

# Dental Disease in Children

## INTRODUCTION

Dental caries, also referred to as tooth decay or cavities, is an infectious disease in which bacterial by-products, mainly acids, dissolve the hard tooth surfaces. Dental caries may occur in the pits and fissures, and on smooth surfaces in the hard-to-reach areas between the teeth. The bacteria causing the disease are transmissible, which makes dental caries a communicable disease. If the bacterial activities are not stopped, these bacteria may travel into the tooth structure through the cavitations and reach the dentine and pulp causing pain and abscesses. On average, it takes between one-and-a-half to three years for caries to progress from the outer enamel surface to dentine.<sup>4</sup>



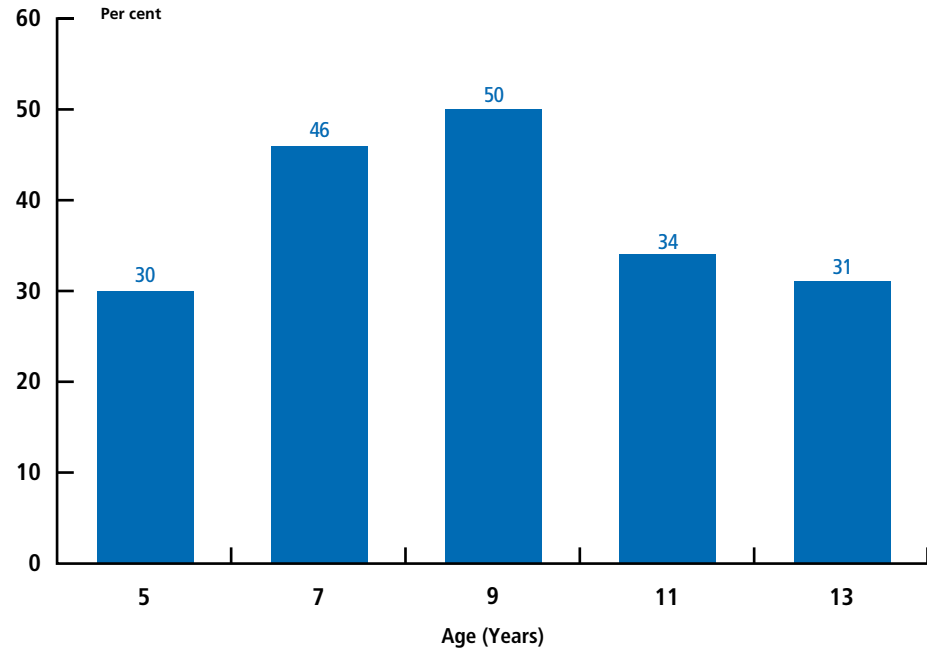
Dental caries is traditionally described using the cumulative history of the disease. The index used is the sum of teeth decayed, missing and filled due to decay (DMFT) in an individual. This index summarizes the total experience of dental caries up to the time of assessment. Summary measures used in this report include the proportion of children who have had caries, and the mean number of teeth affected by caries.

## DENTAL CARIES

Dental caries is assessed as the proportion of the population who have ever experienced caries. Dental caries is defined as having ever experienced tooth decay in any form (DMFT > 0). Generally, caries start early in life and increase with age; however, this observation is obscured among 11 and 13 year old children due to the loss of the primary teeth as part of the natural tooth shedding process. Irrespective of past caries experience, a decayed primary tooth lost as part of the natural shedding process or lost as a result of injury is not included in the total caries experience.

Overall, 38% of Peel children surveyed in 2001/2002 had experienced dental caries. The proportion of children who had dental caries was highest among seven and nine year old children (see Figure 1.1).

**Figure 1.1: Proportion of Children with Dental Caries by Age, Region of Peel, 2001/2002**

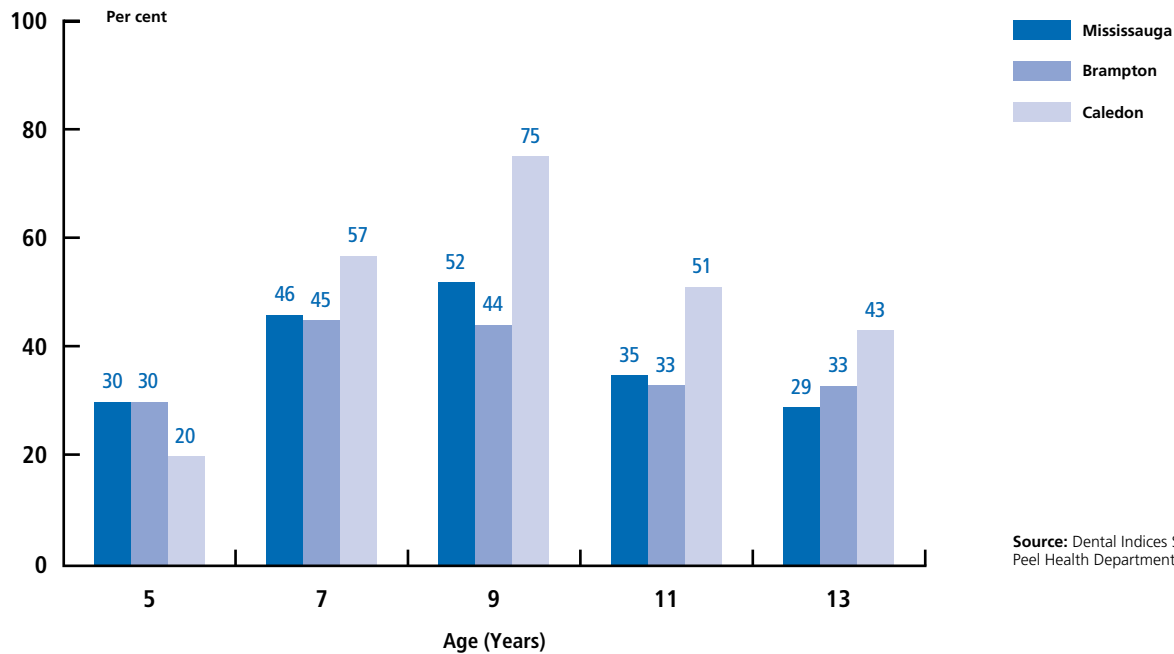


Source: Dental Indices Survey, Region of Peel Health Department, 2001/2002.

The prevalence of dental caries increased from 30% among five year old children to 50% among nine year old children, and then decreased to 34% and 31% among 11 and 13 year old children respectively.

The prevalence of dental caries by age and municipality is described in Figure 1.2 on the following page. Although not shown, the overall proportion of children with dental caries was significantly higher in Caledon (50%) compared to Brampton (37%) and Mississauga (38%). With the exception of children aged five years, the proportion of children with dental caries across all ages was higher in Caledon than the other municipalities. This difference was significant among children aged nine years in Caledon when compared to Brampton and Mississauga. Current comparative provincial data are lacking.

**Figure 1.2: Proportion of Children with Dental Caries by Age and Municipality, Region of Peel, 2001/2002**



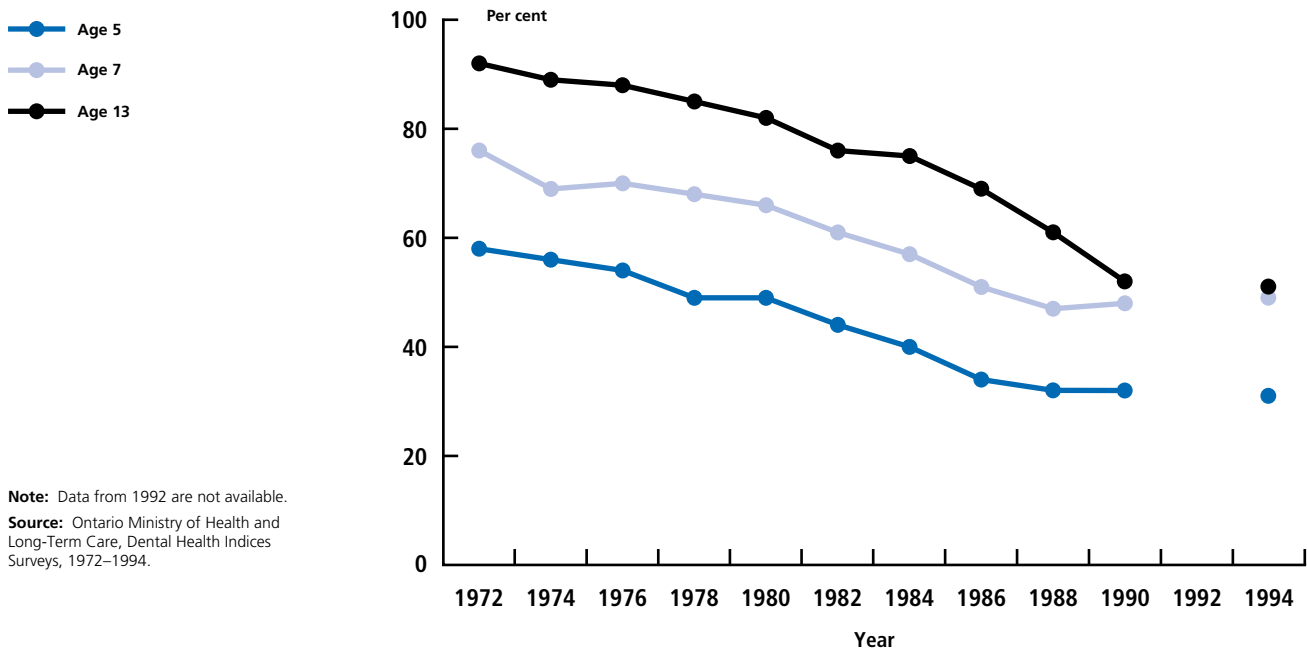
Source: Dental Indices Survey, Region of Peel Health Department, 2001/2002.

A recent collaboration among some Ontario health departments included the compilation of data on dental caries in five year old children for the 2000 school year. The proportion of dental caries among children aged five years in this project ranged between 31% and 39%. The mean number of teeth affected ranged between 1.2 and 1.5. These findings were comparable to data for five year old children in Peel, where 30% had dental caries with a mean of 1.1 teeth affected.

### PREVALENCE OF DENTAL CARIES AMONG CHILDREN IN ONTARIO

There has been a general decline in the incidence of dental caries throughout the industrialized world.<sup>5</sup> Provincial data indicate the incidence of dental caries has declined for children of all ages. In Ontario in 1972, slightly more than half (58%) of children aged five years had experienced dental caries; by 1994, slightly less than one-third (31%) had experienced dental caries (see Figure 1.3 on the following page).

**Figure 1.3: Proportion of Children Aged 5, 7 and 13 Years with Dental Caries, Ontario, 1972–1994**



There was a similar decline in caries incidence among children aged 13 years. In 1972, more than 90% of 13 year old children in Ontario had experienced dental caries. This decreased steadily and by 1994, nearly half of 13 year old children, (51%) had experienced dental caries. Based on these observations, it is likely the same decline in dental caries incidence also occurred in Peel.

### SEVERITY OF DENTAL CARIES

In addition to the prevalence of dental disease, the mean number of teeth affected by caries provides a measure of the extent of disease. The severity of dental disease is defined as the mean number of decayed, missing and filled teeth (mean DMFT). In Peel in 2001/2002, children aged five years had an average of 1.1 teeth affected by decay. The mean DMFT increased to 1.5 teeth affected for children aged seven and nine years, but declined to an average of 0.7 for children aged 13 years. The decline in the mean DMFT for children aged 11 and 13 years was due to the replacement of decayed primary teeth with adult teeth.

The average number of teeth affected by decay for all ages (except children aged five) was higher among children in Caledon than those in Brampton and Mississauga (see Table 1.1 on the following page). In Caledon, children aged 11 years had significantly more teeth affected by decay than those of the same age in Brampton and Mississauga. This finding mirrors the pattern of prevalence of dental decay.

**Table 1.1— Mean DMFT\* by Age and Municipality, Region of Peel, 2001/2002**

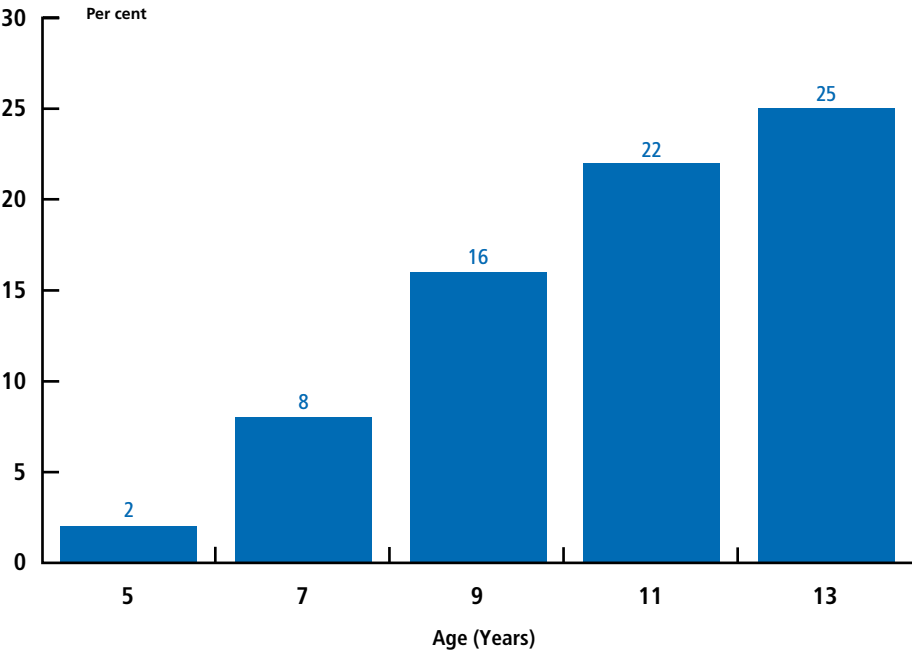
Municipality	Age (Years)					
	Total	5	7	9	11	13
Mississauga	1.1	1.0	1.5	1.6	0.9	0.7
Brampton	1.0	0.9	1.5	1.3	0.8	0.7
Caledon	1.6	0.7	2.0	2.2	1.6	1.3
Peel	1.1	0.9	1.5	1.5	0.9	0.7

\* DMFT is defined as decayed, missing or filled teeth.  
**Source:** Dental Indices Survey, Region of Peel Health Department, 2001/2002.

**GINGIVITIS**

The health of the teeth is complimented by the health of the gums and periodontal ligaments. These structures support the teeth in the jaw bones. Severe periodontal diseases are uncommon among children, although a minority may suffer bleeding gums. Gingivitis, or bleeding gums, is the most common type of periodontal disease. If not controlled, bleeding gums could progress to more severe periodontal disease and early tooth loss. In its most common form, gingivitis is associated with plaque which causes inflammation. Gingivitis may be reversed if proper oral cleaning actions are taken to remove the plaque which contains the bacteria responsible for the inflammation. Overall, 15% of Peel children surveyed had gingivitis in 2001/2002. The prevalence of gingivitis was lowest among children aged five years and increased with age (see Figure 1.4).

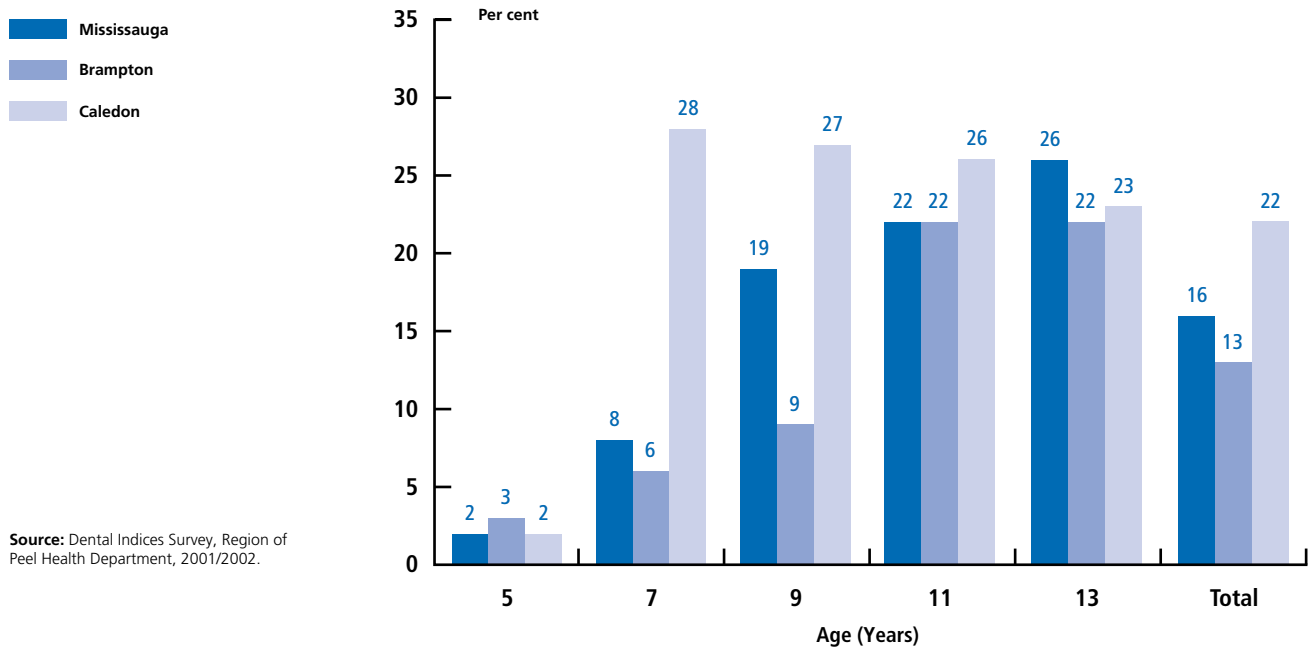
**Figure 1.4: Proportion of Children with Gingivitis by Age, Region of Peel, 2001/2002**



**Source:** Dental Indices Survey, Region of Peel Health Department, 2001/2002.

Although there are no geographic differences in the age of onset of gingivitis, a significantly greater proportion of children aged seven years in Caledon had gingivitis compared with Brampton and Mississauga (see Figure 1.5). All three communities had a similar prevalence of gingivitis among children aged 11 and 13 years. Although the overall proportion of children with gingivitis in Caledon was higher (22%) than Brampton (13%) and Mississauga (16%), the difference was not statistically significant.

**Figure 1.5: Proportion of Children with Gingivitis by Age and Municipality, Region of Peel, 2001/2002**



Source: Dental Indices Survey, Region of Peel Health Department, 2001/2002.

### SUMMARY

Dental diseases, notably dental caries and gingivitis (or gum infections), affect over a third of children in Peel. The prevalence of dental caries increases with age. Overall, 38% of Peel children had experienced dental caries with a mean of 1.1 teeth affected. The prevalence of dental caries was highest among children aged seven and nine years. The overall prevalence and severity of caries were higher in Caledon than in Brampton and Mississauga.

Gingivitis (gum infections) is the most common type of periodontal disease. Overall, 15% of Peel children had gingivitis. The prevalence of gingivitis increased with age and occurred in similar proportions overall in the three municipalities in the Region.