



Australian Government

**Australian Institute of
Health and Welfare**

The Child Dental Health Survey, South Australia 2001

AIHW Catalogue No. DEN 135

Dental Statistics & Research Unit
AUSTRALIAN RESEARCH CENTRE
FOR POPULATION ORAL HEALTH

*J. Armfield
K. Roberts-Thomson*

The Australian Institute of Health and Welfare is Australia's national health and welfare statistics and information agency. The Institute's mission is *better health and wellbeing for Australians through better health and welfare statistics and information.*

The AIHW Dental Statistics and Research Unit (DSRU) is a collaborating 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 information on oral health and access to dental care, the practice of dentistry and the dental labour force in Australia.

Suggested citation

Armfield JM, Roberts-Thomson KF (2004). *Child Dental Health Survey, South Australia 2001*. 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.

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
Adelaide University
SOUTH AUSTRALIA 5005

Tel: (08) 8303 4051

Fax: (08) 8303 4858

E-mail: aihw.dsru@adelaide.edu.au

Website: <http://www.adelaide.edu.au/socprev-dent/dsru>
<http://www.arcpoh.adelaide.edu.au>

Board Chairperson

The Hon. Peter Collins AM, QC

Director

Dr Richard Madden

Contents

- Purpose of this report..... 1
- Survey methods 1
- Data preparation..... 1
- Sampling procedure 1
- Data analysis..... 2
- Demographic composition of the sample..... 5
- Deciduous teeth 6
- Permanent teeth 9
- All teeth..... 12
- Fissure sealants 13
- School Dental Service examinations 13
- Caries experience by geographical location..... 15
- Caries experience by sex, indigenous status, insurance and card-holder status,
risk status and country of birth..... 16
- Selected trends, 1997-2001..... 18

List of tables

Table 1: Demographic composition of the sample.....	6
Table 2: Deciduous dentition – tooth level caries experience by age.....	7
Table 3: Deciduous dentition – caries experience indices by age.....	7
Table 4: Deciduous dentition – surface level caries experience by age.....	9
Table 5: Permanent dentition – tooth level caries experience by age.....	10
Table 6: Permanent dentition – caries experience indices by age.....	10
Table 7: Permanent dentition – surface level caries experience by age.....	11
Table 8: All teeth – caries experience by age.....	12
Table 9: Fissure sealants by age.....	13
Table 10: School Dental Service examination by age.....	14
Table 11: Time since last School Dental Service examinations by age.....	14
Table 12: Deciduous caries experience for 5-6-year-old children by region.....	15
Table 13: Permanent caries experience for 12-year-old children by region.....	16
Table 14: 5-6-year-old dmft and 12-year-old DMFT by sex, indigenous status, insurance and card-holder status, risk status and country of birth.....	16
Table 15: Sample size and percentage of total sample by region.....	18

List of figures

Figure 1: South Australian Statistical Districts (ABS, 2000)	3
Figure 2: Subdivisions of Adelaide Statistical Division (ABS, 2000).....	4
Figure 3: Percentage of children in sample and South Australian population by Statistical Division	5
Figure 4: Percentage of dmft score represented by decayed, missing and filled components.....	8
Figure 5: Percentage of DMFT score represented by decayed, missing and filled components.....	11
Figure 6: Mean decayed deciduous teeth for 5–10-year-old children in South Australia from 1997 to 2001	18
Figure 7: Mean missing deciduous teeth for 5–10-year-old children in South Australia from 1998 to 2001	19
Figure 8: Mean filled deciduous teeth for 5–10-year-old children in South Australia from 1998 to 2001	19
Figure 9: Mean decayed, missing and filled deciduous teeth for 5–10-year-old children in South Australia from 1997 to 2001	20
Figure 10: Percentage dmft = 0 for 5–10-year-old children in South Australia from 1997 to 2001.....	20
Figure 11: Mean decayed permanent teeth for 7–15-year-old children in South Australia from 1997 to 2001	21
Figure 12: Mean filled permanent teeth for 7–15-year-old children in South Australia from 1998 to 2001	21
Figure 13: Mean decayed, missing and filled permanent teeth for 7–15-year-old children in South Australia from 1997 to 2001	22
Figure 14: Percentage permanent DMFT = 0 for 7–15-year-old children in South Australia from 1997 to 2001	22
Figure 15: Percentage d+D = 0 for 5–13-year-old children in South Australia from 1997 to 2001.....	23

Figure 16: Percentage $d+D \geq 4$ for 5–13-year-old children in South Australia from 1997 to 2001.....	23
Figure 17: Percentage $f+F = 0$ for 5–13-year-old children in South Australia from 1997 to 2001.....	24
Figure 18: Percentage $dmft+DMFT = 0$ for 5–13-year-old children in South Australia from 1997 to 2001.....	24
Figure 19: Mean fissure sealed teeth for 7–15-year-old children in South Australia from 1997 to 2001	25
Figure 20: Mean time since last visit for 6–15-year-old children in South Australia from 1997 to 2001	25

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
SDS	school dental service

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. The report also provides selected trends, highlighting differences between the years 1997 and 2001. However, no formal hypothesis tests have been undertaken and descriptions of differences between years are intended as a guide to the reader rather than as a formal statistical evaluation.

Survey methods

Data for the Child Dental Health Survey were collected during the 2001 calendar year from patients of the South Australian School Dental Service by dental therapists and dentists. Data items were entered into the EXACT computer management information system (MIS) and subsequently extracted in a de-identified form and provided to the Australian Institute of Health and Welfare (AIHW) Dental Statistics and Research Unit (DSRU) for processing and analysis.

Data preparation

Prior to analysis a check was made for missing, erroneous or duplicate data. Erroneous and duplicate data were eliminated from the data set and children with multiple visits in a year were flagged with all but the first case removed from analyses.

Sampling procedure

In previous South Australian Child Dental Health Surveys, 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. For the current report, data were extracted on all children with examinations during the period April to December 2001. The EXACT MIS was implemented in April, so no data was obtained prior to this date.

Data analyses

All data were weighted by 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 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 2001, as provided by the Australian Bureau of Statistics. 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 postcode of residence of each child.

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 Eastern Adelaide, Outer Adelaide, Murray Lands, Eyre and Northern were weighted up in the analysis (mean weights = 1.31, 1.34, 1.07, 2.17 and 1.03 respectively) while Northern Adelaide, Southern Adelaide, Western Adelaide, Yorke and Lower North, and South East and were weighted down (mean weights = 0.98, 0.90, 0.89, 0.96 and 0.66 respectively).

The purpose of the weighting protocol was to produce estimates that are representative of the population covered by the School Dental Service for 2001. 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 12 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.

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.

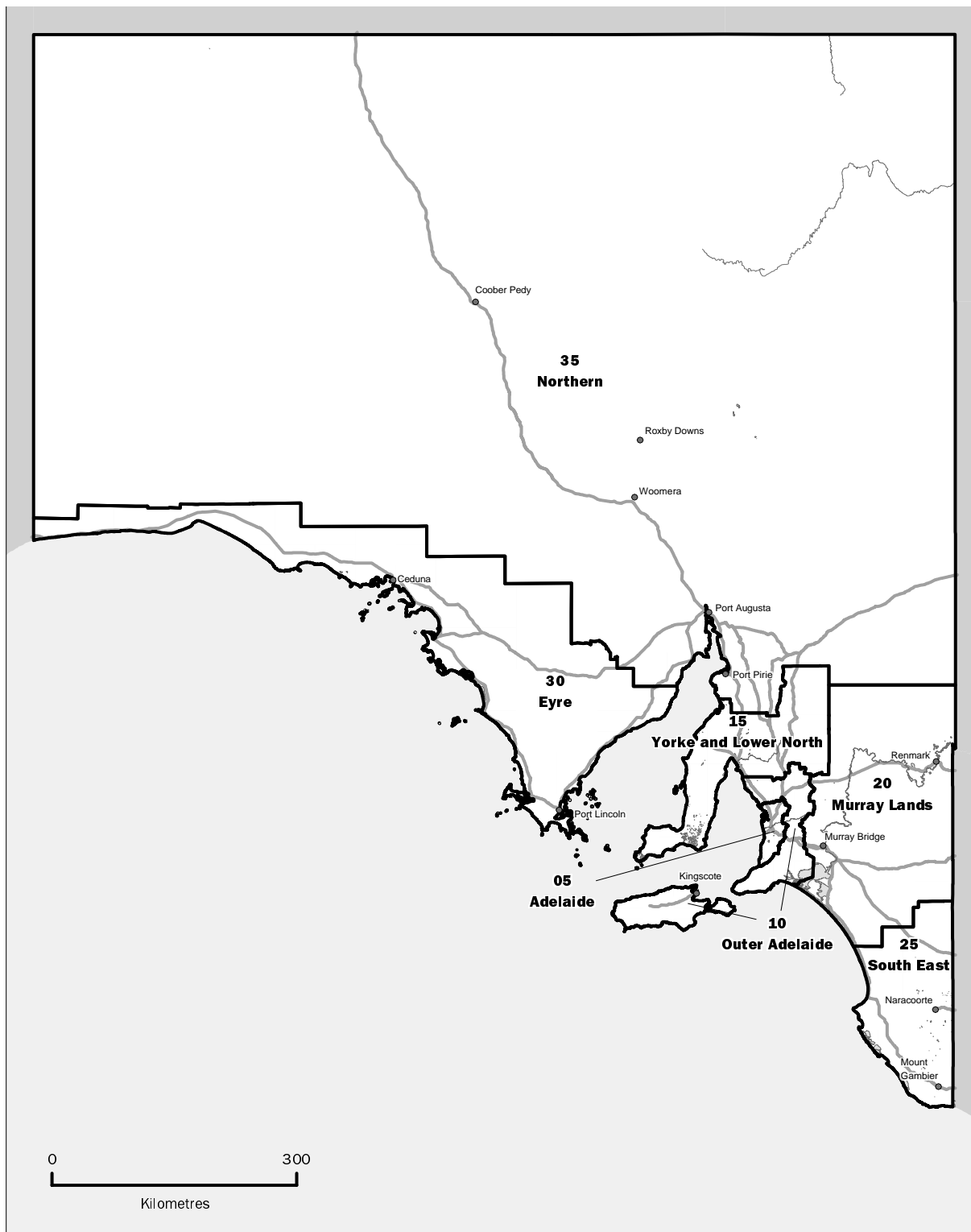


Figure 1: South Australian Statistical Districts (ABS, 2000)

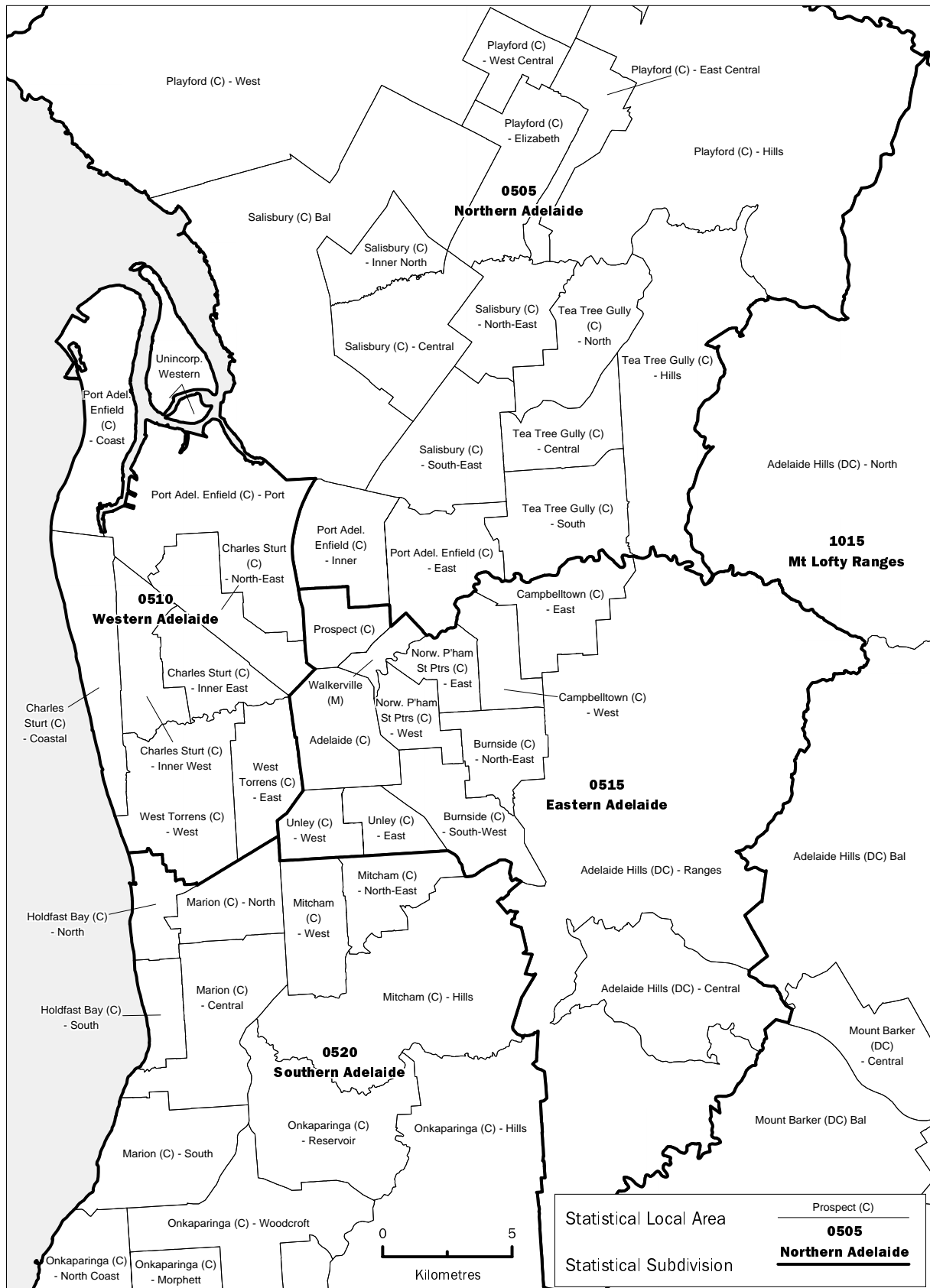
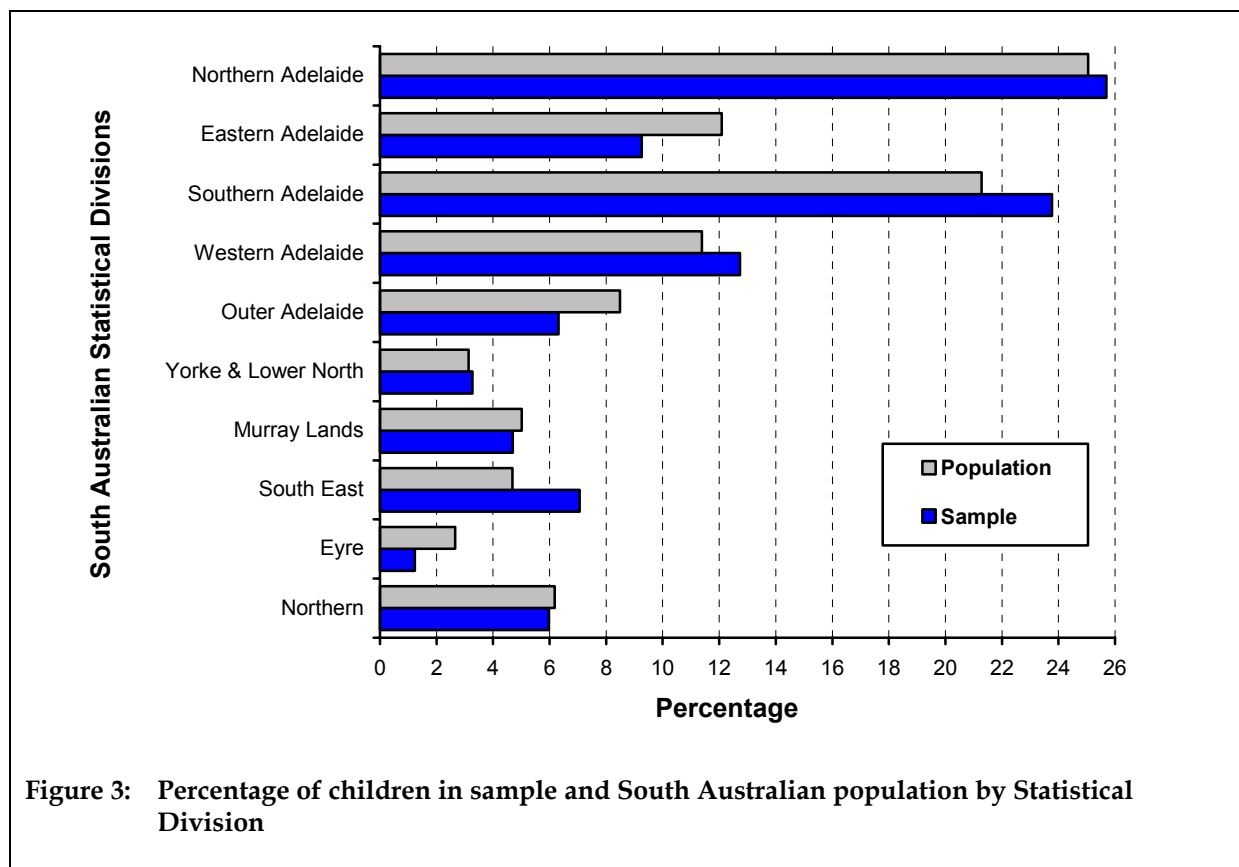


Figure 2: Subdivisions of Adelaide Statistical Division (ABS, 2000)



Demographic composition of the sample

Table 1 lists in the left-hand column the unweighted number of children sampled according to their age. The majority of children were aged 4 years or more (95.7%) with the largest numbers of children in the range 5 to 12 years (67.6%).

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 (e.g., less than 5) may differ on key characteristics and are likely to be less representative of their respective age groups in the SA population.

Males and females were represented in approximately equivalent numbers although more males than females were sampled overall. There was little change in the age distribution for male or female children as a result of weighting.

Table 1: 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>
1	66	62	128	62	64	126
2	335	360	695	327	360	687
3	948	978	1,926	913	964	1,877
4	1,750	1,786	3,536	1,704	1,804	3,507
5	2,613	2,522	5,135	2,588	2,470	5,058
6	2,881	2,732	5,613	2,788	2,662	5,450
7	2,846	2,785	5,631	2,793	2,785	5,578
8	2,896	2,794	5,690	2,846	2,830	5,675
9	2,720	2,676	5,396	2,718	2,657	5,376
10	2,736	2,444	5,180	2,714	2,455	5,169
11	2,596	2,541	5,137	2,595	2,522	5,117
12	2,595	2,499	5,094	2,637	2,550	5,186
13	1,981	1,952	3,933	2,085	1,956	4,042
14	1,593	1,581	3,174	1,616	1,619	3,235
15	1,414	1,396	2,810	1,430	1,433	2,863
16	1,165	1,192	2,357	1,209	1,221	2,430
17	930	1,054	1,984	967	1,080	2,047
Total	32,065	31,354	63,419	31,992	31,431	63,423

Deciduous teeth

For children between 4 and 12 years of age, the mean number of clinically decayed teeth ranged from a high of 0.99 among children aged 4 to a low of 0.23 teeth among children aged 12 years (see Table 2). 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 8 and 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 1.87 for 7-year-old children before declining to 0.77 for 12-year-olds.

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 3 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 86.6% among the youngest children to 31.3% for children aged 12 years. 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.

The percentage of children free of clinically-detectable caries experience (% dmft = 0) also showed a general age-associated reduction from 74.7% of children up to the age of 3 years to 45.6% among 9-year-olds before increasing to 63.4% for 12-year-olds (Table 3).

Table 2: Deciduous 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	
≤3	2,686	19.27	0.88	2.16	0.05	0.56	0.11	0.75	1.05	2.43	
4	3,511	19.81	0.99	2.10	0.07	0.61	0.32	1.15	1.38	2.62	
5	5,066	19.31	0.92	1.86	0.07	0.57	0.49	1.36	1.48	2.55	
6	5,459	17.22	0.76	1.51	0.07	0.62	0.80	1.62	1.63	2.54	
7	5,590	14.36	0.74	1.40	0.06	0.43	1.08	1.78	1.87	2.51	
8	5,688	12.27	0.63	1.18	0.05	0.38	1.17	1.84	1.85	2.41	
9	5,350	10.70	0.55	1.03	0.03	0.26	1.17	1.77	1.75	2.21	
10	4,827	8.57	0.43	0.91	0.03	0.24	0.98	1.58	1.43	1.98	
11	3,903	6.36	0.34	0.81	0.01	0.16	0.77	1.34	1.12	1.69	
12	2,629	4.55	0.23	0.62	0.01	0.14	0.52	1.06	0.77	1.33	

Table 3: 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	19.27	680	86.6	2,686	74.7
4	19.81	1,281	74.8	3,511	63.5
5	19.31	2,068	66.9	5,066	59.2
6	17.22	2,485	51.9	5,459	54.5
7	14.36	2,905	43.2	5,590	48.0
8	12.27	3,016	38.5	5,688	47.0
9	10.70	2,909	35.0	5,350	45.6
10	8.57	2,424	32.4	4,827	49.8
11	6.36	1,739	31.9	3,903	55.4
12	4.55	963	31.3	2,629	63.4

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 mean 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, 46.6% 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 84.6% for the youngest children to 29.9% among 10-year-olds. The percentage of dmft accounted for by filled teeth shows the opposite trend, increasing from 10.6% for children aged up to including 3 years old to 68.8 for 11-year-olds.

The surface level caries experience (see Table 4) shows approximately 65–75% 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 35–45% more clinically decayed surfaces than there were clinically detectable decayed teeth. General trends are similar to those indicated in analyses at the tooth level.

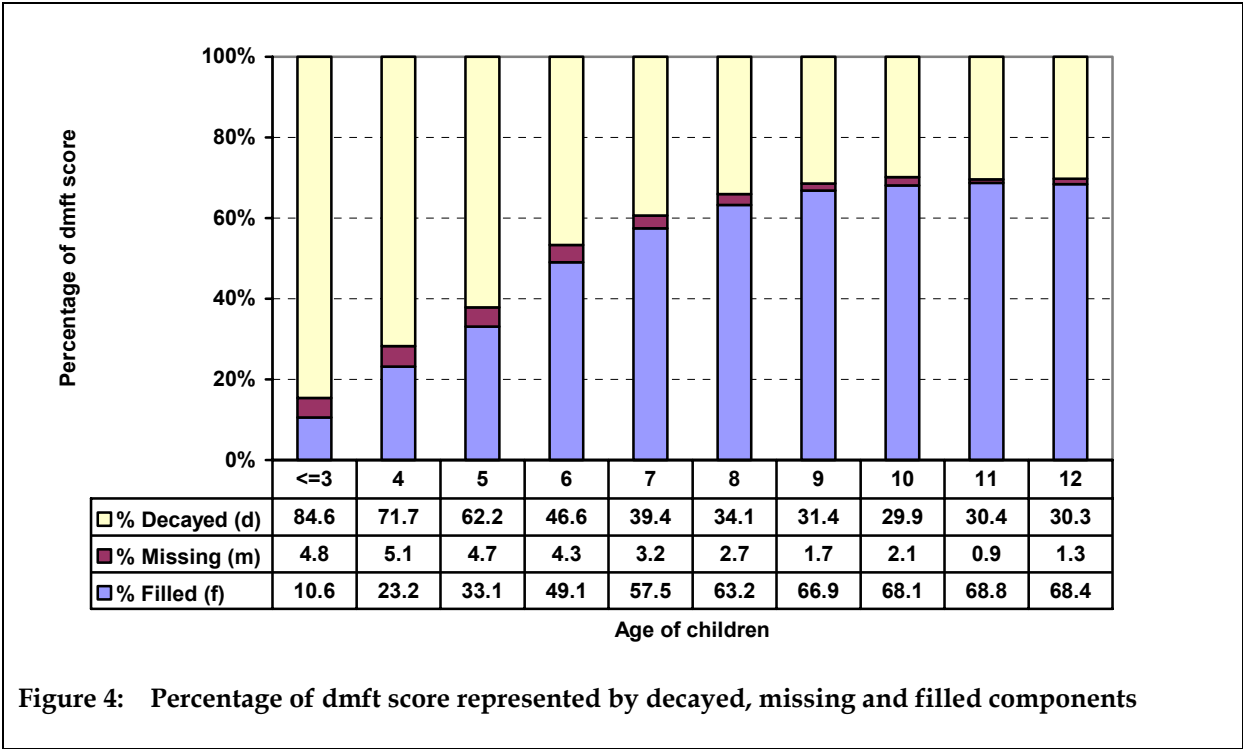


Figure 4: Percentage of dmft score represented by decayed, missing and filled components

Table 4: Deciduous dentition – surface level caries experience by age

Age	Children <i>n</i>	Decayed (d)		Missing (m)		Filled (f)		dmfs	
		mean	SD	mean	SD	mean	SD	mean	SD
≤3	2,686	1.32	3.75	0.21	2.36	0.20	1.48	1.73	5.00
4	3,511	1.41	3.60	0.31	2.67	0.60	2.48	2.33	5.57
5	5,066	1.31	3.11	0.31	2.53	0.83	2.63	2.45	5.31
6	5,459	1.06	2.49	0.34	2.78	1.37	3.24	2.77	5.54
7	5,590	1.05	2.37	0.28	2.01	1.85	3.34	3.19	5.06
8	5,688	0.88	1.87	0.25	1.82	2.05	3.57	3.19	4.87
9	5,350	0.75	1.60	0.16	1.26	2.09	3.49	3.00	4.35
10	4,827	0.57	1.33	0.13	1.19	1.75	3.11	2.45	3.96
11	3,903	0.46	1.17	0.06	0.81	1.37	2.65	1.89	3.25
12	2,629	0.31	0.90	0.05	0.65	0.92	2.00	1.29	2.47

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 5). 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 0.52 for 15-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 0.01 at age 5 to 1.19 for children aged 17 years. The mean DMFT increased with age from a low of 0.03 for 5-year-olds to a high of 1.67 for the oldest age group. The mean DMFT for 12-year-olds was 0.67.

The mean D/DMFT index declined with age, reducing from 81.7% for 6-year-olds to 25.3% for children aged 17 years (Table 6). Approximately 40 percent 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, reducing from 98% for 5-year-olds to 43.1% for 17-year-olds. Approximately two-thirds of 12-year-old children had a DMFT = 0.

Table 5: Permanent 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
5	1,587	3.64	0.02	0.19	0.00	0.02*	0.01	0.17	0.03	0.27
6	4,665	5.66	0.07	0.34	0.00	0.03*	0.02	0.21	0.08	0.42
7	5,517	8.79	0.13	0.47	0.00	0.04*	0.10	0.44	0.23	0.65
8	5,678	11.21	0.15	0.51	0.01*	0.22*	0.19	0.60	0.35	0.85
9	5,391	13.12	0.15	0.49	0.00	0.13*	0.22	0.67	0.37	0.85
10	5,173	16.21	0.15	0.50	0.00	0.11	0.26	0.84	0.42	1.00
11	5,125	20.35	0.20	0.60	0.01	0.10	0.33	0.82	0.54	1.08
12	5,195	24.04	0.26	0.68	0.01	0.20	0.40	0.92	0.67	1.22
13	4,055	26.08	0.35	0.84	0.02	0.27	0.55	1.09	0.92	1.52
14	3,239	27.13	0.42	1.06	0.02	0.25	0.81	1.47	1.26	1.94
15	2,866	27.38	0.52	1.29	0.02	0.32	0.86	1.43	1.40	2.09
16	2,434	27.62	0.44	1.10	0.03	0.32	1.12	1.75	1.60	2.27
17	2,050	27.93	0.43	1.12	0.04	0.40	1.19	1.84	1.67	2.34

* relative standard error $\geq 40\%$

Table 6: 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	3.64	32	72.7	1,587	98.0
6	5.66	250	81.7	4,665	94.6
7	8.79	754	60.9	5,517	86.3
8	11.21	1,112	49.0	5,678	80.4
9	13.12	1,157	43.4	5,391	78.5
10	16.21	1,198	40.5	5,173	76.8
11	20.35	1,422	37.8	5,125	72.3
12	24.04	1,740	40.9	5,195	66.5
13	26.08	1,665	38.7	4,055	58.9
14	27.13	1,533	34.1	3,239	52.7
15	27.38	1,499	35.4	2,866	47.7
16	27.62	1,340	27.9	2,434	45.0
17	27.93	1,167	25.3	2,050	43.1

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 77.8% for 6-year-olds to 25.9% for children aged 17 years (Figure 5). Both the D/DMFT and F/DMFT ratios stayed relatively constant between the ages of 9 and 15.

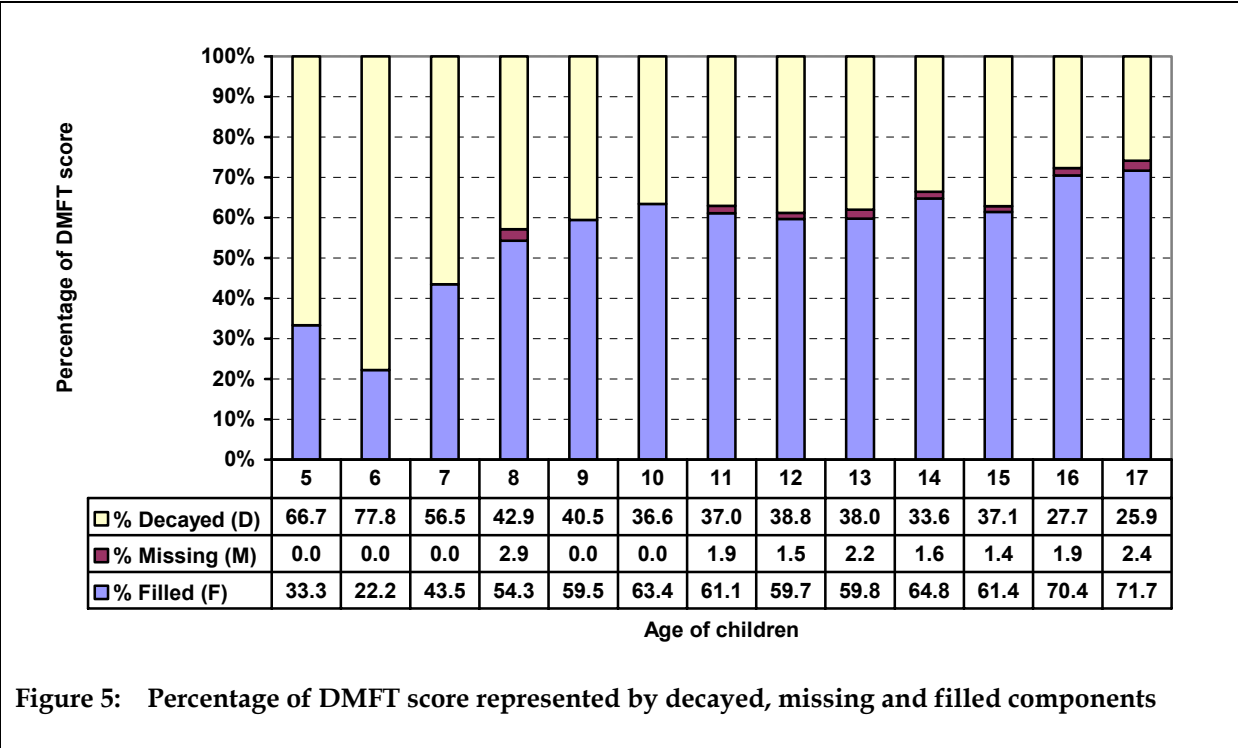


Figure 5: Percentage of DMFT score represented by decayed, missing and filled components

The surface level caries experience in the permanent dentition (see Table 7) shows approximately 25–35% higher caries experience (DMFS) than that shown in the tooth level analyses. There were approximately 10–20% more clinically decayed surfaces than there were clinically detectable decayed teeth.

Table 7: Permanent dentition – surface level caries experience by age

Age	Children	Decayed (D)		Missing (M)		Filled (F)		DMFS	
	<i>n</i>	mean	SD	mean	SD	mean	SD	mean	SD
5	1,587	0.02	0.20	0.00	0.10*	0.02*	0.30*	0.04	0.39
6	4,665	0.07	0.41	0.00	0.12*	0.03	0.40	0.10	0.60
7	5,517	0.15	0.57	0.01*	0.18*	0.14	0.69	0.29	0.93
8	5,678	0.19	0.67	0.03*	1.05*	0.23	0.80	0.45	1.57
9	5,391	0.17	0.61	0.02*	0.61*	0.28	0.89	0.47	1.29
10	5,173	0.17	0.61	0.02	0.52	0.33	1.10	0.53	1.40
11	5,125	0.23	0.76	0.03	0.51	0.43	1.18	0.69	1.61
12	5,195	0.29	0.82	0.07	1.02	0.54	1.34	0.90	1.99
13	4,055	0.39	1.01	0.11	1.36	0.72	1.51	1.22	2.46
14	3,239	0.49	1.50	0.12	1.25	1.08	1.98	1.70	3.04
15	2,866	0.60	1.66	0.12	1.52	1.18	2.09	1.90	3.41
16	2,434	0.53	1.74	0.17	1.58	1.55	2.73	2.25	4.02
17	2,050	0.50	1.46	0.22	1.97	1.59	2.63	2.31	3.98

* relative standard error \geq 40%

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 22.9% of children up to age 3 to 38.1% of children aged 7 years (Table 8). Relatively 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 9 years and those aged 17 years. 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 40.1% at age 9), increased to 55.5% for 12-year-olds and declined again for the older children.

Table 8: All teeth - caries experience by age

Age	Children <i>n</i>	d+D =						m+M = 0	f+F = 0	dmft+ DMFT = 0
		0	1	2	3	4	5+			
≤3	2,696	77.1	5.4	4.5	3.2	2.8	7.1	98.6	95.9	74.5
4	3,517	68.8	10.4	6.7	4.1	3.4	6.6	98.1	87.7	63.4
5	5,072	67.3	11.9	7.4	4.3	3.2	5.8	97.5	82.2	59.0
6	5,467	66.0	14.3	8.1	4.8	2.9	4.0	97.2	70.8	53.2
7	5,593	61.9	16.6	10.2	5.0	2.7	3.6	96.8	60.4	44.4
8	5,691	62.0	18.1	9.3	5.3	2.5	2.7	96.9	56.5	42.1
9	5,395	64.9	17.2	9.4	4.3	2.3	1.9	97.6	53.1	40.1
10	5,178	70.0	15.8	8.3	3.1	1.6	1.2	98.2	55.9	44.3
11	5,129	74.0	14.9	6.1	2.7	1.3	1.0	98.7	61.1	50.2
12	5,198	76.9	14.1	5.7	2.1	0.8	0.3	98.7	67.6	55.5
13	4,058	76.8	13.7	5.6	2.2	1.2	0.6	98.8	66.0	53.9
14	3,239	75.7	14.8	5.1	2.3	1.0	1.1	98.5	62.0	51.0
15	2,867	73.6	15.1	5.8	2.5	1.3	1.8	98.7	59.4	46.9
16	2,436	75.7	13.7	5.9	2.7	0.9	1.1	98.5	53.7	44.6
17	2,051	76.7	13.9	5.2	1.6	1.2	1.5	98.3	51.1	42.3

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 1.20 sealants per child among 12-year-olds. For all age groups 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.

Table 9: 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	5,467	0.02	0.23	5,218	0.9	250	7.8
7	5,593	0.17	0.65	4,839	4.7	754	27.5
8	5,691	0.37	0.96	4,579	12.4	1,112	28.6
9	5,395	0.59	1.18	4,238	19.8	1,157	40.6
10	5,178	0.81	1.35	3,979	26.5	1,198	48.9
11	5,129	1.00	1.48	3,707	31.8	1,422	56.0
12	5,198	1.20	1.62	3,458	35.3	1,740	62.2
13	4,058	1.41	1.77	2,393	39.3	1,665	66.1
14	3,239	1.79	2.10	1,705	42.3	1,533	71.5
15	2,867	2.05	2.34	1,368	46.7	1,499	70.4
16	2,436	2.35	2.42	1,096	50.1	1,340	77.2
17	2,051	2.62	2.58	884	50.0	1,167	80.9

School Dental Service examinations

Due to the adoption of the EXACT computer management information system, information on previous dental visits was not available for most children in the South Australian SDS for 2001. Information on last examination was only obtained for between 7% and 28% of any given age group (Table 11).

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 an 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 12.19 months for the youngest group to over 20 months for children aged 15 years or older.

Table 10: School Dental Service examinations by age

Age (years)	Children	Previous examination in School Dental Service	
		Yes	Unknown
	<i>n</i>	%	%
≤3	4,105	7.4	92.6
4	5,500	12.2	87.8
5	8,076	16.8	83.2
6	8,036	25.2	74.8
7	8,347	27.3	72.7
8	8,358	27.5	72.5
9	8,099	27.5	72.5
10	7,922	26.8	73.2
11	7,527	26.0	74.0
12	7,024	27.2	72.8
13	5,292	27.3	72.7
14	4,730	25.4	74.6
15	3,969	23.6	76.4
16	3,404	22.5	77.5
17	2,804	25.2	74.8

Table 11: Time since last School Dental Service examination by age

Age	Children	0–6 months	7–12 months	13–18 months	19–24 months	25+ months	Months since last examination	
		%	%	%	%	%	mean	SD
4	306	15.3	32.0	43.1	9.0	0.6	12.19	5.48
5	671	13.8	29.8	48.0	7.5	0.9	13.48	32.72
6	1,354	14.1	31.3	46.6	6.5	1.5	12.55	6.15
7	2,024	16.1	29.7	43.7	7.7	2.7	12.94	7.79
8	2,278	15.9	29.4	45.2	6.1	3.4	13.27	9.29
9	2,297	17.2	28.4	44.5	6.4	3.5	13.67	11.14
10	2,220	16.9	26.4	45.7	7.8	3.2	13.82	11.33
11	2,119	17.2	25.2	45.8	8.2	3.6	14.43	13.68
12	1,950	17.3	24.5	43.9	9.4	4.7	16.97	37.51
13	1,908	15.2	24.1	47.8	9.7	3.2	15.33	16.85
14	1,441	14.3	25.0	44.5	11.4	4.9	17.45	22.32
15	1,199	12.2	21.1	45.9	14.7	6.2	20.28	27.85
16	937	12.5	21.4	45.8	14.4	5.8	20.14	28.81
17	765	11.5	22.3	45.8	14.9	5.4	20.13	30.10

Caries experience by geographical location

Tables 12 and 13 present 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 0.54 in Eastern Adelaide to 2.13 in Eyre (Table 12). The mean number of filled teeth was lowest in Eastern Adelaide (0.49) and highest in Yorke and Lower North (1.11). Mean dmft scores were lowest in Eastern Adelaide (1.06) and highest in the Eyre region (2.77). The percentage of children with dmft = 0 was highest in Eastern Adelaide (65.2%) and lowest in the Eyre (31.8%) and Murray Lands (38.5%) regions.

Table 12: 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)	2,823	0.81	1.66	0.11	0.71	0.61	1.46	1.53	2.60	57.1
Adelaide (Eastern)	1,238	0.54	1.20	0.03	0.49	0.49	1.29	1.06	1.97	65.2
Adelaide (Southern)	2,219	0.65	1.49	0.04	0.38	0.56	1.40	1.26	2.25	61.9
Adelaide (Western)	1,211	0.80	1.79	0.09	0.71	0.68	1.61	1.57	2.77	60.9
Outer Adelaide	785	0.89	1.68	0.07	0.55	0.75	1.68	1.70	2.62	52.6
Yorke & Lower North	316	1.00	1.70	0.17	1.08	1.11	1.87	2.28	3.00	46.4
Murray Lands	555	1.34	2.05	0.05	0.45	1.03	1.82	2.42	2.79	38.5
South East	499	0.95	1.77	0.06	0.77	0.94	1.76	1.95	2.84	51.2
Eyre	239	2.13	2.72	0.03	0.29	0.62	1.31	2.77	3.11	31.8
Northern	672	1.07	1.75	0.04	0.35	0.77	1.62	1.88	2.54	47.8

Among 12-year-old children the Northern, York and Lower North and Murray Lands regions had the highest mean decay scores (0.41, 0.41 and 0.40 respectively) while the Eastern Adelaide (mean = 0.17) and Southern Adelaide (mean = 0.17) regions had the lowest scores (Table 13). For filled teeth, the highest mean score was for the South East (0.59) and the lowest score in Eyre (0.18). South East and Murray Lands had the highest mean DMFT scores (0.97 and 0.91 respectively) and the lowest percentages of children with DMFT = 0 (56.1% and 57.9% respectively). The lowest mean DMFT score among 12-year-olds was in the Southern Adelaide and Eastern Adelaide regions (means = 0.52 and 0.53 respectively) while the highest percentage of children with DMFT = 0 was in Eastern Adelaide (73.8%).

Table 13: 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)	1,315	0.22	0.61	0.02	0.21	0.37	0.90	0.61	1.17	68.0
Adelaide (Eastern)	687	0.17	0.53	0.02	0.28	0.33	0.81	0.53	1.06	73.8
Adelaide (Southern)	1,051	0.17	0.51	0.02	0.22	0.33	0.83	0.52	1.04	72.6
Adelaide (Western)	591	0.31	0.76	0.02	0.29	0.40	0.89	0.73	1.32	64.8
Outer Adelaide	445	0.36	0.93	0.01	0.12	0.44	0.93	0.81	1.44	62.5
Yorke & Lower North	143	0.41	0.82	0.00	0.00	0.42	0.93	0.83	1.30	61.1
Murray Lands	256	0.40	0.87	0.00	0.00	0.50	0.91	0.91	1.36	57.9
South East	203	0.36	0.80	0.02	0.26	0.59	1.09	0.97	1.50	56.1
Eyre	148	0.26	0.59	0.00	0.00	0.18	0.49	0.44	0.78	69.1
Northern	291	0.41	0.80	0.01	0.17	0.32	0.66	0.74	1.11	58.4

Caries experience by sex, indigenous status, insurance and card-holder status, risk status and country of birth

Caries experience for both 5–6-year-old children and 12-year-old children is presented by sex of the child, Indigenous status, insurance status, card-holder type, risk status and the child's country of birth in Table 14. In the deciduous dentition, males had a dmft score 11.3% higher than females, while the opposite trend occurred in the permanent dentition with females having higher caries experience (11.1% higher DMFT) than males in the corresponding age range of 12 years.

Indigenous children were deemed to comprise children who were identified as being of Aboriginal, Torres Strait Islander or South Sea Islander descent. These children had considerably more caries experience than non-Indigenous children, being 100.6% higher for 5–6-year-olds and 59.7% higher for 12-year-olds.

Children covered by a health care card or pensioner card had higher caries experience in the deciduous dentitions than did children without cover. This difference was not so marked in the permanent dentition however, where 12-year-old children covered by a pensioner concession card had a mean DMFT score only 4.5% higher than non-card holding children in this age group and children with a health care card had lower caries experience than non-cardholders. A similar trend can be observed in relation to insurance status, with 5–6-year-old children with no insurance having 53.3% more deciduous caries experience than children with insurance, but the difference being only 8.2% for permanent caries experience among 12-year-olds.

The South Australian SDS assigns risk status to children within the service and this is related to designated recall intervals for dental examinations. Considerable differences in disease experience existed between children assigned to low, medium or high risk.

Considerable differences are evident in the caries experience of children born in different regions of the world. For 5–6-year-olds caries experience was lowest for children from Northern America, with children born in Australia having the second lowest caries

experience. The highest mean dmft occurred for children born in North Africa and Middle East, any Asian region, Southern and Eastern Europe and Other Americas. The highest DMFT occurred for Southern and Eastern Europe, Other Americas and, North Africa and Middle East. In the deciduous dentition, mean dmft of those children born in Asia (mean = 4.63) was approximately 3 times higher than that of children born in Australia (mean = 1.57). Among 12-year-olds the mean DMFT score of children born in Southern and Eastern Europe (mean = 1.81) was also approximately 3 times higher than the caries experience of children born in Australia (mean = 0.64).

Table 14: 5–6-year-old dmft and 12-year-old DMFT by sex, indigenous status, insurance and card-holder status, risk status and country of birth (unweighted)

Age	5-6-year-old dmft			12-year-old DMFT		
	<i>n</i>	mean	SD	<i>n</i>	mean	SD
Sex						
Male	5,533	1.67	2.67	2,604	0.62	1.14
Female	5,286	1.50	2.46	2,506	0.70	1.27
Indigenous status						
Non-Indigenous	7,617	1.57	2.57	3,773	0.65	1.18
Indigenous	183	3.15	3.12	102	1.07	1.40
Unspecified	3,053	1.51	2.50	1,245	0.67	1.25
Insurance status						
No insurance	9,836	1.64	2.61	4,627	0.66	1.22
Insurance	1,017	1.07	2.03	493	0.61	1.12
Card status						
Non Card Holder	10,225	1.58	2.57	4,576	0.66	1.20
Health Care Card	379	1.66	2.53	311	0.59	1.11
Pensioner Card	247	1.78	2.71	230	0.69	1.41
Other	2	3.00	4.24	3	0.67	0.58
Risk						
Low	1,228	0.07	0.37	1,435	0.20	0.67
Medium	6,567	0.67	1.37	3,191	0.68	1.12
High	2,894	4.31	3.12	443	1.99	1.88
Unspecified	164	1.37	2.80	51	0.94	1.82
Country of Birth						
Australia	8,082	1.57	2.53	3,976	0.64	1.16
New Zealand and Other Oceania	25	2.00	2.68	17	0.71	1.16
North-West Europe	56	2.29	3.52	44	0.41	0.90
Southern and Eastern Europe	42	4.02	3.47	43	1.81	1.97
North Africa and Middle East	16	5.19	4.21	13	1.69	1.98
South-East Asia	29	4.24	4.14	36	1.36	2.18
North-East Asia	12	5.17	6.15	8	0.00	0.00
Southern and Central Asia	13	5.00	4.81	11	0.73	1.10
Northern America	11	0.18	0.60	8	0.63	1.41
Other Americas	6	3.83	4.36	4	1.75	2.06
Sub-Saharan Africa	28	2.79	3.28	9	0.89	2.03
Not Known	2,498	1.46	2.49	940	0.65	1.27

Selected trends, 1997–2001

Presented below is a table and a series of figures of selected 5-year trends across the period 1991–2001. Trends are proved for sample size, deciduous and permanent caries experience, fissure sealants and time since last visit.

Table 15: Sample size and percentage of total sample by region, 1998–2001

Region	1998		1999		2000		2001	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Adelaide (Northern)	855	23.6	689	20.4	720	20.5	16142	25.7
Adelaide (Eastern)	278	7.7	262	7.8	242	6.9	5818	9.3
Adelaide (Southern)	966	26.7	891	26.4	817	23.2	14938	23.8
Adelaide (Western)	430	11.9	515	15.3	440	12.5	8000	12.7
Outer Adelaide	189	5.2	190	5.6	228	6.5	3971	6.3
Yorke & Lower North	138	3.8	80	2.4	78	2.2	2057	3.3
Murray Lands	210	5.8	199	5.9	99	2.8	2954	4.7
South East	136	3.8	241	7.1	185	5.3	4435	7.1
Eyre	188	5.2	116	3.4	92	2.6	771	1.2
Northern	227	6.3	189	5.6	618	17.6	3756	6.0
<i>Total</i>	<i>3617</i>	<i>100.0</i>	<i>3372</i>	<i>100.0</i>	<i>3519</i>	<i>100.0</i>	<i>62842</i>	<i>100.0</i>

