

3

TRAUMATIC DENTAL INJURIES

The Health and Emergency Medical Services Committee recommends the adoption of the recommendation contained in the following report, February 15, 2007, from the Commissioner of Community Services, Housing and Health Services:

1. RECOMMENDATION

It is recommended that:

1. That Regional Council receive this report regarding the results of the “Traumatic Dental Injuries in Ontario Children Age 12 and 14 Years” study.

2. PURPOSE

The purpose of this report is to provide an overview of a study undertaken by the Dental and Nutrition Services Division of York Region Health Services (YRHS) in partnership with the Community Dental Health Services Research Unit (CDHSRU) of the University of Toronto. The study examined the prevalence, causes and quality of life outcomes of traumatic dental injuries in children.

3. BACKGROUND

The “Traumatic Dental Injuries in Ontario Children Age 12 and 14 Years” study was undertaken to provide information on causes, consequences and risk factors for traumatic injury in order to provide a basis to identify preventive interventions to reduce the prevalence of dental injury. For the purpose of this study, dental trauma included any visible injury to a tooth or teeth, including fracture and permanent discoloration.

3.1 Previous Research on the Prevalence of Dental Trauma in Ontario Children

In the last three decades there has been substantial improvement in the oral health of Canadian children, as evidenced by the decline in dental caries. Increasing attention is now being paid to other oral conditions that affect children. Dental trauma has been identified as a condition that appears to be increasing. It also presents as a public health issue due to the prevalence, outcomes, costs and preventable nature of traumatic dental injuries. York Region participated in a preliminary study conducted by the CDHSRU for the Ministry of Health and Long-Term Care (MOHLTC) to assess the prevalence of dental trauma in Grade 8 students in Ontario. The study report, “Prevalence of traumatic dental injury in Grade 8 children in six Ontario communities,” released by the CDHSRU in 2003, found clinical evidence of dental trauma in 18.5% of the children screened.

Injury severe enough to warrant treatment was found in 6% of the children. While information was provided on the prevalence and severity of dental trauma, it did not address causes, consequences or risk factors. The CDHSRU decided to investigate these areas further and invited YRHS to be a study participant.

3.2 Study Objectives

- To provide data on the prevalence of traumatic dental injuries among Ontario children and specific to York Region.
- To provide data on the circumstances and places in which children suffer traumatic dental injuries.
- To compare the oral health-related quality of life of children with dental trauma and children without such injuries.

4. ANALYSIS AND OPTIONS

4.1 Method

A stratified random sample of 15 schools in York Region was selected, of which five were designated as low caries risk, five medium risk and five high risk according to the Ministry of Health Dental Indices Survey Protocol. The target population was children in Grades 6 (11–12 years) and Grade 8 (13–14 years). The study was conducted in two phases: a clinical assessment phase of a large sample of children and a follow-up phase in which selected children and their parents were asked to complete questionnaires concerning family characteristics, oral health and its psychosocial impacts. The clinical assessment phase was carried out during the regular dental screening program in the school. Children with clinical evidence of trauma, along with a comparison group of the next two non-injured children of the same gender, were included in the questionnaire phase. Parents were mailed a letter informing them of the study, a consent form and a questionnaire. A questionnaire to be completed by the child was also included.

4.2 Results

In York Region, 1,847 children (891 in Grade 6 and 956 in Grade 8) completed the clinical assessment phase. A total of 655 children were selected to take part in the questionnaire phase of the study. Completed questionnaires were obtained from 300 parents and their children. Because the response rate was low, data from this phase of the study were adjusted to account for non-response.

4.2.1 Prevalence of Traumatic Injury

In the study, 13.1% of children had evidence of traumatic dental injury on one or more anterior teeth, with 3.7% having injuries beyond enamel fractures. Rates of injury were higher in boys than girls. Among boys, 15.0% had one or more injured teeth compared with 11.2% of females. Rates of injury were marginally higher in older children.

4.2.2 Location of Traumatic Injury

Most injuries occurred in the home (34.2%) or at school (26.0%). Just over 11% occurred in recreational and sports facilities.

4.2.3 Causes of Traumatic Injury

Over half of the injuries were the result of falling (33.7%) and “fooling around” (24.5%). Only 15% occurred while playing sports, and 3.5% were the results of fights or violence.

Table 1 summarizes the prevalence of dental injuries, while Table 2 outlines the location and causes of traumatic dental injuries.

Table 1
Prevalence of Traumatic Dental Injuries

	Percent with one or more incisors with injury	Percent with one or more incisors with severe injury
York Region (all)	13.1	3.7
Grade 6	12.3	3.4
Grade 8	13.8	4.1

Table 2
Location and Causes of Traumatic Dental Injuries

Location of Injury	Percent
At home	34.2
At school	26.0
Swimming pool	7.4
Other sports facility	3.9
Park	7.2
Shopping mall	2.4
In the street	7.7
Other place	11.2
Cause of Injury	Percent
Bicycle accident	5.4
Rollerblading accident	6.9
Playing sports	15.4
Fights/violence	3.5
Fall	33.7
Collision with person or object	9.5
Biting hard food	1.1
Fooling around	24.5

4.2.4 Association with Dental Caries

A significant association was found between traumatic dental injury and dental caries experience. Children with trauma were more likely to have one or more decayed teeth than the comparison group. This is consistent with the preliminary study, which also found higher rates of decay among children with evidence of dental trauma.

4.2.5 Impact on Quality of Life

As shown in Table 3, children with severe injuries (beyond enamel) were more likely to report experiencing various psychosocial impacts as a result of the condition of the teeth and mouth than children with no injury. Significant differences were found for having pain, avoiding laughing or smiling, difficulty biting or chewing foods, and having a hard time paying attention in class.

Table 3
Percent reporting experiencing psychosocial impacts

Impacts	Number of teeth with severe injury		
	None	One	Two or more
Pain in teeth or mouth*	15.6	29.5	27.8
Difficulty biting or chewing foods**	12.5	19.6	41.2
Hard time paying attention in class*	4.7	6.5	16.7
Avoiding laughing or smiling*	8.0	13.1	23.5

4.2.6 Use of Mouth Guards While Playing Sports

Since it was anticipated that many traumatic dental injuries occur during sports play, the use of mouth guards was specifically addressed in the study. Although most children (92%) reported played sports, only 2.5% always wore a mouth guard while playing sports at school. Use of mouth guards was more frequent when playing sports elsewhere, but still low at 8%. The most common reason children gave for not wearing a mouth guard (50.6%) was that no one had told them to wear one. Another 38.8% did not think they needed to. Table 4 summarizes children's responses about the use of mouth guards.

Table 4
Use of Mouth Guards

Percent of children reporting wearing a mouth guard while playing sports			
	Always	Sometimes	Never
While playing sports at school	2.5	2.8	94.7
While playing sports elsewhere	8.0	15.7	76.2
Reasons for not wearing a mouth guard when playing sports (%)			
Reason	Percent giving reason*		
No one has told me to wear one	50.6		
I don't think I need to	38.8		
Too expensive	3.6		
I don't know where to get one	5.8		
I don't look good wearing one	6.2		
Too uncomfortable	8.5		
Makes it difficult to talk or breath	6.8		

* Percent exceeds 100% as children could indicate more than one reason for not wearing a mouth guard during sports.

4.2.7 Association between Personal/Family Characteristics and Quality of Life Scores

Health related quality of life scores showed a gradient across income categories with children from low-income households having poorer oral health related quality of life. Children from households containing only one adult also had higher scores than children living with two or more adults.

4.3 Relationship to Vision 2026

Identifying the causes, consequences and impacts of dental trauma facilitates the development of preventive strategies, thereby supporting the Vision 2026 goal of Responding to the Needs of our Residents.

5. FINANCIAL IMPLICATIONS

There are no financial implications as a result of this report. The CDHSRU is funded by a grant from the MOHLTC. The CDHSRU covered the costs for developing research protocols and methodology, data collection materials and child and parent questionnaires, and for postage. CDHSRU staff also entered and analyzed the data collected. The clinical portion of the study was carried out during the normal YRHS dental screening program. Mailing of the surveys in Phase II was done as part of the screening follow-up process.

6. LOCAL MUNICIPAL IMPACT

Participation in the study assessing traumatic dental injuries in children had no local municipal impact. However, the study results demonstrate a need to increase health promotion messages to the public regarding the use of mouth guards for sports.

7. CONCLUSION

Traumatic dental injuries result in economic and psychosocial costs for children and their families. The “Traumatic Dental Injuries in Ontario Children Age 12 and 14 Years” study showed that 13.1% of children had injured one or more of their anterior teeth, with 3.7% having injuries beyond enamel that would warrant treatment. Most injuries occurred at home or in schools, areas where preventive strategies can be developed and implemented. The fact that most children who play sports reported not wearing mouthguards because no one has told them to, or because they do not think a mouthguard is necessary, is a significant area that needs to be addressed.

YRHS will target health promotion messaging on the importance and proper use of mouthguards to students, teachers, and recreational groups in York Region through a variety of information and educational channels.

The results of the study have been forwarded to the Senior Dental Consultant at the Ministry of Health Promotion for consideration in the new Mandatory Health Programs and Services Guidelines.

The Senior Management Group has reviewed this report.