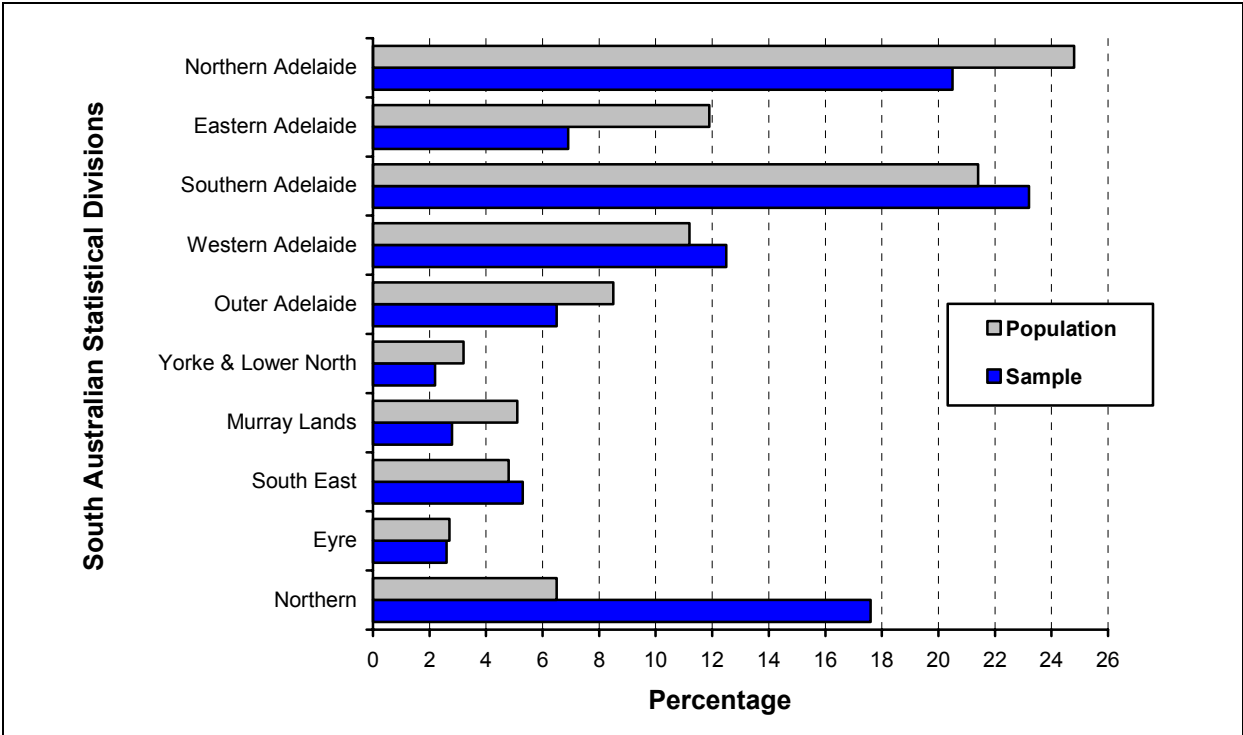


Figure 3: Percentage of children in sample and South Australian population by Statistical Division

Statistical analyses included in this report are: the age and sex of students in the sample; their deciduous and permanent caries experience; frequency of fissure sealants; children's history of School Dental Service examinations; and caries experience by geographic region. Counts of decayed teeth also include recurrent caries in filled teeth. Except for Tables 11 and 12, data relating to second or subsequent examinations of students within the study period have not been used. 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 should be viewed as statistically unreliable.

## Demographic composition of the sample

Table 2 lists in the left-hand column the unweighted number of children sampled according to their age. The majority of children were aged 5 years or more (92.7%) and there were large numbers of children in the range 5 to 16 years.

The age distribution of the sample is related to the main target groups of students served by the School Dental Service in SA. This illustrates that the sample is representative of students in primary school and early secondary school, rather than all students in South Australia up to the age of 18. Consequently, those children who are outside the main school dental service target groups (less than 5 or more than 17 years) may differ on key characteristics and are likely to be less representative of their respective age groups in the SA population.

**Table 2: Demographic composition of the sample**

Age	Children in sample (unweighted)			Children in sample (weighted)		
	Males	Females	Persons	Males	Females	Persons
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
2	14	14	28	13	16	29
3	35	39	74	38	41	79
4	67	87	154	64	78	142
5	131	128	259	131	118	249
6	134	140	274	119	115	235
7	155	155	310	137	143	280
8	134	136	270	125	121	245
9	163	141	304	170	139	309
10	132	132	264	131	130	261
11	145	142	287	144	133	277
12	139	112	251	139	117	256
13	144	112	256	141	113	254
14	140	110	250	161	118	279
15	119	109	228	144	117	261
16	89	82	171	102	100	201
17	65	63	128	77	74	152
18	5	5	10	4	6	10
<b>Total</b>	<b>1,811</b>	<b>1,707</b>	<b>3,518</b>	<b>1,839</b>	<b>1,679</b>	<b>3,519</b>

Males and females were represented in approximately equivalent numbers although more males than females were sampled overall. The mean age of males (9.81 years) was slightly lower than for females (10.11 years).

There was little change in the age distribution for male or female children as a result of weighting.

### Changes since 1999

The 2000 sample was slightly larger than the 1999 sample by 228 children. This is more than accounted for by the additional 421 children included from Nganampa in the far north-west of South Australia. There were consistent changes in the weighted number of children in the age groups sampled. The ratio of males to females was higher in 2000 (1.09:1) than the ratio in 1999 (1.00:1).

## Deciduous teeth

For children between 4 and 12 years of age, the mean number of clinically decayed teeth ranged from a high of 0.87 among children aged up to and including 3 to a low of 0.28 teeth among children aged 12 years (see Table 3). Few teeth in any given age group were indicated as missing due to caries although this figure was generally highest for the younger children. The mean number of filled teeth showed a consistent increase to the age of 9 before declining as a result of the exfoliation of deciduous teeth. The mean number of decayed, missing and filled teeth (dmft), generally increased with age to peak at 1.65 for 6-year-old children before declining to 0.84 for 12-year-olds.

**Table 3: Deciduous dentition – tooth level caries experience by age**

Age	Children <i>n</i>	Teeth mean	Decayed (d)		Missing (m)		Filled (f)		dmft	
			mean	SD	mean	SD	mean	SD	mean	SD
≤3	108	19.70	0.87	2.00	–	–	0.01*	0.10*	0.88	2.00
4	142	19.81	0.59	1.46	0.06*	0.72*	0.21	0.87	0.88	1.99
5	249	19.62	0.72	1.60	0.06*	0.46*	0.43	1.34	1.28	2.43
6	235	17.67	0.81	1.62	0.04*	0.31*	0.71	1.57	1.65	2.52
7	280	14.57	0.52	1.08	0.06*	0.62*	0.76	1.64	1.42	2.38
8	244	12.44	0.67	1.45	0.06	0.29	0.77	1.49	1.57	2.19
9	304	11.06	0.56	0.97	0.01*	0.14*	0.89	1.57	1.52	2.03
10	238	8.78	0.39	0.86	0.02*	0.15*	0.82	1.39	1.28	1.82
11	202	6.75	0.39	0.91	–	–	0.65	1.32	1.07	1.90
12	115	4.59	0.28	0.59	0.01*	0.11*	0.52	1.06	0.84	1.30

\* relative standard error ≥ 40%

The ratio of untreated decayed teeth to the total count of decayed, missing, and filled teeth serves as an indicator of how well a child's dental needs are being met. This is presented in Table 4 as the mean of individual children's d/dmft index. The percentage of caries experience represented as untreated decay (d/dmft) showed a strong age-associated decline, reducing from 98.1% among the youngest children to 31.8% for children aged 10 years (see Table 4). This pattern of deciduous caries experience indicates that children in the youngest age groups enter the School Dental Service program with a relatively high level of untreated decay. However, it should be noted that only a small number of children are sampled from these young age groups.

The percentage of students free of caries experience (% dmft = 0) also showed a general age-associated reduction from 75.2% of children up to the age of 3 years to 45.8% among 9-year-olds before increasing to 63.6% for 11-year-olds (Table 4).

The ratio of untreated decayed teeth to the total count of decayed, missing, and filled teeth can also be expressed as the ratio of total decay in the population to total decayed, missing or filled teeth in the population (d/dmft ratio), and this is presented in Figure 4. Unlike the d/dmft index, the d/dmft ratio refers to the proportion of teeth with caries in the population. Thus, the ratio for 6-year-olds indicates that, among 100 teeth with caries experience among 6-year-olds, 49.1% had untreated decay. The d/dmft ratio shows a similar pattern to that of the mean dmft index, with the percentage d/dmft reducing across increasingly older age groups, declining from 98.9% for the youngest children to 30.5% among 10-year-olds. The percentage of dmft accounted for by filled teeth shows the opposite trend, increasing from 1.1% for children aged up to including 3 years old to 64.1 for 10-year-olds.

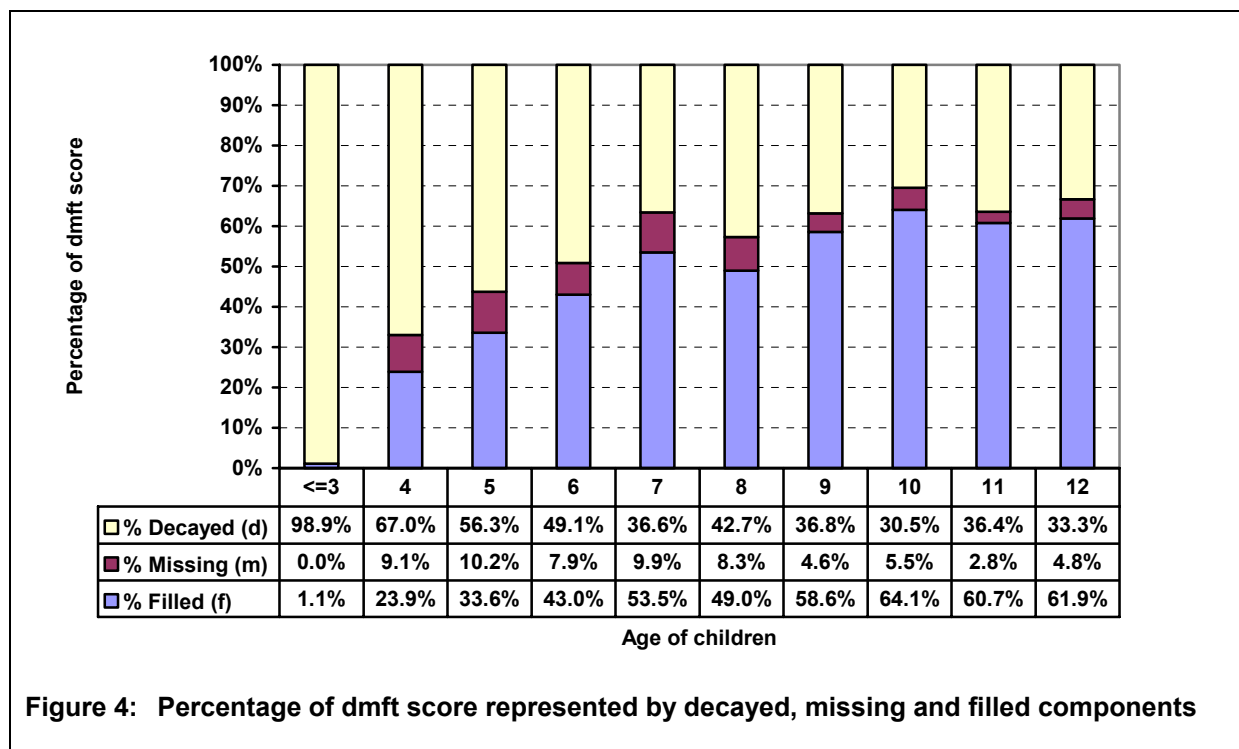
The surface level caries experience (see Table 5) shows approximately 50–70% higher caries experience (dmfs) than that shown when looking at the tooth level among the key 5–10-year-old age groups. There were approximately 30–60% more clinically decayed surfaces than there were clinically detectable decayed teeth. General trends are similar to those indicated in analyses at the tooth level.

**Table 4: Deciduous dentition – caries experience indices by age**

Age	Teeth present		Mean d/dmft index		dmft = 0	
	<i>n</i>	<i>n</i>	%	<i>n</i>	%	
≤3	19.70	27	98.1	108	75.2	
4	19.81	41	67.6	142	71.1	
5	19.62	97	67.2	249	61.0	
6	17.67	104	55.1	235	55.8	
7	14.57	115	54.9	280	59.0	
8	12.44	121	44.3	244	50.3	
9	11.06	165	45.3	304	45.8	
10	8.78	114	31.8	238	52.1	
11	6.75	74	38.0	202	63.6	
12	4.59	50	41.3	115	56.4	

\* relative standard error ≥ 40%





**Table 5: Deciduous dentition – surface level caries experience by age**

Age	Children	Surfaces	Decayed (d)		Missing (m)		Filled (f)		dmfs	
	<i>n</i>	mean	mean	SD	mean	SD	mean	SD	mean	SD
≤3	108	86.76	1.29	3.84	–	–	0.02*	0.19*	1.31	3.85
4	142	86.96	0.82	2.54	0.29*	3.23*	0.26	1.19	1.39	4.54
5	249	86.22	0.95	2.35	0.26*	1.97*	0.79	2.78	2.09	4.88
6	235	78.46	1.12	2.47	0.19*	1.42*	1.11	2.68	2.56	4.44
7	280	65.97	0.68	1.52	0.25*	2.80*	1.23	2.97	2.27	4.66
8	244	57.25	1.06	2.96	0.29	1.47	1.22	2.62	2.67	4.47
9	304	51.56	0.77	1.48	0.07*	0.70*	1.40	2.66	2.31	3.46
10	238	41.28	0.60	1.59	0.10*	0.75*	1.28	2.41	2.05	3.26
11	202	31.92	0.55	1.44	–	–	1.02	2.19	1.62	3.13
12	115	21.85	0.37	0.87	0.03*	0.57*	0.71	1.48	1.20	2.32

\* relative standard error ≥ 40%

### Changes since 1999

The mean number of clinically decayed teeth increased from 1999 for most ages, the exceptions being 6-, 7- and 10-year-olds. The largest change was for 8-year-olds, an increase of 28.9% from 0.52 to 0.67 decayed teeth. In contrast, the mean number of teeth with fillings decreased for most age groups, with the extent of these decreases ranging from 4.6% among

the youngest children to 25.2% for 8-year-olds (1.03 to 0.77 teeth). Increases were observed for children aged 6 (20.3%), 7 (8.6%) and 12 (33.3%). The combined result of increases in mean decay and decreases in mean filled teeth was that there was relatively little change in the mean dmft index. For children up to the age of 10 the biggest increases occurred for 5- and 6-year-olds (16.4% and 10.0% respectively) while the biggest decrease was for 10-year-olds, a 12.3% reduction from 1.46 to 1.28 teeth.

There was an increase in the percentage of dmft expressed as decay between 1999 and 2000, with increases for all children other than those aged 4, 6 and 12 years old. Changes in the percentage of students with no deciduous caries experience (dmft = 0) were inconsistent between 1999 and 2000. Percentage dmft = 0 decreased for all age groups up to 6-year-olds but increased for five of the six oldest age groups.

## Permanent teeth

The mean number of clinically decayed permanent teeth was consistently smaller than the mean number of decayed deciduous teeth for children aged up to 12 years (see Table 6). For children up to the age of 8 years this can be accounted for by the small number of permanent teeth present. However the mean number of clinically decayed permanent teeth remained low into the teen years (peaking at a mean of 0.58 for 14-year-olds) despite the increasing number of permanent teeth present from the age of 9 onwards. The mean number of teeth missing due to caries was low for all age groups while the mean number of filled teeth increased with increasing age, from 0.00 at age 6 to 1.15 for children aged 17 years and over. The mean DMFT increased with age from a low of 0.10 for 6-year-olds to a high of 1.58 for the oldest age group. The mean DMFT for 12-year-olds was 0.60.

**Table 6: Permanent dentition – tooth level caries experience by age**

Age	Children	Teeth	Decayed (D)		Missing (M)		Filled (F)		DMFT	
	<i>n</i>	mean	mean	SD	mean	SD	mean	SD	mean	SD
5	57	3.12	0.03*	0.18*	–	–	–	–	0.03*	0.18*
6	184	5.31	0.10	0.42	–	–	0.00	0.06*	0.10	0.44
7	274	8.65	0.08	0.34	0.02*	0.29*	0.06	0.37	0.17	0.61
8	244	11.18	0.14	0.53	–	–	0.04	0.22	0.19	0.58
9	309	12.81	0.11	0.39	0.01*	0.15*	0.18	0.63	0.30	0.76
10	261	16.06	0.12	0.38	0.00	0.04*	0.14	0.49	0.26	0.72
11	277	19.92	0.14	0.48	0.01*	0.10*	0.17	0.54	0.33	0.79
12	256	24.04	0.24	0.62	0.00	0.04*	0.35	0.88	0.60	1.13
13	254	26.21	0.31	0.73	0.01*	0.18*	0.41	0.84	0.73	1.23
14	279	27.29	0.58	1.48	0.00	0.05*	0.57	1.03	1.15	2.04
15	261	27.34	0.35	0.81	0.05*	0.40*	0.69	1.22	1.08	1.60
16	201	27.43	0.43	0.78	0.02*	0.23*	0.81	1.44	1.26	1.71
≥17	162	27.54	0.43	0.99	–	–	1.15	2.00	1.58	2.42

\* relative standard error ≥ 40%

The mean D/DMFT index declined with age, reducing from 96.5% for 6-year-olds to 32.6% for children aged 17 years and older (Table 7). Slightly less than one-half of 12-year-old DMFT was accounted for by clinically detectable decay. The percentage of students with no caries experience in their permanent dentition also declined systematically with increasing age, although remaining above 50% for all age groups up to 15 years of age. Approximately 69% of 12-year-old children had a DMFT = 0.

The D/DMFT ratio, which refers to the proportion of teeth with caries experience having untreated decay, showed a similar trend to the mean D/DMFT index, declining from 100.0% for 6-year-olds to 27.2% for children aged 17 years and older (Figure 5). Both the D/DMFT and F/DMFT ratios stayed relatively constant between the ages of 9 and 16.

The surface level caries experience in the permanent dentition (see Table 8) shows approximately 10–35% higher caries experience (DMFS) than that shown in the tooth level analyses. There were approximately 3–20% more clinically decayed surfaces than there were clinically detectable decayed teeth.

**Table 7: Permanent dentition – caries experience indices by age**

Age	Teeth present		Mean D/DMFT Index		DMFT = 0	
	<i>n</i>		<i>n</i>	%	<i>n</i>	%
5	3.12		2	100.0	57	96.7
6	5.31		11	96.5	184	94.2
7	8.65		24	62.4	274	91.1
8	11.18		29	67.8	244	88.0
9	12.81		53	43.4	309	82.8
10	16.06		40	50.1	261	84.6
11	19.92		57	42.6	277	79.5
12	24.04		80	46.8	256	68.6
13	26.21		97	40.9	254	62.0
14	27.29		136	44.5	279	51.3
15	27.34		128	34.5	261	50.9
16	27.43		105	38.7	201	47.8
≥17	27.54		85	32.6	162	47.2

\* relative standard error ≥ 40%

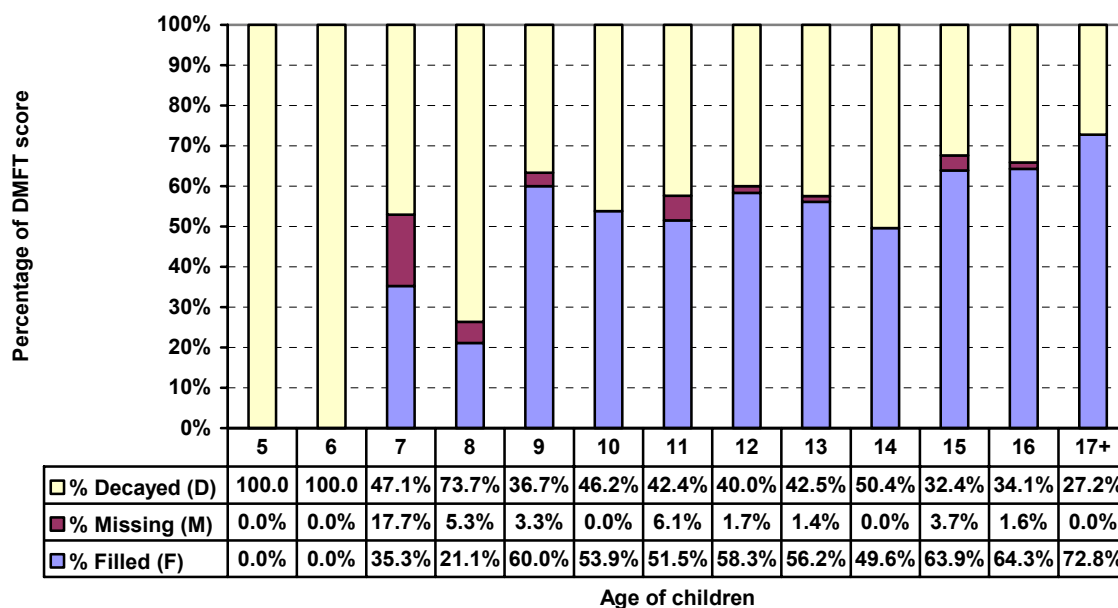


Figure 5: Percentage of DMFT score represented by decayed, missing and filled components

Table 8: Permanent dentition – surface level caries experience by age

Age	Children	Surfaces	Decayed (D)		Missing (M)		Filled (F)		DMFS	
	<i>n</i>	mean	mean	SD	mean	SD	mean	SD	mean	SD
5	57	14.38	0.03*	0.18*	–	–	–	–	0.03*	0.18*
6	184	24.09	0.11	0.47	–	–	0.00	0.06*	0.11	0.49
7	274	38.14	0.09	0.38	0.10*	1.44*	0.10*	0.83*	0.29	1.70
8	244	48.86	0.15	0.60	–	–	0.06	0.27	0.21	0.68
9	309	55.93	0.12	0.47	0.04*	0.75*	0.22	0.83	0.39	1.22
10	261	70.76	0.13	0.42	0.01*	0.19*	0.16	0.60	0.29	0.86
11	277	89.02	0.15	0.62	0.04*	0.49*	0.21	0.69	0.41	1.12
12	256	108.77	0.25	0.65	0.01*	0.19*	0.44	1.17	0.71	1.46
13	254	119.27	0.33	0.86	0.06*	0.89*	0.55	1.27	0.95	1.88
14	279	124.59	0.68	1.75	0.01*	0.26*	0.68	1.31	1.37	2.47
15	261	124.54	0.36	0.87	0.23*	2.01*	0.86	1.68	1.46	2.90
16	201	125.18	0.50	0.96	0.09*	1.16*	1.00	2.06	1.59	2.69
≥17	162	125.75	0.53	1.61	–	–	1.39	2.58	1.91	3.20

\* relative standard error ≥ 40%

## Changes since 1999

There was a decrease in the mean number of decayed permanent teeth across most age groups, with the biggest differences being 29.6% (0.44 to 0.31) and 28.6% (0.49 to 0.35) for 13- and 15-year-olds respectively. Children aged 14 years went against the general trend, experiencing an 81.3% increase, from 0.32 to 0.58 teeth. Decreases were also evident for most age groups in the mean number of filled teeth, with increases occurring for only 3 age groups. Despite decreases in both mean decayed and filled teeth for the majority of the age groups, changes in mean DMFT were inconsistent, with equal numbers of increases and decreases. The biggest decreases occurred for children aged 13, 15 and 17+ (16.1%, 10.7% and 9.7% respectively) while the biggest increase was seen for 14-year-olds (12.8%, from 1.02 to 1.15).

Changes in the percentage of DMFT represented by clinically detectable decay were also consistent between 1999 and 2000 with increases for three of the four oldest age groups but decreases for seven of the eight youngest age groups. The percentages of children with DMFT = 0 were mostly little changed between 1999 and 2000 although children aged 13 years and over demonstrated the largest decreases and a 7.6% increase occurred for children aged 10 years old.

## All teeth

The percentage of children with at least one instance of untreated clinically observable decay in the combined deciduous and permanent dentition ranged from 21.4% of 4-year-olds to 37.5% of children aged 9 years (Table 9). Few children had in excess of 4 clinically detectable decayed teeth, with the highest percentages being in the youngest age groups.

Participants across all ages had few deciduous or permanent teeth missing due to caries ( $m+M = 0$ ). The distribution of the percentage of children with no fillings shows a bimodal distribution, the lowest points being for students aged 10 years and those aged 17 years and older. The decrease in the percentage  $f+F = 0$  to the age of 10 is most likely a result of the exfoliation of filled deciduous teeth and the time lag before the filling of permanent teeth. The percentage of children with neither deciduous or permanent caries experience ( $dmft+DMFT = 0$ ) also declined in the middle age ranges (being 41.6% at age 9), increased to 61.5% for 11-year-olds and declined again for the older children.

## Changes since 1999

Between 1999 and 2000 there were no consistent changes in the percentages of children with  $d+D = 0$ . In relation to  $f+F = 0$ , children aged between 7 and 11 experienced increases while children aged between 12 and 16 showed decreases. There was, however, no clear trend in the percentages of students with  $dmft+DMFT = 0$  across age groups with some groups showing an increased percentage and some a decreased percentage between 1999 and 2000.

**Table 9: All teeth – caries experience by age**

Age	Children	d+D =						m+M = 0	f+F = 0	dmft+ DMFT = 0
		0	1	2	3	4	5+			
	<i>n</i>	%	%	%	%	%	%	%	%	%
≤3	108	75.2	6.6	4.2*	5.4	2.0*	6.6	100.0	99.1	75.2
4	142	78.6	6.9	5.3	1.5*	4.0	3.8*	99.2	90.3	71.1
5	249	70.2	12.1	8.7	3.2	3.4	2.5	97.4	85.9	61.0
6	235	65.8	12.1	8.1	6.3	4.0	3.7	98.1	75.8	54.6
7	280	70.1	11.9	11.6	3.1	1.3*	1.9*	97.2	73.1	57.3
8	245	68.3	13.7	8.4	3.0	2.8	3.7	95.8	65.7	48.3
9	309	62.5	19.4	11.1	5.2	0.8*	1.0*	98.5	60.7	41.6
10	261	71.8	18.6	4.6	2.8	0.8*	1.4*	98.2	59.8	50.2
11	277	78.5	10.6	5.0	4.0	0.8*	1.1*	99.4	71.0	61.5
12	256	75.2	16.3	5.7	2.3	0.4*	0.0	99.7	70.7	54.4
13	254	77.4	16.6	2.6	1.6*	1.5*	0.4*	99.3	69.5	57.0
14	279	72.4	15.9	5.0	3.1	0.6*	2.9	99.7	66.1	49.3
15	261	78.2	13.3	4.8	2.2	1.0*	0.6*	98.5	63.4	48.8
16	201	72.8	13.2	11.1	2.8	0.0	0.0	99.0	60.9	46.5
≥17	162	75.6	14.4	5.2	3.3*	0.6*	1.0*	100.0	59.7	47.2

\* relative standard error ≥ 40%

## Fissure sealants

As can be seen in Table 10, the mean number of fissure sealants increased in a relatively consistent fashion with the increasing age of the children. There was a mean of 0.94 sealants per child among 12-year-olds. Except for 8-year-olds, the prevalence of fissure sealants among those without permanent caries experience (DMFT = 0) was considerably less than among those with some permanent caries experience (DMFT = 1+). This suggests that fissure sealants were being used preferentially in students with past caries experience.

### Changes since 1999

Between the years of 1999 and 2000 there were reductions across almost all age groups in the average number of fissure sealants with increases only for children aged 15 (10.9%) and 17+ (7.3%). The biggest declines occurred for 10-year-olds (25.5%, from 0.98 to 0.73), 12-year-olds (23.6%, from 1.23 to 0.94) and 14-year-olds (16.2%, from 1.67 to 1.40). These changes were due primarily to a decrease in fissure sealants among those children with some caries experience, although reductions were also apparent for seven age groups who had a DMFT score of 0.

**Table 10: Fissure sealants by age**

Age	Children			Children with DMFT = 0		Children with DMFT = 1+	
	<i>n</i>	mean	SD	<i>n</i>	%	<i>n</i>	%
6	235	0.05*	0.34*	224	0.5*	11	6.6
7	280	0.12	0.52	255	4.5	24	21.1
8	245	0.29	0.83	216	13.0	29	13.7
9	309	0.50	1.05	256	21.8	53	27.3
10	261	0.73	1.27	221	28.5	40	50.2
11	277	0.94	1.39	220	34.4	57	48.3
12	256	0.94	1.35	175	33.7	80	57.8
13	254	1.15	1.70	158	33.7	97	62.0
14	279	1.40	1.99	143	31.3	136	57.9
15	261	1.93	2.01	133	46.6	128	79.9
16	201	2.05	2.34	96	53.5	105	63.5
≥17	162	2.22	2.40	76	52.7	85	69.8

\* relative standard error ≥ 40%

## School Dental Service examinations

Table 11 shows that an overwhelming majority of the students had previously been examined within the School Dental Service. The youngest children were the least likely to have had a previous examination. However, by 7 years of age more than 90% of students were found to have had a prior examination.

Table 12 refers to the period of time since the previous School Dental Service examination among children with a previous record of examination. There was a distinct age-related pattern with younger children more likely than older children to have received a previous examination within the last 12 months. This is reflected in the mean time since last visit that increased relatively consistently with age, from 14.55 months for the youngest group to 20.59 months for children aged 17 years or older. Between 61.2% and 84.6% of children in any age group had received their previous School Dental Service examination between 1 and 2 years previously.

### Changes since 1999

The percentage of children having had a previous examination decreased between 1999 and 2000 for a number of age groups. There was also a general trend for children to have had fewer examinations either 7–12 months or 13–18 months previously and to have had more examinations 19–24 months or 25+ months previously.

The impact of these results is seen in an increase in the mean time since last visit for 9 of the 14 age groups of children aged 4 to 17. Increases ranged from 0.29 months for 15-year-olds to 1.88 months for children aged 17 years or older.

**Table 11: School Dental Service examinations by age**

Age (years)	Children	Previous examination in School Dental Service		
		Yes	No	Unknown
	<i>n</i>	%	%	%
≤3	110	19.7	77.8	2.5*
4	149	35.3	62.8	1.9*
5	262	50.7	45.7	3.7
6	264	81.5	14.6	3.9
7	300	92.6	4.6	2.8
8	258	93.6	4.8	1.5*
9	307	92.7	4.0	3.2
10	262	96.1	2.0*	2.0*
11	278	92.5	5.5	2.0
12	254	95.1	3.5	1.4*
13	259	97.1	1.6*	1.3*
14	261	97.3	1.8*	0.8*
15	241	99.1	0.0	0.9*
16	190	96.8	0.0	3.2
≥17	143	97.7	1.7*	0.6*

\* relative standard error ≥ 40%

**Table 12: Time since last School Dental Service examination by age**

Age	Children	0–6	7–12	13–18	19–24	25+	Months since last examination	
		months	months	months	months	months	mean	SD
	<i>n</i>	%	%	%	%	%		
4	49	9.1*	24.6	47.4	13.8	5.1*	14.55	6.11*
5	126	2.5*	23.1	48.6	16.0	9.8	15.82	5.57
6	200	1.7*	25.9	54.4	16.0	1.9*	15.17	4.88
7	262	1.8*	15.6	51.9	25.2	5.4	16.54	4.97
8	224	0.8*	12.9	58.6	21.0	6.7	17.01	4.88
9	268	2.2	14.6	43.9	26.7	12.7	18.09	7.24
10	239	1.1*	13.6	52.0	22.8	10.5	17.84	6.49
11	239	2.4	8.8	52.9	25.1	10.7	18.00	6.30
12	230	2.0*	11.7	48.3	27.7	10.2	18.11	6.36
13	245	1.6*	6.9	55.0	29.4	7.1	17.72	4.63
14	248	0.5*	8.6	39.7	38.3	12.8	19.43	6.44
15	236	0.8*	11.2	40.2	30.7	17.1	19.56	7.47
16	184	3.3	6.8	42.4	30.6	16.9	19.28	6.69
≥17	139	0.0	9.8	33.4	33.9	22.9	20.59	7.27

\* relative standard error ≥ 40%



## Summary of dental disease

Figure 6 presents data contained in Tables 4, 7 and 9 to summarise the extent of dental disease present in the sample for 2000.

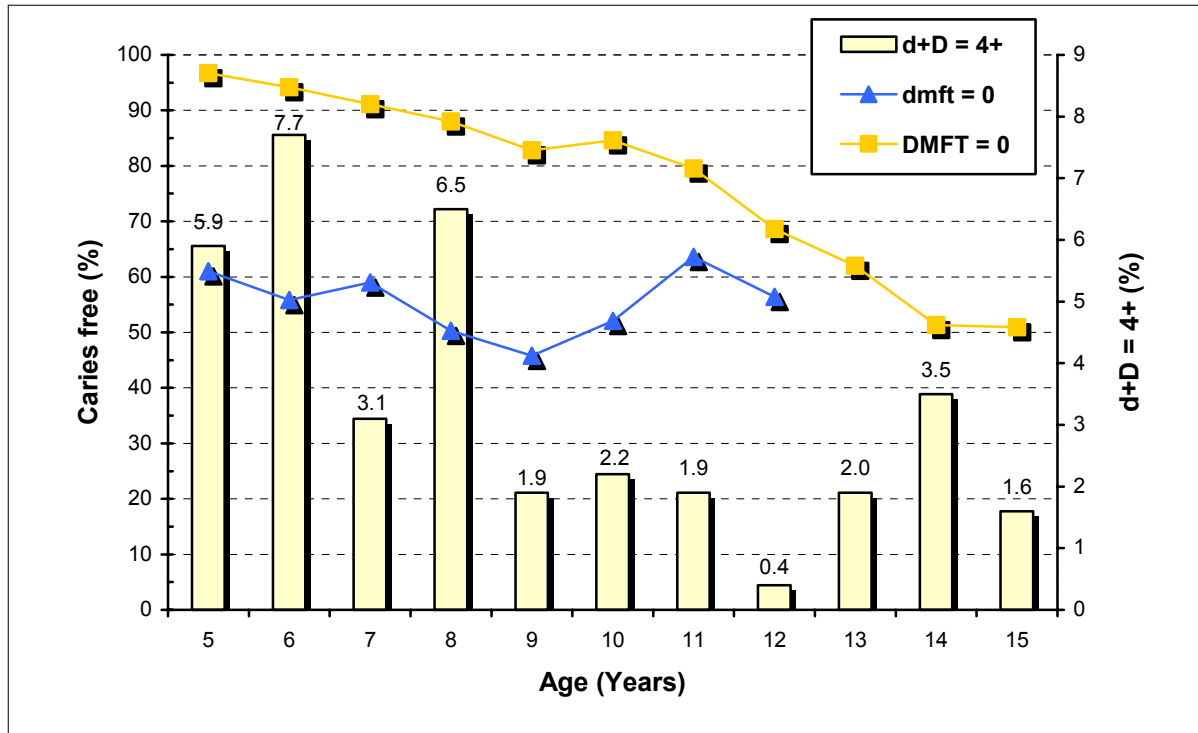


Figure 6: Percentage of children with dmft = 0, DMFT = 0 and d+D = 4+

## Caries experience by geographical location

Table 13 presents caries experience data for each of the Statistical Divisions and Subdivisions used in this report. Considerable variation can be seen in caries experience for both selected age groups across geographical areas. Among 5- and 6-year-old children, mean decay scores in the deciduous dentition ranged from 0.00 in Yorke and Lower North to 1.28 in Northern. It should be noted, however, that the sampled number of children from both Murray Lands and Yorke and Lower North are very small and may therefore not accurately represent the population of children these areas. Excluding these areas, decay scores are lowest in Eastern and Southern Adelaide (0.49 and 0.65 respectively). The mean number of filled teeth was lowest in Eyre (0.08) and highest in Western Adelaide (0.96). Mean dmft scores were lowest in Eastern Adelaide (0.93) and highest in the Northern region (2.48). The percentage of children with dmft = 0 was highest in Southern Adelaide (66.6%) and Western Adelaide (63.5%) and lowest in the Northern (36.5%) region.

**Table 13: Deciduous caries experience for 5–6-year-old children by region**

	Children	Decayed (d)		Missing (m)		Filled (f)		dmft		dmft = 0
	<i>n</i>	mean	SD	mean	SD	mean	SD	mean	SD	%
Adelaide (Northern)	108	0.74	1.29	0.03	0.21	0.82	1.71	1.59	2.30	56.0
Adelaide (Eastern)	41	0.49	0.98	0.05	0.31	0.39	1.16	0.93	1.45	60.3
Adelaide (Southern)	139	0.65	1.41	0.08	0.51	0.71	1.70	1.43	2.53	66.6
Adelaide (Western)	57	0.93	2.21	0.00	0.00	0.96	1.82	1.89	2.99	63.5
Outer Adelaide	38	1.18	2.37	0.03	0.16	0.71	1.64	1.92	2.65	47.8
Yorke & Lower North*	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0
Murray Lands*	7	0.29	0.76	0.00	0.00	0.29	0.76	0.57	1.41	88.2
South East	16	1.19	2.26	0.00	0.00	0.63	1.20	1.81	2.34	46.6
Eyre	12	1.00	2.09	0.00	0.00	0.08	0.29	1.08	2.12	60.0
Northern	69	1.28	1.74	0.11	0.58	0.73	1.63	2.48	2.76	36.4

\* Fewer than 10 cases sampled, results might not be representative

Among 12-year-old children from regions with more than 10 children sampled, the Northern region had the highest mean decay score (0.37) while the Southern Adelaide, Northern Adelaide and Outer Adelaide regions had the lowest scores (Table 14). For filled teeth, the highest mean score was for the Outer Adelaide (1.00) and Northern (0.93) regions and the lowest score in Eastern Adelaide (0.12). Northern and Outer Adelaide also had the highest mean DMFT scores (1.32 and 1.17 respectively) and the lowest percentages of children with DMFT = 0 (53.8% and 41.7% respectively). The lowest mean DMFT score among 12-year-olds was in the South East region (mean = 0.35) while the highest percentage of children with DMFT = 0 was in Eastern Adelaide (82.4%).

**Table 14: Permanent caries experience for 12-year-old children by region**

	Children	Decayed (D)		Missing (M)		Filled (F)		DMFT		DMFT = 0
	<i>n</i>	mean	SD	mean	SD	mean	SD	mean	SD	%
Adelaide (Northern)	55	0.15	0.36	0.00	0.00	0.38	0.93	0.53	0.98	67.3
Adelaide (Eastern)	17	0.29	0.85	0.00	0.00	0.12	0.33	0.41	1.00	82.4
Adelaide (Southern)	56	0.09	0.29	0.00	0.00	0.34	0.79	0.43	0.85	73.2
Adelaide (Western)	29	0.28	0.80	0.00	0.00	0.31	0.71	0.59	1.02	65.5
Outer Adelaide	12	0.17	0.39	0.00	0.00	1.00	1.48	1.17	1.64	41.7
Yorke & Lower North*	8	0.50	0.93	0.00	0.00	0.75	1.16	1.25	1.75	62.5
Murray Lands*	9	0.44	1.01	0.00	0.00	0.33	0.71	0.78	1.39	66.7
South East	17	0.24	0.44	0.00	0.00	0.12	0.49	0.35	0.61	70.6
Eyre*	4	0.50	0.58	0.00	0.00	0.00	0.00	0.50	0.58	50.0
Northern	37	0.37	0.52	0.01	0.08	0.93	1.63	1.32	2.02	53.8

\* Fewer than 10 cases sampled, results might not be representative

# Appendix A

Table 15: Children sampled and total School Dental Service examinations by clinic, 2000

Clinic Name	Clinic ID	SDS Examinations	Children sampled	Percentage
Christies Downs	170	870	67	7.7
Ethelton	78	610	43	7.0
Fulham Gardens	198	1,943	136	7.0
Para Vista	32	1,654	107	6.5
Hallett Cove	208	1,969	123	6.2
Aberfoyle Park	157	2,447	150	6.1
Ridgehaven	36	1,435	86	6.0
Madison Park	40	1,295	72	5.6
Hendon	86	817	44	5.4
Cummins	192	596	32	5.4
Magill	2	1,137	61	5.4
Kadina	124	935	50	5.3
Cowandilla	200	1,558	78	5.0
Southern Vales	174	1,958	98	5.0
Belair	186	391	19	4.9
Darlington	156	970	47	4.8
Para Hills East	30	148	7	4.7
Seaton Park	196	1,630	77	4.7
Peterborough	70	407	19	4.7
Adelaide Hills Mobil	218	1,066	49	4.6
Willsden	54	2,139	98	4.6
Blackwood	184	1,277	58	4.5
Mount Barker	216	2,470	99	4.0
Wandana	8	1,622	64	3.9
Modbury	34	1,748	68	3.9
Maitland	126	807	29	3.6
Para Hills	26	951	34	3.6
Pt Lincoln	188	1,796	61	3.4
East Adelaide	10	1,628	54	3.3
Millicent	138	1,253	39	3.1
Campbelltown	24	1,724	53	3.1
Christies Beach	168	1,911	58	3.0
Airdale	122	966	28	2.9
Pennington	84	1,274	36	2.8
Mt Gambier	140	4,168	117	2.8
Linden Park	182	1,909	53	2.8
Highbury	20	1,018	28	2.8
Elizabeth Vale	108	1,476	38	2.6
Murray Bridge	210	352	9	2.6
Port Pirie West	120	1,062	27	2.5
East Marden	14	128	3	2.3
Salisbury North	106	1,276	29	2.3
Naracoorte	128	1,158	25	2.2
Murray Bridge South	212	1,844	39	2.1
Tailem Bend	214	439	9	2.1
Somerton Park Students	222	4,298	85	2.0
Fleurieu Coast	220	2,425	46	1.9

(continued)

**Table 15 (continued): Children sampled and total School Dental Service examinations by clinic, 2000**

Clinic Name	Clinic ID	SDS Examinations	Children sampled	Percentage
Morphett Vale East	158	2,480	46	1.9
Salisbury North West	110	2,175	39	1.8
Flaxmill	162	1,123	20	1.8
Parafield Gardens	112	2,092	37	1.8
Riverland Mobile	64	626	11	1.8
Smithfield Plains	98	463	8	1.7
Nuriootpa	68	2,041	32	1.6
Mid North Mobile	72	322	5	1.6
Banksia Park	38	2,031	28	1.4
Elizabeth Downs	96	2,835	38	1.3
Scott Street	44	1,586	21	1.3
Berri	62	1,208	15	1.2
Kingston Mobile	136	416	5	1.2
Gepps Cross	88	1,170	14	1.2
Mitcham	176	2,424	28	1.2
Renmark	58	1,364	13	1.0
Mansfield Park	90	1,537	14	0.9
Salisbury	104	1,271	11	0.9
Elizabeth Park	100	707	6	0.8
Prospect	76	2,121	17	0.8
Le Fevre Peninsula	80	1,976	14	0.7
Reynella South	166	2,161	11	0.5
Loxton	60	841	4	0.5
Hackham East	164	1,124	5	0.4
Memorial Oval	48	818	2	0.2
Evanston	94	3,043	7	0.2
Kingscote	194	541	1	0.2
Stirling East	178	1,546	2	0.1
Somerton Park Students	221	973	1	0.1
Klemzig	4	112	0	0.0
Far Nth Mobile	51	187	0	0.0
Clare	66	1,023	0	0.0
Davoren Park	102	615	0	0.0
NA	103	44	0	0.0
Bordertown	132	760	0	0.0
NA	150	504	0	0.0
West Beach	154	267	0	0.0
Clapham	180	1,605	0	0.0
Pt Lincoln South	190	123	0	0.0
NA	191	7	0	0.0
Minda Home	202	223	0	0.0
Regency Park	206	182	0	0.0