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# **Dental health of Australia's teenagers and pre-teen children**

## **The Child Dental Health Survey, Australia 2003–04**

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# Abbreviations

AR-DRG	Australian Refined Diagnosis Related Group
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
SD	standard deviation
SiC <sup>10</sup>	Significant Caries Index (10%)
SOKS	Save Our Kids Smiles

## Place abbreviations

ACT	Australian Capital Territory
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

## Symbols

n.a.	not available
–	nil or rounded to zero
..	not applicable

# Summary

The Child Dental Health Survey provides national information on the dental health of children attending school dental services in Australia. This report describes and discusses the survey and presents analyses for the combined years 2003–04. The data cover more than a quarter of a million children from all states and territories except for New South Wales.

## Teenagers

- Teenage children have been identified as being at increased risk of dental disease.
- Between 40% and 57% of 12–15 year old teenagers had some history of decay in their permanent teeth – that is, one or more decayed, missing and filled permanent teeth.
- On average 12 year old children had slightly more than one decayed, missing and filled permanent tooth per child, while 15 year old children had two decayed, missing and filled permanent teeth on average.
- The 10% of teenagers with the most extensive history of permanent tooth decay had between five and eight permanent teeth affected, which was about 4.5 times the national average of decayed, missing and filled teeth.

## Pre-teen children

- Nearly half (48.9%) of 6 year old children had a history of decay in the deciduous ('baby') teeth – that is, one or more decayed, missing and filled deciduous teeth.
- On average, 6 year old children had two decayed, missing and filled deciduous teeth per child.
- The 10% of 4–6 year old children with the most extensive history of deciduous tooth decay had more than nine deciduous teeth affected, which was about 4.5 times the national average.

## Conclusion

- Decay experience is relatively common in both teenage and pre-teen Australian children.
- A minority of children experience a greater than average burden of disease.
- The lack of national data on older teenage children aged 15–17 years means that it cannot be determined whether or not the older teen years are a period of increased risk of dental disease.

# 1 Introduction

This publication describes the patterns and service provision relating to children's dental health in Australia for the years 2003 and 2004. The publication's tables and figures describe the demographic composition of the sample, deciduous and permanent decay experience, and the extent of immediate treatment needs, prevalence of fissure sealants and other relevant information. The publication also describes the survey methods and discusses the findings presented in the national tables. It aims to provide policy makers and health planners, as well as academics and interested readers, with a concise summary of the latest available data for dental decay among children in Australia.

The report divides Australian children into teenager and pre-teen groups for descriptive and comparative purposes. This division has some policy relevance given that the Australian government introduced a dental program in 2008 aimed directly at Australian teenagers. It is also the case that teenage children differ from pre-teen children in terms of their dental development. Whereas teenage children aged 12 or older have only permanent (adult) teeth, pre-teen children between the ages of 5 and 11 years mostly have a mixture of deciduous (baby) teeth and permanent teeth. Finally, there may be differences in service provision between pre-teen children, many of whom are covered by school dental services at primary school, and teenagers, most of whom are not covered by, or have considerably reduced coverage by, school dental services in high school.

## 1.1 What is dental caries (decay)?

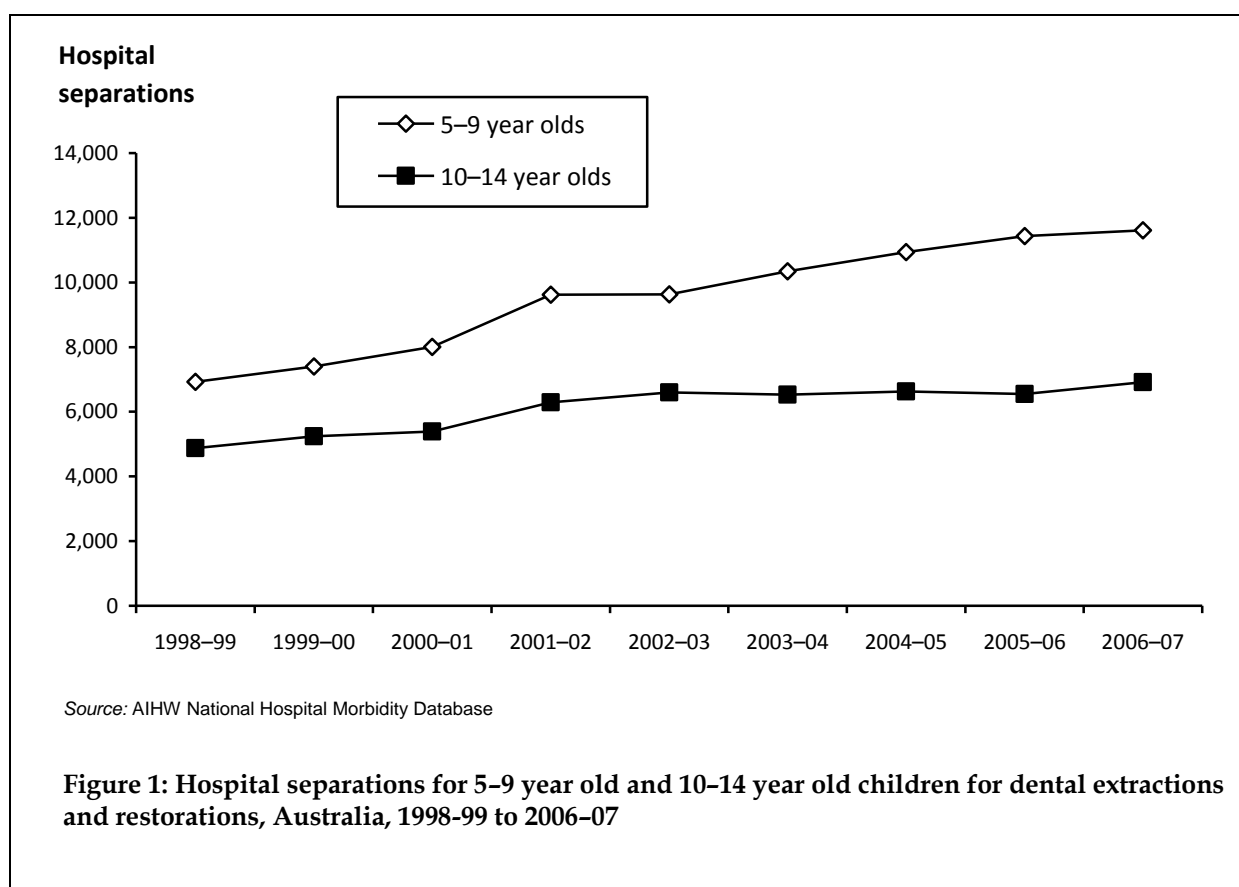
Dental caries is a common chronic disease characterised by the loss of mineral ions from the tooth (demineralisation), which is stimulated largely by the presence of bacteria and their by-products (Mount & Hume 2005). Normally, a balance occurs between the demineralisation and remineralisation of the tooth surface (enamel). Remineralisation occurs when the mineral structure of the tooth is rebuilt by chemical processes involving calcium or phosphate ions, and can be appreciably enhanced by the presence of fluoride. However, under some conditions this balance is upset and the subsequent net demineralisation leads to the formation of holes or cavities in the tooth surface. Cavitation beyond the outer enamel covering of the tooth into the dentine and pulp allows for bacterial infection, which may cause considerable pain and require restoration or the removal of the tooth.

New dental decay is believed to affect up to 5 million people in Australia each year. Among adults, untreated dental decay afflicts approximately one-quarter of all people in any given year (Slade, Spencer & Roberts-Thomson 2007). Caries is a common cause of hospital separation defined as an episode of admitted patient care. Among children dental extractions and restorations are the most common reason for hospital separations. Using the Australian Refined Diagnosis Related Groups (AR-DRGs) classification system of admitted Australian hospital patients, for both males and females and for young (1–4 years) and older children (5–9 and 10–14 years), hospital separations for dental extractions and restorations are more common than for any other reason (Table 1), and are on the increase for children (Figure 1).

**Table 1: Separations for males and females for sex-specific AR-DRGs with the largest number of separations, by age group, all hospitals, Australia, 2006-07**

Australian Refined Diagnosis Related Groups (AR-DRGs)	Age (years)		
	1-4	5-9	10-14
<b>Males</b>			
Dental extractions and restorations (D40Z)	4,280	5,949	2,819
Myringotomy with tube insertion (D13Z)	5,528	2,908	425
Tonsillectomy and/or adenoidectomy (D11Z)	2,216	1,611	271
Injury to forearm, wrist, hand or foot (I74C)	438	1,368	2,302
Mental health treatment, same day (U60Z)	230	1,439	1,303
<i>ALL SEPARATIONS (includes all AR-DRGs)</i>	<i>46,138</i>	<i>37,303</i>	<i>29,640</i>
<b>Females</b>			
Dental extractions and restorations (D40Z)	3,601	5,235	3,854
Myringotomy with tube insertion (D13Z)	3,380	2,063	343
Tonsillectomy and/or adenoidectomy (D11Z)	1,294	1,195	313
Gastroenteritis, age <10 (G68B)	1,275	430	N/A
Other skin, subcutaneous tissue and breast procedures (J11Z)	696	818	988
<i>ALL SEPARATIONS (includes all AR-DRGs)</i>	<i>30,362</i>	<i>25,903</i>	<i>22,012</i>

Source: AIHW National Hospital Morbidity Database.





Although dental decay is associated only rarely with mortality, it is a cause of considerable morbidity and its sequelae have important social impacts. Consequences of dental decay include pain, problems with eating or drinking, loss of sleep, social embarrassment and time lost to work. Dental decay resulting in tooth loss impacts on both chewing ability and quality of life (Brennan, Spencer & Roberts-Thomson 2008).

## 1.2 Classifying the extent of decay

Dental decay occurs along a continuum reflecting the extent of tooth demineralisation. At an early stage non-cavitated 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 non-cavitated lesions are not normally included as an instance of disease experience. However, as demineralisation progresses through the enamel surface of the tooth into the underlying dentine, the enamel surface breaks down and cavitation is said to have occurred and this is counted as an instance of disease experience. It is possible to halt the progress of decay at any stage and non-cavitated lesions may be repaired by remineralisation encouraged by fluoride and other agents. However, failure to seek timely treatment may lead to irreversible damage and the need to restore or remove the tooth.

## 1.3 Risk factors for dental decay

While dental decay is a process of chronic demineralisation of the mineral structure of the tooth there are several factors that are important in this process. The five factors found to exert the strongest influence on dental caries (Mount & Hume 2005) are the:

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

Plaque, a semitransparent layer which adheres to the tooth surface, forms on all teeth and contains many pathogenic organisms including bacteria. It can be reduced or controlled by tooth brushing or through the use of chemical solutions capable of killing the acid-causing bacteria. However, the most significant risk factor for dental decay is the frequency of exposure to fermentable carbohydrates, which is related to the pattern of consumption of certain foods and beverages (Mount & Hume 2005).

Behavioural risk factors for dental decay relate to the five risk and protective factors listed above. These include excessive plaque build-up through infrequent substandard tooth cleaning, poor diet involving high exposure to acidic food stuffs as well as fermentable

carbohydrates such as sugars, reduced salivary flow through medication use or inadequate stimulation, and limited exposure to fluoride available in toothpastes, fluoridated public water or other sources.

## 1.4 Measuring dental decay

From the age of about 6 years children commence losing their baby or deciduous teeth and these teeth are replaced by their permanent teeth. By the time children reach the age of about 12 years, most have lost all their baby teeth and have gained all their permanent teeth (with the exception of wisdom teeth which may erupt several years or even decades later).

Therefore, analysis of dental decay in teenage children only reports the level of disease in permanent teeth. In contrast, younger children generally have what is called a mixed dentition. From the age of about 6 years onwards, many children have both deciduous and permanent teeth in their mouth at the same time.

The dental health status of sampled children covers the four areas listed below:

1. Deciduous decay experience is recorded as the number of deciduous teeth that are decayed, missing because of dental decay or filled because of dental decay, and is based on the coding scheme of Palmer et al. (1984). The index of decay experience in deciduous teeth is referred to as dmft. Decay refers to cavities, usually detected clinically using visual and/or tactile criteria. In some instances radiographic criteria may be used.
2. Permanent decay experience is recorded as the number of permanent teeth that are decayed, missing because of dental decay or filled because of dental decay, and is based on the World Health Organization protocol (WHO 1997). The index of caries experience in permanent teeth is referred to as DMFT.
3. The convention is to report on these two sets of teeth separately. However, this report shall also look at the data for the combined deciduous and permanent teeth, as this gives a picture of total decay experience for each age group.
4. Immediate treatment needs are designated if, in the opinion of the examiner, the child has, or is likely to develop within 4 weeks, pain, infection or a life-threatening condition (WHO 1997). Data collected for the current study do not include information on the immediate treatment needs of children from Victoria, Western Australia, Tasmania or the Australian Capital Territory.
5. Fissure sealants are recorded as the number of teeth, otherwise sound and not restored, which have a fissure sealant. Fissure sealants are materials used to cover over fissures or grooves in the teeth in order to prevent the development of active caries. This data item was introduced in most states and territories in 1989.

While average decay experience for a population provides a good summary statistic, it can hide the existence of people within that population who have considerable decay experience. The Significant Caries Index (SiC) was designed to bring attention to those individuals with the highest values in a population (Bratthal 2000; Nishi et al. 2001). The modified index used here, the SiC<sup>10</sup>, is the average number of decayed, missing and filled teeth of the 10% of the population with the most dental decay experience.

# 2 The dental health of Australia's teenagers

## 2.1 Introduction

The term 'teenager' is a label for children who are aged between 13 and 19 years, although 12 year olds may also be counted as teenagers and, in Australia, 18- and 19 year olds are often excluded because they are considered to be adults. The teen years are important in terms of biological, social and psychological development and mark a transition between childhood and adulthood.

In relation to child oral health, children in their teens represent an interesting age group. Teenage children are sandwiched between younger children, who have care provided by the Australian school dental services, and adults who are responsible for seeking and, for the most part, paying for their own dental care. Almost all school dental services in Australia cater for children attending primary school, which normally means children up to the age of 11–12 years. Children commencing high school (secondary schooling) are normally aged 12 years. School dental services, which were greatly expanded as a national programme in the 1970s, provide preventive and restorative services to children either at no cost or with a heavy subsidy. Although most children are no longer seen by the school dental services every year as has been the case in the past, most children enrolled in the school dental services receive regular attention at least every 2 years.

The almost universal coverage theoretically offered by Australian school dental services can be contrasted with the predominantly private system set up for adults. While a public dental system operates in Australia, it is means tested and only 25% of adults are eligible. Long waiting lists and resource scarcity mean that most Australian adults eligible to attend public dental services actually attend private dental practices.

Teenagers often fall in the gap between the almost universal eligibility offered by school dental services and the private system used by most adults. While some school dental services provide cover for children aged 12 to 17 years who attend secondary (high) school, most do not cover this older school population, and enrolment and use of services by teenage children is considerably lower than for younger children. Most teenage children must rely on their parents to ensure they receive dental care, primarily at private dental clinics or surgeries.

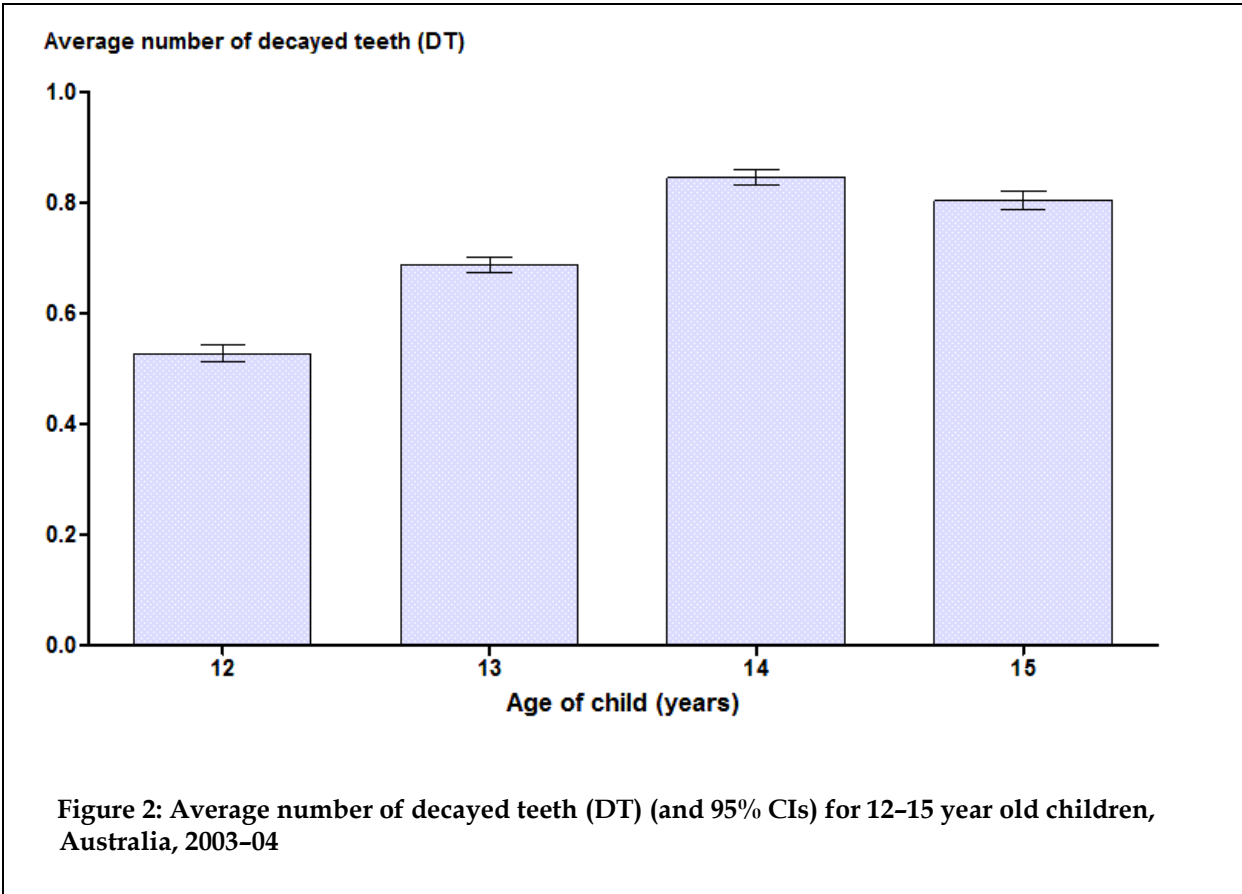
In 2008 the newly elected Labor government introduced their Medicare Teen Dental Plan, designed to improve access to dental services in Australia for teenagers aged 12–17 years. The plan was also formulated with the purpose of helping to maintain good oral health in these children and to encourage young adults to continue to look after their teeth once they become independent (Australian Commonwealth Government 2008). The age range covered under the plan represents those children not eligible for school dental services in some, but not all, Australian states and territories. The plan is also targeted towards all children from lower- and middle-income families (parents receiving Family Tax Benefit A or teenagers receiving Youth Allowance or ABSTUDY).

In part, and irrespective of the reduced public dental coverage offered to many teenagers, the Australian Government’s Teen Dental Plan is a response to the perception that the teenage years might represent a period of increased risk of dental decay (Australian Labor Party 2007). Certainly, data collected as part of the Child Dental Health Survey indicates that the oral health of teenagers may be worsening. The Australian Dental Association (ADA) stated in a press release during Dental Awareness Week in 2006 that Australian teens were the highest risk group for dental decay. The claim was based upon data provided by the Australian Institute of Health and Welfare (AIHW) Dental Statistics and Research Unit, which showed that in South Australia over a recent 6-year period there had been a 71.1% increase in dental decay among 14 year olds and a 71.7% increase among 15 year olds. Poor diet, eating disorders, soft drink consumption, obesity and smoking were speculated as important risk factors.

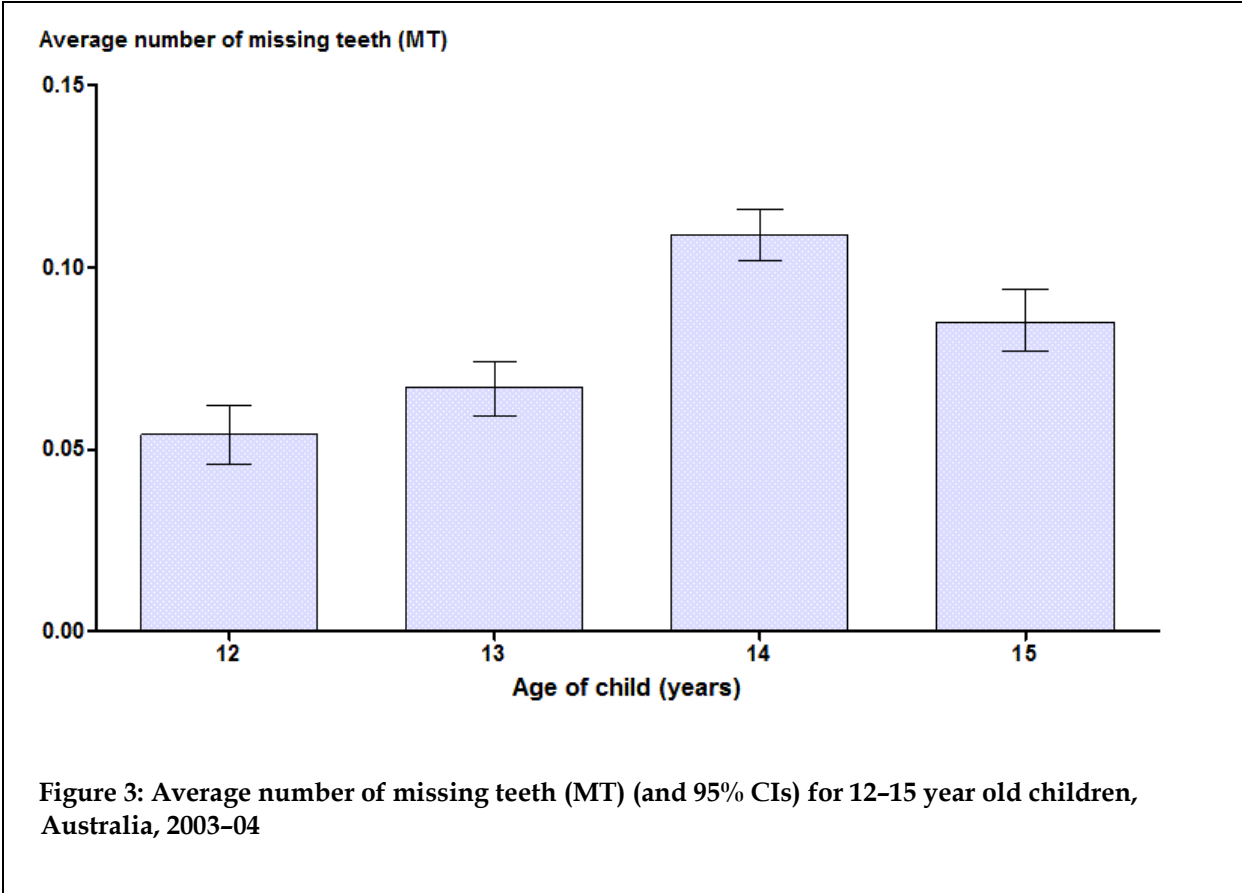
This report uses data for children aged between 4 and 15 years only. Due to age-based school dental service cut-offs and/or increases in fees for services directed at older children, few Australian children aged 16 years or older receive school dental service treatment.

## 2.2 Teenagers’ dental health

Information on the number of decayed, missing and filled permanent teeth for teenagers is shown in Figures 2-5. The average numbers of decayed teeth (DT) ranged from 0.53 for 12 year olds to 0.85 for 14 year olds (Figure 2). The slight decline evident for children aged 15 years may be as a result of the change in sample characteristics for children in this age group (no children from Victoria are included in the data for 15 year olds).

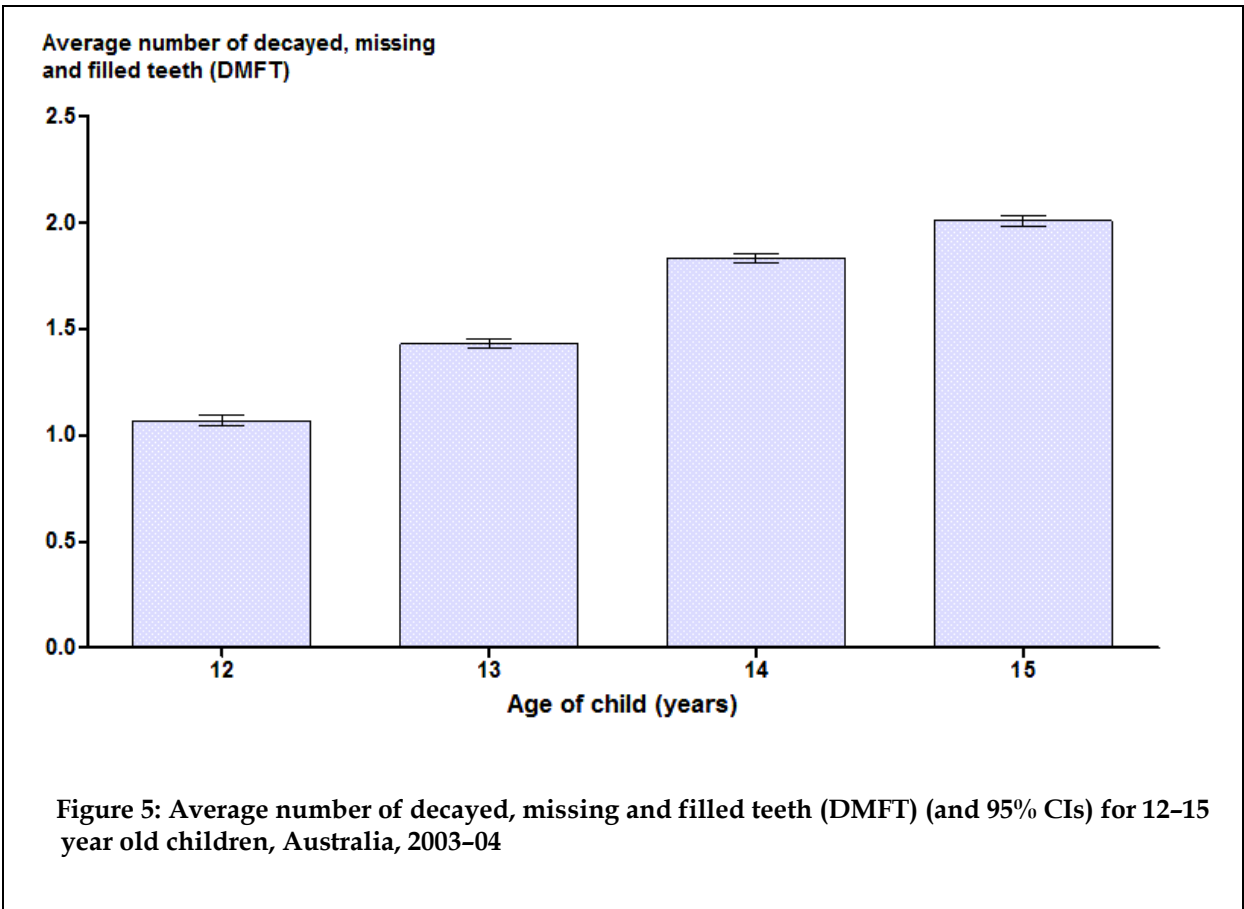
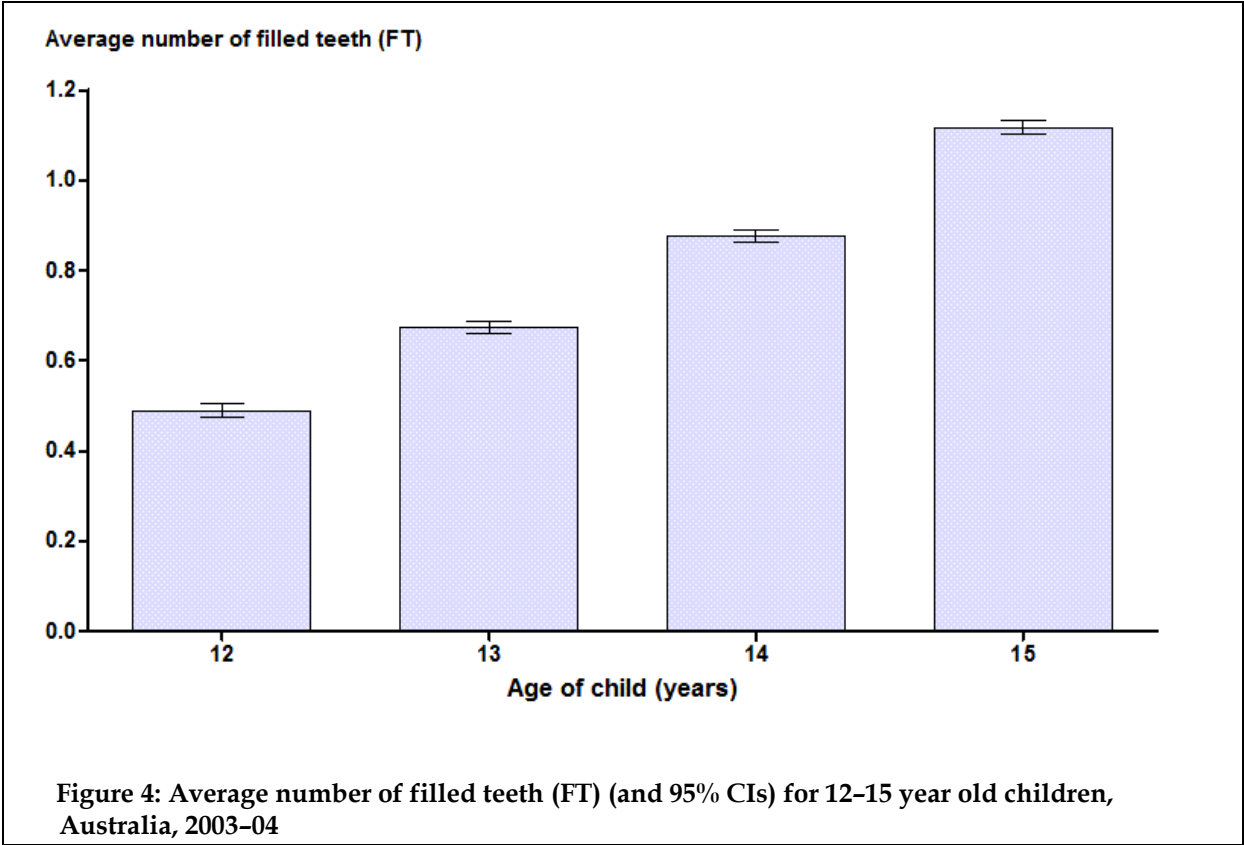


The average number of teeth that were missing due to decay (MT) was very low for most ages. It was highest at 0.11 teeth per child (representing about 1 in every 9 children on average) for 14 year old children (Figure 3).

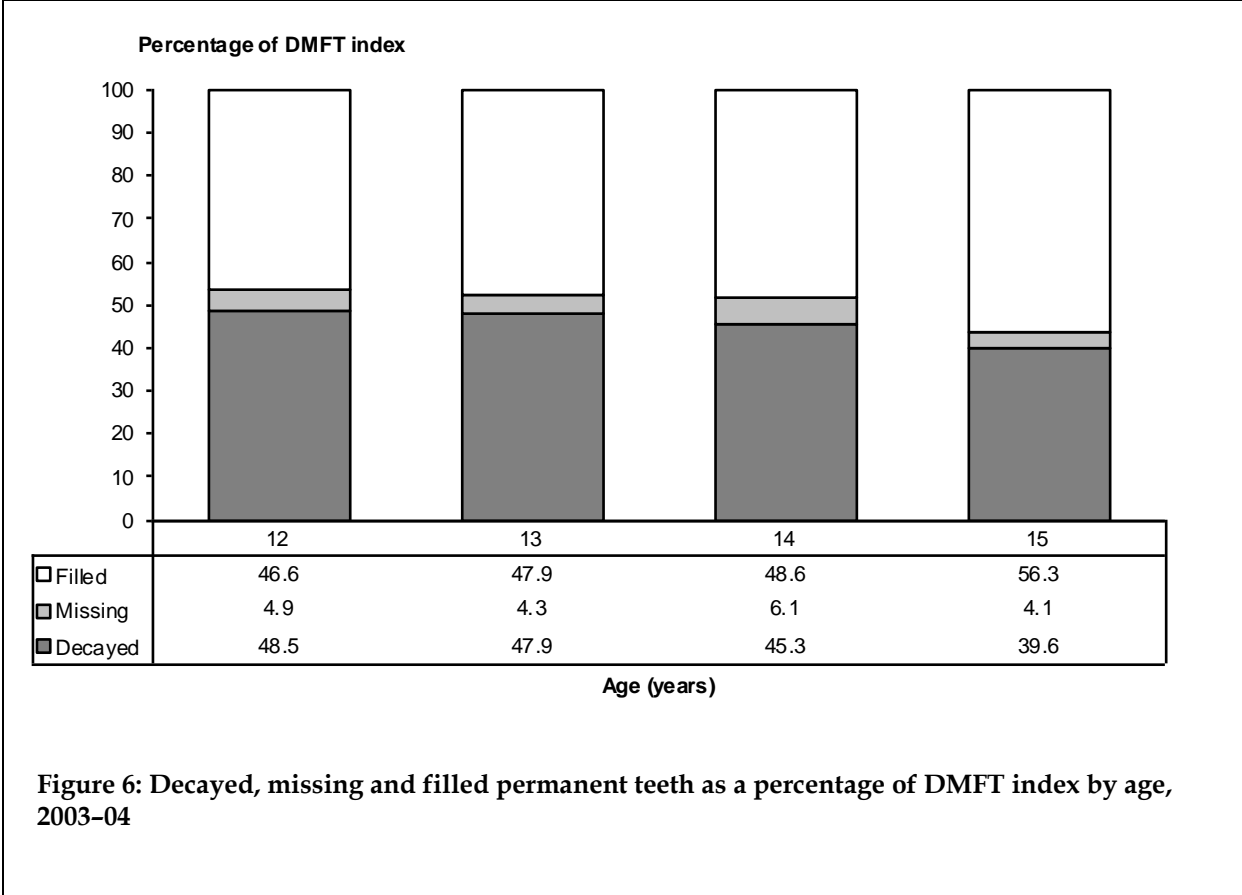


The pattern with filled teeth (FT) was a relatively consistent increase across the age ranges, from 0.49 teeth per child for 12 year olds to 1.12 teeth per child for 15 year olds (Figure 4).

Average DMFT per child also increased across successive age groups, from 1.07 per child at age 12 years to 2.01 teeth per child at age 15 years (Figure 5). The average DMFT for 12 year old children, a widely referenced age group, was slightly higher than for children of the same age reported in 2002 (1.02 per child on average).



The average number of decayed, missing and filled permanent teeth expressed as percentages of DMFT is shown in Figure 6. Between the ages of 12 and 14 years, both decayed and filled teeth were similar in percentage. By the age of 15 years, however, less than 40% of the DMFT index was attributable to untreated decayed teeth, while the percentage of carious teeth represented as filled had increased to slightly more than 56%.



The prevalence of dental disease (DMFT >0) was 42.5% for 12 year olds (Figure 7). However, at the age of 15 years, disease prevalence in the permanent teeth was 56.9%. Interpreting the same data in terms of the absence rather than the presence of disease, it could be stated that the percentages of those children free of disease experience in their permanent teeth reduced from 57.5% of 12 year olds to only 43.1% of 15 year olds.

The D/DMFT index is an indicator of how well a child’s dental needs are being met, and is calculated as the ratio of untreated decayed teeth to the total count of decayed, missing and filled teeth for each child. This is presented in Figure 7 as the mean of individual children’s D/DMFT index. There is a decline in the mean D/DMFT index across successively older age groups, reflecting the continued service use of teenage children despite restrictions to school dental service coverage for these years.

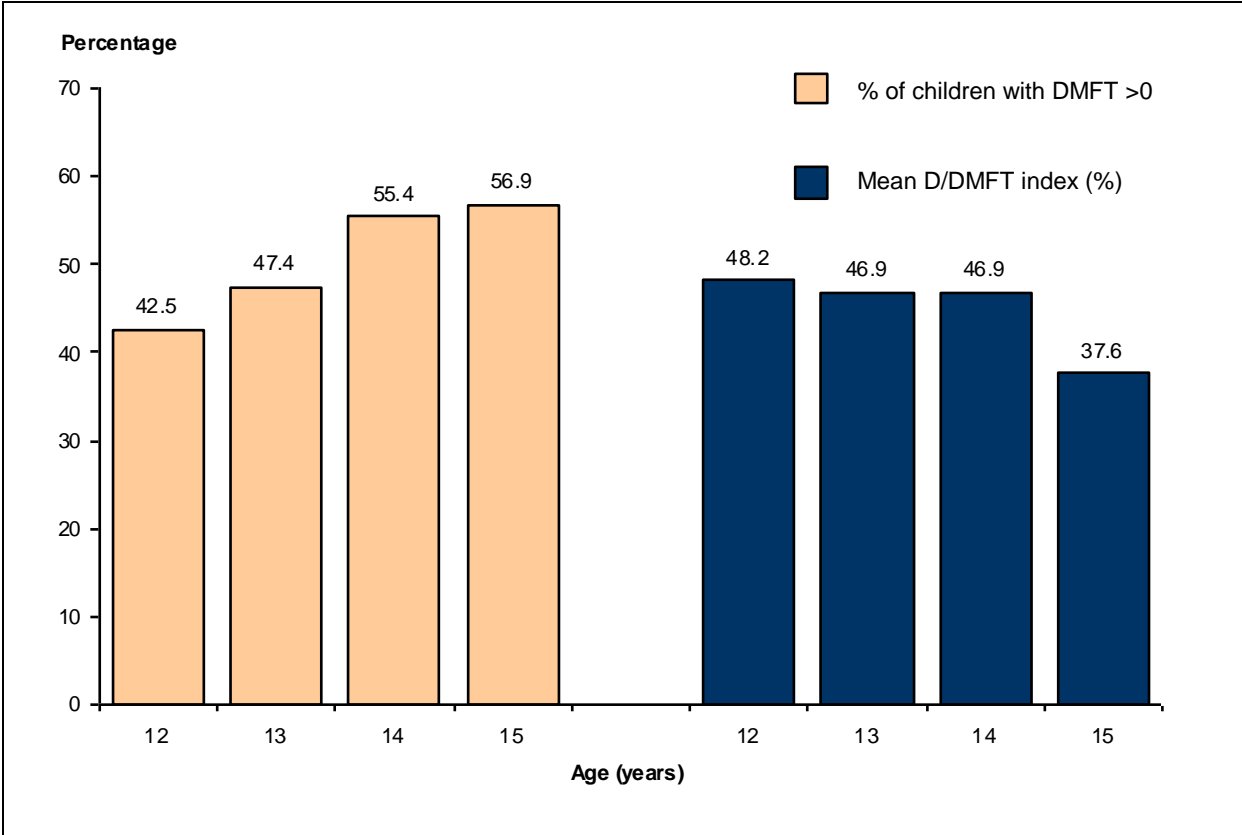
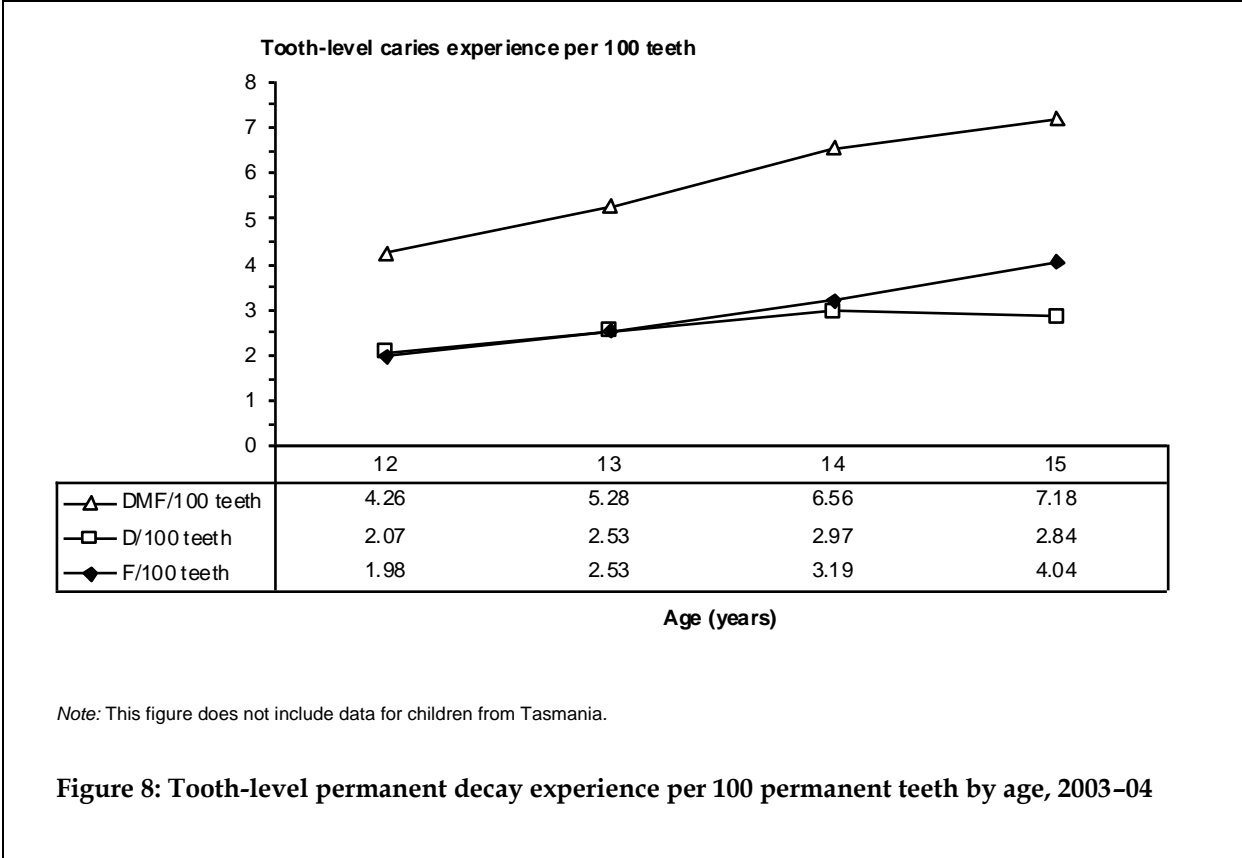


Figure 7: Permanent teeth – % of children with DMFT >0 and mean D/DMFT index, 2003-04

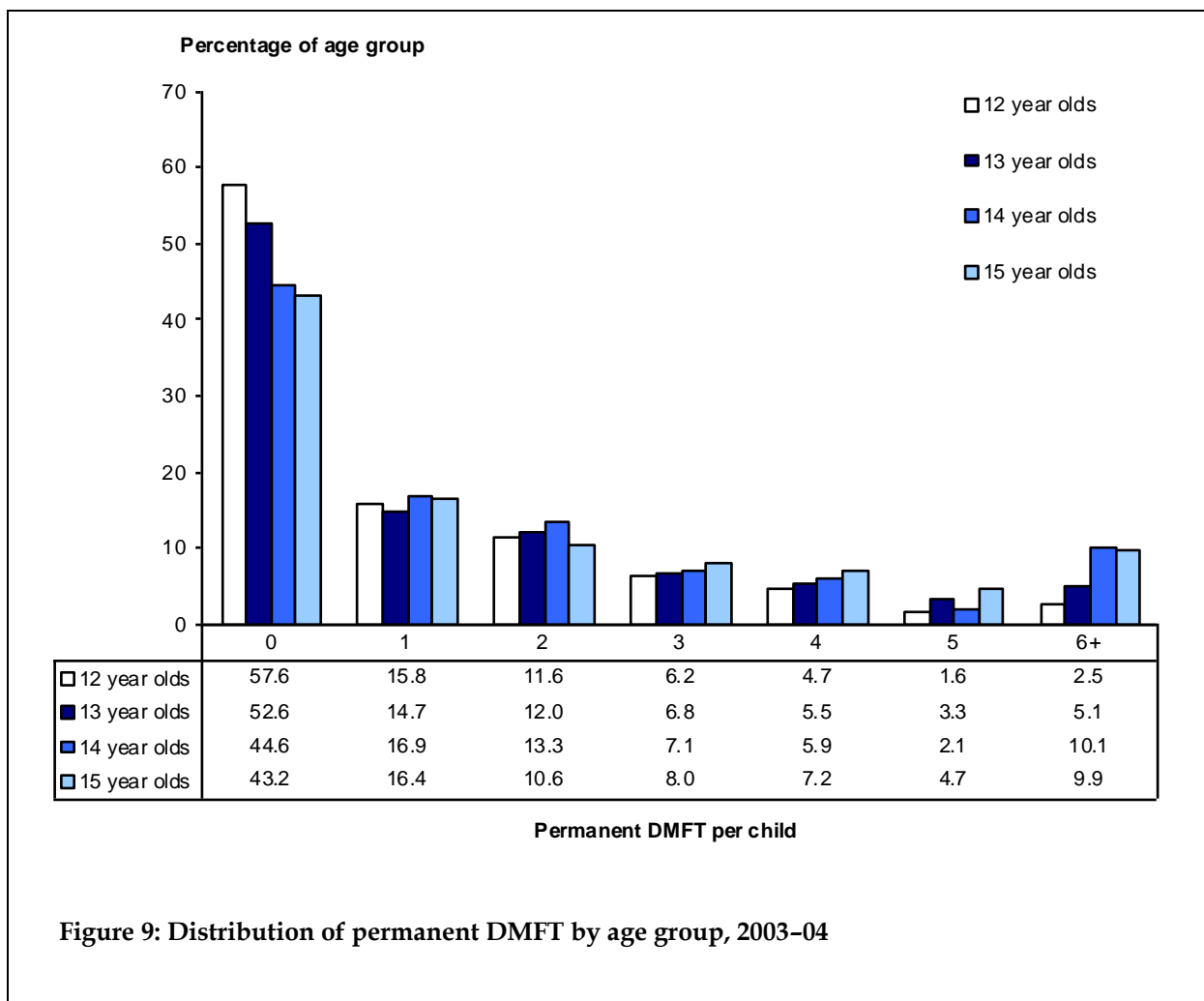


After controlling for the number of permanent teeth present, an increase in the rate of decay experience was seen by increasing age, although the trend was not consistent (Figure 8). Between the ages of 12 and 14 years, the rate of decay increased from 2.07 to 2.97 per 100 permanent teeth present, before decreasing to 2.84 for 15 year olds. The numbers of filled teeth per 100 teeth present increased consistently from 1.98 for 12 year olds to 4.04 for 15 year olds. Overall, average DMFT per 100 teeth present increased from 4.26 at age 12 years to 7.18 (that is, 7.2% of all teeth) at age 15 years.

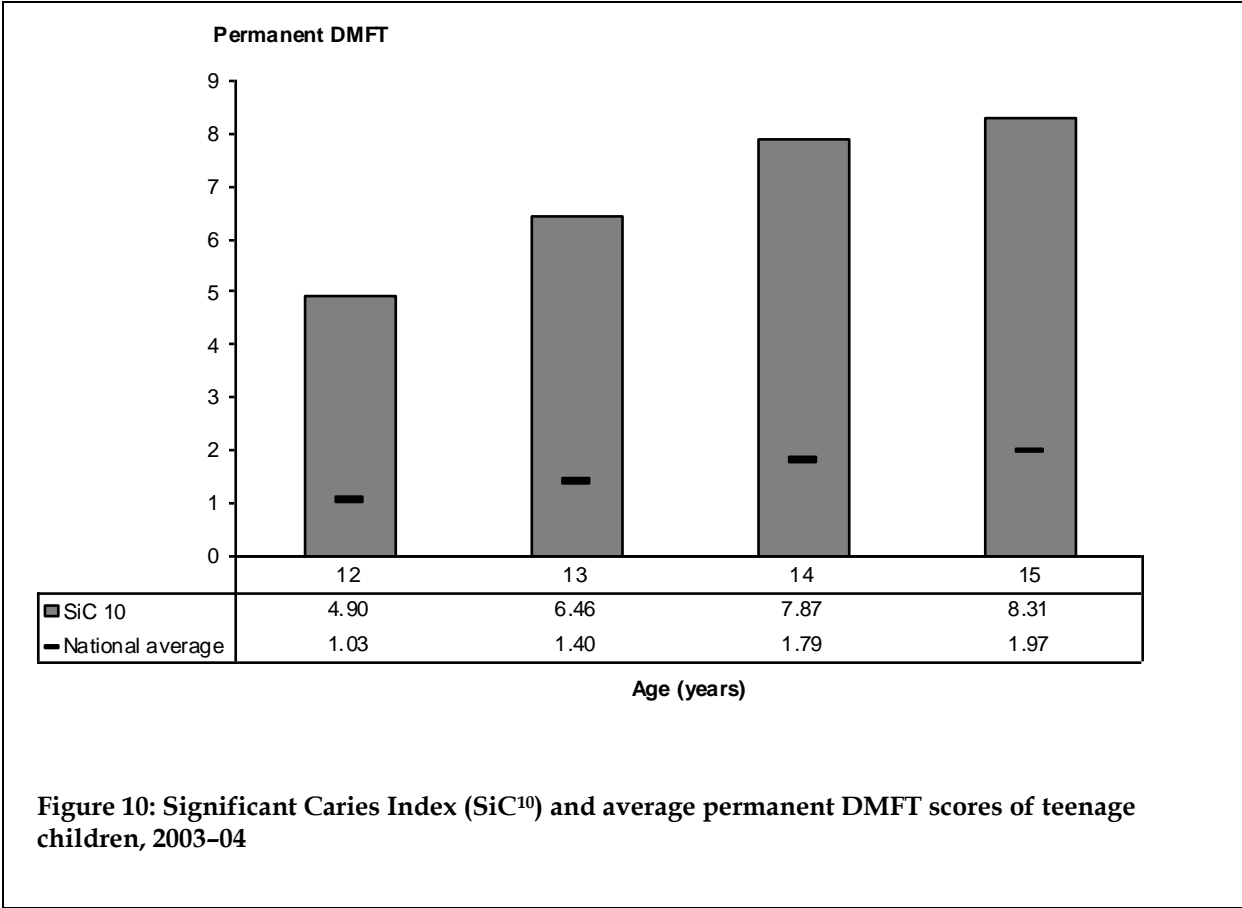


## Distribution of disease

The distribution of permanent DMFT for teenage children aged between 12 and 15 years is shown in Figure 9. As previously demonstrated in Figure 7, there was a decline across the age range in the percentage of children without decay experience in the permanent teeth, as represented by reductions in the percentage of children with DMFT = 0. However, for most of the other permanent DMFT scores presented, there were increases across successively older age groups. Between the ages of 12 and 15 years, between 2.5% to 10.1% of children had 6 or greater DMFT.



The burden of disease in the permanent teeth of teenage children most affected by decay experience is indicated in Figure 10. Between the ages of 12 and 15 years, children with the highest 10% of DMFT values (SiC<sup>10</sup>) had average DMFT values that were between 4.2 and 4.8 times greater than the average for the entire age group. The SiC<sup>10</sup> increased from 4.90 DMFT per child for 12 year olds to 8.31 DMFT per child for 15 year olds.



**Figure 10: Significant Caries Index (SiC<sup>10</sup>) and average permanent DMFT scores of teenage children, 2003-04**

## Interstate comparisons

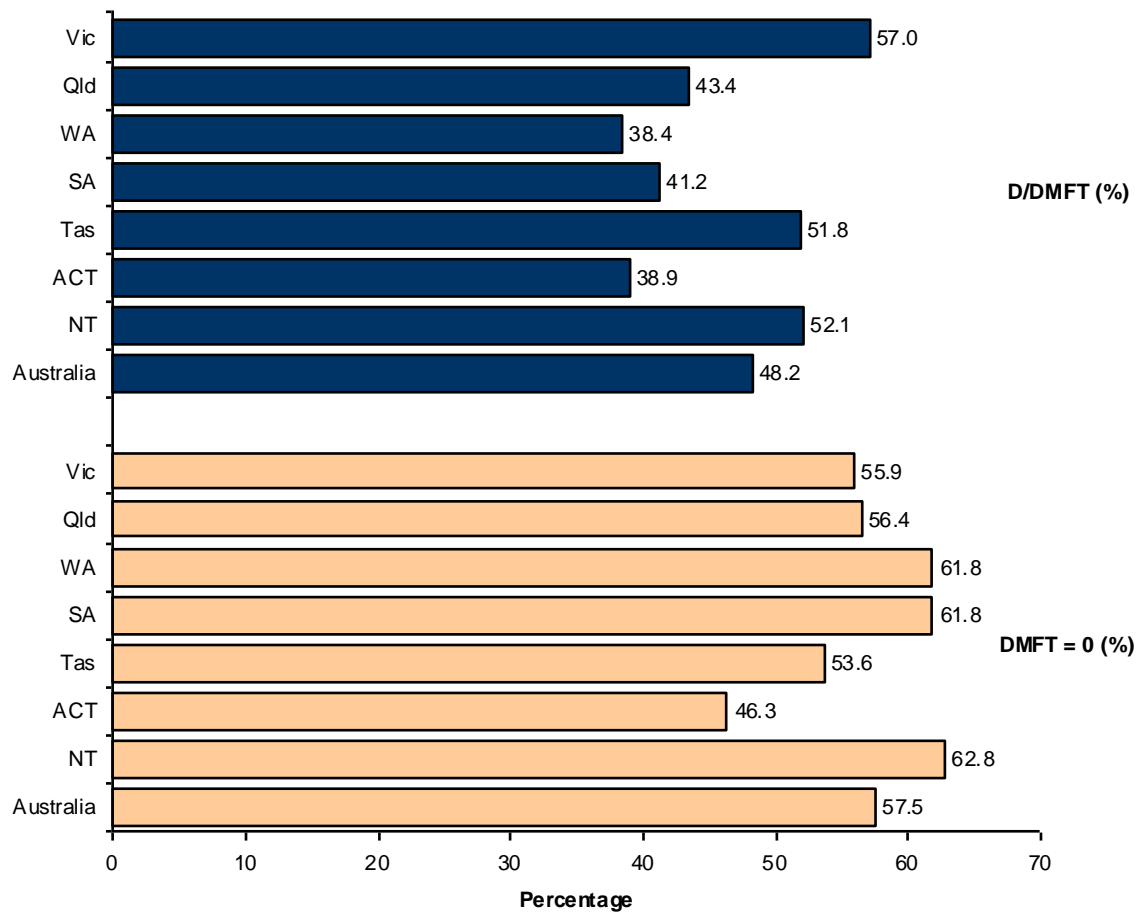
Variation could be seen in the average 12 year old DMFT among states and territories (Table 2). The highest average values (1.19 per child in Queensland and 1.18 per child in Tasmania) were about 45% higher than that of the lowest DMFT value (0.82 per child in South Australia). Pearson *R* correlation coefficients were used to assess the statistical strength of the linear association between DMFT and the decayed and filled components. There was a relatively strong correspondence between average DMFT and the average number of decayed teeth (Pearson *R* correlation coefficient = 0.71), but a weaker relationship between DMFT and the average number of filled teeth (Pearson *R* correlation coefficient = 0.52). This means that the average DMFT for the states and territories was more strongly predicted by the average number of decayed teeth than by the average number of filled teeth.

The Northern Territory had the highest percentage of children with no decay experience in the permanent teeth of 12 year olds, with 62.8% of children recording DMFT = 0 (Figure 11). The Australian Capital Territory had the lowest percentage of children with DMFT = 0, with only 46.3% of 12 year olds in that jurisdiction having no history of decay. It should be noted, however, that the targeting of school dental services to children in greater perceived need in the Australian Capital Territory biases this estimate and it is less representative of the entire child population than in other states or territories. There was also quite large variation in the D/DMFT ratio, ranging from 38.4% in Western Australia to 57.0% in Victoria.

**Table 2: Interstate comparison – 12 year old DMFT, 2003–04**

State/territory	Children	Decayed (D)		Missing (M)		Filled (F)		DMFT	
	<i>n</i>	average	SD	average	SD	average	SD	average	SD
NSW	..	..	..	..	..	..	..	..	..
Vic	7,997	0.61	1.21	0.05	0.36	0.40	0.89	1.06	1.66
Qld	4,923	0.51	1.19	0.05	0.42	0.63	1.20	1.19	1.97
WA	3,435	0.32	0.82	0.08	0.55	0.46	0.99	0.87	1.49
SA	2,511	0.33	0.84	0.01	0.18	0.47	0.99	0.82	1.38
Tas	798	0.66	1.30	0.02	0.21	0.50	0.95	1.18	1.71
ACT	535	0.35	0.73	0.05	0.37	0.65	1.24	1.06	1.44
NT	454	0.49	1.23	0.09	0.50	0.35	0.89	0.92	1.71
<b>Australia</b>	<b>20,654</b>	<b>0.50</b>	<b>1.11</b>	<b>0.05</b>	<b>0.40</b>	<b>0.48</b>	<b>1.02</b>	<b>1.03</b>	<b>1.69</b>

.. = not applicable due to exclusion of New South Wales from 2003–04 data collection



**Figure 11: Interstate comparison – 12 year old D/DMFT and % of children with DMFT = 0, 2003-04**

# 3 The dental health of Australia's pre-teen children

## 3.1 Deciduous teeth

Decay experience in the deciduous teeth is expressed as the average number of decayed, missing (due to decay) and filled teeth. The averages and standard deviations for each of these components for the ages 4–10 years are given in Table 3. There was a steady decline in the presence of clinically detectable decay across older age groups, from more than 1.3 teeth per child among 4–5 year olds to 0.58 teeth per child among 10 year olds. A different pattern was shown by the average number of filled teeth, increasing from 0.24 teeth per child at age 4 years to 1.21 teeth per child at age 9 years, before declining to 0.95 teeth per child at age 10 years. Across all age groups the number of teeth per child that were missing due to decay was small, with averages ranging from 0.08 to 0.15 teeth per child. The average number of decayed, missing (due to decay) and filled teeth (dmft) increased from 1.70 per child at age 4 years to 2.25 per child at age 8 years, before declining to 1.62 teeth per child for 10 year olds.

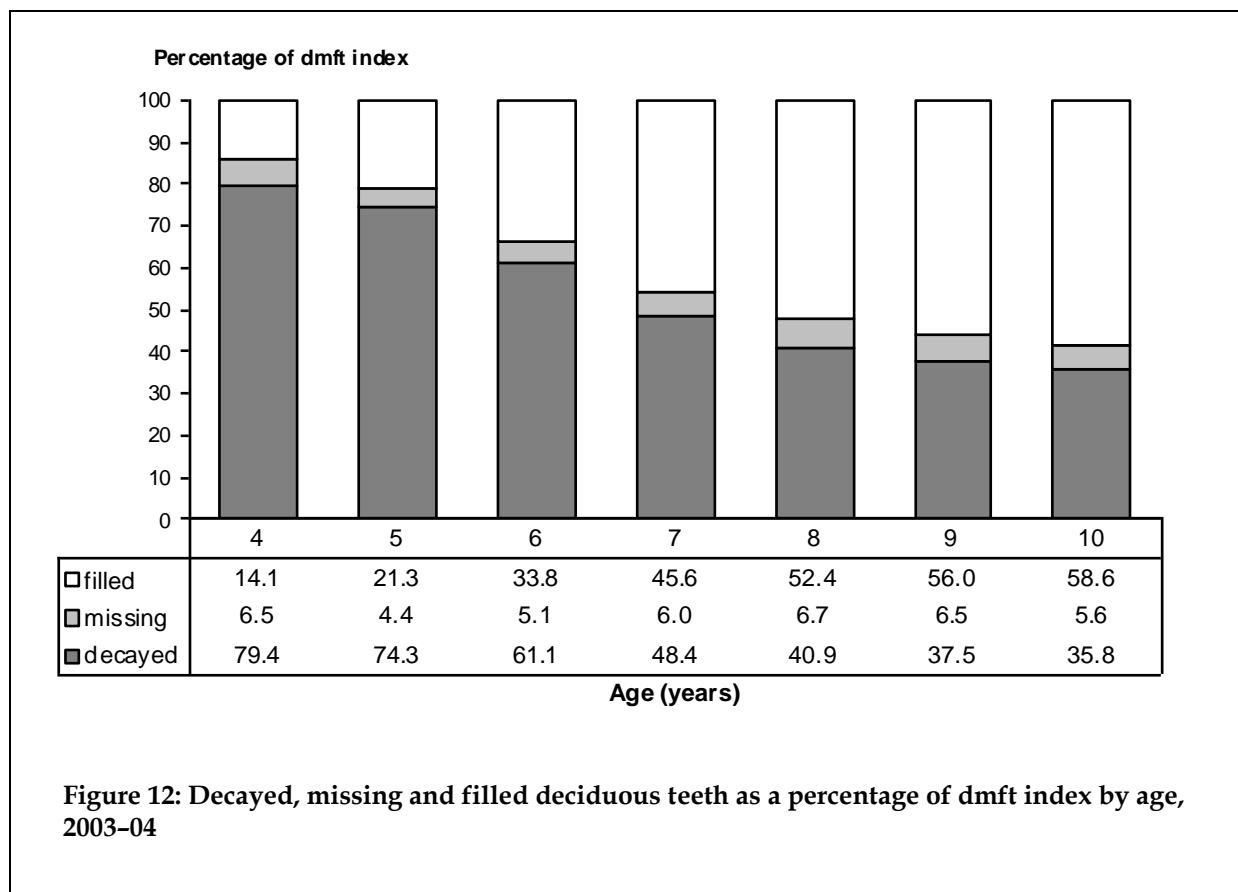
Patterns in deciduous decay experience must be interpreted in light of the exfoliation or shedding of deciduous teeth with age. The steady decline in the average number of deciduous teeth present in children across older ages is shown in Table 3. From age 5 years, children shed on average two to three deciduous teeth per year, reducing the total number from an average of approximately 19.8 teeth per child at age 4 years to 7.6 teeth per child at age 10 years.

The decayed, missing and filled components as a percentage of dmft are shown in Figure 12. These ratios refer to the proportion of teeth with caries experience in the population, having either decay, being missing due to decay, or filled. In the youngest age groups decay experience is composed principally of clinically detectable untreated decay. However, with the accumulation of restorations placed over time, the majority of the dmft index from the age of 8 years is represented by the presence of fillings. Relative stability in the percentages of decayed, missing and filled teeth occurs at the age of 9 or 10 years.

**Table 3: Deciduous teeth – decayed, missing and filled teeth, 2003–04**

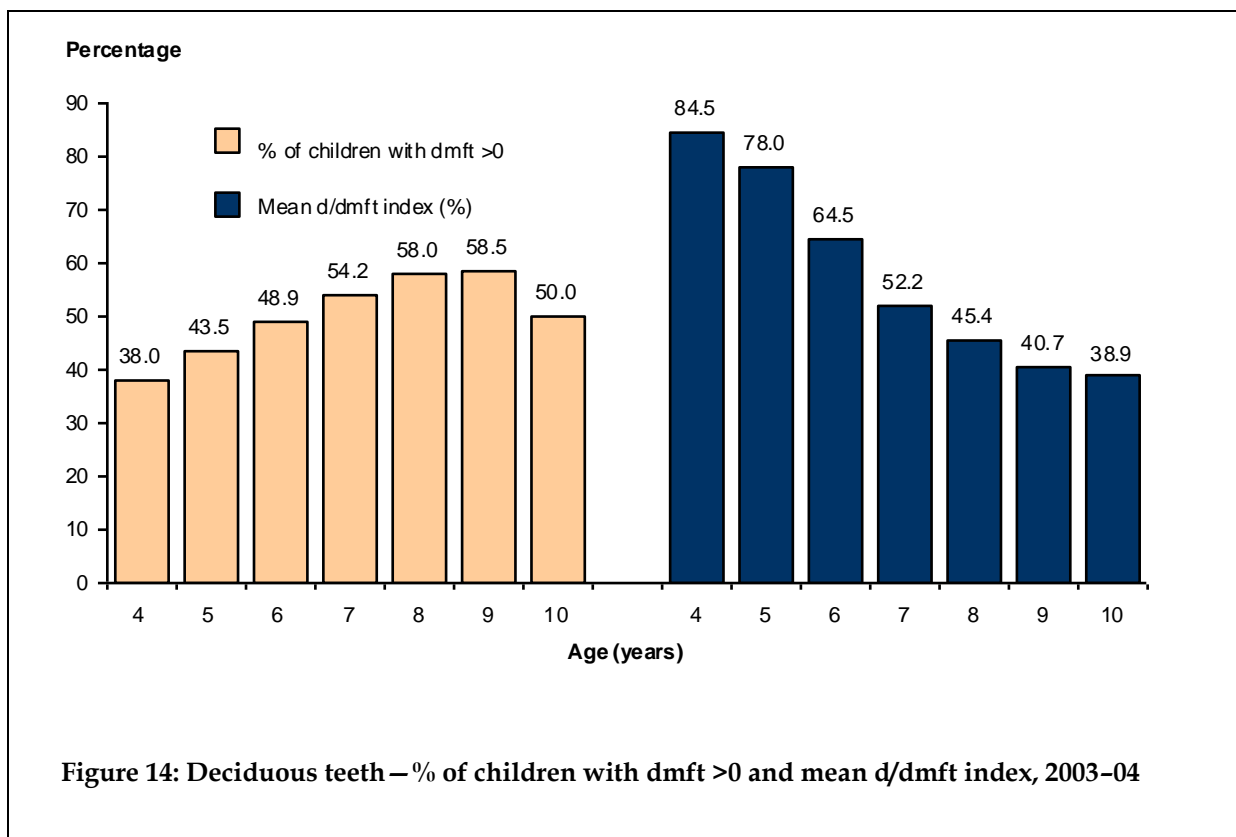
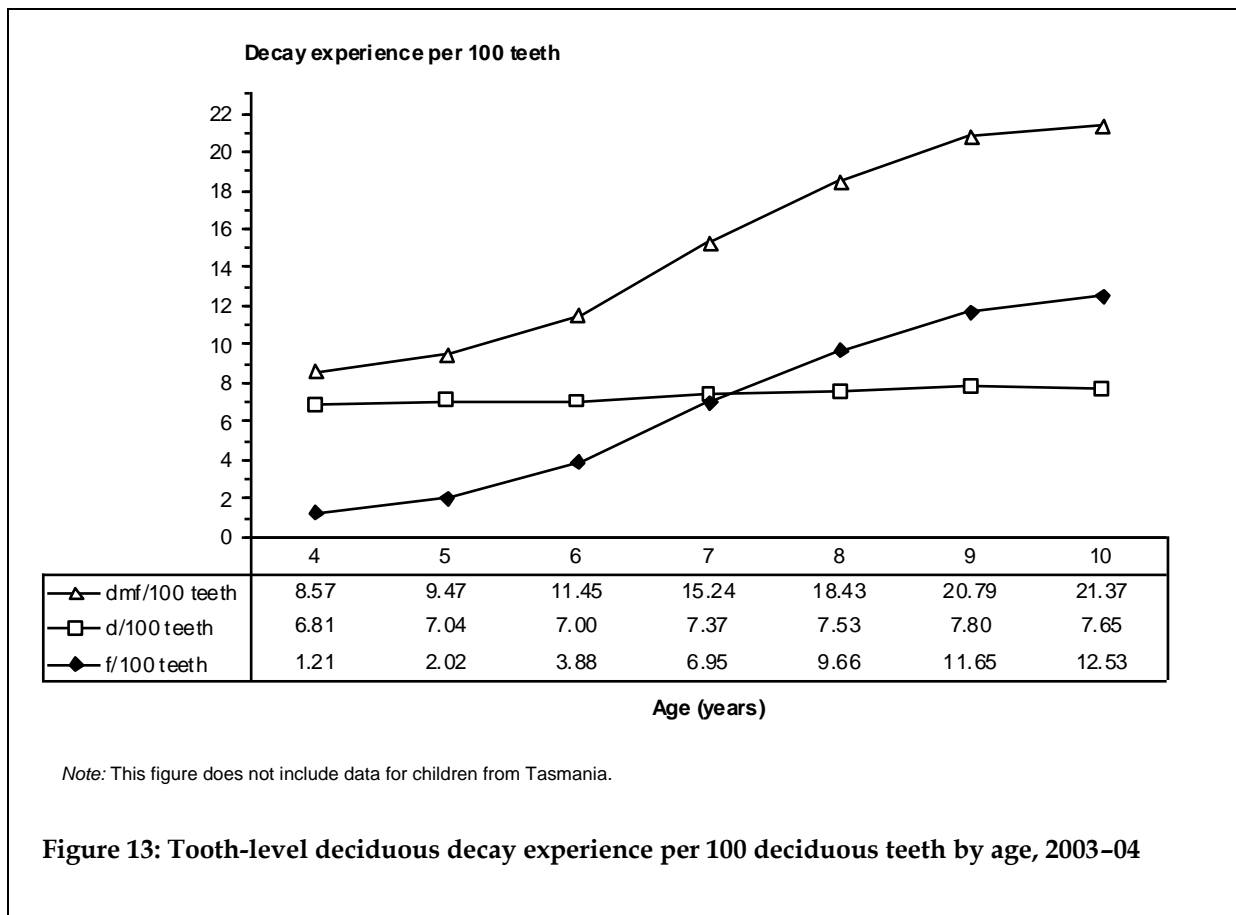
Age (years)	Children <i>n</i>	Teeth present	decayed (d)		missing (m)		filled (f)		dmft	
		Average	Average	SD	Average	SD	Average	SD	Average	SD
4	12,339	19.8	1.35	2.60	0.09	0.83	0.24	1.17	1.70	3.36
5	20,117	19.3	1.36	2.51	0.08	0.64	0.39	1.28	1.83	3.09
6	17,962	17.3	1.21	2.17	0.11	0.65	0.67	1.56	1.98	3.01
7	21,676	14.2	1.05	1.81	0.13	0.70	0.99	1.78	2.17	2.89
8	22,714	12.2	0.92	1.54	0.15	0.79	1.18	1.85	2.25	2.78
9	23,797	10.4	0.81	1.39	0.15	0.92	1.21	1.81	2.16	2.66
10	24,020	7.6	0.58	1.14	0.09	0.66	0.95	1.62	1.62	2.28

Note: Reported numbers of teeth present do not include data for children from Tasmania.



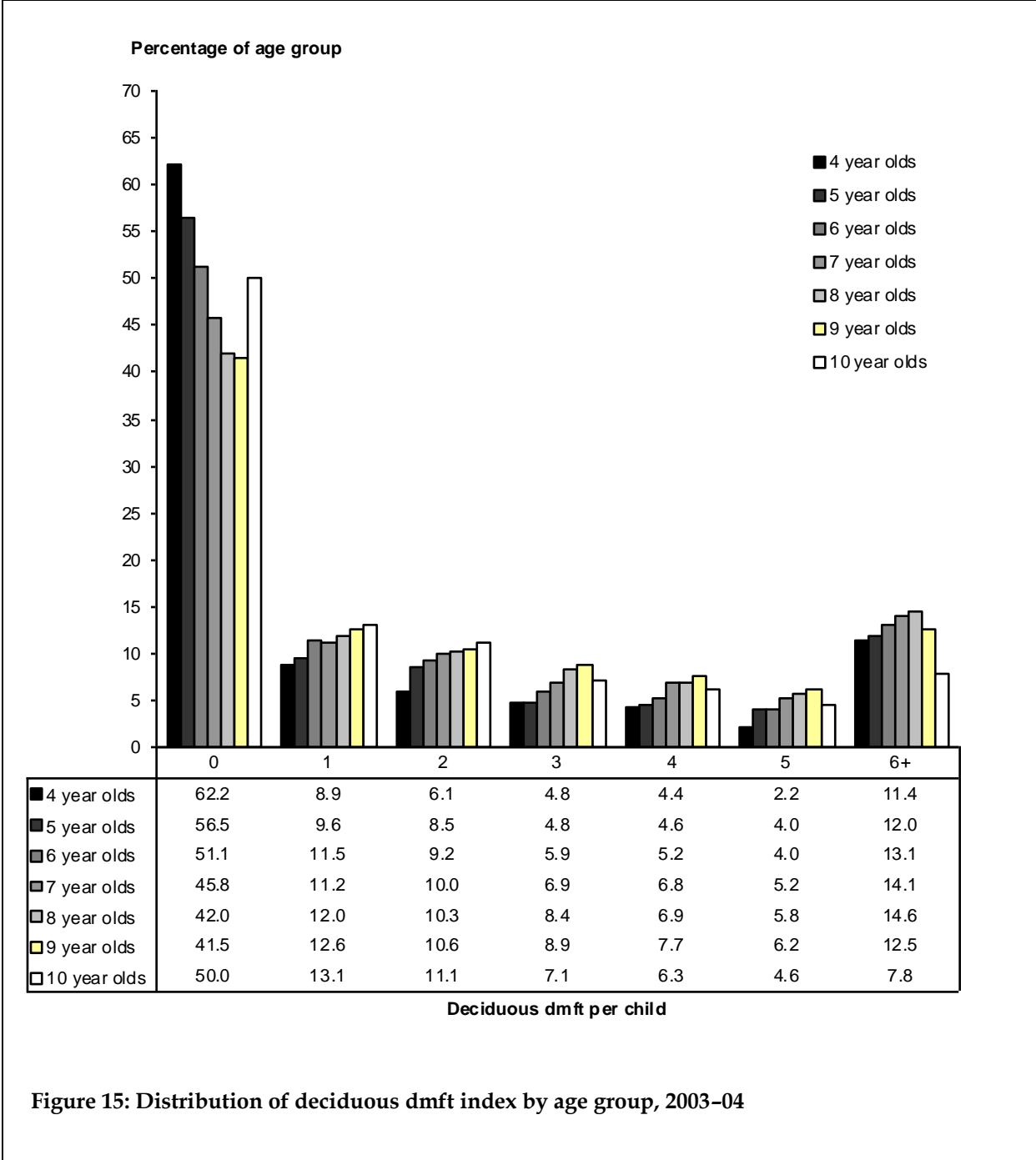
Decay experience, expressed in terms of decay, fillings and the average dmft, controlling for the number of deciduous teeth present, is shown in Figure 13. Although the average number of decayed teeth was shown previously to decrease consistently across age groups (Table 3), the available data indicate that this is principally a consequence of the shedding of deciduous teeth rather than a reduction in decay per se. Indeed, the rate of decayed teeth in 2003-04 actually increased slightly between the ages of 4 and 10 years, from 6.81 per 100 teeth at age 4 years to 7.80 per 100 teeth at age 9 years. The percentage of deciduous teeth with fillings also increased with age, and together these decay experience indicators produced an increase in the dmft per 100 teeth across age groups. The percentage of deciduous teeth that were decayed, missing and filled increased from 8.6% at age 4 years to 21.4% at age 10 years.

The percentage of children with deciduous decay experience (dmft >0) steadily increased across the age range 4-9 years, from 38.0% to 58.5%; however, this percentage subsequently decreased, and at 10 years of age only half of the children showed evidence at their examination of decay experience in their deciduous teeth (Figure 14). This decline is due to the shedding of deciduous teeth, leading to an increasing percentage of children with no deciduous teeth and therefore no deciduous decay experience. The mean d/dmft index was highest among younger children (84.5% at age 4 years) and declined to 38.9% for children aged 10 years, reflecting the changing distribution of decayed and filled teeth by age.





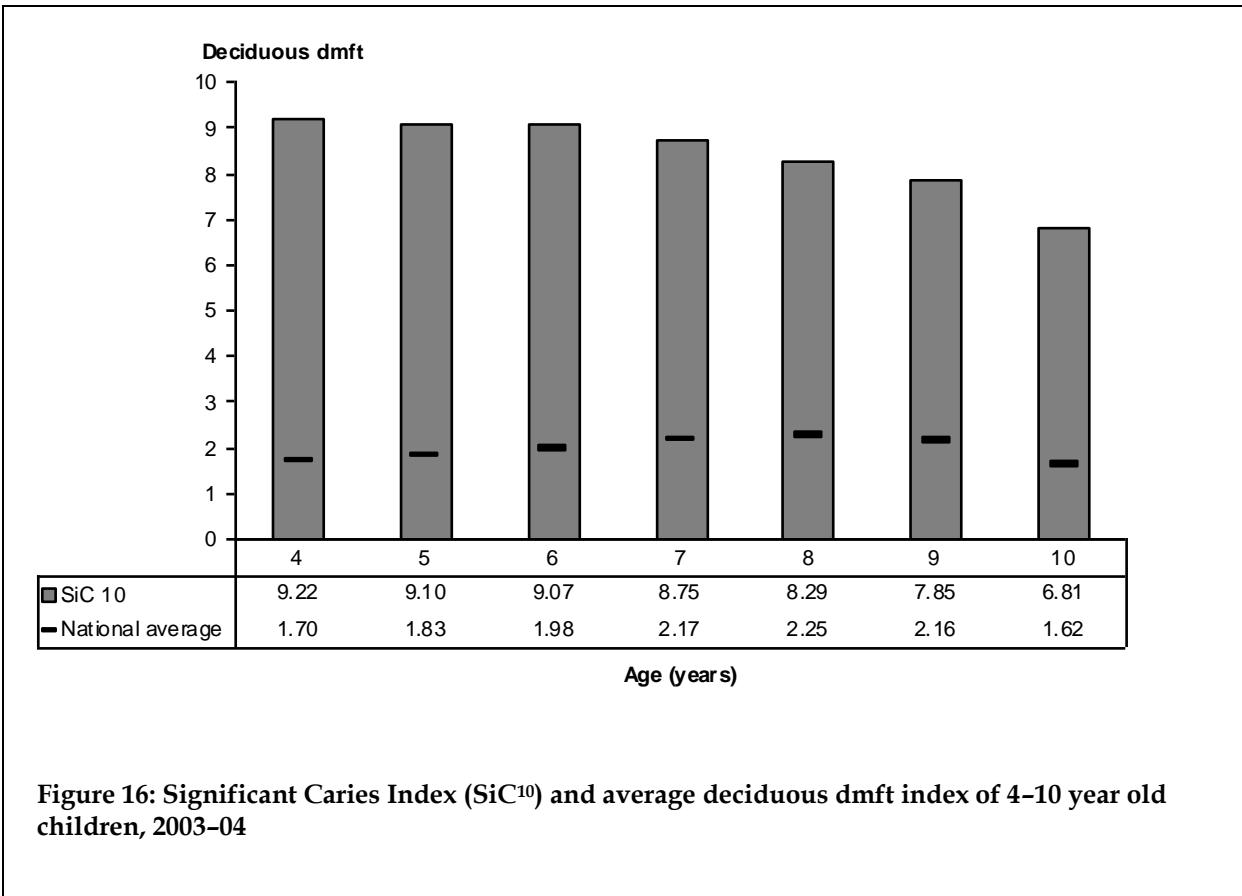
While most Australian children had relatively low deciduous decay experience, there was a minority of children who experienced a considerable decay burden. The distribution of deciduous decay experience by age is shown in Figure 15. Between 41.5% (9 year olds) and 62.2% (4 year olds) of pre-teen children had no deciduous decay experience. Between 8.9% and 13.1% of children in these age groups had a dmft index of 1, with these percentages increasing slightly across older ages. Children with 6 or more decayed, missing and filled teeth comprised between 7.8% (10 year olds) and 14.6% (8 year olds) of children in any age group.



**Figure 15: Distribution of deciduous dmft index by age group, 2003-04**

The SiC<sup>10</sup> for the deciduous teeth of 4–10 year olds are shown in Figure 16. The disproportionate burden of disease experienced by a few is dramatically demonstrated for children with the highest 10% of dmft values, where the SiC<sup>10</sup> was between 3.6 (for 9 year olds) and almost 5.5 times (for 4 year olds) greater than corresponding averages for the entire age group.

The patterns in deciduous decay experience suggest that children enter their school years with moderate decay experience in the deciduous teeth—a large proportion of it manifested as untreated decay (approximately 80% at 4 years of age). With continued treatment in the school dental services, the dmft index becomes dominated by fillings, rather than untreated decay. Despite steady increases in average dmft and the accumulation of fillings across the ages 4–10 years, the shedding of teeth results in a reduction in dmft per child. There is a corresponding increase in the proportion of children having no detectable deciduous decay experience. The majority of decay experience is represented in a minority of children.



## Interstate comparison—5 to 6 year old dmft

Combined 5- and 6 year olds represent a standard age group (cited, for example, within World Health Organization publications); this group is, moreover, a useful one to consider in relation to school dental services since it represents, predominantly, the dental health status of children new to these services.

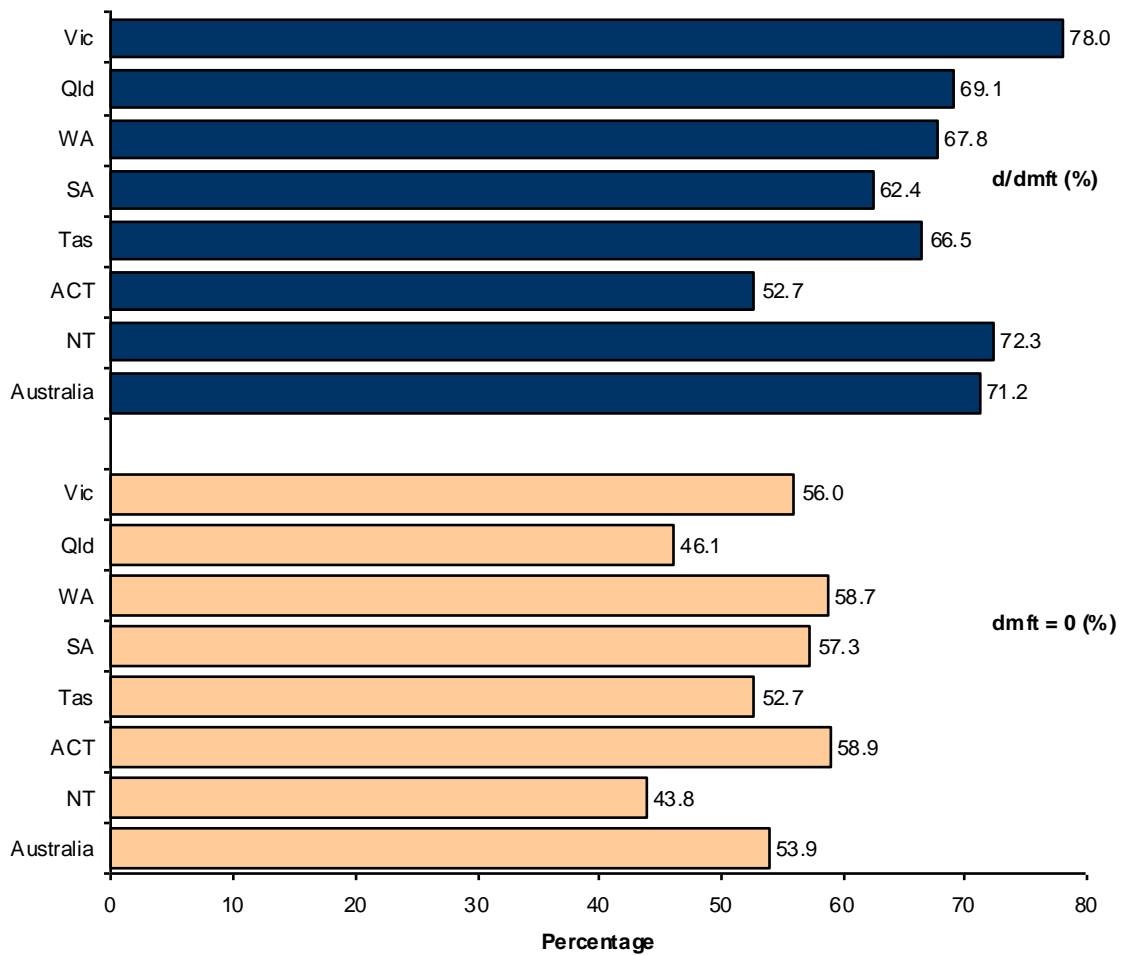
As shown in Table 4, the Australian Capital Territory had the lowest (average dmft = 1.40 per child) and the Northern Territory and Queensland the highest (average dmft = 2.66 and 2.40 per child respectively) levels of deciduous decay experience. The level of untreated decay was lowest in the Australian Capital Territory (average d = 0.71 per child) and highest in the Northern Territory (average d = 1.91 per child). The number of fillings per child also varied appreciably and was more than twice as high in Queensland (average = 0.73) than in Victoria (average = 0.35). In assessing these differences it should be noted that there are historical differences in decay experience, as well as marked variations in population distribution, socio-demographic characteristics and levels of water fluoridation, between these jurisdictions. There are also differences in the organisation and delivery of school dental services between different states and territories.

Variation can also be seen in the percentage of dmft attributable to untreated decay, ranging from a low of 52.7% in the Australian Capital Territory to 78.0% in Victoria (Figure 17). The variation in the percentage of children with no decay experience (dmft = 0) was less than that demonstrated for average dmft, ranging from 43.8% in the Northern Territory to just under 59% in the Australian Capital Territory and Western Australia.

**Table 4: Interstate comparison – 5 to 6 year old dmft, 2003–04**

State/ territory	Children <i>n</i>	decayed (d)		missing (m)		filled (f)		dmft	
		Average	SD	Average	SD	Average	SD	Average	SD
NSW	..	..	..	..	..	..	..	..	..
Vic	15,431	1.34	2.45	0.11	0.64	0.35	1.11	1.80	2.97
Qld	9,074	1.56	2.50	0.11	0.71	0.73	1.70	2.40	3.30
WA	6,020	1.05	2.20	0.05	0.65	0.50	1.44	1.60	3.05
SA	4,391	0.95	1.88	0.09	0.61	0.65	1.62	1.69	2.82
Tas	1,464	1.15	2.11	0.09	0.59	0.57	1.41	1.80	2.79
ACT	953	0.71	1.49	0.00	0.05	0.69	1.50	1.40	2.33
NT	746	1.91	2.98	0.10	0.61	0.65	1.62	2.66	3.62
<b>Australia</b>	<b>38,079</b>	<b>1.29</b>	<b>2.35</b>	<b>0.09</b>	<b>0.65</b>	<b>0.52</b>	<b>1.42</b>	<b>1.90</b>	<b>3.06</b>

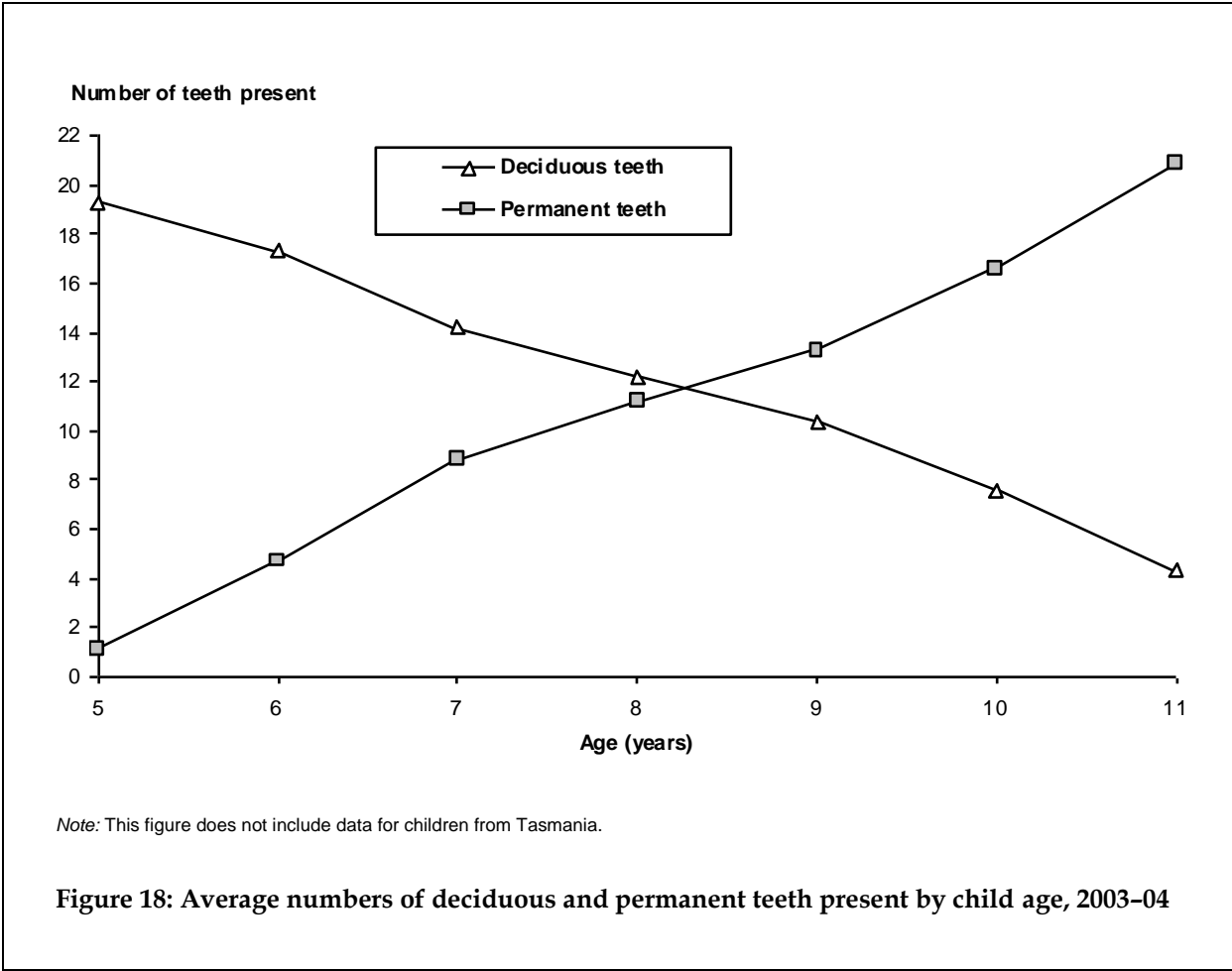
.. = not applicable due to exclusion of New South Wales from 2003–04 data collection



**Figure 17: Interstate comparison – 5 to 6 year old d/dmft and % of children with dmft = 0, 2003-04**

### 3.2 Permanent teeth

At the same time as children up to the age of 11 years are losing their deciduous teeth they are gaining their permanent teeth. Changes in the number of deciduous and permanent teeth present are shown in Figure 18. Only from the age of about 9 years onwards do children, on average, have more permanent teeth in their mouth than deciduous teeth. The changing distribution of deciduous and permanent teeth has implications for interpreting patterns of decay experience, and these should be kept in mind.



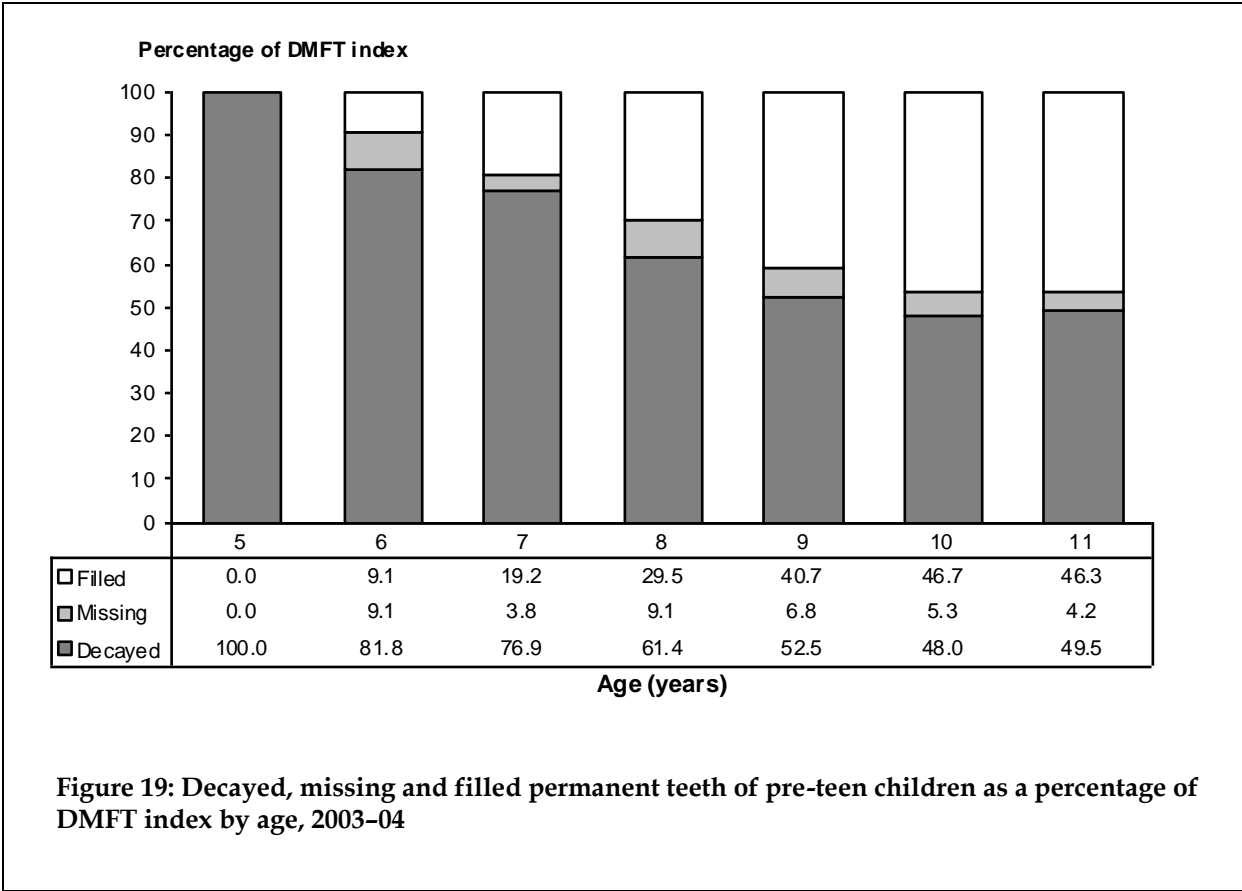
The permanent decay experience at younger ages is much less than during the teenage years, reflecting both the lower number of permanent teeth present at younger ages and the reduced time-at-risk of those teeth present. However, permanent caries experience is still readily apparent for these age groups. The average number of decayed permanent teeth increased consistently across increasingly older ages, from a low of just 0.03 per child for 5 year olds to a peak of 0.47 per child for 11 year olds (Table 5). Consistent increases in the average numbers of both decayed and filled permanent teeth can also be seen across the age range 5-11 years. Permanent teeth missing due to caries in pre-teen children were low across all ages.

**Table 5: Permanent teeth – decayed, missing and filled teeth of pre-teen children, 2003–04**

Age (years)	Children <i>n</i>	Teeth present	Decayed (D)		Missing (M)		Filled (F)		DMFT	
		Average	Average	SD	Average	SD	Average	SD	Average	SD
5	20,117	1.1	0.03	0.30	0.00	0.10	0.00	0.12	0.03	0.41
6	17,962	4.7	0.09	0.43	0.01	0.39	0.01	0.14	0.11	0.61
7	21,676	8.8	0.20	0.60	0.01	0.28	0.05	0.32	0.26	0.76
8	22,714	11.2	0.27	0.68	0.03	0.68	0.13	0.52	0.44	1.10
9	23,797	13.3	0.31	0.76	0.04	0.67	0.24	0.68	0.59	1.26
10	24,020	16.6	0.36	0.92	0.03	0.42	0.35	0.81	0.75	1.34
11	23,988	20.9	0.47	1.14	0.04	0.43	0.44	0.95	0.95	1.66

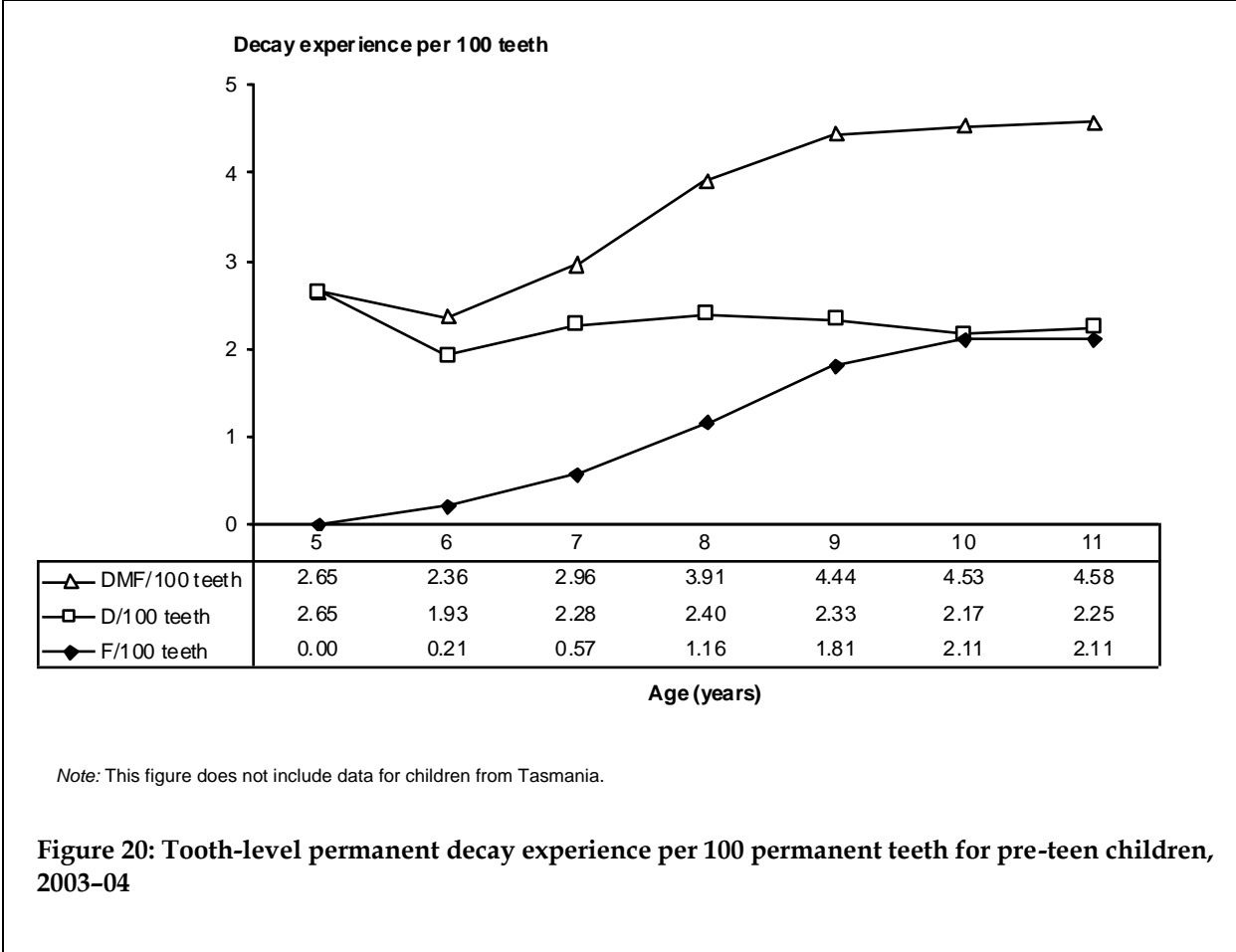
Note: Reported numbers of teeth present do not include data for children from Tasmania.

Between the ages of 5 and 10 years, the DMFT index is increasingly made up of a larger filled component and a smaller decayed component (Figure 19). In the youngest age group the DMFT index is entirely represented by the presence of clinically detectable untreated decay. This pattern is similar to that shown in the deciduous teeth. There is little difference in terms of percentages in the DMFT index between children aged 10 years and those aged 11 years.



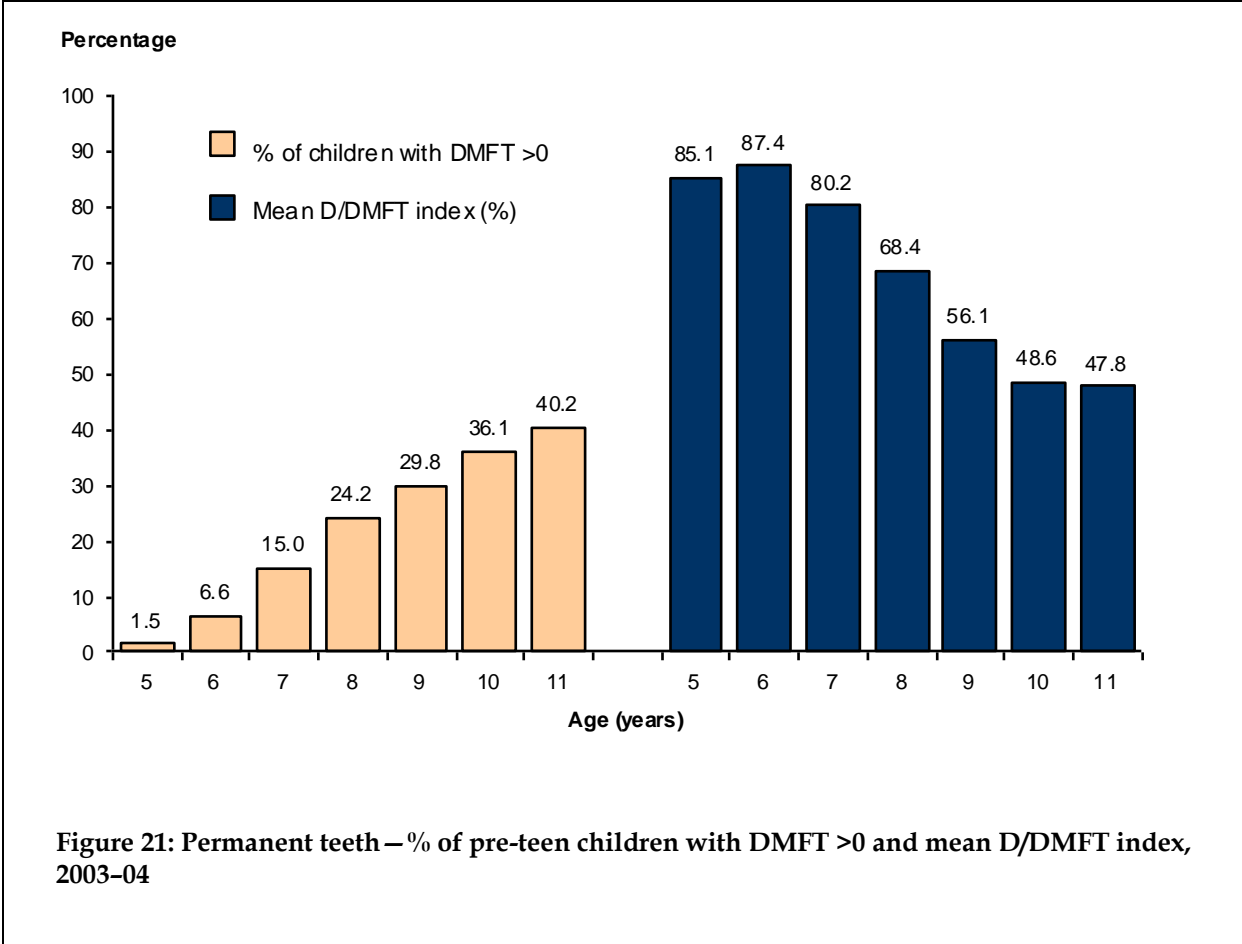
**Figure 19: Decayed, missing and filled permanent teeth of pre-teen children as a percentage of DMFT index by age, 2003–04**

After controlling for the number of permanent teeth present, there was little increase in the rate of decay experience with age (Figure 20). In contrast, the number of filled permanent teeth for pre-teen children increased consistently between the ages of 5 and 10 years. DMFT per 100 teeth present increased from 2.36 for 6 year olds to 4.58 for 11 year olds.



Less than 20% of children aged 5, 6 or 7 years had permanent tooth decay experience (DMFT >0); however, towards the end of their primary school years, 40.2% of 11 year olds had permanent tooth decay experience (Figure 21). As noted previously in Figure 7, decay prevalence in the permanent teeth of 15 year olds was approximately 57%.

The mean D/DMFT index decreased from 87.4% for 6 year olds to less than 50% for both 10- and 11 year olds.





The distribution of permanent DMFT for children aged between 5 and 11 years is shown in Figure 22. There was a sharp decline across the age range in the percentage of children without decay experience in the permanent teeth (DMFT = 0). However, for the other permanent DMFT scores presented, there were generally consistent increases across older ages. A high level of permanent caries experience was very uncommon among pre-teen children up to the age of 11 years.

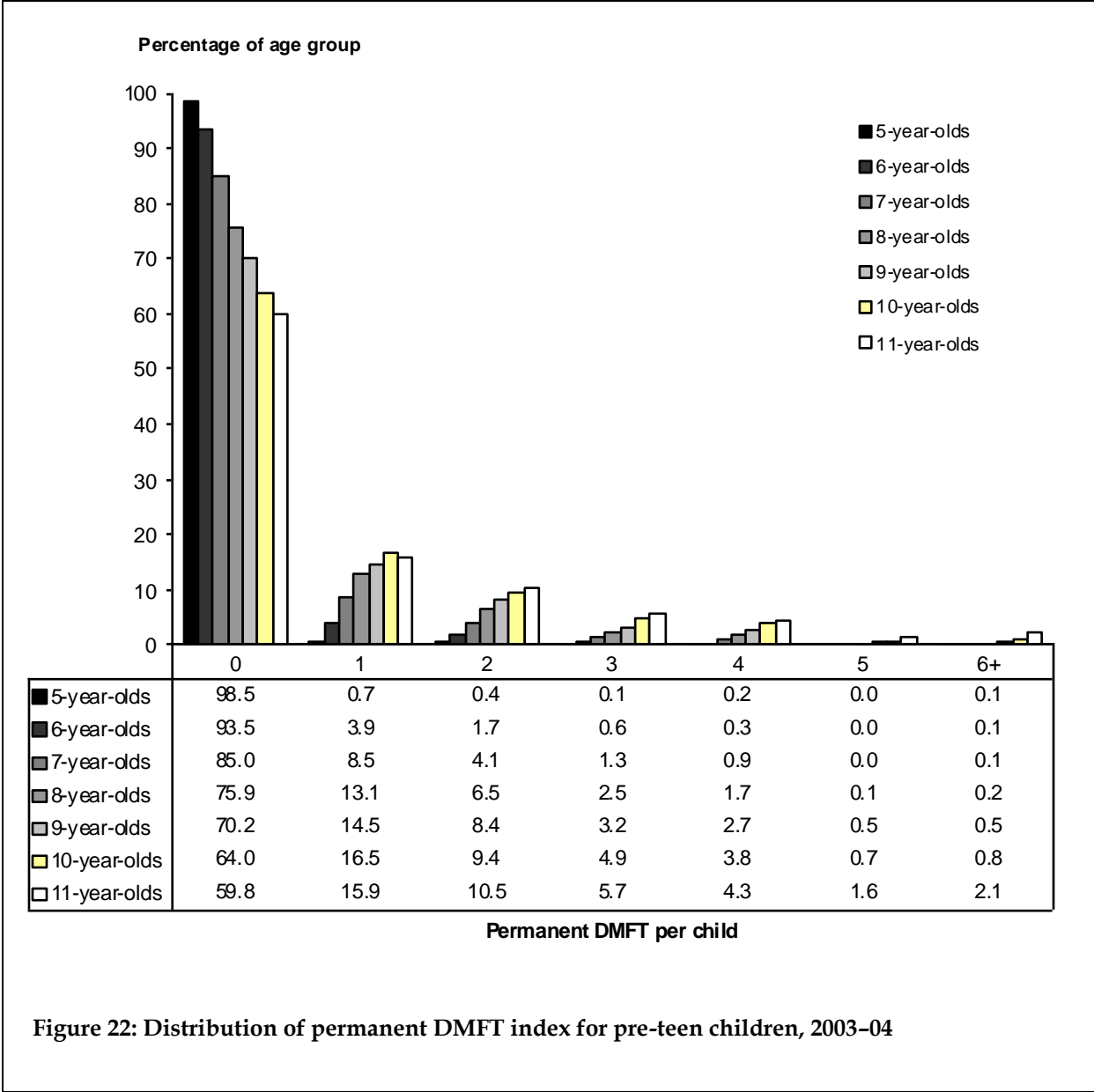
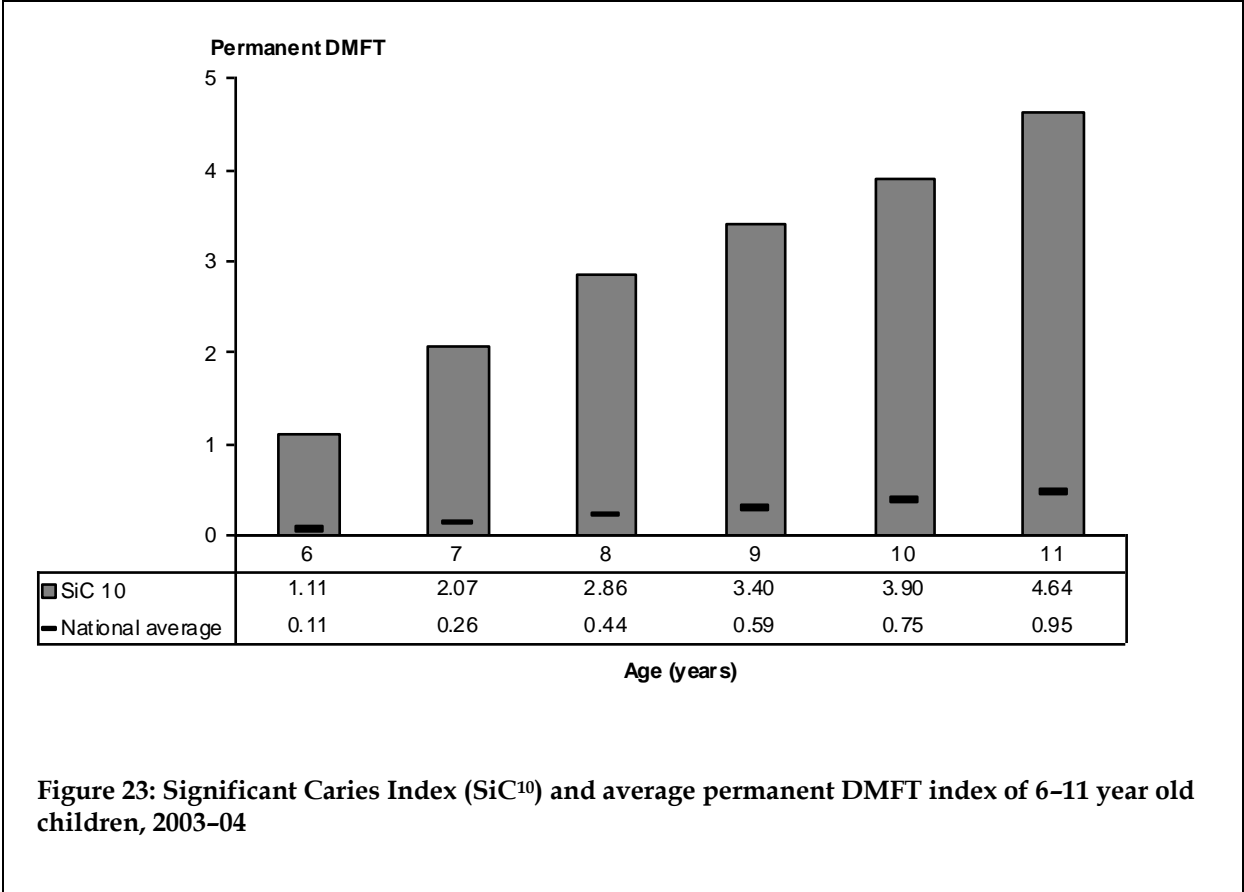


Figure 22: Distribution of permanent DMFT index for pre-teen children, 2003-04

The burden of disease in the permanent teeth of teenage children most affected by decay experience is indicated in Figure 23. Although the SiC<sup>10</sup> was relatively low compared to those in the deciduous teeth, especially in children aged less than 9 years, it should be remembered that permanent DMFT values for all children in these age groups was very low, rising to only 0.95 per child for 11 year olds. Between the ages of 6 and 10 years, children with the highest SiC<sup>10</sup> had average DMFT values that were between 5.2 and 10.6 times greater than the average for the entire age group. The SiC<sup>10</sup> increased from 1.11 DMFT per child for 6 year olds to 4.64 DMFT per child for 11 year olds.



### 3.3 All teeth

Combined components of decay experience from both the deciduous and permanent teeth are shown in Table 6, providing an indication of the total burden of disease among pre-teen children receiving care within school dental services.

Untreated decay in the combined deciduous and permanent teeth was present for between 36.1% and 46.8% of children in the age range 5–11 years. The highest prevalence of untreated decay was observed among 8 year olds (where 46.8% had  $d + D > 0$ ), while the greatest extent of disease occurred in the youngest ages (for example, 10.9% of 5 year olds had five or more teeth with clinically detectable untreated decay). Based on observations from previous tables, the largest contribution to decay experience among younger children came from deciduous teeth.

Teeth missing due to decay were relatively uncommon among children aged 5–11 years. The percentage of children with no fillings ( $f + F = 0$ ) and no decay experience ( $dmft + DMFT = 0$ ) showed a bimodal distribution among these age groups due to shedding of deciduous teeth and the subsequent eruption of the permanent teeth. Between 33.8% (9 year olds) and 56.1% (5 year olds) of children in any age group had no decay experience in either their deciduous or permanent teeth.

**Table 6: All teeth – age-specific decay experience, 2003–04**

Age (years)	Children <i>n</i>	$d + D =$						$m + M = 0$	$f + F = 0$	$dmft + DMFT = 0$
		0	1	2	3	4	5+			
		Per cent								
5	20,116	61.2	10.5	8.4	4.7	4.2	10.9	97.0	86.8	56.1
6	17,962	58.4	13.4	9.7	5.6	4.0	9.0	95.5	76.3	49.5
7	21,675	55.3	15.6	10.7	6.1	4.5	7.7	93.9	65.0	42.1
8	22,710	53.2	17.8	11.4	6.8	4.4	6.2	92.8	56.3	36.3
9	23,796	54.5	18.4	11.1	6.4	4.2	5.5	63.2	51.4	33.8
10	24,019	59.3	17.4	10.5	5.5	3.1	4.2	94.8	52.8	36.0
11	23,985	63.9	16.7	8.7	5.0	2.8	2.9	96.2	60.1	42.2

## Interstate comparison—all teeth

Further areas of interstate variation in decay experience are illustrated in Table 7. For example, there were appreciable differences in the percentage of children with five or more decayed teeth ( $d + D \geq 5$ ). The Northern Territory, Victoria and Queensland had the highest levels of clinically detectable untreated decay ( $d + D$ ), whereas the Australian Capital Territory, South Australia and Western Australia had the lowest levels. The percentage of children with no decay experience ( $dmft + DMFT = 0$ ) was highest in Western Australia and South Australia (47.6% and 46.5% respectively). The lowest percentage of children with no decay experience (that is, the most decay experience) was in Queensland (37.8%).

**Table 7: Interstate comparison – all teeth age-standardised decay experience, 2003–04**

State/ territory	Children <i>n</i>	Children with $d + D =$						$m + M = 0$	$f + F = 0$	$dmft +$ $DMFT = 0$
		0	1	2	3	4	5+			
		%	%	%	%	%	%	%	%	
NSW	..	..	..	..	..	..	..	..	..	
Vic	62,905	55.6	16.1	10.5	6.2	4.1	7.5	93.2	69.9	43.5
Qld	53,820	56.3	16.1	10.9	6.1	4.1	6.6	95.1	56.3	37.8
WA	25,855	68.2	15.4	7.4	3.4	2.3	3.3	97.0	64.2	47.6
SA	18,761	65.5	15.4	8.6	4.6	2.6	3.3	96.3	62.8	46.5
Tas	6,255	58.6	16.3	10.0	6.2	4.1	4.9	96.4	61.4	40.7
ACT	4,081	66.2	16.0	9.1	4.1	2.2	2.3	98.7	56.5	42.7
NT	3,247	57.4	15.0	9.4	5.1	4.3	8.9	95.6	66.6	41.2
<b>Australia</b>	<b>174,924</b>	<b>59.1</b>	<b>15.9</b>	<b>9.9</b>	<b>5.5</b>	<b>3.6</b>	<b>5.9</b>	<b>95.0</b>	<b>63.4</b>	<b>42.5</b>

.. = not applicable due to exclusion of New South Wales from 2003–04 data collection

## 4 Fissure sealants

A common and successful preventive practice to halt the development of active decay in permanent teeth is to seal over the pits and fissures of teeth (normally molars) with a resin or glass-ionomer material. This prevents the future admission of plaque into the more decay-susceptible tooth pits and grooves.

The average numbers of fissure sealants present in permanent teeth increased across older ages (Table 8) and was approximately one for children aged 13 years or older.

Children aged 6–15 years with permanent decay experience (DMFT  $\geq 1$ ) were more likely at every age to have a fissure sealant than were children with no permanent decay experience (DMFT = 0). This can be interpreted as a tendency towards the preferential provision of fissure sealants to children deemed to have a greater likelihood of developing dental decay.

**Table 8: Fissure sealants – age-specific experience, 2003–04**

Age (years)	Weighted number of children	Sealants		DMFT = 0		DMFT $\geq 1$	
		Average	SD	Weighted number of children	% with fissure sealant(s)	Weighted number of children	% with fissure sealant(s)
6	17,957	0.07	0.47	16,782	2.0	1,175	9.7
7	21,661	0.25	0.88	18,415	7.8	3,247	15.9
8	22,707	0.48	1.16	17,223	15.9	5,484	23.4
9	23,780	0.71	1.35	16,698	23.5	7,082	31.8
10	24,007	0.82	1.39	15,349	27.4	8,657	37.0
11	23,975	0.86	1.45	14,328	28.9	9,647	36.6
12	20,639	0.87	1.58	11,880	28.1	8,759	36.3
13	24,411	1.01	1.73	12,836	29.9	11,575	41.0
14	24,244	1.01	1.86	10,811	23.7	13,433	39.4
15	16,882	1.04	1.96	7,287	25.0	9,595	36.7

## 5 Immediate treatment needs

In 2003–04 immediate treatment need was recorded only in Queensland, South Australia, Tasmania and the Northern Territory. The percentage of children with immediate needs was highest for 7 year olds (4.6%) and lowest for 14 year olds (0.9%; Table 9).

Children with immediate treatment needs were found to have greater decay experience in comparison to children judged not in immediate need. Age-specific averages for dmft and DMFT tended to be approximately 1.7 to 3.0 times higher than the national averages listed in previous tables. For example, 6 year olds with immediate treatment needs had an average dmft of 5.62 per child compared with 1.98 per child in Table 3. Approximately 44% had  $d + D \geq 5$  compared with 17.1% shown in Figure 15.

It should be emphasised that the percentage of those deemed to be requiring immediate treatment reflects both the accumulated amount of dental disease and the methods of targeting and delivering school dental services. For example, clinics which provide care for a relatively small proportion of a population and which assign priority to treating those with symptoms will almost certainly record higher percentages of immediate treatment need than other clinics which have universal coverage of all children on a periodic recall basis.

Perhaps the most important interpretation of Table 9 is that a subgroup of children with a substantial burden of dental decay could be identified within school dental services. Their state of poor dental health contrasts with the previous observation that between approximately 34% and 57.5% of 5–15 year olds have no history of decay experience.

**Table 9: Immediate treatment needs – age-specific distribution, 2003–04**

Age (years)	Children in need of immediate treatment											
	All children			dmft		DMFT		d + D =				
	n	n	%	average	SD	average	SD	1	2	3	4	5+
4	6,242	281	4.5	5.86	4.76	..	..	29.9	15.5	4.6	7.6	31.3
5	5,800	198	3.4	5.16	3.89	..	..	11.3	10.1	11.9	9.0	43.4
6	3,959	170	4.3	5.62	3.83	0.34	0.78	16.1	11.3	12.1	10.7	43.8
7	7,311	334	4.6	5.01	3.25	0.42	1.03	13.4	18.1	16.6	5.6	28.8
8	7,941	307	3.9	4.97	3.50	0.85	1.12	15.8	26.0	19.7	10.7	14.7
9	8,744	337	3.9	4.86	4.21	1.32	1.99	32.3	15.9	8.4	7.9	25.3
10	8,859	298	3.4	4.72	4.89	1.20	1.79	16.0	22.7	13.9	2.5	16.9
11	8,732	336	3.9	..	..	2.60	4.68	36.4	6.3	6.9	20.1	8.3
12	5,320	200	3.8	..	..	2.49	3.90	21.1	10.8	8.7	3.3	12.0
13	9,135	141	1.5	..	..	4.13	2.81	12.9	15.3	14.5	7.2	44.1
14	9,312	87	0.9	..	..	2.92	1.55	45.1	18.1	0.0	0.0	5.5
15	8,938	97	1.1	..	..	5.60	4.43	20.3	43.0	0.0	0.0	22.1

.. = not applicable

## 6 National summary

Consistent with previous Child Dental Health Survey reports, age-standardised data were used to summarise data from all children aged between 5 and 12 years in all jurisdictions (Table 10). Queensland had the highest levels of decay experience for deciduous teeth (average dmft = 2.02 per child and 49.5% of children had dmft = 0), while children in Western Australia had the least decay experience (average dmft = 1.31 per child and 58.6% of children had dmft = 0). The highest levels of permanent decay experience were also found in Queensland (average DMFT = 0.65 per child and 72.4% of children had DMFT = 0) while the lowest levels were seen in South Australia (average DMFT = 0.41 per child and 78.3% of children had DMFT = 0), Western Australia (average DMFT = 0.42 per child and 78.6% of children had DMFT = 0) and the Northern Territory (average DMFT = 0.43 per child and 79.2% of children had DMFT = 0).

**Table 10: National summary of decay experience of 5- to 12 year old children, 2003-04**

State/ territory	Children in sample  <i>n</i>	dmft			DMFT		DMFT = 0		d + D = 0
		average	SD	%	average	SD	%	%	
NSW	..	..	..	..	..	..	..	..	
Vic	62,905	1.57	2.50	56.0	0.54	1.15	73.8	55.6	
Qld	53,821	2.02	2.90	49.5	0.65	1.55	72.4	56.3	
WA	25,856	1.31	2.38	58.6	0.42	1.05	78.6	68.2	
SA	18,761	1.46	2.34	56.8	0.41	0.96	78.3	65.5	
Tas	6,259	1.66	2.47	52.8	0.55	1.18	73.6	58.5	
ACT	4,081	1.40	2.17	57.4	0.51	1.03	72.7	66.2	
NT	3,247	1.84	2.81	51.9	0.43	1.11	79.2	57.4	
<b>Australia</b>	<b>174,929</b>	<b>1.66</b>	<b>2.61</b>	<b>54.3</b>	<b>0.54</b>	<b>1.26</b>	<b>74.6</b>	<b>59.1</b>	

.. = not applicable due to exclusion of New South Wales from 2003-04 data collection

## 7 International comparisons

Children's dental health has improved in most developed countries over the last quarter of a century. A comparison of 12 year old DMFT scores from 35 countries and 12 of the 30 OECD nations is presented in Table 11. For comparative purposes, only countries with DMFT data for the period 2002–05 have been included. Of those countries with available data, Australia has the equal eighth lowest percentage of 12 year old children with decay experience. It should be noted, though, that figures from some countries are based only on small samples (such as Tanzania) or children from only one or a few locations (such as the Netherlands), so the international comparative position of Australia would improve if these countries were excluded from the available data.

**Table 11: DMFT scores and percentage with decay for 12 year old children by country**

Country	Year	DMFT	% affected
Tanzania <sup>(a)</sup>	2004	0.3	n.a.
Nepal	2004	0.5	25.0
Nigeria	2003–04	0.5	23.6
Trinidad and Tobago	2004	0.6	34.0
Netherlands * <sup>(b)</sup>	2002	0.8	32.0
Switzerland * <sup>(c)</sup>	2004	0.9	n.a.
Uganda	2002	0.9	40.0
<b>Australia *</b>	<b>2003–04</b>	<b>1.0</b>	<b>42.5</b>
Austria *	2002	1.0	42.0
Germany *	2004	1.0	39.3
Singapore	2002	1.0	n.a.
Sweden *	2005	1.0	42.0
Cyprus	2005	1.1	45.0
Italy *	2004–05	1.1	43.1
Denmark *	2003	1.2	39.7
Iran <sup>(g)</sup>	2003	1.2	48.0
Ireland *	2002	1.2	53.9
Iceland	2004	1.4	n.a.
Pakistan	2003	1.4	n.a.
Nicaragua <sup>(e)</sup>	2002	1.5	45.0
Seychelles <sup>(d)</sup>	2005	1.5	63.1
India	2005	1.6	n.a.
New Zealand * <sup>(f)</sup>	2004	1.6	54.4
Iraq	2003	1.7	62.0
Israel	2002	1.7	53.9
Japan	2005	1.7	n.a.
Norway *	2004	1.7	59.8
Suriname	2002	1.9	n.a.

*(continued)*



**Table 11 (continued): DMFT scores and percentage with decay for 12 year old children by country**

<b>Country</b>	<b>Year</b>	<b>DMFT</b>	<b>% affected</b>
Czech Republic *	2002	2.5	71.0
Brazil	2002–03	2.8	69.0
Philippines	2005–06	2.9	78.4
Poland * <sup>(h)</sup>	2003	3.2	81.1
Latvia	2004	3.4	n.a.
Bosnia and Herzegovina	2004	4.8	n.a.
Saint Lucia	2004	6.0	n.a.

\* Member of the Organization for Economic Co-operation and Development (OECD).

(a) Based on a sample of only 197 children.

(b) Includes only children from The Hague.

(c) Includes only children from Zurich.

(d) Based on a sample of only 198 children.

(e) Based on a sample of only 200 children from Leon.

(f) Based on children aged 12–13-years.

(g) Based on a sample of only 284 children from 3 locations.

(h) Based on a sample of only 180 children from the Gdansk region.

Sources: World Health Organization (WHO) Oral Health Country / Area Profile Programme; OECD health data 2003–04: a comparative analysis of 29 countries.

# Appendix A: Description of survey methods

## Source of subjects

Data for this report have been derived from the annual Child Dental Health Survey, which monitors the dental health of children enrolled in school 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 school dental services. The care typically provided by the school dental services includes dental examinations, preventive services and restorative treatment as required. However, there are some variations among state and territory programs with respect to priority age groups and the nature of services. As a consequence, there are variations in the extent of enrolment in school dental services, with some jurisdictions serving more than 80% of primary school children and others serving lower percentages.

In this 2003–04 report, results from New South Wales are excluded due to a lack of representativeness of the sample. Children are only seen in the NSW public dental service if they have been identified as having treatment needs, meaning that the oral health of these children does not represent the oral health of the child population of NSW, many of whom do not have treatment needs.

## Sampling

The data for the Child Dental Health Survey are derived from routine examinations of children enrolled in the school dental services. In some states, at the time of examination, children are sampled at random by selecting those born on specific days of the month or some other systematic sampling procedure.

Different sampling ratios are used across the states and territories according to the scheme presented in Table 12. National data for the Child Dental Health Survey therefore constitute a stratified random sample of children from the school dental services. Children not enrolled with the school dental service are not represented in the sample.

**Table 12: Sampling ratios for Australian states and territories, 2003–04**

State/territory	Sampling ratio <sup>(a)</sup>	Days of birth
New South Wales	..	..
Victoria	1:8	Systematic
Queensland	1:15	1st and 6th
	1:1	Any <sup>(b)</sup>
Western Australia	1:8.5	28th, 29th, 30th, 31st
South Australia	1:1	Any
Tasmania	1:2.5	Systematic
Australian Capital Territory	1:2.5	1st to 16th
Northern Territory	1:1.9	1st to 16th <sup>(c)</sup>
	1:1	Any <sup>(d)</sup>

.. = not applicable due to exclusion of New South Wales from 2003–04 data collection

- (a) Sampling ratios are approximate only.
- (b) 6- and 12 year old children from the Gold Coast.
- (c) Includes Darwin.
- (d) Includes all Northern Territory outside of Darwin.

Stratification aims to provide similar numbers of children from each state and territory. However, due to full enumeration in South Australia, the number of children sampled is considerably larger than for the other states and territories. In addition, differences in administration and local data requirements of the services have created some variation among the other states and territories in the number of children sampled.

## Data items

Data items in the Child Dental Health Survey were collected at the time of routine clinical examinations conducted by dental therapists and dentists. The recorded characteristics of sampled children include some demographic information, including the child's age and sex.

The country of birth and Indigenous status of both child and mother are considered to be two items 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. However, due to the increasingly limited recording of this information by the state and territory school dental services, they were not included in this report.

Service provision information included the dates of current and previous examinations (if the child had been examined previously within the school dental services). Information on last examinations was not collected for a large percentage of children in South Australia as a result of changes to the data collection method employed in that state.

Age-standardised data were used to bring together data from all ages (children aged between 5 and 12 years) in all jurisdictions for interstate comparison. Data are weighted so that individual age groups contribute equally to the determination of the oral health indices. The purpose of age-standardisation is to adjust among states and territories for possible differences in the proportion of specific age groups, which is important because of the

age-relatedness of most dental decay measures. It allows for an easy comparison of the oral health of children being attended to by the school dental services across states and territories.

In 2003–04 data items are not collected uniformly across all states and territories.

Consequently, some tables in this report only refer to specific states and territories.

The diagnostic criteria employed are based on the clinical judgement of the examining dental therapist or dentist. They follow written criteria for the data items described above; however, there are no formal sessions of calibration or instruction in diagnosis undertaken for the purpose of the Survey, and there are no repeat examinations for the purpose of assessing inter- or intra-examiner reliability.

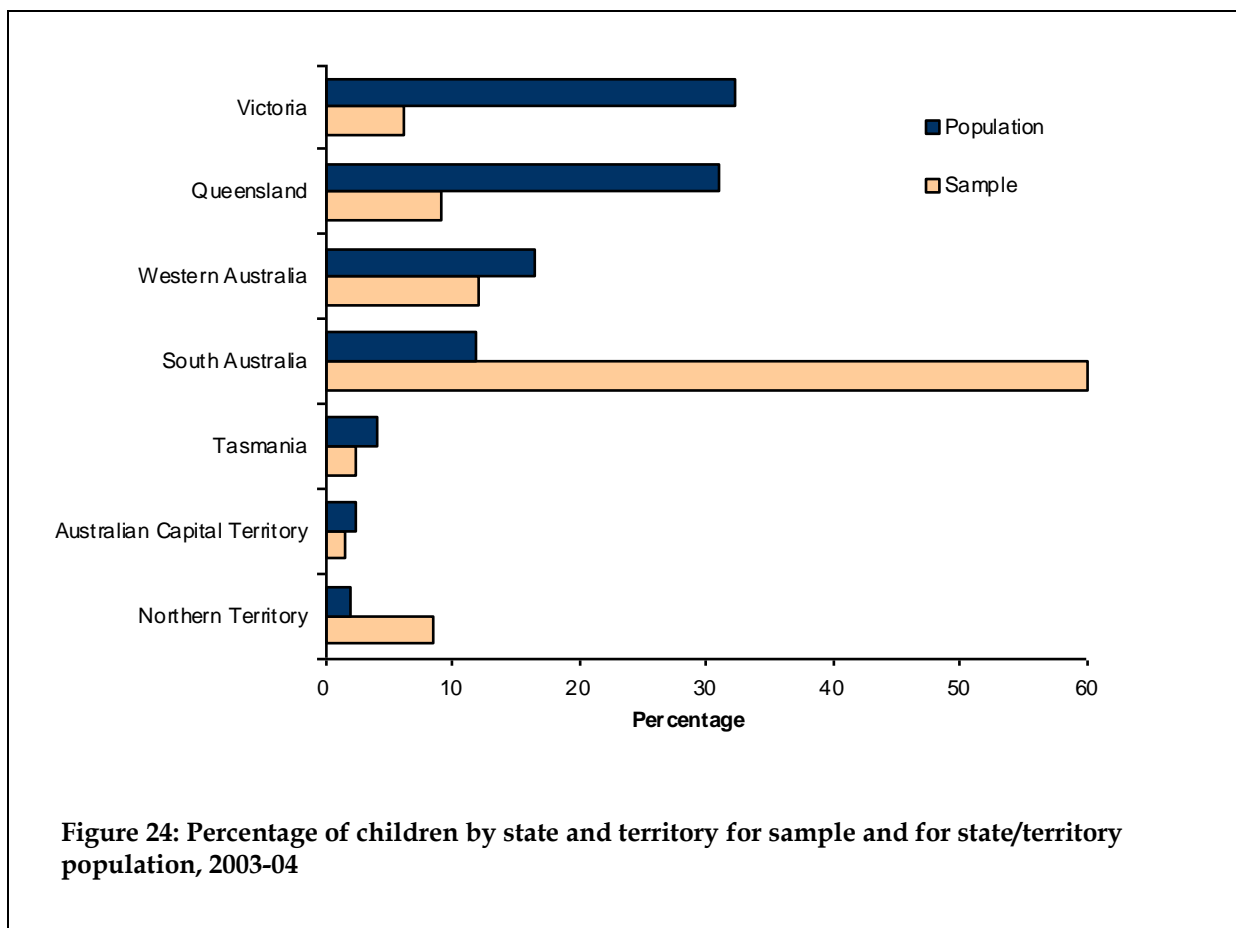
## **Weighting of data and data analysis**

National data contained in this report consist of counts, averages, standard deviations and percentages that have been weighted to represent the relevant state- and territory-specific populations of children aged 4–15 years. Children aged 3 years or younger and 16 years or older were excluded from this sample as the small numbers receiving care in those age groups across Australia result in poor reliability of computed statistics for those ages.

Furthermore, these children are outside the main target group of many of the school dental services, and it is likely that they have some special characteristics that make them less representative of their respective age groups within the Australian population.

Where computed state or territory age-specific indices resulted in a relative standard error exceeding 40%, or where the number of children sampled was considered very low, the age group for that jurisdiction was excluded from the analysis. As a result, 4 year old and 15 year old children from Victoria and 4 year old children from the Australian Capital Territory were excluded from the analyses. It should be noted that some other jurisdictions sampled relatively few children from the youngest and oldest age groups. Hence, results for 4 year old and 15 year old children should be interpreted with care and with appreciation that they may not be representative of the Australian child population.

The weighting procedure used in this report is necessary since the Australian sample does not contain representative percentages of children from each state and territory. Unweighted estimates would result in over-representation of children from South Australia or from less populous states or territories, and under-representation of those from more populous jurisdictions. The relative sample sizes and population estimates by state and territory as a percentage of the total sample and of the Australian population (4–15 years of age) are shown in Figure 24.



The weighting method is based on standard procedures for weighting stratified samples using external data sources (Foreman 1991) and follows the same procedure as previous Surveys. State and territory estimates (ABS 2003) of the 2003-04 estimated resident population (ERP) within individual ages are used to provide numerators for weights that are divided by the age-specific number of cases in the samples from respective states and territories. Hence, observations from more populous states achieve relatively greater weight. The stratum-specific weights are further divided by the national ERP and total sample size to achieve numerical equivalence between the weighted sample and the original number of processed records.

Within the states and territories, data were also weighted according to region or time since last dental examination, this being consistent with statistical analyses presented in state- and territory-specific reports. In 2003-04, data within Victoria, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory were weighted on the basis of area of sampling and sampling fraction so as to give a more representative result for that state or territory. Data within Queensland, Western Australia, Tasmania, the Australian Capital Territory and the Northern Territory were also weighted by time since last dental examination so that children on longer recall intervals, who often have better oral health, were not under-represented in the analysis.

The weighting protocol aimed to produce estimates that were representative of the population covered by the school dental services in 2003–04. However, the estimates in this report cannot be applied to children who are not enrolled in the school dental services. Consequently, the results in this report do not represent the complete Australian child population, but only that portion of the population that is enrolled in the school dental services. Enrolment across Australia varies, but in all states and territories is higher for primary-aged children than for children in secondary schooling. Hence, in this report, estimates for primary school children may not differ substantially from those that would be obtained if all children in the country were surveyed; in contrast, estimates for secondary school children may vary from those obtained if all children in the country were surveyed.

It is necessary to be cautious in drawing inferences from age-related trends, particularly among those children aged 12 years or older. In most states and territories access to school dental services for older children tends to be restricted in comparison with access for younger children. Often the older children must meet special eligibility criteria, with the consequence that they may be less representative of their respective age groups within the Australian population than is the case for younger children. Also, in Victoria, the Northern Territory and the Australian Capital Territory children aged 14 years or over are not included in the analysis, so current estimates for 15 year old children do not take those jurisdictions into account.

Indices of decay experience were calculated from data collected over a full 12-month period in each calendar year. Where children received more than one examination during this period, the information derived from examinations other than the first has been excluded. Age-standardised statistics are based on the simple rolling together of weighted data for all relevant age groups.

## **Number in sample**

There were a total of 252,765 children aged between 4 and 15 years surveyed for the 2003–04 calendar years. The numbers of children sampled in 2003 and 2004 individually were 129,449 and 123,316 respectively. The effects of the statistical weighting procedure can be appreciated from examining Table 13. The relatively large numbers of children sampled from South Australia received substantially lower weightings compared with other states and territories. Therefore, the weighted numbers of children, which were used for estimates listed in tables and figures, represent smaller numbers of children from this jurisdiction. Consequently, the national sample was numerically representative of the relative populations of states and territories rather than the number of sampled children.

**Table 13: Number in sample by state and territory, 2003–04**

State/territory	Number of children sampled	Weight	Weighted number of children <sup>(c)</sup>
	<i>n</i>		<i>n</i>
New South Wales	..	..	..
Victoria <sup>(a)</sup>	15,580	5.01	77,984
Queensland	23,033	3.71	85,453
Western Australia	30,581	1.31	40,016
South Australia	151,915	0.19	28,569
Tasmania	5,882	1.64	9,668
Australian Capital Territory <sup>(a)</sup>	4,167	1.36	5,652
Northern Territory <sup>(b)</sup>	21,607	0.25	5,425
<b>Total</b>	<b>252,765</b>	<b>1.00</b>	<b>252,765</b>

.. = not applicable due to exclusion of New South Wales from 2003–04 data collection

(a) Excludes 4 year old and 15 year old children.

(b) Excludes 15 year old children.

(c) Weighted number rounded to nearest whole number.

## Appendix B: National time trends

Due to a lack of representativeness of the New South Wales (NSW) sample in 2003–04, data from NSW are not included in this publication. In 1996 the New South Wales Health Department (NSW Health), through the school dental service, implemented the Save Our Kids Smiles (SOKS) program, incorporating three main components – oral health education, risk assessment and clinical care. A major change accompanying the program was the move from clinic-based examinations to oral assessments in school classrooms as the primary environment for data collection. In the clinic better lighting and the availability of other facilities such as compressed air optimise conditions for assessing oral health.

Between 1995 and 1996, at the time the SOKS program was introduced, there was an apparent substantial improvement in the oral health of children in NSW. There was, for example, a 44% reduction in 5–6 year old average decay, a 57% reduction in 12 year old average decay, and a 12% increase in the percentage of 5–6 year old children free of decay experience (dmft = 0) in their deciduous teeth.

In 2000, NSW commenced a wide-ranging review of SOKS, with one aspect being a quality assurance project aimed at assessing the reliability and validity of data collected under SOKS assessment conditions. The technical report (New South Wales Health Department 2001) found that, while there were no statistically significant differences in the reporting of missing and filled teeth between a field SOKS-style assessment and a clinical examination, there was a persistent and statistically significant under-reporting of the number of decayed teeth in non-clinical conditions. In deciduous teeth the average number of decayed teeth for the SOKS assessment was 36% lower than that collected in the clinic, while the average number of decayed permanent teeth was 41% lower. This underestimation of decay also resulted in a significant underestimation in the dmft and DMFT indices.

From 2001 child dental services in NSW were targeted towards designated ‘disadvantaged’ primary and secondary schools under the School Assessment Program (SAP). Children were prioritised for treatment using a Child Priority Oral Health Program questionnaire, resulting in much smaller numbers of children being seen by the school dental service. Rather than collecting information from all children enrolled in a school dental service, or from screening examinations as had been done previously, oral health information on children in 2003–04 was only captured at the point of examination of prioritised children with designated treatment needs at school dental service clinics. This represents a serious and considerable bias to the results of the data collection in NSW in 2003–04 given that data were predominantly only available on children with immediate treatment needs from targeted ‘disadvantaged’ schools.

Because of the lack of representativeness of the NSW results in 2003 and 2004 to the state child population for these years, data from NSW were not included in the Child Dental Health Survey, Australia 2003–04. The implications of this change to national child oral health statistics are significant. Given that the estimated resident population (ERP) of children in NSW makes up approximately one-third of the Australian child ERP, variations in child oral health in NSW have appreciable influence on national estimates.

The changes in data collection in NSW from 1996 to 2000 under SOKS and then from 2001 onwards under SAP present a challenge when interpreting time series for Australia. Time trends for 6 year old and 12 year old children for the period 1990–2004 are therefore provided using three time series (Figures 25–30). The first series presents results that include



unadjusted data for New South Wales during 1996–2000. The second series presents results with adjustments for the estimated under-reporting of clinically detectable decayed teeth in NSW between 1996 and 2000 (derived from a NSW Health review of SOKS). A weighting of 1.56 was used for calculations of decayed deciduous teeth and 1.68 for calculations of decayed permanent teeth in the NSW data, resulting in an adjusted national output. The third series presents results with NSW data excluded from the national average from 1996 onwards.

In the first time series a decrease in decay experience is observable after the under-reporting associated with SOKS, with a subsequent increase once NSW is excluded from 2001 onwards. In the deciduous teeth the lowest dmft is seen in 1996 (Figure 25), while in the permanent teeth the lowest point occurs in 1998 (Figure 28).

In the third time series greater stability in the time trend is evident for permanent decay experience; however, these results come at the expense of excluding approximately one-third of the child population of Australia. A small dip in deciduous and permanent decay experience can be seen between 2000 and 2001 (Figures 27 and 30).

The second time series consists of a compromise between the first and third series. In the deciduous teeth a decline is shown to 1996, followed by a reasonably steady increase in dmft to 2003–04 (Figure 26). The second time series for the permanent teeth shows a decline to about 1998–99, followed by a slight increase thereafter (Figure 29).

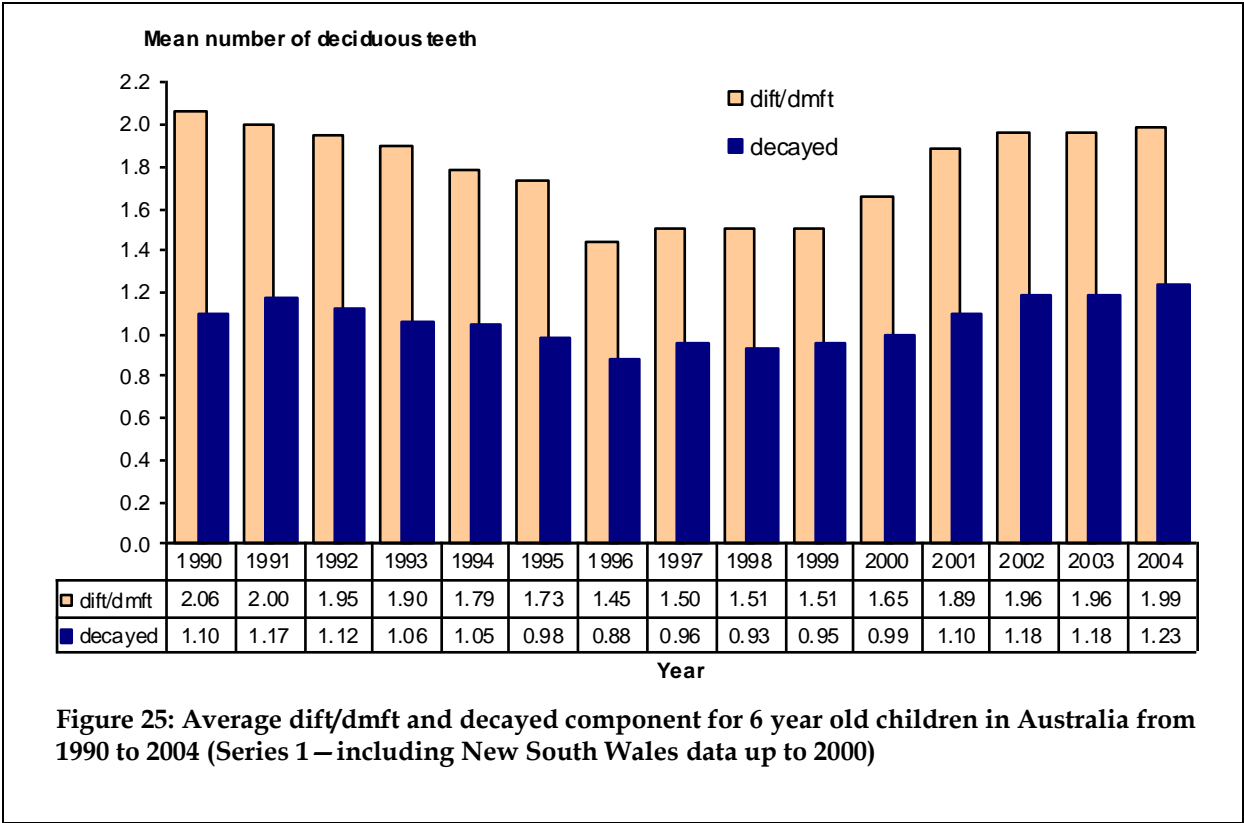
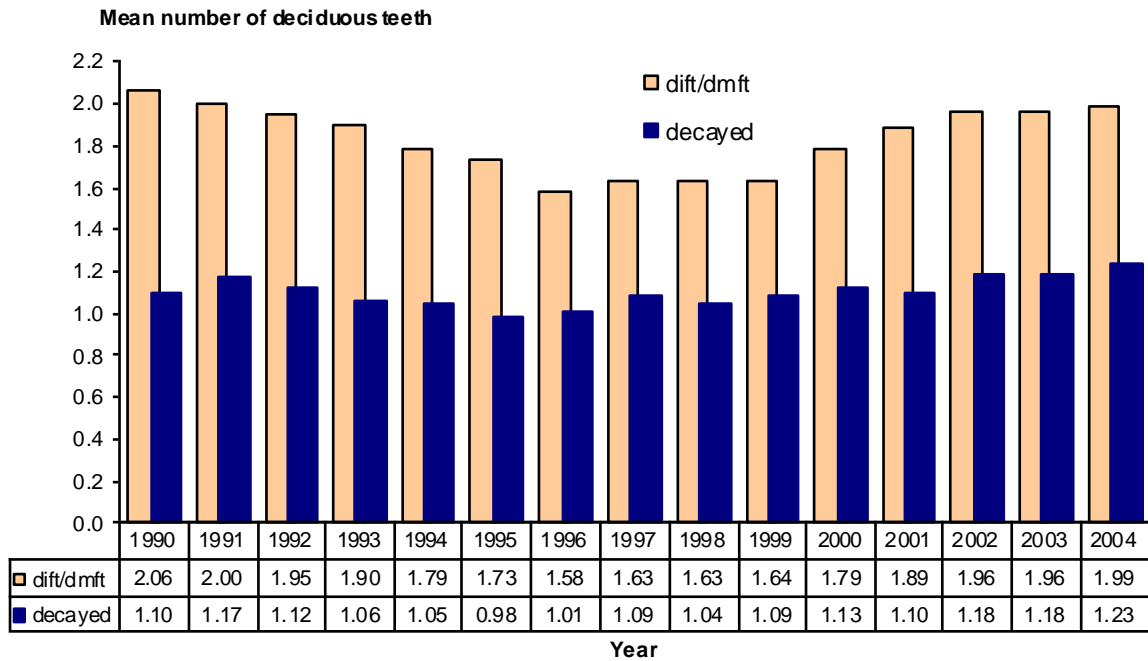
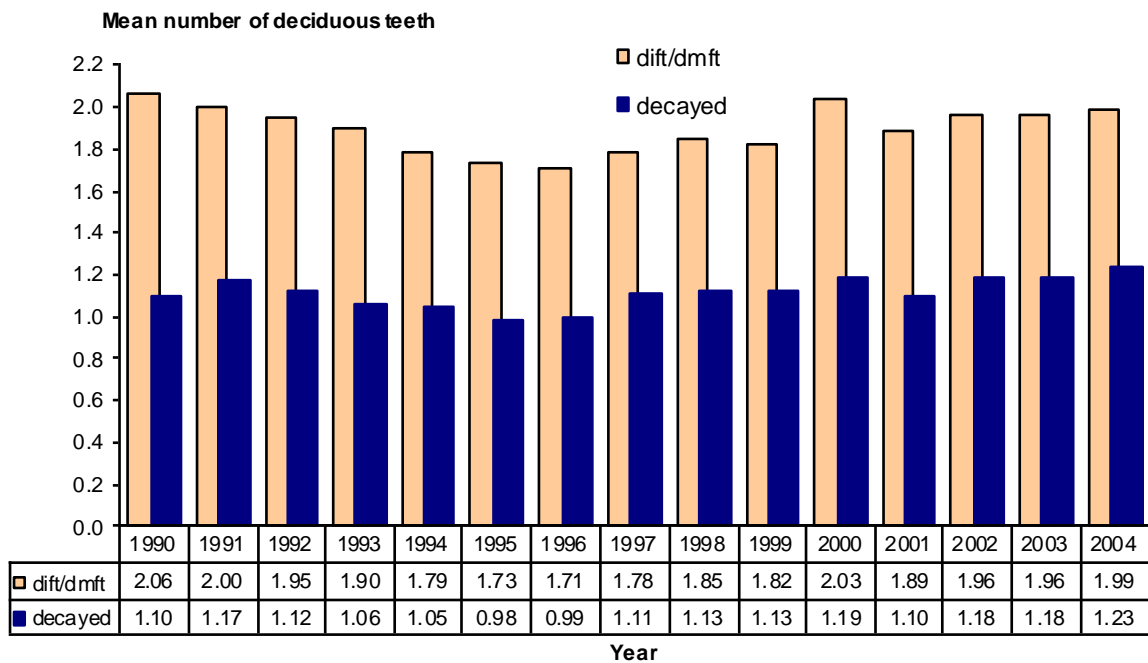


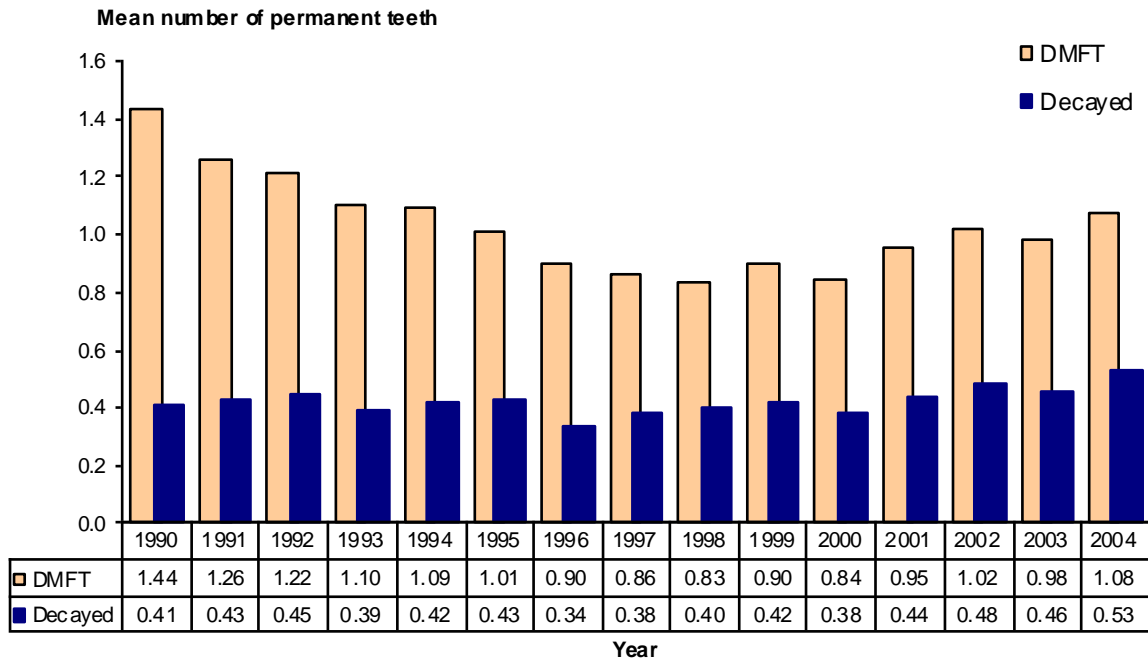
Figure 25: Average dift/dmft and decayed component for 6 year old children in Australia from 1990 to 2004 (Series 1 – including New South Wales data up to 2000)



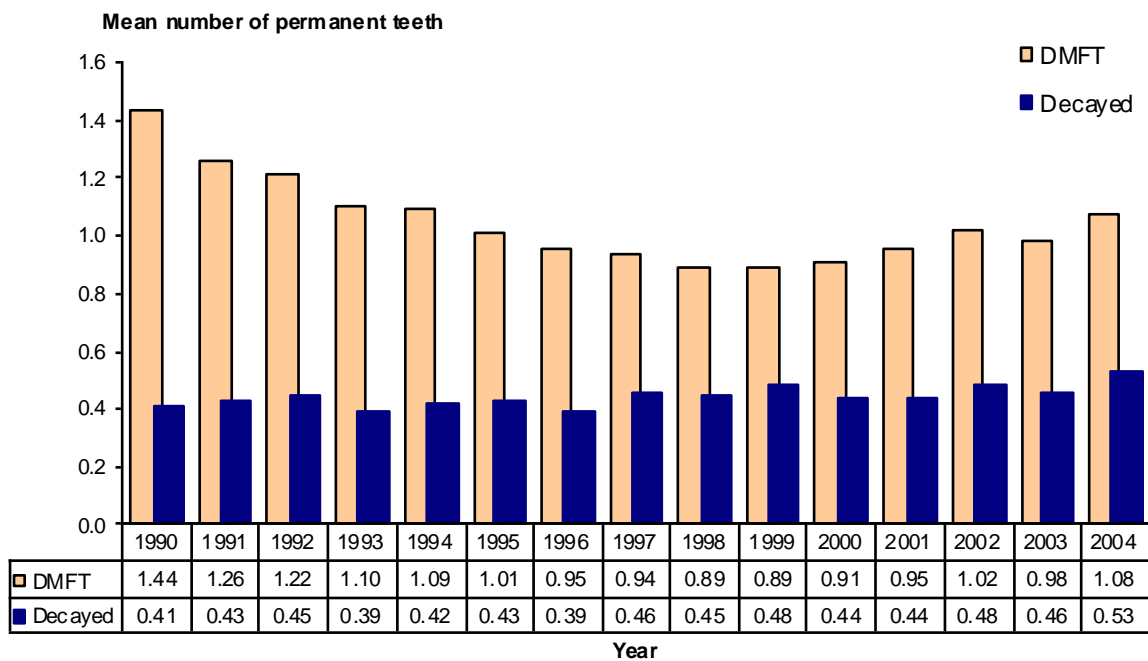
**Figure 26: Average dift/dmft and decayed component for 6 year old children in Australia from 1990 to 2004 (Series 2 – adjusting for New South Wales data, 1996–2000)**



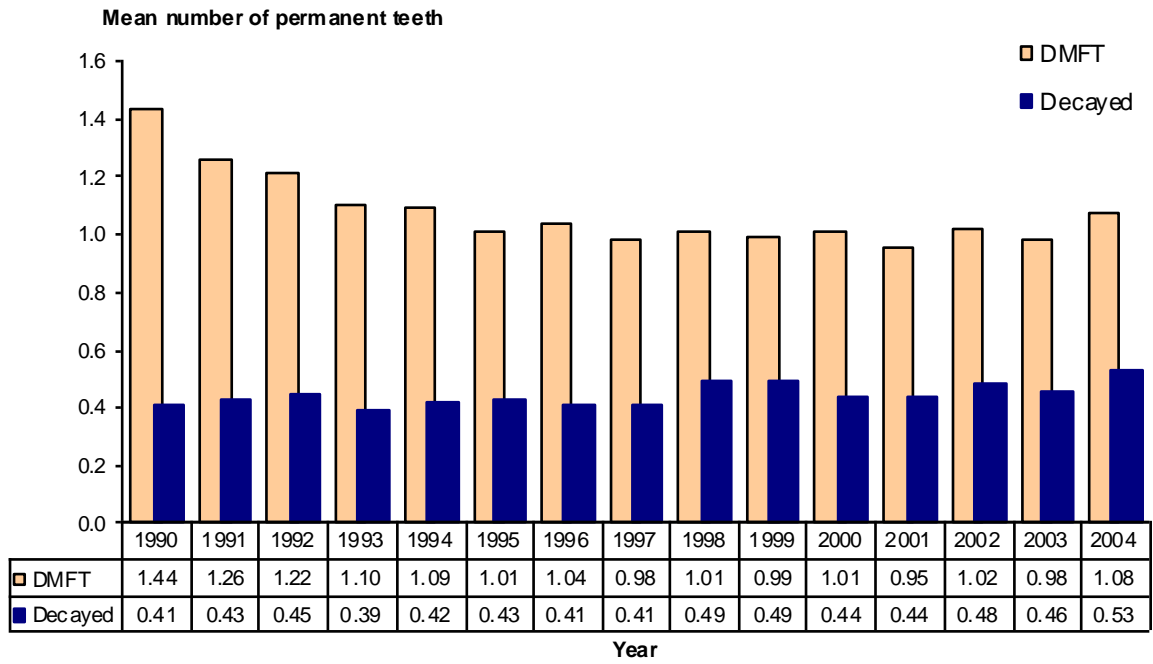
**Figure 27: Average dift/dmft and decayed component for 6 year old children in Australia from 1990 to 2004 (Series 3 – excluding New South Wales data from 1996–2004)**



**Figure 28: Average DMFT and decayed component for 12 year old children in Australia from 1990 to 2004 (Series 1 – including New South Wales data up to 2000)**



**Figure 29: Average DMFT and decayed component for 12 year old children in Australia from 1990 to 2004 (Series 2 – adjusting for New South Wales data, 1996–2000)**



**Figure 30: Average DMFT and decayed component for 12 year old children in Australia from 1990 to 2004 (Series 3 – excluding New South Wales data from 1996–2004)**

## Appendix C: State and territory data tables

Individual state and territory reports have not been produced since 2003. Results for individual jurisdictions are therefore provided in this Appendix of the national child report. The unweighted number of children sampled from each age within each state and territory is provided in Table 14. It should be noted that given the low numbers of 14 year old and 15 year old children sampled from the Australian Capital Territory and the Northern Territory, results for these age groups from these jurisdictions should be interpreted with due care.

Oral health differences, reported in Tables 17–25, may be attributable to differences between the child populations in water fluoridation coverage, socioeconomic status, access to services, food and beverage consumption, exposure to topical fluorides, or other known benefits and risks.

However, results for individual states and territories reflect several factors and may not necessarily be representative of the oral health of all children in that jurisdiction. Differences between states and territories in overall coverage, level of enrolment, capitation or other charges, targeting of services, access to services in rural or remote areas, or data recording may, to a greater or lesser extent, contribute to the apparent differences in child oral health between jurisdictions.

**Table 14: Unweighted number of children by age and state/territory of residence, 2003–04**

Age (years)	State or territory							Total
	Vic	Qld	WA	SA	Tas	ACT	NT	
4	0	452	594	10,606	384	0	2,271	14,307
5	1,491	1,651	2,786	14,826	562	310	2,421	24,047
6	2,202	4,064	2,892	14,191	589	509	2,539	26,986
7	2,255	2,237	3,029	14,712	590	545	2,497	25,865
8	2,226	2,117	3,070	15,018	542	551	2,504	26,028
9	2,083	2,088	3,118	14,804	629	583	2,474	25,779
10	2,081	2,029	3,191	14,319	508	519	2,337	24,984
11	1,774	2,006	3,110	13,714	486	513	2,271	23,874
12	929	3,357	2,727	12,893	483	306	1,716	22,411
13	388	1,309	2,278	10,234	401	160	448	15,218
14	151	1,068	2,032	8,718	388	96	88	12,541
15	0	655	1,754	7,880	320	75	41	10,725
<b>Total</b>	<b>15,580</b>	<b>23,033</b>	<b>30,581</b>	<b>151,915</b>	<b>5,882</b>	<b>4,167</b>	<b>21,607</b>	<b>252,765</b>

**Table 15: Unweighted number of children by age and state/territory of residence, 2003**

Age (years)	State or territory							Total
	Vic	Qld	WA	SA	Tas	ACT	NT	
4	0	216	292	5,485	214	0	1,055	7,262
5	695	702	1,512	7,762	323	145	1,162	12,301
6	1,011	1,895	1,611	7,449	370	239	1,277	13,852
7	1,103	908	1,725	7,803	332	247	1,214	13,332
8	1,072	885	1,753	7,824	324	265	1,293	13,416
9	974	832	1,773	7,701	367	279	1,157	13,083
10	1,007	774	1,815	7,504	300	257	1,154	12,811
11	831	826	1,777	7,199	296	239	1,044	12,212
12	469	1,303	1,567	6,771	285	133	806	11,334
13	233	526	1,323	5,350	234	71	206	7,943
14	80	424	1,138	4,434	216	41	47	6,380
15	0	285	1,004	3,991	181	43	19	5,523
<b>Total</b>	<b>7,475</b>	<b>9,576</b>	<b>17,290</b>	<b>79,273</b>	<b>3,442</b>	<b>1,959</b>	<b>10,434</b>	<b>129,449</b>

**Table 16: Unweighted number of children by age and state/territory of residence, 2004**

Age (years)	State or territory							Total
	Vic	Qld	WA	SA	Tas	ACT	NT	
4	0	236	302	5,121	170	0	1,216	7,045
5	796	949	1,274	7,064	239	165	1,259	11,746
6	1,191	2,169	1,281	6,742	219	270	1,262	13,134
7	1,152	1,329	1,304	6,909	258	298	1,283	12,533
8	1,154	1,232	1,317	7,194	218	286	1,211	12,612
9	1,109	1,256	1,345	7,103	262	304	1,317	12,696
10	1,074	1,255	1,376	6,815	208	262	1,183	12,173
11	943	1,180	1,333	6,515	190	274	1,227	11,662
12	460	2,054	1,160	6,122	198	173	910	11,077
13	155	783	955	4,884	167	89	242	7,275
14	71	644	894	4,284	172	55	41	6,161
15	0	370	750	3,889	139	32	22	5,202
<b>Total</b>	<b>8,105</b>	<b>13,457</b>	<b>13,291</b>	<b>72,642</b>	<b>2,440</b>	<b>2,208</b>	<b>11,173</b>	<b>123,316</b>

**Table 17: Deciduous decayed teeth by state/territory for 4–10 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	1.43	2.70	1.33	2.45	1.05	2.27	1.17	2.30	..	..	1.47	2.78
5	1.38	2.58	1.66	2.63	1.18	2.43	0.97	2.00	1.12	2.05	0.56	1.27	2.01	3.13
6	1.31	2.31	1.41	2.26	0.87	1.75	0.93	1.75	1.18	2.17	0.86	1.68	1.79	2.81
7	1.10	1.89	1.24	1.91	0.66	1.44	0.80	1.47	1.08	1.75	0.56	1.19	1.57	2.52
8	1.02	1.65	1.04	1.58	0.61	1.22	0.70	1.27	0.79	1.36	0.66	1.13	1.23	2.05
9	0.97	1.55	0.85	1.37	0.47	1.02	0.60	1.13	0.69	1.20	0.63	1.23	1.03	1.74
10	0.72	1.26	0.59	1.15	0.33	0.79	0.46	0.99	0.56	1.06	0.45	1.04	0.64	1.21

.. = not applicable

**Table 18: Deciduous missing teeth by state/territory for 4–10 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	0.10	0.79	0.04	0.55	0.05	0.49	0.06	0.52	..	..	0.07	0.50
5	0.09	0.59	0.08	0.68	0.04	0.48	0.09	0.62	0.07	0.55	0.00	0.00	0.10	0.57
6	0.13	0.69	0.14	0.74	0.04	0.36	0.10	0.61	0.10	0.63	0.01	0.07	0.11	0.64
7	0.17	0.75	0.16	0.84	0.02	0.23	0.09	0.53	0.10	0.58	0.01	0.08	0.10	0.60
8	0.20	0.82	0.18	1.00	0.02	0.25	0.09	0.50	0.12	0.56	0.00	0.06	0.09	0.58
9	0.19	0.69	0.20	1.31	0.03	0.33	0.07	0.38	0.15	0.69	0.01	0.15	0.09	0.49
10	0.11	0.53	0.13	0.94	0.01	0.13	0.04	0.26	0.07	0.47	0.00	0.08	0.05	0.50

.. = not applicable

**Table 19: Deciduous filled teeth by state/territory for 4–10 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	
4	..	..	0.27	1.17	0.13	0.75	1.11	0.25	1.07	0.29	1.07	..	..	0.23	1.03
5	0.30	1.06	0.53	1.47	0.24	1.01	1.43	0.46	1.41	0.50	1.41	0.59	1.44	0.49	2.60
6	0.40	1.16	1.03	1.95	0.76	1.60	1.77	0.84	1.41	0.63	1.41	0.78	1.56	0.79	1.72
7	0.68	1.48	1.29	1.99	1.02	1.74	1.87	1.06	1.82	1.02	1.82	1.20	1.99	1.03	1.79
8	0.88	1.57	1.48	2.04	1.17	1.81	1.88	1.18	2.01	1.27	2.01	1.42	2.00	1.12	1.80
9	0.96	1.61	1.44	1.95	1.16	1.74	1.82	1.19	1.92	1.36	1.92	1.39	1.94	1.06	1.71
10	0.75	1.38	1.18	1.83	0.86	1.49	1.56	0.92	1.86	1.19	1.86	0.97	1.60	0.74	1.37

.. = not applicable

**Table 20: Deciduous decayed, missing and filled teeth by state/territory for 4–10 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	
4	..	..	1.85	3.31	1.50	2.67	2.70	1.35	2.83	1.52	2.83	..	..	1.80	3.06
5	1.76	3.00	2.27	3.23	1.47	2.76	2.77	1.51	2.77	1.70	2.77	1.14	2.20	2.60	3.65
6	1.84	2.92	2.58	3.38	1.66	2.58	2.86	1.87	2.81	1.90	2.81	1.65	2.44	2.69	3.53
7	1.95	2.78	2.69	3.18	1.70	2.42	2.69	1.95	2.78	2.20	2.78	1.76	2.52	2.70	3.25
8	2.10	2.69	2.70	3.08	1.80	2.28	2.51	1.97	2.61	2.18	2.61	2.08	2.42	2.45	2.88
9	2.12	2.60	2.49	2.91	1.66	2.12	2.34	1.86	2.56	2.20	2.56	2.02	2.37	2.18	2.58
10	1.57	2.15	1.89	2.61	1.20	1.78	2.02	1.42	2.29	1.82	2.29	1.42	2.00	1.43	2.00

.. = not applicable



**Table 21: Permanent decayed teeth by state/territory for 6–15 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.11	0.46	0.10	0.44	0.07	0.41	0.06	0.32	0.07	0.36	0.07	0.38	0.07	0.44
7	0.23	0.66	0.19	0.60	0.15	0.49	0.16	0.53	0.22	0.64	0.12	0.42	0.21	0.68
8	0.32	0.76	0.28	0.66	0.19	0.54	0.20	0.59	0.27	0.68	0.24	0.63	0.23	0.69
9	0.40	0.87	0.29	0.74	0.19	0.60	0.21	0.60	0.32	0.91	0.24	0.63	0.25	0.75
10	0.47	0.94	0.37	1.07	0.21	0.63	0.22	0.61	0.41	0.88	0.24	0.66	0.28	0.80
11	0.56	1.15	0.51	1.16	0.30	0.94	0.27	0.71	0.53	1.03	0.29	0.75	0.44	1.24
12	0.61	1.21	0.52	1.19	0.32	0.82	0.33	0.84	0.66	1.30	0.35	0.73	0.49	1.23
13	0.92	1.71	0.56	1.24	0.43	1.13	0.45	1.03	1.08	1.87	0.51	1.01	0.61	1.30
14	0.98	1.61	0.76	1.52	0.50	1.25	0.55	1.25	1.14	2.00	1.26	1.89	1.66	2.44
15	..	..	0.84	1.69	0.56	1.39	0.59	1.26	1.31	2.31	0.98	1.50	0.94	1.70

.. = not applicable

**Table 22: Permanent missing teeth by state/territory for 6–15 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.00	0.04	0.03	0.86	0.00	0.11	0.00	0.02	0.00	0.00	0.01	0.08	0.00	0.05
7	0.01	0.15	0.01	0.46	0.01	0.12	0.00	0.08	0.00	0.24	0.00	0.09	0.00	0.04
8	0.01	0.14	0.07	1.15	0.02	0.19	0.00	0.09	0.00	0.02	0.00	0.04	0.01	0.11
9	0.02	0.18	0.09	1.10	0.03	0.25	0.01	0.15	0.01	0.12	0.01	0.07	0.01	0.11
10	0.02	0.22	0.04	0.61	0.06	0.35	0.01	0.26	0.02	0.18	0.01	0.11	0.02	0.19
11	0.03	0.24	0.05	0.52	0.07	0.50	0.01	0.17	0.03	0.64	0.04	0.27	0.03	0.26
12	0.05	0.36	0.05	0.40	0.08	0.55	0.01	0.18	0.02	0.19	0.05	0.37	0.09	0.50
13	0.09	0.46	0.03	0.30	0.12	0.75	0.02	0.22	0.04	0.26	0.03	0.32	0.07	0.41
14	0.07	0.44	0.13	0.62	0.15	0.81	0.03	0.29	0.09	0.50	0.02	0.19	0.17	0.52
15	..	..	0.06	0.32	0.16	0.75	0.05	0.36	0.08	0.47	0.14	0.58	0.09	0.36

.. = not applicable

**Table 23: Permanent filled teeth by state/territory for 6–15 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.01	0.11	0.02	0.24	0.01	0.11	0.01	0.11	0.00	0.03	0.01	0.10	0.01	0.18
7	0.04	0.29	0.07	0.38	0.04	0.31	0.05	0.31	0.02	0.13	0.06	0.33	0.04	0.27
8	0.10	0.43	0.18	0.64	0.10	0.41	0.13	0.49	0.14	0.46	0.21	0.57	0.10	0.43
9	0.18	0.57	0.31	0.81	0.20	0.61	0.25	0.66	0.26	0.70	0.28	0.70	0.17	0.55
10	0.29	0.72	0.45	0.93	0.27	0.69	0.34	0.78	0.25	0.69	0.48	0.94	0.22	0.61
11	0.37	0.88	0.51	1.02	0.40	0.95	0.43	0.90	0.57	1.03	0.54	0.97	0.28	0.74
12	0.40	0.89	0.63	1.20	0.46	0.99	0.48	0.99	0.50	0.94	0.66	1.24	0.35	0.89
13	0.62	1.26	0.76	1.51	0.64	1.25	0.61	1.15	0.72	1.26	0.53	0.94	0.47	1.13
14	0.81	1.61	1.00	1.69	0.80	1.43	0.79	1.37	1.04	1.71	1.03	1.72	0.27	0.76
15	...	...	1.20	1.93	0.99	1.70	1.03	1.66	1.30	1.79	1.77	2.39	0.25	0.62

... = not applicable

**Table 24: Permanent decayed, missing and filled teeth by state/territory for 6-15 year old children, 2003-04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.12	0.49	0.16	1.01	0.08	0.44	0.07	0.34	0.08	0.36	0.09	0.41	0.09	0.48
7	0.28	0.77	0.28	0.85	0.19	0.61	0.21	0.63	0.24	0.71	0.18	0.54	0.25	0.76
8	0.44	0.91	0.53	1.48	0.31	0.72	0.34	0.78	0.42	0.86	0.45	0.87	0.34	0.83
9	0.60	1.09	0.70	1.59	0.43	0.92	0.46	0.93	0.58	1.14	0.52	1.00	0.43	0.94
10	0.78	1.22	0.87	1.61	0.54	1.01	0.57	1.05	0.68	1.17	0.73	1.17	0.52	1.05
11	0.96	1.48	1.07	1.77	0.77	1.48	0.71	1.22	1.14	1.65	0.87	1.23	0.74	1.51
12	1.06	1.66	1.19	1.96	0.87	1.49	0.82	1.38	1.18	1.71	1.06	1.44	0.92	1.71
13	1.63	2.38	1.35	2.20	1.18	1.97	1.08	1.67	1.84	2.37	1.06	1.48	1.15	1.85
14	1.86	2.59	1.88	2.66	1.45	2.15	1.37	2.00	2.28	2.69	2.30	2.55	2.09	2.73
15	..	..	2.10	3.00	1.70	2.39	1.67	2.23	2.68	3.02	2.89	2.83	1.28	1.92

.. = not applicable

**Table 25: Fissure sealed teeth by state/territory for 6–15 year old children, 2003–04**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.07	0.48	0.10	0.55	0.04	0.38	0.02	0.24	0.09	0.51	0.16	0.70	0.07	0.46
7	0.24	0.88	0.32	0.98	0.13	0.62	0.12	0.59	0.29	0.94	0.71	1.38	0.26	0.88
8	0.52	1.21	0.57	1.22	0.16	0.67	0.31	0.92	0.62	1.28	1.22	1.63	0.59	1.27
9	0.88	1.45	0.78	1.37	0.18	0.82	0.50	1.11	0.92	1.54	1.13	1.58	0.80	1.42
10	1.02	1.50	0.92	1.43	0.17	0.70	0.63	1.21	0.84	1.44	1.21	1.56	1.03	1.62
11	1.14	1.60	0.87	1.43	0.16	0.75	0.76	1.31	0.84	1.48	1.18	1.52	1.06	1.70
12	1.15	1.66	0.81	1.57	0.18	0.87	0.88	1.44	0.89	2.17	1.40	1.89	0.99	1.75
13	1.29	1.72	1.10	1.90	0.18	0.88	1.07	1.62	0.66	1.52	1.50	2.04	0.95	1.57
14	1.19	1.97	1.15	2.00	0.17	0.74	1.31	1.85	0.78	1.71	1.42	2.14	0.69	1.55
15	..	..	1.25	2.16	0.23	0.98	1.52	2.05	1.03	1.90	1.81	2.22	0.55	1.59

.. = not applicable

## **Appendix D: Supplementary state/territory data tables, 2003 and 2004**

The following supplementary data Tables 26–45 present state/territory specific information on deciduous and permanent caries experience by age separately for 2003 and 2004.

**Table 26: Deciduous decayed teeth by state/territory for 4–10 year old children, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	1.35	2.53	1.37	2.50	1.00	2.20	0.91	1.96	..	..	1.53	2.88
5	1.27	2.46	1.69	2.63	1.13	2.35	0.94	2.00	0.98	1.72	0.50	1.15	2.10	3.22
6	1.30	2.36	1.39	2.22	0.76	1.51	0.91	1.70	1.14	1.99	0.98	1.87	1.85	2.85
7	1.12	1.91	1.18	1.86	0.69	1.58	0.80	1.46	0.87	1.33	0.42	0.94	1.55	2.52
8	0.98	1.62	0.99	1.57	0.60	1.21	0.68	1.25	0.76	1.43	0.73	1.21	1.22	2.03
9	0.96	1.61	0.97	1.45	0.45	1.02	0.61	1.16	0.55	1.09	0.63	1.28	1.05	1.73
10	0.69	1.21	0.54	1.10	0.33	0.80	0.44	0.97	0.59	1.02	0.37	0.91	0.68	1.30

.. = not applicable

**Table 27: Deciduous decayed teeth by state/territory for 4–10 year old children, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	1.53	2.88	1.30	2.41	1.09	2.34	1.38	2.53	..	..	1.47	2.69
5	1.47	2.68	1.62	2.64	1.23	2.51	1.00	2.00	1.24	2.29	0.62	1.39	1.93	3.05
6	1.31	2.27	1.44	2.32	0.98	1.95	0.96	1.81	1.23	2.38	0.74	1.44	1.73	2.78
7	1.08	1.87	1.31	1.95	0.63	1.29	0.81	1.49	1.29	2.06	0.69	1.38	1.58	2.52
8	1.06	1.69	1.08	1.59	0.61	1.22	0.71	1.29	0.80	1.28	0.59	1.03	1.24	2.09
9	0.98	1.51	0.74	1.27	0.49	1.03	0.59	1.11	0.83	1.30	0.63	1.18	1.02	1.75
10	0.75	1.31	0.63	1.20	0.33	0.78	0.48	1.01	0.52	1.10	0.54	1.16	0.59	1.11

.. = not applicable

Table 28: Deciduous missing teeth by state/territory for 4–10 year old children, 2003

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	0.10	0.85	0.07	0.83	0.06	0.48	0.05	0.47	..	..	0.06	0.39
5	0.07	0.54	0.11	0.83	0.06	0.58	0.08	0.58	0.13	0.68	0.00	0.00	0.11	0.63
6	0.12	0.64	0.16	0.83	0.04	0.34	0.09	0.57	0.07	0.61	0.00	0.06	0.09	0.51
7	0.15	0.66	0.18	0.88	0.03	0.26	0.08	0.50	0.05	0.40	0.01	0.08	0.10	0.63
8	0.20	0.79	0.26	1.28	0.03	0.28	0.08	0.48	0.19	0.73	0.01	0.08	0.09	0.61
9	0.19	0.67	0.35	1.79	0.02	0.33	0.06	0.33	0.18	0.81	0.01	0.18	0.07	0.39
10	0.13	0.67	0.20	1.23	0.01	0.12	0.03	0.24	0.01	0.16	0.01	0.12	0.05	0.38

.. = not applicable

Table 29: Deciduous missing teeth by state/territory for 4–10 year old children, 2004

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	0.09	0.72	0.02	0.20	0.05	0.50	0.07	0.56	..	..	0.08	0.59
5	0.10	0.64	0.05	0.43	0.03	0.37	0.09	0.65	0.03	0.39	0.00	0.00	0.08	0.51
6	0.14	0.73	0.11	0.61	0.04	0.38	0.11	0.64	0.13	0.65	0.01	0.08	0.12	0.75
7	0.19	0.83	0.14	0.79	0.02	0.19	0.11	0.57	0.15	0.71	0.01	0.08	0.11	0.57
8	0.20	0.85	0.10	0.55	0.02	0.22	0.10	0.52	0.05	0.31	0.00	0.00	0.09	0.54
9	0.18	0.71	0.06	0.44	0.03	0.33	0.08	0.43	0.10	0.52	0.01	0.11	0.10	0.56
10	0.08	0.35	0.06	0.50	0.01	0.14	0.04	0.27	0.14	0.65	0.00	0.00	0.06	0.60

.. = not applicable



**Table 30: Deciduous filled teeth by state/territory for 4–10 year old children, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	...	...	0.27	1.02	0.07	0.42	0.25	1.12	0.43	1.16	...	...	0.21	0.93
5	0.36	1.14	0.61	1.62	0.26	1.07	0.44	1.38	0.62	1.56	0.61	1.46	0.46	1.41
6	0.42	1.16	1.09	2.02	0.74	1.50	0.84	1.75	0.64	1.45	0.76	1.53	0.84	1.74
7	0.66	1.45	1.32	1.95	1.05	1.76	1.03	1.83	0.97	1.63	1.35	2.19	1.05	1.81
8	0.93	1.64	1.56	2.11	1.15	1.76	1.15	1.85	1.33	2.08	1.55	2.01	1.06	1.73
9	1.04	1.69	1.54	2.00	1.15	1.74	1.19	1.82	1.30	1.95	1.60	2.11	1.08	1.74
10	0.77	1.42	1.28	1.93	0.86	1.53	0.89	1.54	1.43	2.10	0.83	1.49	0.76	1.40

... = not applicable

**Table 31: Deciduous filled teeth by state/territory for 4–10 year old children, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	...	...	0.26	1.32	0.18	0.91	0.25	1.10	0.18	0.98	...	...	0.25	1.12
5	0.24	0.96	0.44	1.28	0.22	0.94	0.48	1.47	0.41	1.27	0.56	1.42	0.52	1.52
6	0.39	1.16	0.96	1.85	0.78	1.70	0.83	1.79	0.63	1.36	0.81	1.59	0.74	1.69
7	0.69	1.51	1.26	2.04	0.98	1.72	1.08	1.91	1.04	1.96	1.06	1.76	1.00	1.76
8	0.82	1.49	1.39	1.96	1.19	1.86	1.22	1.91	1.21	1.96	1.29	1.98	1.20	1.88
9	0.89	1.52	1.33	1.90	1.17	1.74	1.19	1.83	1.37	1.86	1.16	1.71	1.05	1.69
10	0.72	1.33	1.08	1.71	0.86	1.45	0.96	1.58	0.93	1.52	1.11	1.70	0.73	1.34

... = not applicable

**Table 32: Deciduous decayed, missing and filled teeth by state/territory for 4–10 year old children, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	1.82	3.21	1.51	2.68	1.31	2.65	1.39	2.69	..	..	1.79	3.04
5	1.70	2.90	2.41	3.35	1.46	2.78	1.46	2.74	1.73	2.60	1.11	2.19	2.67	3.72
6	1.84	2.90	2.64	3.43	1.53	2.38	1.84	2.78	1.85	2.73	1.75	2.58	2.79	3.57
7	1.93	2.76	2.67	3.16	1.77	2.53	1.91	2.62	1.90	2.35	1.77	2.56	2.70	3.27
8	2.11	2.69	2.82	3.25	1.78	2.25	1.91	2.48	2.28	2.81	2.29	2.43	2.37	2.80
9	2.20	2.68	2.86	3.21	1.62	2.11	1.86	2.33	2.03	2.53	2.23	1.21	2.20	2.58
10	1.59	2.17	2.02	2.83	1.19	1.82	1.35	1.98	2.03	2.39	1.21	1.86	1.49	2.11

.. = not applicable

**Table 33: Deciduous decayed, missing and filled teeth by state/territory for 4–10 year old children, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
4	..	..	1.88	3.41	1.49	2.67	1.39	2.75	1.63	2.93	..	..	1.80	3.08
5	1.81	3.10	2.11	3.08	1.47	2.74	1.57	2.80	1.67	2.90	1.18	2.22	2.53	3.58
6	1.84	2.94	2.51	3.31	1.80	2.77	1.90	2.94	1.98	2.92	1.56	2.28	2.59	3.49
7	1.96	2.81	2.71	3.20	1.63	2.31	2.00	2.75	2.47	3.08	1.75	2.49	2.69	3.24
8	2.09	2.69	2.57	2.88	1.82	2.30	2.03	2.54	2.07	2.42	1.88	2.39	2.53	2.96
9	2.05	2.52	2.13	2.52	1.69	2.13	1.86	2.34	2.31	2.54	1.80	2.22	2.17	2.58
10	1.55	2.12	1.77	2.37	1.20	1.74	1.49	2.06	1.59	2.14	1.66	2.11	1.38	1.89

.. = not applicable

**Table 34: Permanent decayed teeth by state/territory for 6–15 year old children, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.14	0.52	0.08	0.37	0.07	0.36	0.07	0.33	0.07	0.36	0.07	0.33	0.09	0.52
7	0.25	0.67	0.17	0.55	0.14	0.46	0.17	0.55	0.15	0.53	0.12	0.43	0.19	0.63
8	0.31	0.76	0.28	0.67	0.20	0.58	0.19	0.57	0.17	0.59	0.20	0.54	0.25	0.73
9	0.40	0.83	0.31	0.74	0.19	0.56	0.20	0.60	0.27	0.88	0.26	0.67	0.25	0.72
10	0.47	0.96	0.35	0.86	0.20	0.63	0.21	0.60	0.32	0.70	0.23	0.64	0.30	0.88
11	0.57	1.20	0.50	1.13	0.32	1.05	0.25	0.67	0.47	0.99	0.20	0.57	0.45	1.21
12	0.56	1.18	0.47	1.14	0.32	0.80	0.32	0.82	0.58	1.14	0.41	0.73	0.49	1.07
13	0.95	1.81	0.55	1.36	0.45	1.10	0.43	1.00	1.20	2.09	0.41	0.92	0.54	1.21
14	1.20	1.86	0.66	1.49	0.50	1.19	0.53	1.24	1.14	1.77	1.84	2.44	1.78	2.29
15	..	..	0.74	1.60	0.53	1.25	0.58	1.25	1.70	2.89	1.04	1.58	0.78	1.57

.. = not applicable

Table 35: Permanent decayed teeth by state/territory for 6–15 year old children, 2004

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.09	0.39	0.12	0.52	0.07	0.45	0.05	0.30	0.08	0.37	0.08	0.43	0.06	0.32
7	0.22	0.66	0.22	0.65	0.15	0.51	0.15	0.50	0.29	0.73	0.11	0.40	0.24	0.73
8	0.34	0.77	0.28	0.64	0.18	0.51	0.22	0.61	0.37	0.74	0.27	0.70	0.21	0.66
9	0.40	0.90	0.28	0.73	0.20	0.65	0.21	0.61	0.37	0.96	0.22	0.58	0.26	0.78
10	0.47	0.92	0.39	1.24	0.23	0.63	0.22	0.61	0.51	1.03	0.26	0.69	0.27	0.72
11	0.55	1.09	0.52	1.19	0.28	0.82	0.29	0.76	0.60	1.07	0.39	0.87	0.43	1.27
12	0.66	1.25	0.55	1.24	0.33	0.84	0.34	0.86	0.74	1.42	0.29	0.73	0.48	1.35
13	0.86	1.52	0.57	1.13	0.40	1.15	0.47	1.05	0.94	1.59	0.59	1.08	0.67	1.39
14	0.73	1.23	0.86	1.54	0.50	1.31	0.57	1.26	1.15	2.19	0.86	1.27	1.37	2.75
15	..	..	0.94	1.77	0.59	1.53	0.61	1.27	0.97	1.60	0.89	1.37	1.17	1.85

.. = not applicable

Table 36: Permanent missing teeth by state/territory for 6–15 year old children, 2003

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.00	0.02	0.03	0.80	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.02	0.18	0.02	0.63	0.01	0.10	0.00	0.02	0.01	0.33	0.00	0.00	0.00	0.04
8	0.01	0.11	0.13	1.60	0.02	0.19	0.00	0.08	0.00	0.03	0.00	0.06	0.01	0.12
9	0.02	0.22	0.17	1.55	0.03	0.26	0.01	0.15	0.00	0.11	0.01	0.09	0.01	0.13
10	0.02	0.22	0.05	0.68	0.06	0.38	0.01	0.17	0.03	0.23	0.01	0.11	0.02	0.20
11	0.02	0.23	0.05	0.44	0.07	0.36	0.01	0.19	0.03	0.80	0.05	0.34	0.04	0.30
12	0.07	0.43	0.05	0.42	0.09	0.67	0.01	0.18	0.00	0.04	0.02	0.19	0.09	0.50
13	0.10	0.49	0.03	0.33	0.15	0.93	0.02	0.22	0.01	0.07	0.01	0.12	0.10	0.53
14	0.11	0.58	0.13	0.58	0.16	0.85	0.04	0.32	0.13	0.65	0.04	0.29	0.23	0.61
15	..	..	0.04	0.24	0.13	0.65	0.05	0.34	0.03	0.17	0.17	0.68	0.10	0.41

.. = not applicable

Table 37: Permanent missing teeth by state/territory for 6–15 year old children, 2004

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.00	0.06	0.04	0.93	0.00	0.02	0.00	0.02	0.00	0.00	0.01	0.11	0.00	0.07
7	0.01	0.09	0.01	0.14	0.01	0.14	0.00	0.11	0.00	0.00	0.01	0.12	0.00	0.02
8	0.01	0.16	0.00	0.03	0.02	0.18	0.00	0.09	0.00	0.00	0.00	0.00	0.01	0.09
9	0.01	0.14	0.01	0.18	0.03	0.24	0.01	0.15	0.01	0.13	0.00	0.05	0.01	0.10
10	0.02	0.22	0.04	0.54	0.05	0.33	0.02	0.32	0.01	0.11	0.01	0.11	0.02	0.17
11	0.03	0.26	0.05	0.59	0.08	0.62	0.01	0.15	0.04	0.35	0.02	0.17	0.02	0.20
12	0.03	0.25	0.05	0.40	0.08	0.37	0.01	0.18	0.03	0.23	0.09	0.49	0.08	0.51
13	0.07	0.40	0.03	0.28	0.09	0.50	0.02	0.22	0.08	0.37	0.04	0.41	0.05	0.26
14	0.02	0.15	0.12	0.65	0.14	0.77	0.03	0.27	0.06	0.29	0.00	0.00	0.03	0.17
15	..	..	0.07	0.37	0.18	0.84	0.05	0.37	0.12	0.62	0.10	0.43	0.09	0.28

.. = not applicable

Table 38: Permanent filled teeth by state/territory for 6–15 year old children, 2003

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.01	0.09	0.03	0.24	0.01	0.12	0.01	0.12	0.00	0.00	0.01	0.10	0.02	0.24
7	0.04	0.31	0.08	0.40	0.04	0.26	0.05	0.31	0.02	0.13	0.06	0.34	0.03	0.25
8	0.09	0.40	0.18	0.64	0.09	0.38	0.13	0.49	0.17	0.51	0.25	0.63	0.09	0.39
9	0.19	0.59	0.35	0.86	0.23	0.66	0.25	0.68	0.24	0.73	0.24	0.67	0.16	0.54
10	0.26	0.70	0.48	0.96	0.28	0.72	0.33	0.78	0.29	0.74	0.57	1.04	0.22	0.63
11	0.37	0.89	0.50	0.98	0.43	1.06	0.41	0.89	0.56	0.96	0.50	1.01	0.29	0.80
12	0.34	0.79	0.63	1.19	0.44	1.00	0.46	0.98	0.63	1.05	0.73	1.48	0.40	1.01
13	0.66	1.34	0.75	1.63	0.64	1.21	0.62	1.16	0.73	1.15	0.65	1.08	0.44	1.08
14	0.91	1.64	0.84	1.61	0.77	1.39	0.77	1.37	1.09	1.78	1.16	2.04	0.30	0.76
15	..	..	1.07	1.92	0.97	1.64	1.07	1.71	1.28	1.76	1.65	2.47	0.25	0.65

.. = not applicable

**Table 39: Permanent filled teeth by state/territory for 6–15 year old children, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.01	0.11	0.02	0.24	0.01	0.10	0.01	0.10	0.00	0.05	0.01	0.11	0.01	0.08
7	0.04	0.28	0.07	0.35	0.04	0.35	0.05	0.30	0.02	0.12	0.06	0.31	0.04	0.28
8	0.11	0.46	0.19	0.63	0.11	0.44	0.13	0.49	0.12	0.41	0.18	0.49	0.12	0.48
9	0.17	0.54	0.28	0.75	0.18	0.54	0.24	0.65	0.28	0.68	0.31	0.73	0.17	0.56
10	0.32	0.74	0.43	0.90	0.26	0.66	0.34	0.79	0.22	0.62	0.39	0.80	0.21	0.59
11	0.38	0.87	0.52	1.06	0.37	0.82	0.44	0.92	0.59	1.11	0.58	0.94	0.27	0.69
12	0.48	0.98	0.62	1.20	0.48	0.99	0.49	0.99	0.39	0.82	0.59	0.97	0.30	0.76
13	0.56	1.12	0.76	1.40	0.65	1.28	0.61	1.14	0.71	1.36	0.44	0.81	0.51	1.18
14	0.70	1.57	1.15	1.75	0.82	1.47	0.80	1.38	1.00	1.65	0.84	1.42	0.18	0.77
15	..	..	1.32	1.92	1.01	1.76	1.00	1.61	1.31	1.82	1.94	2.26	0.24	0.57

.. = not applicable



**Table 40: Permanent decayed, missing and filled teeth by state/territory for 6–15 year old children, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.15	0.55	0.13	0.91	0.09	0.43	0.07	0.36	0.07	0.36	0.07	0.34	0.11	0.58
7	0.30	0.79	0.26	0.93	0.19	0.57	0.22	0.64	0.17	0.64	0.19	0.56	0.23	0.68
8	0.41	0.88	0.59	1.85	0.31	0.73	0.32	0.77	0.34	0.81	0.46	0.84	0.35	0.84
9	0.61	1.10	0.83	1.96	0.46	0.94	0.46	0.94	0.52	1.11	0.52	1.02	0.42	0.92
10	0.75	1.23	0.89	1.56	0.54	1.04	0.55	1.03	0.64	1.12	0.80	1.22	0.54	1.12
11	0.96	1.55	1.05	1.64	0.82	1.58	0.67	1.19	1.07	1.62	0.75	1.22	0.78	1.54
12	0.96	1.62	1.15	1.93	0.85	1.55	0.79	1.37	1.21	1.66	1.16	1.64	0.99	1.68
13	1.71	2.50	1.34	2.29	1.23	2.02	1.07	1.65	1.94	2.51	1.07	1.51	1.08	1.74
14	2.23	2.87	1.63	2.44	1.43	2.10	1.33	2.00	2.35	2.65	3.04	2.99	2.32	2.54
15	..	..	1.84	3.00	1.62	2.26	1.69	2.28	3.02	3.57	2.86	2.88	1.13	1.87

.. = not applicable

**Table 41: Permanent decayed, missing and filled teeth by state/territory for 6–15 year old children, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.10	0.43	0.18	1.11	0.07	0.46	0.06	0.32	0.08	0.38	0.11	0.47	0.06	0.35
7	0.27	0.74	0.30	0.77	0.19	0.66	0.20	0.61	0.31	0.76	0.18	0.52	0.28	0.83
8	0.46	0.93	0.47	0.94	0.31	0.71	0.35	0.80	0.49	0.89	0.45	0.91	0.34	0.83
9	0.58	1.08	0.57	1.10	0.40	0.90	0.46	0.92	0.65	1.17	0.53	0.97	0.44	0.96
10	0.81	1.21	0.85	1.67	0.54	0.97	0.58	1.07	0.73	1.22	0.66	1.12	0.49	0.98
11	0.96	1.42	1.09	1.90	0.73	1.37	0.74	1.24	1.22	1.67	0.99	1.23	0.71	1.48
12	1.17	1.70	1.22	1.98	0.89	1.43	0.85	1.39	1.16	1.75	0.97	1.24	0.86	1.74
13	1.49	2.15	1.36	2.12	1.14	1.92	1.10	1.69	1.73	2.20	1.08	1.46	1.22	1.95
14	1.45	2.14	2.13	2.83	1.47	2.19	1.40	1.99	2.21	2.72	1.70	2.05	1.58	3.06
15	..	..	2.33	2.97	1.78	2.51	1.64	2.19	2.39	2.41	2.93	2.75	1.50	1.99

.. = not applicable

**Table 42: Permanent fissure sealed teeth by state/territory for 6–15 year old children, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.07	0.47	0.09	0.53	0.03	0.30	0.02	0.22	0.12	0.59	0.19	0.79	0.07	0.48
7	0.23	0.86	0.35	1.01	0.12	0.59	0.11	0.56	0.32	1.01	0.74	1.40	0.29	0.92
8	0.56	1.25	0.61	1.27	0.18	0.71	0.30	0.89	0.71	1.36	1.39	1.69	0.59	1.28
9	0.94	1.49	0.81	1.39	0.19	0.74	0.48	1.08	0.97	1.59	1.22	1.61	0.92	1.49
10	1.04	1.52	0.95	1.45	0.14	0.66	0.61	1.19	0.81	1.47	1.26	1.59	1.10	1.71
11	1.16	1.59	0.97	1.50	0.16	0.81	0.76	1.32	0.91	1.51	1.26	1.58	1.06	1.72
12	1.12	1.61	0.86	1.62	0.18	0.99	0.90	1.45	0.79	1.57	1.42	1.96	1.06	1.82
13	1.44	1.82	1.20	1.98	0.18	0.99	1.09	1.62	0.67	1.33	1.41	1.94	0.89	1.59
14	1.43	2.06	1.06	1.83	0.19	0.84	1.36	1.91	0.89	1.76	1.43	2.04	0.75	1.73
15	..	..	1.37	2.21	0.21	0.91	1.52	2.03	0.73	1.59	1.91	1.98	0.52	1.61

.. = not applicable

**Table 43: Permanent fissure sealed teeth by state/territory for 6–15 year old children, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory	
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
6	0.07	0.49	0.10	0.58	0.05	0.45	0.02	0.26	0.05	0.38	0.13	0.59	0.07	0.45
7	0.26	0.90	0.30	0.94	0.14	0.65	0.13	0.62	0.25	0.82	0.68	1.37	0.23	0.83
8	0.48	1.17	0.52	1.16	0.14	0.63	0.33	0.94	0.53	1.19	1.06	1.54	0.58	1.25
9	0.82	1.41	0.75	1.36	0.17	0.88	0.53	1.14	0.88	1.49	1.04	1.55	0.68	1.35
10	1.00	1.47	0.89	1.40	0.19	0.75	0.65	1.23	0.87	1.41	1.15	1.53	0.95	1.52
11	1.13	1.61	0.77	1.36	0.16	0.68	0.75	1.30	0.76	1.43	1.10	1.46	1.05	1.68
12	1.18	1.71	0.77	1.53	0.18	0.73	0.87	1.43	0.98	2.58	1.39	1.84	0.92	1.68
13	1.05	1.53	1.01	1.83	0.18	0.76	1.06	1.62	0.66	1.72	1.59	2.13	1.00	1.56
14	0.93	1.84	1.24	2.14	0.15	0.63	1.27	1.80	0.69	1.66	1.30	2.19	0.54	1.00
15	..	..	1.14	2.10	0.25	1.06	1.51	2.07	1.29	2.10	1.69	2.50	0.60	1.55

.. = not applicable

**Table 44: National summary of decay experience of 5–12 year old children, 2003**

State/ territory	Children in sample	dmft			DMFT		DMFT = 0		d + D = 0
		<i>n</i>	average	SD	%	average	SD	%	%
NSW	..	..	..	..	..	..	..	..	..
Vic	32,254	1.57	2.49	55.7	0.53	1.15	74.1	56.1	
Qld	28,401	2.16	3.08	48.2	0.67	1.59	72.4	56.6	
WA	13,226	1.27	2.13	59.1	0.42	1.06	78.6	68.8	
SA	9,614	1.43	2.31	57.2	0.40	0.94	78.9	65.8	
Tas	3,241	1.63	2.41	52.3	0.51	1.15	74.8	60.4	
ACT	2,109	1.44	2.22	56.5	0.51	1.07	73.5	66.4	
NT	1,653	1.86	2.82	51.3	0.45	1.12	78.5	56.2	
<b>Australia</b>	<b>90,497</b>	<b>1.70</b>	<b>2.64</b>	<b>53.8</b>	<b>0.54</b>	<b>1.28</b>	<b>74.8</b>	<b>59.5</b>	

.. = not applicable due to exclusion of New South Wales from 2003–04 data collection

**Table 45: National summary of decay experience of 5–12 year old children, 2004**

State/ territory	Children in sample	dmft			DMFT		DMFT = 0		d + D = 0
		<i>n</i>	average	SD	%	average	SD	%	%
NSW	..	..	..	..	..	..	..	..	
Vic	30,654	1.57	2.52	56.3	0.55	1.14	73.4	55.1	
Qld	25,646	1.88	2.69	50.7	0.63	1.41	72.4	56.1	
WA	12,612	1.31	2.17	58.3	0.41	1.01	78.6	67.8	
SA	9,148	1.49	2.38	56.4	0.42	0.97	77.8	65.2	
Tas	3,022	1.66	2.50	53.2	0.59	1.22	72.4	56.7	
ACT	1,965	1.36	2.12	58.2	0.51	0.99	72.0	66.0	
NT	1,592	1.81	2.78	52.4	0.42	1.10	79.8	58.5	
<b>Australia</b>	<b>84,639</b>	<b>1.62</b>	<b>2.51</b>	<b>54.8</b>	<b>0.54</b>	<b>1.20</b>	<b>74.4</b>	<b>58.8</b>	

.. = not applicable due to exclusion of New South Wales from 2003–04 data collection

**Table 46: Per cent of children with dmft>0 by state/territory, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		All	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
4	..	..	2,799	41.6	1,515	37.2	1,107	32.6	370	33.2	..	..	174	42.4	5965	38.3
5	3,972	40.9	2,875	54.1	1,582	37.6	1,131	37.1	354	44.2	258	34.9	187	54.5	10359	43.9
6	3,937	46.7	1,767	57.9	1,517	44.2	1,130	47.8	399	51.3	251	47.9	190	59.7	9192	49.1
7	3,900	49.5	3,672	61.2	1,588	49.8	1,156	51.1	429	57.9	257	49.2	204	63.1	11206	54.1
8	4,071	56.5	3,982	63.7	1,609	55.0	1,197	53.6	384	56.8	254	62.0	207	61.8	11705	58.7
9	4,096	57.1	4,392	65.1	1,676	55.1	1,227	55.2	431	60.6	271	61.1	211	61.8	12,305	59.8
10	4,034	51.9	4,721	53.0	1,733	43.6	1,234	46.2	439	60.4	269	40.8	209	49.8	12,639	50.6
All	24,010	50.5	24,208	57.4	11,221	46.2	8,183	46.5	2,807	52.6	1,560	49.3	1,383	56.4	7,3372	51.8

.. = not applicable

**Table 47: Per cent of children with dmft>0 by state/territory, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		All	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
4	..	..	3,019	38.3	1,558	36.4	1,050	33.7	370	38.0	..	..	171	41.4	6,169	37.1
5	3,810	41.7	2,578	50.6	1,500	37.3	1,062	38.7	369	41.8	216	33.4	181	53.8	9,717	43.1
6	3,730	46.8	1,782	53.9	1,394	46.2	1,068	47.2	348	52.5	225	47.8	187	56.5	8,734	48.6
7	3,794	51.2	3,294	61.4	1,507	48.9	1,111	52.0	360	55.9	236	46.1	191	63.0	10,494	54.4
8	3,812	55.0	3,628	61.6	1,584	54.8	1,125	55.2	410	59.2	245	51.2	198	62.5	11,002	57.4
9	3,879	55.7	4,019	59.6	1,647	55.7	1,163	54.9	385	63.7	254	56.3	204	59.7	11,551	57.3
10	3,904	49.0%	3,954	50.8%	1,639	46.3%	1,185	49.3%	384	50.6%	263	52.0%	202	51.1%	11,530	49.4%
All	22,929	49.9%	22,275	54.3%	10,830	46.6%	7,764	47.5%	2,625	51.8%	1,439	48.2%	1,335	55.7%	69,197	50.7%

.. = not applicable

**Table 48: Per cent of children with dmft>0 by state/territory, 2003–2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		All	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
4	...	...	5,819	39.9	3,073	36.7	2,157	33.2	741	35.6	...	...	345	41.9	12,135	37.7
5	7,782	41.3	5,453	52.5	3,082	37.5	2,193	37.9	724	43.0	474	34.2	369	54.1	20,076	43.5
6	7,667	46.7	3,549	55.9	2,911	45.1	2,199	47.5	747	51.9	476	47.8	377	58.1	17,926	48.9
7	7,694	50.3	6,966	61.3	3,095	49.4	2,268	51.5	788	57.0	493	47.7	395	63.0	21,700	54.2
8	7,883	55.8	7,610	62.7	3,194	54.9	2,322	54.4	793	58.1	499	56.7	406	62.1	22,707	58.0
9	7,976	56.4	8,411	62.5	3,323	55.4	2,390	55.0	816	62.1	525	58.8	416	60.7	23,856	58.6
10	7,938	50.4	8,675	52.0	3,372	44.9	2,419	47.7	823	55.8	532	46.4	411	50.4	24,169	50.0
All	46,939	50.2	46,483	55.9	22,051	46.4	15,947	46.97	5,432	52.2	2,999	48.8	2,718	56.1	14,2569	51.3

... = not applicable

**Table 49: Per cent of children with DMFT>0 by state/territory, 2003**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		All	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6	3,937	8.6	1,767	6.7	1,517	5.3	1,130	5.1	399	4.7	251	5.4	190	5.9	9,192	6.9
7	3,900	16.9	3,672	14.3	1,588	12.7	1,156	13.9	429	11.4	257	11.4	204	13.3	11,206	14.7
8	4,071	23.4	3,982	26.5	1,609	18.8	1,197	19.1	384	19.0	254	28.8	207	19.3	11,705	23.3
9	4,096	32.8	4,392	31.8	1,676	25.3	1,227	26.0	431	28.6	271	27.4	211	22.8	12,305	30.3
10	4,034	38.7	4,721	37.6	1,733	29.3	1,234	29.9	439	34.3	269	39.9	209	29.3	12,639	35.9
11	4,128	41.3	4,535	41.2	1,745	37.6	1,258	33.6	420	49.3	269	38.6	215	34.5	12,570	40.1
12	4,115	41.9	2,458	43.3	1,774	36.3	1,280	36.8	384	48.0	280	55.3	229	39.6	10,520	41.2
13	3,967	51.2	4,279	42.8	1,832	46.1	1,278	44.5	447	59.0	230	42.3	246	45.2	12,278	46.8
14	3,523	56.4	4,518	52.5	1,889	49.2	1,292	49.9	453	66.3	260	76.6	443	72.6	12,378	54.6
15	...	...	3,945	51.1	1,925	56.2	1,303	57.4	473	69.2	246	77.2	427	39.3	8,319	54.5
All	35,771	34.4	38,269	36.7	17,289	32.8	12,355	32.3	4,260	39.9	2,587	40.3	2,581	36.9	11,3113	35.1

... = not applicable



**Table 50: Per cent of children with DMFT>0 by state/territory, 2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		All	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6	3,730	6.8	1,782	8.0	1,394	4.4	1,068	4.1	348	5.8	225	6.2	187	4.3	8,734	6.2
7	3,794	15.7	3,294	17.4	1,507	11.6	1,111	12.3	360	17.8	236	12.4	191	13.4	10,494	15.2
8	3,812	25.6	3,628	27.5	1,584	20.1	1,125	21.0	410	29.9	245	26.3	198	19.4	11,002	25.1
9	3,879	31.3	4,019	30.4	1,647	22.8	1,163	26.4	385	35.8	254	31.4	204	23.7	11,551	29.3
10	3,904	40.3	3,954	36.9	1,639	30.5	1,185	31.1	384	34.2	263	36.1	202	27.0	11,530	36.3
11	3,862	42.9	3,892	40.0	1,674	35.3	1,203	36.9	352	48.4	271	49.1	203	32.4	11,457	40.3
12	3,863	46.7	2,498	43.7	1,667	40.1	1,231	39.6	415	44.8	255	51.6	225	35.0	10,154	43.8
13	3,812	47.9	4,455	48.2	1,749	44.9	1,237	46.3	366	55.1	255	48.8	230	48.3	12,104	47.7
14	3,725	57.6	4,181	58.9	1,789	50.1	1,257	51.6	412	64.0	290	57.5	227	35.4	11,882	56.1
15	...	...	4,406	59.4	1,834	56.2	1,279	56.5	473	68.3	270	76.4	254	54.7	8,517	59.2
All	34,381	35.0	36,111	39.5	16,485	32.8	11,859	33.5	3,904	41.5	2,564	40.7	2,122	30.6	107,426	36.3

... = not applicable

**Table 51: Per cent of children with DMFT>0 combined year, 2003–2004**

Age (years)	Victoria		Queensland		Western Australia		South Australia		Tasmania		Australian Capital Territory		Northern Territory		All	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6	7,667	7.7	3,549	7.4	2,911	4.9	2,199	4.6	747	5.2	476	5.7	377	5.1	17,926	6.6
7	7,694	16.3	6,966	15.8	3,095	12.1	2,268	13.1	788	14.3	493	11.9	395	13.3	21,700	15.0
8	7,883	24.5	7,610	27.0	3,194	19.5	2,322	20.0	793	24.6	499	27.5	406	19.3	22,707	24.1
9	7,976	32.1	8,411	31.1	3,323	24.1	2,390	26.2	816	32.0	525	29.3	416	23.3	23,856	29.8
10	7,938	39.5	8,675	37.0	3,372	29.8	2,419	30.5	823	34.2	532	38.0	411	28.2	24,169	36.1
11	7,990	42.1	8,427	40.7	3,419	36.5	2,461	35.2	773	48.9	540	43.9	418	33.5	24,028	40.2
12	7,978	44.2	4,956	43.5	3,441	38.1	2,511	38.2	799	46.4	535	53.6	454	37.3	20,674	42.5
13	7,779	49.6	8,735	45.6	3,581	45.5	2,515	45.4	813	57.2	485	45.7	476	46.7	24,383	47.2
14	7,248	57.0	8,700	55.6	3,678	49.6	2,549	50.7	865	65.2	550	66.5	670	59.9	24,260	55.3
15	...	...	8,351	55.5	3,759	56.2	2,582	57.0	947	68.7	517	76.8	681	45.0	16,836	56.9
All	70,152	34.7	74,380	38.1	33,774	32.8	24,214	32.9	8,164	40.6	5,152	40.5	4,703	34.1	220,539	35.7

... = not applicable

**Table 52: Significant Caries Index (SiC) by individual age and year of examination**

Age (years)	2003		2004	
	SiC (dmft)	SiC (DMFT)	SiC (dmft)	SiC (DMFT)
4	4.71	..	4.93	..
5	5.16	..	5.13	..
6	5.29	0.36	5.40	0.32
7	5.56	0.77	5.62	0.77
8	5.68	1.33	5.44	1.29
9	5.62	1.94	4.97	1.62
10	4.40	2.17	4.11	2.16
11	..	2.62	..	2.65
12	..	2.71	..	2.94
13	..	3.87	..	3.61
14	..	4.63	..	4.38
15	..	4.73	..	5.24

.. = not applicable

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