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Fissure sealant use among children attending school dental services

Child Dental Health Survey Australia 2008

N Amarasena, DH Ha

THE UNIVERSITY of ADELAIDE

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Authoritative information and statistics
to promote better health and wellbeing

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Contents

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Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
CDHS	Child Dental Health Survey
CI	confidence interval
d	deciduous decayed teeth
D	permanent decayed teeth
dmft	deciduous decayed, missing (due to decay) and filled teeth
DMFT	permanent decayed, missing (due to decay) and filled teeth
ERP	estimated resident population
f	deciduous filled teeth
F	permanent filled teeth
m	deciduous teeth missing due to decay
M	permanent teeth missing due to decay
n	number
SDS	school dental service
SiC	Significant Caries Index. The SiC Index is calculated by taking the mean DMFT of the one-third of individuals having the highest DMFT values in a given population.
SiC^{10}	Significant Caries Index (10%). The SiC^{10} Index is calculated by taking the mean DMFT of the 10% of individuals having the highest DMFT values in a given population.
WHO	World Health Organization

Places

Qld	Queensland
WA	Western Australia
SA	South Australia
Tas	Tasmania
ACT	Australian Capital Territory
NT	Northern Territory

Symbols

–	nil or rounded to zero

Summary

This publication reports on the oral health, including dental decay experience and use of fissure sealants, of Australian children examined by school dental service (SDS) staff in 2008. The findings are drawn from the 2008 Child Dental Health Survey (CDHS), from which the data of 63,870 children aged 6–12 from all states and territories, except New South Wales and Victoria, were extracted and analysed.

Deciduous teeth

Approximately 52% of children aged 6 had experienced decay in deciduous (baby) teeth, with 1 or more decayed, missing and filled deciduous teeth (dmft).

On average, children aged 6 had more than 2 dmft.

The 10% of children aged 6 who had the most extensive history of deciduous tooth decay had almost 10 deciduous teeth affected. This was more than 4 times the average at age 6.

Permanent teeth

Among 12-year-old children, 45.3% had experienced decay in their permanent teeth with 1 or more decayed, missing and filled permanent teeth (DMFT).

On average, 12-year-old children had just over 1 affected tooth (mean DMFT = 1.11).

The 10% of children aged 12 who had the most extensive history of permanent tooth decay had 5.03 permanent teeth affected—this was almost 5 times the average at age 12.

Fissure sealants

There was an association between age and fissure sealant use—the mean number of fissure sealed teeth was 0.1 at age 6, and 0.8 at age 12.

From 1989 to 2001, the average number of fissure sealed teeth in 12-year-olds increased threefold. Thereafter use decreased.

A higher proportion of children with teeth decay had fissure sealants than those without decay.

Despite the use of fissure sealants decreasing since 2001, there has been an increasing tendency to provide fissure sealants to children who are at risk of decay. Given that an account of preventive treatment data except for fissure sealants is not available in the CDHS, fissure sealant use can be considered as an indicator of preventive care.

1 Introduction

This report describes the patterns of oral health and service provision relating to children's dental health in Australia in 2008. It also focuses on fissure sealant use among children attending a School Dental Service (SDS) in 2008 and the trends in fissure sealant use in Australia between 1989 and 2008. Fissure sealants are materials that are applied to the pits and fissure surfaces of the teeth by dental professionals. They protect teeth from decay by creating a thin barrier that protects the sealed surface from the bacteria that cause decay. In the absence of information regarding the provision of preventive treatments (treatment data is not routinely collected in the Child Dental Health Survey (CDHS)), the provision of fissure sealants is used as an indicator of preventive care provided to children attending an SDS.

This report brings together data collected by most state and territory school dental services on the oral health of children examined by staff of those services. It provides policy makers and health planners, as well as academics and interested readers, with a summary of the available data on dental decay among children attending an SDS in Australia. The Indigenous status of respondents is collected by some states and territories; however, it does not have a sufficient sample to produce estimates for each individual age group.

The dental health of children receiving care in an SDS has been monitored since 1977. Between 1977 and 1988, the monitoring was managed centrally by the (then) Commonwealth Department of Health as an evaluation of the Australian School Dental Scheme. In 1989, responsibility for collecting national data was transferred to the Australian Institute of Health and Welfare Dental Statistics and Research Unit at the University of Adelaide, where monitoring is undertaken using the CDHS.

1.1 What is dental decay (caries)?

Dental caries, also known as dental decay or tooth decay, is one of the most common chronic diseases worldwide. In Australia, almost half of the children have experienced decay by the age of 6 (Mejia et al. 2012) and individuals remain susceptible to tooth decay throughout their life.

Dental decay develops as a result of a complex interaction between acid-producing bacteria and fermentable carbohydrates (sugars and other carbohydrates from food and drink that can be fermented by bacteria), as well as many host factors including teeth condition and saliva. Dental decay is characterised by the loss of mineral ions from the tooth (demineralisation), stimulated largely by the presence of bacteria and their by-products (Mount & Hume 2005). Remineralisation occurs when partly dissolved crystals are induced to grow by the redepositing of minerals via saliva. Normally, a balance occurs between the demineralisation and remineralisation of the tooth surface (enamel). However, this balance is disturbed under some conditions, and the subsequent chronic demineralisation leads to the formation of holes or cavities in the tooth surface. Cavitation beyond the outer enamel covering of the tooth into the tissues can lead to a bacterial infection, which may cause considerable pain and require surgery or the removal of the tooth.

Dental decay occurs along a continuum reflecting the extent of tooth demineralisation. At an early stage, precavitated or 'white-spot' lesions are restricted to the outer enamel surface of the tooth, and may be characterised by a loss of normal translucency of the enamel and

increased fragility of the surface layer. These precavitated lesions are not normally included as an instance of disease experience. However, when demineralisation progresses through the enamel surface of the tooth into the underlying dentine, causing breakdown of enamel surface and cavitation, this is counted as disease. It is possible to halt the progress of decay at any stage by sealing the cavity and isolating the responsible bacteria from their food source. However, failure to access timely treatment may lead to further damage and the need to remove the tooth.

Dental decay is estimated to affect up to five million people in Australia each year. Untreated dental decay afflicts about a quarter of all adults in any given year (Roberts-Thomson & Do 2007) and can lead to hospital admission (Jamieson & Roberts-Thomson 2008). Dental extractions and restorations are the most common reasons for hospital separations among children (AIHW 2006). Although dental decay is associated only rarely with mortality, it is a cause of considerable morbidity (Spencer & Lewis 1988). Consequences of dental decay include pain, problems associated with eating or drinking, loss of sleep, social embarrassment and time lost to work (Spencer & Lewis 1988). Dental decay resulting in tooth loss impacts on both chewing ability and quality of life (Brennan et al. 2008).

Teeth that have been filled or are missing due to decay represent an individual's past history of tooth decay. While these teeth have previously had decay, they no longer have active decay but can be described as 'affected by decay'. A person with any teeth affected by decay is described as having had 'decay experience'. Knowing about the extent of decay experience is useful because individuals with filled teeth will likely require future dental work on those teeth, replacing fillings over time. Having teeth missing due to decay indicates that timely dental care was not received to fill those teeth before the decay became so extensive that a filling was not feasible. In addition, the accumulation of missing teeth is associated with more oral health impacts and a worse subjective rating of oral health (Gerritsen et al. 2010). A person who has no history of decay in teeth that should be present is described as 'caries free'. A person is described as 'having dental decay or untreated decay' when they have at least 1 tooth that is currently decayed and in need of a filling.

1.2 Risk and protective factors for dental decay

Dental decay is characterised by chronic demineralisation of the structure of the tooth. The five factors found to exert the strongest influence on dental decay are:

- frequency of carbohydrate intake, which allows bacteria in the plaque to produce concentrations of organic acids that can dissolve the tooth
- accumulation and retention of plaque, a potential breeding ground for acid-producing bacteria
- frequency of exposure to dietary acids in addition to the bacterial acids
- exposure to fluoride and some other trace elements, which help in controlling the development of decay
- natural protective factors such as saliva, which may help prevent or limit the progress of decay (Mount & Hume 2005).

Plaque, a semitransparent layer that adheres to the tooth surface, forms on all teeth and contains many pathogenic organisms including bacteria. Tooth brushing and/or the use of chemical solutions capable of killing the acid-causing bacteria can reduce plaque. The frequency of exposure to fermentable carbohydrates such as sugar, which is related to the pattern of consumption of certain foods and beverages, is the most significant risk factor for dental decay.

Behavioural risk factors for dental decay relate to the five risk and protective factors listed above. These include substandard tooth cleaning; poor diet involving high exposure to acidic food stuffs and fermentable carbohydrates such as sugars; and limited exposure to fluoride available in toothpastes, fluoridated public water or other sources (Mount & Hume 2005).

1.3 Dental decay prevention

Decline in the prevalence and severity of dental decay over the past three decades points to a substantial improvement in the oral health of Australian children (Armfield & Spencer 2008). The susceptibility of children to dental decay has been reduced by systematic exposure to fluorides, better nutrition, rising material standards of living and better access to dental care. In conjunction with the use of fluoride in public water supplies, as well as products such as mouthwash, toothpaste and fluoride supplements, professional decay preventive techniques are available that can considerably reduce children's experience of decay. There is a growing body of research evidence with respect to the effectiveness of preventive methods that can be applied easily in dental practices. For example, systematic reviews have been published for fluoride gel, fluoride varnish, chlorhexidine, fissure sealants and dental health education (Ahovuo-Saloranta et al. 2008).

In the absence of information regarding the provision of preventive treatments (treatment data is not routinely collected in the CDHS), the provision of fissure sealants is used as an indicator of preventive care provided to children attending an SDS.

1.4 Measuring dental decay

Children begin losing their baby or deciduous teeth from the age of about 5 or 6. Most children would have lost all their baby teeth and gained their permanent teeth by the time they are about 12 (with the exception of wisdom teeth, which may erupt several years, or even decades, later). Therefore, analyses of dental decay in teenage children report only the level of disease in permanent teeth. Children aged from 5 to 12 generally have a mixture of deciduous and permanent teeth, or mixed dentition. The convention is to report on these two sets of teeth separately. However, this report also looks at the decay experience for each age group in the combined deciduous and permanent dentition, as this gives a better picture of total decay experience for each age group.

The dental health status of children sampled covers the following three areas:

- deciduous decay experience, which is recorded as the number of baby teeth that are decayed, missing and filled because of dental decay (dmft for deciduous teeth), based on the coding scheme of Palmer et al. (1984). Decay refers to cavities usually detected clinically using visual and/or tactile criteria, although X-rays may be used in some instances. Deciduous dmft was calculated for children aged 5–10
- permanent decay experience, which is recorded as the number of adult teeth that are decayed, missing and filled because of dental decay (DMFT for permanent teeth), based on the World Health Organization protocol (WHO 1997). In some instances, X-rays may be used. DMFT was calculated for children aged 6–15
- fissure sealants, which are recorded as the number of teeth, otherwise sound, not restored and not decayed, that have a fissure sealant. This data item was introduced in most states and territories in 1989. In Australian SDSs, fissure sealants are mainly applied to the permanent dentition.

A tooth (deciduous or permanent) is recorded as missing due to caries if it was extracted for this reason. Teeth missing due to caries and those due to other causes can be distinguished by taking a detailed history from the patient. The tooth is coded as filled when it has a permanent restoration that, in the clinician's best judgment, was placed because of caries. This excludes fillings placed for reasons other than caries, such as restorations to repair trauma or aesthetic restoration of non-carious lesions.

The average number of decayed, missing and filled teeth can be regarded as a reasonable summary statistic for caries experience of a population. Given that the distribution of dmft/DMFT scores is skewed, mean dmft/DMFT may not reflect the existence of individuals with high levels of caries experience within the same population. The Significant Caries Index (SiC) was developed to target individuals with high caries levels (Bratthall 2000). It is computed by obtaining the average decay experience of the one-third of the population with the highest dmft/DMFT scores. The SiC^{10} used here is a slightly modified index that reports the mean dmft/DMFT scores of the 10% of children with the highest caries levels.

1.5 Data used in this report

The target population for the CDHS is children attending an SDS operated by one of the states and territories. Data are collected from a random sample of children attending these services for some states. Data from South Australia, the Australian Capital Territory and Tasmania are full enumeration. Results for New South Wales and Victoria are not reported here. Data for children attending dental services in Victoria in 2008 had not been provided at the time of preparing this publication, and data for children attending dental services in New South Wales were not collected in 2008. In New South Wales, the SDS targets only schools identified by the state government Department of Education & Communities as being disadvantaged. Children at these schools are screened and enter the SDS only if they need treatment. Therefore, the children in the SDS population in New South Wales would have a greater need for treatment than New South Wales children generally and children from other jurisdictions. As the child populations of New South Wales and Victoria represent a substantial proportion of the Australian child population, any comparisons with national estimates from previous years, or with international data, should be made with caution. Caution is also needed in drawing inferences among states and territories, as the differences might be the result of variations in SDS coverage, level of enrolment, services policy focus, or access to services in rural or remote areas.

A detailed description of the data collection and preparation methods used in this report can be found in Appendix A.

2 Children's dental health

2.1 Dental health through childhood

Deciduous teeth

Age-specific caries experience in deciduous teeth

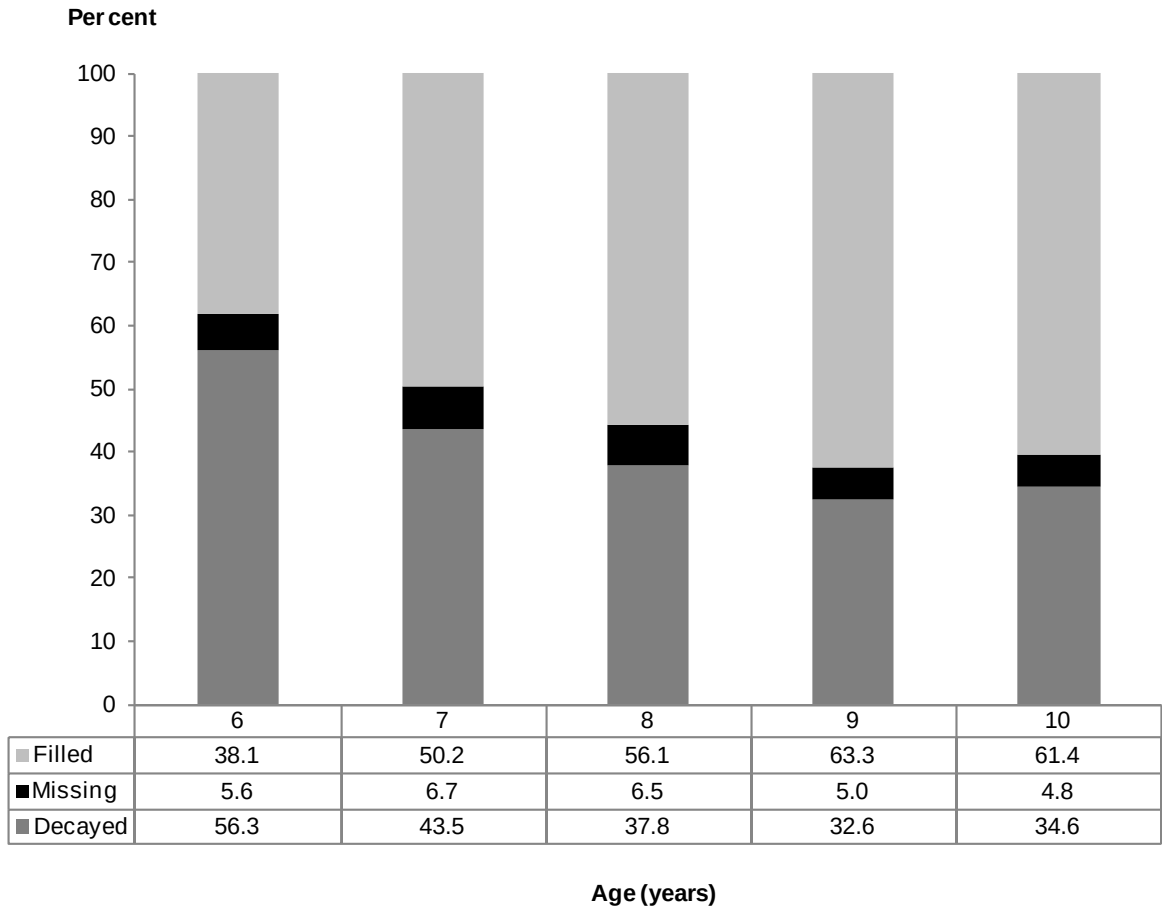
Decay experience in deciduous teeth is denoted by the average number of decayed, missing and filled teeth (dmft). The averages and 95% confidence intervals (CIs) for each of these components for children aged 6–10 are shown in Table 2.1. There was an association between age and the average number of decayed teeth. Children aged 6 had an average of 1.30 teeth with untreated decay, while children aged 10 had an average of 0.56 teeth with untreated decay. The number of teeth missing due to decay was small across all age groups, ranging from an average of 0.08 to 0.16 teeth per child. The average number of filled teeth steadily increased, from 0.88 among 6-year-olds to 1.40 among 9-year-olds, before declining to 0.98 among 10-year-olds. The pattern of average dmft score was different, with the highest dmft displayed by 8-year-olds (2.46) and the lowest by children aged 10 (1.60).

Table 2.1: Deciduous teeth—decayed, missing and filled teeth, 2008

	Decayed teeth (d)		Missing teeth (m)		Filled teeth (f)		dmft	
Age (years)	Mean	CI	Mean	CI	Mean	CI	Mean	CI
6	1.30	1.25–1.35	0.13	0.12–0.15	0.88	0.84–0.91	2.31	2.24–2.37
7	0.97	0.94–1.01	0.15	0.14–0.17	1.12	1.08–1.16	2.23	2.17–2.29
8	0.93	0.90–0.96	0.16	0.15–0.18	1.38	1.35–1.42	2.46	2.41–2.52
9	0.72	0.69–0.74	0.11	0.10–0.12	1.40	1.36–1.44	2.21	2.16–2.27
10	0.56	0.53–0.58	0.08	0.07–0.09	0.98	0.95–1.02	1.60	1.56–1.65

Figure 2.1 illustrates the percentage contribution of decayed, missing and filled deciduous teeth to the dmft index in 2008. Untreated decay was the principal component of the dmft score in the youngest age group, with more than 50% of the children aged 6 having decayed teeth. There was a gradual reduction in the percentage of decayed teeth from 56.3% at age 6 to 32.6% at age 9, before increasing to 34.6% among 10-year-olds. In contrast, there was a steady increase in filled teeth across the age groups, with more than 50% of the dmft index from age 7 characterised by the presence of filled teeth. This could be attributed to the gradual accumulation of fillings over time.

The pattern in deciduous decay experience is influenced by the loss of deciduous teeth that normally occurs between the ages of 6 and 12. Children enter their school years with moderate decay experience in deciduous teeth. About 56% of this decay is untreated decay in 6-year-olds. As a result of treatment after this age, decay experience in deciduous teeth is increasingly represented by filled teeth. At the same time, deciduous teeth are naturally shed. Despite children experiencing new decay over this period, the number with decay experience diminishes with the loss of deciduous teeth. Thus, the proportion of children with no deciduous decay experience is higher at older ages than at younger ages.



	6	7	8	9	10
Filled	38.1	50.2	56.1	63.3	61.4
Missing	5.6	6.7	6.5	5.0	4.8
Decayed	56.3	43.5	37.8	32.6	34.6

Figure 2.1: Decayed, missing and filled deciduous teeth as a percentage of dmft index, 2008

Distribution of deciduous caries experience by age

More than half of Australian children aged 6–10 had experienced decay in deciduous teeth (Figure 2.2). Table 2.2 shows that 37.6% to 49.0% had a dmft score of zero. The proportion of children with no decay was highest in those aged 10 (49%). This could be due to children at this age losing a number of deciduous teeth that were previously affected by decay. Between 6.7% and 16.7% of children had a dmft score of 6 or more.

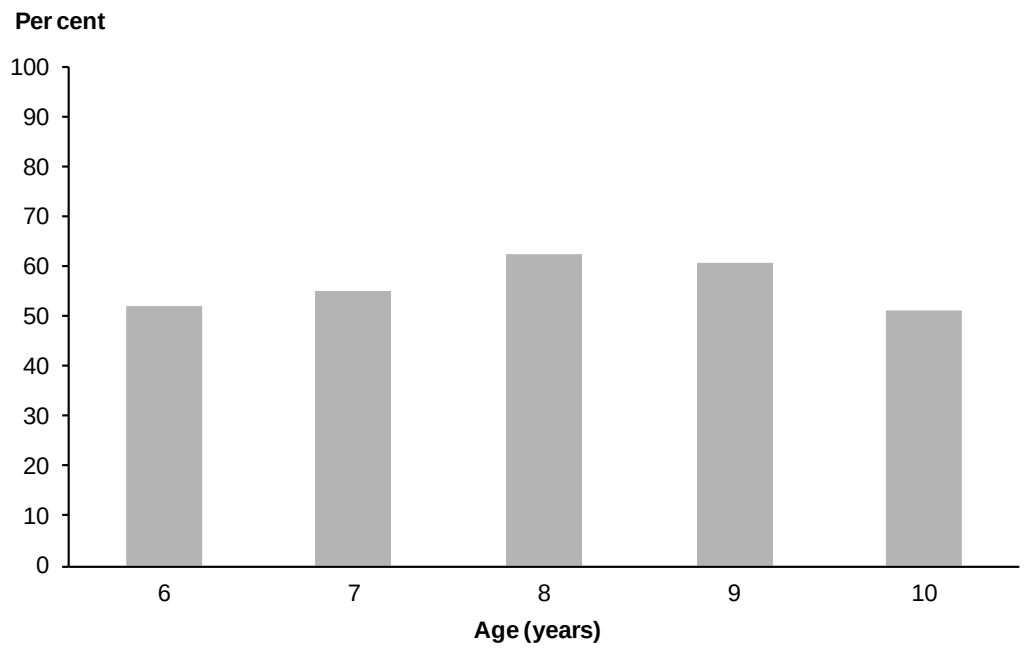


Figure 2.2: Deciduous teeth—children with dmft > 0 by age, 2008

Table 2.2: Distribution of dmft index for children, 2008 (per cent)

	% dmft						
Age (years)	**0**	**1**	**2**	**3**	**4**	**5**	**6+**
6	47.9	10.4	8.8	6.7	5.8	4.6	15.9
7	44.9	11.4	9.1	7.6	6.3	5.4	15.4
8	37.6	12.0	10.1	10.0	7.9	5.7	16.7
9	39.6	14.4	9.9	8.4	9.0	5.6	13.2
10	49.0	12.3	11.1	8.2	8.6	4.1	6.7

Significant Caries Index (10%) (SiC^{10})

Figure 2.3 shows the SiC^{10} index and the six-state/territory average dmft index of 6–10-year-old children by age. The SiC^{10} values, which were between 3 and 5 times the six-state/territory average values, suggest that small proportions of children across the age groups have very high deciduous decay levels.

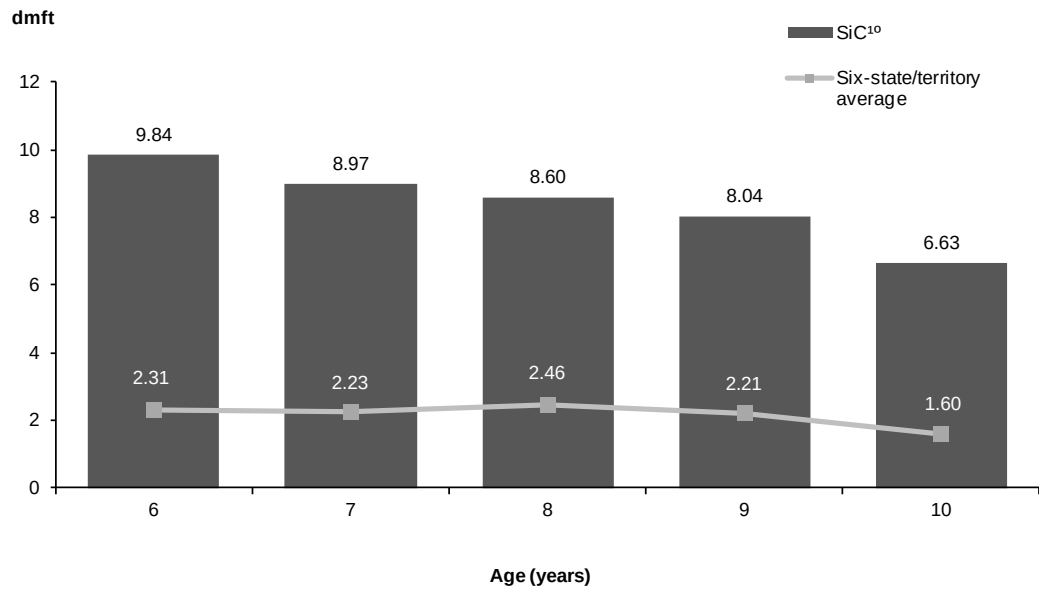


Figure 2.3: Significant Caries Index (10%) (SiC^{10}) and average dmft index of 6–10-year-old children by age, 2008

Permanent teeth

Age-specific caries experience in permanent teeth

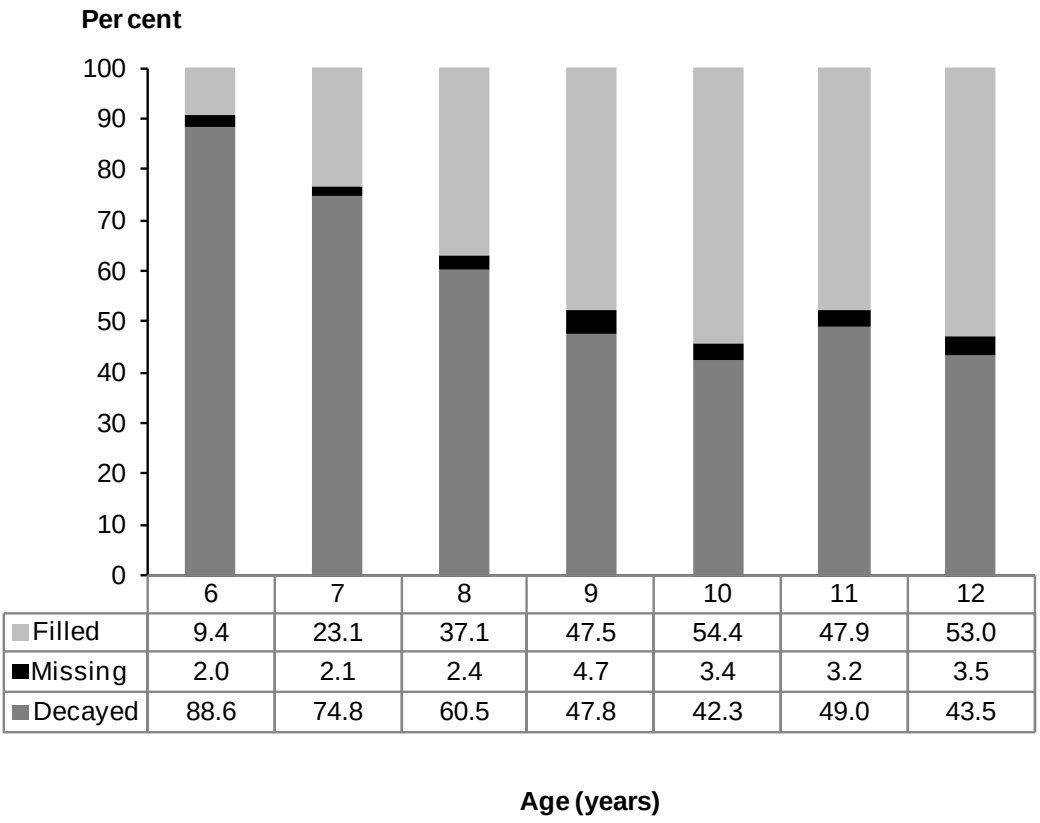
Table 2.3 shows that the mean number of decayed permanent teeth per child ranged from 0.08 at age 6 to 0.48 at age 12. On average, fewer than 0.05 teeth per child were missing due to decay across all ages. An association between age and the number of filled teeth was evident, with children aged 6 having an average of 0.01 filled teeth compared with 0.59 filled teeth in 12-year-olds. The mean DMFT scores followed a similar pattern, ranging from 0.09 among 6-year-olds to 1.11 among 12-year-olds.

The presence of relatively few permanent teeth at younger ages, and the shorter time since their eruption, may make these teeth less susceptible to developing decay. This is demonstrated by the mean scores for all DMFT components (Table 2.3) being lower than the corresponding mean scores for deciduous teeth (Table 2.2) at each age among 6–10-year-olds.

Table 2.3: Permanent teeth—decayed, missing and filled teeth, 2008

Age (years)	Decayed teeth (D)		Missing teeth (M)		Filled teeth (F)		DMFT	
	Mean	CI	Mean	CI	Mean	CI	Mean	CI
6	0.08	0.07–0.09	0.00	0.00–0.00	0.01	0.01–0.01	0.09	0.08–0.10
7	0.19	0.17–0.20	0.01	0.00–0.01	0.06	0.05–0.07	0.25	0.23–0.26
8	0.20	0.19–0.21	0.01	0.01–0.01	0.12	0.11–0.13	0.33	0.31–0.35
9	0.22	0.21–0.24	0.02	0.02–0.03	0.22	0.21–0.23	0.46	0.44–0.48
10	0.27	0.25–0.28	0.02	0.02–0.03	0.34	0.32–0.36	0.63	0.61–0.65
11	0.40	0.38–0.42	0.03	0.02–0.03	0.39	0.37–0.41	0.82	0.79–0.85
12	0.48	0.46–0.51	0.04	0.03–0.05	0.59	0.56–0.61	1.11	0.07–1.14

The mean number of decayed, missing and filled permanent teeth expressed as a percentage of DMFT index is shown in Figure 2.4. Comparison with Figure 2.1 reveals the pattern is similar to that for deciduous teeth. The proportion of filled teeth (F) was progressively higher between the ages of 6 and 10 while the reverse was true for untreated (D), contributing less than 42% of the DMFT score in 10-year-olds. This may suggest that a greater proportion of decayed teeth in young children are treated as they grow older.



	6	7	8	9	10	11	12
Filled	9.4	23.1	37.1	47.5	54.4	47.9	53.0
Missing	2.0	2.1	2.4	4.7	3.4	3.2	3.5
Decayed	88.6	74.8	60.5	47.8	42.3	49.0	43.5

Figure 2.4: Decayed, missing and filled permanent teeth as a percentage of DMFT index, 2008

Figure 2.5 shows that the proportion of children with a DMFT score greater than zero was highest among those aged 12. This implies that permanent teeth are at risk of developing dental decay with increased exposure over time.

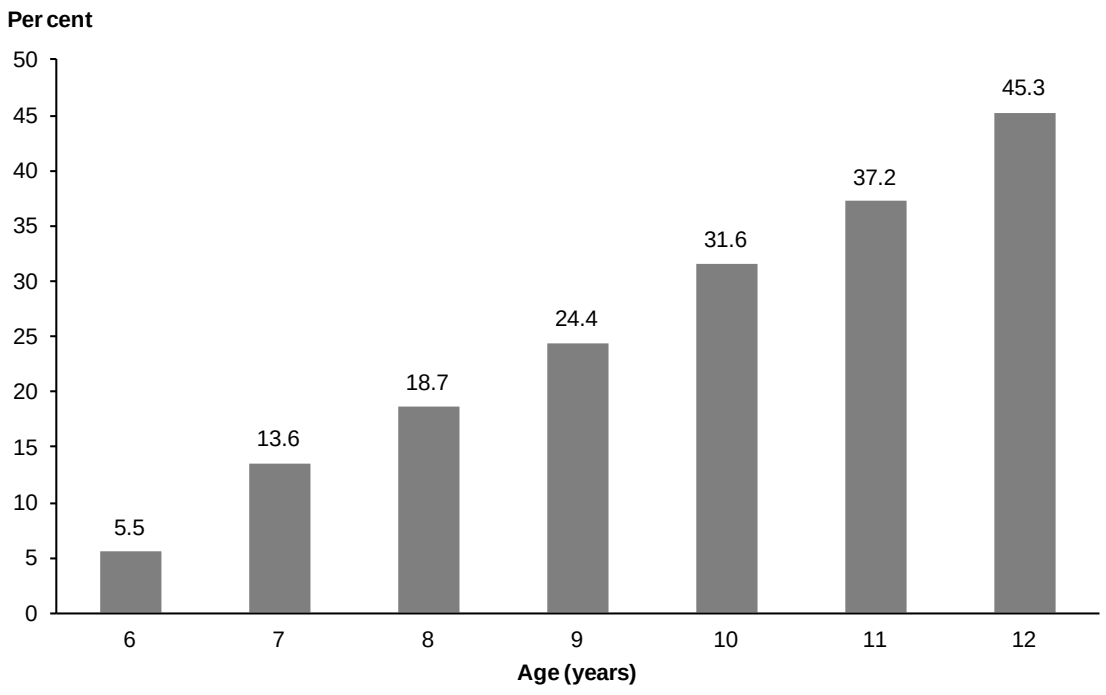


Figure 2.5: Permanent teeth—children with DMFT > 0 by age, 2008

Distribution of permanent caries experience by age

Table 2.4 shows the distribution of DMFT for Australian children aged 6–12. The prevalence of decay experience in permanent teeth was associated with age (5.5% at age 6 up to 45.3% at age 12). Among the children with permanent caries experience, DMFT scores of 1 and 2 were more prevalent than other scores. The proportion of children with a DMFT score of 6 or more ranged from 0.5% at age 10 to 3.1% at age 12.

Table 2.4: Distribution of DMFT index for children, 2008 (per cent)

	% DMFT						
Age (years)	0	1	2	3	4	5	6+
6	94.5	3.3	1.8	0.2	0.2	0.0	0.1
7	86.4	6.6	4.1	1.9	0.8	0.0	0.2
8	81.3	10.1	5.1	1.5	1.5	0.4	0.0
9	75.6	12.7	5.9	3.3	1.8	0.5	0.3
10	68.4	15.0	8.0	4.4	3.0	0.7	0.5
11	62.8	15.0	10.6	5.7	3.4	1.3	1.2
12	54.7	17.9	11.0	6.6	4.9	1.8	3.1

Significant Caries Index (10%) (SiC^{10})

The SiC^{10} index and the six-state/territory average DMFT scores of 6–12-year-old children are shown in Figure 2.6. The SiC^{10} values for permanent teeth were 4 to 8 times the six-state/territory average mean DMFT scores across all age groups. This indicates an association between the severity of decay and age in the one-tenth of children who have the highest decay levels in their permanent teeth.

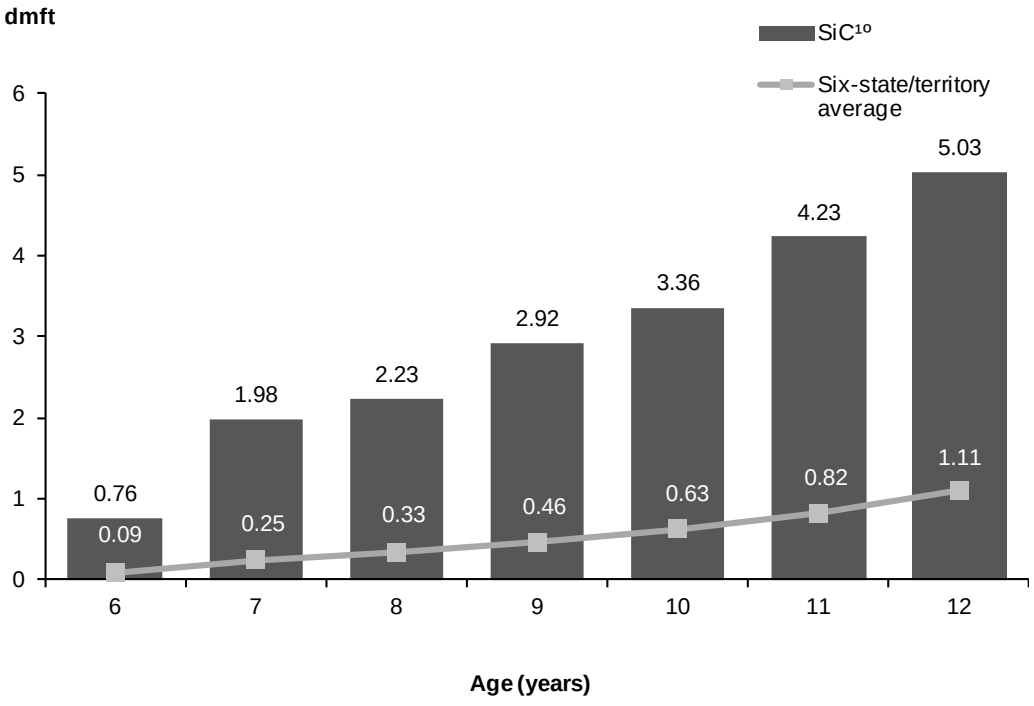


Figure 2.6: Significant Caries Index (10%) (SiC^{10}) and average DMFT of 6–12-year-old children by age, 2008

All teeth

Age-specific caries experience in all teeth

Table 2.5 shows the combined components of dental decay experience for deciduous and permanent teeth. This may indicate the total amount of disease among Australian children receiving care within an SDS.

In 2008, 31.8% to 43.9% of children aged 6–12 had untreated decay in 1 or more teeth. The prevalence was highest among 8-year-olds (43.9%). The extent of untreated decay was greater among younger age groups (9.5% and 7.8% of children aged 6 and 7, respectively, had 5 or more teeth with untreated decay) than older age groups (fewer than 5% from age 9 onwards). Across all age groups, there was a comparatively low proportion of children with teeth missing due to decay, ranging from 3.5% at age 12 to 8.7% at age 8. The two peaks in the proportion of children with no fillings and no decay experience (at ages 6 and 12) could be due to the eruption of permanent teeth subsequent to the loss of deciduous teeth.

Between 53.4% and 65.9% of children across all age groups had experienced dental decay in either their deciduous or permanent teeth.

Table 2.5: All teeth—age-specific caries experience, 2008

	D+d						M+m = 0	F+f = 0	dmft+DMFT=0
Age (years)	0 %	1 %	2 %	3 %	4 %	5+ %	%	%	%
6	58.71	12.42	8.86	5.72	4.84	9.45	93.52	71.04	46.56
7	59.73	13.94	9.47	5.43	3.64	7.79	92.17	62.84	42.04
8	56.13	16.85	10.07	7.44	3.50	6.00	91.29	52.98	34.07
9	59.81	16.83	9.32	6.30	3.65	4.08	93.04	48.22	34.17
10	61.62	17.68	9.03	5.68	3.28	2.71	94.30	51.14	37.68
11	66.57	15.54	8.36	3.93	2.99	2.60	95.76	57.31	42.12
12	68.22	17.86	6.35	3.64	1.82	2.10	96.53	61.09	45.66

2.2 Dental decay by state and territory

6-year-old dmft by state and territory

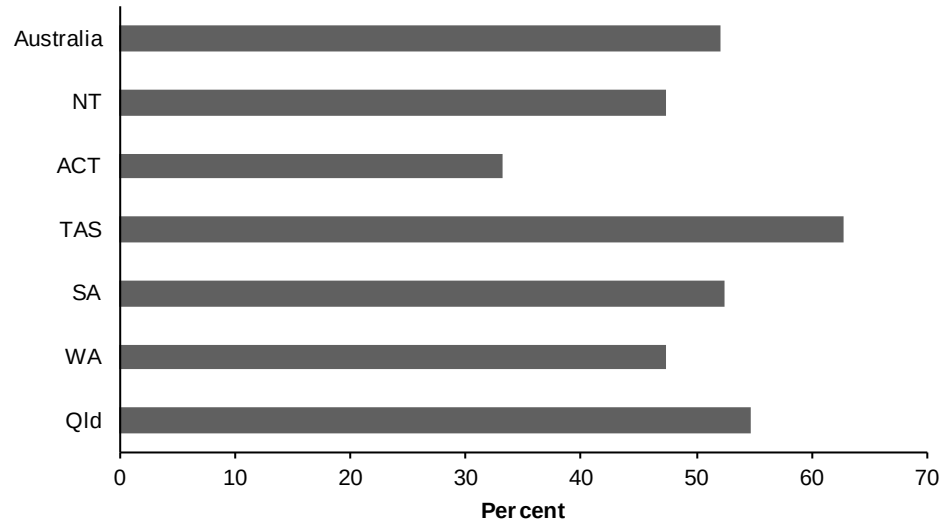
Children in the Australian Capital Territory had the lowest level of dental decay experience in deciduous teeth. They had the lowest mean dmft (1.16), the fewest decayed deciduous teeth per child (0.57), and the fewest missing deciduous teeth due to decay (0.03), of six states and territories (Table 2.6). Queensland showed the highest number of decayed teeth (1.57), and both Queensland and South Australia showed the highest number of filled teeth (0.94). Both Queensland and Tasmania showed the largest dmft score (2.61). The mean number of missing teeth per child was highest in Tasmania (0.60), while the Australian Capital Territory had the lowest number of filled teeth (0.56).

Table 2.6: Caries experience in the deciduous teeth of 6-year-olds by state and territory, 2008

	Decayed teeth (d)		Missing teeth (m)		Filled teeth (f)		dmft	
State/territory	Mean	CI	Mean	CI	Mean	CI	Mean	CI
Qld	1.57	1.33–1.82	0.10	0.05–0.15	0.94	0.77–1.10	2.61	2.29–2.93
WA	1.06	0.90–1.21	0.04	0.02–0.06	0.78	0.66–0.91	1.85	1.65–2.05
SA	1.06	1.01–1.12	0.25	0.22–0.28	0.94	0.89–0.99	2.25	2.16–2.34
Tas	1.23	1.13–1.32	0.60	0.53–0.66	0.79	0.71–0.86	2.61	2.46–2.76
ACT	0.57	0.47–0.67	0.03	0.01–0.04	0.56	0.47–0.65	1.16	1.00–1.32
NT	1.11	0.70–1.52	0.11	0.04–0.19	0.88	0.55–1.20	2.10	1.57–2.63
Australia (6 states/territories only)	**1.30**	**1.25–1.35**	**0.13**	**0.12–0.15**	**0.88**	**0.84–0.91**	**2.31**	**2.24–2.37**

Note: Results for Australia exclude Victoria, due to lack of access to the data, and New South Wales, due to a lack of representativeness of the sample.

Figure 2.7 shows that while in the six states and territories prevalence of decay experience in deciduous teeth among 6-year-old children was about 52%, it varied across states and territories. The Australian Capital Territory had the lowest proportion of children aged 6 with decay experience (33.2%) and Tasmania reported the highest (62.7%).



Note: Results for Australia exclude Victoria, due to lack of access to the data, and New South Wales, due to a lack of representativeness of the sample.

Figure 2.7: Deciduous teeth—proportion of 6-year-old children with dmft > 0 by state and territory, 2008

12-year-old DMFT by state and territory

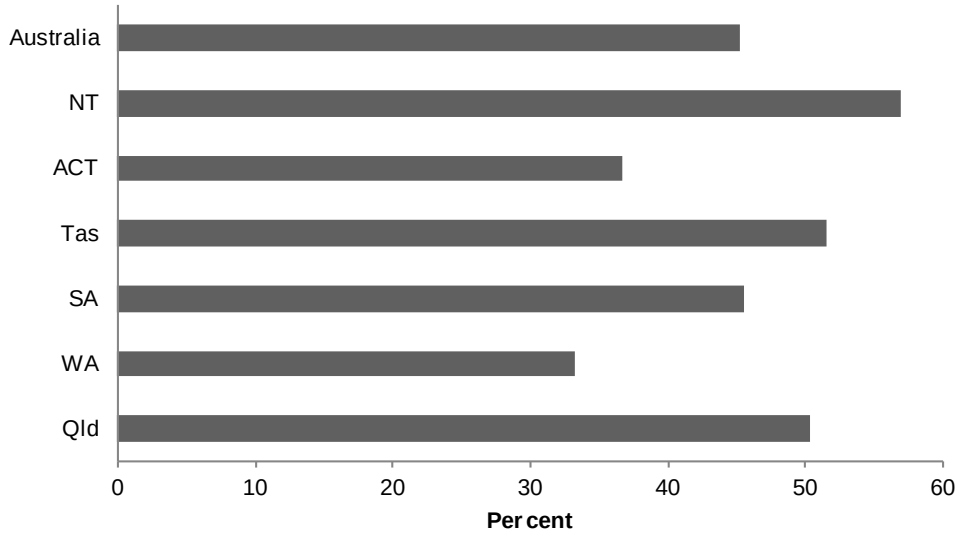
Table 2.7 shows the decay experience in permanent teeth of 12-year-olds by states and territories. The Northern Territory reported the highest mean number of filled teeth per child (1.41) and the highest mean DMFT score (1.94). The Australian Capital Territory had the lowest mean number of decayed teeth (0.16). Western Australia and the Australian Capital Territory had the lowest mean DMFT (0.68 and 0.71 respectively) and the lowest mean number of missing teeth per child (0.01, 0.02). The Northern Territory had the highest mean number of missing teeth (0.13).

Table 2.7: Caries experience in the permanent dentition of 12-year-olds by state and territory, 2008

	Decayed teeth (D)		Missing teeth (M)		Filled teeth (F)		DMFT	
State/territory	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
Qld	0.61	0.48–0.73	0.04	0.01–0.07	0.66	0.54–0.78	1.31	1.11–1.50
WA	0.32	0.25–0.40	0.01	0.00–0.03	0.35	0.29–0.40	0.68	0.58–0.78
SA	0.38	0.35–0.40	0.04	0.03–0.05	0.59	0.56–0.62	1.01	0.97–1.05
Tas	0.60	0.54–0.66	0.09	0.07–0.12	0.59	0.54–0.64	1.28	1.20–1.36
ACT	0.16	0.12–0.21	0.02	0.00–0.04	0.53	0.45–0.60	0.71	0.62–0.81
NT	0.41	0.21–0.60	0.13	–0.01–0.26	1.41	1.02–1.79	1.94	1.50–2.39
Australia (6 states/territories only)	**0.48**	**0.46–0.51**	**0.04**	**0.03–0.05**	**0.59**	**0.56–0.61**	**1.11**	**1.07–1.14**

Note: Results for Australia exclude Victoria, due to lack of access to the data, and New South Wales, due to a lack of representativeness of the sample.

Figure 2.8 shows the prevalence of dental decay in permanent teeth of 12-year-old children. The Northern Territory recorded the highest prevalence, with 57% of 12-year-old children having dental decay, followed by Tasmania (51.6%). Western Australia had the lowest prevalence (33.3%). Overall, 45.3% of Australian children aged 12 had experienced decay in their permanent teeth.



Note: Results for Australia exclude Victoria, due to lack of access to the data, and New South Wales, due to a lack of representativeness of the sample.

Figure 2.8: Permanent teeth—proportion of 12-year-old children with DMFT > 0 by state and territory, 2008

3 Fissure sealants

Fissure sealing is a frequently used preventive method that effectively halts the development of active decay in permanent teeth. Pits and fissures of teeth (usually molars) are sealed or covered with a resin or glass-ionomer (cement) material (Rozier 2001). Fissure sealants act by preventing the future development of plaque and bacteria in the tooth grooves that are more at risk of decay.

An association between age and fissure sealant use is evident in Table 3.1. The table shows that the mean number of teeth with fissure sealants was lowest (0.10 teeth) among 6-year-olds and highest (0.75) among 12-year-olds, with 0.56 teeth being sealed on average in all children. A tendency to provide fissure sealants to those children who were more vulnerable for developing dental decay was also apparent. For example, among all children aged 6–12, only 16.9% of those with no dental decay experience had fissure sealants, while the proportion of children with dental decay who had fissure sealants was almost 30%.

Table 3.1: Fissure sealant experience by age, 2008

Age (years)	All children		Fissure sealants among children with DMFT = 0		Fissure sealants among children with DMFT > 0	
	Mean	CI	Mean (CI)	Per cent	Mean (CI)	Per cent
6	0.10	0.09–0.11	0.10 (0.09–0.11)	3.3	0.08 (0.04–0.12)	0.0
7	0.29	0.27–0.31	0.29 (0.27–0.31)	9.9	0.30 (0.25–0.35)	16.2
8	0.56	0.54–0.59	0.56 (0.53–0.58)	18.3	0.60 (0.55–0.65)	33.6
9	0.69	0.66–0.71	0.70 (0.67–0.73)	22.5	0.65 (0.60–0.69)	31.3
10	0.71	0.69–0.74	0.75 (0.71–0.79)	22.4	0.64 (0.60–0.68)	29.8
11	0.78	0.75–0.81	0.81 (0.77–0.85)	29.6	0.73 (0.68–0.77)	32.9
12	0.75	0.72–0.79	0.65 (0.60–0.69)	18.3	0.88 (0.83–0.93)	35.3
All	**0.56**	**0.55–0.57**	**0.52 (0.51–0.53)**	**16.9**	**0.68 (0.66–0.70)**	**29.6**

3.1 Fissure sealant use by state and territory

Children in the Australian Capital Territory had the highest mean number of teeth with fissure sealants (1.70), while those in the Northern Territory had the lowest (0.20) (Table 3.2). As in the combined analysis (Table 3.1), fissure sealant use in children who had no decay was relatively low compared with children who had decay, across all states and territories except for the Northern Territory.

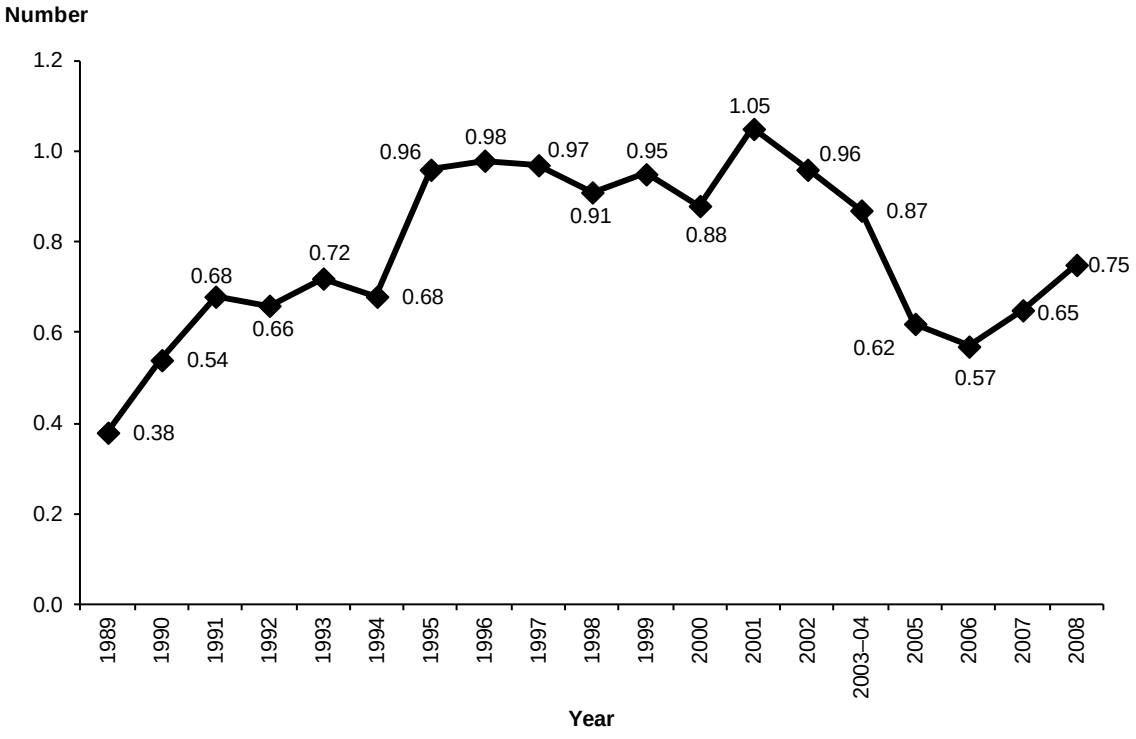
Table 3.2: Fissure sealant use among 6–12-year-old children by state and territory, 2008

State/territory	All children		Fissure sealants among children with DMFT = 0		Fissure sealants among children with DMFT > 0	
	Mean	CI	Mean (CI)	Per cent	Mean (CI)	Per cent
Qld	0.54	0.49–0.58	0.48 (0.43–0.53)	16.7	0.68 (0.59–0.76)	30.4
WA	0.26	0.23–0.28	0.26 (0.24–0.29)	8.9	0.24 (0.20–0.28)	11.8
SA	0.77	0.75–0.78	0.70 (0.68–0.71)	22.3	1.00 (0.97–1.03)	44.5
Tas	0.90	0.87–0.92	0.83 (0.80–0.86)	25.3	1.06 (1.01–1.11)	42.6
ACT	1.70	1.65–1.76	1.67 (1.61–1.72)	43.6	1.89 (1.77–2.00)	64.4
NT	0.20	0.15–0.26	0.22 (0.16–0.29)	7.0	0.16 (0.07–0.25)	5.5
Australia (6 states/territories only)	**0.56**	**0.55–0.57**	**0.52(0.51–0.53)**	**16.9**	**0.68(0.66–0.70)**	**29.6**

Note: Results for Australia exclude Victoria, due to lack of access to the data, and New South Wales, due to a lack of representativeness of the sample.

3.2 National trends of fissure sealant use

Figure 3.1 shows the mean number of fissure-sealed teeth among 12-year-old children in Australia from 1989 to 2008. There was an increase in fissure sealant use from 0.38 teeth in 1989 to 1.05 teeth in 2001, followed by a sharp drop until 2006, when only 0.57 teeth were fissure sealed on average. By 2008 the average number of teeth sealed had increased again to 0.75. The decline between 2001 and 2006 may reflect the availability of products (e.g. Fuji 7) that have been indicated for tooth surface protection, but which are not recorded by clinicians as sealants.

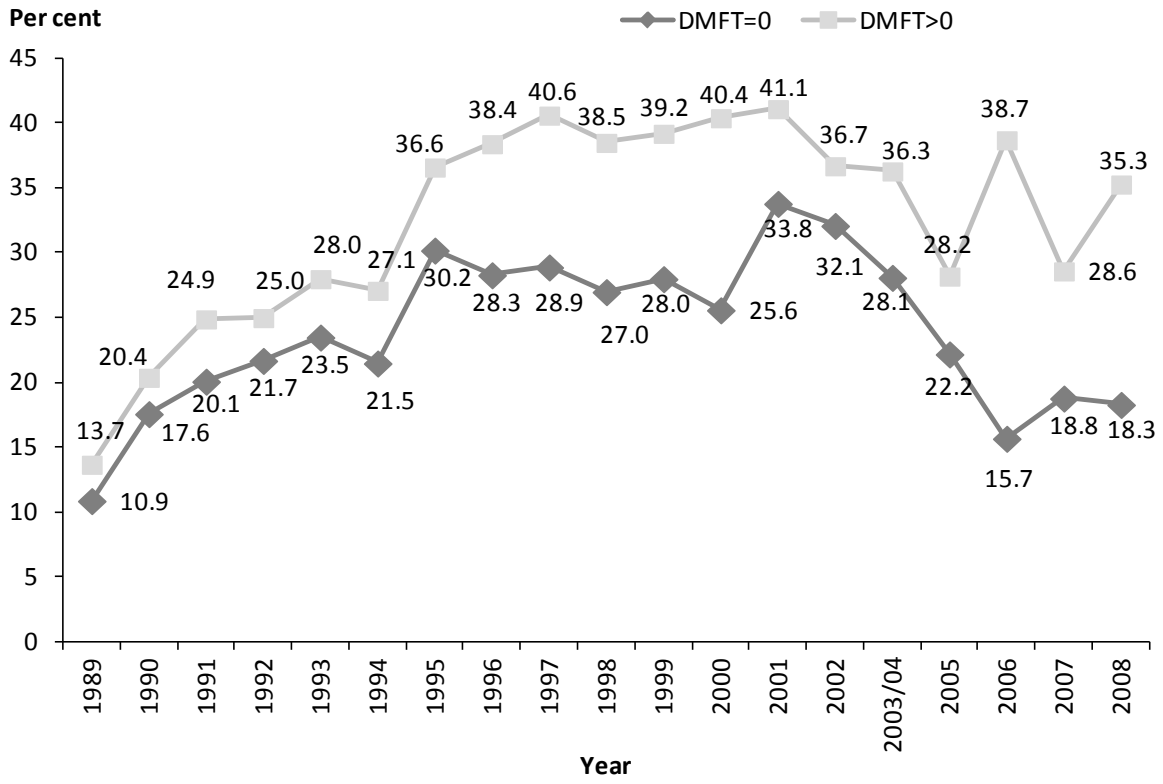


Note: From 2001–2006 and 2008, New South Wales is excluded. From 2005–2008, Victoria is excluded.

Figure 3.1: Mean number of teeth with fissure sealants among 12-year-old Australian children, 1989–2008

Figure 3.2 shows the fissure sealant use among 12-year-old children, for both those who had decay experience and those who had none, over the 20 years to 2008. The proportion of children with fissure sealants showed an increasing trend for both groups, peaking in 2001 at approximately 41% and 34% of children, respectively. Fissure sealant use in both groups declined after 2001, in particular the proportion of caries-free children who had fissure sealants.

Throughout the two decades, the fissure sealant use among 12-year-olds who had decay was consistently higher than for those with no decay experienced. Overall, this indicates an increasing propensity to provide fissure sealants to those children who are more prone to dental decay.



Note: From 2001–2006 and 2008, New South Wales is excluded. From 2005–2008, Victoria is excluded.

Figure 3.2: Fissure sealant use among 12-year-old Australian children with and without dental caries experience, 1989–2008

Appendix A: Description of survey methods

Source of subjects

Data for Queensland, South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory were sourced from the Child Dental Health Survey (CDHS) conducted in the 2008 calendar year. This annual surveillance survey monitors the dental health of children enrolled in school and community dental services operated by the health departments or authorities of Australia's six state and two territory governments. In all jurisdictions, children from both public and private schools are eligible for dental care through a school dental service (SDS). The care typically provided includes dental examinations, preventive services and restorative treatment. However, there are some variations among state and territory programs with respect to priority age groups and the nature of services. In some jurisdictions, caries risk assessment is used to determine recall interval and preventive treatment. Consequently, there are variations in the extent of enrolments in SDSs, with some jurisdictions serving more than 80% of primary school children and others serving smaller proportions.

National estimates in this report exclude Victoria, due to lack of access to the 2008 data, and New South Wales as the sample was not representative. Only children who have been identified as having treatment needs, for example those with untreated decay, are seen in the New South Wales public dental service. Consequently, the dental health of these children does not represent the dental health of the entire child population of New South Wales, many of whom do not have treatment needs.

Sampling

The data sourced from the annual CDHS were derived from routine examinations of children enrolled in the SDSs. Children were sampled at random from SDS clinics by selecting those examined during the 2008 calendar year who were born on specific days of the month, or by a similar systematic sampling procedure. The specific days of the month and approximate sampling ratios implemented in each state and territory are provided in Table A.1. This sampling scheme ensures that a random sample of children enrolled with the SDSs is selected, but excludes children who are not enrolled.

The sampling ratios were designed to provide similar numbers of children from each state and territory. However, due to full enumeration in South Australia, Tasmania, the Australian Capital Territory and the Northern Territory the number of children included in the survey in that states and territories is considerably larger than for the other states. Differences in administration and local data requirements of each SDS create further variation in the number of children sampled by state and territory. This variation is accounted for in the weighting procedure.

Where children received more than one examination during the year, only data derived from the child's first examination were included in the survey for Queensland, Western Australia, and the Northern Territory. For South Australia, the Australian Capital Territory and

Tasmania, where electronic patient records were used, only data derived from the last examination of the year were included.

Table A.1: Sampling ratios for Australian states and territories, 2008

State/territory	Sampling ratio[(a)]	Days of birth
Queensland		
Gold Coast	1:1	Any
Other Queensland	1:15	1st and 6th
Western Australia	1:8.5	28th, 29th, 30th, 31st
South Australia	1:1	Any
Tasmania	1:1	Any
Australian Capital Territory	1:1	Any
Northern Territory		
Darwin	1:1	Any
Other Northern Territory	1:1	Any

(a) Sampling ratios are approximate only.

Note: Victoria is excluded due to lack of access to the data, and New South Wales, due to a lack of representativeness of the sample.

Data items

Data sourced from SDS clinics were collected at the time of routine clinical examinations conducted by dental therapists and dentists. The application of diagnostic criteria was based on the clinical judgement of the dental therapist or dentist. Clinics were provided with detailed written instructions on collecting data, but there were no formal sessions of instruction in diagnosis and no repeat examinations to assess inter- or intra-examiner reliability.

The examiner recorded demographic characteristics of each sampled child including age and sex. Country of birth and Indigenous status of both child and mother were also collected. The two items are considered important to a health monitoring survey (Health Targets and Implementation Committee 1988). Both items were obtained from information on the patient's treatment card or medical history but due to the increasingly limited recording of this information by each state and territory SDS, it was not included in this report.

Weighting of data and data analysis

National population estimates in this publication were derived from weighted data. The weighting methodology reflects the sample design implemented in each state and territory. Data sourced from the annual CDHS were weighted at the regional level, with regions based on the 2006 Australian Standard Geographical Classification. Where sample size was adequate, regions within a capital city were defined as ABS Statistical Subdivisions and regions outside capital-city areas as Statistical Divisions.

Population counts were provided by the Australian Bureau of Statistics. The file, '2008 estimated residential population (ABS 2011) of Australia by postal area by age (5–14 years)', provided population counts by individual age and postcode. Postcodes were mapped to region using the 'ABS 2006 Statistical Sub-Division 2006 Postcode Concordance File

(2905055001 ssd 2006 from poa 2006)', and aggregated to produce regional-level population counts by individual age.

The initial weight for each person was calculated as the inverse of the child's probability of selection in the survey, based on the sampling ratios implemented across clinics in each state and territory. As children enrolled in SDS clinics may experience different recall periods, those on recall intervals of 12 months or less have a higher chance of selection than children on longer recall intervals. To ensure that children on longer recall intervals, who often have better oral health, were not under represented, data were also weighted by time since last dental examination.

Final weights were derived to reflect the regional age distribution of Australian children aged 5–14. Within each state or territory, substrata were defined by (individual) age and region. Survey records were allocated to region based on postcode, and then linked to the estimated resident population (ERP) for that region to derive a final weight for each child.

To enable population estimates from the survey to be compared and inferences made about characteristics of Australian children, 95% confidence intervals (CIs) have been produced for each survey estimate.

The weighting protocol aimed to produce estimates that were representative of Australian children; however, in states and territories where data were sourced from the annual CDHS, only children enrolled in an SDS were surveyed. Consequently, the results in this report do not represent the complete Australian child population. Enrolment across Australia varies, but in all states and territories it is higher for primary school children than for those in secondary schooling. In some states and territories, older children must meet special eligibility criteria and they may therefore be less representative of their age groups within the Australian population than is the case for younger children. Hence, in this publication, estimates for primary school children may not differ substantially from those that would be obtained if all children in the country were surveyed, whereas estimates for secondary school children may vary from those obtained for all children. It is therefore necessary to be cautious in drawing inferences from age-related trends, particularly among children aged 13–14 in South Australia, the Australian Capital Territory and the Northern Territory.

Number in sample

There were 63,870 children aged 6–12 surveyed in the 2008 calendar year. Table A.2 provides the number of children sampled in each state and territory, and Table A.3 provides the number of children sampled by age.

Table A.2: Number of children sampled by state and territory, 2008

State/territory	Number of children sampled
Qld	3,158
WA	6,472
SA	34,484
Tas	12,860
ACT	5,787
NT	1,109
Total	**63,870**

Note: Results for Australia exclude Victoria due to lack of access to the data, and New South Wales due to a lack of representativeness of the sample.

Table A.3: Number of children sampled by age, 2008

Age (years)	Number of children sampled
6	9,086
7	9,560
8	9,700
9	9,429
10	9,156
11	8,877
12	8,062
Total	**63,870**

Appendix B: Supplementary state and territory data tables, 2008

The following supplementary data (Table B.1 – Table B.24) present state- and territory-specific information on deciduous and permanent caries experience by age.

Table B.1: dmft by age, Queensland, 2008

	Decayed		Filled		Missing		dmft	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
5	1.86	1.55–2.17	0.38	0.25–0.51	0.09	0.02–0.17	2.33	1.99–2.68
6	1.57	1.33–1.82	0.93	0.77–1.10	0.10	0.05–0.15	2.61	2.29–2.93
7	1.13	0.94–1.31	1.16	0.98–1.34	0.12	0.06–0.18	2.41	2.13–2.69
8	1.09	0.94–1.25	1.45	1.27–1.63	0.16	0.09–0.24	2.71	2.44–2.97
9	0.85	0.74–0.97	1.57	1.38–1.75	0.10	0.05–0.15	2.52	2.27–2.77
10	0.70	0.59–0.81	1.00	0.87–1.13	0.07	0.04–0.11	1.77	1.58–1.97

Table B.2: DMFT by age, Queensland, 2008

	Decayed		Filled		Missing		DMFT	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
6	0.09	0.06–0.13	0.00	—	0.00	0.00–0.01	0.09	0.06–0.13
7	0.25	0.19–0.32	0.07	0.03–0.12	0.01	0.00–0.02	0.33	0.25–0.41
8	0.22	0.17–0.28	0.15	0.10–0.21	0.01	0.00–0.02	0.38	0.30–0.47
9	0.29	0.22–0.36	0.23	0.18–0.29	0.02	0.00–0.05	0.55	0.44–0.65
10	0.33	0.26–0.40	0.38	0.30–0.46	0.02	0.00–0.03	0.73	0.61–0.84
11	0.51	0.41–0.62	0.40	0.32–0.48	0.02	0.00–0.04	0.93	0.80–1.07
12	0.61	0.48–0.73	0.66	0.45–0.78	0.04	0.01–0.07	1.31	1.11–1.50

Table B.3: Children with dmft = 0 by age, Queensland, 2008 (per cent)

Age (years)	n[(a)]	% dmft = 0
6	30,759	45.2
7	32,332	43.7
8	37,903	33.6
9	36,078	36.4
10	30,926	46.5

(a) Weighted number

Table B.4: Children with DMFT = 0 by age, Queensland, 2008 (per cent)

Age (years)	n[(a)]	% DMFT = 0
6	3,699	93.4
7	9,618	83.4
8	12,006	78.9
9	16,026	71.9
10	20,217	64.9
11	23,675	59.2
12	29,537	49.7

(a) Weighted number

Table B.5: dmft by age, Western Australia, 2008

	Decayed		Filled		Missing		dmft	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
5	0.78	0.23–1.33	0.37	0.00–0.84	0.00	—	1.14	0.39–1.89
6	1.06	0.90–1.21	0.76	0.64–0.88	0.04	0.02–0.06	1.85	1.65–2.05
7	0.69	0.61–0.78	0.95	0.84–1.06	0.06	0.03–0.09	1.70	1.55–1.85
8	0.69	0.60–0.78–	1.20	1.08–1.31	0.05	0.02–0.08	1.94	1.79–2.09
9	0.45	0.39–0.51–	1.05	0.95–1.16	0.02	0.01–0.03	1.53	1.40–1.65
10	0.30	0.25–0.36–	0.89	0.79–0.98	0.01	0.00–0.02	1.20	1.09–1.32

Table B.6: DMFT by age, Western Australia, 2008

	Decayed		Filled		Missing		DMFT	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
6	0.08	0.04–0.13	0.00	0.00–0.01	0.00	0.00–0.00	0.09	0.04–0.13
7	0.12	0.09–0.15	0.02	0.01–0.03	0.01	0.00–0.01	0.14	0.11–0.17
8	0.20	0.16–0.23	0.06	0.04–0.09	0.01	0.00–0.01	0.27	0.22–0.31
9	0.12	0.08–0.16	0.18	0.14–0.22	0.03	0.01–0.05	0.33	0.27–0.39
10	0.20	0.16–0.23	0.25	0.21–0.29	0.02	0.01–0.04	0.47	0.41–0.53
11	0.30	0.24–0.35	0.27	0.23–0.32	0.03	0.01–0.05	0.60	0.53–0.68
12	0.32	0.25–0.40	0.35	0.29–0.40	0.01	0.00–0.03	0.68	0.58–0.78
13	0.31	0.26–0.37	0.56	0.48–0.65	0.03	0.01–0.04	0.90	0.79–1.01
14	0.45	0.35–0.55	0.71	0.59–0.83	0.03	0.01–0.05	1.19	1.02–1.35
15	0.53	0.39–0.67	0.90	0.74–1.05	0.02	0.00–0.05	1.45	1.23–1.67

Table B.7: Children with dmft = 0 by age, Western Australia, 2008 (per cent)

Age (years)	n[(a)]	% dmft = 0
6	14,306	52.6
7	14,152	50.7
8	12,911	45.9
9	13,633	47.2
10	16,130	56.6

(a) Weighted number

Table B.8: Children with DMFT = 0 by age, Western Australia, 2008 (per cent)

Age (years)	n[(a)]	% DMFT = 0
6	3,699	93.4
7	9,618	83.2
8	12,006	78.9
9	16,026	71.9
10	20,217	64.9
11	25,921	95.4
12	25,412	91.0
13	23,533	83.7
14	23,522	81.5
15	20,950	73.5

(a) Weighted number

Table B.9: dmft by age, South Australia, 2008

	Decayed		Filled		Missing		dmft	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
4	1.15	1.07–1.23	0.36	0.31–0.40	0.11	0.09–0.14	1.62	1.53–1.72
5	1.17	1.11–1.24	0.60	0.55–0.64	0.23	0.19–0.27	2.00	1.90–2.09
6	1.06	1.01–1.12	0.94	0.89–0.99	0.25	0.22–0.28	2.25	2.16–2.34
7	0.95	0.90–0.99	1.19	1.14–1.25	0.20	0.17–0.22	2.33	2.25–2.41
8	0.84	0.80–0.88	1.44	1.38–1.49	0.19	0.17–0.21	2.47	2.39–2.55
9	0.75	0.72–0.79	1.40	1.34–1.45	0.15	0.13–0.16	2.30	2.23–2.37
10	0.55	0.52–0.58	1.05	1.00–1.09	0.09	0.08–0.11	1.70	1.63–1.76

Table B.10: DMFT by age, South Australia, 2008

	Decayed		Filled		Missing		DMFT	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
6	0.04	0.04–0.05	0.01	0.01–0.01	0.00	0.00–0.00	0.05	0.04–0.06
7	0.13	0.12–0.14	0.03	0.03–0.04	0.00	0.00–0.00	0.16	0.15–0.18
8	0.16	0.14–0.17	0.09	0.08–0.10	0.00	0.00–0.00	0.24	0.23–0.26
9	0.18	0.17–0.20	0.19	0.17–0.20	0.01	0.00–0.01	0.38	0.35–0.40
10	0.22	0.20–0.24	0.28	0.26–0.30	0.01	0.01–0.02	0.51	0.48–0.53
11	0.29	0.27–0.32	0.39	0.37–0.42	0.02	0.02–0.03	0.71	0.68–0.75
12	0.38	0.35–0.40	0.59	0.56–0.62	0.04	0.03–0.05	1.01	0.97–1.05
13	0.47	0.44–0.50	0.72	0.68–0.76	0.03	0.02–0.04	1.22	1.17–1.27
14	0.61	0.56–0.65	0.90	0.86–0.95	0.07	0.05–0.08	1.58	1.51–1.65
15	0.72	0.67–0.77	1.11	1.06–1.17	0.06	0.05–0.07	1.89	1.81–1.97
16	0.69	0.63–0.75	1.40	1.32–1.48	0.07	0.05–0.08	2.16	2.05–2.27

Table B.11: Children with dmft = 0 by age, South Australia, 2008 (per cent)

Age (years)	n[(a)]	% dmft = 0
4	11,526	62.7
5	10,073	55.3
6	8,856	47.6
7	8,257	43.9
8	7,613	39.1
9	7,392	37.6
10	9,147	46.7

(a) Weighted number

Table B.12: Children with DMFT = 0 by age, South Australia, 2008 (per cent)

Age (years)	n[(a)]	% DMFT = 0
6	17,928	96.3
7	16,759	89.1
8	16,469	84.7
9	15,261	77.7
10	14,065	71.9
11	12,822	64.7
12	11,110	54.5
13	10,461	50.5
14	9,162	44.9
15	8,186	39.3
16	7,008	38.1

(a) Weighted number

Table B.13: dmft by age, Tasmania, 2008

	Decayed		Filled		Missing		dmft	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
4	1.18	1.05–1.31	0.25	0.21–0.30	0.15	0.10–0.20	1.59	1.43–1.74
5	1.17	1.06–1.27	0.55	0.48–0.62	0.32	0.26–0.39	2.04	1.89–2.19
6	1.23	1.13–1.32	0.79	0.71–0.86	0.60	0.53–0.66	2.61	2.46–2.76
7	0.98	0.91–1.06	1.01	0.93–1.09	0.79	0.72–0.85	2.78	2.64–2.91
8	0.96	0.88–1.03	1.19	1.11–1.27	0.62	0.56–0.67	2.76	2.64–2.89
9	0.75	0.69–0.81	1.21	1.13–1.29	0.51	0.46–0.56	2.47	2.35–2.58
10	0.56	0.50–0.61	0.97	0.90–1.04	0.39	0.35–0.43	1.92	1.81–2.02

Table B.14: DMFT by age, Tasmania, 2008

	Decayed		Filled		Missing		DMFT	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
6	0.08	0.06–0.10	0.01	0.00–0.02	0.01	0.00–0.01	0.10	0.08–0.12
7	0.18	0.15–0.20	0.04	0.03–0.05	0.01	0.00–0.02	0.23	0.20–0.26
8	0.24	0.21–0.27	0.13	0.11–0.16	0.02	0.01–0.03	0.39	0.35–0.43
9	0.27	0.24–0.30	0.17	0.15–0.20	0.05	0.02–0.07	0.49	0.44–0.54
10	0.32	0.28–0.35	0.28	0.24–0.31	0.05	0.03–0.08	0.65	0.59–0.70
11	0.47	0.42–0.53	0.46	0.42–0.50	0.06	0.04–0.08	0.99	0.92–1.06
12	0.60	0.54–0.66	0.59	0.54–0.64	0.09	0.07–0.12	1.28	1.20–1.36
13	0.71	0.65–0.78	0.71	0.65–0.77	0.08	0.06–0.11	1.51	1.41–1.61
14	0.82	0.74–0.89	0.86	0.78–0.93	0.15	0.12–0.18	1.82	1.71–1.94
15	0.95	0.85–1.04	1.14	1.06–1.23	0.19	0.16–0.23	2.28	2.15–2.42
16	0.97	0.86–1.07	1.39	1.28–1.50	0.31	0.25–0.36	2.66	2.50–2.82

Table B.15: Children with dmft = 0 by age, Tasmania, 2008 (per cent)

Age (years)	n[(a)]	% dmft = 0
4	3,568	91.8
5	3,066	87.5
6	2,277	37.3
7	1,819	29.2
8	1,873	29.2
9	2,149	32.6
10	2,514	39.5

(a) Weighted number

Table B.16: Children with DMFT = 0 by age, Tasmania, 2008 (per cent)

Age (years)	n[(a)]	% DMFT = 0
6	5,780	94.6
7	5,342	85.7
8	5,053	78.8
9	4,891	74.3
10	4,335	68.0
11	3,785	56.7
12	3,254	48.4
13	3,246	46.3
14	2,968	42.6
15	2,325	33.7

16	1,796	26.0

(a) Weighted number

Table B.17: dmft by age, Australian Capital Territory, 2008

	Decayed		Filled		Missing		dmft	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
4	0.43	0.32–0.54	0.12	0.07–0.17	0.00	0.00–0.01	0.55	0.42–0.67
5	0.52	0.42–0.63	0.38	0.29–0.46	0.02	0.01–0.04	0.92	0.77–1.07
6	0.57	0.47–0.67	0.56	0.47–0.65	0.03	0.01–0.04	1.16	1.00–1.32
7	0.68	0.59–0.78	0.88	0.76–1.00	0.06	0.04–0.09	1.63	1.45–1.80
8	0.50	0.43–0.57	1.15	1.03–1.28	0.05	0.04–0.07	1.71	1.55–1.87
9	0.52	0.45–0.59	1.32	1.19–1.45	0.05	0.04–0.07	1.89	1.73–2.05
10	0.38	0.32–0.44	1.00	0.89–1.11	0.05	0.03–0.06	1.42	1.29–1.56

Table B.18: DMFT by age, Australian Capital Territory, 2008

	Decayed		Filled		Missing		DMFT	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
6	0.03	0.01–0.04	0.00	0.00–0.01	0.00	—	0.03	0.02–0.04
7	0.06	0.04–0.08	0.01	0.00–0.02	0.00	—	0.07	0.05–0.09
8	0.08	0.06–0.11	0.08	0.06–0.11	0.00	0.00–0.01	0.17	0.13–0.21
9	0.07	0.05–0.09	0.15	0.12–0.19	0.01	0.00–0.01	0.23	0.19–0.27
10	0.09	0.06–0.11	0.30	0.25–0.34	0.02	0.00–0.03	0.40	0.34–0.46
11	0.15	0.11–0.19	0.32	0.27–0.37	0.02	0.01–0.03	0.49	0.42–0.55
12	0.16	0.12–0.21	0.53	0.45–0.60	0.02	0.00–0.04	0.71	0.62–0.81
13	0.19	0.14–0.23	0.60	0.52–0.68	0.05	0.02–0.08	0.84	0.74–0.94
14	0.34	0.19–0.48	0.94	0.70–1.18	0.08	0.01–0.14	1.35	1.05–1.65
15	0.44	0.28–0.60	1.06	0.82–1.29	0.07	0.00–0.14	1.57	1.28–1.86

Table B.19: Children with dmft = 0 by age, Australian Capital Territory, 2008 (per cent)

Age (years)	n[(a)]	% dmft = 0
4	3,666	84.6
5	2,891	71.4
6	2,780	66.8
7	2,369	55.9
8	2,239	51.6
9	2,051	46.0
10	2,259	51.7

(a) Weighted number

Table B.20: Children with DMFT = 0, by age Australian Capital Territory, 2008 (per cent)

Age (years)	n[(a)]	% DMFT = 0
6	4,067	97.7
7	4,019	94.8
8	3,871	89.2
9	3,809	85.5
10	3,359	76.8
11	2,802	70.6
12	2,583	63.3
13	2,496	60.5
14	1,946	46.4
15	1,742	41.0

(a) Weighted number

Table B.21: dmft by age, Northern Territory, 2008

	Decayed		Filled		Missing		dmft	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
4	1.42	0.75–2.09	1.28	0.78–1.78	0.11	0.00–0.24	2.80	1.98–3.63
5	0.76	0.33–1.19	1.17	0.68–1.66	0.42	0.14–0.70	2.35	1.68–3.02
6	1.11	0.70–1.52	0.88	0.55–1.20	0.11	0.04–0.19	2.10	1.57–2.63
7	1.13	0.75–1.51	1.47	1.16–1.78	0.15	0.07–0.22	2.75	2.26–3.24
8	1.18	0.86–1.50	1.77	1.43–2.11	0.16	0.07–0.25	3.11	2.67–3.55
9	0.66	0.39–0.93	1.44	1.06–1.83	0.05	0.00–0.09	2.15	1.69–2.61
10	0.45	0.29–0.61	0.69	0.51–0.87	0.05	0.00–0.10	1.18	0.93–1.44

Table B.22: DMFT by age, Northern Territory, 2008

	Decayed		Filled		Missing		DMFT	
Age (years)	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
6	0.05	0.00–0.10	0.17	0.06–0.28	0.00	—	0.21	0.09–0.34
7	0.12	0.06–0.19	0.34	0.19–0.50	0.00	—	0.47	0.30–0.63
8	0.18	0.07–0.29	0.34	0.20–0.47	0.04	0.00–0.11	0.56	0.37–0.74
9	0.23	0.12–0.35	0.73	0.50–0.96	0.02	0.00–0.04	0.98	0.72–1.25
10	0.20	0.11–0.29	1.00	0.75–1.24	0.08	0.00–0.20	1.27	0.99–1.56
11	0.17	0.07–0.27	1.25	1.01–1.49	0.02	0.00–0.05	1.44	1.18–1.70
12	0.41	0.21–0.60	1.41	1.02–1.79	0.13	0.00–0.26	1.94	1.50–2.39
13	0.49	0.01–0.97	1.71	1.03–2.38	0.38	0.13–0.64	2.58	1.75–3.41
14	0.69	0.14–1.24	1.92	1.22–2.63	0.03	0.00–0.07	2.64	1.79–3.49

Table B.23: Children with dmft = 0 by age, Northern Territory, 2008 (per cent)

Age (years)	n[(a)]	% dmft = 0
4	1,773	51.9
5	1,523	41.9
6	1,872	52.7
7	1,393	38.0
8	859	25.2
9	1,235	37.3
10	1,926	55.4

(a) Weighted number

Table B.24: Children with DMFT = 0 by age, Northern Territory, 2008 (per cent)

Age (years)	n[(a)]	% DMFT = 0
6	3,238	91.1
7	2,880	78.5
8	2,628	77.2
9	2,076	62.7
10	1,897	54.6
11	1,669	50.8
12	1,450	43.0
13	1,134	33.9
14	1,204	36.9

(a) Weighted number

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The Child Dental Health Survey provides information on patterns of oral health and service provision among children attending school dental services in Australia in 2008. The report shows that decay is relatively common in Australian children, and there has been an increasing tendency to provide fissure sealants to children at risk of caries. Fissure sealants among 12-year-old children increased until 2001, but decreased thereafter.